

JOSHUA EVAN BROWN

Great Lakes Genetics Lab
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CAREER GOALS

I seek to build a career that applies genetic data to the issues facing marine and freshwater fishes and fisheries. I am interested in the genetic consequences of species introductions and human exploitation. This information provides a vital window into both the past and future of the species examined. I plan to use this knowledge to help determine U.S. coastal and marine policy as part of a Sea Grant Knauss Fellowship.

ACADEMIC RECORD:

Ph.D., University of Toledo, 2004 to present (anticipated completion: Spring 2009)

Program: Ecology

Advisor: Dr. Carol Stepien

Dissertation: Genetic Portraits of Introduced Gobies and Mussels in the Great Lakes:
Population Variation Across Spatial and Temporal Scales

M.S., Brigham Young University, 2001-2005

Program: Integrative Biology

Advisor: Dr. Mark Belk

Thesis: Evolution of body size in the genus *Poecilia*: effects of phylogeny, ecology, and mating behavior.

Purdue University, 1999-2000

Program: Population Ecology

Advisor: Dr. Robert Swihart

B.A., Wabash College, 1999 (*cum laude*)

Program: Biology/Chemistry

RESEARCH INTERESTS:

Evolutionary impacts of human activities

Invasive species biology

Ecology of native North American fishes

Integrating scientific knowledge into public policy

AWARDS AND HONORS:

Sea Grant Knauss Fellow, 2009

Great Lakes Fisheries Commission 2008 Travel Award

Best Poster, University of Toledo Graduate Symposium, 2008

Student Travel Award, IAGLR 2007

IAGLR Scholarship, May 2006

Student Travel Award, IAGLR 2006

Best Oral Paper, Life Sciences Div., Univ. of Toledo Chapter Sigma Xi Symposium, April 2005

National Merit Scholar, Wabash College 1994-1999

Wabash Scholar, Wabash College 1994-1999

Boy Scouts of America, Eagle Scout 1994

PUBLICATIONS:

Mills, M. D., M. C. Belk, R. B. Rader, and **J. E. Brown**. 2004. Age and growth of least chub (*Iotichthys phlegethontis*) in wild populations. *Western North American Naturalist* 64(3):409-412.

Stepien, C. A., **J. E. Brown**, M. E. Neilson, and M. A. Tumeo. 2005. Genetic diversity of invasive species in the Great Lakes versus their Eurasian source populations: insights for risk analysis. *Journal of Risk Analysis* 25: 1043-1060.

Brown, J.E., and C.A. Stepien. 2008. Ancient divisions, recent expansions: Phylogeography and population genetics of the round goby *Apollonia melanostoma* across Eurasia. *Molecular Ecology* 17: 2598-2615.

Brown, J.E., and C.A. Stepien. 2009. Invasion genetics of the Eurasian round goby in North America: tracing source and spread patterns. *Molecular Ecology* 18: 64-79.

Feldheim, K.A, P. Willink, **J.E. Brown**, D.J. Murphy, M.E. Neilson, and C.A. Stepien. 2009. Microsatellite loci for Ponto-Caspian gobies: markers for assessing exotic invasions. *Molecular Ecology Resources*, in press.

POSTERS AND PRESENTATIONS: (* DENOTES PRESENTER; N=14)

J. E. Brown* and M. C. Belk. Age and growth of least chub (*Iotichthys phlegethontis*) in natural populations. February, 2001. Annual Meeting of the Bonneville Chapter of the American Fisheries Society. Pocatello, ID, USA.

J. E. Brown* and M. C. Belk. Body size variation in the genus *Poecilia*: phylogeny, ecology, or sexual selection. June, 2004. Evolution 2004, Fort Collins, CO, USA.

J. E. Brown* and C. A. Stepien. Zebra mussels: invaders in space and time. April, 2005. University of Toledo Sigma Xi Symposium 2005, Toledo, OH, USA.

J. E. Brown* and C. A. Stepien. Temporal and spatial genetic comparisons of the zebra mussel across its North American invasion versus Eurasia. May, 2005. IAGLR 2005, Ann Arbor, MI, USA.

J.E. Brown*, M.E. Neilson, and C. A. Stepien. The Eurasian round goby: structure of an invasion. July 2005. ASIH, 2005, Tampa, FL, USA.

C.A. Stepien and **J. E. Brown***. Genetics, ecology, and invasional success: examples from the Great Lakes. October, 2005. ERF 2005, Norfolk, VA, USA.

J.E. Brown* and C. A. Stepien. Round goby genetic variation around the globe. February, 2006. Ohio Fish and Wildlife Managers Association, Columbus, OH, USA.

J.E. Brown* and C.A. Stepien. Round goby population genetics: comparisons between Eurasia and North America.

April, 2006. University of Toledo Sigma Xi Symposium 2006, Toledo, OH, USA.

May, 2006. IAGLR 2006, Windsor, ON, USA.

J.E. Brown* and C.A. Stepien. Round goby source identification using mitochondrial DNA and nuclear microsatellites. February, 2007. Ohio Fish and Wildlife Managers Association, Columbus, OH, USA.

J.E. Brown* and C.A. Stepien. Round goby population genetics. May, 2007. IAGLR 2007, University Park, PA, USA.

J.E. Brown* and C.A. Stepien. Round goby population genetics: Source identification using mitochondrial and nuclear microsatellite markers. September, 2007. University of Toledo Sigma Xi Symposium 2007, Toledo, OH, USA.

J.E. Brown* and C.A. Stepien. Round goby population genetics: source identification using mitochondrial and nuclear microsatellite markers. November, 2007. University of Toledo Department of Environmental Science Fall 2007 Seminar Series, Toledo, OH, USA.

J.E. Brown* and C.A. Stepien. Genetic structure of the North American round goby. February, 2008. Ohio Fish and Wildlife Managers Association, Columbus, OH, USA.

J.E. Brown* and C.A. Stepien. Source Identification for Exotic Eurasian Round Goby (*Apollonia melanostoma*) Populations in North America. August, 2008. American Fisheries Society, Ottawa, ON, Canada.

EMPLOYMENT RECORD:

University of Toledo, Graduate Assistant, 2004-present

Brigham Young University, Graduate Research Assistant, 2004

Brigham Young University, Graduate Teaching Assistant, 2001-2004

Utah Valley State College, Adjunct Faculty, 2002-2003

Purdue University, Graduate Assistant, 1999-2000

TEACHING & PROFESSIONAL ACTIVITIES:

University of Toledo

Graduate Assistant, Department of Environmental Science, 2004-present

Introduction to Environmental Studies:

Graded exams

Maintained grade records

Tutored students

Lake Erie Fish Ecology:

Assisted in field collection of fish using kick seine and electrofisher

Created teaching collection

Aided in identification and cataloging of collection

Lake Erie Center Instructional Displays

Developed and maintained two aquaria displaying native fishes
Prepared interpretive materials for the aquaria displays

Lake Erie Center Instructional Website

Updated the instructional website using Serena Collage Content Management System
Created new websites for grant projects

Brigham Young University

Teaching Assistant, Department of Integrative Biology, 2001-2004

General Biology:

Supervised 60-80 students in small group settings
Maintained grade records
Aided in course development
Led students in independent research projects

Ecology:

Aided in lecture setting
Maintained grade records

Human Anatomy:

Coordinated six lecture teaching assistants
Prepared weekly lecture reviews for 100+ students

Utah Valley State College

Adjunct Faculty (Lecturer), Department of Biology, 2002-2003

General Biology:

Independently prepared syllabus each semester, while following departmental criteria
Taught 2-4 sections each semester
Wrote and administered exams
Maintained grade records

Purdue University

Graduate Assistant, Department of Forestry and Natural Resources, 1999-2000

Mammalogy:

Led two laboratory sections of twenty students each
Taught morphological identification of North American mammals
Developed and administered quizzes and lab practicals
Maintained grade records

Wabash College

Department of Biology, 1998-1999

General Biology:

Prepared weekly laboratory experiments
Maintained *Drosophila* colonies for genetic work

Writing Center, 1997-1999

Peer Tutor:

Aided other students in improving the structure of their papers
Taught effective writing techniques

MENTORING

- Diana Brandon, NSF REU to University of Toledo, 2005.
Population genetics of *Dreissena polymorpha*
- Ian Hoffman, NSF REU to University of Toledo, 2006.
Population genetics of *Apollonia fluviatilis*
- Jennie Ohayon, NSF REU to University of Toledo, 2006.
Population genetics of *Neogobius gymnotrachelus*
- Emily Sopkovich, NSF REU to University of Toledo, 2007
Temporal genetic variation in introduced round goby populations.

PROFESSIONAL MEMBERSHIPS:

- American Association for the Advancement of Science
- American Fisheries Society
- American Society of Ichthyologists and Herpetologists
- International Association for Great Lakes Research
- Ohio Academy of Science
- Sigma Xi
- Society for the Study of Evolution

SERVICE AND OUTREACH

Reviewer:

- Journal of Great Lakes Research (2 papers)
- Prairie Naturalist (1 paper)

Toledo, OH - Venture Scouts, 2005

Taught about water use ethics to 12 scouts and their leaders

Ann Arbor, MI - LDS Hill St. Ward Relief Society, 2006

Presented on invasive and native species issues to 23 women in a church group in Ann Arbor, MI.

Toledo, OH - LDS Second Ward Relief Society, 2006

Presented on native species conservation to 43 women in a church group in Toledo, OH.

Toledo, OH – LDS Second Ward Mission Leader, 2006-2007

Directed the activities of 8-10 full & part-time volunteers
Coordinated with regional & national leadership

Toledo, OH - Toledo Early College High School Env. Science Class, 2007

Taught students how to sample stream fish for ongoing monitoring project

Oregon, OH - Eisenhower Middle School Career Day, 2007

Taught interested students about Environmental Science careers