

## CURRICULUM VITAE

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### DAVID M. MARSH

#### POSITIONS:

Professor of Biology, Washington and Lee University, 2011-present  
Associate Professor of Biology, Washington and Lee University, 2006-present  
Undergraduate Education Advisor, National Center for Ecological Analysis and Synthesis, 2010-2011  
Sabbatical Fellow, National Center for Ecological Analysis and Synthesis, 2006-2007  
Assistant Professor of Biology, Washington and Lee University, 2000-2006

#### EDUCATION:

2000 University of California, Davis  
Ph.D. in Population Biology

1993 University of Virginia  
B.A., Biology, w/ distinction

#### FELLOWSHIPS AND GRANTS (LAST 10 YEARS):

2012-2014 National Science Foundation: Transforming Undergraduate Education in Science. Toads, Roads, and Nodes: Collaborative Course-Based Research on the Landscape Ecology of Amphibian Populations. w/ Stephanie Hampton (NCEAS) \$242,000

2010-2011 National Science Foundation. An Undergraduate Network for Analyzing Plant Invasion in U.S. National Wildlife Refuge. w/ Stephanie Hampton (NCEAS) \$23,700.

2007-2016 Glenn/Lenfest grants for research, Washington and Lee University, \$22,600

2008-2009 USDA Forest Service: Analysis of a contact zone between a rare endemic and a common salamander. \$2000

2008 Associated Colleges of the South: Monitoring the effects of climate change on montane salamanders \$2400

2006-2007 National Center for Ecological Analysis and Synthesis Sabbatical Fellowship: Optimal Design of Population Monitoring Programs, \$30,000

2003-2006 National Science Foundation RUI: Fragmentation of terrestrial salamander populations by forest roads: ecological and genetic effects, w/ Paul R. Cabe, \$375,000

2004-2005 National Science Foundation REU supplements: \$7200

2004 ACS: Biodiversity and Conservation in the Western Ghats of India, \$3000

## **COURSES TAUGHT:**

- Field Herpetology – A four-week field course centered on a group research project in amphibian ecology or conservation
- Disease Ecology – in introductory-level biology course that uses disease ecology and evolution to teach basic principles of biology, including genetics, natural selection, and population dynamics.
- Biostatistics – an upper-level course focused on the intelligent use of statistical tools for hypothesis testing and model comparison
- Animal Behavior – an upper-level laboratory course for biology majors focused on the integrative biology of behavior
- Introduction to Behavioral Ecology – a research-based animal behavior course for non-science majors focusing on the adaptive basis of behavior.

## **BOOK CHAPTERS:**

- Marsh, D.M., and Jaeger, J. 2015. Direct effects of roads on small animal populations. Chapter 6, in: Andrews, K. M., P. Nanjappa, and S. P. D. Riley (eds.). *Roads and Ecological Infrastructure: Concepts and Applications for Small Animals*. Johns Hopkins University Press.
- Jackson, S.D., Langen, T.A., Marsh, D.M., et al. 2015. Natural history and physiological characteristics of small animals in relation to roads. Movement Behavior and Road Impacts. Chapter 2, in: Andrews, K. M., P. Nanjappa, and S. P. D. Riley (eds.). *Roads and Ecological Infrastructure: Concepts and Applications for Small Animals*. Johns Hopkins University Press.
- Smith, D.J., Marsh, D.M. Gunson, K.E., Tonjes, S. 2015. Monitoring road effects and mitigation measures and applying adaptive management. Chapter 12, in: Andrews, K. M., P. Nanjappa, and S. P. D. Riley (eds.). *Roads and Ecological Infrastructure: Concepts and Applications for Small Animals*. Johns Hopkins University Press.
- Marsh, D.M., and Haywood, L.M. 2009. Area-Based Surveys for Terrestrial Amphibians. Chapter 14 in: *Conservation and Ecology of Amphibians. A Handbook of Techniques*. Oxford University Press, p. 247-262.

## **JOURNAL ARTICLES**

\* Denotes undergraduate student co-author

- Marsh, D.M., Cosentino, B.L., Jones, K.S., et al. Effects of roads and land use on frog distributions across spatial scales and regions in the Eastern and Central United States. *Diversity and Distributions*, in press.

- Cosentino, B. J., Marsh, D. M., Jones, K. S., et al. 2014. Citizen science reveals widespread negative effects of roads on amphibian distributions. *Biological Conservation*, 180, 31-38.
- Hoopes, M.F., Marsh, D.M., Beard, K.L., et al. 2013. Invasive Plants in Wildlife Refuges: Coordinated Research with Undergraduate Ecology Courses. *BioScience* 63: 644-656.
- Tilghman, J.\*, Ramee, S.\* and Marsh, D. M. 2012. Meta-analysis of the effects of forestry on North American terrestrial salamanders. *Biological Conservation* 152: 1-9.
- Bayer, C.O.\*, Sackman, A.S.\*, Bezold, K., Cabe, P.R., and Marsh, D.M. 2012. Conservation genetics of a mountaintop salamander with an extremely limited range. *Conservation Genetics* 13: 443-454.
- Schieltz, J.L.\*, Haywood, L.M,\* and Marsh, D.M. 2010. Effects of cover object distribution on the socioecology of a terrestrial salamander. *Herpetologica* 66: 276-282.
- Marsh, D.M. 2009. Evaluating methods for sampling stream salamanders across multiple observers and habitat types. *Applied Herpetology* 6: 211-226.
- Marsh, D.M. and Trenham, P.C. 2008. Current trends in plant and animal population monitoring. *Conservation Biology* 22: 647-655.
- Marsh, D.M. 2008. Metapopulation viability analysis for amphibians. *Animal Conservation* 11: 463-465.
- Marsh, D.M., Page, R.B., Hanlon, T.J.\*, Corritone, R\*., Little, E.E.\*, Seifert, D.E.\*, and Cabe, P.R. 2008. Effects of roads on patterns of genetic differentiation in red-backed salamanders, *Plethodon cinereus*. *Conservation Genetics* 9: 603-613.
- Marsh, D.M. and Hanlon, T.J. 2007. Seeing what we want to see: confirmation bias in animal behavior research. *Ethology* 113: 1089-1098.
- Marsh, D.M, Page, R.B., Hanlon, T. J., Bareke, H\*. Corritone, R\*. Jetter, N.\*, Beckman, N.G.\*, Gardner, K. \*, Seifert, D.E. \*, and Cabe, P.R. 2007. Ecological and genetic evidence that low-order streams inhibit dispersal by red-backed salamanders (*Plethodon cinereus*). *Canadian Journal of Zoology* 85: 319-327
- Cabe, P.R., Page, R.B., Hanlon, T.J., Aldrich, M.S.\*, Connors, L., and Marsh, D.M. 2007. Fine-scale genetic population structure and gene flow in a terrestrial salamander living in continuous habitat. *Heredity* 98: 53-60.
- Marsh, D.M. 2007. Edge effects of gated and ungated forest roads on terrestrial salamanders. *Journal of Wildlife Management* 71: 389-394.

- Marsh, D. M., Milam, G. S.\*, Gorham, N. A.\*, and Beckman, N. G.\* 2005. Forest roads are partial barriers to salamander movement. *Conservation Biology* 19: 2004-2008
- Adams, V. M.\*, Marsh, D. M., and Knox, J. S. 2005. Importance of seed banks for population viability and population monitoring of an endangered wetland herb. *Biological Conservation* 124: 425-436.
- Marsh, D. M., Thakur, K. A.\*, Bulka, K.\*, and Clarke, L. B\*. 2004. Dispersal and colonization through open fields by a woodland salamander. *Ecology* 85: 3396-3405.
- Marsh, D. M. and Beckman, N.G.\* 2004. Effects of forest roads on abundance and activity patterns of terrestrial salamanders in the Southern Appalachians. *Ecological Applications* 14:1882-1891.
- Marsh, D.M. and Hanlon, T.E. 2004. Gender and observation bias in animal behavior research: experimental tests with red-backed salamanders. *Animal Behaviour* 68:1425-1433.
- Marsh, D.M. and Goichochea, M.A.\* 2003. Monitoring terrestrial salamanders: biases due to frequent sampling and choice of cover objects. *Journal of Herpetology* 37: 460-466.
- Marsh, D.M. 2001. Amphibian population fluctuations: a meta-analysis. *Biological Conservation* 101: 327-335.
- Marsh, D.M. 2001. Behavioral and demographic responses of túngara frogs to variation in pond density. *Ecology* 82: 1283-1293.
- Marsh, D.M. and Borrell, B.\* 2001. Flexible oviposition strategies in túngara frogs and their implications for tadpole spatial distributions. *Oikos* 93: 101-109.
- Trenham, P.C. and Marsh, D.M. 2001. Amphibian translocation programs: reply to Seigel and Dodd. *Conservation Biology* 16: 555-556.
- Marsh, D.M. and Trenham, P.C. 2001. Metapopulation dynamics and amphibian conservation. *Conservation Biology* 15: 40-49.
- Marsh, D.M., Rand, A.S., and Ryan, M. J. 2000. Effects of inter-pond distance on the breeding ecology of tungara frogs. *Oecologia* 122: 505-513.
- Fegraus E.H.\*, and Marsh, D.M. 2000. Are newer ponds better? Pond chemistry, oviposition site selection, and tadpole performance in tungara frog, *Physalaemus pustulosus*. *Journal of Herpetology* 34: 455-465.
- Marsh, D.M., Fegraus, E.H.\*, and Harrison, S. 1999. Effects of pond isolation on the spatial and temporal dynamics of pond use in the tungara frog, *Physalaemus pustulosus*. *Journal of Animal Ecology* 68: 804-814.

Marsh, D.M. and Pearman, P.B. 1997. Effects of habitat fragmentation on the abundance of two species of Leptodactylid frogs in an Andean forest. *Conservation Biology* 11: 1323-1328.

Armstrong, J.E., and Marsh, D. (1997). Floral herbivory, floral phenology, visitation rate, and fruit set in *Anaxagorea crassipetala* (Annonaceae), a lowland rain forest tree of Costa Rica. *Journal of the Torrey Botanical Society*, 228-235.

Marsh, D.M. 1995. Patch boundary flight behavior of the Mexican bean beetle (Coleoptera : Coccinellidae). *Environmental Entomology* 24: 1515-1519.

### **GRANT REVIEWER FOR:**

National Science Foundation Population Biology Program  
National Science Foundation Ecology Program  
National Science Foundation International Program  
Jeffress Memorial Trust

### **MANUSCRIPT REVIEWER FOR:**

*American Naturalist, Amphibia-Reptilia, Applied Herpetology, Biodiversity and Conservation, Biological Conservation, Canadian Journal of Zoology, Conservation Biology, Conservation Genetics, Copeia, Ecological Applications, Ecology, Ethology, Environmental Conservation, Heredity, Herpetologica, Herpetological Conservation, Journal of Animal Ecology, Journal of Applied Ecology, Journal of Ecology, Journal of Herpetology, Journal of Neotropical Herpetology, Journal of Tropical Ecology, Journal of Wildlife Management, Journal of Zoology, Landscape Ecology, Molecular Ecology, Oecologia, Restoration Ecology, Southeastern Naturalist, Wetlands*

### **OTHER SERVICE**

National Science Foundation Ecology Panel  
National Science Foundation Evolutionary Biology Panel  
W&L Environmental Studies Program  
W&L University Sustainability Committee  
W&L Student Fulbright Scholarship Committee  
Mountain Lake Biological Station REU mentor  
DuPont Minority Research Program mentor  
Duke Marine Laboratory Campus Representative  
External PhD Examiner, McGill University