

REUBEN P. KELLER

Assistant Professor  
Department of Environmental Science  
Loyola University Chicago  
Chicago, IL 60660. USA.

Phone: (+1)(773)508-2952  
rkeller1@luc.edu

**RESEARCH POSITIONS:**

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- Loyola University Chicago, Department of Environmental Science** August 2011-present  
Assistant Professor
- University of Chicago, Program on the Global Environment** September 2009-August 2011  
Henry Chandler Cowles Lecturer
- University of Cambridge, Department of Zoology**, Cambridge, UK October 2006-present  
Affiliated Researcher, working with Dr. David Aldridge
- University of Notre Dame, Center for Aquatic Conservation** November 2006-August 2009  
Post-doctoral Research Associate with Prof. David M. Lodge

**EDUCATION:**

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- University of Notre Dame, Department of Biological Sciences**, Notre Dame, IN, USA  
Dissertation: *Ecological and Bioeconomic Risk Assessment for Invasive Species* (Ph.D. October 2006)  
Committee: DM Lodge (Advisor), GA Lamberti, JL Tank, G Belovsky
- Monash University**, Melbourne, Australia  
BA & BSc(Hons), November 2000 (majors: Biology, Statistics, Geography, Philosophy).  
Honors thesis: *An Experimental Study of the Ecological Effects of the Introduced freshwater fish oriental weatherloach* (*Misgurnus anguillicaudatus*). Advisor Prof. P.S. (Sam) Lake.

**EDITED VOLUMES:**

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- Keller RP**, M Cadotte & G Sandiford. Invasive Species in a Globalized World. *In Review*.
- Keller RP**, DM Lodge, M Lewis & J Shogren. 2009. *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy and Management*. Oxford University Press.

**PEER REVIEWED PUBLICATIONS:**

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- Gordon GR, CA Gantz, CL Jerde, WL Chadderton, **RP Keller**, PD Champion. 2012. Weed risk assessment for aquatic plants: modification of a New Zealand system for the United States. *Public Library of Science ONE* 7(7): e40031. doi:10.1371/journal.pone.0040031
- Keller RP** & C Perrings. 2011. International policy options for reducing the environmental impacts of invasive species. *BioScience* 61:1005-1012.
- Springborn M, CM Romagosa & **RP Keller**. 2011. The value of nonindigenous species risk assessment in international trade. *Ecological Economics*. 70:2145-2153.
- Keller RP**, J Geist, JM Jeschke & I Kühn. 2011. Invasive species in Europe: ecology, status and policy. *Environmental Sciences Europe* 23:23.
- Keller RP**, D Kocev & S Džeroski. 2011. Trait-based risk assessment for invasive species: high performance across diverse taxonomic groups, geographic ranges and machine learning/statistical tools. *Diversity and Distributions*. 17:451-461.

- Keller RP**, JM Drake, M Drew & DM Lodge. 2011. Linking Environmental Conditions and Ship Movements to Estimate Invasive Species Transport Across the Global Shipping Network. *Diversity and Distributions* 17:93-102.
- Keller RP** & DM Lodge. 2010. Prevention: designing and implementing national policy and management programs to reduce the risks from invasive species. *In* Perrings C, M Williamson & M Lonsdale (editors). *Bioinvasions and Globalization*. Oxford University Press.
- Keller RP**, PSE zu Ermgassen & D Aldridge. 2009. Vectors and timing of nonindigenous freshwater species establishment in Great Britain. *Conservation Biology* 23:1526-1534.
- Keller RP** & JM Drake. 2009. Trait based risk assessment for invasive species. *In* Keller RP, DM Lodge, MA Lewis & JF Shogren (editors). *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy and Management*. Oxford University Press.
- Keller RP**, DM Lodge, M Lewis, J Shogren & M Krkosek. 2009. Putting bioeconomic research into practice. *In* Keller RP, DM Lodge, MA Lewis & JF Shogren (editors) *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy and Management*. Oxford University Press.
- Lodge DM, M Lewis, J Shogren & **RP Keller**. 2009. Introduction to biological invasions: biological, economic and social perspectives. *In* Keller RP, DM Lodge, MA Lewis & JF Shogren (editors) *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy and Management*. Oxford University Press.
- Bampfylde C, A Bobeldyk, JA Murray, K Drury, **RP Keller**, C McIntosh. 2009. Interactions between theoreticians and empiricists: rusty crayfish as a case-study. *In* Keller RP, DM Lodge, MA Lewis & JF Shogren (editors). *Bioeconomics of Invasive Species: Integrating Ecology, Economics, Policy and Management*. Oxford University Press.
- Keller RP** & DM Lodge. 2009. Invasive Species. *In* GE Likens (editor). *Encyclopedia of Freshwaters*. Elsevier, Oxford, UK.
- Keller RP**, K Frang & DM Lodge. 2008. Preventing the spread of invasive species: intervention guided by ecological predictions leads to economic benefits. *Conservation Biology* 22:80-88.
- Keller RP**, DM Lodge & DC Finnoff. 2007. Risk assessment for invasive species produces net bioeconomic benefits. *Proceedings of the National Academy of Sciences USA* 104:203-207.
- Keller RP** & DM Lodge. 2007. Species invasions from commerce in live aquatic organisms – problems and possible solutions. *BioScience* 57:428-436.
- Keller RP**, JM Drake & DM Lodge. 2007. Fecundity as a basis for risk assessment of nonindigenous molluscs. *Conservation Biology* 21:191-200.
- Keller RP** & PS Lake. 2007. Potential impacts of a recent and rapidly spreading colonizer of Australian freshwaters: Oriental weatherloach (*Misgurnus anguillicaudatus*). *Ecology of Freshwater Fish* 16:124-132.
- Keller RP**, C VanLoon, AN Cox, DM Lodge, L-M Herborg & J Rothlisberger. 2007. From bait shops to the forest floor: earthworm use, transport and disposal by anglers. *American Midland Naturalist* 158:321-328.
- Loo SE, **RP Keller** & B Leung. 2007. Freshwater invasions: using historical data to analyze spread. *Diversity and Distributions* 13:23-32.
- Bossenbroek JM, J McNulty & **RP Keller**. 2005. Can ecologists heat up the discussion on invasive species risk? *Risk Analysis* 25:1595-1597.

## **PUBLICATIONS IN REVIEW:**

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Keller RP and M Springborn. Closing the screen door to new invasions. Invited submission to journal *Trends in Ecology and Evolution*.

## **OTHER PUBLICATIONS (SELECTED):**

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**Keller RP & M Springborn.** 2011. Long-term correlations in European socioeconomic conditions create a bias to conclusion that an invasion debt occurs. *Proceedings of the National Academy of Sciences* 108:E220 (letter to editor).

**Keller RP.** Chicago River is due for a change. *Commentary article in Chicago Tribune*, 1 September 2010, p. 40.

**Keller RP & C Perrings.** 2010. International policy options to reduce the harmful impacts of invasive alien species. *Commissioned report for United Nations Environment Program*.

**Keller RP.** 2007. Trade in live aquatic organisms. *Lakeline Fall 2007:30-31* (review article in lake management publication).

Harris J, L Bowling, **RP Keller**, RJ Keller, J Kress, PS Lake & DC McPhail. 2006. The Tooma River project – interdisciplinary probes into ill-defined and unpredictable contamination. Technical Report. CRC for Freshwater Ecology, Canberra (Australia).

**Keller RP & DM Lodge.** 2005. Probability of nonindigenous seafood species becoming established. *Conservation Biology* 19:287-288 (letter to editor).

Drake JM & **RP Keller.** 2004. Environmental justice alert: do developing nations bear the burden of risk for invasive species? *BioScience* 54:718-719 (op-ed).

## **INVITED ORAL PRESENTATIONS (SELECTED):**

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**Keller RP.** July 2012. Reducing the economic and ecological risks from invasive species. Invited Keynote presentation to the Invasive Species Working Group of the Pacific Northwest Economic Region Annual Meeting. Saskatoon, Canada.

**Keller RP, D Kocev & S Džeroski.** August 2011. Trait-based risk assessment for invasive species: high performance across diverse taxonomic groups, geographic ranges and machine learning/statistical tools. Ecological Society of America. Austin, Texas, USA.

**Keller RP.** October 6, 2010. Community ecology in a globalized world: invasive species, economics and the future of the Great Lakes. Departmental Seminar, Department of Biology, Loyola University.

**Keller RP.** June 2010. Bioeconomics of invasive species. 16<sup>th</sup> Annual German-American Frontiers of Science Symposium (organized and funded by the National Academies of Science). Potsdam, Germany.

**Keller RP.** April 2009. Global shipping networks drive changing risks of invasion. Odum Conference, Understanding and Managing Biological Invasions as Dynamic Processes. Rensselaerville Institute, New York, USA.

**Keller RP, JM Drake, M Drew & D Lodge.** April 2009. Predicting future Great Lakes invaders: global datasets of shipping traffic and environmental conditions identify high-risk shipping routes. International Conference on Aquatic Invasive Species. Montreal, Canada.

**Keller RP, K Frang & DM Lodge.** December 2008. Risks and bio-economic impacts associated with movement of live bait. Midwest Fish and Wildlife Conference. Columbus, Ohio, USA.

**Keller RP**, J Rothlisberger, WL Chadderton & DM Lodge. October 2008. Prevention strategies for limiting the spread of aquatic invasive species by recreational boaters. Natural Areas Association annual meeting. Nashville, Tennessee, USA.

**Keller RP**, PSE zu Ermgassen & D Aldridge. 2007. The history and future of freshwater invasions in Great Britain. London Freshwater Group Spring 2007 meeting. Linnean Society, London, UK.

**Keller RP**, DM Lodge, K Frang & DC Finnoff. 2007. Ecological and economic theory in analyzing risk in biological invasions. Symposium presentation at Ecological Society of America annual meeting, San Jose, CA, USA.

## TEACHING

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**Professor**, Loyola University Chicago Fall 2011-present

- Developed and taught: *Environmental Sustainability* (Fall 2011 & Spring 2012)
- Developed and taught: *Honors, Science and Society* (Fall 2011, Spring 2012, Fall 2012)
- Developed and taught: *The Scientific Basis of Environmental Issues* (Fall 2012)

**Lecturer**, University of Chicago Fall 2009-present

- Developed and taught: *Human Impacts on the Global Environment* (Fall 2009 and 2010)
- Developed and taught: *Freshwater ecosystems of the Calumet region* (Spring 2010 & 2011)

**Teaching Fellow**, University of Notre Dame Fall 2007

- Taught upper level *General Ecology* with Prof. Jennifer Tank.

**Laboratory course coordinator**, University of Notre Dame Spring 2006

- Wrote labs for upper level *Biostatistics* lab course and coordinated 10 teaching assistants.

**Teaching Assistant**, University of Notre Dame Spring 2003 & 2004

- Taught upper level *Biostatistics* lab course section

## MENTORING

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- Mentoring four undergraduate students looking at the international environmental justice issues presented by invasive species, Loyola University Chicago Jan 2012 - present
- Mentoring undergraduate project titled *Impacts of Invasive Plants in the United States, and Adequacy of the Federal Response*, University of Chicago Aug. 2010 - present
- Mentored NSF Research Experience for Teachers fellow (co-author Frang on Keller et al. 2008) Summer 2005
- Mentored NSF Research Experience for Undergraduates student Summer 2004
- Undergraduate research students (>5) during graduate and post-doc career 2001-2009

## GRANT WRITING:

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- **Keller RP** (sole PI). 2012-2014. Invasive Aquatic Species in Illinois: Inventory Species and Update State Management Plan. Proposal to Illinois Department of Natural Resources. Fully funded for \$82k, will support one Masters student.
- **Keller RP (PI), T Hoellein, J Kelly, C Peterson, T Hoang, C Putonti, D Treering (March 2012)**. The Effects of Spatial and Temporal Variation of Measured Abiotic and Biotic Attributes on Ecosystem Health in the Chicago Area Waterways System: Building the Foundation for Scientific Inquiry. Submission to Loyola University Chicago internal grant program "Stimulating Multidisciplinary Research at Loyola's Lakeside Campuses". Funded at \$20,000.

- CL Jerde (lead PI) & **RP Keller**, DM Lodge, A Mahon, C Knapp (co-PIs). 2012. Invasive Species Surveillance of the Bait Trade. Proposal to US EPA. Status: Fully funded for \$273,309, with administrative details being finalized.
- K Bertrand (lead PI), **RP Keller** and 13 others (co-PIs). Cross-cultural analysis of the biological and social consequences of hybridization: lessons from Asian carp. Pre-proposal submitted to NSF with a total estimated budget of \$4.4million. Not successful.
- Lead author of *Preventing Invasions from Trade in Live Aquatic Organisms*, submitted to EPA in January 2010. Proposal successful and fully funded at \$997,364.
- Lead author of *Risk Assessment Framework for Invasive Freshwater Animals*, submitted to USGS in August 2009. Proposal successful and fully funded at \$50,000.
- Successful application to Program on the Global Environment (University of Chicago) competition for funds to support undergraduate research. \$2,500 for academic year 2010-11.
- Co-author of funding proposals to National Science Foundation (3), US Environmental Protection Agency, National Oceanic and Atmospheric Administration (3), National Center for Ecological Analysis and Synthesis (2), Great Lakes Commission.

### ACADEMIC SERVICE:

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- **Proposed and organized** session at the biennial *Chicago Wilderness Congress* (organized by Chicago Wilderness, November 15<sup>th</sup>, 2012) titled “Reimagining the Chicago and Calumet Rivers for the 21<sup>st</sup> Century and Beyond”. The session included four presentations; myself, Debra Shore (elected Commissioner for the Metropolitan Water Reclamation District of Greater Chicago), David St. Pierre (Executive Director of the MWRD), and Josh Ellis (Program Director at the Metropolitan Planning Council). The session was a great success with >200 attendees.
- **Proposed and organized** session for the June 2013 International Association of Great Lakes Research conference, to be held at Purdue University.
- **Organized** *Invasive Species in a Globalized World* Conference, May 2011. This brought researchers together from a range of disciplines, and from across the globe.
- **Associate editor** for journal *Diversity and Distributions*. July 2010 – present.
- **Reviewer** for *Conservation Biology*, *Frontiers in Ecology and the Environment*, *BioScience*, *Diversity and Distributions*, *Ecological Applications*, *Methods in Ecology and Evolution*, *Oikos*, *Limnology and Oceanography*, *Journal of Environmental Management*, *Ecological Economics*, *Biological Invasions*, *American Malacological Bulletin*, *International Journal of Biodiversity Science and Management*, *Limnologica*, book proposals to Oxford University Press.
- **Co-organizer** of Midwest Ecology and Evolution Conference, 2004.

### OUTREACH:

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**Keller RP.** 20 June, 2012. Economic and Environmental Benefits from Risk Assessment for Invasive Species. Presentation given as part of a Congressional Briefing held in the House Office Building, Washington DC.

**Keller RP.** 1 November, 2011. Economic and Environmental Benefits of Risk Assessment for Invasive Species. Presentation given as part of a Congressional Briefing, sponsored by Great Lakes United and the Northeast Midwest Institute, in the Senate Building, Washington DC.

**Lessons from the Gulf Oil Spill** November 3, 2010

- Organized public event at Shedd Aquarium, Chicago, with three expert speakers.

**Asian carp invasion: potential economic and ecological impacts in the Great Lakes** April 6, 2010

- Organized public event at Shedd Aquarium, Chicago, with five expert speakers.

**Developing aquatic species risk assessment tools for U.S. National Invasive Species Council**

- Working with Risk Assessment Working Group to update tools September 2009 – March 2011

**Advisor to City of Chicago program on invasive species** 2006-present

- Advised City as to which species should be banned from sale (many of these species identified through research reported in Keller & Lodge 2007).
- Presented expert testimony at City Council meeting in support of new invasive species ordinance (ordinance passed).

**Member of Indiana Department of Natural Resources working group on risk assessment for aquatic invasive plants** 2007-present

- Developed risk assessment tool for predicting which aquatic plant species proposed for trade are likely to cause harm. Tool is now being used for state policy.

**WORKING GROUP AND POLICY REVIEW GROUP MEMBERSHIP:**

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Member expert peer review panel for Canada's proposed National Biological Risk Assessment Guidelines, June 2008.

Invited participant at *Ecological and Economic Science and Management of Invasive Species*. Workshop to develop recommendations for COP9 of Convention on Biological Diversity, October 2007.

Member *Machine Learning Tools for Ecology* working group. Funded by National Center for Ecological Analysis and Synthesis, 2006-2008.

**UNIVERSITY SERVICE:**

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- Prepared and presented University Seminar *Living on the Roof of the World: Relationships between Humans and the Environment in Tibet* as part of Loyola University Chicago celebration of the Dalai Lama's campus visit.
- Department of Environmental Science representative on the Loyola University Academic Council, August 2011 – present
- Member of two search committees during 2011-12

**AWARDS:**

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- *Outstanding teaching in the Biological Sciences*. University of Notre Dame. 2006.
- *Outstanding Graduate Student Teacher Award for Excellence in Teaching*. Kaneb Center for Teaching and Learning, University of Notre Dame. 2006.
- *Striving for Excellence in Teaching certificate*. Kaneb Center for Teaching and Learning, University of Notre Dame. 2006.
- *Fisher Fellowship* (one semester of stipend) awarded by Department of Biological Sciences in Fall, 2003, in recognition of contributions made to non-academic department life (in particular, establishing and serving as founding president of the Biology Graduate Student Organization).

**PRESS COVERAGE (SELECTED):**

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**Interviewed for:**

- Radio WILL (NPR station in Champaign, IL) *Focus* program, May 25, 2011. Audio online at <http://will.illinois.edu/focus/interview/focus110525b/>
- WBEZ's (Chicago Public Radio) *Worldview*, June 1<sup>st</sup>, 2010. Audio online at [http://www.chicagopublicradio.org/Program\\_wv.aspx?episode=42333](http://www.chicagopublicradio.org/Program_wv.aspx?episode=42333).
- Public Radio International's *The World*, May 5<sup>th</sup>, 2010. Audio online at <http://www.worldscience.org/podcast/elephant-bees-oil-spill-gulf-coast-climate-asian-carp-bald-eagle/>

**Research cited by articles in:** New York Times, Nature Conservancy Magazine, Environmental Science & Technology, newswise.com, suburbanchicagonews.com, Wyoming Public Radio, South Bend Tribune.

**Research described in press releases from:** Union of Concerned Scientists, The Nature Conservancy, Illinois-Indiana SeaGrant, University of Notre Dame, University of Wyoming, the Australian Weeds Co-operative Research Center.