

*Curriculum Vitae*  
**Daniel J. Hocking**

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## **EDUCATION**

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|------|---|
| 2012 | Ph.D. Natural Resources and Environmental Science, University of New Hampshire, Durham, NH              |
| 2007 | M.A. Biological Sciences, University of Missouri, Columbia, MO  |
| 2003 | B.S. Environmental Conservation, minor in Chemical Engineering, University of New Hampshire, Durham, NH |

## **PROFESSIONAL INTERESTS & EXPERIENCE**

### ***Research Interests***

- Statistical advances for modeling populations (mixed models, estimating equations, hierarchical state-space models using Bayesian inference, and integrated population models)
- Faunal response to land-use (forestry, urbanization, disturbance) and climate change (range shifts, population viability, community structure) at varying spatial scales
- Habitat restoration, creation, and mitigation techniques for successful fish and wildlife population maintenance, enhancement, and reintroduction
- Risk tolerance, value of information, and communicating uncertainty for natural resource management decisions

### ***Appointments***

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|----------------|---|
| 2014 – Present | USGS Mendenhall Postdoctoral Fellow, Conte Anadromous Fish Research Laboratory, Turners Falls, MA   |
| 2014 – Present | Postdoctoral Fellow, DOI Northeast Climate Science Center, University of Massachusetts, Amherst, MA |
| 2012 – 2013    | Postdoctoral Research Associate, University of New Hampshire, Durham, NH                            |

## **PUBLICATIONS**

### ***Publication Impact***

Google Scholar: <https://scholar.google.com/citations?user=qIFCelIAAAAJ&hl=en>  
(Citations = 341, h-index = 9)

### ***In Preparation***

**Hocking, D.J.**, J.A. Crawford, W.E. Peterman, and J.R. Milanovich. Setting the baseline: Estimates of current elevational distributions for understanding future climate effects.

**Hocking, D.J.** and B.H. Letcher. A hierarchical model of daily stream temperature for regional predictions.

**Hocking, D.J.**, J. Thorson, and B.H. Letcher. A geostatistical state-space model of abundance for stream networks.

Kanno, Y., **D.J. Hocking**, E. Childress, T. Wagner, N.P. Hitt, K.C. Pregler, B.H. Letcher. Optimal sampling designs for detecting trends in stream fish populations.

### ***Submitted***

Stephens, R.B., **D.J. Hocking**, M. Yamasaki, and R.J. Rowe. *In Review*. Synchrony in small mammal community dynamics across a forested landscape. *Ecography*.

Buckman, K., V. Taylor, H. Broadley, **D.J. Hocking**, P. Balcom, R. Mason, K. Nislow, and C. Chen. *In Review*. Landscape influences on methylmercury bioaccumulation in an urban estuary: Delaware River, USA. *Environmental Science & Technology*.

### ***Published***

Letcher, B.H., **D.J. Hocking**, K. O’Neil, A.R. Whiteley, K.H. Nislow, M.J. O’Donnell. 2016. A robust hierarchical model of daily stream temperature using air-water temperature synchronization, autocorrelation, and time lags. *PeerJ*. 4:e1727

<https://doi.org/10.7717/peerj.1727> [<https://peerj.com/articles/1727/>]

Peterman, W.E., J.A. Crawford, and **D.J. Hocking**. *In Press*. Effects of elevation on plethodontid salamander body size. *Copeia*.

Kanno, Y., K.C. Pregler, N.P. Hitt, B.H. Letcher, **D.J. Hocking**, and J.E.B Wofford. 2016. Seasonal temperature and precipitation regulate brook trout young-of-the-year abundance and population dynamics. *Freshwater Biology*. DOI:10.1111/fwb.12682

Milanovich, J.R., **D.J. Hocking**, W.E. Peterman, and J.A. Crawford. 2015. Effective use of trails for assessing terrestrial salamander abundance and detection: A case study at Great Smoky Mountains National Park. *Natural Areas Journal*. 35(4):590-598. DOI:10.3375/043.035.0412

Anderson, T. L., **D. J. Hocking**, C. A. Conner, J. E. Earl, E. B. Harper, M. S. Osbourn, W. E. Peterman, T. A. G. Rittenhouse, and R. D. Semlitsch. 2015. Abundance and phenology patterns of two pond-breeding salamanders determine species interactions in natural populations. *Oecologia*. 177(3):761-73. DOI: 10.1007/s00442-014-3151-z

Drake, D.L., B.H. Ousterhout, C.D. Shulse, **D.J. Hocking**, W.E. Peterman, T.A. Anderson, K.L. Lohraff, C.A. Conner, E.H. Harper, J.R. Johnson, T.A.G. Rittenhouse, B.B. Rothermel, L.S. Eggert, and R.D. Semlitsch. 2015. Pond-breeding amphibian community composition in Missouri. *American Midland Naturalist*. 174:180-187. DOI: 0.1674/0003-0031-174.1.180

**Hocking, D. J.** and K. J. Babbitt. 2014. Amphibian Contributions to Ecosystem Services. *Herpetological Conservation and Biology*. 9(1): 1-17. (Open Access)

**Hocking, D. J.** and K. J. Babbitt. 2014. The role of red-backed salamanders on ecosystem functions. *PLoS ONE* 9(1): e86854. DOI:10.1371/journal.pone.0086854 (Open Access).

**Hocking, D. J.** 2013. Comparing the influence of ecology journals using citation metrics: making sense of a multitude of metrics. *Ideas in Ecology & Evolution*. 6(1): 55–65. DOI: 10.4033/iee.v6i1.4949 (Open Access).

**Hocking, D. J.**, S. A. Callaghan, K. J. Babbitt, and M. Yamasaki. 2013. Comparison of silvicultural and natural disturbance effects on terrestrial salamanders in northern hardwood forests. *Biological Conservation*. 167:194-202. DOI: 10.1016/j.biocon.2013.08.006

- Hocking, D. J.**, G. M. Connette, C. A. Conner, B. R. Scheffers, S. E. Pittman, W. E. Peterman, R. D. Semlitsch. 2013. Effects of experimental forest management on a terrestrial, woodland salamander in Missouri. *Forest Ecology and Management*. 287: 32-39
- Osborn, M. S., **D. J. Hocking**, C. A. Conner, W. E. Peterman, and R. D. Semlitsch. 2011. Use of fluorescent visible implant Alphanumeric tags to individually mark juvenile ambystomatid salamanders. *Herpetological Review* 42(1):43-46.
- Hocking, D. J.** 2010. *Hyla squirella* (squirrel treefrog) reproduction. *Herpetological Review* 41(1):64.
- Semlitsch, R. D., S. M Blomquist, A. J. K. Calhoun, J.W. Gibbons, J. P. Gibbs, G. J. Graeter, E. B. Harper, **D. J. Hocking**, M. L. Hunter, D. A. Patrick, T. A. G. Rittenhouse, B. B. Rothermel, and B. D. Todd. 2009. Effects of timber management on amphibian populations: understanding mechanisms from forest experiments. *Bioscience* 59(10): 853-862. (Cover Photograph)
- Scheffers, B., E. D. McDonald, **D. J. Hocking**, C. A. Conner, and R. D. Semlitsch. 2009. A comparison of two artificial cover objects for sampling amphibians and reptiles. *Herpetological Review* 40(4): 419-421.
- Babbitt K. J., M. J. Baber, D. L. Childers, and **D. J. Hocking**. 2009. The influence of agricultural upland habitat type on larval anuran assemblages in seasonally-inundated wetlands. *Wetlands* 29(1): 294-301.
- Hocking, D. J.** and R. D. Semlitsch. 2008. Effects of clearcut logging on gray treefrog (*Hyla versicolor*) tadpole performance. *Journal of Herpetology* 42: 689-698.
- Hocking, D. J.**, T. A. G. Rittenhouse, B. B. Rothermel, J. R. Johnson, C. A. Conner, E. B. Harper, and R. D. Semlitsch. 2008. Breeding and recruitment phenology of amphibians in Missouri oak-hickory forests. *American Midland Naturalist* 160: 41-60.
- Semlitsch, R. D., C. A. Conner, **D. J. Hocking**, T. A. G. Rittenhouse, and E. B. Harper. 2008. Effects of timber harvesting on pond-breeding amphibian persistence: testing the evacuation hypothesis. *Ecological Applications* 18(2): 283-289
- Hocking, D. J.** and R. D. Semlitsch. 2007. Effects of timber harvest on breeding site selection by gray treefrogs (*Hyla versicolor*). *Biological Conservation* 138: 506-513.

## **PRESENTATIONS (undergraduate mentored)**

### ***Oral Presentations***

- Hocking, D. J., B. Letcher, K. Nislow, Y. Kanno, M. Ratnaswamy, and J. Wofford. Using single-pass surveys to assess spatial and temporal patterns in Brook Trout abundance: Correcting for imperfect detection. American Fisheries Society Annual Meeting, Quebec City, Canada. August 17-21, 2014.
- Hocking, D. J. The effects of land-use and climate change on amphibian populations. *Invited Seminar*. Environmental Science Seminar Series. University of New Hampshire, Durham, NH. October 11, 2013.
- Hocking, D. J. and K. J. Babbitt. Comparisons of models for analyzing seasonal activity using longitudinal count data. Ecological Society of America Annual Meeting, Portland, OR. August 4-10, 2012.
- Hocking, D. J. A great leap backwards: amphibians in crisis. 2009 Department of Natural Resources and the Environment Seminar Series, UNH, Durham, NH.

- Hocking, D. J. The role of salamanders in ecosystems. 2008 NRESS Student Seminar Series, University of New Hampshire.
- Hocking, D. J., C. A., Conner, E. D. McDonald, B. Scheffers, and R. D. Semlitsch. Initial Effects of Experimental Forest Management on a Terrestrial, Woodland Salamander in Missouri. 2008 Joint Meetings of Ichthyologists and Herpetologists, Montreal, Canada.
- Hocking, D. J. and R. D. Semlitsch. Breeding Site Selection and Tadpole Performance of the Gray Treefrog (*Hyla versicolor*) in Response to a Forest Gradient. 2007 Ecological Society of America Annual Meeting, San Jose, CA.
- Hocking, D. J. Gray treefrog breeding site selection and offspring performance in response to forest management. 2007 Division of Biological Sciences Ecology Seminar Series, University of Missouri.
- Hocking, D. J. The effects of forest management on larval treefrogs: implications for populations. 2006 Division of Biological Sciences Ecology Seminar Series, University of Missouri.
- Hocking, D. J. and R. D. Semlitsch. The use of experimental pools for oviposition by gray treefrogs (*Hyla versicolor*) in four managed forest habitats. 2005 Midwest Fish and Wildlife Conference.

***Poster Presentations*** (undergraduate mentored)

- Hocking, D. J., K. J. Babbitt, M. Yamasaki. Improved Estimation of Forestry Edge Effects Accounting for Detection Probability. 2013. ESA Annual Meeting. Minneapolis, MN.  
<http://dx.doi.org/10.6084/m9.figshare.776927>
- Sargent, P. J., D. J. Hocking, K. J. Babbitt. Relating Hematological Patterns in Red-backed Salamanders to Stress in Different Habitats and Densities. 2013. Undergraduate Research Conference, UNH, Durham, NH.
- Hocking, D. J. and K. J. Babbitt. Comparisons of models for analyzing seasonal activity using longitudinal count data. World Congress of Herpetology Meeting. Vancouver, BC, Canada. August 8-13, 2012.
- Marquis, A. J., D. J. Hocking, K. J. Babbitt. Landscape and local-scale effects on stream salamanders in southeastern New Hampshire. 2012. Undergraduate Research Conference, UNH, Durham, NH.
- Hocking, D. J., and K. J. Babbitt. The contribution of woodland salamanders in ecosystem functions. 2010 Joint Meetings of Ichthyologists and Herpetologists, Providence, RI.
- Wiley, E., D. J. Hocking, K. J. Babbitt. The effects of forest fragmentation on the abundance and body condition of the red backed salamander (*Plethodon cinereus*). 2010 Undergraduate Research Conference, UNH, Durham, NH.
- Hocking, D. J. Contributions of Salamanders to Ecosystem Functions and Services. 2009 Graduate Research Conference, UNH, Durham, NH.
- Hocking, D. J., S. A. Callaghan, K. J. Babbitt, M. Yamasaki. The Effects of Natural and Anthropogenic Disturbance on Red-backed Salamanders in Northern Hardwood Forests. 2008 Joint Meetings of Ichthyologists and Herpetologists, Montreal, Canada.
- Hocking, D. J., S. A. Callaghan, K. J. Babbitt, M. Yamasaki. The Effects of Natural and Anthropogenic Disturbance on Red-backed Salamanders in Northern Hardwood Forests. 2008 Northeast Partners for Amphibian and Reptile Meeting, Powdermill, PA.

- Hocking, D. J., T. A. G. Rittenhouse, B. B. Rothermel, J. R. Johnson, C. A. Conner, E. B. Harper, and R. D. Semlitsch. Breeding and recruitment phenology of amphibians in Missouri oak-hickory forests. 2007 Joint Meeting of Ichthyologists and Herpetologists, St. Louis, MO.
- Hocking, D. J. and R. D. Semlitsch. Effects of forest management on larval gray treefrogs (*Hyla versicolor*). 2007 Life Sciences Week, University of Missouri.
- Hocking, D. J. and R. D. Semlitsch. Effects of forest management on larval gray treefrogs. 2006 Midwest and Northeast meetings of Partners for Amphibian and Reptile Conservation.
- Hocking, D. J. and R. D. Semlitsch. Oviposition site selection by gray treefrogs (*Hyla versicolor*) in four experimental forest habitats. 2006 University of Missouri Life Sciences Week.
- Barlows, A., D. J. Hocking, and R. D. Semlitsch. Effects of shade and predation on survival and growth of larval gray treefrogs (*Hyla versicolor*) in Missouri. 2006 University of Missouri-Columbia Undergraduate Research and Creative Achievements Forum.
- Mahan, R. D., B. B. Rothermel, D. J. Hocking, J. W. Gibbons, and R. D. Semlitsch. Effects of forest management practices on treefrog oviposition site choice. 2005 Summer Undergraduate Research and Creative Achievements Forum, University of Missouri, Columbia, MO.
- Mahan, R. D., B. B. Rothermel, D. J. Hocking, J. W. Gibbons, and R. D. Semlitsch. Effects of forest management practices on treefrog oviposition site choice. 2005 Research Experiences for Undergraduates Program, University of Georgia's Savannah River Ecology Laboratory.
- Wason, C., M. Giguere, M. Driscoll, L. Seydewitz, D. J. Hocking, E. Falton, J. Baker, M. Novak, S. Bradt, J. Campbell, R. Blakemore, and A. Baker. Project Lake Watch: On Golden Pond for lake truthing Landsat and MODIS. 2003 Annual Aquatic Sciences Meeting of the American Society for Limnology and Oceanography.
- Seydewitz, L., M. Driscoll, C. Wason, M. Giguere, D. J. Hocking, E. Falton, J. Baker, M. Novak, S. Bradt, A. Baker, R. Blakemore, and J. Campbell. Project Lake Watch: Monitoring New Hampshire lakes from canoes and satellites. 2003 Annual Aquatic Sciences Meeting of the American Society for Limnology and Oceanography.
- Falton, E., D. J. Hocking, C. Wason, J. Baker, M. Giguere, L. Seydewitz, M. Driscoll, M. Novak, S. Bradt, J. Campbell, R. Blakemore, and A. Baker. Project Lake Watch: Looking at lakes with microscopes and satellites. Presented at the 2003 Annual Aquatic Sciences Meeting of the American Society for Limnology and Oceanography.

## GRANTS, HONORS, AWARDS

2014	USGS Mendenhall Research Fellowship. <i>Hierarchical modeling of climate change effects: Land use impacts on brook trout population persistence.</i>	\$210,000
2012	National Geographic Society. Waitt Grant. <i>Climate change effects on elevational distributions of salamanders in Great Smoky Mountains National Park.</i> J. A. Crawford (PI), D. J. Hocking (Co-PI), J. Milanovich (Co-PI), W. E. Peterman (Co-PI).	\$14,932
2011	University of New Hampshire. <i>Dissertation Year Fellowship. The contributions of woodland salamanders to ecosystem functions.</i>	\$16,500
2011	NH Agricultural Experiment Station. McIntire-Stennis. <i>The role of red-backed salamanders (Plethodon cinereus) in forest-floor ecosystem</i>	\$42,000

*functions*. K. J. Babbitt (PI), D. J. Hocking (Co-PI).

2010	University of New Hampshire. Department of Natural Resources & the Environment. Farrington Fund student travel support.	\$1,000
2010	College of Life Sciences & Agriculture, University of New Hampshire. Graduate Scholarship.	\$500
2010	University of New Hampshire. NRESS Student Research Support.	\$960
2009	University of New Hampshire. Summer T.A. Fellowship.	\$3,125
2008	University of New Hampshire. College of Life Sciences & Agriculture Summer Fellowship.	\$5,000
2008	University of New Hampshire. Summer T.A. Fellowship.	\$3,000
2008	University of New Hampshire. Natural Resources Travel Funds.	\$500
2006	University of Missouri. TWA Scholarship.	\$7,000
2005	University of Missouri. Biology Graduate Student Association Travel Funds.	\$260
2004	Life Science Fellowship, University of Missouri (2004-2006).	\$63,000

## TEACHING EXPERIENCE

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### ***Certifications***

Cognate in College Teaching: 13 Credit Hours in Pedagogy, Teaching Portfolio, Lead Instructor Experience. Center for Excellence in Teaching & Learning, University of New Hampshire  
Software Carpentry Instructor: Online course with Mozilla for instructor certification. Teaching Lab Skills for Scientific Computing (<http://software-carpentry.org/>)

### ***Student Mentoring***

I have mentored 10 undergraduate students (6 women, 4 men) on independent research projects, including multiple first generation college students and one U.S. Army Veteran.

### ***Instructor***

2009	<i>Vertebrate Biology</i> (NR 655), University of New Hampshire
2007	<i>Introduction to Conservation Biology</i> (BIO 105), Moberly Area Community College, Columbia, MO

### ***Teaching Assistant***

2007, 2009	<i>Wildlife Techniques</i> (NR 646), University of New Hampshire
2008	<i>Conservation Biology</i> (NR 650), University of New Hampshire

### ***Tutor***

2008-2010	<i>Sociology Statistics</i> (Soc 502), University of New Hampshire
2010	<i>Introductory Biology</i> (Bio 412), University of New Hampshire
2010	<i>Freshwater Resources</i> (NR 504), University of New Hampshire
2009	<i>Contemporary Conservation Issues</i> (NR 435), University of New Hampshire

### ***Environmental Education***

2003-2004	<i>Senior Environmental Intern</i> , National Audubon Society MD-DC, Bozman, MD
2001-2002	<i>Naturalist/Interpreter</i> , Seacoast Science Center, Rye, NH

## ACADEMIC SERVICE

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Cofounded the New Hampshire R Users Group (<http://www.nhusers.wordpress.com>), including organizing weekly meetings and securing corporate sponsorship. 2013 – 2014.  
Organizer. NRESS Seminar. University of New Hampshire. Helped organize the spring seminar series for the Natural Resource and Earth System Science program. 2008.  
Vice President. Biology Graduate Student Association. University of Missouri. 2005-2006.  
Webmaster. Land-use Effects on Amphibian Populations (LEAP) Collaboration ([www.leap.missouri.edu](http://www.leap.missouri.edu)). 2004-2005.  
Webmaster. Missouri Chapter of the Society for Conservation Biology. 2005-2006.  
Co-Chair. Outreach Committee for the Missouri Chapter of the Society for Conservation Biology. 2005-2006.  
Journal Referee: Conservation Biology, Copeia, Ecosphere, Forest Ecology and Management, Herpetological Conservation and Biology, Herpetological Review, Journal of Herpetology, Journal of Wildlife Management, Northeastern Naturalist, Oikos, PeerJ, PLoS ONE, Urban Ecosystems, Wetlands

## OUTREACH

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Taxonomic Expert. Gulf of Maine Research Institute, Vital Signs citizen science program. 2014 – present.  
Guest Speaker. Great Smoky Mountain Institute at Tremont, GSMNP, NC. July 2012. Talked to science camp group about salamander biodiversity in Great Smoky Mountains National Park.  
Guest Speaker. Traip Academy, Kittery, ME. May 2011. Discussed college programs in math and science and career paths in ecology and conservation with high school seniors.  
Guest Speaker. Dover High School, Dover, NH. February 2008. Discussed the writing process with sophomore English classes.  
Guest Speaker. Hickman Highschool Biology Club. October 2006. Amphibians, reptiles, and college planning for aspiring biologists.  
BioBlitz Organizer and Team Leader. Columbia, MO. 2005-2006, <http://BioBlitz.missouri.edu>.

## PROFESSIONAL AFFILIATIONS

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American Fisheries Society  
Ecological Society of America  
Society for Conservation Biology  
Society for the Study of Amphibians and Reptiles  
The Wildlife Society