

SYDNE RECORD

RESEARCH ASSOCIATE

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POSTDOCTORAL FELLOW

Michigan State University
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Research interests

Ecological modeling, Bayesian statistics, Temperate and tropical forest ecosystems, Biogeography, Landscape ecology, Impacts of global change on biodiversity, Plant demography, Community ecology, Conservation biology, Host-parasite interactions, Paleoecology

Education

2010 University of Massachusetts Amherst

Ph.D. Plant Biology

Dissertation: Conservation while under invasion – Insights from a rare hemiparasitic plant, Swamp Lousewort (*Pedicularis lanceolata* Michx.)

Advisor: Aaron Ellison

2003 University of Puget Sound

B.S. Biology (Honors)

Thesis: Vascular plant biodiversity at Spray Park, Mount Rainier National Park

Advisor: Katherine Glew

Professional appointments

2013- Postdoctoral Fellow, Michigan State University, East Lansing, MI

Advisors: Andrew Finley and Rich Kobe

2012- Research Associate, Harvard Forest, Harvard University, Petersham, MA

2012-2013 Lecturer, Smith College, Northampton, MA

2010-2012 Postdoctoral Fellow, Harvard Forest, Harvard University, Petersham, MA

Advisors: Aaron Ellison, Matthew Fitzpatrick, Kristina Stinson

Grants, fellowships, and awards (*Note PI and co-PIs indicated on grants)

2014 National Science Foundation (Pending – Preliminary proposal invited for full proposal), “Integrating distributions, demography, and traits in a Bayesian informatics framework: does a process-based approach improve models of tree distributions?” (PI: M. Evans, co-PIs: S. McMahon, S. Record, C. Merow)

2013 Ecological Society of America Scaling Up Early Career Scientist Travel Award (\$600)

2012-2013 Long Term Ecological Research Network Office, “A guide to successful graduate student socio-ecological research: Insights from the Long Term Ecological Research Network.” \$9,225 (PI: S. Record)

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- 2012-2014 British Ecological Society, “Demographic tradeoffs in parasitic plants: Cheating towards success?” \$8,000 (PI: O. Jones, co-PIs: R. Salguero-Gomez, M. Crawley, S. Record)
- 2012 Harvard University Postdoctoral Development Award, \$1,000.
- 2009-2011 Long Term Ecological Research Network Office, “Identifying the benefits and barriers to graduate student urban cross-site socio-ecological research” \$8,100 (PI: Romolini, co-PIs: J.M. Grove, L. Ogden, S. Record, S. Geiger, Y. Marusenko)
- 2011 Nantucket Biodiversity Initiative, \$500, “Leaf mines and galls of Nantucket and Tuckernuck Islands.” (PI: C.S. Eiseman, Co-PIs: S. Record, N.D. Charney)
- 2009-2010 University of Massachusetts Amherst Gilgut Fellowship, \$30,000
- 2009-2010 National Science Foundation, Division of Biological Sciences, \$12,715, “Testing the effects of priors on prediction error in Bayesian demographic models” (PI: A.M. Ellison, Co-PI: S. Record)
- 2007-2010 Massachusetts Natural Heritage and Endangered Species Program, \$8,000, “Conservation while under invasion: Insights from a rare hemiparasitic plant, *Pedicularis lanceolata*. (PI: S. Record)
- 2009 New England Botanical Club, \$1,000, “*Pedicularis lanceolata* in Massachusetts.” (PI: S. Record)
- 2007 University of Massachusetts Natural History Collections, \$1,500, “Core and edge populations of *Pedicularis lanceolata*.” (PI: S. Record)
- 2007 University of Massachusetts Amherst R.J. Davis Botany Grant, \$1,300, “Core and edge populations of *Pedicularis lanceolata*.” (PI: S. Record)
- 2006-2007 University of Massachusetts Amherst Gilgut Fellowship, \$30,000.

Publications (An * indicates an undergraduate co-author):

- Visser, M.D., S.M. McMahon, P. Dixon, C. Merow, **S. Record**, and E. Jongejans. *In review*. Speeding up ecological and evolutionary computations in R. Target journal: *PLoS Computational Biology*.
- Lee, S.Y., J.H. Primavera, F. Dahdouh-Guebas, K. McKee, J.O. Bosire, S. Cannicci, K. Diele, F. Fromard, N. Koedam, C. Marchand, I. Mendelssohn, N. Mukherjee, and **S. Record**. *In press*. Redefining the ecological roles and services of tropical mangrove ecosystems. *Global Ecology and Biogeography*.
- Merow, C., J.P. Dahlgren, C.J.E. Metcalf, D. Childs, M.E.K. Evans, E. Jongejans, **S. Record**, M. Rees, R. Salguero-Gomez, and S.M. McMahon. 2014. Advancing population ecology with Integral Projection Models: a practical guide. *Methods in Ecology and Evolution*, 5:99-110.
- Charney, N.D. and **S. Record**. 2013. Performing a population viability analysis from data students collect on a local plant. *Teaching Issues and Experiments in Ecology*, 9(2).
- Romolini, M., **S. Record**, R. Garvoille, R.S. Geiger, and Y. Marusenko. 2013. The next generation of scientists: Examining the experiences of graduate students in network-level science. *Ecology and Society*, 18(3):42.
- Labich, W.G., E. Hamin, and **S. Record**. 2013. Regional conservation partnerships in New England. *Journal of Forestry*, 111(5):326-334.
- Record, S.**, N.D. Charney, R.M. Zakaria, and A.M. Ellison. 2013. Projecting global mangrove species and community distributions. *Ecosphere*, 4(3):34.

- Record, S.**, M.C. Fitzpatrick, A.O. Finley, S.D. Veloz, and A.M. Ellison. 2013. Should species distribution models account for spatial autocorrelation? A test across eight millennia of climate change. *Global Ecology and Biogeography*, 22:760-771.
- Baiser, B., J. Olden, **S. Record**, J. Lockwood, and M. McKinney. 2012. Pattern and process of biotic homogenization in the New Pangaea. *Proceedings of the Royal Society B* 279:4772-4777.
- Record, S.** 2011. Plant species associated with a regionally rare hemiparasitic plant, *Pedicularis lanceolata* (Orobanchaceae), throughout its geographic range. *Rhodora* 113:125-159.
- Sackett, T.E., **S. Record**, S. Bewick, B. Baiser, N.J. Sanders, and A.M. Ellison. 2011. Response of macroarthropod communities to the loss of hemlock (*Tsuga canadensis*), a foundational species. *Ecosphere* 2:1-16.
- Record, S.** 2009. A world of opportunists, the parasitic plants. (Book review) *Ecology* 90: 857-858.
- Ellison, A.M., **S. Record**, A. Arguello* and N.J. Gotelli. 2007. Rapid inventory of the ant assemblages in a temperate hardwood forest: Species composition and sampling methods. *Environmental Entomology* 36:766-775.

Manuscripts in preparation

- Goring, S.J., J.W. Williams, D.J. Mladenoff, C.V. Cogbill, **S. Record**, C. Paciorek, J. Zu, J.S. McLachlan, and M.C. Dietze. Gridded settlement-era forest composition data for the upper Midwestern United States. Target journal: *Ecology*
- Record, S.**, A.M. Ellison, and N.J. Gotelli. Informed priors improve demographic matrix model forecasts for northern pitcher plants (*Sarracenia purpurea* L.). Target journal: *Ecosphere*.
- Record, S.**, P.F.B. Ferguson, E. Beneviste, R.A. Graves, V.W. Pfeiffer, M. Romolini, C. Yorke, and B. Beardmore. Graduate students navigating social-ecological research: Insights from the Long Term Ecological Research Network.

Popular press and technical reports

- Record, S. 2011. A world of opportunists, the parasitic plants. *Massachusetts Wildlife Magazine*. 3: 4-11.
- Record, S., K. Schwarz, E.M. Cook, and G. Losada. 2010. Making interdisciplinary research work. Long Term Ecological Research Network News.
- Record, S. 2009. Rare plant fact sheets for Bristly Buttercup (*Ranunculus pennsylvanicus*), Philadelphia Panic Grass (*Panicum philadelphicum*), and Swamp Lousewort (*Pedicularis lanceolata*). Natural Heritage and Endangered Species Program, Massachusetts Division of Fisheries and Wildlife.
- Farnsworth, E.J., K. Frost, P. Somers, and S. Record. 2007. Management plan for *Pedicularis lanceolata* Michx. Natural Heritage and Endangered Species Program, Massachusetts Division of Fisheries and Wildlife.

Software

- Charney, N.D. and S. Record. 2009. Vegetarian: Jost Diversity Measures for Community Data. R package version 1.1. Online at <http://CRAN.R-project.org/package=vegetarian>.

Teaching experiences

- 2012-2013 Lecturer Smith College, Northampton, MA

- BIO 154 - Biodiversity, Ecology, and Conservation two semesters (introductory undergraduate core course for science majors and non-science majors), BIO 154 – Biodiversity, Ecology, and Conservation Laboratory two semesters, and BIO 507 – Seminar: Advances and Problems in Biological Sciences one semester (graduate student seminar).
- 2011 Instructor, Mixed Models Workshop, Harvard Forest, Petersham, MA
Taught faculty and postdocs from around the world about mixed models and integral projection demographic models. Led in collaboration with Elizabeth Crone.
- 2011 Adjunct Professor, Keene State College, Keene, NH
BIO 363 – Plant Biology one semester (upper division undergraduate course with integrated lectures and laboratories).
- 2005-2009 Graduate Teaching Assistant, University of Massachusetts Amherst, MA
BIO 100 & BIO 101 Laboratory – Introductory Biology I and II (introductory undergraduate core course for science majors and non-science majors) four semesters, BIO103 – Plant Biology Laboratory one semester (introductory undergraduate course for science majors), and BIO 485 – Aquatic Vascular Plants one semester (field-based upper division undergraduate course with integrated lectures and laboratories).
- 2006 Instructor, University of Massachusetts Amherst, MA
NRC 697B – Biostatistics Journal Club one semester (discussion-based graduate student course).

Mentoring experiences

- 2006-2011 Primary mentor for 8 undergraduates (Alexander Arguello, Elisabete Baker, Laura Hancock, Peter Jenkins, Linn Jennings, Israel Marquez, Sam Safran, and Erin Schaeffer) through the Harvard Forest Research Experiences for Undergraduates Program, Petersham, MA. Of these, 3 were from traditionally under-represented groups.
- 2009 Supervised two undergraduate students (Amy Mays and Bronwyn Murre) assisting with greenhouse and field research for grant projects at the University of Massachusetts Amherst.
- 2009 Supervised a high school student (Jacob Trombley) who was assisting with grant projects at Harvard Forest, Petersham, MA.

Invited seminars

- Towards more process-based species distribution models. Michigan State University's Hanover Seminar Series, East Lansing, Michigan (2013)
- Approaches to scaling up ecological data. National Ecological Observatory Network, Boulder, Colorado. (2013)
- How not to get lost in the woods. Harvard Forest Summer Research Experiences for Undergraduates Program, Petersham, Massachusetts (June 2010-2013)
- Grad School 101, Smith College Life Sciences Lunch Bag Seminar Series, Northampton, Massachusetts (2012)
- An integral projection model for a metapopulation. Max Planck Institute for Demographic Research, Rostock, Germany (2012)

- Climate change and species distributions: From ancient forests to mangrove swamps. Smith College, Department of Biological Sciences (2012)
- Conservation, invasion, and hemiparasitic plants. Lecture for Hampshire College Rare Species course, Amherst, Massachusetts (2011)
- Best management practices for Swamp Lousewort. Massachusetts Natural Heritage and Endangered Species Program, Westborough, Massachusetts (2010)
- Conservation while under invasion. University of Massachusetts Amherst, Plant Biology Program (2008)
- Seed dispersal: Implications for forest regeneration. University of Massachusetts Amherst Plant Biology Program (2005)
- Vascular plants and lichens of Spray Park, Mount Rainier, Washington. Mount Rainier National Park Headquarters (2003)

Invited workshops

- The Ecological Society of America's Scaling Up workshop for early career scientists, Baltimore, Maryland (2013) *Participant*
- Identifying best practices for graduate student social-ecological research, Coweeta Long Term Ecological Research Site, Otto, North Carolina (2013) *Organizer*
- Identifying best practices for graduate student social-ecological research, All Scientist Meeting of the Long Term Ecological Research Network, Estes Park, Colorado (2012) *Organizer*
- Mangrove Management and Function working group at the Small Fisheries Federation of Pambalaw-Chilaw Lagoon, Sri Lanka (2012) *Participant*
- Integral Projection Models working group at the Max Planck Institute for Demographic Research, Rostock, Germany (2012) *Participant*
- PALEON: Paleoecological Observation Network working group at University of Wisconsin Madison, Madison, Wisconsin (2011, 2013); University of California Berkeley, Berkeley, California (2012); Harvard Forest, Petersham, Massachusetts (2011) *Participant*
- Spatial autocorrelation in ecological models group at University of Hamburg, Hamburg, Germany (2010) *Participant*
- Likelihood methods in ecology group at Institute for Ecosystem Studies, Millbrook, New York (2006) *Participant*

Academic Service

- Student Councilor of the New England Botanical Club, Cambridge, Massachusetts (2009-2010)
- Reviewer of manuscripts submitted to: *American Journal of Botany*, *American Naturalist*, *Basic and Applied Ecology*, *Biological Conservation*, *Biological Invasions*, *Diversity and Distributions*, *Ecology*, *Ecology Letters*, *Ecological Monographs*, and *Rhodora*.
- Reviewer of grant proposals submitted to the Research Council of Norway

Community Service / Outreach

- Duggan Middle School Forest Park Bioblitz, Springfield, Massachusetts (2010)
- Activity leader for Ecological Society of America's Strategies for Ecology Education, Diversity and Sustainability (SEEDS) visit to Harvard Forest (2008)

Professional affiliations

Ecological Society of America, Long Term Ecological Research Network, and the New England Botanical Club

Presentations at scientific conferences

- S. Record, M. Romolini, R. Garvoille, R.S. Geiger, and Y. Marusenko. 2012. The next generation of scientists: Examining the experiences of graduate students in network-level science. All Scientist Meeting of the Long Term Ecological Research Network, Estes Park, Colorado. Poster presentation.
- S. Record, N.D. Charney, R.M. Zakaria, and A.M. Ellison. 2012. Projecting global mangrove distributions in response to climate change. 3rd Meeting on Mangrove Ecology, Functioning, and Management, Galle, Sri Lanka. Oral presentation.
- S. Record, J.L. Jennings, and K.A. Stinson. 2012. Variation in the vital rates of Ragweed (*Ambrosia artemisiifolia* L.) along an urban-rural and temperature gradient. Ecological Society of America Annual Meeting, Portland, Oregon. Oral presentation.
- S. Record, M.C. Fitzpatrick, A.O. Finley, A.M. Ellison, and S. Veloz. 2011. Exploring spatial autocorrelation and spatial random effects in tree species distribution models. Ecological Society of America Annual Meeting, Austin, Texas. Oral presentation.
- S. Record and N.D. Charney. 2010. Projecting from the past to test the effects of informative priors on forecasts of extinction risk made by Bayesian demographic models. Ecological Society of America Annual Meeting, Pittsburgh, Pennsylvania. Oral presentation.
- S. Record and N.D. Charney. 2010. Projecting from the past to test the effects of informative priors on forecasts of extinction risk made by Bayesian demographic models. International Society for Conservation Biologists Annual Meeting, Edmonton, Alberta, Canada. Oral presentation.
- S. Record, T.E.S. Sackett, S. Bewick, B. Baiser, N.J. Sanders, and A.M. Ellison. 2009. Response of macroarthropod communities to the loss of hemlock (*Tsuga canadensis*), a foundational species. Harvard Forest Annual Symposium, Petersham, Massachusetts. Oral presentation.
- S. Record, S.D. Frey, A.R. Contosta, and A.M. Ellison. 2009. Soil warming and nitrogen deposition in a northeastern forest. Long Term Ecological Research Network All Scientists Meeting, Estes Park, Colorado. Poster presentation.
- S. Record, A.M. Ellison, and N.J. Gotelli. 2009. The influence of informed versus uninformed priors on forecasts of growth rates and extinction risks of a New England population of northern pitcher plants (*Sarracenia purpurea* L.). Ecological Society of America Annual Meeting, Santa Fe, New Mexico. Poster presentation.
- S. Record. 2008. Conservation while under invasion. Harvard Forest Annual Symposium, Petersham, Massachusetts. Poster presentation.
- S. Record, A.M. Ellison, A. Arguello, and N.J. Gotelli. 2007. Rapid inventory of the ant assemblages in a temperate hardwood forest: species composition and assessment of sampling methods. Black Rock Forest Consortium Symposium, Cornwall, New York. Oral presentation.
- S. Record, A.M. Ellison, and A. Arguello. 2006. Ant biodiversity at the Simes Tract of Harvard Forest, Petersham, Massachusetts. Long Term Ecological Research Network All Scientists Meeting, Estes Park, Colorado. Poster presentation.

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S. Record. 2003. Vascular plants and lichens of Spray Park, Mount Rainier, Washington. Regional Murdock Undergraduate Research Symposium, Walla Walla, Washington. Oral presentation.

Languages: Spanish

Programming languages: R and Unix

Updated May 31, 2014.