

CURRICULUM VITAE

Katharina Anna Maria Engelhardt

Appalachian Laboratory
University of Maryland Center for Environmental Science
301 Braddock Road
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I. Education

- 1993 B. S., Oregon State University. Animal Science.
- 1997 M.S., Utah State University. Fisheries and Wildlife Ecology. Evaluation of translocation criteria for Trumpeter swans reintroduced to northern Utah: habitat quality and interactions with Tundra swans.
- 2000 Ph.D., Utah State University. Ecology. The role of species composition and biodiversity in wetland ecosystem resilience and processes.

II. Professional Background

- 2000-present Assistant professor, Appalachian Laboratory, University of Maryland Center for Environmental Science, Frostburg, MD.

III. Research

- A. Areas of professional expertise
Plant community ecology, experimental ecology, aquatic botany, wetland ecology, submersed aquatic plants, riparian buffers, tidal freshwater marshes, peatlands

B. Publications

1. Papers in Refereed Journals

- Engelhardt, K. A. M., J. A. Kadlec, V. L. Roy, and J. A. Powell. 2000. Evaluation of translocation criteria: a case study with trumpeter swans (*Cygnus buccinator*). *Biological Conservation* 94: 173-181.
- Powell, J. A. and K. A. M. Engelhardt. 2000. Optimal trajectories for the short-distance foraging flights of swans. *Journal of Theoretical Biology* 204: 415-430.

Engelhardt, K. A. M. and M. E. Ritchie. 2001 Effects of macrophyte species richness on wetland ecosystem functioning and services. *Nature* 411: 687-689. UMCES Contribution #3878.

Engelhardt, K. A. M. and J. A. Kadlec. 2001. Species traits, species richness and the resilience of wetlands after disturbance. *Journal of Aquatic Plant Management* 39: 36-39.

Engelhardt, K. A. M. and M. E. Ritchie. 2002. The effect of aquatic plant species richness on wetland ecosystem functioning. *Ecology* 83: 2911-2924.

Solan, M., B. J. Cardinale, A. L. Downing, K. A. M. Engelhardt, J. L. Ruesink, and D. S. Srivastava. 2004. Extinction and ecosystem function in the marine benthos. *Science* 306:1177-1180. UMCES Contribution #3829,

Rafaelli, D., B. J. Cardinale, A. L. Downing, K. A. M. Engelhardt, J. L. Ruesink, M. Solan, and D. S. Srivastava. 2005. Response to R. W. Flint and R. D. Kalke: Reinventing the wheel in ecology research? *Science* 307:1875-1876. UMCES Contribution #3859

Hopfensperger, K. N., K. A. M. Engelhardt, and S. W. Seagle. *In press*. The use of case studies in establishing feasibility for wetland restoration. Submitted to *Restoration Ecology*.

2. Books or Chapters

Bengtsson, J., K. Engelhardt, P. Giller, S. Hobbie, D. Lawrence, J. Levine, M. Vila, and V. Wolters. 2002. Slippin' and slidin' between the scales: the scaling components of biodiversity – ecosystem functioning relations. *In*: M. Loreau, S. Naeem, and P. Inchausti (eds.). *Biodiversity and Ecosystem Functioning: Synthesis and Perspectives*. Oxford University Press.

3. Published Abstracts

Engelhardt, K. A. M., and J. A. Kadlec. 1998. Predictions and observations of swans foraging in northern Utah. North American Ornithological Conference, St. Louis, Missouri.

- Engelhardt, K. A. M., and J. A. Kadlec. 1998. Mechanisms of coexistence between Tundra and Trumpeter swans. Annual Meeting, Ecological Society of America, Baltimore, Maryland.
- Engelhardt, K. A. M., and J. A. Kadlec. 1999. Biodiversity versus species effects on ecosystem processes and resilience in mesocosm wetlands. Annual Meeting, Ecological Society of America, Spokane, Washington.
- Engelhardt, K. A. M., J. A. Kadlec, and V. L. Roy. 1999. Trumpeter swan translocations to northern Utah: evaluation of biological and socio-political criteria. Annual Meeting, Society for Conservation Biology, College Park, Maryland.
- Engelhardt, K. A. M., and J. A. Kadlec. 1999. Effects of biodiversity and species assemblages on freshwater wetland productivity after a disturbance. Annual Meeting, Society of Wetland Scientists, Norfolk, Virginia.
- Engelhardt, K. A. M., and J. A. Kadlec. 2000. Traits of four submersed aquatic macrophyte species: effects on resources, environmental conditions and resilience after clipping and drought disturbances. Annual Meeting, Aquatic Plant Management Society, San Diego, California.
- Engelhardt, K. A. M., M. E. Ritchie, and J. A. Kadlec. 2000. Species richness does not always enhance productivity: priority effects and competition for space in wetland plant communities. Annual Meeting, Ecological Society of America, Snowbird, Utah.
- Engelhardt, K. A. M. 2001. Consequences of diversity loss on ecosystem functioning: can we extrapolate to landscape scales? Annual Meeting, Ecological Society of America, Madison, Wisconsin.
- Engelhardt, K. A. M. 2002. Biodiversity in restoration. Annual Meeting, Aquatic Plant Management Society, Keystone, Colorado.
- Chadwell, T. and K. Engelhardt. 2003. Submersed aquatic plant communities in Maryland reservoirs: Management and control. Annual Meeting, Aquatic Plant Management Society, Portland, Maine.
- Chadwell, T. and K. Engelhardt. 2004. Effects of preexisting submersed macrophytes on the invasion success of *Hydrilla verticillata*: Is native plant restoration an effective biological management

technique? Annual Meeting, Aquatic Plant Management Society, Tampa, Florida.

Engelhardt, K. A., M. Solan, B. J. Cardinale, A. L. Downing, J. L. Ruesink, and D. S. Srivastava. 2004. Extinction scenarios and ecosystem effects in the marine benthos. Annual Meeting, Ecological Society of America, Portland, Oregon.

Engelhardt, K. A. M. 2005. Effect of tree diversity and width on nativeness of riparian buffers. Annual Meeting, Ecological Society of America, Montreal, Canada.

4. Papers Submitted for Publication

Engelhardt, K. A. M. *In review*. Relating effect and response traits in submersed aquatic macrophytes. Submitted to Ecological Applications.

Engelhardt, K. A. M., J. Bortz, and R. H. Hilderbrand. *In review*. Short-term exposure to a turbid environment: response of species and implications for restoration. Submitted to Estuaries.

Hopfensperger, K. N., K. A. M. Engelhardt, and S. W. Seagle. *In review*. Feasibility studies in restoration decision-making. Submitted to Environmental Management.

Chadwell, T. B. and K. A. M. Engelhardt. *In review*. Effects of pre-existing submersed macrophytes and propagule pressure on the invasion success of *Hydrilla verticillata*. Submitted to Journal of Applied Ecology

Engelhardt, K. A. M., M. E. Ritchie, and J. A. Powell. *Rejected*. Body size mediated patterns of resource use by Tundra and Trumpeter swans. Submitted to Biological Conservation *and* Journal of Animal Ecology.

5. Technical Reports

Engelhardt, K. A. M., J. A. Kadlec, T. W. Aldrich, and V. L. Roy. 1999. The Utah Trumpeter Swan reintroduction program: proposal to evaluate reintroduction success. *In* Proceedings and papers of the sixteenth Trumpeter Swan Society Conference. J. R. Balcomb, M. H. Linck, A. L. Price (eds.). Pp. 61-65.

Getsinger, K., M. D. Moore, E. Dibble, E. Kafcas, M. Maceina, V. Mudrak, C. Lembi, J. Madsen, R. M. Stewart, L. Anderson, K. Getsinger, W. Haller, C. Layne, A. Cofrancesco, R. Newman, F. Nibling, K. Engelhardt, and J. Madsen. 2004. Best Management Practices Handbook for aquatic plant management in support of fish and wildlife habitat. Aquatic Ecosystem Restoration Foundation, Lansing, Michigan. 74pp. UMCES Contribution #TS-477-04.

Hopfensperger, K., K. Engelhardt, and S. Seagle. 2004. Should we restore Dyke Marsh? A management dilemma facing George Washington Memorial Parkway. Handbook in support of a workshop organized for the National Park Service. 98pp. UMCES Contribution #SS-86-05

Engelhardt, K. A. M. 2004. Developing a research program: The effects of SAV diversity on restoration success. Final Report – Fed Award #NOAA NA06RG0101. UMCES Contribution # TS-476-04

Engelhardt, K. A. M. and L. McChesney. 2005. Developing a submersed aquatic vegetation (SAV) monitoring program at Otter Point Creek, Maryland. Final Report)May 1, 2004-March 31, 2005. UMCES Contribution #TS-486-05

Engelhardt, K. A. M. 2005. A vascular plant inventory for four parks of the National Capital Network. Final Report – April 30, 2005. UMCES Contribution #TS-489-05.

Adams, S. and K. A. M. Engelhardt. 2005. Grassland Restoration Workshop: Aiding Managers in National Capital Region Parks. UMCES Contribution #SS-88-05.

C. Contracts and Grants

1. Awarded

a. Active

Controlling non-native submersed aquatic macrophyte species in Maryland reservoirs: Plant competition mediated by selective control. Aquatic Ecosystem Restoration Foundation. 2002-2005. \$40,000. (Principal investigator, 0.5mo)

A vascular plant inventory plan for three parks of the National Capital Network. National Park Service. 2003-2005. \$94,254. (Principle investigator, 1.25mo).

Developing a submersed aquatic vegetation (SAV) monitoring program at Otter Point Creek, Maryland. National Estuarine Research Reserve. 2004-2005. \$7,960. (Principle investigator, 0mo).

Should we restore Dyke Marsh? A management dilemma facing GWMP. National Park Service. 2003-2005. \$158,904. (Principal investigator, 2mo).

A sedge, grass and rush inventory of NCR Parks. National Park Service. 2004-2006. \$60,873. (Principle investigator, 0.5mo).

Otter Point Creek submerged aquatic vegetation grid study. National Estuarine Research Reserve. 2005. \$20,000. (Principle investigator, 0.5mo).

Grassland restoration workshop: Aiding managers in the National Capital Regional Parks. National Park Service. 2005-2006. \$28,000. (Principle investigator, 0.5mo).

b. Terminated

Creating and restoring wetlands to enhance ecosystem performance: should wetlands be managed for overall diversity or the presence of “ecosystem engineers”? Society of Wetland Scientists. 1999-2000. \$1,000. (Principal investigator, 12mo)

Exotic species control and native plant restoration in Maryland reservoirs. National Fish and Wildlife Foundation through Maryland Department of Natural Resources. 2002-2003. \$5,978. (Subcontract, 0mo)

Developing a research program: The effects of SAV diversity on restoration success. Maryland Sea Grant. 2002-2003. \$9,988. (Principle investigator, 0.5mo)

Effects of preexisting submerged aquatic vegetation on the invasion success of *Hydrilla verticillata*: Is native plant restoration an effective biological management technique? National Estuarine Research Reserve. 2003-2004. \$17,500. (Faculty advisor, 0mo).

Developing a handbook to restore submersed aquatic vegetation at military installations around the Chesapeake Bay. Chesapeake Research Consortium. 2003-2004. \$7,500. (Subcontract, 1mo).

2. Submitted in 2005

Otter Point Creek submerged aquatic vegetation grid study. National Estuarine Research Reserve. 2005. \$20,000. (Principle investigator, 0.5mo). Accepted.

Competitive abilities of *Hydrilla verticillata* and *Vallisneria americana* along a nutrient gradient. National Estuarine Research Reserve. 2006-2007. \$20,000. (Faculty advisor, 0mo). Pending.

Annual species patch dynamics: effects on tidal freshwater marsh ecosystem functioning and stability. Environmental Protection Agency. 2006-2008. \$74,000. (Faculty advisor, 0mo). Pending.

Annual species patch dynamics: effects on tidal freshwater marsh ecosystem functioning and stability. Canon National Park Science Scholar Program. 2005-2007. \$78,000. (Faculty advisor, 0mo). Rejected.

Evaluating extent of agricultural weed invasions in reforested riparian buffers in Maryland: ecological and economic impacts. Maryland Center for Agro-ecology. 2006-2008. \$105,938. (Principle investigator, 1.0mo). Rejected.

CAREER: The biodiversity and island biogeography of wetland plant communities – Testing assumptions and predictions of niche theory and neutral theory. National Science Foundation. 2006-2011. \$832348. (Principle investigator, 1.5mo). Rejected.

Impacts of riparian buffer diversity, width and age on ecosystem health. United States Department of Agriculture NRCS CIG. 2006-2008. \$147,390. (Principle investigator, 1.0mo). Lost by agency.

D. Invited Seminars and Presentations

- Engelhardt, K. A. M. and M. A. Ritchie. 2000. Species traits, inter-specific interactions, and the effects of biodiversity on wetland ecosystem processes. University of Wyoming, Laramie, Wyoming.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. University of Maryland Center for Environmental Science, Appalachian Laboratory, Maryland.
- Engelhardt, K. A. M. 2001. The indirect and direct effects of aquatic plant diversity on wetland ecosystem functioning and services. Smithsonian Environmental Research Center, Maryland.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. University of Maryland Center for Environmental Science, Horn Point Laboratory, Maryland.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. Submerged Aquatic Plant Task Group Meeting, Maryland.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. University of Pittsburgh, Pennsylvania.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. University of Virginia, Virginia.
- Engelhardt, K. A. M. 2001. Effects of macrophyte species richness on wetland ecosystem functioning and services. DIALOG symposium, Bermuda.
- Engelhardt, K. A. M. 2002. Effects of macrophyte species richness on wetland ecosystem functioning and services. Clarion University, Pennsylvania.
- Engelhardt, K. A. M. 2002. Effects of macrophyte species richness on wetland ecosystem functioning and services. University of Maryland Center for Environmental Science, Chesapeake Bay Laboratory, Maryland.
- Engelhardt, K. A. M. 2002. The consequences of biodiversity loss on ecosystem functioning and services. Workshop presentation in Washington, DC.
- Engelhardt, K. A. M. 2002. Linking biodiversity and ecosystem functioning in wetland systems. University of Maryland, College Park, Maryland.

Engelhardt, K. A. M. 2003. The role of biodiversity in wetland ecosystem functioning and restoration. Institute of Ecosystem Studies. Millbrook, New York.

Engelhardt, K. A. M. 2004. Providing services to National Parks. Chesapeake Bay Cooperative Ecosystems Studies Unit National Managers Meeting. Baltimore, Maryland.

Engelhardt, K. A. M. 2004. The role of biodiversity in restoration success of aquatic habitats. Maryland Department of Natural Resources. Annapolis, Maryland.

Engelhardt, K. A. M. 2004. A model SAV program. SAV Workshop. Fort Story, Virginia.

Engelhardt, K. A. M. 2004. Restoration 1: Planning. SAV Workshop. Fort Story, Virginia.

Engelhardt, K. A. M. 2004. Restoration 2: Experimental designs and approaches. SAV Workshop. Fort Story, Virginia.

Engelhardt, K. A. M. 2004. Habitat evaluation II: Water quality assessment. SAV Workshop. Fort Story, Virginia.

E. Symposia Organized/Chaired for Professional Meetings

Oral session chaired at Annual Meeting of the Ecological Society of America, August 1998, Baltimore.

F. Active Memberships in Professional Societies

Society of Wetland Scientists
Ecological Society of America
Aquatic Plant Management Society

G. Other Professional Recognition

1. Editorships

none

2. Awards

Stokes-Leopold Memorial Scholar 1999-2000
College of Natural Resources Research Assistant of the Year 1999-2000

Best student paper (3rd place) at Annual Meeting of the Aquatic Plant Management Society 2000

3. Peer Review Activities

a. Proposals reviewed

The Nature Conservancy, Maryland/DC Chapter (1 in 2004)
National Science Foundation (2 in 2005)
Society for Wetland Scientists (21 in 2005)

b. Articles reviewed

Aquatic Botany (1 in 2005)
Biogeochemistry (1 in 2001)
Biological Conservation (1 in 2005)
Ecology Letters (1 in 2002, 1 in 2003)
Ecology (1 in 2003, 1 in 2004)
Ecological Applications (1 in 2005)
Ecosystems (1 in 2005)
Environmental and Experimental Biology (1 in 2005)
Journal of Aquatic Plant Management (1 in 2000, 1 in 2004)
Journal of Ecology (1 in 2003)
Journal of Wetland Management (1 in 2003)
Oikos (1 in 2005)
Water Research (1 in 2001)
Wetlands (1 in 2003, 1 in 2004, 2 in 2005)
Wilson Bulletin (1 in 2000)

H. Consulting Activities

None

IV. Teaching and Training

A. University System of Maryland Courses Taught

MEES 698R / BIOL 622: Community Ecology: Integrating Composition, Scale and Process (3 credits)

BIOL 694: Seminar: Species Diversity in Space and Time (1 credit)

MEES608W/BIOL694: Seminar: Classic Readings in Ecology (1 credit)

MEES608X: Seminar: Aquatic Plant Physiology (1 credit; co-instructor with Kristy Hopfensperger)

MEES 698R: Community and Ecosystem ecology: Linking Structure and Function (3 credits, team-taught with Dr. Steven Seagle)

B. Courses Taught Outside the University System of Maryland

None

C. Graduate Students Supervised as Major Advisor

1. Degrees Conferred

Chadwell, Todd, B.; M.S.; Marine, Estuarine and Environmental Science, Ecology AOS; University of Maryland. 2004

2. Students Currently Supervised

Adams, Sherry; M.S.; Applied Ecology and Conservation Biology; Frostburg State University.

Beser, Todd; M.S.; Estuarine and Environmental Science, Biological Oceanography AOS; University of Maryland.

Eichelberger, Bradley, A.; M.S.; Applied Ecology and Conservation Biology; Frostburg State University.

Elmore, Annette; M.S.; Estuarine and Environmental Science, Environmental Science AOS; University of Maryland.

Hopfensperger, Kristy; Ph.D. Estuarine and Environmental Science, Environmental Science AOS; University of Maryland.

McChesney, Lauren; M.S.; Estuarine and Environmental Science, Ecology AOS; University of Maryland.

Tessel, Samantha; M.S., Applied Ecology and Conservation Biology; Frostburg State University.

3. Current Graduate Student Committee Memberships

Evan Grant

Ph.D.

MEES

V. Service

A. Popular Articles

None

B. Public Service

1. State/Regional Service

Member, SAV Task Group. 2001 to present.

Member, Freshwater SAV Partnership. 2002 to present.

Advisor for interpretive dance team at Frostburg State University. 2003.

Presentation of the AL Forum "A scientific exploration of peatlands". 2003.

Mentor for teacher interns. 2003 to present.

Advisor for homeowners in Rohrersville, Maryland. 2003.

Presentation to Garden Club. 2003.

Presentation to local school. 2003.

Judge of Science Fair at Northern Highschool. 2004, 2005.

2. Service Outside Region

Community Outreach Event: "An Oasis of Salt" sponsored by the Ecological Society of America. Taught wetland ecology portion of event. Antelope Island, Utah. 2000.

Scientific Advisor for Aquatic Ecosystem Restoration Foundation. 2003 to present.

Student Panel of the Society for Wetland Scientists. 2003 to present.

C. University System of Maryland

University of Maryland MEES Ecology AOS committee (6/2004 to present)

D. Laboratory and Center

Laboratory Committees:

- Library (11/2000 to present)
- Graduate education (12/2001 to 2/2004)
- Faculty development (11/2000 to 5/2001)
- Space improvement (12/2002 to 5/2004)
- FSU watershed track (5/2003 to 12/2003)
- Search committee chair Forest Ecologist (2005)

Center Committees:

- IAN advisory committee (5/2004 to present)
- Convocation committee (making connections across labs; 2005)