

CURRICULUM VITAE

DEBORAH ANN ROACH

**Department of Biology
University of Virginia
Charlottesville, Va. 22904-4328
Telephone (434) 982-4858**

EDUCATION

Ph.D. DEPARTMENT OF BOTANY, DUKE UNIVERSITY, DURHAM, N.C. 1984
B.A. MOUNT HOLYOKE COLLEGE, SOUTH HADLEY, MASS. 1978

EMPLOYMENT

PROFESSOR and CHAIR, Department of Biology, University of Virginia 2020-present
PROFESSOR, Department of Biology, University of Virginia 2014-present
ASSOCIATE PROFESSOR, Department of Biology, University of Virginia 2005-2014
CAVALIER DISTINGUISHED TEACHING PROFESSOR, 2006-2008
ASSISTANT PROFESSOR, Department of Biology, University of Virginia 1998-2005
RESEARCH ASSISTANT PROFESSOR, Department of Zoology, Duke University 1987-1998
ASSISTANT DEAN, Natural Sciences, Duke University 1987-1990
NIH POSTDOCTORAL FELLOW, Department of Zoology, Duke University 1984-1987
TEACHING ASSISTANT, Department of Botany, Duke University 1980-1984
BIOLOGIST, U. S. Army Cold Regions Laboratory, Hanover, N.H. 1978-1979

PUBLICATIONS (Recent)

Steiner, U.K., S. Tuljapurkar and D.A. Roach. 2021 (in press). Quantifying the effect of genetic. Environmental and individual stochastic variability for population dynamics in *Plantago lanceolata*. *Scientific Reports*.

Villellas, J. ...**D.A. Roach** + 49 authors and Buckley, Y.M. 2021. Phenotypic plasticity masks range-wide genetic differentiation for vegetative but not reproductive traits in a short-lived plant. *Ecology Letters* 24(11):2378-2393. <https://doi.org/10.1111/ele.13858>

Morales, M., **D.A. Roach**, B.M. Quarles, A. Cotado, R. Salguero-Gómez, J. Dwyer, S. Munné-Bosch. 2021. Validity of photo-oxidative stress markers and stress-related phytohormones as predictive proxies of mortality risk in the perennial herb *Plantago lanceolata*. *Environmental and Experimental Botany* 191:104598. <https://doi.org/10.1016/j.envexpbot.2021.104598>

Baden, H.M., **D.A. Roach**, F. Schweingruber, K. Lundgreen and J. Dahlgren. 2021. The effects of age on the demography of a perennial plant depend on interactions with size and environment. *Journal of Ecology* 109:1068-1077 <https://doi.org/10.1111/1365-2745.13537>

Hey, M.H., E. DiBiase, **D.A. Roach**, D.E. Carr, and K.J. Haynes. 2020 Interactions between artificial light at night and biotic factors affect the growth of a perennial wildflower. *Oecologia*. 193:503-510.

Smith, A.L. +, **D.A. Roach**, + 42 other authors, and Y.M. Buckley. 2020. Global gene flow releases invasive plants from environmental constraints on genetic diversity. *PNAS* 117(8):4218-4227. <https://doi.org/10.1073/pnas.1915848117>

Carey, J.R. and **D.A. Roach**. 2020. *Introduction to Biodemography: Concepts and Methods*. Princeton University Press 480pp.

Roach, D.A. and E.F. Smith. 2020. Life-history trade-offs and senescence in plants. *Functional Ecology* 34(1):17-25.

Quarles, B.* and **D.A. Roach**. 2019. Aging in an Herbaceous Plant: Increases in mortality and decreases in physiology and seed mass. *Journal of Ecology* 107:1409-1418. (*UVA undergraduate)

Dahlgren, J.P. and **D.A. Roach**. 2017. Demographic senescence in herbaceous plants. p. 303-391. In, “*Senescence Across the Tree of Life*” (Salguero-Gomez, R., Shefferson, R. and Jones, O. Eds.) Cambridge University Press.

Roach, D.A. 2016. Uncovering variation in the patterns of aging. *PNAS* 113(23):6328-6329.

Fenollisa, E., D.A. Roach, S. Munne-Bosch. 2016. Death and plasticity in clones influence invasion success. *Trends in Plant Science*. 21(7): 551-553.

Aikens, M. L. and **D. A. Roach**. 2015. Potential impacts of tolerance to herbivory on population dynamics of a monocarpic herb. *American Journal of Botany*. 102:1901-1911.

Beans, C.M. and **D.A. Roach**. 2015. An invasive plant alters pollinator-mediated phenotypic selection on a native congener. *American Journal of Botany*. 102:50-57. Selected as “Editor’s Choice”

Beans, C.M. and **D.A. Roach**. 2015. An invasive plant alters phenotypic selection on the vegetative growth of a native congener. *American Journal of Botany* 102:217-224.

Roach, D.A. and J.R. Carey. 2014. Population Biology of Aging in the Wild. 2014. *Annual Review of Evolution, Ecology and Systematics*. 45:421-443.

Aikens, M. L., and **D. A. Roach**. 2014. Population dynamics in central and edge populations of a narrowly endemic plant. *Ecology*. 95(7): 1850-1860.

Goodrich, S.H. and **D.A. Roach**. 2013. Effects of early-life environment on phenotype and selection in *Agrostemma githago*. *International Journal of Plant Science* 174(6): 877-885.

Shefferson, R.P. and **D.A. Roach**. 2013. Longitudinal analysis in *Plantago*: strength of selection and reverse-age analysis reveal indeterminate senescence. *Journal of Ecology* 101(3): 577-584.

Goodrich, S.H., C. Beans and **D.A. Roach**. 2013. Environmental conditions during early life determine the consequences of inbreeding depression in *Agrostemma githago* (Caryophyllaceae). *Journal of Evolutionary Biology* 26(3): 499-508.

Roach D.A. 2012. Age, growth and size interact with stress to determine life span and mortality. *Experimental Gerontology* 47:782-782.

Shefferson, R.P. and **D.A. Roach** 2012. The triple helix of *Plantago lanceolata*: Genetics and the environment interact to determine population dynamics. *Ecology* 93(4): 793-802.

Yoshizuka, E.M. and **D.A. Roach**. 2011. Plastic growth responses to simulated herbivory. *International Journal of Plant Sciences* 172(4): 521-529.

Shefferson, R.P. and **D.A. Roach**. 2010. Longitudinal analysis of *Plantago*: Adaptive benefits of iteroparity in a short-lived herbaceous perennial. *Ecology* 91(2): 441-447.

GRANTS (Current)

NSF NRT-ROL: Interdisciplinary Studies of the Phenotype: EXPANDIng Training in Research and Career. National Science Foundation Research Traineeship (NRT) Program. Budget: \$2,999,999; Dates: 9/1/2020-8/31/2025. Co-PI (with LF Galloway, ED Brodie and JJ Connelly).

INVITED SEMINARS and LECTURES (recent)

“Evolution and Demography” Presidential Lecture, Evolutionary Demography Meeting, Charlottesville, VA. October 2016

“Aging in the wild”, Plenary lecture, Evolutionary Demography Society 1st Annual Meeting, University of Southern Denmark, Odense. October 2013.

“Cumulative Damage Causes Aging: A case study with a plant”, Invited Scientific Speaker for Grand Opening, Max-Planck Odense Center on the Biodemography of Aging, University of Southern Denmark, Odense. January 2013.

“What patterns of aging emerge from a long-term, longitudinal, study of a plant population in the wild?” Organized Symposium Speaker, Ecological Society of America Annual Meeting, Portland, OR. August 2012

“Decomposition of variance in a field study with *Plantago*” Invited Speaker IPM Workshop, Max Planck Institute for Demographic Research, Rostock, Germany, June 2012

“Longitudinal analysis of multiple cohorts” Invited Speaker, Evolutionary Demography Workshop, Max Planck Institute for Demographic Research, Rostock, Germany. June 2012.

“Uncovering the effects of age, cohort, genotype and environment on plant life history” Invited Seminar, Ecology & Evolution Graduate Program, UC Davis, October 2011.

“Evolutionary ecology of lifespan and aging: What can we learn from a plant?” Invited Speaker Evolutionary Ecology of Lifespan Workshop, Napa, CA. September 2011

GRADUATE ADVISING

Graduate Advisor

Nicholas Priest, Department of Biology, Ph.D.
Stephanie Held, Department of Biology, Ph.D.
Eric Yoshizuka, Department of Biology, M.S.
Sarah Tacke, Department of Biology, Conservation M.A.
Melissa Aikens, Department of Biology, Ph.D.
Carolyn Beans, Department of Biology, Ph.D.
Danielle Racke, Department of Biology, M.A.
Erin Fegley Smith, Department of Biology, M.A.
Caroline Bush, Department of Biology, Ph.D. (current)

First Reader

Kristine Grayson, Department of Biology, Ph.D.
Patrice Ludwig, Department of Biology, Ph.D.
Volker Rudolf, Department of Biology, Ph.D.
Daniela Bell, Department of Biology, Ph.D.
Don Church, Department of Biology, Ph.D.

Committee Member

Robin Costello, Department of Biology, Ph.D. (current)
Tyler Wittman, Department of Biology, Ph.D. (current)
Melissa Hey, Environmental Sciences, Ph.D (current)
Kelcy Kent, Department of Environmental Sciences, PhD (current)
Allie Parisien, Department of Environmental Sciences, MS (current)
Aaron Reedy, Department of Biology, Ph.D.
Can Ashley Dai, Department of Biology, Ph.D.
Francis Kilkenny, Department of Biology, Ph.D.
Greg Ruthig, Department of Biology, Ph.D.
Chris Botanga, Department of Biology, Ph.D.
Hanquin Wu, Department of Biology, MS
Brian Haggerty, Department of Biology, M.S.
Lelena Avila, Department of Biology.
Christine Howell, Department of Biology.
Florence Breslin, Department of Biology.

Jin Wang, Department of Environmental Sciences. PhD.
Alexia Kelley, Department of Environmental Sciences. PhD.
Daniel Muth, Department of Environmental Sciences. Ph.D.
Juileta Aranibar, Department of Environmental Sciences, Ph.D.
Pei-Jen Lee Shaner, Department of Environmental Sciences, Ph.D.
Tana Wood, Department of Environmental Sciences, Ph.D.
Christine Feral, Department of Environmental Sciences.
Lorelei Hartman, Department of Environmental Sciences
Lixin Wang, Department of Environmental Sciences
Kimberley Bassett, Department of Chemistry, Ph.D.
Peter Graham, Department of Chemistry, Ph.D.
David Delafuente, Department of Chemistry, Ph.D.
Amanda Hege, Department of Psychology, Ph.D.
Jeanine Stefanucci, Department of Psychology, Ph.D.
Karen Siedlecki, Department of Psychology, Ph.D.
Elyssa Twedt, Department of Psychology, PhD.
Blair Gross, Department of Psychology, Ph.D.
Marlen Gonzalez, Department of Psychology, Ph.D

Committee Member External Examiner

Patrick Barks, Department of Lethbridge, Alberta, Canada, Ph.D.
Laura Siles Suarez, Department of Biology, University of Barcelona, Spain, Ph.D.

TEACHING

- BIOL 3020 Ecology and Evolution (1/3 of lectures; 400-450 students)
- BIOL 3140 Biology of Aging (65-150 students)
- BIOL 4135 Biology of Aging (40 students)
- BIOL 4850 Biological Conservation (15 students)
- BIOL 491X Independent Research (1-8 students)
- BIOL 8070 Colloquium in Population Biology
- COLA 1500-027 College Advising Seminar: Conservation (18 students)
- EGMT 1520: Empirical Engagement: How has evolution shaped who we are? (New College Curriculum, 34 students)

AWARDS

- University Academy of Teaching August 2011
- Cavalier Distinguished Teaching Professorship May 2006-08
- SCHEV Outstanding Faculty Award Finalist Spring 2007
- Mead Endowment Honored Faculty Award September 2005
- Biology Department Distinguished Teaching Award May 2005
- University of Virginia Lilly Teaching Fellowship 2002-03
- Phi Beta Kappa
- Sigma Xi

DEPARTMENTAL SERVICE (Recent)

- Promotion Committee for General Faculty Colleague 2018-2019 (Chair)
- Graduate Committee 2000-2001, 2005-2007, 2009-2010, 2012-2013, 2017-2018
- Undergraduate Committee 2003-2005, 2008-2009, 2014-2017 (Chair)
- Teaching Awards Committee 2008-present
- Committee for Faculty Peer Review 2012-2013 (Chair, Spring 2013)
- Ad hoc Committee on Bylaws and Policies 2010-2012
- Organized Biology Faculty Teaching Discussion Lunches 2010-2011
- Steering Committee 2005-2007, 2010-2012, 2014-2016, 2018-2020

UNIVERSITY SERVICE (Recent)

- Provost Office Teaching Awards Committee 2010-present
- A&S Faculty Senate Personnel Committee 2018-present
- A&S Dean's Task Force on Best Practices for Peer Review (2018-2019, Chair)
- A&S Dean's P&R Committee 2017-2018
- A&S Dean's Third-Year Review Committee 2016-17
- UVA Athletics Advisory Committee 2006-2013 (Chair 2011-2013)
- A&S Faculty Senate Nominating Committee 2012-2015
- Search Committee, Assistant Professor, Department of Chemistry 2012-2013
- Academy of Teaching, Teaching Partners Mentor for Psychology Professor 2011-2012
- Panelist and presenter for "Visions for engaging students in STEM disciplines" Teaching Resource Center Workshop, Jan. 2012
- Excellence in Diversity Fellowship Mentor for Assistant Professor in Medical School 2010-2011
- Jefferson Scholars Foundation Faculty Advisory Committee 2011-2014
- Panelist and presenter for "Engaging Students in Large Courses" Teaching Resource Center Workshop, March 2011.

NATIONAL SERVICE (Recent)

- Evolutionary Demography Society, Board Member (elected) 2012-present, President (2016-2017)
- Plant PoPNet, Steering Committee (2016-present)
- External Scientific Committee for the University of Southern Denmark's Interdisciplinary Center on Population Dynamics (CPoP), 2018-present