

Dr. Jennie DeMarco

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School for Environment and Sustainability, Masters of Environmental Management Program
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Educational Background

- Ph.D. (2011) Botany, University of Florida
Dissertation: Plant soil feedbacks with changing vegetation structure and composition in a warming Arctic
Advisor: Dr. Michelle C. Mack
- B.S. (2002) Environmental Science-Biology Emphasis, Northern Arizona University

Professional Background

- 2017-present Lecturer, Western State Colorado University, Gunnison, CO
Courses taught: Science of Environmental Management, Plant and Soils, Quantitative Skills for Environmental Management, Science of Climate Mitigation and Adaptation; Environmental Monitoring
- 2014-2017 Adjunct Faculty, University of Florida, Gainesville, FL
Courses taught: Introductory Biology, General Ecology, Ecosystem Ecology, and Global Change Ecology and Sustainability
Courses designed: Online Introductory Biology course
- 2012-2014 Postdoctoral Research Associate, New Mexico State University, Las Cruces, NM (Supervisor: Dr. H. Throop)
- 2012-2013 Howard Hughes Medical Institute Teaching Fellow, New Mexico State University, Las Cruces, NM (Supervisor: Dr. M. Shuster)
- 2010-2011 Graduate Teaching Assistant, University of Florida, Gainesville, FL
General Ecology Lab (Supervisors: Drs. T. Schuur & M. Mack)
- 2008 Graduate Teaching Assistant, University of Florida, Gainesville, FL
Plant Ecology Lab (Supervisors: Drs. J. Putz and J. Schafer)
- 2006-2009 Graduate Research Assistant, University of Florida, Gainesville, FL
(Supervisor: Dr. M. Mack)
- 2003-2005 Research Technician, University of Florida, Gainesville, FL
(Supervisor: Dr. M. Mack)
- 2001-2002 Research Technician, Northern Arizona University, Flagstaff, AZ
(Supervisors: Dr. S. Hart and Dr. G. Koch)

Peer-Reviewed Publications

- Christianson, C.T., M.C. Mack, **J. DeMarco**, and P. Grogan. 2018. Decomposition of senesced litter is faster in tall compared to low shrub tundra. *Ecosystems* <https://doi.org/10.1007/s10021-018-0240-6>.
- DeMarco, J.**, T. Filley, and H.L. Throop. 2016. Patterns of woody plant-derived soil carbon losses and persistence after brush management in a semi-arid grassland. *Plant Soil* 406:277-293.
- DeMarco, J.**, M.C. Mack, and M.S. Bret-Harte. 2014. Effect of shrub expansion on biophysical versus biogeochemical drivers of litter decomposition. *Ecology* 95:1861-1875.
- DeMarco, J.**, M.C. Mack, M.S. Bret-Harte, M. Burton, and G. R. Shaver. 2014. Plant and ecosystem response to long term experimental warming and nutrient additions in tall deciduous shrub tundra. *Ecosphere* 5(6):72.
- DeMarco, J.**, M. C. Mack, and M. S. Bret-Harte. 2011. The effect of snow, microenvironment, and soil organic matter quality on nitrogen availability in three Alaskan Arctic plant communities. *Ecosystems* 14:804-817.
- Cardelus, C. L., M. C. Mack, C. Woods, **J. DeMarco**, and K. K. Treseder. 2008. The influence of tree species on canopy soil nutrient status in a tropical lowland wet forest in Costa Rica. *Plant Soil* 318:47-61.
- Bret-Harte, M. S., M. C. Mack, G. R. Goldsmith, D. B. Sloan, **J. DeMarco**, G. R. Shaver, P. M. Ray, Z. Biesinger, and F. S. Chapin III. 2008. Plant functional types do not predict biomass responses to removal and fertilization in Alaskan tussock tundra. *Journal of Ecology* 96: 713-726.
- Classen, A. T., **J. DeMarco**, S. C. Hart, T. G. Whitham, N. S. Cobb, and GW Koch. 2006. Impacts of herbivorous insects on decomposer communities during the early stages of primary succession in a semi-arid woodland. *Soil Biology & Biochemistry* 38: 972-982.

Funding Awarded

*graduate student advised, **undergraduate student advised

- 2018 Analysis of nutrient and wastewater sources using chemical markers on Cattle Creek, Roaring Fork Watershed. M. Schuster* and **J. DeMarco**. Haley Fund. \$1,000.
A story of climate science: the Siberian chapter. A. Lewis* and **J. DeMarco**. Haley Fund. \$1,165.
Soil properties under a managed grazing program in a Gunnison valley rangeland. S. LaRocca**, **J. DeMarco**, J. Coop, and T. Grant. Undergraduate Research and Creative Expressions (SOURCE) Grant. \$1,947.
Soil properties under a managed grazing program in a Gunnison valley rangeland. S. LaRocca**, **J. DeMarco**, J. Coop, and T. Grant. Thornton Biology Research Grant and Scholarly Opportunities. \$4,770.
- 2017 Collaborative Research: Fire influences on forest recovery and associated climate feedbacks in the Siberian arctic. National Science Foundation: Arctic Systems. \$177,051 (to J. DeMarco). H. D. Alexander, **J. DeMarco**, R. Hewitt, J. Lichstein, M. Loranty, R.W. McEwan, and M.C. Mack.
- 2015 Travel Grant to attend the Dryadlab Faculty Mentoring Network Workshop at The Ecological Society of America Annual Meeting 2015. \$800.
- 2014 Investigating the effects of woody encroachment on carbon loss through decomposition in the Sonoran and Chihuahuan Deserts. T & E, Inc. \$3,000. **J. DeMarco, PI.**
- 2010 Graduate Student Council Travel Grant. University of Florida. \$250.

Invited Presentations

- DeMarco, J.** From deserts to tundra: Investigating the impacts of global change driven vegetation shifts on nitrogen and carbon cycling. Western State Colorado University, Department of Natural and Environmental Sciences. November 3 2017.
- DeMarco, J.** From deserts to tundra: Investigating plant and ecosystem response to global change, University of Maine. May 5, 2016.
- DeMarco, J.** Plant-soil feedbacks with woody plant encroachment in two extreme ecosystems. Department of Botany, Weber State University. February 28, 2014.

Teaching Experience

Fall 2018	Science of Environmental Management; Environmental Monitoring
Spring 2018	Quantitative Skills for Environmental Management; Science of Climate Mitigation and Adaptation
Fall 2017	Science of Environmental Management; Plants and Soils
Summer 2017	Integrated Principles of Biology II; First Year Introduction to Biology at UF
Spring 2017	Integrated Principles of Biology II; Global Change Ecology and Sustainability
Fall 2016	Integrated Principles of Biology I; Principles of Ecosystem Ecology; and Global Change Ecology and Sustainability
Summer 2016	Integrated Principles of Biology I and II
Spring 2016	Integrated Principles of Biology II
Fall 2015	Principles of Ecosystem Ecology; Designed Integrated Principles of Biology II course for online instruction
Summer 2015	Integrated Principles of Biology II
Spring 2015	Integrated Principles of Biology II
Fall 2014	General Ecology
Fall 2014	Principles of Ecosystem Ecology
Summer 2014	Integrated Principles of Biology II
Spring 2013	General Ecology
Fall 2012	Environmental Science (two lectures)
Spring 2011	General Ecology (one lecture)
Fall 2010	General Ecology (one lecture)
Spring 2008	Plant Ecology (one lecture)

Experienced in using the following: Blackboard, Canvas, Sakai, iClicker, Learning Catalytics, TopHat, Zoom, GoToMeeting

Awards

2011 Graduate Student Teaching Award, University of Florida, *Honorable Mention*

Pedagogical Development

- 2017 iDigBio Faculty Mentoring Network Participant
-assist in implementing and evaluating teaching modules that uses natural history collections data to teach biological concepts in the undergraduate classroom
- 2015 Dryadlab Faculty Mentoring Network Participant (https://qubeshub.org/groups/nhc_fm)
-assist in implementing and evaluating hands-on data driven ecology modules in undergraduate biology classrooms (<https://qubeshub.org/groups/dryadlabnetwork>)
- 2015 Completed University of Florida's Faculty Training for designing online courses
- 2012 Attended 25 hours of training workshops taught at The Teaching Academy, College of Extended Learning, NMSU, Las Cruces, NM that included topics on incorporating active learning in the classroom, writing clear learning objectives and outcomes, and providing a classroom that encourages engagement and active participation by all students.

Student Mentoring

- 2017-present Advisor to six Masters Students in the Masters of Environmental Management Program at WSCU; Undergraduate research advisor to one Biology Major student
- 2015-2016 One student enrolled in undergraduate research credit at UF (6 hours per week, 2 credit hours)
- 2015-present Undergraduate volunteers (two students, 6 hours per week, assist with research activities)
- Spring 2013 Schwettmann, K. DeMarco, J., and H.L. Throop. Carbon cycling and shrub encroachment in semi-arid and arid ecosystems. *Undergraduate Research Credit at NMSU; 3 credit hours*
- Spring 2013 Howard Hughes Medical Institute Science Scholar Mentor: Introduced Yung Jones, an undergraduate science major, to the methods, practice, and culture of the scientific research I conduct. (5 weeks, 10 hours per week)
- 2010-2011 Lane, S. S., **DeMarco, J.**, and M. C. Mack. 2011. Soil phosphorus across three Alaskan arctic plant communities. *Undergraduate Thesis; Winner of the 2012 University of Florida Undergraduate Research Paper Contest.*
- 2009 Baker, A., **DeMarco, J.**, and M. C. Mack. 2009. Effects of fire on nitrogen resorption from senescent leaves in arctic tundra species. *University of Florida Highest Honors Undergraduate Thesis*

Presentations at Scientific Meetings

- DeMarco, J.**, C. Fahey, C. Alba, and S.L. Flory. Plant invasion and drought interact to alter nitrogen cycling. Ecological Society of America Annual Meeting Ft. Lauderdale, FL, USA. August 8-12, 2016. (talk)
- DeMarco, J.** and H.L. Throop. Microenvironment and litter quality influence litter decomposition in two shrub-encroached drylands in the southwestern United States. Ecological Society of America Annual Meeting Baltimore, MD, USA. August 10-14, 2015. (talk)
- DeMarco, J.**, T. Filley, D. Gamblin, and H.L. Throop. Changes in soil carbon with encroachment and mortality of velvet mesquite, *Prosopis velutina*, in a semi-arid environment. American Geophysical Union Annual Meeting San Francisco, CA, USA. December 9-13, 2013. (poster)
- DeMarco, J.**, T. Filley, D. Gamblin, and H.L. Throop. Changes in soil carbon eight years after the death of mesquite, *Prosopis velutina*, in an arid environment. American Geophysical Union Annual Meeting San Francisco, CA, USA. December 3-7, 2012. (poster)
- DeMarco, J.**, M.C. Mack and M.S. Bret-Harte. Plant and ecosystem response to long-term warming and nutrient additions in arctic shrub tundra. Ecological Society of America Annual Meeting Portland, OR, USA. August 6-10, 2012. (talk)
- Mack, M.C., **J. DeMarco**, J.R. Mayor, and J.L. Schafer. Nitrogen versus phosphorus limitation of plant productivity over post-fire succession in Alaskan boreal forest. Ecological Society of America Annual Meeting Portland, OR, USA. August 6-10, 2012. (poster)
- Hicks Pries, C.E., E.F. Pegoraro, E.A.G. Schuur, M.C. Mack and **J. DeMarco**. The effects of permafrost thaw and climate on decomposition in subarctic tundra. Ecological Society of America Annual Meeting Portland, OR, USA. August 6-10, 2012. (talk)
- DeMarco, J.**, M.C. Mack and M.S. Bret-Harte. Controls over litter decomposition in three arctic plant communities. Nutrient constraints on the net carbon balance conference and workshop sponsored by ClimMani and INTERFACE, Keflavik, Iceland. June 15-17, 2011. (poster)
- DeMarco, J.**, M.C. Mack and M.S. Bret-Harte. Effects of moderate snow addition on litter decomposition in arctic tundra. Ecological Society of America Annual Meeting, Pittsburg, PA, USA. August 1-6, 2010. (poster)
- DeMarco, J.**, M.C. Mack and M.S. Bret-Harte. The relationship between snow cover, shrubs, and

nitrogen availability in the Alaska arctic. Ecological Society of America Annual Meeting, Milwaukee, WI. August 3-8, USA 2008. (talk)

DeMarco, J., M.C. Mack, E.A.G. Schuur, J.C Neff, and J. Finlay. Potential nutrient leaching following thawing of permafrost soils of Northeastern Siberia. Ecological Society of America Annual Meeting, Memphis, TN, USA. August 6-11, 2006. (poster)

Professional Service

Manuscript reviewer *Journals*: Arctic Science, Biological Invasions, Ecology, Ecosphere, Ecosystems, New Phytologist, Oecologia, Plant and Soil, and PLOS ONE
2016-2017 Ecological Society of America Biogeosciences Section Secretary

Service at University of Florida

College of Liberal Arts and Sciences

2017-present Bachelor of Arts in Sustainability Studies, Oversight Committee

Department of Biology

2015-present *Faculty advisor*-Undergraduate student organization "Gator Parks and Recreation" Goal of organization is to promote environmental sustainability through service.

2015 Designed and implemented two 55 minute in-class activities for a pilot Learning Assistant Program for Integrated Principles of Biology II

2011 Organized a departmental undergraduate research symposium (URAP)

2009 Committee member-Brian Riewald and John Paul Olowo Memorial Fund graduate student research grants

2009 Committee member-Biology graduate student service, teaching, and research paper awards

2007-2009 Committee member-Graduate Student Association fundraiser

Community Service

2015-2016 Implemented and ran an elementary school reading program "Battle of the Books" at Boulware Springs Charter School in Gainesville, FL. This is part of a national reading (<http://www.battleofthebooks.org/program>).

2015 One guest lecture to 3, 4, and 5th grade classes on "Being a Scientist" and "Studying the Arctic Biome"

2014 Two guest lectures to 4th grade elementary class on the scientific method

2012-2013 Chair of IMPACT! Award for New Mexico Network for Women in Science and Engineering. *This award is presented to a New Mexico woman for her extraordinary efforts in furthering the goals of the Network which are to encourage women to enter into and develop their careers in science, engineering, and allied professions.*

2011 Eight separate guest lectures to local elementary classes on the importance of soil and an introduction to plant parts and their functions

2003-2011 Alachua County, Florida middle and high school science fair judge

Professional Society Memberships

American Geophysical Union, the British Ecological Society, and the Ecological Society of America