

Steven Patrick Brady

Biology and Ecology
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EDUCATION	2013	Ph.D., School of Forestry & Environmental Studies, Yale University. Advisor: David Skelly Dissertation: Evolutionary and Ecological Consequences of Roads and Runoff
	2007	M.E.Sc., School of Forestry & Environmental Studies, Yale University. Advisor: David Skelly Thesis: Disturbed wetlands support higher avian biodiversity
	2001	B.A., Fine Arts. Major: Music; Minor: Biology, Saint Michael's College, Vermont, cum laude Senior project: Authored and performed one-man play (<i>Soulstice</i>)
PROFESSIONAL EXPERIENCE	2016 – present	Evolutionary Ecologist Biology and Ecology Water and Land Resources, King County, Seattle, WA
	2014 – 2016	Postdoctoral Associate & Lecturer Vermont Coop. Fish & Wildlife Unit / Rubenstein School of Environment and Natural Resources, University of Vermont
	2013 – 2014	Postdoctoral Researcher NOAA Northeast Fisheries Science Center
	2008 – 2011	Scientist Advisor to Board of Trustees, Mianus River Gorge Preserve, Bedford, NY
	2005 – 2007	Research Assistant, Skelly Lab, Yale University
	2002 – 2003	Environmental Health Volunteer, Kenya. U. S. Peace Corps
	FELLOWSHIPS AND HONORS	2014 – 2015 2007 - 2010 2007

2006 John A. MacLean Scholar, Yale University
 2005 Leonard Carpenter Scholar, Yale University
 2001 Class Achievement Award, Saint Michael's College
 2000 Class of 1989 Scholarship, Saint Michael's College
 1999 – 2000 McCarthy Arts Scholarship, Saint Michael's College
 1997 – 2000 Connecticut Resident Scholarship, Saint Michael's College

PUBLICATIONS

Brady, S. P. and D. Goedert. *Accepted*. Positive sire effects and adaptive genotype by environment interaction occur despite pattern of local maladaptation in roadside populations of an amphibian. *Copeia*.

Brady, S. P. and J. L. Richardson. *In press*. Shifting gears in road ecology toward evolutionary perspectives. *Frontiers in Ecology and the Environment*.

- To be featured as cover story due out in March 2017 issue

Hall, E. M., **S. P. Brady**, N. Mattheus, R. Earley, M. Diamond, L. J. Rissler, and E. J. Crespi. *In press*. Physiological consequences of exposure to high-salinity roadside ponds on wood frog larvae and adults. *Biological Conservation*.

Richardson, J. L., **S. P. Brady**, I. J. Wang, and S. F. Spear. 2016. Navigating the pitfalls and promise of landscape genetics. *Molecular Ecology*.

Langen, T.A, K. M. Andrews, **S. P. Brady**, N. E. Karraker, and D. J. Smith. 2015. Road effects on habitat quality for small animals. In (K.M Andrews, P. Nanjappa, S. P.D. Riley eds.) Roads and Ecological Infrastructure: Concepts and Applications for Small Animals. Johns Hopkins Press.

Brady, S. P. 2013. Microgeographic maladaptation and deme depression in a fragmented landscape. *PeerJ*.

-open access: <https://peerj.com/articles/163/>

-Featured in *Unnatural Selection*, 'Featured article' on Peerj.com

Brady, S. P. 2012. Road to evolution? Local adaptation to road adjacency in an amphibian (*Ambystoma maculatum*). *Scientific Reports*. 2: 235.

-open access: <http://www.nature.com/articles/srep00235>

-Featured in *Nature Asia-Pacific Research Highlights*, *The New York Times*, *Aeon* (<https://goo.gl/wgkFaH>), *United Press International*, *Science Daily*, *Science Line* (<http://goo.gl/jCxAGM>), *Environment Yale* (story by Carl Zimmer (<http://goo.gl/LLx862>)), *This View of Life*, *Unnatural Selection*, *New Haven Register*, *Southern Rhode Island Newspapers*, *Waterbury Republican*

American (cover story), *The Hartford Courant*, *AmphibiaWeb* (featured 'Species of the Week'), *Froglog*, and others.

**MANUSCRIPTS
IN REVIEW**

- Brady, S. P.** *In revision (Oecologia)*. Early exposure does not explain putative maladaptation in road-adjacent populations.
-Preprint available at <http://biorxiv.org/content/early/2016/12/19/095273>
- Brady, S. P., J. L. Richardson, and B. K. Williams.** *In revision (Evolutionary Applications)*. Incorporating long and short-term evolutionary patterns improves environmental toxicology for diverse freshwater taxa.
- Brady, S. P., F. Zamora-Camacho, D. Goedert, M. Mar Comas, and R. G. Calsbeek.** *In review (Ecology Letters)*. Rethinking the negative impacts of roads on amphibian adaptation.
- Brady, S. P., A. P. Hendry, A. Gonzalez, and D. I. Bolnick.** Maladaptation. *In review (Philosophical Transactions of the Royal Society B)*.
*This is a 'theme issue' proposal for an 18-paper issue on maladaptation.

**MANUSCRIPTS
IN PREPARATION**

- Brady, S. P., A. P. Hendry, D. A. Bolnick, et al.** (20-person working group) *In prep.* Maladaptation revisited. Target journal: *TREE*.
- Brady, S. P., J. Katz, and T. M. Donovan.** *In prep.* Improving estimates of harvested populations: an applied framework for regional scale conservation. Target journal: *Ecological Applications*.
- Brady, S. P., B. Williams and J. L. Richardson.** *In prep.* A meta-analysis of road salt toxicity on aquatic taxa. Target journal: *Environmental Pollution*.
- Brady, S. P., E. Monosson, C. W. Matson, and J. W. Bickham.** *In prep.* Toward an evolutionary basis in toxicology. Target journal: *Evolutionary Applications*.

GRANTS

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|-------------|--|
| 2014 - 2016 | Canadian Institute of Ecology and Evolution. Maladaptation working group. \$12,548 |
| 2014 - 2016 | Quebec Centre for Biodiversity Science. Maladaptation working group, \$9,622 . |
| 2012 | Yale Student Assembly Conference Travel Award, \$400 |
| 2010 | National Science Foundation Doctoral Dissertation Improvement Grant: Road mediated divergence in an amphibian, \$15,000 |
| 2010 | Sigma Xi Grants-in-Aid of Research, \$800 |
| 2010 | Hixon Center for Urban Ecology, Yale University, \$5,000 |
| 2009 – 2012 | Doctoral Travel Fund, School of Forestry & Env. Studies, Yale University, \$1,600 |

2009 Dissertation Grant, Yale Institute for Biospheric Studies, **\$5,000**
 2009 Lefor Grant, Connecticut Association of Wetland Scientists, **\$1,000**
 2009 – 2011 Mianus River Gorge Preserve, **\$21,000**
 2008 Conchologists of America Academic Grant, **\$1,500**
 2008 The Malacological Society of London Research Grant, **\$1,900**
 2008 American Museum of Natural History **\$1,000**
 2007 Center for Field Ecology, Yale Inst. for Biospheric Studies, **\$1,500**
 2006 Environmental Studies Scholarship, Annie’s Homegrown, **\$1,000**
 2006 Federated Garden Club of Connecticut Grant, **\$4,000**
 2006 Global Internship, School of Forestry & Env. Studies,
 Yale University, **\$2,500**
 2005-2008 Carpenter/Sperry/Mellon Grant, **\$3,000**

**TEACHING
EXPERIENCE**

2015-16 Lecturer, Rubenstein School of the Environment and
 Natural Resources, University of Vermont
Courses developed and taught:
 Wildlife Behavior (Fall 2015)
 Terrestrial Wildlife (with lab, Spring 2016)

2015 Guest Lecture: Aquatic Ecology. Providence College

2009 Teaching Fellow, School of Forestry & Env. Studies,
 Yale University: Doctoral Seminar

2009 Teaching Fellow, School of Forestry & Env. Studies,
 Yale University: Ecology Seminar

2007, 2008 Teaching Fellow, School of Forestry & Env. Studies, Yale
 University: Landscape Ecology

2006 Teaching Fellow, Department of Ecology and Evolutionary Biology,
 Yale University: Conservation Biology

2002 Yearlong Substitute Teacher, Montpelier High School, VT:
 Math/Biology

**INVITED
SEMINARS**

2016 Local adaptation and maladaptation in roaded landscapes. Clarkson
 University.

2014 Road to evolution or Highway to Hell. Syracuse University.

2014 Runoff spurs evolutionary effects in amphibians. University of Connecticut
 Road Salt Conference.

- 2013 Contemporary evolution in fragmented habitats. Woods Hole Oceanographic Institution.
- 2013 Eco-evolutionary consequences of roads and runoff. Univ. of Maine.
- 2012 Adaptation and maladaptation in a roaded landscape. McGill University.
- 2011 A salted salamander, assaulted frog: Tales from the road. Yale Forests Summer Seminar Series.
- 2010 Amphibians falling by the wayside: The perils of living in roadside wetlands. Mianus River Gorge Preserve.
- 2008 Road to Evolution. Landscape Ecology (graduate course). Yale University
- 2008 Species-Area Relationships. Landscape Ecology (graduate course). Yale University
- 2008 Life on the edge: Amphibians in roadside pools. Yale Forests Summer Seminar Series.
- 2007 Metapopulations II. Landscape Ecology (graduate course). Yale University
- 2007 Metapopulations I. Landscape Ecology (graduate course). Yale University
- 2006 Research methodology. Evolutions (after school program). Yale Peabody Museum of Natural History.
- SYMPOSIA & WORKING GROUPS**
- 2017 Maladaptation. Canadian Society for Ecology and Evolution Annual Meeting. Symposium: Ecological, Evolutionary and Environmental Synthesis in the 21st century.
- 2016 Adaptation and maladaptation in roadside amphibians. Joint Meeting of Ichthyologists and Herpetologists: Symposium on Contemporary Evolution.
- 2015 Co-organizer/leader, CIEE and QCBS working group on Maladaptation
- 2015 Shifting gears in road ecology. Organized Session: Road Ecology – Moving Forward. Ecological Society of America (ESA) Annual Meeting.
- 2012 Bushey J. T. & **Brady, S. P.** Vernal Pools: Road Effects on Biochemical Cycling & Amphibian Performance. CT Assoc. of Conservation & Inland

Wetlands Commissions 35th Annual Meeting & Environmental Conference.

2012 Roads induce local adaptation in a salamander but maladaptation in a frog. Organized Session: Contemporary Evolution Amid the Human Enterprise. ESA Annual Meeting.

2010 Road to perdition: Amphibians in roadside pools. Roads Symposium. Joint Meeting of Ichthyologists and Herpetologists.

2010 Road to perdition: The impacts of roads and runoff on a wetland amphibian. Organized Session: Beyond the Pavement: Road Network Structure, Use and Ecological Responses in Backcountry Environments. ESA Annual Meeting.

**CONTRIBUTED
PRESENTATIONS**

2016 **Brady, S. P.** and K. H. MacNeale. Drivers of stream macroinvertebrate diversity in the Puget Sound region. Society for Freshwater Scientists Pacific Northwest Chapter Annual Meeting.

2014 Hall, E. M., **Brady, S. P.**, and Crespi, E. J. Mapping the susceptibility landscape: the crossroads of physiology and disease dynamics. Society for Integrative and Comparative Biology Annual Meeting.

2014 Cholewiak, D., **Brady, S. P.**, Corkeron, P., Davis, G., Risch, D., and Van Parijs, S. Toward acoustically derived population estimates. Acoustical Society of America.

2014 **Brady, S. P.** Adaptive and maladaptive responses of roadside amphibians. Genomes to Biomes.

2011 **Brady S. P.** Population and evolutionary consequences of roads on two amphibians. International Conference on Ecology and Transportation.

2010 **Brady S. P.** Road to perdition: Impacts of road adjacency and runoff on wetland amphibians. Northeastern Partners in Amphibian and Reptile Conservation Annual Meeting.

2010 **Brady S. P.** The consequences of road proximity and runoff on wetland amphibians. Student Conference on Conservation Science. American Museum of Natural History Center for Biodiversity and Conservation: Annual Symposium.

2010 **Brady S. P.** 2010. Road to perdition: amphibians in roadside pools. Connecticut Conference on Natural Resources. University of Connecticut.

- 2010 **Brady S. P.** Amphibians in roadside wetlands. Doctoral Conference. Yale University School of Forestry and Environmental Studies.
- 2009 **Brady S. P.** The eco-evolutionary effects of road adjacency and road salt on the wood frog (*Rana sylvatica*). ESA Annual Meeting. Archived online at <http://precedings.nature.com/documents/3674/version/2>
- 2009 Bushey J. B., **Brady S. P.**, Acevedo C., and Skelly D. K. Influence of roadway proximity on metal uptake and bioavailability in a wetland dwelling amphibian. Society of Environmental Toxicology and Chemistry (SETAC) North America Meeting.

OUTREACH

- 2016 Coordinated social media science outreach at King County
- 2016 Project leader/mentor, Lake Champlain Research Experience for Undergraduate Program, University of Vermont
- 2016 Vernal pool guide, Williamstown Elem. School, Williamstown, VT
- 2015-2016 Eco-walk guide, Union Elementary School, Montpelier, VT
- 2015 Eco-volunteer, All Together Now Preschool, East Montpelier, VT.
- 2014 Undergraduate research mentor, Calsbeek Lab, Dartmouth College
- 2013 Mentor, Summer Mentorship Program, NOAA NEFSC.
- 2009 - 2010 Mentor (mentee: Mason Curtis), Mianus River Gorge ecology mentorship program for high school students
- 2007 Lecturer and field instructor, Yale Peabody Museum 'Evolutions' outreach program for underserved youth

OTHER EXPERIENCE

- 2003 – 2004 Website Developer, Outdoor Gear Exchange, Burlington, VT
- 2000 – 2003 Rock & Ice Climbing Instructor, Acadia National Park, Maine

FIELD/RESEARCH ASSISTANTS

- 2011-2012 Bret Bement, Southwestern College (2004)
- 2010 Samantha Attwood, B.S. Biology, Yale University (2012)
- 2010 Geoffrey Giller, B.S. Biology, Amherst College (2010)
- 2009, 2010 Jacquelyn Burmeister, B.S. Biology (2009), Duke University
- 2008 Gabrielle Antonioli, B.S. Biology (2012), Montana State University

PROFESSIONAL SERVICE

2016 – 2017 Guest Associate Editor, *Evolutionary Applications*

2014 Session presider, Genomes to Biomes

2012 Invited plenary speaker, U.S. Environmental Protection Agency workshop on major ion toxicity

2012 Organizer, ESA oral session on contemporary evolution in human-modified environments

2011 Reviewer of undergraduate training module on amphibian declines. American Museum of Natural History Center for Biodiversity and Conservation: Network of Conservation Educators and Practitioners

2011 Invited panelist, Student Conference on Conservation Science – New York (SCCS-NY) workshop on balancing family & career

2010 - 2012 Co-organizer, SCCS-NY. American Museum of Natural History

2010 Guest Editor, *Northeastern Naturalist*

2010 NEPARC working groups on roads

2009 –10, -12 Session presider, ESA annual meetings

2008 Dynamic website database development, SWARMS project.
<http://www.swarms.org>

Peer reviewer for:

Biological Conservation, Biological Journal of the Linnean Society, Canadian Journal of Zoology, Ecography, Ecology, Ecosphere, Evolutionary Applications, Herpetologica, Journal of Applied Ecology, Journal of Herpetology, Molecular Ecology, National Science Foundation (ad hoc), Northeastern Naturalist, Oecologia, PeerJ

PROFESSIONAL MEMBERSHIPS American Assoc. for the Advancement of Science, Ecological Society of America, NY Academy of Sciences, Sigma Xi (The Scientific Research Society)

COLLABORATORS Jonathan Richardson (Providence College), Ryan Calsbeek (Dartmouth College), Erica Crespi (Washington State U), Andrew Hendry (McGill U), Hannah ter Hofstede (Dartmouth College), Emily Monosson (UMass), Tom Langen (Clarkson U), Bethany Kunz (USGS)

SOFTWARE AMHarvest: An open-source R based package for wildlife harvest analysis. Katz, J., S. P. Brady, and T. M. Donovan. Includes occupancy models, virtual population analysis, and simulation capacity.

COMPUTING *Analytical and database:* R (advanced), MATLAB (proficient), MySQL (advanced)
Spatial: GIS (advanced), ERDAS IMAGINE (proficient)
Bioinformatics: FASTA (proficient), Trinity (proficient), Mesquite (advanced), MrBayes (proficient)

TRAININGS & CERTIFICATIONS Equity and Social Justice (King County), Pacific Salmonids (Northwest Environmental Training Center), Facilitating, Effective Meetings (King County), Social Marketing in Conservation (King County), Safe Boater Certificate, Wilderness First Responder

REFERENCES *Dissertation advisor*
David Skelly, Professor and Assoc. Dean for Research, School of Forestry & Environmental Studies, Yale University. Phone: (203) 432-3603; email: david.skelly@yale.edu

Dartmouth visiting scholar advisor
Ryan Calsbeek, Associate Professor, Department of Biological Sciences, Dartmouth College. Phone: (603) 646-9917; email: ryan.g.calsbeek@dartmouth.edu

University of Vermont postdoc advisor
Therese Donovan, Assistant Unit Leader VT Cooperative Fish & Wildlife Research Unit / Research Associate Professor, University of Vermont. Phone: (802) 656-2516; email: therese.donovan@uvm.edu

Mentor / colleague
Andrew Hendry, Professor, Redpath Museum & Department of Biology McGill University. (514) 398-4086; email: andrew.hendry@mcgill.ca