

Robert F. Smith

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Curriculum Vitae

POSTDOCTORAL RESEARCH

2012-Current **University of Massachusetts**, Amherst, MA 01003-9285
NSF Science, Engineering and Education for Sustainability (SEES) Fellowship
Proposal title: *A heads up view of aquatic ecosystem sustainability: Understanding the terrestrial landscape scale impacts of urbanization on aquatic biota*

EDUCATION

Ph.D. 2012 **University of Maryland**, College Park, MD 20742-4454
Ph.D. Candidate, Degree Program: Entomology
Dissertation title: *Local versus regional processes impacting insect diversity loss from urban headwater streams*
GPA (Fall 2002-Summer 2012): 3.842

M.S. 2006 **University of Maryland**, College Park, MD 20742-4454
Degree Program: Entomology
Thesis title: *Effect of urbanization on stream insect communities in adjacent headwater and downstream reaches*
GPA (Fall 2002-Fall 2006): 3.803

B.S. 2000 **Millersville University**, Millersville, PA 17551
Major: Biology (Concentration in Ecology with focus on Aquatic Systems)
GPA: 3.89

1995 – 1996 **Western Maryland College (McDaniel College)**, Westminster, MD 21157
(Transferred) GPA: 3.077

PUBLICATIONS

Peer Reviewed

Published

Leslie, A.W., R.F. Smith, D. Ruppert, K. Bejleri, J. M. McGrath, B.A. Needleman, and W.O. Lamp. 2012. Environmental factors structuring benthic invertebrate communities of agricultural ditches in Maryland. *Environmental Entomology* 41:802-812.

Kenney, M.A., A.E. Sutton-Grier, R.F. Smith, and S.E. Gresens. 2009. Benthic macroinvertebrates as indicators of water quality: The intersection of science and policy. *Terrestrial Arthropod Reviews* 2:99-128.

Smith, R.F., L.C. Alexander, and W.O. Lamp. 2009. Dispersal by terrestrial stages of stream insects in urban watersheds: synthesis of current knowledge. *Journal of the North American Benthological Society* 28:1022-1037. (*Invited Submission*)

Smith, R.F. and W.O. Lamp. 2008. Comparison of insect communities between adjacent headwater and main-stem streams in urban and rural watersheds. *Journal of the North American Benthological Society* 27:161-175.

In Preparation

Culler, L.E., R.F. Smith, and W.O. Lamp. 2012. Abiotic factors related to predator and primary consumer macroinvertebrates in constructed wetlands. *Intended submission to Wetlands*.

Howard, B.J., A. Barkett, R.F. Smith, and W.O. Lamp. 2012. Difficulties in assessing freshwater ecosystems in public parks: A case study from the Harpers Ferry National Historic Park. *Intended submission to Conservation Biology*.

Smith, R.F. and W.O. Lamp. 2012. Spatial and temporal patterns of abundance and richness of the adult caddisfly (Trichoptera) assemblage at urban and rural headwater streams (Dissertation chapter). *Intended submission to Environmental Entomology*.

Smith R.F. and W.O. Lamp. 2012. Relation of flight morphology traits of adult caddisflies (Trichoptera) to dispersal through urban landscapes (Dissertation chapter). *Intended submission to Freshwater Biology*.

Smith, R.F., S.T. McCanty, E.M. Pilgrim, and W.O. Lamp. 2012. Constrained dispersal contributes to the loss of caddisfly (Trichoptera) taxa from headwater streams in urban landscapes (Dissertation chapter). *Intended submission to Ecological Applications*.

Smith, R.F., P.D. Venugopal, M.E. Baker, and W.O. Lamp. 2012. Regional and local processes structure a stream insect metacommunity existing in a partially urbanized landscape (Dissertation chapter). *Intended submission to Ecological Applications*.

Non-Peer Reviewed

Smith, R.F. and M.J. Raupp. 2008. Green Roofs: A new frontier. *Groundwork* (A publication of the Landscape Contractors Association MD/DC/VA). January edition.

Reports

Smith, R.F. 2007. Report to the Nature Conservancy, Maryland/DC Chapter: Biological Conservation Research Fund. For Proposal: Effects of urbanization on the adult stage of aquatic insects: Does constrained dispersal contribute to community degradation?

(Google Scholar profile: <http://scholar.google.com/citations?user=2b7khNkAAAAJ>)

RESEARCH GRANTS

- *A heads up view of aquatic ecosystem sustainability: Understanding the terrestrial landscape scale impacts of urbanization on aquatic biota* – National Science Foundation, Science, Engineering and Education for Sustainability (SEES) Fellowship (\$476,162 / 3 years – Sep. 2012 to Aug. 2015)
- *Connecting terrestrial adult activity to in-stream community structure in urban and rural watersheds* – Cosmos Club Foundation, Grants-In-Aid to Young Scholars Program (\$1,500 – Feb. 2006)

- *Effect of urbanization on the adult stage of aquatic insects: Does constrained dispersal contribute to community degradation?* - University of Maryland Biology Department Graduate Student Summer Research Support: Chesapeake Bay Fund (\$2,000 stipend – May 2005)
- *Effect of urbanization on the adult stage of aquatic insects: Does constrained dispersal contribute to community degradation?* – Maryland/DC Chapter of the Nature Conservancy: Biodiversity Conservation Research Fund (\$2,500 – Apr. 2005)
- *Effect of urbanization on the adult stage of aquatic insects: Does constrained dispersal contribute to community degradation?* – Washington Biologists’ Field Club Research Award (\$2,485.00 – Feb. 2005)
- *Aquatic Entomology Teaching Collection* – Neimeyer-Hodgson Research Grant (\$355 – Mar. 2000)

AWARDS

- International Conference Student Support Award, University of Maryland, Oct. 2011 (\$500)
- Gahan Fellowship, Department of Entomology, University of Maryland, 2010-2011 (1 yr full support - \$24,212 stipend and RA combined)
- Graduate Student Summer Research Fellowship, College of Chemical and Life Sciences, University of Maryland, 2010 (\$5000 stipend)
- North American Benthological Society General Research Endowment Award, North American Benthological Society, 2010 (\$900)
- Gahan Fellowship, Department of Entomology, University of Maryland, 2009-2010 (9 months support - \$19,686 stipend and RA combined)
- Teaching Achievement Award, Department of Entomology, University of Maryland, 2004-05 & 2008-09
- College of Chemical and Life Sciences Travel Grant, University of Maryland, 2009 (\$300)
- Entomology Student Organization Travel Grant, Department of Entomology, University of Maryland, 2009 (\$250)
- Entomological Society of America Student and Young Professional Participation Award, 2009 (\$100)
- Entomology Student Organization Extension / Outreach Award, Department of Entomology, University of Maryland, 2008 (\$250)
- Entomological Society of America President’s Prize Runner-Up (Oral Presentations), Entomological Society of America, Annual Meeting: Section Cd5 (Behavior and Ecology), 2006
- Allen L. Steinhauer Award for Excellence in Teaching, Department of Entomology, University of Maryland, 2005-06
- North American Benthological Society Endowment, President’s Award, North American Benthological Society, 2006 (\$600)
- Jacob K. Goldhaber Travel Grant Award, College of Chemical and Life Sciences, University of Maryland, 2006 (\$350)
- Special Distinction in Teaching, Department of Entomology, University of Maryland, 2003-04
- Henry Franklin Bitner Memorial Fund Prize, 2002 (Top graduating student in Biology, Millersville University)

PROFESSIONAL PRESENTATIONS

Invited and Symposium Presentations

- Smith, R.F., E.M. Pilgrim, and W.O. Lamp. 2012. By land or by stream? Contribution of constrained dispersal by adult caddisflies to diversity loss from urban headwaters. *Oral presentation: Completing the life cycle – Dispersal, fitness and behaviour of adult aquatic insects (Special session/symposium) – Society of Freshwater Science annual meeting.*
- Smith, R.F. 2011. A heads up view of urban stream ecology: Potential impacts to adult stream insects in the terrestrial, urban landscape. *Invited oral presentation: Graduate Student Seminar – Monash University, Melbourne, Australia.*
- Lamp, W.O. and R.F. Smith (presenting author). 2011. Aquatic insects are terrestrial: Life history constraints and opportunities. *Oral presentation: Conservation challenges for organisms with complex life-cycles (Special session/symposium) – North American Benthological Society annual meeting.*
- Smith, R.F. 2011. The life of an entomology teaching assistant: motivating students to learn in nontraditional subject areas. *Invited oral presentation: Teaching Entomology at Various Educational Levels: Perspectives, Techniques, and Challenges (Education Symposium) – Entomological Society of America, Eastern Branch annual meeting.*
- Smith, R.F. and W.O. Lamp. 2009. Incorporating the entire life cycle of aquatic insects into urban stream ecology. *Invited oral presentation: Advances in Aquatic Entomology: Celebrating the Role of Aquatic Insects in Scientific Research (Section Symposium) – Entomological Society of America annual meeting.*
- Smith, R.F. and W.O. Lamp. 2008. The adult assemblage of aquatic insects indicates recruitment limitation in urban headwater streams. *Invited oral presentation: 2nd Symposium on Urbanization and Stream Ecology.*

Regular Conference Presentations

- McCanty S.T., R.F. Smith, and W.O. Lamp. 2012. Spatial and temporal differences in the activity of adult *Dolophilodes distinctus* (Trichoptera) at urban and rural headwater streams. *Poster presentation: Society for Freshwater Science annual meeting.*
- Smith, R.F. and W.O. Lamp. 2011. Urbanization impacts aquatic and terrestrial stages of caddisflies (Trichoptera) to reduce richness of larval assemblages in headwater streams. *Oral presentation: Entomological Society of America annual meeting.*
- Smith, R.F. and W.O. Lamp. 2011. Comparison of adult and larval caddisfly (Trichoptera) assemblages indicates both regional and local processes decrease larval richness in urban streams. *Oral presentation: Australian Society for Limnology and the New Zealand Freshwater Sciences Society joint Congress.*
- Smith, R.F. and W.O. Lamp. 2011. Urbanization impacts adult caddisflies (Trichoptera) to reduce richness of in-stream, larval assemblages. *Oral presentation: North American Benthological Society annual meeting.*

- Smith, R.F., L.E. Culler, and W.O. Lamp. 2010. Multivariate analysis of arthropod community development in constructed wetlands. *Oral presentation: Entomological Society of America annual meeting.*
- Smith, R.F. and W.O. Lamp. 2010. Applying metacommunity concepts to urban stream ecology: A preliminary evaluation of species sorting in a caddisfly (Trichoptera) assemblage at an urban headwater stream. *Oral presentation: Entomological Society of America, Eastern Branch annual meeting.*
- Smith, R.F. and W.O. Lamp. 2009. Adult versus larval assemblage of Trichoptera at an urban headwater stream. *Poster presentation: North American Benthological Society annual meeting.*
- Smith, R.F. and W.O. Lamp. 2008. Colonization potential of caddisflies (Trichoptera) in an urban headwater stream. *Oral presentation: Entomological Society of America annual meeting.*
- Smith, R.F. and W.O. Lamp. 2007. Does the lack of dispersing adults limit richness of aquatic insect communities in urban headwater streams? *Poster presentation: Entomological Society of America annual meeting.*
- Smith, R.F. and W.O. Lamp. 2007. Comparison of aquatic insect communities between adjacent headwater and main-stem streams in urban and rural watersheds. *Oral presentation: Entomological Society of America, Eastern Branch annual meeting.*
- Smith, R.F. 2006. Patterns among aquatic insect communities in headwater and main-stem streams: A comparison of urban and rural watersheds. *Oral presentation: Entomological Society of America annual meeting.*
- Smith, R.F., M.A. Palmer, W.O. Lamp, and L.E. Culler. 2006. Relationships of aquatic insect communities between headwater and main-stem streams in urban and rural watersheds. *Poster presentation: North American Benthological Society annual meeting.*
- Smith, R.F., W.O. Lamp, M.A. Palmer. 2006. Links between aquatic insect adult flight and larval assemblage structure in urban and rural headwater streams. *Poster presentation: Entomological Society of America, Eastern Branch annual meeting.*
- Smith, R.*, J. Eckenrode, A. Gaul, D. Masemer, S. Poerstel, H. Rodriguez, M. Stough, J. Ambler. 2000. Stream Macroinvertebrates, the Riparian Forest, and Stream Habitat as Indicators of Human Disturbance. *Poster presentation: Pennsylvania Academy of Science annual meeting.*

Other Academic/Outreach Presentations

- Smith, R.F. 2012. Local versus regional processes impacting insect diversity loss from urban headwater streams. *Oral Presentation: University of Maryland, Department of Entomology, Spring 2012 Colloquium.*
- Smith, R.F. 2008 & 2009. Aquatic Macroinvertebrate Sampling and Identification. *Guest Lecture: Univ. of Maryland, June 2008, 2009, for students of: Ecological and Geomorphic Principles of Stream Restoration (Office of Professional Studies and Department of Entomology short course), Dr. Margaret Palmer supervising professor.*
- Smith, R.F. 2007. Connecting terrestrial adult activity to in-stream community structure in urban and rural watersheds. *Oral Presentation: Cosmos Club 2007 Reception for Recipients of the Young Scholars Award.*

Smith, R.F. 2006 Relationships of aquatic insect communities between headwater and main-stem streams in urban and rural watersheds. *Oral Presentation: University of Maryland, Department of Entomology, Fall 2006 Colloquium.*

Smith, R.F. 2000. Chironomid Identification Techniques. *Workshop: Millersville University, August 2000, Millersville University, for the students of: Aquatic Insect Ecology BIOL 471 (Topics), Dr. John Wallace supervising professor.*

PROFESSIONAL AND ACADEMIC ACTIVITIES

Manuscript Reviews for Academic Journals

- Ecosphere (1 review) – Feb. 2011
- Ambio (1 review with follow-up review) – Nov. 2010 / Mar. 2011

Professional Society Memberships and Activities

- Society for Freshwater Science / North American Benthological Society (2000-Present)
 - 2012 Symposium organizer: *Completing the life cycle – Dispersal, fitness and behaviour of adult aquatic insects.* (Co-organizer: Jill Lancaster-Monash University)
- Ecological Society of America (2003-Present)
- Entomological Society of America (2003-Present) & Eastern Branch (2003-2011)
 - 2011 Symposium organizer: *Getting wet and making friends: Aquatic entomology's role outside academia* (Co-organizers: Jennifer Henke - Univ. of California at Riverside, Chris Patrick - Univ. of Notre Dame, Eric Benbow - Univ. of Dayton, Jennifer Lang - Univ. of Dayton)
 - 2010 Symposium organizer: *Across systems and biomes: ecology and evolution of insects in aquatic habitats* (Co-organizers: Lauren Culler - Dartmouth College, Chris Patrick - Univ. of Notre Dame, Nathan Baker and Jennifer Milligan - Cleveland State Univ.)
 - 2009-2011 Eastern Branch Student Representative to the Univ. of Maryland
 - 2008 Symposia organizer: *Change in the Life of Aquatic Insects: Individuals to Ecosystems* (Co-organizers: Jennifer Henke - Univ. of California at Riverside, Lauren Culler - Univ. of Maryland, Peter Jensen - Univ. of Maryland, Ely Kosnicki - Ecoanalysts, Inc.)
 - 2008 & 2010 Linnaean Games Participant
 - 2007 Co-Organizer of the Aquatic Entomology Network (<http://esanetworks.org/>)

Academic Activities

- Search Committee for Director of the Biological Sciences Graduate Program, College of Life Sciences, University of Maryland, May 2009
- Chair, Graduate Student Council, College of Chemical and Life Sciences, University of Maryland, 2009

OUTREACH

Spring 2003, '05-'07,
'10-'11

Maryland Day presenter: "Discover the Swamp"

- Taught visitors about aquatic invertebrates
- Promoted research done in the Entomology Dept., Univ. of Maryland

Fall 2003-Spring 2004

Entomology Student Organization, Social Chair: coordinated department wide activities for staff, professors, and students

TRAINING AND SPECIAL ATTENDED COURSES

GIS Training

- Dec. 2011 Web Course: Learning ArcGIS Desktop (for ArcGIS 10), ESRI
Sept. 2011 Workshop: Digital Elevation Model Based Watershed and Stream Network Delineation, Matt Baker, University of Maryland, Baltimore County

Taxonomy Training

- June 2007 Technical Workshop: Crayfish Ecology and Taxonomy, North American Benthological Society annual meeting
June 2006 Technical Workshop: Coleoptera Ecology and Taxonomy, North American Benthological Society annual meeting
July 2002 Fish Identification Workshop III: Cyprinids and Catostomids of the Atlantic slope drainage, PA Chapter American Fisheries Society
June 2001 Technical Workshop: Taxonomy and Systematics of the Freshwater Molluscs of North America, North American Benthological Society annual meeting
Oct. 2001 Fish Identification Workshop II: Catfish and Suckers, PA Chapter American Fisheries Society
July 2000 Fish Identification Workshop I: Darters, Perch, and Sculpins, PA Chapter American Fisheries Society

Other Training

- Jan. 2011 Technical Workshop: Model Selection and Multimodel Inference, Applied Information Company, David R. Anderson
Jan. 2003 Fundamentals in Ecosystem Ecology, Course at Institute for Ecosystem Studies, NY

NON-TEACHING PROFESSIONAL EXPERIENCE

- June 2011 – May 2012 **Graduate Research Assistant**
Undergraduate Academic Programs, College of Computer, Mathematical, & Natural Sciences, University of Maryland, College Park, MD
- Assist with learning outcome assessments
 - Quantify and analyze student performance in upper level biology classes
 - Develop protocols for assessing student performance
- Oct. 2000 – Aug. 2002 **Macroinvertebrate Biologist**
Normandeau Associates, Inc., Spring City, PA
- Sampled benthic macroinvertebrates and identified them to Genus/Species (including Chironomidae and Oligochaeta)
 - Prepared reports
 - Sampled fish populations by seining and electrofishing for relocation, flow alteration, warm water discharge, and stream assessment projects

- May 2000 – Oct. 2000 **Entomology / Field Assistant Intern**
Stroud Water Research Center, Avondale, PA
- Sampled benthic macroinvertebrates and identified them to Family
 - Assisted with metabolism and productivity studies in streams and reservoirs in the Catskill Mountains and Eastern New York state
 - Assisted the education department with field instruction on native fish biology and classroom instruction on benthic macroinvertebrates
- Jan. 2000 – May 2000 **Ecology Laboratory Assistant**
Millersville University, Millersville, PA
- Assisted in setting up labs for Ecology classes including the collection and identification of aquatic organisms and terrestrial vegetation
 - Assisted with (and in one case led) lab instruction on basic macroinvertebrate identification
 - Developed a synoptic teaching collection of aquatic insect larvae
- Summer 1999 **Environmental Analysis Intern**
Pennsylvania DOT, Bureau of Environmental Quality, Harrisburg, PA
- Sampled fish populations for endangered species and general population surveys
 - Participated in the development and review of the wetland banking program, including wetland surveys, plant identification, and hydric soil assessments
 - Created and reviewed technical documents related to fish surveys, the endangered species task force, wetland banking, and terrestrial habitat mitigation

TEACHING EXPERIENCE

- Summer 2005, 2006 HHMI Teaching and Learning Fellow (Developed curriculum and instructed Middle School Jumpstart Program, College of Life Sciences, University of Maryland)
- Instruction**
- Summer 2012 Instructor, EXST016 YD41 Science Detectives: An Introduction to Forensic Science, Univ. of Maryland
- Fall 2004, Spring 2005, '09 Teaching Assistant, BSCI 106 Principles of Biology II, Univ. of Maryland
- Fall 2008 Teaching Assistant, BSCI 393 Biology of Extinct Animals Laboratory, Univ. of Maryland
- Spring 2006, '07, Fall 2008 Teaching Assistant, BSCI 467 Freshwater Biology, Univ. of Maryland
- Spring 2008 Teaching Assistant, BSCI 337 Biology of Insects, Univ. of Maryland
- Fall 2005, '06, '07 Teaching Assistant, BSCI 106 Honors Principles of Biology II, Univ. of Maryland

Spring 2006, '07	Teaching Assistant, BSCI 120 Insects, Univ. of Maryland
Summer 2005	Teaching Assistant, MEES698S Ecological and Geomorphic Principles of Stream Restoration, Univ. of Maryland
July 2003	Middle School Jumpstart Program, College of Life Sciences, Univ. of Maryland
Spring 2003	Teaching Assistant, Mammalian Physiology BSCI 441, Univ. of Maryland
Fall 2002	Teaching Assistant, BSCI 105 Principles of Biology I, Univ. of Maryland

Other Experiences

Fall 2003 – Spring 2004	Teaching Assistant (Prep TA) - BSCI 105 Principles of Biology I, Univ. of Maryland
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MENTORING

Sean McCanty – Univ. of Maryland, Undergraduate in Environmental Science and Technology

Field and lab assistant for project assessing caddisfly assemblages in urban and rural streams, 2010-2012

- Received internship in the Fish and Invertebrate Ecology Lab at the Smithsonian Environmental Research Center, summer 2012
- Currently working as an independent undergraduate researcher with Dr. William Lamp, Dept. of Entomology, UMD

Lauren Culler – Univ. of Maryland, Undergraduate in Biological Sciences

Field and lab assistant for project collecting and identifying stream macroinvertebrates, 2005-2006

- Obtained position as lab manager for William Lamp in the Dept. of Entomology, UMD
- Later obtained Masters degree in Entomology, Dept. of Entomology, UMD
- Currently a doctoral student at Dartmouth College

Daniel Kucin – Duval High School, Senior

High School Science Fair Project “Crayfish Survey: Are invasive crayfish inhabiting Maryland waters?”, Summer – Fall 2006

- Overall Honorable Mention, Prince George’s County Science Fair
- National Oceanic and Atmospheric Admin. 2005-06 Taking the Pulse of the Planet Award
- Federal Water Quality Association Honorable Mention: Environmental
- Patent and Trademark Office Society Certificate for Superior Innovative Achievement, 2nd place
- Two years paid tuition at Prince George’s Community College