**Meghann Jarchow, Ph.D.**

Chair and Associate Professor, Department of Sustainability & Environment

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**EDUCATION**

Institution Area of Specialization Degree Year Earned

Iowa State University Sustainable agriculture & ecology Ph.D. 2012

Minnesota State University, Mankato Biology M.S. 2005

Ripon College Biology B.A. 2002

**PROFESSIONAL EXPERIENCE**

Institution Position/Title Dates

University of South Dakota Chair (Sustainability & Environment) 2018-present

University of South Dakota Associate Professor 2018-present

University of South Dakota Sustainability Program Coordinator 2012-2018

University of South Dakota Assistant Professor 2012-2018

Iowa State University Graduate Research Assistant 2007-2012

Gustavus Adolphus College Biology Instructor & Laboratory Coordinator 2005-2007

Minnesota State University, Mankato Adjunct Biology Instructor 2006

Minnesota State University, Mankato Graduate Teaching Assistant 2003-2005

**PEER-REVIEWED PUBLICATIONS**

Kordbacheh, F., Jarchow, M., English, L., Liebman, M. (2019) Productivity and diversity of annually harvested reconstructed prairie communities. *Journal of Applied Plant Ecology* 56: 330-342.

Barbanell, E., Jarchow, M., Ritter, J. (2019) Using ecosystem services to engage students in public dialogue about water resources. In David C Gosselin, Anne E. Egger, and J. John Taber (Eds.) *Interdisciplinary Teaching About Earth and the Environment for a Sustainable Future*. Springer International Publishing, pp. 179-196.

Stoy, P., Ahmed, S., Jarchow, M., Rashford, B., Swanson, D., Albeke, S., Bromley, G., Brookshire, J., Dixon, M., Haggerty, J., Miller, P., Peyton, B., Royem, A., Sohl, T., Spangler, L., Straub, C., Poulter, B. (2018) Opportunities and tradeoffs between BECCS and food, water, energy, biodiversity, and social systems at regional scales. *BioScience* 68(2): 100-111.

Jarchow, M., Formisano, P., Nordyke, S., Sayre, M. (2017) Measuring longitudinal student performance on student learning outcomes in sustainability education. *International Journal of Sustainability in Higher Education* 19(3): 547-565.

Soluk, E. L., Jarchow, M., Carlisle, J. (2016). Declines in prairie bird populations following tallgrass prairie restoration. *South Dakota Bird Notes* 68(4): 85-93.

Barbanell, E., Jarchow, M., Ritter, J. (2016). In David Gosselin (Ed.), *An ecosystem services approach to water resources*. InTeGrate's Earth-focused Modules and Courses Peer Reviewed Collection. serc.carleton.edu/integrate/teaching\_materials/ecosystem\_water/index.html.

Millikin, A. R., Jarchow, M., Olmstead, K. L., Krentz, R. E., Dixon, M. (2016). Site preparation drives long-term plant community dynamics in restored tallgrass prairie: A case study in southeastern South Dakota. *Environmental Management* 58(4): 597-605.

Jarchow, M. (2016). Using systems thinking to assess environmental justice issues. In Loren Byrne (Ed.), *Learner-centered Teaching Activities for Environmental and Sustainability Studies*. Springer International Publishing, pp. 215-220.

Dietzel, R., Liebman, M., Ewing, R., Helmers, M., Horton, R., Jarchow, M., Archontoulis, S. (2016). How efficiently do corn- and soybean-based cropping systems use water? A systems modeling analysis. *Global Change Biology* 22(2): 666-681.

Daign, A. L., Zhou, X., Helmers, M. J., Pederson, C. H., Horton, R., Jarchow, M., Liebman, M. (2015). Subsurface drainage nitrate and total reactive phosphorus losses in bioenergy-based prairies and corn systems. *Journal of Environmental Quality*, doi: 10.2134/jeq2015.02.0080.

Dietzel, R., Jarchow, M., Liebman, M. (2015). Above- and belowground growth, biomass, and nitrogen use in maize and reconstructed prairie cropping systems. *Crop Science* 55(2): 910-923.

Jarchow, M., Liebman, M., Dhungel, S., Dietzel, R., Sundberg, D., Anex, R. P., Thompson, M. L., Chua, T. (2015). Trade-offs in agronomic, energetic, and environmental performance of corn and prairie bioenergy cropping systems. *Global Change Biology Bioenergy* 7(1): 57-71.

Nichols, V. A., Miguez, F. A., Jarchow, M., Liebman, M. Z., Dien, B. S. (2014). Comparison of cellulosic ethanol yields from Midwestern maize and reconstructed tallgrass prairie systems managed for bioenergy. *BioEnergy Research* 7(4): 1550-1560.

Jarchow, M., Liebman, M. (2013). Nitrogen fertilization increases diversity and productivity of prairie communities used for bioenergy. *Global Change Biology Bioenergy* 5(3): 281-289.

Jarchow, M., Liebman, M., Rawat, V., Anex, R. P. (2012). Functional group and fertilization affect the composition and bioenergy yields of prairie plants. *Global Change Biology Bioenergy* 4(6):671-679.

Kepner, W. G., Ramsey, M. M., Brown, E. S., Jarchow, M., Dickinson, K. J. M., Mark, A. F. (2012). Hydrologic futures: using scenario analysis to evaluate impacts of forecasted land-use change on hydrologic services. *Ecosphere* 3(7): 69.

Jarchow, M., Liebman, M. (2012). Nutrient enrichment reduces complementarity and increases priority effects in prairies managed for bioenergy. *Biomass and Bioenergy* 36: 381-389.

Jarchow, M., Kubiszewski, I., Larsen, G. D., Zdorkowski, G., Costanza, R., Gailans, S. R., e. a. (2012). The future of agriculture and society in Iowa: four scenarios. International Journal of Agricultural Sustainability. *International Journal of Agricultural Sustainability* 10: 76-92.

Jarchow, M., Liebman, M. (2012). Tradeoffs in biomass and nutrient allocation in prairies and corn managed for bioenergy production. *Crop Science* 52: 1330-1342.

Jarchow, M., Rice, J. W., Ritson, R. M., Hargreaves, S. K. (2011). Awareness and convenience important in increasing conference sustainability. *Sustainability Science* 6: 253-254.

Jarchow, M., Liebman, M. (2010). *Incorporating prairies into multifunctional landscapes: establishing and managing prairies for enhanced environmental quality, livestock grazing and hay production, bioenergy production, and carbon sequestration* (PMR 1007 ed.). Ames, IA: Iowa State University University Extension, 25 pages – revised in 2011.

Jarchow, M., Cook, B. J. (2009). Allelopathy as a mechanism for the invasion of *Typha angustifolia*. *Plant Ecology* 204: 113-124.

**OTHER PUBLICATIONS**

Nagler, A., Gerace, S., Carnes, M., Jarchow, M. (2020) Changing landscapes, changing communities. <https://uwyo.maps.arcgis.com/apps/Cascade/index.html?appid=8772d6154a5c43fdbc5923616a913e43>.

Carnes, M., Jarchow, M. (2018) Social values regarding ecosystem services and land use in the Western Corn Belt. *Proceedings of the South Dakota Academy of Science* 97: 232.

Jarchow, M., Jennings, E., Lynn, K., Olvera, S., Seidel, T., LaBelle, A., Kosola, S., Austin, S., Gray-Lobe, G., Krasky, R., Ruiz, S., Vazquez Maestre, B., Jordan, B., Posthumus, D., Swanson, D., Kerby, J., Wesner, J., Dixon, M., Sweeney, M., Sayre, M., Rosenfeld, S. (2017). A sustainable approach to environmental management. *Research Features* 120: 54-57. researchoutreach.org/articles/a-sustainable-approach-to-environmental-management/.

Sweeney, M., Jarchow, M. (2016). University of South Dakota - Sustainable Rivers: Integrating Earth Science and Sustainability Across the Curriculum. In David Steer and Cailin Huyck Orr (Ed.), *InTeGrate's Model Programs that bring an Earth-focus to the Undergraduate Classroom*. https://serc.carleton.edu/integrate/programs/implementation/southdakota/index.html.

Jarchow, M., Pettersen, M., Kruse, A., Port, S., Collier-Wise, K., Moen, J. R., Alexandrescu, A. (2016). Visioning Vermillion: Shared Stories of Our Future, 20 pages.

Jarchow, M., Liebman, M. (2014). Incorporating prairies into multifunctional landscapes. American Society of Agronomy. http://www.cai.iastate.edu/modules/module.aspx?modID=113.

Jarchow, M., Liebman, M., Dhungel, S., Dietzel, R., Sundberg, D., Anex, R. P., Thompson, M. L., Chua, T. (2014). Tradeoffs in agronomic, energetic, and environmental performance of prairie and corn bioenergy cropping systems. *Proceedings of the South Dakota Academy of Science* 92: 176.

Jarchow, M., Liebman, M. (2011). Maintaining multifunctionality as landscapes provide ecosystem services. *Frontiers in Ecology and the Environment* 5(9): 262.

**SELECTED GRANTS**

Jarchow, M. (Principal), Grant, "South Dakota Needs Scientists", Howard Hughes Medical Institute, Private, $1,000,000, Funded, October 2017 – September 2022 (Jarchow PI beginning March 2019).

Stoy, P. (Principal), Jarchow, M. (Co-Principal), Swanson, D. (Co-Principal), Poulter, B. (Co-Principal), Rashford, B. (Co-Principal), Grant, "RII Track-2 FEC: Sustainable socio-economic, ecological, and technological scenarios for achieving global climate stabilization through negative CO2 emission policies", National Science Foundation, Federal, $6,000,000 (USD Subaward = $1,860,000). Funded, August 2016 – July 2020.

Jarchow, M. (Principal), Grant, "REU Site: Sustainable RIVER (Remediating InVasives to Encourage Resilience)", National Science Foundation, Federal, $363,662. Funded, September 2016 – September 2019.

Jarchow, M. (Co-Principal), Sweeney, M. (Co-Principal), Grant, "Sustainable Rivers: Integrating Earth Science & Sustainability Across the Curriculum", National Science Foundation, Federal, $43,620. Funded, May 2015 – November 2016.

Jarchow, M. (Co-Principal), Ritter, J. (Co-Principal), Barbanell, E. (Co-Principal), Contract, "An ecosystem services approach to water resource conservation", National Science Foundation through the Science Education Resource Center, Federal, $45,000. Funded, November 2014 – June 2016.

**SELECTED CONFERENCE PRESENTATIONS**

A Community on Ecosystem Services (ACES) Conference, Washington DC, “Mapping social values toward land use in the Upper Missouri River Basin”, International, December 2018.

Association for the Advancement of Sustainability in Higher Education Conference and Expo, San Antonio, TX, "Using sustainability-themed undergraduate research programs to enhance student engagement in research", International, October 2017.

Association for the Advancement of Sustainability in Higher Education Conference and Expo, San Antonio, TX, "Student learning outcomes in sustainability education: Faculty participation and measured student learning", International, October 2017.

American Society of Agronomy & Crop Science Society of America annual meeting, Minneapolis, MN, "Nitrogen fertilization increases productivity and stability but not diversity in prairies managed for bioenergy", International, November 2015.

Association for the Advancement of Sustainability in Higher Education Conference and Expo, Minneapolis, MN, "Integrating community-based learning into the sustainability classroom: A practical, collaborative approach", International, October 2015.

Association for the Advancement of Sustainability in Higher Education Conference and Expo, Portland, OR, "Collaborative information literacy instruction for sustainability", International, October 2014.

Association for the Advancement of Sustainability in Higher Education Conference and Expo, Portland, OR, "Using Earth Day as a catalyst: Creating a link between the university and community", International, October 2014.

Ecological Society of America Annual Meeting, Minneapolis, MN, "Tradeoffs in agronomic, energetic, and environmental performance of prairie and corn bioenergy cropping systems", International, August 2013.

**TEACHING EXPERIENCE AT THE UNIVERSITY OF SOUTH DAKOTA**

SUST 111: Sustainable Society, SUST 113: Sustainable Environment, SUST 201: Sustainability & Society, SUST 203: Sustainability & Science, SUST 489: Sustainability Capstone, SUST 705: Sustainability & Complexity, SUST 790: Seminar: Sustainability Series

**SELECTED HONORS AND AWARDS**

2019 International Journal of Sustainability in Higher Education Assistant Editor

2018 President’s Award for Research Excellence and Innovation – New or Mid-Career Faculty, University of South Dakota

2016 Blair and Linda Tremere Faculty Service Award recipient, University of South Dakota

2013 Environmental Protection Agency Scientific and Technological Achievement Award honorable mention

**SELECTED PROFESSIONAL SERVICE**

2018-present EcoSun Prairie Farms Board of Directors Member

2014-present Greening Vermillion Co-founder and Chairperson

2013-present Vermillion Earth Days Co-founder and Coordinator

2012-present Spirit Mound Trust Board of Directors Member – President since 2018

2012-present Upper Midwest Association for Campus Sustainability Steering Committee Member