

ANDREW MATTHEW MONKS

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EDUCATION

Western Washington University, Bellingham, WA 2013-2016

MS Program in Biology: August 2016

Thesis Project: Using APEX to Model an Agricultural Watershed in Whatcom County

University of Michigan, Ann Arbor, MI 2006-2009

B.S. with High Distinction in Ecology and Evolutionary Biology: December, 2009

Minor: Music

Overall GPA: 3.84/4.0

TEACHING

Loyola University Chicago, IL

January, 2017-Present

Instructor

- Instructor for ENVS 331: Restoration Ecology Lab (Fall 2020: 8 students)
- Instructor for ENVS 137: The Scientific Basis for Environmental Issues (Spring 2018: one section, 45 students; Spring 2019: two sections, 77 students; Spring 2020: one section, 37 students)
- Instructor for ENVS 218: Biogeography and Biodiversity (Spring 2017: one section, 33 students; Spring 2021 33 students; fully online)
- Developed all course materials, labs, lectures, exams, quizzes, assignments on a course focusing on natural history, evolution, speciation, ecology, and global change
- Graded all course materials including exams, assignments, and a final paper

Bellingham Technical College Bellingham, WA

January, 2016- March, 2016

Instructor

- Lead instructor for two sections of Biology 160: General Biology, which was many students' first collegiate science course
- Lectured and presided over lab activities for two sections of 26 students, each
- Revised tests, quizzes, and assignments; graded all course materials
- Evaluations from students included particularly high marks for my ability to make complex biological ideas comprehensible

Western Washington University Bellingham, WA September, 2013- December, 2015

Teaching Assistant

- Taught lab sections of microbiology (four quarters), medical microbiology (two quarters), introductory biology, and human physiology; often taking the lead on lecturing and demonstrating laboratory techniques
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EXPERIENCE

Loyola University Chicago, IL

July, 2016- Present

Research Associate: Tuchman Wetland Ecology Lab

- Conducts field work in coastal wetlands in support of an EPA Great Lakes Restoration Initiative grant
- Mentors undergraduate research associated with wetland biodiversity, nutrient cycling, and energy generation with invasive plant biomass
- Examines the potential of wetland harvesting to reduce watershed export of nutrients

Willamette Partnership Portland, OR
Consultant: APEX modelling (part-time)

July, 2015-May, 2016

- Consulted for the Willamette Partnership (WP) on an EPA-funded project to bring the USDA-developed Agricultural Policy Extender model (APEX) to agricultural fields of the Southern Willamette Valley, Oregon

Modoc National Forest Alturas, CA
Biological Science Tech (Plants) GS-6

June, 2015- September, 2015

- Lead small teams (1-3 others) into remote field sites in support of project tasks
- Compiled complete plant lists for project areas including wetland plants, (sedges, rushes) grasses, trees, shrubs, and forbs in montane yellow pine forests, montane fens, springs, and meadows, subalpine ecosystems, and juniper-sage scrub
- Sat in on National Environmental Policy Act (NEPA) meetings in support of grazing allotment projects; identified and assessed montane fens for Proper Functioning Condition (PFC)

Loyola University Chicago, IL

July, 2012- August, 2013

Research Assistant II: Tuchman Wetland Ecology Lab

- Conducted field work, managed and analyzed data for an EPA-Funded Project: A sustainable approach for restoring wetland biodiversity
- Collected vegetation, soil, and hydrologic data from Michigan Coastal Wetlands
- Investigated the capacity to use invasive plants to generate methane gas for energy through anaerobic digestion experiments
- Mentored undergraduate student project groups as a part of an EPA People, Prosperity, and Planet (P3) phase I grant (\$15,000)
- Co-Wrote and was awarded a \$90,000 EPA P3 Phase II grant: "A Sustainable and Interdisciplinary Solution to Biodiesel Production Wastewater"

PUBLICATIONS

- Monks, A. M.**, Lishawa, S. C., Wellons, K. C., Albert, D. A., Mudrzynski, B., & Wilcox, D. A. (2019). European frogbit (*Hydrocharis morsus-ranae*) invasion facilitated by non-native cattails (*Typha*) in the Laurentian Great Lakes. *Journal of Great Lakes Research*. *In Press*.
- Carson, B. D., Lishawa, S. C., Tuchman, N. C., **Monks, A. M.**, Lawrence, B. A., & Albert, D. A. (2018). Harvesting invasive plants to reduce nutrient loads and produce bioenergy: an assessment of Great Lakes coastal wetlands. *Ecosphere*, 9(6), e02320.
- Lishawa, S. C., Carson, B. D., Brandt, J. S., Tallant, J. M., Reo, N. J., Albert, D. A., **Monks, A. M.**, Lautenbach, J. L., and Clark, E. (2017). Mechanical harvesting effectively controls young *Typha* spp. invasion and unmanned aerial vehicle data enhances post-treatment monitoring. *Frontiers in plant science*, 8.
- Lishawa, S. C., Jankowski, K., Geddes, P., Larkin, D. J., **Monks, A. M.**, & Tuchman, N. C. (2014). Denitrification in a Laurentian Great Lakes coastal wetland invaded by hybrid cattail (*Typha & times; glauca*). *Aquatic Sciences*, 76(4), 483-495.
- Magruder, M., Chhin, S., **Monks, A. M.**, & O'Brien, J. (2012). Effects of initial stand density and climate on red pine productivity within Huron National Forest, Michigan, USA. *Forests*, 3(4), 1086-1103.
- Hong, Z., Jin, H., Fitchette, A. C., Xia, Y., **Monks, A. M.**, Faye, L., & Li, J. (2009). Mutations of an α 1, 6 mannosyltransferase inhibit endoplasmic reticulum-

associated degradation of defective brassinosteroid receptors in Arabidopsis. *The Plant Cell*, 21(12), 3792-3802.

PRESENTATIONS

- Monks, A. M.**, Lishawa, S. C. (2019). International Association for Great Lakes Research Conference, "Innovative management of European frogbit and invasive cattail," International Association for Great Lakes Research, Brockport, NY, USA.
- Monks, A. M.** (2018). Celebrate the UP, "How do invasive cattails affect ecosystem services in Great Lakes Coastal Wetlands?," Upper Peninsula Environmental Coalition, Sault Ste. Marie, MI, USA.
- Monks, A. M.** (2018). Spehn, N., Niosi, O., National Science Expo, "Anaerobic digestion for a zero-waste campus," USEPA, Washington, DC, USA.
- Monks, A. M.** (2018). Aquatic Invasive Plant Strategies Workshop, "Novel approaches to European Frogbit detection and Monitoring," Central Michigan University, MDNR, MDEQ, Mt. Pleasant, United States.
- Monks, A. M.** (2017). Rights-of-Way as Habitat Working Group, "Wetland Restoration for Multiple Benefits: harvesting cattail for biodiversity, nutrient removal, and habitat," University of Illinois- Chicago, Chicago, IL, USA.
- Monks, A. M.**, Lishawa, S. C. (2017). Invasives to Energy and Beyond: Potential of harvested *Typha x glauca* as a value-added product. Presented at: 3rd International Sustainable Wetland Plant Management Conference: Hybrid Cattail Management- Promises and Perils, May 31-June 1, 2017. Fargo, ND.
- Lishawa, S. C., Carson, B. D., Brandt, J. S., Tallant, J. M., Reo, N. J., Albert, D. A., **Monks, A. M.**, Lautenbach, J. L., and Clark, E. (2017). Control of *Typha x glauca* invasion by mechanical harvesting: comparing field to remotely-sensed data. Poster presented at: Climate Change Conference at Loyola University Chicago, March 17, 2017. Chicago, IL.
- Monks, A. M.** and Hooper, D. U. (2015). Using APEX to model nutrient retention in riparian buffers in an agricultural watershed in western Washington: Issues in model parameterization and calibration. In: Abstracts: The Ecological Society of America 100th Annual Meeting, August 9-14, 2015. Baltimore, MD.

GRANTS

- National Fish and Wildlife Foundation, Sustain our Great Lakes. \$185,215 (September 2020- September 2022). *Enhancing biodiversity and habitat complexity in Cheboygan Marsh through hybrid cattail control*. Lishawa, S. C., **Monks, A. M.**, Kasberg, B.
- Illinois Tollway. \$298,000 (March 2019 - December 2021). *Remediating runoff and creating renewable energy by harvesting invasive plants from Illinois Tollway detention basins*. Lawrence, B., **Monks, A. M.**, Lishawa, S. C., Zhu, Z.
- Michigan Departments of Natural Resources, Environmental Quality and Agricultural and Rural Development: Invasive Species Grant Program. \$386,083 (February 2018- December 2020) *Statewide risk assessment and adaptive management of European frogbit*. Lishawa, S. C., Brandt, J., Clark, E., **Monks, A. M.**
- US Department of Agriculture NRCS. \$149,884.00 (October 2017- December 2019). *Recycling watershed nutrients by using wetland invasive plants to improve crop soil health and fertility, while reducing downstream nutrient loads*. Pearsall, D. R., **Monks, A. M.**, Lishawa, S. C., Carson, B.
- EPA P3 Phase I. \$15,000. (August 2017 - August 2018). *Anaerobic digestion for a zero waste urban campus*. Lishawa, S. C., **Monks, A. M.**, Waickman, Z., Zhu, Z., Carson, B.

Environmental Protection Agency: People, Prosperity, and the Planet Award. Phase II.
\$90,000 (June 2013) *From pollution to possibility: A sustainable and interdisciplinary solution to biodiesel production wastewater.* Crumrine, D., Vail, L., Lishawa, S. C., **Monks, A. M.**

Western Washington University: Hodgson Fellowship. \$2,000 (November 2013).
Simulating nutrient retention by buffers in an agricultural watershed using APEX. **A. M. Monks.**

Western Washington University: Truc and Jerry Thon Graduate Summer Stipend.
\$3,000 (June 2014). *Simulating nutrient retention by buffers in an agricultural watershed using APEX.* **A. M. Monks.**

**LICENSURE /
CERTIFICATIONS**

Remote Pilot Airmen Certificate, Federal Aviation Administration. (May 30, 2017-Present).