Dr. Jennie DeMarco

School for Environment and Sustainability
Western Colorado University
Gunnison, Colorado, USA 81231
Phone: 1-352-262-5226 **Email:** jdemarco@western.edu
www.jenniedemarco.com; twitter@drjdemarco

Educational Background

Ph.D. (2011) Botany, University of Florida, Gainesville, Florida, USA
Dissertation: Plant soil feedbacks with changing vegetation structure and composition in a warming Arctic

B.S. (2002) Environmental Science-Biology Emphasis, Northern Arizona University, Flagstaff, Arizona, USA

Professional Background

Western Colorado University, Gunnison, CO 2020-present
Director, Master of Science in Ecology Program, School of Environment and Sustainability

Rocky Mountain Biological Laboratory, Gothic CO 2020
Faculty Researcher

Western Colorado University, Gunnison, CO 2017-present
Lecturer, Master of Environmental Management Program, School of Environment and Sustainability

Western Colorado University, Gunnison, CO 2019-2020
Co-Director, Master of Science in Ecology Program, School of Environment and Sustainability

Western Colorado University, Gunnison, CO 2018-2020
Coordinator, Resilience Studies Consortium, School of Environment and Sustainability

University of Florida, Gainesville, FL 2014-2017
Adjunct Faculty, Department of Biology

New Mexico State University, Las Cruces, NM 2012-2014
Postdoctoral Research Association, Department of Biology

New Mexico State University, Las Cruces, NM 2012-2013
Howard Hughes Medical Institute Teaching Fellow

University of Florida, Gainesville, FL 2008; 2010-2011
Graduate Teaching Assistant, Department of Biology

University of Florida, Gainesville, FL 2006-2009
Graduate Research Assistant, Department of Biology

University of Florida, Gainesville, FL 2003-2005
Research Technician and Laboratory Manager, Department of Biology

Northern Arizona University, Flagstaff, AZ 2001-2002
Research Technician, Department of Biology

Research Funding Awarded

*graduate student advised

2020-2022 Assessing changes in soil moisture following wet meadow restoration. Bureau of Land Management, Colorado University Partnership on Public Lands, Preparing Future Land Managers through Working Landscapes. $61,000. **J. DeMarco (PI)**.

2019-2020 Climate mitigation through soil sequestration: increasing soil resilience and plant productivity on rangelands through compost application. USDA National Institute of Food and Agriculture Sustainable Agriculture Research and Education. $25,766. **J. DeMarco (PI)** and A. Cooper*.

2017-2022 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 (Co-PI)**, R. Hewitt, J. Lichstein, M. Loranty, R.W. McEwan, and M.C. Mack.

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)**.

2017-2020 Mentored students in writing their own grants to fund their research and education ~$20,000 total funding

Professional Development Funding Awarded

2018 Center for Teaching and Excellence Professional Activity Fund. Travel Award to attend the "Polarizing your Science" workshop. $400.

2015 Travel Grant to attend the Dryadlab Faculty Mentoring Network Workshop at the Ecological Society of America Annual Meeting 2015. $800.

2010 Graduate Student Council Travel Grant. University of Florida. $250.

Peer-Reviewed Publications

Talucci, A.C., E. Forbath, H. Kropp, H.D. Alexander, **J. DeMarco**, A.K. Paulson, N.S. Zimov and M.M. Loranty. 2020. Evaluating post-fire vegetation recovery in Cajander Larch forests in Northeastern Siberia using UAV derived vegetation indices. *Remove Sensing* 12: 2970.

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* 21:1564-1579.

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 and 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 and 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.

Other publications

Executive Producer (**J.DeMarco**), *Smoldering Ice – A Siberian Research Arctic Expedition* (documentary film), 2020, Director (A. Lewis). *Accepted into the Los Angeles Student Film Festival, October 2020*.

Publications in Progress

DeMarco, J., T. and H.L. Changes in soil carbon stability with encroachment and mortality of velvet mesquite, *Prosopis velutina,* in a semi-arid environment. (*Anticipated submission December 2020*)

Teaching Experience

Graduate Courses

2020-present	Ecosystem Ecology
2017-present	Science of Environmental Management
	Quantitative Skills for Environmental Management
	Science of Climate Mitigation and Adaptation (co-taught)
2017	Plants and Soils for Environmental Managers
2016	Principles of Ecosystem Ecology
2015	Principles of Ecosystem Ecology
2014	Principles of Ecosystem Ecology

Undergraduate Courses

2020	Beyond Dirt: The Ecology of Soil
2017	Environmental Monitoring
2016-2017	First Year Introduction to Biology
	Global Change Ecology and Sustainability
2014-2017	Integrated Principles of Biology
2015	Designed Integrated Principles of Biology II course for online instruction
2015	General Ecology (co-taught)
2014	General Ecology (co-taught)

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

Pedagogical Development

2019	Ecology Project International, Mexico Teaching Fellowship
2019	National Ecological Observatory Faculty Network
2017	iDigBio Faculty Mentoring Network Participant

2015 Dryadlab Faculty Mentoring Network Participant

2015 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

Student Mentoring

Master of Science in Ecology Graduate Students

2020-present Jace Cussins, "Changes in soil moisture following wet meadow restoration"

William Lee, "Vegetation and soil restoration in uranium mine tailings site"

2019-present Brittany Phelan, "Monitoring vegetation and soil on decommissioned roads in Taylor Park and Union Park in the Gunnison National Forest"

Alexandra VanTill, "Microbial community composition and respiration in compost amended rangeland soils"

Rhyann Lowrey, "Rock-climbing impact on soil and invasive plant species in Gunnison Valley, Colorado"

Master of Environmental Management Graduate Students

2019-present Shaun McGrath, "Slow versus fast soil carbon pools following soil compost amendment in rangelands"

2019-present Samantha Hunter, "The Scarlet Cordellia and Baby Roller Burpee"

Heather Reineking, "Alpine vegetation restoration of the Ben Butler mine site in the San Juan Mountains of Colorado"

Josh Weise, "Bison management plan"

2018-2020 Alexia Cooper, "Rangeland resilience through compost amendments: Needs directing research"

Brady Akins, "Bioassay of cheatgrass (*Bromus tectorum*) seedling viability and management in Gunnison Valley, Colorado"

Haley Horvat, "The deep dive into science communication and public engagement "

2017-2019 Aaron Lewis, "Communicating the process of science through film: Post-fire recruitment in the Siberian Arctic"

Elizabeth Hartson, "The Western Alliance for Restoration Management: A program of education and action on abandoned mines"

Michael Schuster, "Nutrient, ion and isotope analysis in Cattle Creek, Colorado"

2017-2018 Jodi Elam, "Containment of Leafy Spurge (*Euphorbia esula*) on the Yampa River: A report detailing survey results and experimental design"
Cameron Ruyle, "Rexroat Prairies Initiative"

Undergraduate Students

2017 Scott LaRocca, *Undergraduate Research*: "Soil Properties under a Managed Grazing Program in a Gunnison Valley Rangeland"

2013 Katie Schwettmann, *Undergraduate Research*: "Carbon cycling and shrub encroachment in semi-arid and arid ecosystems"

2013 Yung Jones, Howard Hughes Medical Institute Science Scholar

2010-2011 Sydney Lane, *Undergraduate thesis*: "Soil phosphorus across three Alaskan arctic plant communities" *Winner of the 2012 University of Florida Undergraduate Research Paper Contest.*

2009 Ann Baker, *Honors thesis*: "Effects of fire on nitrogen resorption from senescent leaves in arctic tundra species" *University of Florida Highest Honors Undergraduate Thesis*

Invited Presentations

DeMarco, J. Conducting and communicating science in a changing climate. Western Colorado University's Western Scholars Seminar. *October 1, 2019*.

DeMarco, J. Conducting and communicating science in a changing climate: the Siberian Arctic as a case study. Rocky Mountain Biological Laboratory Summer Science Seminar Series. *August 6, 2019*.

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*.

Organized workshops

2019 American Geophysical Union Organized Session, "Causes and consequences of changing disturbance regimes in boreal forests across the world" at the American Geophysical Union Annual Meeting (2019). Conveners: H.D. Alexander, A.K. Paulson, J. DeMarco and R. Hewitt

Presentations at Scientific Meetings

DeMarco, J. Listen, learn, and unite to act. American Association of Geographers Annual Meeting, Denver, CO, USA. March 6, 2020. (oral-*invited*)

DeMarco, J., S. Frankenberg, A. Paulson, H. Alexander, J. Lichstein, E. Borth, R. Hewitt, M. Loranty, M. Mack, R. McEwan, and N. Zimov. Post-fire recruitment in high-latitude Siberian Larch (*Larix cajanderi*) forests associated with high graminoid understory. *American Geophysical Union Annual Meeting* San Francisco, CA, USA. December 9-13, 2019. (poster)

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. (oral)

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. (oral)

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. (oral)

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. (oral)

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. (oral)

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 Development

2020 Ecological Society of America's Sustaining Biological Infrastructure Strategies for Success Course

2019 National Center for Ecological Synthesis, Arctic Data Center Training

2019 "Polar-izing your science" Workshop sponsored by the University of Delaware, Rutgers University, and the National Science Foundation

Professional Service

Manuscript reviewer	Arctic Science, Biological Invasions, Ecology, Ecosphere, Ecosystems, New Phytologist, Oecologia, Plant and Soil, and PLOS ONE
Proposal reviewer	Department of Energy Terrestrial Ecosystem Science (2020); National Science Foundation Arctic Systems (2015)
2016-2017	Ecological Society of America, Biogeosciences Section Secretary

Professional Society Memberships

American Geophysical Union, American Association of Geographers, British Ecological Society, Ecological Society of America, and Soil Science Society of America

University Service

WCU School of Environment and Sustainability

2018 Masters in Ecology Program, Council member
2017-2018 Margie and John Haley Fund, Grant Reviewer

UF College of Liberal Arts and Sciences

2017 Bachelor of Arts in Sustainability Studies, Oversight Committee

UF Department of Biology

2015-2017 Gator Parks and Recreation Student Organization, Faculty advisor

2015 Learning Assistant Program for Integrated Principles of Biology II, Designed and implemented in-class activities for large undergraduate classes (~400 students per class)

2011 Undergraduate Research Symposium, Graduate Student Organizer

2009 Brian Riewald and John Paul Olowo Memorial Fund Graduate Student Research grants, Committee member

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

2007-2009 Graduate Student Association, Fundraiser organizer

Science Education and Outreach

2019 **Horvat, H. "Western researchers study wildfires in Siberia." Gunnison Times. Thursday July 4, 2019. *Newspaper*.** J. DeMarco was interviewed by journalist about her research and article was published in local newspaper

Teachers and Researchers Exploring and Collaborating (PolarTREC), Researcher. J. DeMarco worked directly with kindergarten teacher who spent four weeks in Siberia with the NSF research team. This experience was shared to the public via a series of blog posts written by the teacher and a "Live from the Field" videoconference.

Teachers and Arctic Scientists Collaborative (TASC) Workshop, J.DeMarco designed, organized and ran workshop that brought together 10 arctic researchers and 10 middle and high school teacher to collaborate on arctic science in the classroom.

2016 Implemented and ran an elementary school reading program "Battle of the Books" at Boulware Springs Charter School in Gainesville, FL.

2015 Guest lecturer to 3, 4, and 5th grade classes on "Being a Scientist" and "Studying the Arctic Biome"

2014 Guest lecturer to 4th grade elementary class on the scientific method

2013 Chair of IMPACT! Award for New Mexico Network for Women in Science and Engineering.

2011 Guest lecturer 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

Awards

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