

CURRICULUM VITAE

Michelle Cailin Mack

Professor of Ecosystem Ecology

Center for Ecosystem Science and Society and Department of Biological Sciences

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General Interests: Ecosystem and community ecology, with emphasis on the role of plant-soil-microbe interactions in the carbon and nutrient dynamics of ecosystems, especially where historic disturbance regimes are changing; the role of arctic and boreal terrestrial ecology in the Arctic System.

Education:

University of California, Berkeley, CA, PhD in Integrative Biology, 1998

The Evergreen State College, Olympia, WA, concurrent BS in Biology and BA in Literature
1990.

Doctoral Advisor: Dr. Carla D'Antonio, University of California-Berkeley

Postdoctoral Advisor: Dr. F. Stuart Chapin, III, University of Alaska Fairbanks

Academic Appointments:

2014-present	Northern Arizona University, Center for Ecosystem Science and Society and Department of Biological Sciences, Professor
2003-2015	University of Florida, Department of Biology, Professor
2008-2013	University of Florida, Department of Biology, Associate Professor
2002-2008	University of Florida, Department of Botany, Assistant Professor
2000-present	Senior Research Associate, Institute of Arctic Biology (IAB), University of Alaska Fairbanks (UAF)
2000-2002	USDA Postdoctoral Fellow (NRICGP), IAB, UAF
1998-2000	NSF Postdoctoral Fellow in Biosciences Related to the Environment, IAB, UAF
1994-1997	NASA Global Change Graduate Fellow, Department of Integrative Biology, U.C.-Berkeley

Professional appointments:

Polar Research Board of the National Academy of Sciences, US Appointed Representative to the Terrestrial Working Group of the International Arctic Steering Committee, 2016-present.

NSF Longterm Ecological Research Network Executive Committee, Bonanza Creek Representative, 2016-present.

NASA Arctic Boreal Vulnerability Experiment, Science Team member and lead of the Wildfire Disturbance Working Group, 2015-present.

The Land Institute, Salina, KS, member of the Board of Directors, 2012-present.

Ecological Society of America, Washington D. C., member of the Board of Directors, 2012-2014.

Toolik Field Station, University of Alaska Fairbanks, member of the NSF-appointed Steering Committee, 2011-present.

Paleo-Neo Ecosystem Ecology Research Coordination Network, member of the Steering Committee, 2011-present.

Awards and fellowships:

Ecological Society of America, Fellow elected in recognition for advancing the science of ecology, 2016.

University of Florida, Foundation Professor for Excellence in Research, 2014

University of Florida, Outstanding Postdoctoral Mentor Award, 2014

University of Florida, Colonel Allan R. and Margaret G. Crow Professorship, 2012

National Center for Ecological Analysis and Synthesis Center Fellow, 2009-2010.

National Academy of Science, Kalvi Frontiers of Science Fellow, 2008.

USDA National Research Initiative Competitive Grants Program Postdoctoral Research Fellowship, 2000-2002.

National Science Foundation Postdoctoral Fellowship in Biosciences Related to the Environment, 1998-2000.

National Science Foundation Dissertation Improvement Grant, 1997.

University of California-Berkeley Vice-Chancellor for Research Award, 1997.

NASA Graduate Global Change Fellowship, 1994-1997.

National Center for Atmospheric Research, Terrestrial Ecosystems and the Atmosphere Fellow, 1996.

National Academy of Science, Frontiers of Science Volvo Fellow, 1996.

Mildred Mathias Award for Research in University of California Reserve System, 1993.

Hardman Foundation Award, 1993.

Department of Integrative Biology Graduate Fellowship, 1992-93.

The Evergreen State College Foundation Fellowship, 1985-1989.

Invited seminars and keynote speeches:

Chinese Academy of Sciences, Beijing, China. "Fire and ice: Effects of forest regeneration on the carbon dynamics of Alaskan boreal forests." Cross-departmental seminar. 09/17.

SERDP, Department of Defense, Webinar. "Identifying Indicators of State Change and Forecasting Future Vulnerability in Alaskan Boreal Ecosystems." Online seminar to 270 registrants. 06/17.

National Science Foundation, Arlington, DC. "Fire and Ice: Carbon cycling feedbacks to climate in the far north." Seminar for program directors and administrators. 03/17.

NASA ABoVE Science Team Meeting, Boulder, CO. "The consequences of accelerating disturbance in the Arctic." Seminar to 150 Science Team members. 1/17.

Swedish Agricultural University, Umea, Sweden. "Fire and Ice: Carbon cycling feedbacks to climate in a warming Arctic." Cross-Departmental Seminar. 12/16.

NASA ABoVE Science Team and Agency collaborators, Anchorage, AK. "The vulnerability of northern ecosystems to changing wildfire regimes." Seminar to Science Team and regional agency collaborators. 1/16.

- Annual Meeting of the American Geophysical Union, San Francisco, CA. "The Arctic Boreal Vulnerability Experiment." Invited talk. 12/15.
- Distinguished Ecologist Lecture Series, Michigan Technological University, Houghton, MI. "Climate change, wildfire, and the carbon cycle of North American boreal forests." Public lecture and cross-departmental seminar. 10/15
- 13th Biennial Conference of Science and Management on the Colorado Plateau and Southwest Region. Flagstaff, AZ. "Fire and ice: managing and sustaining Arctic ecosystems in a warming climate." 10/15. Keynote speech.
- Flagstaff Festival of Science, Vice President for Research public presentation, Flagstaff, AZ. "Fire and ice: ecosystem-atmosphere feedbacks in a warming Arctic." 9/15.
- Annual meeting of the Boreal Long Term Ecological Research Program, Fairbanks, AK. "Ecological legacies in a time of change." 2/15. Keynote speech.
- Swedish Ecological Society, Umea, Sweden. "Wildfire, plant species composition, and carbon cycling feedbacks to climate in Alaskan boreal forests." 1/15. Keynote speech.
- University of Illinois at Urbana-Champaign, IL. "Wildfire, plant species composition, and carbon cycling feedbacks to climate in Alaskan boreal forests." 1/15. Cross-departmental seminar.
- Northern Arizona University, AZ. "Changing disturbance regimes and plant-soil feedbacks in a warming Arctic." Center seminar.
- University of Copenhagen, Denmark. "Changing disturbance regimes and plant-soil feedbacks in a warming Arctic." 6/13. Center seminar.
- University of Alaska, Fairbanks, AK. "Boreal ecosystems and changing disturbance regimes." 6/13.
- The Land Institute, Salina, KS. "Fire, ice and the future of agriculture." 9/12. Public outreach talk to 1,000 people at the Prairie Festival.
- Whitney Laboratory, University of Florida, St. Augustine, FL. "Fire, ice and climate warming." 2/12. public outreach lecture to 300 people for the Evenings at the Whitney Lecture Series.
- The Marine Biological Laboratory, Woods Hole, MA. "Ecological consequences of changing fire regimes in high latitude ecosystems," 3/11. Seminar for Ecosystems Center.
- University of Alaska, Fairbanks, AK. "Ecological consequences of changing fire regimes in high latitude ecosystems," 2/11. Seminar for Bonanza Creek Longterm Ecological Research Group.
- Lamont-Doherty Earth Observatory, Columbia University, New York, NY. "Ecological consequences of changing disturbance regimes in Arctic tundra," 2/11. Earth Science Colloquium.
- Brown University, Providence, RI. "Climate change and novel disturbance regimes in arctic tundra," 4/10. Departmental Seminar.
- University of California-Santa Barbara, Santa Barbara, CA. "Ecosystem resilience to large fires in arctic Alaska," 10/09. Departmental Seminar.
- National Center for Ecological Analysis and Synthesis, Santa Barbara, CA. "Climate change and novel disturbance regimes in arctic tundra," 11/09.
- University of Alaska, Fairbanks, AK. "Fire and ice: the Anutuvuk River Fire, a novel wildfire in arctic tundra," 3/09.
- VI International conference on disturbance dynamics in Boreal Forest, Fairbanks, AK. "Fire, nitrogen loss and nitrogen availability in boreal black spruce forests," 6/07.

- University of Florida, Department of Wildlife and Conservation Biology. "Ecological effects of climate change at high latitudes," 10/06.
- Indiana University, Department of Biology. "Plant species composition and ecosystem carbon storage in a warming arctic," 2/06.
- Princeton University, Department of Ecology and Evolutionary Biology. "Plant species composition and ecosystem carbon storage in a warming arctic," 2/06
- UF, School of Natural Resources and the Environment, "Ecological effects of climate change at high latitudes," 9/05.
- UF, Department of Geology, "Ecosystem carbon storage in arctic tundra reduced by long-term fertilization," 9/05.
- UF, Department of Geography, "Carbon storage and nutrient cycling in a warming arctic," 11/04.
- International Boreal Forest Research Association, 12th Annual Scientific Conference, Fairbanks, AK, "Effects of fire and plant species composition on plant biomass, carbon and nitrogen pools, and aboveground net primary productivity in interior Alaska," 4/04.
- Marine Biological Laboratory, The Ecosystems Center, "Carbon storage in arctic tundra decreased by long-term nutrient fertilization," 2/04.
- Archbold Field Station, "Effects of fire and species composition on nitrogen cycling in boreal forest," 2/04.
- University of Alaska Fairbanks, Institute of Arctic Biology, "The sensitivity of post-fire nitrogen retention to species composition," 10/03.
- University of California-Irvine, Department of Earth System Science, "Species composition and climate interact to enhance nitrogen cycling in a warming arctic," 10/02.
- Cornell University, Department of Ecology and Evolutionary Biology, "Effects of plant functional types of ecosystem nitrogen dynamics," 3/01.
- Washington University, Department of Biology, "Plant invasions and ecosystem change," 2/01.
- UF, Department of Botany, "Ecosystem processes and the grass-fire cycle in the tropics," 2/01.
- University of Arizona, Department of Ecology and Evolutionary Biology, "Plant invasions and ecosystem change," 2/01.
- University of California-Irvine, Department of Ecology and Evolutionary Biology, "Plant invasions and ecosystem change," 2/01.
- University of California-Berkeley, Department of Integrative Biology, "Effects of plant functional types of ecosystem nitrogen dynamics," 1/01.
- University of Utah, Department of Biology, "Effects of invasive grasses on the ecosystem nitrogen dynamics of a Hawai'ian dry forest," 2/00.
- University of Pennsylvania, Department of Biology, "Effects of invasive grasses on the ecosystem nitrogen dynamics of a Hawai'ian dry forest," 2/00.
- University of Alaska, Department of Biology and Wildlife, "Effects of invasive grasses on the ecosystem nitrogen dynamics of a Hawai'ian dry forest," 2/00.

Northern Arizona University Committees and service:

Center for Ecosystem Science and Society (ECOSS) Executive Committee member, 2014-present

ECOSS Graduate Student Recruitment Committee Chair, 2017-present

Biological Sciences Graduate Committee member, 2014-2015, 2016-present

Biological Sciences Faculty Status Committee, 2015-present

University of Florida Committees and service:

College of Liberal Arts and Sciences Finance Committee member, 2012-2014.
Provost's Welfare Council member, 2012-2014.
Tropical Conservation and Development Steering Committee member, 2012-2014.
Department of Biology Executive Council member, 2013-2014.
Department of Biology Graduate Admissions Committee chairperson, 2010-2013.
Department of Biology Space Committee member, 2012-2014.
Department of Biology Merit Review Committee chairperson, 2011.
Department of Soil and Water Science Curriculum Review Committee member, 2011.
Center for Latin American Studies Graduate Fellowship Committee member, 2009.
Center for Latin American Studies Review Board member, 2007-2008.
Biology Representative to the Faculty senate, 2009-2014.
Biology Space Committee chairperson, 2008-2009.
Biology Graduate Committee member, 2008-2009.
Botany Space Committee chairperson, 2006-2008.
Botany Department Colloquium chairperson, 2001-2003.
Botany Department Graduate Student Affairs committee member, 2001-2008.
Botany Faculty Merit Review committee member, 2001.
Botany Chairperson Search committee member, 2005.
School of Natural Resources and Environment Curriculum Review committee member, 2003-2014.

Other professional activities:

- Lead author of the "Cross-cutting Scientific Issues," Chapter 9, of the Snow Water Ice and Permafrost in the Arctic (SWIPA) Report, a product of the international Arctic Monitoring and Assessment Program. This report was delivered to the Arctic Council and the public in August 2017.
- Disturbance lead of the NASA Terrestrial Ecology Field campaign, Arctic and Boreal Vulnerability Experiment (ABoVE), 2015-present.
- Member of the NASA Terrestrial Ecology Field Campaign Concise Experimental Design Team for ABoVE, 2012-2014; co-chair of the field measurements team.
- Co-chair of the NASA Terrestrial Ecology Field Campaign Science Scoping committee for ABoVE: 2010-2012.
- Co-organizer of NASA ABoVE scoping study and Co-author of the white paper.
- Co-organizer of the NASA Vulnerability and Resilience of Arctic and Boreal Ecosystems conference, Fairbanks, AK: 2009.
- Lead author for the Ecosystems and Biodiversity chapter of the 2013 National Climate Assessment, a congressionally mandated summary of climate change for policy makers: 2012-2013.
- Subject editor for the journal Ecosystems: 2008-present.
- Subject editor for the journal Ecological Applications: 2013-present.
- Co-PI for a National Center for Ecological Analysis and Synthesis (NCEAS) working group "Linking phylogenetic history, plant traits, and environmental gradients to understand community organization at local and continental scales," with Jeannine

- Cavender-Bares (PI, University of Minnesota) and Co-PIs Peter Reich (University of Minnesota) and David Ackerly (University of California-Berkeley); 2009-2012.
- Participant in a Long Term Ecological Research Network working group "Linking phylogenetic history, plant traits, and environmental gradients to understand community organization at local and continental scales": 2009.
 - Co-PI on an NCEAS working group "The fate of N inputs to terrestrial ecosystems," with Pamela Templer (PI, Boston University) and Co-PIs Knute Nadelhoffer (University of Michigan), and William Currie (University of Michigan). 2005- 2007.
 - Mentored High School Earth Sciences teachers in arctic research as part of the NSF-funded Teachers and Researchers Exploring and Collaborating Program, which is managed by ARCUS. 2004-2006.
 - Sponsored 20 NSF Research Experience for Undergraduate student participants in summer research projects at Bonanza Creek and Arctic LTER sites, at La Selva Research Station, Costa Rica, and in Cherskiy, Siberia. 1999-2013.
 - Member of the Ecological Society of America, 1993-present.
 - Member of the American Geophysical Union, 2003-present.
 - Grant reviewer for NSF, NASA, US Department of Agriculture NIRGCP, Environmental Protection Agency, US Forest Service, and US Department of Defense.
 - Reviewer for Biogeochemistry, Ecology, Ecological Applications, Ecography, Ecosystems, Global Biogeochemical Cycles, Journal of Ecology, Journal of Vegetation Science, Nature, Oecologia, Oikos, Plant and Soil, and Science.

Teaching

Northern Arizona University

- Ecosystems and Climate Change (Bio 479): co-taught Principles of Ecosystem Ecology as a hybrid graduate and undergraduate-level course.

University of Florida:

- Ecology, Evolution and Behavior (BSC 2008): Introductory course in biology for non-majors.
- Principles of Ecosystem Ecology (PCB 5043): Graduate-level course that draws students from seven different departments.
- Methods of Ecosystem Ecology (Bot 6935): Lab that accompanies above course.
- General Ecology (PCB 4043C): Upper-division undergraduate course and lab for Biology majors.
- Integrative Principles (ZOO 6005): Three week module on "Global warming and the carbon-climate connection" in course required of all new PhD students in Biology department.
- Graduate seminars: Nutrient cycling and limitation (Fall 2004), Current issues in ecology (Spring and Fall, 2003-present).
- Plant and Ecosystem Ecology Research Symposium (PEERS): Graduate research review and critique (Spring and Fall, 2002-2014).

University of California-Berkeley

- Undergraduate Interdisciplinary Studies Instructorship: Senior thesis in Environmental Science, 1997.

- Department of Integrative Biology Teaching Assistantships: Plant Ecology with Carla D'Antonio, 1993, Population and Community Ecology with Wayne Sousa and Craig Osenberg, 1993.

Land Institute, Salina, KS

- Sustainable Agriculture Research Fellow and Education Coordinator, 1991-1992.

Student Conservation Association, Charlestown, NH

- Conservation workgroup supervisor, 1986-1990.
- Education coordinator for Campground Administration and Management Program, 1986-1987.

Postdoctoral researchers advised (as major advisor):

1. Catherine Cardelus, NSF Minority Postdoctoral Research Fellow, 2004-2007; currently an Associate Professor at Colgate University.
2. Martin Lavoie, Postdoctoral Fellow, Fonds Quebecois de la Recherche sur la Nature et les Technologies, 2006-2010; currently a research associate at Texas A&M.
3. Selene Baez, South East Alliance for Graduate Education and the Professoriate Postdoctoral Fellow, 2007-2008; currently an environment consultant in Ecuador.
4. Ricardo Holdo, Mellon Foundation Postdoctoral Fellow, 2009-2010; currently an Associate Professor at the University of Georgia.
5. Heather Alexander, NASA Postdoctoral Fellow, 2008-2011; National Science Foundation Office of Polar Programs Postdoctoral Research Fellow, 2011-2012; currently Assistant Professor at Mississippi State University.
6. April Melvin, DOD-SERDP Postdoctoral Research Fellow, 2011-2014; currently employed by the National Academy of Sciences as a Research Analyst.
7. Camila Pizano, Postdoctoral Researcher, 2011-2013; currently a federal employee in Columbia.
8. Taryn Morris, Postdoctoral Fellow, 2014-2016; currently employed by Bird Conservation International in South Africa.
9. Rebecca Hewitt, Postdoctoral Researcher, 2015-present.
10. Xanthe Walker, Postdoctoral Researcher, 2015-present.

Graduate students advised (as major advisor):

1. James Watkins (Ph.D. Botany 2006); Mercer Postdoctoral Fellow at Harvard University; Associate Professor at Colgate University.
2. Leslie Boby (M.S. Interdisciplinary Ecology, 2007); Extension outreach officer at University of Georgia.
3. Jennifer Schafer (Ph.D. Botany 2010); currently an assistant professor at William Jewel College in KS.
4. Laura Schreeg (Ph.D. Interdisciplinary Ecology, 2011); postdoctoral research fellow at Brown University, 2011-2013; AAAS Science and Technology Postdoctoral Fellow; State Department/USAID employee.
5. Jennie DeMarco (Ph.D. Botany, 2011); currently an Assistant Professor at Western State Colorado University.
6. Silvia Alvarez-Clare (Ph.D. Interdisciplinary Ecology, 2012); NSF Postdoctoral Research Fellow at the University of Montana; Research Associate at Argonne National Laboratory.

7. Andres Baron-Lopez (M.S. Botany, 2012); currently a biological technician at the University of Georgia.
8. Damion Graves (M.S. Botany, 2013); currently a biological technician working for the State of Florida.
9. Brian Howard (MS program at NAU, started Fall 2015).
10. Melissa Boyd (MS program at NAU, started Fall 2015).
11. Julia Stuart (PhD program at NAU, started Fall 2016).
12. Haley Dunleavy (PhD program at NAU, started Fall 2016).
13. Briana Jasinski (MS program at NAU, started Fall 2016).

Grants (pending):

NSF-DEB. M.C. Mack (PI), M.R. Turetsky, and E. Eukirchen (Co-PIs). Collaborative research: Decomposition and nutrient release in the saturated zone of thawing permafrost peatlands: feedbacks between permafrost carbon loss and plant productivity. 03/2017-02/20. \$1,150,000 (\$612,000 to NAU).

Grants (funded):

- DOD SERDP. Goetz, S.M (PI, NAU), M.C. Mack, and B. Rogers (Woods Hole Research Institute). Resilience and vulnerability of boreal forest habitat across the military lands of interior Alaska. 03/2018-02/2021. \$1,800,000.
- NSF-PLR. H. Alexander (PI, Mississippi State University), M.C. Mack (co-PI) and six others. Collaborative Research: Fire influences on forest recovery and associated climate feedbacks in the Siberian Arctic. 09/2017-08/21. \$1,400,000 (\$255,000 to NAU).
- DOD SERDP 16-0441. M.C. Mack (PI), J.F. Johnstone and E.A.G. Schuur (Co-PIs). Identifying Indicators of State Change in Alaskan Boreal Ecosystems: Testing previous hypotheses and conclusions with Long-term Data. 03/17-02/19. \$275,000.
- NSF-DEB LTER. R.W. Ruess (PI, UAF), M.C. Mack, T.N. Hollingsworth, J.B. Jones, and A.D. McGuire. Cross-scale controls over responses of the Alaskan boreal forest to changing disturbance regimes. 03/17-02/22. \$6,762,000 (\$300,000 to NAU).
- U.S. Department of Energy, Office of Biological & Environmental Research. Hungate, B.A. (PI, NAU), E. Schwartz, M.C. Mack, P. Dijkstra, and B. Koch (co-PIs). 08/16-07/19. Scaling the Ecology of Soil Carbon. \$2,474,530.
- NSF-DEB 1556496. Bret-Harte, S.M. (PI, UAF), Mack, M.C. and Ruess, R.W. (Co-PIs) Nitrogen cycling feedbacks between snow and shrubs in a warming Arctic. 08/16-07/19. \$800,000 (\$400,000 to NAU).
- NSF-DEB 1542586. McDaniel, S.A. (PI, UF), M.C. Mack, J-M. Ponciano, and N. Fier (Co-PI). Dimensions: Collaborative Research: Community genomic drivers of moss microbiome assembly and function in rapidly changing Alaskan ecosystems. 08/15-07/20. \$1,994,000 (\$500,000 to NAU).
- NASA TE Goetz-01. Goetz, S.A. (PI, NAU), Mack, M.C. (Co-PI) and several others. Mapping and modeling attributes of an arctic – boreal biome shift: Resource management implications within the ABoVE domain. 08/15-07/18. \$1,200,000, (\$120,000 to NAU).
- NASA TE Mack-01. Mack, M.C. (PI), Schuur, E.A., Johnstone, J.F., Goetz, S.A. (Co-PIs) Increasing fire severity and the loss of legacy carbon from forest and tundra ecosystems of Northwestern North America. 08/15-07/19. \$900,000.

- NSF-DEB 1542150. Mack, M.C. (PI). Increasing fire severity and the loss of legacy carbon from boreal ecosystems, 06/15-05/16. \$50,000.
- NSF-PLR 1504312, Mack, M.C. (PI), Taylor, D.L., Genet, H., and McGuire, A.D. (Co-PIs). Collaborative Research: The roles of plant roots, mycorrhizal fungi and uptake of deep nitrogen in the permafrost carbon feedback to warming climate, 06/15-05/18. \$1,645,000 (\$780,000 to NAU).
- NSF-DEB 1442280, Soltis, P. A. (PI, UF), M.C. Mack (co-PI) and four others. Dimensions US-China: Collaborative Research: How historical constraints, local adaptation, and species interactions shape biodiversity across an ancient floristic disjunction. 01/15-12/19. \$2,000,000 (\$400,000 to NAU).
- NSF-PLR 1303940, Alexander, H.A. (PI, UF), M.C. Mack, M.A. Loranty, S. Natali and S.J. Goetz (co-PIs). Collaborative Research: Fire regime influences on carbon dynamics of Siberian boreal forests. 5/2013-4/2017. \$780,000 (\$83,184 to NAU).
- Andrew W. Mellon Foundation, M.C. Mack (PI). Growth and resprouting dynamics of savanna trees across resource gradients in Kruger National Park. 9/12-9/16. \$225,000.
- DOD-SERDP, E. Schuur (PI, UF), M. C. Mack (co-PI) and four others. Identifying indicators of state change and forecasting future vulnerability in Alaskan boreal ecosystems, 3/11-3/16, \$2,500,000.
- NSF-DEB 1026415, R. Ruess (PI, UAF), M. C. Mack (co-PI) and three others. Regional consequences of changing climate-disturbance interactions for the resilience of Alaska's boreal forest, 12/10-11/16, \$5,640,000 (\$300,000 to UF).
- NSF-DEB-OISE-1032373, M. C. Mack (PI). International Supplement: Spatial and temporal influences of thermokarst failures on arctic surface processes. 6/10-6/11. \$34,721.
- Mellon Foundation, M. C. Mack (PI), R. D. Holt (co-PI). Linking disturbance and nutrient limitation in tropical savannas: tree-soil-microbial feedbacks in loved savanna, 3/09-3/13. \$300,000.
- National Center for Ecological Analysis and Synthesis, Center (sabbatical) Fellowship. M.C. Mack (PI). Climate warming and disturbance regimes in the far north. 8/09-6/10. \$80,000.
- NSF-DEB-0909734, M. C. Mack (PI), Laura Schreeg (student). Leaf litter leachate and the fate of phosphorous in seasonal lowland tropical forest, 6/09-5/12, \$13,413.
- NSF-OISE-0840298, M. C. Mack (PI), Silvia Alvarez-Clare (student). Biological processes influencing nutrient limitation in a tropical wet forest, 1/09-12/11, \$14,960.
- NASA Terrestrial Ecology, E. Kasischke (PI, University of Maryland), M. C. Mack (co-PI) and two others. Vulnerability and resilience of high latitude ecosystems: a scoping study for a NASA field campaign, 6/09-5/10, \$270,000 (\$24,000 to UF).
- DOD SERDP, Robert Mitchell (PI, Jones Ecological Research Center), M. C. Mack (co-PI) and 5 others. Developing dynamic reference models and a decision support framework for Southeastern ecosystems: an integrated approach, 1/09-1/13, \$1,500,000 (\$300,000 to UF).
- NSF OPP-6737545, Bowden, B. A. (PI, U of Vermont), M. C. Mack (co-PI) and 10 others, Collaborative research: spatial and temporal influences of thermokarst failures on arctic surface processes. 9/08-9/13. \$4,900,000 (\$700,000 to UF).
- NASA-Carbon Cycle, Goetz, S. (PI, Woods Hole Research Institute), M. C. Mack (Co-PI) and J. T. Randerson (U.C.-Irvine), Quantifying Changes in Northern High Latitude Ecosystems and Associated Feedbacks to the Climate System. 4/08-4/11. \$750,000 (\$250,000 to UF).

- NSF DEB-0516041, M.S. Bret-Harte (PI, University of Alaska Fairbanks), M.C. Mack (Co-PI) and P. Grogan (Queens University). Collaborative research on shrub-snow interactions in Alaskan and Canadian tundra and their potential for positive feedback to vegetation and climate change. 8/05-8/08. \$560,000 (\$270,000 to UF).
- Joint Fire Sciences Program, J. Johnstone (PI, University of Alaska Fairbanks), T.K. Hollingsworth, M.C. Mack, F.S. Chapin III, and E.A.G. Schuur. Fighting fire with fire: Predicting and manipulating the trajectory of vegetation recovery following fire in boreal forest. 6/05-6/07. \$535,000 (\$180,000 to UF).
- NSF DEB-0445458, K.K. Treseder (PI, University of California-Irvine), J.T. Borneman, M.C. Mack. Controls over fungal communities and consequences for nutrient cycling. 1/05-1/07. \$758,229 (\$110,000 to UF).
- NSF DEB-0423442, F.S. Chapin III (PI, University of Alaska Fairbanks), M.C. Mack (Senior Scientist) and many others: Alaska's Changing Boreal Forest: Resilience and Vulnerability: 2004 Bonanza Creek LTER Renewal Proposal. 12/2006-12/2009. \$1,820,000 (\$20,000 to UF).
- NSF DEB-0423442, F.S. Chapin III (PI, University of Alaska Fairbanks), M.C. Mack (Senior Scientist) and many others. LTER: Alaska's changing boreal forest: resilience and vulnerability. 12/2004-12/2006. \$1,748,366 (\$60,000 to UF).
- NSF DEB-0407877, M.C. Mack (PI) and E.J. Watkins II (student). Dissertation research: Gametophyte ecology: consequences for the distribution and abundance of tropical ferns. 8/1/04-8/1/06. \$11,970.
- Mellon Foundation, M.C. Mack (PI). The role of plant traits in ecosystem nutrient dynamics. 10/1/02-10/1/07. \$300,000.
- NSF OPP-0099113, J.T. Randerson (PI), M.C. Mack (Co-PI), S. Zimov and S. Davydov, F.S. Chapin III, J.C. Neff, E.A.G. Schuur. A measurement program in Siberia to assess disturbance-driven changes in arctic carbon and nutrient fluxes. 9/1/01-9/1/05. \$1,200,000 (\$80,000 to UF).
- NSF DEB-0212749, M.S. Bret-Harte (PI, University of Alaska Fairbanks) and M.C. Mack (Co-PI). Collaborative research on the effects of species and functional types on diversity, ecosystem function, and ecosystem response to perturbation in arctic tundra. 9/1/02-9/1/05. \$520,000 total, \$178,000 to UF.
- NSF DEB-0222792, M.C. Mack (PI). The role of soil nitrogen in plant litter decomposition. 8/01/02-8/01/04. \$50,000.
- NSF DEB-0075669, M.C. Mack (PI) and M.S. Bret-Hart (University of Alaska Fairbanks). Effects of Plant functional identity on ecosystem carbon accumulation and nitrogen retention following fire. 9/1/00 to 8/31/04. \$680,000.
- USDA NRICGP-2000-0706, M.C. Mack (PI). Effects of plant diversity on ecosystem nitrogen retention following fire. 9/1/00-9/1/02. \$90,000.

Publications in peer-reviewed journals:

(* indicates student or postdoctoral author supervised by Mack)

Submitted or In Press

Christensen*, C.T., Mack, M.C., DeMarco*, J. & Grogan, P. Submitted. Foliar litter decomposition is faster in tall vs. low shrub tundra. *Ecosystems*.

- Holdo*, R.A., J.A. Nippert, and M.C. Mack. In Press. Trees and grasses differ in functional rooting depth versus rainfall patterns across a rainfall gradient in African savanna. *Oecologia*.
- Salmon, V.G., C. Schädel, R. Bracho, E. Pegoraro, G. Celis, M. Mauritz, M.C. Mack, E.A.G. Schuur. In Revision. Adding depth to our understanding of nitrogen dynamics in permafrost soils. *Soil Biology and Biochemistry*.
- Gerhart, L.M., A. Walker, M.C. Mack, D. Nelson, K.K. McLauchlan. Submitted. Methodological Recommendations for Wood Nitrogen Isotope Analysis. *Advances in Mass Spectrometry*.
- Melvin*, A.M., G. Celis, J.F. Johnstone, A.D. McGuire, H. Genet, E.A.G. Schuur, T.S. Rupp and M. C. Mack. In Press. Fuel-reduction management alters plant composition, carbon and nitrogen pools, and permafrost thaw in Alaskan boreal forest. *Ecological Applications*.
- Walker*, X.J., J.L. Baltzer, S.G. Cumming, N.J. Day, J.F. Johnstone, B.M. Rogers, K. Solvik, M.R. Turetsky, M.C. Mack. In Press. Soil organic layer combustion in boreal black spruce and jack pine stands of the Northwest Territories, Canada. *International Journal of Wildland Fire*.
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