Megan K. Nasto

Department of Biology & Ecology Center
Utah State University
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EDUCATION

Ph.D. Forest and Conservation Sciences, 2017
W.A. Franke College of Forestry and Conservation, University of Montana, MT
Dissertation: Nutrient acquisition strategies in tropical rain forests: interactions among nitrogen and phosphorus through plant-microbial mutualisms

B.S. Environmental Science: Applied Geology, 2011
Northern Arizona University
Thesis: Methane flux response in the presence of nitrogen and phosphorus fertilization across a retrogressive semiarid chronosequence

EXPERIENCE

RESEARCH

2017 – **Postdoctoral Fellow**, Department of Biology & the Ecology Center, Utah State University

2012 – 2017 **Graduate Research Assistant**, W.A. Franke College of Forestry & Conservation, University of Montana

2012 **Laboratory Technician**, Terrestrial Ecosystem Ecology Laboratory, University of Montana

2011 **Undergraduate Laboratory Assistant**, Sedimentary Records of Environmental Change Laboratory, Northern Arizona University

2011 **Undergraduate Laboratory Assistant**, Amino Acid Geochronology Laboratory, Northern Arizona University

2009 – 2011 **Undergraduate Research Assistant/Assistant Crew Leader**, Ecological Restoration Institute, Northern Arizona University

PROFESSIONAL

2011 **Forestry Technician**, Ouray Ranger District, USDA Forest Service

TEACHING

2014, 2015 **Graduate Teaching Assistant**, "Climate, Hydrology, & Soils," University of Montana

PUBLICATIONS

In Review/Revision

Nasto MK, K Winter, BL Turner, CC Cleveland. Nutrient acquisition strategies augment growth in tropical N_2 fixing trees in nutrient poor soil and under elevated CO_2. *Ecology*

Sullivan BW, RL Nifong, **MK Nasto**, S Alvarez-Clare, C Dencker, FM Soper, KT Shoemaker, Y Ishida, J Zaragoza-Castells, EA Davidson, CC Cleveland. Biogeochemical recuperation is common in secondary lowland tropical forest. *Ecology*.

9. Soper FM, **MK Nasto**, BB Osborne, CC Cleveland. 2018. Nitrogen fixation and foliar nitrogen do not predict phosphorus acquisition in tropical trees. *Journal of Ecology* doi: 10.1111/1365-2745.13044.

8. Soper FM, BW Sullivan, **MK Nasto**, BB Osborne, D Bru, CS Balzotti, PG Taylor, GP Asner, AR Townsend, L Philippot, S Porder, CC Cleveland. 2018. Remotely-sensed canopy nitrogen correlates with nitrous oxide emissions in a lowland tropical rainforest. *Ecology* 99(9): 2080—2089.

7. Winbourne J, M Harrison, BW Sullivan, S Alvarez-Clare, S Rafaela Lins, L Martinelli, **MK Nasto**, D Piotto, S Rolim, M Wong, S Porder. (*in press*). A framework for evaluating estimates of symbiotic nitrogen fixation in forests. *American Naturalist* 192(5).

6. **Nasto MK**, BB Osborne, Y Lekberg, GP Asner, CS Balzotti, S Porder, PG Taylor, AR Townsend, CC Cleveland. 2017. Nutrient acquisition, soil phosphorus partitioning, and competition among trees in a lowland tropical rain forest. *New Phytologist* 214(4): 1506—1517.

5. Osborne BB, **MK Nasto**, GP Asner, CS Balzotti, CC Cleveland, BW Sullivan, PG Taylor, AR Townsend, S Porder. 2017. Climate, topography, and canopy chemistry exert hierarchical control over soil N cycling in a Neotropical lowland forest. *Ecosystems* 25: 637—652.

4. Balzotti CS, GP Asner, PG Taylor, CC Cleveland, R Cole, RE Martin, **MK Nasto**, BB Osborne, S Porder, AR Townsend. 2016. Environmental controls on canopy foliar N distributions in a Neotropical lowland forest. *Ecological Applications* 26(8): 2451—2464.

3. Sullivan BW, **MK Nasto**, SC Hart, BA Hungate. 2015. Proximate controls on semiarid soil greenhouse gas fluxes across 3 million years of soil development. *Biogeochemistry* 125(3): 375—391.

2. **Nasto MK**, S Alvarez-Clare, Y Lekberg, BW Sullivan, AR Townsend, CC Cleveland. 2014. Interactions among nitrogen fixation and soil phosphorus acquisition in lowland tropical rain forests. *Ecology Letters* 17(10): 1282—1289.

1. Sullivan BW, WK Smith, AR Townsend, **MK Nasto**, SC Reed, R Chazdon, CC Cleveland. 2014. Spatially robust estimates of biological nitrogen (N) fixation imply substantial human alteration of the tropical N cycle. *Proceedings of the National Academy of Sciences, USA* 111(22): 8101—8106.

GRANTS, FELLOWSHIPS, SCHOLARSHIPS, & AWARDS

RESEARCH GRANTS

2016	National Science Foundation Doctoral Dissertation Improvement Grant	$18,850

FELLOWSHIPS

2016	Smithsonian Tropical Research Institute Short-Term Fellowship	$3,000
2010	Northern Arizona University Hooper Undergraduate Research Fellowship	$2,880

SCHOLARSHIPS

2016	George E. Bright Memorial Scholarship, University of Montana	$2,100
2015	Bertha Morton Scholarship, University of Montana	$3,000
2015	George E. Bright Memorial Scholarship, University of Montana	$2,125
2014	George E. Bright Memorial Scholarship, University of Montana	$2,700
2013	Danny On Memorial Scholarship, University of Montana	$500

AWARDS

2016	INTERFACE Travel Award	$896
2014	Winner of the University of Montana 13th Annual Graduate Student Research Conference	

RESEARCH PRESENTATIONS

INVITED PAPERS

2017 "Microbial carbon-use efficiency in agroecosystems: the effects of drought and N availability on soil microbial production and respiration." USDA-NIFA AFRI Bioeconomy Agroecosystems Annual Project Director Meeting, Tampa, FL.

2017 "Nutrient acquisition strategies in tropical rain forests: interactions among nitrogen and phosphorus through plant-microbial mutualisms." Ecology Center, Utah State University, Logan, UT.

2016 "Nutrient acquisition strategies in tropical rain forests: interactions among nitrogen and phosphorus through plant-microbial mutualisms." Symposium: The Carbon Sequestration Potential of Restoration, Piro Biological Station, Osa Conservation, Costa Rica.

2016 "Nutrient acquisition strategies in tropical rain forests: interactions among nitrogen and phosphorus through plant-microbial mutualisms." Piro Biological Station, Osa Conservation, Costa Rica.

CONTRIBUTED PAPERS

2018 **Nasto MK**, JM Stark. "The effects of soil moisture on microbial carbon-use efficiency across soil textures." Ecological Society of America, New Orleans, LA.

2017 **Nasto MK**, K Winter, BL Turner, CC Cleveland. "Nutrient acquisition strategies promote high growth in tropical nitrogen fixing trees under elevated CO_2." Ecological Society of America, Portland, OR.

2016 **Nasto MK**, BB Osborne, M Lopez Morales, Y Lekberg, CC Cleveland. "Soil phosphorus partitioning reduces competition among nitrogen fixing and non-nitrogen fixing trees in tropical rain forests." INTERFACE Workshop: Phosphorus Cycling in Terrestrial Ecosystems, Townsend, TN. (poster)

2015 **Nasto MK**, S Alvarez-Clare, Y Lekberg, BW Sullivan, AR Townsend, CC Cleveland. "Symbiotic dinitrogen fixation enhances soil phosphorus acquisition strategies in tropical forests." Soil Ecology Society, Colorado Springs, CO.

2014 **Nasto MK**, S Alvarez-Clare, Y Lekberg, BW Sullivan, AR Townsend, CC Cleveland. "Interactions among nitrogen fixation and soil phosphorus acquisition in lowland tropical rain forests." Ecological Society of America, Sacramento, CA.

2014 **Nasto MK**, S Alvarez-Clare, Y Lekberg, BW Sullivan, AR Townsend, CC Cleveland. "Symbiotic dinitrogen fixation enhances phosphorus acquisition in lowland tropical rain forests." University of Montana Graduate Research Symposium, Missoula, MT.
* Winner of the University of Montana 13th Annual Graduate Student Research Conference

2013 **Nasto MK**, BW Sullivan, CC Cleveland. "Does biological nitrogen fixation enhance phosphorus acquisition in lowland tropical rainforests?" University of Montana Graduate Research Symposium, Missoula, MT.

2011 **Nasto MK**, BW Sullivan. "Methane flux response in the presence of nitrogen and phosphorus fertilization across a retrogressive semiarid chronosequence." Northern Arizona University Undergraduate Research Symposium, Flagstaff, AZ.

COAUTHORED CONTRIBUTED PAPERS

2018 Soper FM, **MK Nasto**, BB Osborne, CC Cleveland. "Nitrogen status does not predict phosphorus acquisition strategies in tropical trees." Ecological Society of America, New Orleans, LA.

2017 Cleveland CC, **MK Nasto**, BL Turner, N Fierer, AN Shaw. "How do diverse ecosystems overcome low soil phosphorus? Mechanisms, implications, and meditations." Ecological Society of America, Portland, OR.

2017 Osborne BB, **MK Nasto**, GP Asner, CS Balzotti, CC Cleveland, PG Taylor, AR Townsend, S Porder. "Canopy nitrogen is correlated with litter and soil nitrogen in a lowland tropical forest." Ecological Society of America, Portland, OR.

2017 Soper FM, **MK Nasto**, BW Sullivan, BB Osborne, S Porder, CC Cleveland. "Canopy nitrogen heterogeneity influences denitrification rates in a lowland tropical forest." Ecological Society of American, Portland, OR.

2016 Osborne BB, **MK Nasto**, GP Asner, CS Balzotti, CC Cleveland, BW Sullivan, PG Taylor, AR Townsend, S Porder. "Canopy tree species drive local heterogeneity in soil nitrogen availability." American Geophysical Union, San Francisco, CA.

2015 Castle SC, BW Sullivan, R Jones, **MK Nasto**, A Ballantyne, A Hursh, CC Cleveland. "Landuse determines soil microbial community resistance and resilience to climate change in the lowland tropics." Ecological Society of America, Baltimore, MD.

2015 Marklein AR, **MK Nasto**, BW Sullivan, CC Cleveland. "Interactions among plants, symbiotic N-fixing bacteria, and arbuscular mycorrhizal fungi in tropical rain forest: Results from a theoretical model." Ecological Society of America, Baltimore, MD.

2015 Osborne BB, **MK Nasto**, GP Asner, CC Cleveland, BW Sullivan, PG Taylor, AR Townsend, S Porder. "Geomorphology and canopy chemistry influence soil nitrogen availability on variable time scales in a lowland tropical forest." Ecological Society of America, Baltimore, MD.

2015 Sullivan BW, **MK Nasto**, S Alvarez-Clare, RJ Cole, SC Reed, R Chazdon, EA Davidson, CC Cleveland. "Trends in nitrogen and phosphorus cycling are consistent and constrained during tropical secondary forest succession: is secondary forest young primary forest from a nutrient perspective?" American Geophysical Union, San Francisco, CA. (poster)

2015 Sullivan BW, **MK Nasto**, S Alvarez-Clare, SC Reed, CC Cleveland. "Nitrogen and phosphorus fertilization alters biological nitrogen fixation in lowland tropical rainforest." Ecological Society of America, Baltimore, MD.

2015 Townsend AR, CC Cleveland, GP Asner, PG Taylor, BB Osborne, **MK Nasto**, WR Wieder, BW Sullivan. "One size does not fit all: Multi-scale heterogeneity in the lowland tropical N cycle." Ecological Society of America, Baltimore, MD.

2013 Cleveland CC, BW Sullivan, **MK Nasto**. "Nutrient constraints on carbon cycling in tropical forests." Invited Seminar, Department of Integrative Biology, University of Texas, Austin, TX.

2013 Sullivan BW, **MK Nasto**, SC Reed, RL Chazdon, CC Cleveland. "Patterns and rates of biological nitrogen fixation during secondary succession in a lowland tropical rain forest." Ecological Society of America, Minneapolis, MN.

2013 Sullivan BW, **MK Nasto**, SC Reed, E Ortis, B Vilchez, R Chazdon, CC Cleveland. "Rates and patterns of biological nitrogen fixation during secondary succession in a lowland tropical rain forest." Association for Tropical Biology and Conservation, San Jose, Costa Rica.

2011 Sullivan BW, **MK Nasto**, SC Hart, BA Hungate, RA Parnell. "Soil fluxes of CO_2, CH_4, and N_2O after fertilization across a three million year old soil age gradient." Ecological Society of America, Austin, TX.

SERVICE

JOURNAL REFEREE

Biogeochemistry *Ecology*

Ecology Letters
Global Change Biology
Oecologia
Frontiers in Plant Science
Nutrient Cycling in Agroecosystems
Plant and Soil

PROFESSIONAL SERVICE

2017 – Webmaster, Ecological Society of America Biogeosciences section

2016 Invited participant, "INTERFACE Workshop: Phosphorus Cycling in Terrestrial Ecosystems," Townsend, TN

2016 Symposium co-organizer, "The Carbon Sequestration Potential of Restoration," Piro Biological Station, Osa Conservation, Costa Rica

INSTITUTIONAL SERVICE

2014 – 2017 Executive Board Member, Interdisciplinary Collaborative Network, University of Montana | www.montanaicn.com

2014 – 2016 Senator, Graduate and Professional Student Association, University of Montana

2013 – 2016 Organizer, W.A. Franke College of Forestry & Conservation Graduate Student Seminar, University of Montana

EDUCATIONAL SERVICE

2014 – 2017 Blogger, Interdisciplinary Collaborative Network, University of Montana

2014 – 2017 Science Educator, spectrUM Discovery Area, University of Montana

2013 – 2017 Judge, Montana State Science Fair

PROFESSIONAL SOCIETIES

American Geophysical Union
Earth Science Women's Network
Interdisciplinary Collaborative Network
Soil Ecology Society
Association for Women Soil Scientists
Ecological Society of America
International Mycorrhiza Society
Soil Science Society of America

ADVISORS & REFERENCES

ADVISOR

Postdoctoral Dr. John Stark, Utah State University | jstark@biology.usu.edu
PhD Dr. Cory Cleveland, University of Montana | cory.cleveland@umontana.edu

ADDITIONAL REFERENCES

Dr. Benjamin Sullivan, University of Nevada, Reno | bsullivan@cabnr.unr.edu
Dr. Ylva Lekberg, MPG Ranch | ylekberg@mpgranch.com
Dr. Stephen Porder | stephen_porder@brown.edu
Dr. Ashley Ballantyne | ashley.ballantyne@umontana.edu