

Curriculum Vitae

Rachel E. Schultz

College of Natural Resources, University of Wisconsin – Stevens Point

800 Reserve St., Stevens Point, WI 54481

(715) 346-3152, raschult@uwsp.edu

I. EDUCATION

- 2010 Ph.D., **The Ohio State University**, Environment and Natural Resources
2006 M.S., **Technische Universität München**, Ecology
2003 B.S., **Northland College**, Environmental Studies-Restoration Ecology, *summa cum laude*

II. PROFESSIONAL EXPERIENCE

- 2016- **Lecturer**, College of Natural Resources, University of Wisconsin–Stevens Point
2011-2016 **Assistant Professor**, Center for Earth and Environmental Science, SUNY
Plattsburgh
2010-2011 **Postdoctoral Researcher**, Department of Wildlife, Fisheries and Aquaculture,
Mississippi State University

III. PEER-REVIEWED PUBLICATIONS

Schultz, R. and L. Pett. 2017. Plant community effects on CH₄ fluxes, root surface area, and carbon storage in experimental wetlands. *Ecological Engineering*. (in review)

Webb, K., Schultz, R. and Dibble, E. 2015. The influence of invasive aquatic plant removal on diets of bluegill in Minnesota lakes. *Journal of Aquatic Plant Management* 54, pp. 37-45.

Lenihan, W, Schultz, R. 2014. Carnivorous plant (*Sarracenia purpurea* L.) increases root growth in response to nitrogen addition. *Botany* 92(12): 917-921.

Maynard GA, Mihuc TB, Schultz RE, Sotola VA, Reyes AJ, Malchoff MH, Garneau DE. 2013. Use of external Indicators to Evaluate Stress of Largemouth (*Micropterus salmoides*) and Smallmouth (*M. dolomieu*) Bass at Tournaments. *Open Fish Science Journal* 6:78-86.

Andrews, S., Schultz, R., Bouchard, V., and Frey, S. 2013. The role of plant community structure in mediating potential methane production and potential iron reduction in experimental wetland mesocosms. *Ecosphere* 4(4): 44. <http://dx.doi.org/10.1890/ES12-00314.1>

Schultz, R. and Dibble, E. 2012. The effects of invasive macrophytes on fish and macroinvertebrates: the role of invasive plant traits. *Hydrobiologia* 684 (1):1-14.

Schultz, R., Bouchard, V. and Frey, S. 2012. Overyielding and the role of complementary use of nitrogen in wetland plant communities. *Aquatic Botany* 97 (1):1-9.

Schultz, R., Andrews, S., O'Reilly, L., Bouchard, V. and Frey, S. 2011. Plant community composition more predictive than diversity of carbon cycling in freshwater wetlands. *Wetlands* 31 (5):965-977.

Andrews, Sarah, R. Schultz, S.D. Frey and V. Bouchard. 2009. The effects of plant community composition and richness on methane production and iron reduction in experimental mesocosms. *Journal of Nematology* 41(4):302-303.

Drösler, M., Bergmann, L., Freibauer, A., Jungkunst, H.F., Schultz, R., Höll, B.S., Fielder, S., 2006. Long-term effect of fen-restoration on the C-balance and the GWP-balance. *Verh. Ges. Ökol* 36, 26.

IV. OTHER PUBLICATIONS

Schultz, R. 2015. Alpine plant restoration along Whiteface Veterans' Memorial Highway. Adirondack Botanical Society. Blog post. <https://adkbotsoc.org/2015/11/11/alpine-plant-restoration-along-whiteface-veterans-memorial-highway/>

Straub, J., Schultz, R. 2015. Geo-botany of globally rare sandstone pavement pine barrens, Clinton County, NY. New York State Geological Association Field Trip Guidebook, 87th Annual Meeting.

Schultz, R. 2014. Saving *Pyrola minor* on Whiteface Mountain. Adirondack Botanical Society. <http://adkbotsoc.org/2014/10/05/saving-pyrola-minor-on-whiteface-mountain/>

Schultz, R. 2014. Notes from the field: signs of spring, observations from New York. *Wetland Science and Practice* 31(2): 22.

Schultz, R. 2013. Slush Pond Bog: A Quaking Good Time. Adirondack Botanical Society. <http://adkbotsoc.org/2013/09/15/slush-pond-bog-trip-a-quaking-good-time/>

Madsen, J.D., P. Amburn, R. Brown, E. Dibble, G. Ervin, C. Abbott, C. Brooks, D. Irby, S. Lee, V. Maddox, R. Schultz, L. Wasson, R. Wersal, T. Woolf, D. McBride, and N. Madsen. 2012. Research to Support Integrated Management Systems of Aquatic and Terrestrial Invasive Species: Annual Report, 2011. Geosystems Research Institute GRI#5051, Mississippi State University, Mississippi State, MS.

Madsen, J.D., P. Amburn, R. Brown, E. Dibble, G. Ervin, D. Shaw, C. Abbott, G. Baker, K. Bloem, C. Brooks, D. Irby, S. Lee, V. Maddox, R. Rose, R. Schultz, L. Wallace, L. Wasson, M. Welch, R. Wersal, D. McBride, and N. Madsen. 2011. Research to Support Integrated Management Systems of Aquatic and Terrestrial Invasive Species: Annual Report, 2010. Geosystems Research Institute GRI#5047, Mississippi State University, Mississippi State, MS.

Schultz, R., 2011. Ecosystem Ecology: A New Synthesis - Bridging the gap between natural and social science to reach holistic management goals. *Landscape Ecology* 26 (4):603-604.

Schultz, R., Bouchard, V., and Frey, S. 2009. Root production and methane dynamics: impact of wetland functional group diversity and composition. Available from Nature Precedings <http://dx.doi.org/10.1038/npre.2009.3625.1>

V. INVITED PRESENTATIONS

Schultz, R. and **L. Pett**. 2016. Plant community effects on biomass production and methane emissions from experimental wetlands: Applications for restoration. 5th International EcoSummit, August 29-Sept. 2 2016, Montpellier, France.

Schultz, R. 2014. Effect of invasive macrophytes on macroinvertebrates and fish: the role of traits. Joint Aquatic Sciences Meeting, May 18th-24th 2014, Portland, OR

Schultz, R. 2013. Green teams and armies of one: plant community effects on wetland and aquatic systems. Biology Department Seminar Series at Binghamton University.

Schultz, R. 2011. Green teams: plant community effects on wetland and aquatic systems. Graduate Seminar Series at the Rubenstein School of Environment and Natural Resources - University of Vermont.

Schultz, R. 2011. Green teams: plant community effects on wetland and aquatic systems. Invited Research Presentation, SUNY Plattsburgh.

Schultz, R. 2009. Biodiversity and ecosystem functioning research: implications for wetland ecosystems. OSU School of Environment and Natural Resources Fall Seminar Series, Columbus, OH.

Bouchard, V., Hossler, K. and Schultz, R. 2008. Shoots, roots and microbes in wetlands: how they interact and why we care. OSU School of Earth Sciences, Division of Global and Environmental Change Seminar Series, Columbus, OH.

Schultz, R. 2008. Centers for Ocean Science and Education Excellence (COSEE) Great Lakes Educators House Call Workshop for NSF GK-12 program at Ohio State, Columbus, OH.

VI. OTHER ACADEMIC PRESENTATIONS (selected presentations since 2012)

Pett, L. and Schultz, R. 2017. Effects of Functional Group Richness of Plants on Invertebrate Diversity in Wetland Mesocosms. Northeastern Natural History Conference, April 21-23, Cromwell, CT

Schultz, R. and **Pett, L.** 2017. Do plant community composition and diversity affect belowground carbon dynamics in experimental wetlands? Wisconsin Wetlands Association's 22nd Annual Wetland Science Conference, February 28 – March 2, Stevens Point, WI.

De La Mater, D., Hammer, C., Malanchuk, J., Schultz, R., Straub, J. 2015. Vegetation characteristics of two uncommon floodplain forest types in the northeastern U.S. New York Waterfowl & Wetlands Network 2015, July 28-29, Oswego, NY.

Schultz, R., **Wilson, R., Christian, N.** 2015. Ferns, Rushes, and Tussocks: Plant Community Effects on Biomass in Experimental Wetlands. Society of Wetland Scientists Annual Meeting, May 31 – June 4, Providence, RI.

DaBreo, K., Moseman, E., Rosedale, A. and Schultz, R. 2015. Invasive Species Impact on Leaf Litter Decomposition in an Aquatic System. Northeastern Natural History Conference, April 19-20, Springfield, MA.

Dreier-Lawrence, G. and Schultz, R. 2015. Community Survey and Habitat Mapping of a Wetland Reserve Program Conservation Easement in Champlain, NY. Sigma Xi Symposium, April 26th, Plattsburgh, NY.

Moseman, E., Rosendale, A. and Schultz, R. 2014. Aquatic decomposition of native and invasive leaf litter in Rugar Woods, Plattsburgh, New York. Northeastern Natural History Conference, April 7-9, Springfield, MA.

Straub, J., Garneau, D., and Schultz, R. 2014. From Local to Continental Scales: Training Undergraduates to Think Big through the Ecological Research as Education Network. Northeastern Natural History Conference, April 7-9, Springfield, MA.

Gartner, T., Thomas, C., Anderson, L., Dosch, J., Geedey, K., Hornback, D., Lyons, K., Machado, J.L., Mankiewicz, C., Schultz, R., and Zimmerman, C. 2013. Decomposition in aquatic and terrestrial invaded systems (DATIS): a collaboration among ecologists at primarily undergraduate institutions. Ecological Society of America Annual Meeting, August 5-9, Minneapolis, MN.

Schultz, R, Bouchard, V. and Frey, S. 2013. Functional diversity and composition: which is more important in determining methane cycling in freshwater wetlands? Society of Wetland Scientists Annual Meeting, June 2-6, Duluth, MN.

Blankenship, K.M. and Schultz, R.E. 2013. Variation in litter decomposition between native speckled alder and non-native European buckthorn: an experimental study in Plattsburgh, NY. Lake Champlain Research Consortium Student Symposium, April 24, Burlington, VT.

Maynard, G.A., Mihuc, T.B., Schultz, R.E., Malchoff, M.H., Garneau, D.E., Sotola, V.A., and Reyes, A. 2013. Use of external indicators to evaluate black bass (*Micropterus* spp.) stress at catch and release tournaments. Southern Division of the American Fisheries Society Annual Meeting, Nashville, TN.

Smith, C., Schultz, R., and Allen, E., 2012. Function and coverage of vegetation at Wickham Marsh in Essex County, New York. Sigma Xi Research Symposium. April 27th, Plattsburgh, NY. Poster Presentation.

Bold type indicates undergraduate presenter

VII. RESEARCH GRANTS SUBMITTED

Principle Investigator “Influence of groundwater level declines on plant communities of Wisconsin Central Sands kettle lakes and wetlands” State of Wisconsin Groundwater Coordinating Council, \$77,975 requested.

Project Director “Coastal Wetland Restoration and Enhancement of Oconto Marsh” Fund for Lake Michigan RFP, \$155,116 requested.

Project Director “Coastal Wetland Restoration and Enhancement of Oconto Marsh” Sustain Our Great Lakes RFP, National Fish and Wildlife Foundation, \$155,116 requested.

Co-Principal Investigator “Developing a New York Waterfowl & Wetlands Collaborative Network.” SUNY 4E Grant Program. \$9,581 awarded 2015.

Co-Principal Investigator “An Ecological Integrity Comparison of Protected and Managed Forestlands in the Adirondacks” Northern States Research Consortium, \$133,408 requested.

Participating Scientist “Collaborative Research: Invasives as drivers, passengers, or both: Examining the roles of macrosystem processes on the impact and spread of invasive shrub species” National Science Foundation, MacroSystems Biology Program, \$120,000 requested (SUNY Plattsburgh portion only).

NYS/UUP Individual Development Awards Program, \$400 awarded 4/2014.

Principal Investigator “Forest management and greenhouse gas fluxes: wetland dynamics in peatlands vulnerable to climate change” Northern States Research Consortium, \$124,348 requested.

Co-Principal Investigator “Economic Value of Surface Water Resources: Ecological Services at Multiple Scales in the Lake Champlain Basin of New York and Vermont” Lake Champlain Basin Program, \$70,000 requested.

Participating Scientist “Collaborative Research: A Research Network and Training Model at Primarily Undergraduate Institutions for MacroSystems Projects: Stream Metabolism and Impacts of Non-Native Shrubs” National Science Foundation, MacroSystems Biology Program, \$100,540 requested (SUNY Plattsburgh portion only).

Principal Investigator “Effects of disturbance on methane dynamics in temperate wetlands integrated into the biogeochemistry model CLM4Me” US DOE Terrestrial Ecosystem Science Program, \$356,000 requested.

The Presidential Research Award Program, SUNY Plattsburgh, \$4,962 awarded 5/2/2012.

Principal Investigator “Chazy Community Wetland and Wildlife Enhancement Program” National Fish and Wildlife Foundation Five Star Restoration Program, \$39,856 requested 2/15/2012.

NYS/UUP Professional Development Individual Awards Program, \$200 awarded 12/2011.

Co-Principal Investigator “Low-grade weirs for nutrient and sediment retention: effects on aquatic and wetland biodiversity.” USDA AFRI Foundational Program, \$322,958 requested.

Principal Investigator “Determining the role of plant community composition and hydrology in the greenhouse gas mitigation potential of Wetland Reserve Program land.” USDA AFRI Fellowship Program, \$110,000 requested.

VIII. TEACHING EXPERIENCE

- 2017 **Instructor**, Ecological Basis of Natural Resource Management lecture and lab (NRES 151), 240 students; Design of Constructed Wetlands (WATR 454), 24 students; Advanced Studies in Wildlife: Restoration Ecology Theory and Practice (WLDL 752), 2 students, UWSP
- 2016 **Instructor**, Ecological Basis of Natural Resource Management lecture and lab (NRES 151), 240 students; Ecological Data Analysis (WLDL 742); 6 students; University of Wisconsin - Stevens Point; (General Ecology (BIO/ENV 304L), 63 students; Restoration Ecology (ENV 407A), 18 students; General Ecology Laboratory (BIO/ENV 304LA), 17 students, SUNY Plattsburgh
- 2015 **Instructor**, Wetland Ecology and Management (ENV 439A & 599), 11 students; Restoration Ecology (ENV 407A), 18 students; Environmental Science Seminar (ENV 340B), 15 students; General Ecology Laboratory (BIO/ENV 304LA), 17 students, SUNY Plattsburgh
- 2014 **Instructor**, General Ecology Lecture (BIO/ENV 304), 64 students; Wetland Ecology and Management (ENV 439A), 21 students; Restoration Ecology (ENV 407A), 17 students; Environmental Science Seminar (ENV 340B), 12 students; General Ecology Laboratory (BIO/ENV 304LA), 21 students, SUNY Plattsburgh
- 2013 **Instructor**, General Ecology Lecture (BIO/ENV 304), 47 students; Wetland Ecology and Management (ENV 439A), 11 students; Restoration Ecology (ENV 407A), 23 students; Environmental Science Seminar (ENV 340B), 11 students; General Ecology Laboratory (BIO/ENV 304LA), 17 students, SUNY Plattsburgh
- 2012 **Instructor**, Statistical Analysis in R (SCI 505), 5 students; General Ecology Lecture, 75 students; General Ecology Laboratory (BIO/ENV 304LC), 18 students; Wetland Ecology and Management (ENV 339A), 24 students; and Environmental Science Seminar (ENV 340A), 13 students, SUNY Plattsburgh
- 2011 **Instructor**, General Ecology (BIO/ENV 304A), 68 students; General Ecology Laboratory (BIO/ENV 304LC), 19 students; and Wetland Ecology and Management (ENV 339A), 18 students, SUNY Plattsburgh
- 2010 **Instructor**, Limnology Laboratory (WF 4221/6221), 18 students, Mississippi State University
- 2010 **Co-Instructor**, Limnology (WF 4222/6222), 19 students, Mississippi State University
- 2009 **Instructor**, Water Quality Management (ENR 355), 42 students, The Ohio State University
- 2008 **Graduate Teaching Assistant**, Methods in Ecosystem Science (ENR 710), 14 students, The Ohio State University
- 2007 **Graduate Teaching Assistant**, Methods in Ecosystem Science (ENR 710), 16 students, The Ohio State University
- 2004 **Environmental Educator**, National Mississippi River Museum and Aquarium

IX. ADVISING**Undergraduate students:**

2017 Independent Study Research Mentor for Loken, Z., UWSP
 2011-2016 Independent Study Research Mentor for 12 students, SUNY Plattsburgh
 Honors Thesis Committee member, The Ohio State University (Apolinar, E. 2009)

Graduate students:

Master's Thesis adviser, SUNY Plattsburgh (L. Pett 2015- present)
 Master's Thesis Committee member, SUNY Plattsburgh (Zajac, J. 2014- 2016)
 Master's Thesis Committee member, SUNY Plattsburgh (LaMay, M. 2013- 2015)
 Master's Thesis Committee member, SUNY Plattsburgh (Hayes-Pontius, E. 2011-2013)

X. SOCIETY MEMBERSHIP

Botanical Club of Wisconsin Native Plant Society, Society of Wetland Scientists, and Wisconsin Wetlands Association

XI. PEER REVIEW

Aquatic Invasions, Aquatic Sciences, Austral Ecology, Ecography, Ecological Engineering, Freshwater Biology, Freshwater Science, Hydrobiologia, Journal of Natural History, Journal of Plant Ecology, Landscape Ecology, Limnologica, Neotropical Ichthyology, Oikos, Plant and Soil, Soil Biology and Biochemistry, and Wetlands

XII. OTHER PROFESSIONAL ACTIVITIES

2016 Peer-reviewer for the National Science Foundation Collaborative Research in Ecosystem Studies program
 2014 Co-editor of the undergraduate e-journal, Scientia Discipulorum
 2013 Peer-review Panelist for the NASA 2013 Research Opportunities in Space and Earth Sciences solicitation
 2012- Expert Review Panelist for EPA grant, "Building a monitoring framework for detecting wetland response to climate change in the Adirondacks"
 2012-16 Participant of the State University of New York Distance Mentored Undergraduate Research
 2012-16 Affiliate of the Lake Champlain Research Institute
 2011-13 Junior Faculty Learning Community, Center for Teaching Excellence, SUNY Plattsburgh
 2011 R Club, Member and Guest Lecturer for *Using Ordination in R*, Mississippi State University, Department of Wildlife, Fisheries and Aquaculture
 2010-2011.1 Mississippi Women in Natural Resources Mentoring Group, Mississippi State University, Department of Wildlife, Fisheries and Aquaculture
 2010-11 Biogeochemistry Reading Group, Mississippi State University, College of Forest

Resources and Department of Geosciences

XIII. ACADEMIC SERVICE

- 2015-16 Member of the Faculty Senate Experiential Learning Ad Hoc Committee, SUNY Plattsburgh
- 2015-16 Member of the Feinberg Library Research Prize Committee, SUNY Plattsburgh
- 2014-16 Chair of the Curriculum Committee, Center for Earth and Environmental Science, SUNY Plattsburgh
- 2013-16 Faculty Senate representative for the Center for Earth and Environmental Science, SUNY Plattsburgh, (Fall 2014 – acting senator)
- 2014 Member of the Junior Faculty Advisory Group, SUNY Plattsburgh
- 2012-13 Visiting / Assistant Professor of Biology – Botany search committee member, SUNY Plattsburgh
- 2012-15 Hawkins Pond Infrastructure Replacement project, SUNY Plattsburgh
- 2011-13 Bylaws Committee, Center for Earth and Environmental Studies, SUNY Plattsburgh
- 2008-09 Mini-Grants reviewer, The Ohio State University, School of Environment and Natural Resources
- 2008-09 Graduate Studies Committee member, The Ohio State University, School of Environment and Natural Resources
- 2009 Recognition Banquet Committee member, The Ohio State University, School of Environment and Natural Resources
- 2008-09 Buckeye Ecologists Graduate Research Symposium Committee member, The Ohio State University
- 2008-09 Graduate Student Organization (GradRoots) Chair, The Ohio State University, School of Environment and Natural Resources
- 2008 Faculty search committee member, The Ohio State University, School of Environment and Natural Resources
- 2007-08 GradRoots Co-chair, The Ohio State University, School of Environment and Natural Resources
- 2002-2003 Campus Facility Master Plan, Landscape subcommittee member, Northland College

XIV. AWARDS & FELLOWSHIPS

- 2011, 13, &14 Academic Advisor Appreciation Recognition, SUNY Plattsburgh
- 2008 Ray Travel Award for Scholarship and Service, The Ohio State University, Council of Graduate Students
- 2008 GradRoots MiniGrant Award, The Ohio State University, School of Environment and Natural Resources
- 2006-2007 University Fellowship, The Ohio State University
- 2002-2003 Sigurd Olson Environmental Leadership Scholar, Northland College

XV. SELECTED OUTREACH ACTIVITIES AND SERVICE

- 2014-16 Lead a project to propagate the rare plant, *Pyrola minor*, through the Adirondack Botanical Society
- 2014 Invited presentation to the Shatagee Woods Chapter of the Adirondack Mountain Club: “Bogs are Awesome!”
- 2013-14 Presentation judge at the Society of Wetland Scientists Annual Meetings
- 2013-14 Science Mentor for the BioAusable Environmental Science 4H project, Plattsburgh, NY
- 2013 “Plants Are Cool, Too!” Featured guest on episode 3, “Skunk Cabbage”
- 2012 iMapInvasives training, Co-organizer, SUNY Plattsburgh
- 2011-16 Compost Group, Co-organizer, SUNY Plattsburgh
- 2010-11 Conservation Careers Discovery Day: Organizer, Mississippi Women in Natural Resources, Mississippi State University
- 2008-09 Scarlet and Gray Ag Day Educator: Wetland Ecology and Management, The Ohio State University
- 2007 Young Women's Summer Institute: Panelist
- 2001 AmeriCorps Volunteer, Iowa Department of Natural Resources
- 1995 & 98 Student Conservation Association Volunteer, Apostle Islands National Lakeshore and Mount Rodgers National Recreation Area
- 1997 Youth Conservation Corps Crew Member, Iowa Department of Natural Resources
- 1996-1997 Environmental Stewardship Advisory Commissioner, Dubuque, IA

XVI. RELEVANT TRAINING AND EXPERIENCE

- 2016 Van Training, UWSP
- 2013, 14, 15 Hazardous Communication (HAZCOM) Training
- 2010 Write Winning Grants, Grant Writers Workshop, Mississippi State University
- 2003 Field crew member on USGS – Great Lakes research on water level regulation effects on plant communities in Lake Ontario wetlands
- 2002 Field crew member on National Park service research on water level regulation effects on plant communities in Voyageurs National Park, MN

XVII. LANGUAGES

Native language - English, proficient in German and working knowledge of Spanish