ASHLEY K. ELGIN, PHD

Benthic Ecologist
NOAA Great Lakes Environmental Research Lab
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EDUCATION

PhD in Biology, 2007-2013
University of Notre Dame, Notre Dame, IN. Advisor: Dr. David M. Lodge
Dissertation title: "Invasive rusty crayfish (*Orconectes rusticus*): community impacts and potential for ecosystem recovery."

MA in Biology, 2004-2006
Smith College, Northampton, MA. Advisor: Dr. L. David Smith
Thesis title: "The role of phenotypic plasticity in the interaction between an introduced crab predator and its native snail prey."

BS in Biology, 1997-2001
Michigan Technological University, Houghton, MI

PUBLICATIONS

Peer Reviewed

Leuven, R.S.E.W., A. Boggero, L. Bakker, **A.K. Elgin,** and H. Verreycken. 2017. Invasive species in inland waters: from early detection to innovative management approaches. Aquatic Invasions 12(3): 269–273.

M.D. Rowe, E.J. Anderson, H.A. Vanderploeg, S.A. Pothoven, **A.K. Elgin**, J. Wang, and F. Yousef. 2017. Influence of invasive quagga mussels, phosphorus loads, and climate on spatial and temporal patterns of productivity in Lake Michigan: a 3-D biophysical modeling study. Limnology and Oceanography. (doi:10.1002/lno.1059)

L. S Reisinger, **A. K. Elgin**, K. M. Towle, D. J. Chan, D. M. Lodge. 2017. The influence of evolution and plasticity on the behavior of an invasive crayfish. Biological Invasions 19(3): 815-830

Daigle, R.M., C.J. Monaco, and **A.K. Elgin**. 2017. An adaptable toolkit to assess commercial fishery costs and benefits related to marine protected area network design [version 2; referees: 2 approved]. F1000Research 4:1234 (doi: 10.12688/f1000research.7312.2)

Hundey, E., J. Olker, C. Carreira, R. Daigle, **A.K. Elgin**, et al. 2016. A shifting tide: recommendations for incorporating science communication into graduate training. Limnology and Oceanography Bulletin 25(4): 109-116.

Baldridge, A.K. and D.M. Lodge. 2014. Long-term studies of crayfish-invaded lakes reveal limited potential for macrophyte recovery from the seed bank. Freshwater Science 33(3):788-797.

Sargent, L.W., **A.K. Baldridge**, M. Vega, K. Towle, and D.M. Lodge. 2014. A trematode parasite alters growth, feeding behavior, and demographic success of invasive rusty crayfish (*Orconectes rusticus*). Oecologia DOI 10.1007/s00442-014-2939-1.

Baldridge, A.K. and D.M. Lodge. 2013. Intraguild predation between spawning smallmouth bass and nest-raiding crayfish: implications for bass nesting success. Freshwater Biology 58:2355-2365.

Morse, J.W., **A.K. Baldridge**, and L.W. Sargent. 2013. Invasive crayfish *Orconectes rusticus* (Decapoda, Cambaridae) is a more effective predator of substrate nesting fish eggs than native crayfish (*O. virilis*). Crustaceana 86: 387-402.

Lodge, D.M., A. Deines, F. Gherardi, D.C.J. Yeo, T. Arcella, **A.K. Baldridge**, M.A. Barnes, W.L. Chadderton, J.L. Feder, C.A. Gantz, G.W. Howard, C.L. Jerde, B.W. Peters, J.A. Peters, L.W. Sargent, C.R. Turner, M.E. Wittmann, and Y. Zeng. 2012. Global introductions of crayfishes: evaluating impact of species invasions on ecosystem services. Annual Review of Ecology, Evolution, and Systematics 43: 449-472.

Kreps, T.M., **A.K. Baldridge**, and D.M. Lodge. 2012. The impact of an invasive predator (*Orconectes rusticus)* on freshwater snail communities: insights into habitat-specific effects from a multilake long-term study. Canadian Journal of Fisheries and Aquatic Sciences 69:1164-1173.

Choate, D.M., C.M. Prather, M.J. Michel, **A.K. Baldridge**, M.A. Barnes, D. Hoekman, C.J. Patrick, J. Rüegg, and T.A. Crowl**.** 2012. Integrating theoretical components: a graphical model for graduate students and researchers. BioScience 62:594-602.

Baldridge, A.K. and L.D. Smith. 2008. Temperature constraints on phenotypic plasticity explain biogeographic patterns in predator trophic morphology. Marine Ecology Progress Series 365:25-34.

In Review

Spear, M., **A.K. Elgin**, and E.K. Grey. In Revision. Current and future projected distribution of Red-Eared Slider turtles, *Trachemys scripta elegans* in the Great Lakes basin. American Midland Naturalist. (Under invited revision)

Popular Literature

Baldridge, A.K. 2015. New collaborative takes on invasive mussels. The Great Lakes Sport Fishing News 39(2): 1,3.

Barnes, M.A. and **A.K. Baldridge**. 2009. Louisiana crayfish: the good, the bad, and the delicious. LiveScience. http://www.livescience.com/environment/090403-btscrayfish.html. Posted April 03, 2009.

SELECTED PRESENTATIONS

Elgin, A.K., L.E. Burlakova, A.Y. Karatayev,K. Mehler, and T.F. Nalepa. May 2017. Quagga mussel body condition and size distribution inform recent Lake Michigan population trends. 60th Annual Conference of the International Association of Great Lakes Research Detroit, MI.

Baldridge, A.K, P.W. Glyshaw, K. Dettloff. April 2016. The status of quagga mussel populations in Lake Michigan and complementary growth experiments. International Conference on Aquatic Invasive Species. Winnipeg, Manitoba, Canada.

Baldridge, A.K. March 2016. Dreissenid mussel population trajectories and associated patterns in mussel growth and condition. Great Lakes Center Seminar Series, Buffalo State College, Buffalo, NY.

Baldridge, A.K. March 2016. Invasive dreissenid mussels in the Great Lakes region. Tip of the Mitt Watershed Council Ice Breaker Speaker Series. Petoskey, MI.

Baldridge, A.K. January 2016. The past, present, and future of dreissenid mussels in the Great Lakes. Water at Wayne Seminar Series. Wayne State University, Detroit, MI.

Baldridge, A.K., and T.F. Nalepa. May 2015. The status of dreissenid mussels in the Great Lakes and suggested future research directions. 58th Annual Conference of the International Association of Great Lakes Research. Burlington, VT.

Baldridge, A.K. October 2014. Relative impacts of climate change and Dreissenid mussels on Lake Michigan zooplankton. Aquatic Invasive Species: Impacts and Resources Webinar. North Central Region Water Network, "The Current" Webinar Series.

Baldridge, A.K., G.L. Fahnenstiel, J.R. Liebig, T.F. Nalepa, S.A. Pothoven, E.S. Rutherford, and H.A. Vanderploeg. June 2014. Exploring the relative impacts of climate change and Dreissenid mussels on Lake Michigan zooplankton. Adaptation in the Great Lakes Region Conference. University of Michigan, Ann Arbor, MI.

Baldridge, A.K., G.L. Fahnenstiel, J.R. Liebig, T.F. Nalepa, S.A. Pothoven, E.S. Rutherford, and H.A. Vanderploeg. May 2014. Exploring the relative impacts of climate change and dreissenid mussels on the Lake Michigan zooplankton community. 57th Annual Conference of the International Association of Great Lakes Research. Hamilton, Ontario.

Baldridge, A.K. February 2014. Buying time: evaluating costs and benefits of delaying action to control invasive species. Conservation Ecology Seminar Series, School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI.

Baldridge, A.K. (Invited Lecturer). November 2013. Impacts of invasive species on lake food webs. Aquatic Communities and Ecosystems Course, University of Calgary, Calgary, AB, Canada.

Baldridge, A.K., and D.M. Lodge. June 2013. Intraguild predation between spawning smallmouth bass and nest-raiding crayfish: implications for bass nesting success. 56th Annual Conference of the International Association of Great Lakes Research. West Lafayette, IN.

Baldridge, A.K., and D.M. Lodge. August 2012. Short and long-term impacts and recovery potential for aquatic plant and snail communities in lakes impacted by an invasive omnivore. 97th Annual Meeting of the Ecological Society of America. Portland, OR.

Baldridge, A.K. (Invited Discussion Leader). April 2012. Leadership through outreach. Schmitt Foundation Social Change Through Leadership Conference. Chicago, IL.

Baldridge, A.K. July 2011. Influence of a brief pulse of fish eggs in rusty crayfish (*Orconectes rusticus*) diets on crayfish growth. University of Wisconsin Trout Lake Research Station Seminar Series. Boulder Junction, WI.

Baldridge, A.K., and D.M. Lodge. March 2011. Reciprocal predation between bass and invasive crayfish: energy costs vs. gains for nest-guarding small-mouth bass. Academic Recognition Poster Session. University of Notre Dame, Notre Dame, IN.

Baldridge, A.K., and D.M. Lodge. December 2010. Intraguild predation between bass and invasive crayfish: energy costs vs. gains for nest-guarding smallmouth bass. 71st Midwest Fish and Wildlife Conference. Minneapolis, MN.

Baldridge, A.K., and D.M. Lodge. September 2010. Rusty crayfish impacts in Lake Ottawa and potential control methods. Michigan Department of Natural Resources and the Environment Public Meeting. Iron River, MI.

Baldridge, A.K., and L.D. Smith. August 2009. Dispatches from an invasion front: Does water temperature determine the outcome of an ecological arms race between an introduced crab and its armored prey? Poster presented by L.D. Smith. Sixth International Conference on Marine Bioinvasions. Portland, OR.

Baldridge, A.K., and L.D. Smith. May 2007. Phenotypic plasticity in claw morphology of the introduced crab, *Carcinus maenas*, in response to natural variation in prey armor and water temperature. Fifth International Conference on Marine Bioinvasions. Cambridge, MA.

RESEARCH and WORK EXPERIENCE

Research Benthic Ecologist, 2014-present
National Oceanic and Atmospheric Administration Great Lakes Environmental Research Lab
Conducting experiments and field surveys to improve our understanding of quagga mussel natural history. Maintaining long-term benthic surveys in southern Lake Michigan.

Postdoctoral Research Fellow, 2013-2014
Cooperative Institute for Limnology and Ecosystems Research and The Water Center, University of Michigan School of Natural Resources and Environment and
National Oceanic and Atmospheric Administration Great Lakes Environmental Research Lab
Project Supervisor: Dr. Ed Rutherford. Project: Impacts of Climate Change and Invasive Species on the Lake Michigan Food Web. Compiled long-term biotic and abiotic data for southern Lake Michigan. Analyzed data using structural equation modeling and path analysis.

Research Assistant, 2012-2013
University of Notre Dame, Environmental Change Initiative
Project Supervisor: Dr. Erin K. Grey. Project: Risk Assessment of Organisms in Trade. Compiled trait-based database for amphibians, reptiles, and crayfish. Conducted quantitative analysis of traits associated with successful introductions, and environmental niche modeling for the Great Lakes region.

PhD Candidate, 2007-2013
University of Notre Dame, Department of Biological Sciences
Conducted an investigation of complex food web interactions between rusty crayfish and native fish, plant, and snail communities. Performed extensive field surveys and complimentary lab experiments. Analyzed long-term data sets and developed a bioeconomic model to help inform management plans of invasive species. Hired and managed field-based research teams.

Program Coordinator, 2006-2007
Five College Coastal & Marine Sciences Program, Five Colleges, Inc., Amherst, MA
Supervisor: Dr. Paulette Peckol. Promoted and facilitated student involvement in marine-related studies and research. Composed the monthly newsletter. Publicized and filled scholarship awards for summer internships and other research opportunities. Organized student research symposia and guest speaker events.

Master's Candidate, 2004-2006
Smith College, Department of Biological Sciences
Conducted lab experiments with complimentary field surveys in the Gulf of Maine to examine the role of phenotypic plasticity in the interactions between the invasive green crab and native snail prey.

FUNDING

Federal Research Grants

- Great Lakes Restoration Initiative. 2017. Lake Huron Coordinated Science and Monitoring Initiative Benthic Survey and Mussel Field Experiment, P.I.- A.K. Elgin. $123,500
- Great Lakes Restoration Initiative. 2018. The Role of Dreissenid Mussels in Transforming Nutrient Loads into Harmful Algal Blooms, Lead P.I.- H.A Vanderploeg. Co-P.I.s- T. H. Johengen and A.K. Elgin. $490,000

Postdoctoral and Graduate Fellowships

- CILER and Water Center Postdoctoral Research Fellowship 2013-2014
- National Science Foundation Integrated Graduate Education and Research Traineeship; Global Linkages Of Biology, Environment, and Society (GLOBES) program; 2007-2012
- Arthur J. Schmitt Foundation Graduate Fellowship; 2007-2012
- Bayer Predoctoral Research Fellowship; Fall 2011 and Summer 2012
- University of Notre Dame Environmental Research Center Mentoring Fellowship; Summers 2008, 2009, 2010 and 2011
- Elizabeth B. Horner Fellowship; Summer 2006
- Wilens Research Fellowship; 2004-2006

Graduate Research Grants

- Notebaert Professional Development Grant; Summer 2012; $500
- Graduate Student Union Conference Fund; Summer 2012; $500
- Zahm Research Travel Fund; Fall 2011; $1350
- PADI Foundation Environmental Research Grant; Summer 2011; $4250
- Sigma Xi Grant in Aide of Research; Summer 2009; $800

TEACHING and MENTORING EXPERIENCE

Mentoring Students on Independent Projects

2016-2017: Peter Goodspeed, Shelby LaBuhn, Jenny Par
2015: Kyle Dettloff
2014: Kevin Li
2012-2013: Margaret Corcoran, Michael Spear*°
2011-2012: Stephen Elser*, Claire Soisson*
2010-2011: Victoria Novitsky Blackhorse, Matthew Schirtzinger*, June Shrestha*, Bradley Wells*, David Chan*
2009-2010: Brian Argus, Jessica Choi*, Joshua Morse*°, Matthew Smith
2008-2009: Margaret Baker*, Grace Loppnow, Sam Pecoraro,
2007-2008: Jacqueline Chase*, Justin Poinsatte, Mia Puopolo
2004-2006 (Smith College): Catherine Masek, April Whiting, and Yi Zhang

* Students who presented their work at organized meetings
° Students who lead-authored a publication on their research

University of Notre Dame

Teaching Apprentice, Aquatic Conservation, Spring 2012
Developed lectures and led class discussions for 13 undergraduate and graduate students. Worked with mentor, Dr. David Lodge, on course development and student assessment.

Teaching Assistant, Aquatic Ecology Laboratory, Fall 2009
Assisted 30 students on field trips and in-lab processing of benthic invertebrates, zooplankton, phytoplankton, and water chemistry samples. Graded final reports.

Teaching Assistant, Biostatistics Tutorial, Spring 2009
Lectured 15 students on biostatistics and guided analyses using the programming language R. Graded weekly homework assignments, exams, and final reports.

Smith College

Teaching Assistant, Various Courses, 2004-2006
Invertebrate Diversity, Marine Ecology, Plant Systematics (twice), and Vertebrate Biology labs. Set up lab activities and experiments. Assisted students in the lab and on field trips.

Professional

English Teacher, Changchun Institute of Technology, Changchun, China, 2001-2003
Taught Oral English, Basic and Advanced Writing, and American Culture through Film.
Assisted Chinese colleagues with lesson preparation and content accuracy.
Received two Excellence in Teaching awards (2002, 2003).

COMMUNITY SERVICE/EDUCATIONAL OUTREACH

- Volunteer: Muskegon Water Festival, Reeths Puffer Elementary School, Sept 2017
- Instructor: Limnology Field Methods Class for Washtenaw County Conservation Scholars Program, Oct 2015, 2016
- Featured in Discover Magazine article: "If you can't beat'em, eat'em", March 2015
- Organized NOAA GLERL Information Table for Ann Arbor Green Fair, 2014, 2015
- Volunteer: Great Lakes National Ocean Sciences Bowl, 2014, 2015
- Science Olympiad Coach: Stanley Clark Elementary Invasive Species team, 2013
- Committee chair: Notre Dame-South Bend Science Café (a monthly science seminar geared towards a general audience), 2010-2012
- Science consultant for Sooper Yooper: the Quest of the Blue Crew by Mark Newman, a children's book about invasive species in the Great Lakes region, 2012
- Aquatic invertebrate consultant: St. Joseph County Parks biodiversity survey, 2012
- Presenter: UW Trout Lake Research Station summer open house, 2011
- Contributor: Invasivore.org (an educational blog about eating invasive species)

REVIEWER

- Aquatic Conservation, Biological Invasions, Freshwater Biology, Freshwater Science, Harmful Algae, Journal of Great Lakes Research, Journal of Experimental Marine Biology and Ecology, Proceedings of the National Academy of Sciences, Springer Publishing Company

SKILLS and CERTIFICATIONS

- Proficiency in R, STATA, SAS, JMP
- Proficiency in Elemental Analysis, Stable Isotope Analysis
- Familiarity with ArcGIS
- SCUBA certified (YSCUBA)
- Certificate in Teaching Excellence in Biological Sciences (University of Notre Dame)
- Conversational in Mandarin Chinese