

CURRICULUM VITAE - JONATHAN M. BOSSENBROEK

ADDRESS:

University of Toledo
Department of Environmental Sciences
Toledo, OH 43606-3390
Email: Bossenbroek.1@nd.edu; Tel. 574-631-2849

PERSONAL:

Born 31 October 1973, married, two children

EDUCATION:

Colorado State University, Ft. Collins, Ph.D. Ecology – 2004

Committee: John Wiens (Advisor), Boris Kondratieff, Thomas Stohlgren, Bea Van Horne
Dissertation: Spatial structure and scaling of beetle, bird and plant communities in North American grasslands

University of Wisconsin - Green Bay, Green Bay, M.S. Environmental Sciences and Policy - 1999

Committee: Jeffrey C. Nekola (Advisor), Clifford Kraft, Gregory Davis

Thesis: Modeling the dispersal of *Dreissena polymorph* (zebra mussel) into the inland lakes of the western Great Lakes region using a gravity model

Calvin College, Grand Rapids, MI, B.S. Environmental Sciences (emphasis in Biology) - 1996

Advisor: Dr. Uko Zylstra

PROFESSIONAL EXPERIENCE:

2005-Present Assistant Professor of Ecology - University of Toledo, Department of Environmental Sciences and the Lake Erie Center

2003-2005 Postdoctoral Research Associate – University of Notre Dame

2002-2003 Graduate Teaching Assistant, Biology Department - Colorado State University

1999-2002 Graduate Research Assistant, Graduate Degree Program in Ecology - Colorado State University

1998-1999 Graduate Research Assistant, Institute for Land and Water Studies – University of Wisconsin-Green Bay

1998 Research Assistant, University of Wisconsin - Green Bay

1998 Research Technician, Great Lakes Research Center. Milwaukee, WI

1997-1998 Graduate Teaching Assistant, University of Wisconsin - Green Bay

1996-1997 Sample Receiving/GIS Technician, FTC&H Analytical Labs/Engineering. Ada, MI

1996 Research Technician, Grand Valley State University - Water Resources Institute. Allendale, MI

COURSES TAUGHT:

Instructor

2006 General Ecology – University of Toledo

2006 Applied Landscape Ecology - University of Toledo

2004 Graduate course in Applied Landscape Ecology – University of Notre Dame

Guest Lecturer

2005 “Spatial Statistics” (Biostatistics – Dr. Mayer) - University of Toledo

2004 "Global ecology" (General Ecology – Dr. Hellman) - University of Notre Dame
Teaching Assistant
2003 Developmental Biology Laboratory – Colorado State University
2002 Zoology Laboratory – Colorado State University
1997-8 Physical Geology Laboratory – University of Wisconsin – Green Bay

PUBLICATIONS (Peer Reviewed):

- Bossenbroek, J.M.**, C.E. Kraft, and J.C. Nekola. 2001. Prediction of Long-Distance Dispersal Using Gravity Models: Zebra Mussel Invasion of Inland Lakes. *Ecological Applications* 11:1778-1788.
- Lehmer, E. M., **J. M. Bossenbroek**, and B. Van Horne. 2003. The influence of environment, energy status, and sex on body temperature patterns of free-ranging black-tailed prairie dogs (*Cynomys ludovicianus*). *Physiological and Biochemical Zoology* 76:72-83.
- Drake, J.M. and **J.M. Bossenbroek**. 2004. The Potential Distribution of Zebra Mussels (*Dreissena polymorpha*) in the U.S.A. *BioScience* 54:931-941.
- Bobeldyk, A.M, **J.M. Bossenbroek**, M.A. Evan-White, D.M Lodge and G.A. Lamberti. 2005. Secondary spread of zebra mussels (*Dreissena polymorpha*) in lake-stream systems. *Ecoscience* 12:414-421.
- Bossenbroek, J.M.**, H.H. Wagner and J.A. Wiens. 2005. Taxon-dependent scaling: beetles, birds and vegetation at four North American grassland sites. *Landscape Ecology* 20:675-688.
- Bossenbroek, J.M.**, J. McNulty and R. Keller. 2005. Can ecologists heat up the discussion on invasive species risk?. *Risk Analysis* 25:1595-1597.
- Leung, B., **J.M. Bossenbroek** and D.M. Lodge. 2006. Boats, pathways, and aquatic biological invasions: Estimating dispersal potential with gravity models. *Biological Invasions* 8:241-254.
- Johnson, L.E., **J.M. Bossenbroek**, and C.E. Kraft. 2006. Pathways and patterns of the post-establishment spread of non-indigenous aquatic species across multiple spatial and temporal scales: the continuing invasion of the zebra mussels in North America. *Biological Invasions* 8: 475-489.
- Bossenbroek, J.M.**, L.E. Johnson and D.M. Lodge. *In press*. Forecasting the expansion of zebra mussels in the United States. *Conservation Biology*.

Submitted

- Iverson, L.R., A. Prasad, **J.M. Bossenbroek**, D. Sydnor, and M.W. Schwartz, M.W. Modeling potential movements of a ash threat. "Advances in Threat Assessment and Their Application to Forest and Rangeland Management" conference General Technical Report.

In Preparation (In draft form to be submitted in next 3 months)

Drake, J.M. and **J.M. Bossenbroek**. Profiling ecosystem vulnerability to invasion by zebra mussels with a support vector machine.

Bossenbroek, J.M and J.M Drake. Habitat overlap between non-native mollusks (*Corbicula fluminea* and *Dreissena polymorpha*) and freshwater mussels (Unionidae) in Tennessee.

Book Reviews

Bossenbroek, J.M. 2004. Review of *Ecosystem Management: Adaptive, Community-Based Conservation* by G.M. Meffe, L. Nielsen, R. Knight, and D. Schenborn (editors.). *Landscape Ecology* 19: 813-814.

INVITED SEMINARS AND SYMPOSIA

Ecological Society of America symposium "Ecological Pattern, Process, and Spatial Extent", Madison, WI 8/2001 – Organized by Drs. Jeff Nekola and Helene Wagner.

The Nature Conservancy Science Day at Colorado State University, Fort Collins, CO 11/2001 – Organized by the Colorado TNC.

American Fisheries Society symposium "Threats to Western Waters", Salt Lake City, UT 3/2004 – Organized by Robert Pitman USFWS

Northeast Aquatic Nuisance Species Panel: Special Zebra Mussel Session, Newport, RI 5/18/2004 – Organized by Charles R. O'Neill, Jr. NY SeaGrant

Bonneville Power Administration – "Assessing the Potential Ecological and Economic Impacts of Zebra Mussels to Western River Systems", Portland, OR 6/15/2004 – Organized by Jim Irish, BPA.

Western Regional Panel for Aquatic Nuisance Species - Anchorage, AK 9/09/2004 – Organized by Tina Proctor, USFWS.

University of Notre Dame – BioMass Student Seminar Series, Notre Dame, IN 10/29/2004.

University of Toledo – "Integrating scale and space in ecological systems: From grasslands to the Great Lakes", Toledo, OH 03/03/2005

Lake Erie Center/Univ. of Toledo – "Onslaught of the Emerald Ash Borer", Oregon, OH 10/11/2005

University of Bowling Green: Department of Biological Sciences Seminar Series – Bowling Green, OH 11/9/2005.

Heidelberg College: Biology Department Evening Colloquium Series – Tiffin, OH 1/26/2006.

Calvin College: Biology Department Seminar Series – Grand Rapids, MI 4/7/2006.

University of Windsor: GLIER Research Seminar Series – Windsor, Ont. 4/20/2006.

US-IALE Symposia on "Connectivity", SanDiego, CA 3/28/2006.

2006 PREISM Organizational Meeting, Washington D.C. 10/18/2006.

PUBLISHED ABSTRACTS OF PRESENTATIONS AT NATIONAL MEETINGS (1st Author Only in years prior to 2005)

Oral

Bossenbroek, J. M. 2001. Gravity Models: From long-distance dispersal to local patterns of movement. Ecological Society of America - Madison, Wisconsin.

- Bossenbroek, J. M. and J. A. Wiens. 2002. Spatial structure of grassland bird communities. 17th Annual Symposium of the International Association for Landscape Ecology, April 2002, Lincoln, Nebraska.
- Bossenbroek, J. M., H. H. Wagner, J. A. Wiens. 2002. Thresholds in community composition: avoiding the presumptions of a priori classification. Ecological Society of America –Tuscon, Arizona.
- Bossenbroek, J. M. and Wiens, J.A. 2003. The scale dependence of species richness and heterogeneity: An analysis of plants and beetles in Colorado and Kansas. 18th Annual Symposium of the International Association for Landscape Ecology, April 2003, Banff Centre, Alberta, Canada.
- Bossenbroek, J.M., D.M. Lodge, J.M. Drake and B. Leung. 2004. Assessing the Potential Ecological and Economic Impacts of Zebra Mussels to Western River Systems. American Fisheries Society – Western Division Annual Meeting. March 2004, Salt Lake City, Utah.
- Bossenbroek, J.M., D.M. Lodge, J.M. Drake and B. Leung. 2004. The Role of Habitat Suitability and Dispersal Potential in Limiting the Range of an Aquatic Invasive Species. 19th Annual Symposium of the International Association for Landscape Ecology. April 2004, Las Vegas, Nevada.
- Bossenbroek, J.M., B. Leung, D.M. Lodge, and J.M. Drake. 2004. Habitat suitability and dispersal potential: Keys to understanding the range of an aquatic invasive species. Ecological Society of America Annual Meeting – Portland, OR.
- Bossenbroek, J.M. 2005. Using gravity models to predict pathways of aquatic invasive species. 20th Annual Symposium of the International Association for Landscape Ecology. March 2005, Syracuse, New York.
- Louis R. Iverson, L.R. A.M. Prasad, D. Sydnor, J.M. Bossenbroek, M.W. Schwartz. 2005. Modeling potential EAB spread through GIS/cell-based/gravity models with data bolstered by web-based inputs. Emerald Ash Borer (EAB) Annual Review and Research Planning Session. Pittsburgh, PA.
- Bossenbroek, J.M., Finoff, D. C., Saphores, J. D., Lodge, D.M. 2005. Evaluating the 100th Meridian Initiative: What is it worth to keep zebra mussels out of the Columbia River? Estuarine Research Federation Biennial Conference. October 2005. Norfolk, VA.
- Bossenbroek, J.M. 2006. The importance of stream connections for the dispersal of aquatic invasive species. 21st Annual Symposium of the International Association for Landscape Ecology. March 2006, San Diego, California.
- Louis R. Iverson, A Prasad, J Bossenbroek, D Sydnor and M Schwartz. 2006. Modeling potential movements of a killer: the emerald ash borer. 21st Annual Symposium of the International Association for Landscape Ecology. March 2006, San Diego, California.
- Bossenbroek, J.M. 2006. The importance of stream connections for the dispersal of aquatic invasive species. IAGLR. May 2006, Windsor, Ontario.
- Louis R. Iverson, A Prasad, J Bossenbroek, D Sydnor and M Schwartz. 2006. Modeling Potential Movements of a Ash Threat: The Emerald Ash Borer. Advances in Threat Assessment and Their Application to Forest and Rangeland Management Conference. July 2006. Boulder, Colorado
- Bossenbroek, J., L. Iverson, A Prasad, J Bossenbroek, D Sydnor and M Schwartz. 2006. Modeling the dispersal mechanisms of the emerald ash borer in Ohio and Michigan. Ecological Society of America. August 2006. Memphis, Tennessee.

Posters

- Bossenbroek, J., C. Kraft, and J. Nekola. 1999. Forecasting the Distribution of Zebra Mussel Infested Inland Lakes using a Production-Constrained Gravity Model. International Association of Landscape Ecologists – 5th World Congress, August 1999, Snowmass, Colorado.
- Bossenbroek, J., H. Wagner, M. Hawks, J. Wiens, B. Van Horne. 2000. Grasshoppers in Space: Comparisons of Multivariate Methods for Analyzing Landscape Patterns. 15th Annual Symposium of the International Association for Landscape Ecology, April 2000, Fort Lauderdale, Florida.
- Bossenbroek, J. M., H. H. Wagner, M. M. Hawks, J. A. Wiens, B. Van Horne. 2001. Scale dependency from Colorado to Kansas: How the environment and the beetles come together. 16th Annual Symposium of the International Association for Landscape Ecology, April 2001, Tempe, Arizona.
- Bossenbroek, J. M., H. H. Wagner, and J. A. Wiens. 2003. Scale dependence or spatial autocorrelation? An analysis of beetle, bird, and plant communities across a regional moisture gradient. 6th International Association for Landscape Ecology World Congress. July 2003. Darwin, Australia.
- Bossenbroek, J. M. and J. McNulty. 2004. Communicating risk messages to diverse audiences. Research Conference on Environment Risk and Nonindigenous Species Invasions in the Great Lakes Region: Risk Analysis, Management, and Communication. Oct. 2004. Cleveland, Ohio.

MEDIA COVERAGE OF RESEARCH and Miscellaneous Publications

- Quoted in “Researchers Studying Zebra Mussel Threat to Columbia Basin”, Columbia Basin Bulletin Jan. 14, 2005 (<http://www.cbulletin.com/Free/33929.aspx>)
- McNulty, J.M., D.M. Lodge, **Bossenbroek, J.** & Keller, R.P. 2004. [Letter] Say no to zebra mussels. Tropical Fish Hobbyist. May 2004 pp.8-9.
- Keller, R.P., J.M. Drake, D.M. Lodge, and **J.M. Bossenbroek**. 2005. Submission to Department of Agriculture on proposed rules 7 CFR Part 319 – Nursery Stock Regulations. Docket ID APHIS-2005-0020, Agency Docket # 03-069-2
- Quoted in “Michigan, Ohio get grant to study invasive species “ by Kevin Walker. Farm World. Nov. 1, 2006.

HONORS/AWARDS

- NASA-MSU Professional Enhancement Award - US - IALE 2000
- CSU Biology Travel Grants - 1999, 2000, 2001, 2002
- Phi Kappa Phi - 1998
- National Dean's List - 1998

EXTERNAL RESEARCH SUPPORT

Current Grants

- USDA NRC/PREISM - \$250,000 for 1 January 2007 – 31 Dec. 2008. Principal Investigator with D. Finnoff – U. Wyoming, L. Iverson – USDA Forest Service (Co-PIs), and P. Lawrence – UT, A. Prasad – USDA Forest Service, D. Sydnor – Ohio State Univ. (Collaborators).
- Evaluating the economic costs and benefits of slowing the spread of the emerald ash borer in the Michigan and Ohio.**

USDA \$728,000 for Aug. 1 2006 – Sept. 1 2009. Co-P.I. with Daryl Dwyer (P.I.) and Kevin Czajkowski (Co-P.I.). **Phytoremediation plant research - Remediation of sites containing mixed contaminants.**

NSF Improvements in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories (FSML). \$25,000. Senior Personnel with C. Stepien (PI), K. Czajkowski, K. Egan, C. Gruden, C. Mayer (Co-P.I.s), and D Dwyer, , D. Moorhead, T. Bridgeman, C. Gruden, H. Gottgens, A. Krause (senior personnel). **Planning Proposal for the Lake Erie Research Center.**

Univ. of Toledo: URAFP - \$12,000 for 1 June 2006 – 31 Dec. 2006. Principal Investigator. **Determining the effects of wetlands on the dispersal of zebra mussels in coupled lake-stream systems.**

NOAA Sea Grant - \$448,664 for June 1 2005 – May 31 2007. Collaborator, with P.I. David Lodge and CoPIs Jason Shogren, David Finnoff and Jennifer Nalbone. **Economic impact of ballast-mediated invasive species in the Great Lakes.**

Past Grants

USDA - \$16,000 for 7 July 2005 – 9 Sept. 2006. Principal Investigator. **Using gravity models to predict the long-distance dispersal potential of the emerald ash borer in the Upper Great Lakes Region.**

NOAA National Sea Grant. \$340,000 for 1 June 2003-31 May 2005. Awarded to David M. Lodge (P.I.), with the following Co-PIs or senior collaborators: Brian Leung (U Notre Dame), Jason Shogren (U. Wyoming), and David Finnoff (U. Central Florida). **Evaluating the ecological and economic value of the 100th Meridian Initiative.** *

US Fish & Wildlife Service. \$40,000 for 2003-2005. Award to David M. Lodge (P.I.) **Evaluating the ecological and economic value of the 100th Meridian Initiative.** *

* - Preliminary analyses were conducted for these proposals and portions were written by J.M. Bossenbroek, and were the means of post-doctoral funding.

Submitted/Pending Grants

Great Lakes Fishery Commission \$146,000 for 1/1/2007 – 2008. Co-P.I. with C. Mayer – U. Toledo (P.I.), T. Bridgeman – U. Toledo (Co-P.I.), and Stuart Ludsin – NOAA-GLERL (Co-P.I.) – Preproposal accepted, full proposal submitted 6/1/2006. **Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch.**

NSF LTREB Program \$450,000 for 2008-2012. Co-P.I. with C. Mayer (P.I.), T. Bridgeman (Co-P.I.) and C. Stepien (Co-P.I.). **Ecosystem Structure and function along a land-lake continuum in the Great Lakes: Analyses of spatial and temporal trends.**

NSF URM. Senior Personnel with Carol Stepien (P.I.), Von Sigler (Co-P.I) and 9 other University of Toledo Senior Personnel. **URM Preliminary Proposal: Undergraduate Research & Mentoring in Environmental Biology on Land-Lake ecosystems**

REVIEWING

Conservation Biology, National Science Foundation, American Midland Naturalist, Landscape Ecology, Ecological Applications, Environmental Management, Ecology

SOCIETIES

Ecological Society of America
International Association of Landscape Ecology
American Institute of Biological Sciences
The Nature Conservancy
Phi Kappa Phi
Sigma Xi - University of Toledo Chapter

SERVICE

University of Toledo

Committees

Lake Erie Center Advisory Board
Sigma Xi - University of Toledo Chapter: Treasurer (2006-)

Graduate Committees

Betsy Bodamer (M.S.) – Major Professor
Colleen Wellington (M.S.) – CoAdvisor with Dr. Chris Mayer
Joshua Brown (Ph.D) – Committee Member
Jacob LaCroix (Ph.D. Defended 4/2006) – Committee Member

Societies/Organizations

National Wildlife Federation – Participant: Symposium on Aquatic Invasive Species and Food Web Disruption: A Meeting of Scientists and Policymakers – 05/02/2005
The Nature Conservancy – Participant: workshop on defining TNC's role in aquatic invasive species – 11/12/2003
IALE – Session Chair: Modeling Species Patterns. Las Vegas, 2004
IALE – Judge: Best Student Presentation. Las Vegas, 2004

Community

Co-led a session on Insect Trapping and identification for the EEES Summer Camp
Participant – Toledo Metroparks Blue Ribbon Panel to assess new information about emerald ash borer.
Hosted the Timberstone Junior High School's Lego team at the Lake Erie Center to discuss environmental threats to Lake Erie 11/2005.
Judge for Kennedy Middle School Science Fair – February 2004
Judge for home-schooled students' science fair in Fort Collins – March 2002
Discussion leader on PBS Evolution series at Immanuel Christian Reformed Church, Fort Collins, CO – Winter 2002

Colorado State University

Graduate Representative – Senior Ecologist Search Committee, 2002-2003
Graduate Representative – Animal Ecologist Search Committee, 2001-2002
Colloquium Speaker Host for Dr. Jeffrey Nekola, 2001
Distinguished Ecologist Host for Dr. Robert Gardner, 2000

University of Wisconsin – Green Bay

President-Graduate Student Union, 1998-99
Graduate Representative – Graduate Studies Oversight Committee, 1997-99

Member-Graduate Student Union, 1997-99