

# BRENNA R. FORESTER

University Program in Ecology  
Duke University

brenna.forester@duke.edu  
brenna-forester.weebly.com

## EDUCATION

<b>Ph.D., Duke University, University Program in Ecology</b> Committee: DL Urban (chair), RR Dunn, TF Schultz, JJ Wernegreen	Durham, NC 2011-5/2017
<b>M.Sc., Western Washington University, Environmental Sciences</b> Committee: AG Bunn (chair), EG DeChaine, DO Wallin	Bellingham, WA 2012
<b>B.A., The Evergreen State College, Political Economy</b> Research focus: Water privatization.	Olympia, WA 2003
<b>B.A., Hiram College, Biology</b> <i>Magna Cum Laude</i> with Departmental Honors, Phi Beta Kappa	Hiram, OH 1996

## RESEARCH EXPERIENCE

<b>Ph.D., University Program in Ecology, Duke University</b> <ul style="list-style-type: none"><li>Landscape genomics and statistical approaches to detect adaptive loci.</li><li>Ecology and population genetics of Plethodontid salamanders.</li><li>Applications of genomics for conservation management.</li></ul>	2011-Current
<b>M.Sc., Dept. of Environmental Sciences, Western Washington University</b> <ul style="list-style-type: none"><li>Ensemble species distribution modeling and climate data interpolation.</li><li>Statistical phylogeography; programming in R and Python.</li></ul>	2009-2012
<b>Biologist, City of Bellingham, WA</b> <ul style="list-style-type: none"><li>Field sampling, data analysis, report and grant writing, permitting.</li><li>Restoration site monitoring (birds, amphibians, salmonids, vegetation, water quality).</li></ul>	2007-2011
<b>Field Researcher, US Forest Service, National Park Service, WA</b> <ul style="list-style-type: none"><li>Rare Carnivore Remote Camera Project; camera siting, data analysis, report writing.</li></ul>	2006-2010
<b>Field Researcher, Wolverine Population Assessment, Glacier National Park, MT</b> <ul style="list-style-type: none"><li>Radiotelemetry; initializing, downloading, and instrumenting of GPS collars.</li></ul>	2007
<b>National Science Foundation Research Experiences for Undergraduates, OR</b> <ul style="list-style-type: none"><li>Independent research on the use of roads and clearcuts as travel corridors by bats.</li></ul>	1995

## PUBLICATIONS

Lasky JR, **Forester BR**, Reimherr M. (2017) Uncovering the genomic basis of local adaptation by coherent synthesis of associations with phenotypes and home environments. [bioRxiv](#). 051110.

Wagner HH, Chávez-Pesqueira M, **Forester BR** (2017) Spatial detection of outlier loci with Moran eigenvector maps (MEM). [Molecular Ecology Resources](#).

Austin KG, Lee M, Clark CJ, **Forester BR**, Urban DL, White L, Kasibhatla PS, Poulsen JR (2017) An assessment of High Carbon Stock and High Conservation Value approaches to sustainable oil palm cultivation in Gabon. [Environmental Research Letters](#).

Stucki S, Orozco-terWengel P, **Forester BR**, Colli L, Masembe C, Negrini R, Landguth E, Jones M, Duruz S, Bruford M, Taberlet P, Joost S (2016) High performance computation of landscape genomic models including local indices of spatial association. [Molecular Ecology Resources](#).

**Forester BR**, Jones MR, Joost S, Landguth EL, Lasky JR (2016) Detecting spatial genetic signatures of local adaptation in heterogeneous landscapes. [Molecular Ecology](#) 25: 104-120.

PUBLICATIONS (continued)

DeChaine EG, Wendling BM, **Forester BR (2014)** Integrating environmental, molecular, and morphological data to unravel an ice age radiation of arctic-alpine *Campanula* in western North America. Ecology and Evolution 4:3940-3959.

Jones MR\*, **Forester BR\***, Teufel AI, Adams RV, Anstett DN, Goodrich BA, Joost S, Manel S (2013) Integrating landscape genomics and spatially explicit approaches to detect loci under selection in clinal populations. Evolution 67:3455-3468. \*These authors contributed equally.

**Forester BR**, DeChaine EG, Bunn AG (2013) Integrating ensemble species distribution modeling and statistical phylogeography to inform projections of climate change impacts on species distributions. Diversity and Distributions 19: 1480-1495.

DeChaine EG, **Forester BR**, Schaefer H, Davis CC (2013) Deep genetic divergence between disjunct refugia in the arctic-alpine King's Crown, *Rhodiola integrifolia* (Crassulaceae). PLoS ONE 8: e79451.

OTHER RESEARCH PRODUCTS

**Forester BR**, Wagner HH, Chávez-Pesqueira M (2017) Vignette: Spatial detection of outlier loci with Moran eigenvector maps (MEM). [http://popgen.nescent.org/2016-12-13\\_MEM\\_outlier.html](http://popgen.nescent.org/2016-12-13_MEM_outlier.html)

**Forester BR**, Urban DL, Schultz TF, Wernegreen JJ, Dunn RR (2014) Mountains, climate change, and conservation: the role of landscape genomics. *Mountain Views* 8: 44-47.

**Forester BR (2009)** Whatcom Creek Restoration Project Report: 2009. Technical Report. City of Bellingham, Washington. 110 pp.

**Forester BR (2008)** Whatcom Creek Restoration Project Report: 2007-2008. Technical Report. City of Bellingham, Washington. 133 pp.

GRANTS & FUNDING

**PEO International**, PEO Scholar Fellowship - \$15,000 2016-2017

**Duke University**, Graduate Student Training Enhancement Grant - \$1,675 2016-2017

**Duke University**, Katherine Goodman Stern Fellowship - \$31,817 2015-2016

**TriCEM Seed Grant in Evolutionary Medicine**, co-PI - \$18,840 2015-2016

“Emerging human-mediated pathogens in North Carolina amphibians and reptiles”  
Collaborators: NC Museum of Natural Sciences, NC Wildlife Resource Commission,  
NC State University, NC Central University, Duke University.

**National Science Foundation**, Doctoral Dissertation Improvement Grant - \$20,648 2015

“Assessing adaptive capacity in response to climate change:  
terrestrial salamanders in an urban heat island mesocosm”

**American Society of Naturalists**, Student Research Fellowship - \$2,000 2015

**American Museum of Natural History**, Theodore Roosevelt Memorial Fund - \$2,500 2014

**Foundation for the Conservation of Salamanders**, Conservation & Travel Grants - \$5,500 2014

**Duke University**, Interdisciplinary Scholarship and Fees Award - \$154,019 2011-2015

**Duke University Graduate School:** 2014-2015

- Summer Research Fellowship - \$8,819 (2014) & \$8,904 (2015)
- Domestic Dissertation Travel Award - \$1,800

**Society for the Study of Amphibians & Reptiles**, Herpetology and Metter Awards - \$1,500 2014

**Sigma Xi**, Grant-in-Aid of Research and Duke match - \$2,250 2012-2013

**Western Washington University**, Dean's Fund, Research and Sponsored Programs, Small Grants 2010

INVITED TALKS

<b>International Association for Landscape Ecology - World Congress</b>	2015
Portland, OR. "Assessing local adaptation and gene flow in an endemic, montane salamander threatened by climate change." <i>Special symposium</i> , "Landscape genetics across space and time: Contributions of molecular-genetic approaches to landscape-ecological applications."	
<b>Huxley College Speaker Series: Western Washington University</b>	2015
Bellingham, WA. "Genomics and conservation; or, salamanders vs. climate change."	
<b>MtnClim 2014: Consortium for Integrated Climate Research in Western Mountains</b>	2014
Midway, UT. "Mountains, climate change, and conservation: the role of landscape genomics."	
<b>North Carolina Central University: Biology Seminar Series</b>	2014
Durham, NC. "Assessing local adaptation and gene flow in threatened salamander."	
<b>North Carolina Herpetological Society: Fall Meeting</b>	2014
Raleigh, NC. "Assessing local adaptation and gene flow in <i>Plethodon welleri</i> using landscape genomics."	
<b>US Regional Association of the International Association for Landscape Ecology</b>	2013
Austin, TX. "Integrating individual-based, spatially-explicit methods to detect adaptive loci." <i>Special symposium</i> , "Landscape genetics."	

PRESENTATIONS

<b>US Regional Association of the International Association for Landscape Ecology</b>	2017
Baltimore, MD. Oral presentation.	
<b>The Wildlife Society - Raleigh, NC.</b>	2016
Oral presentation.	
<b>US Regional Association of the International Association for Landscape Ecology</b>	2016
Asheville, NC. Oral presentation.	
<b>American Society of Naturalists - Pacific Grove, CA.</b>	2016
Oral presentation.	
<b>US Regional Association of the International Association for Landscape Ecology</b>	2014
Anchorage, AK. Oral presentation.	
<b>Ecological Society of America</b>	2012
Portland, OR. Oral presentation. <i>Organized session</i> , "How mountains maintain diversity: Evaluating climate refugia from genetics, paleoecology, and models."	
<b>US Regional Association of the International Association for Landscape Ecology</b>	2011
Portland, OR. Poster presentation.	
<b>Association of American Geographers - Seattle, WA.</b>	2011
Poster presentation.	
<b>University of Washington Graduate Climate Conference - Seattle, WA.</b>	2010
Poster presentation.	

HONORS & AWARDS

<b>Sponsored Student Travel Award, US International Association for Landscape Ecology</b>	2015
<b>Preparing Future Faculty Fellow, Duke University</b>	2014-2015
<b>NASA-MSU Professional Enhancement Award, US Int'l Assn. for Landscape Ecology</b>	2013
<b>Phi Kappa Phi Honor Society, Western Washington University</b>	2012
<b>ESA-SERDP Travel Award, Ecological Society of America</b>	2012
<b>Outstanding Poster - Sigma Xi Poster Competition, Western Washington University</b>	2011
<b>Best Student Paper - R.S. Tarr Award, Association of American Geographers</b>	2011
<b>Sponsored Student Travel Award, US International Association for Landscape Ecology</b>	2011
<b>Phi Beta Kappa, MU of Ohio; Alpha Lambda Delta; National Honor Society, Hiram College</b>	1996

TEACHING & MENTORING

<b>Lead project mentor, Landscape Genetics Distributed Graduate Seminar</b>	2016-2017
Mentor for project on missing data in genotype-environment association analyses.	
<b>Online instructor, Landscape Genetics Distributed Graduate Seminar</b>	2016
Discussion lead for online participants.	
<b>Instructor of Record, Duke University</b>	2015
ENVIRON 590: Species Distribution Modeling.	
<b>Certificate in College Teaching, Duke University, NC</b>	2014-2015
<b>The Scientific Research and Education Network, Durham, NC</b>	2014-2015
Developed high school lesson plan on climate change and species distributions.	
<b>Teaching Assistant &amp; Guest Lecturer, Duke University, NC</b>	2011-2015
Courses: Landscape Ecology, Landscape Analysis and Management, Multivariate Statistics.	
<b>Teaching Assistant, Western Washington University, WA</b>	2009-2011
Courses: Population Biology, Limnology, Forest Ecology, Forestry-Fish Interactions, Past Environments of the Pacific Northwest, Environmental Disturbances, Global Change.	
<b>Environmental Educator, North Cascades Institute, WA</b>	2004-2006
Watershed ecology including water quality testing, salmonid ecology, and macroinvertebrate and plant identification.	

ADDITIONAL TRAINING

<b>NIMBioS Workshop: Next Generation Genetic Monitoring</b>	Knoxville, TN
National Institute for Mathematical and Biological Synthesis	
Improving statistical approaches for conservation genetic resource monitoring.	2016
<b>Conservation and Gene Expression Workshop</b>	Asilomar, CA
Sponsored by Univ. CA Conservation Genomics Consortium	
RNA-seq, transcriptome assembly, gene expression quantification, DNA-methylation.	2016
<b>ConGen-2 2016: Landscape Genomics and Genetic Monitoring</b>	Polson, MT
Sponsored by Univ. MT, NASA, NSF	
Applications of next generation sequencing to conservation genetics.	2016
<b>NIMBioS Tutorial: Evolutionary Quantitative Genetics</b>	Knoxville, TN
National Institute for Mathematical and Biological Synthesis	
Theory and applications of evolutionary quantitative genetics using R.	2016
<b>Preparing Future Faculty Fellow, Duke University</b>	Durham, NC
Mentor: Dr. Catherine Key, Biology Department, North Carolina Central University.	2014-2015
<b>Graduate Mini-Course in Landscape Genetics</b>	Toronto, Ontario
Capstone meeting for selected students in Landscape Genetics Distributed Graduate Seminar.	2012
<b>Biology of Plethodontid Salamanders</b>	Highlands, NC
Two-week course at Highlands Biological Station.	2012
Biology, ecology, and evolutionary history of Plethodontids in the Southern Appalachian Mountains.	
<b>Ecological Consequences of Climate Change: Integrating Research Approaches</b>	Doñana, Spain
Graduate course on global change research methods including paleoecology and ecophysiology.	2010

ACADEMIC SERVICE

**Reviewer:** Molecular Ecology, Global Change Biology, Journal of Biogeography, Ecology, 2011-Current  
Ecography, Landscape Ecology, Journal of Zoology, Environmental Management  
Publons: [publons.com/a/641298/](https://publons.com/a/641298/)

**Huxley College Graduate Research Conference**, organizing committee 2011  
Western Washington University

**Graduate Research Working Group**, officer and founding member 2009-2011  
Western Washington University