

Dr. Rebecca T. Barnes

CURRICULUM VITAE

Environmental Studies Program
Colorado College
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EDUCATION

- 2008 Ph.D., Forestry & Environmental Studies, Yale University, New Haven, CT.
Dissertation: Determining the Relative Importance of Fluxes and Processes to Nitrogen and Carbon Export from Temperate Watersheds
- 2005 M.Phil., Forestry & Environmental Studies, Yale University, New Haven, CT
- 2003 M.S.E.S., Water Resources, School of Public & Environmental Affairs, Indiana University, Bloomington, IN
- 2003 M.P.A., Environmental Policy & Natural Resource Management, School of Public & Environmental Affairs, Indiana University, Bloomington, IN
- 1998 B.A., Geology & Environmental Studies, Oberlin College, Oberlin, OH

PROFESSIONAL EXPERIENCE

- 2014 – present Assistant Professor, Environmental Studies Program, Colorado College, Colorado Springs, CO
- 2012 – 2014 Postdoctoral Associate, Institute of Marine & Coastal Sciences, Rutgers, New Brunswick, NJ
- 2011 – 2012 Visiting Assistant Professor, Bard Center for Environmental Policy, Annandale, NY
- 2010 – 2011 Postdoctoral Researcher, Department of Earth Sciences, Rice University, Houston, TX
- 2008 – 2010 NSF EAR Postdoctoral Fellow, U.S. Geological Survey and Department of Geological Sciences, University of Colorado, Boulder, CO

PUBLICATIONS

*Undergraduate student co-author, # Graduate student co-author

Barnes, R.T., A.H. Sawyer, D. Tight*, C.D. Wallace#. M.G. Hastings. 2019. Hydrogeologic Controls on Nitrogen Dynamics within the Tidal Freshwater Zone. *Journal of Geophysical Research- Biogeosciences*, doi: <https://doi.org/10.1029/2019JG005164>

Sebestyen, S., D. Ross, J. Shanley, E. Elliott, C. Kendall, J. Campbell, D. Dail, I. Fernandez, C. Goodale, G. Lawrence, G. Lovett, P. McHale, M. Mitchell, S. Nelson, M. Shattuck, T. Wickman, **R. Barnes**, J. Bostic, A. Buda, D. Burns, K. Eshleman, J. Finlay, D. Nelson, N. Ohte, L. Prado, L. Rose, R. Sabo, S. Schiff, J. Spoelstra, K. Williard. 2019. Unprocessed atmospheric nitrate in waters of the Northern Forest Region in the USA and Canada, *Environmental Science & Technology*, doi: 10.1021/acs.est.9b01276.

Wallace, C.D.#, A.H. Sawyer, & **R.T. Barnes**. 2018. Spectral analysis of continuous redox data reveals geochemical processes near the stream-aquifer interface, *Hydrological Processes*, doi.org/10.1002/hyp.13335

Hernandez, P.R., B. Bloodhart, A.S. Adams, **R.T. Barnes**, M. Burt, S.M. Clinton, W. Du#, E. Godfrey, H. Henderson#, I.B. Pollack, & E.V. Fischer. 2018. Role Modeling is a Viable Retention Strategy for Undergraduate Women in the Geosciences, *Geosphere*, v. 14, doi: 10.1130/GES01659.1.

Zhang, Q.#, J.F. Knowles, **R.T. Barnes**, R. Cowie, N. Rock, & M.W. Williams. 2018. Surface and subsurface water contributions to streamflow from a mesoscale watershed in complex mountain terrain, *Hydrological Processes*, doi: 10.1002/hyp.11469.

Barnes, R.T., E. Marín-Spiotta, & A. Morris. 2018. Advancing women in geosciences through community building: The Earth Science Women's Network. in Johnson, B.A. ed, *Women and Geology: Who Are We, Where Have We Come From, and Where Are We Going?* Geological Society of America Memoir 214, p. 121-128

- Berhe, A.A, **R.T. Barnes**, J. Six, E. Marín-Spiotta. 2018. Role of soil erosion on biogeochemical cycling of essential elements: carbon, nitrogen, and phosphorus. *Annual Reviews of Earth & Planetary Sciences*, 46: 521-548.
- Barnes, R.T.**, D.E. Butman, H. Wilson, & P.A. Raymond. 2018. Riverine export of aged carbon driven by flow path depth and residence time, *Environmental Science & Technology*, doi: 10.1021/acs.est.7b04717
- Fisher, E.V., A.S. Adams, **R.T. Barnes**, B. Bloodhart, M. Burt, S.M. Clinton, E. Godfrey, I. Pollack, & P.H. Hernandez. 2018. Welcoming Women into the Geosciences. *EOS*, 99, <https://doi.org/10.1029/2018EO095017>.
- Hernandez, P.H, B. Bloodhart, **R.T. Barnes**, A.S. Adams, S.M. Clinton, I. Pollack, E. Godfrey, M. Burt, E.V. Fischer. 2017. Promoting professional identity, motivation, and persistence: Benefits of an informal mentoring program for female undergraduate students, *PLOS ONE*, doi: 10.1371/journal.pone.0187531.
- Marín-Spiotta, E., A.S. Adams, **R.T. Barnes**, A.A. Berhe, M. Burt, E.V. Fischer, M. Harrison Okoro, M.G. Hastings, T. Holloway, A. Morris, & C. Wiedinmyer. 2017. Lessons from the Earth Science Women's Network. *Earthzine*. available at: <https://earthzine.org/2017/05/23/lessons-from-the-earth-science-womens-network/>
- Barnes, R.T.**, J. Andrews, & C.C. Orr*. 2017. Leveraging the Nitrogen Footprint to Increase Campus Sustainability, *Sustainability: The Journal of Record*. 10(2): 131-139. <https://doi.org/10.1089/sus.2017.29095.rtb>
- Hastings, M.G., **R.T. Barnes**, J. Berry, J. Kimiecik*, R. Ryals, & J. Lantz-Trissel. 2017. Calculating Institution Nitrogen Footprints Creates Connections across Campus, *Sustainability: The Journal of Record*, 10(2): 74-78. <https://doi.org/10.1089/sus.2017.29093.mgh>
- Hinckley, E.S., B.A. Ebel, **R.T. Barnes**, S.F. Murphy & S.P. Anderson. 2017. Critical zone properties control the fate of nitrogen during experimental rainfall in montane forests of the Colorado Front Range. *Biogeochemistry*, 132:231. doi:10.1007/s10533-017-0299-8.
- Knights, D[#], A.H. Sawyer, **R.T. Barnes**, C. Musial[#] & S. Bray*. 2017. Tidal controls on denitrification in coastal streambeds. *Water Resources Research*, doi: 10.1002/2016WR019405.
- Liu, Z[#]., B. Dugan, C.A. Masiello, **R.T. Barnes**, M.E. Gallagher, & H. Gonnermann. 2016. Impacts of Biochar Concentration and Particle Size on Hydraulic Conductivity of Biochar-Amended Sand, *Journal of Hydrology*, 533: 461-472.
- Kranabetter, J.M., S.K. Enders, J.M. Fraterrigo, P.E. Higuera, K.L. McLauchlan, J.L. Morris, E.B. Rastetter, **R.T. Barnes**, B. Buma, D.G. Gavin, L.M. Gerhart, L.Gillson, P. Hietz, M.C. Mack, B. McNeil, & S. Perakis. 2016. A Framework to Assess Biogeochemical Response to Ecosystem Disturbance Using Nutrient Partitioning Ratios, *Ecosystems*, 19: 387-395.
- Glessmer, M.S., A. Adams, M.G. Hastings, & **R.T. Barnes**. 2015. Taking ownership of your own mentoring: Lessons learned from participating in the Earth Science Women's Network. In: "The Mentoring Continuum: From Graduate School through Tenure," The Graduate School Press, Syracuse University.
- Musial, C.T.[#], A.H. Sawyer, **R.T. Barnes**, S. Bray*, & D. Knights[#]. 2015. Dynamic surface water-groundwater exchange in tidal freshwater zones: Insights from the Christina River Basin (Delaware, USA). *Hydrological Processes*, DOI: 10.1002/hyp.10623
- Voynova, Y.G., K.C. Lebaron*, **R.T. Barnes**, & W.J. Ullman. 2015. In Situ Response of Bay Productivity to Nutrient Loading from a Small Tributary: The Delaware Bay-Murderkill Estuary Tidally-Coupled Biogeochemical Reactor. *Estuarine, Coastal and Shelf Science*, DOI: 10.1016/j.ecss.2015.03.027
- Butman, D. E., H. Wilson, **R.T. Barnes**, M. Xenopoulos & P.A. Raymond. 2015. Disturbance mobilizes aged carbon to rivers. *Nature Geoscience* 8: 112-116, DOI: 10.1038/ngeo2322

Barnes, R.T., M.E. Gallagher, C.A. Masiello, Z. Liu, B. Dugan. 2014. Biochar-Induced Changes in Soil Hydraulic Conductivity and Dissolved Nutrient Fluxes Constrained by Laboratory Experiments. PLOS ONE, DOI: 10.1371/journal.pone.0108340

Hinckley, E.S, **R.T. Barnes**, S.P. Anderson, M.W. Williams, & S.M. Bernasconi. 2014. Ecosystem N retention and transport differ by hillslope aspect at the rain-snow transition of the Colorado Front Range, JGR- Biogeosciences, DOI: 10.1002/2013JG002588.

Barnes, R.T., M.W. Williams, J.N. Parman, K. Hill, & N. Caine. 2014. Thawing Glacial and Permafrost Features Contribute to Nitrogen Export from Green Lakes Valley, Colorado Front Range, USA. Biogeochemistry, DOI: 10.1007/s10533-013-9886-5.

Hinckley, E.S., B.A. Ebel, **R.T. Barnes**, R.S. Anderson, M.W. Williams, & S.P. Anderson. 2012, Aspect Control of Water Movement on Hillslopes Near the Rain-Snow Transition of the Colorado Front Range, U.S. Hydrological Processes, DOI: 10.1002/hyp.9549.

Kinney, T.J., C.A. Masiello, B. Dugan, W. C. Hockaday, M. R. Dean, K. Zygourakis, & **R.T. Barnes**. 2012, Hydrologic Properties of Biochars Produced at Different Temperatures, Biomass & Bioenergy. DOI: 10.1016/j.biombioe.2012.01.033.

Barnes, R.T., R.L. Smith, & G.R. Aiken. 2012. Linkages between denitrification and organic matter quality, Boulder Creek Watershed, CO. Journal of Geophysical Research- Biogeosciences. DOI: 10.1029/2011JG001749.

Williams, M.W., **R.T. Barnes**, J.N. Parman, M. Freppaz, and E.W. Hood. 2011. Stream water chemistry along an elevational gradient from the Continental Divide to Foothills of the Rocky Mountains. Vadose Zone Journal, 10: 900-914.

DeLee, O., **R.T Barnes**, R.E. Emanuel, P.B. Fisher, S.K. Henkel, and J.R. Marlon. 2011. Training a "New Scientist" to Meet the Challenges of a Changing Environment. EOS, 92 (16): 135-136.

Brantley, S.L, J.P. Megonigal, F.N. Scatena, Z. Balogh-Brunstad, **R.T. Barnes**, M.A. Bruns, P. van Cappelen, K. Dontsova, H. Hartnett, T. Hartshorn, A. Heimsath, E. Herndon, L. Jin, C.K. Keller, J.R. Leake, W.H. McDowell, F.C. Meinzer, T. Mozdzer, S. Petsch, J. Pett-Ridge, K.S. Pregitzer, P. Raymond, C.S. Riebe, K. Shumaker, A. Sutton-Grier, R. Walter, K. Yoo. 2011. Twelve Testable Hypotheses on the Geobiology of Weathering. Geobiology. DOI: 10.1111/j.1472-4669.2010.00264.x

Marlon, J.R., G. Patenaude, & **R.T. Barnes**. 2010. Catalyzing Interdisciplinary Research on Climate Change. EOS, 91 (34): 299.

Barnes, R.T. and P.A. Raymond. 2010. Land use controls on the delivery, processing, and removal of nitrogen from small watersheds: Insights from the dual isotopic composition of stream nitrate. Ecological Applications, 20 (7): 1961-1978.

Barnes, R.T. and P.A. Raymond. 2009. The contribution of urban and agricultural activities to inorganic carbon fluxes in Southern New England. Chemical Geology, 266: 327-336.

Griffith, D.R., **R.T. Barnes**, P.A. Raymond. 2009. Inputs of fossil carbon from wastewater treatment plants to U.S. rivers and oceans. Environmental Science & Technology, 43(15): 5647-5651.

Walters, A.W., **R.T. Barnes**, D.M. Post. 2009. Anadromous alewives (*Alosa pseudoharengus*) contribute marine-derived nutrients to coastal stream food webs. Canadian Journal of Fisheries & Aquatic Sciences, 66: 439-448.

Barnes, R.T., P.A. Raymond, K.L. Casciotti. 2008. Dual isotope analyses indicate efficient processing of atmospheric nitrate by forested watersheds in the northeastern U.S. Biogeochemistry, DOI: 10.1007/s10533-008-9227-2.

Anisfeld, S.C., **R.T. Barnes**, M.A. Altabet and T.Wu, 2007. Isotopic apportionment of atmospheric and sewage nitrogen sources in two Connecticut rivers. *Environmental Science & Technology*, 41 (18): 6363 -6369.

PUBLICATIONS (in progress drafts available upon request)

Barnes, R.T., K. McLauchlan, T. Hudiburg, P. Higuera, M. Mack, S. Perakis, et al. Integrating temporal scales to understand the impacts of biogeochemical legacies. *in preparation for Biogeochemistry*

Wallace, C.D.#, A.H. Sawyer, **R.T. Barnes**, M.R. Soltanian, T.H. Darrah R.S. Gabor, M.J. Wilkins. A model analysis of the tidal engine that drives nitrogen cycling in coastal riparian aquifers. *in revision, Water Resources Research*

Wallace, C.D.#, A.H. Sawyer, M.R. Soltanian, and **R.T. Barnes**. Nitrate removal within heterogeneous fluvial sediments under tidal influence. *in review, Geophysical Research Letters*

EXTERNAL FUNDING

2017 -2021 NSF ADVANCE Partnership: *From the Classroom to the Field: Improving the Workplace in the Geosciences* (\$1.1 million | \$94,334), PI

2016 Yale Institute for Biospheric Studies, Yale Analytical & Stable Isotope Center Matching Grant Program: Examining the Impact of the northward movement of Yellow Cedar in Southeast Alaska on the Net Ecosystem Carbon Balance (\$375)

2016 Yale Institute for Biospheric Studies, Yale Analytical & Stable Isotope Center Matching Grant Program: Effects of wildfire on soil carbon bioavailability in montane and subalpine forests of Colorado (\$625)

2015 NOVUS Research Coordination Network Scientific Exchange Program: *The role of fire on forested ecosystem carbon stocks: Examining the recovery and resilience of carbon stocks in Colorado watersheds* (\$1500), PI, linked proposals with B. Buma

2015 -2019 NSF Hydrologic Sciences *Dueling hotspots in the freshwater tidal zone--Surface water-groundwater connectivity and the fate of nitrogen in tidal rivers* (\$320,000 | \$95,000), PI

2014 -2019 NSF Improving Undergraduate Education *Improving the recruitment and persistence of women in the geosciences: Exploring deliberate mentoring approaches aimed at undergraduate students.* (\$1.7 million | \$45,000), PI

2009 NSF Long Term Ecological Research Cross-Site Synthesis Workshop Grant, *Predicting the influence of inland climate change on continental-scale carbon and nutrient processing in river networks*, Kominoski et al. (\$11,300), Co-PI

2008 -2010 NSF Earth Sciences Postdoctoral Fellowship, *Linking Carbon Quality to In-Stream Nitrogen Processing Across an Ecosystem Gradient* (\$160,000)

2007 Biogeosphere-Atmosphere Stable Isotope Network (BASIN) Award to attend Fall 2007 AGU Meeting (\$500)

2004 -2007 EPA Science to Achieve Results (STAR) Fellowship, *Managing nutrients in two New England estuaries: The feasibility of using stable isotopes to monitor nitrate sources* (\$110,000)

2004 NOAA National Estuarine Research Reserve Graduate Research Fellowship, *Managing nutrients in two New England estuaries: The feasibility of using stable isotopes to monitor nitrate sources*, (\$60,000, declined)

2003 The Sounds Conservancy, Quebec-Labrador Foundation (\$2000)

INTRAMURAL FUNDING

2019 *Jackson Fellowship, Hulbert Center for Southwest Studies, *How has fire shifted aquatic carbon cycling in montane forests?* (\$4000) *student-faculty collaborative grant

2019 *Grant Lyddon Faculty Student Collaborative Grant, *Quantifying how fire history affects carbon stocks and fluxes in mesic montane watersheds* (\$2400)

2019 *Grant Lyddon Faculty Student Collaborative Grant, *Testing the interval squeeze hypothesis for severe fires in Colorado, 1980 to present.* (\$1200)

2019 *Colorado College Provost's Office Faculty Student Collaborative Grant, *How Fire Shifts Microbiomes Across Ponderosa Pine Forests*, (\$4500)

- 2018 Colorado College Natural Science Division Funding, *How has fire shifted the ability of montane Ponderosa forests to retain carbon?* (\$4967)
- 2017 Colorado College Natural Science Division Funding, *Nitrogen Cycling in a Warming Alpine Watershed* (\$5000)
- 2017 *Colorado College Dean's Office Faculty Student Collaborative Grant, *Burning Transformations: Fire history effects on organic matter processing along and through hillslope soils* (\$4500)
- 2017 *Grant Lyddon Faculty Student Collaborative Grant, *Deciphering the relative contribution of atmospheric deposition to elevated nitrate export from two Colorado alpine streams using stable isotopes of nitrogen species* (\$3850)
- 2017 *Grant Lyddon Faculty Student Collaborative Grant, *How does fire shift the size, timing, and fate of laterally exported particulate and dissolved carbon pools from montane watersheds?* (\$4500)
- 2016 Colorado College Natural Science Division Funding, *Inputs and Exports of Organic Matter in Severely Burned Landscapes of Colorado* (\$5000)
- 2016 *Colorado College Dean's Office Faculty Student Collaborative Grant, *Controls on carbon stock recovery post fire in the Rocky Mountains* (\$4500)
- 2016 *Grant Lyddon Faculty Student Collaborative Grant, *Disturbance and Topographic Effects on Forest Carbon Stocks and Cycling in Southeast Alaska*, (\$4500)
- 2016 *Grant Lyddon Faculty Student Collaborative Grant, *How Carbon and Nitrogen Footprints Can Inform Sustainability Practices at Colorado College*, (\$4500)
- 2016 Jackson Fellowship, Hulbert Center for Southwest Studies, Colorado College, *Net Ecosystem Carbon Balance of Fire Impacted Southern Rocky Mountain Forests* (\$4000)
- 2015 Colorado College Natural Science Division Funding, *Net Ecosystem Carbon Balance of Fire Impacted Rocky Mountain Forests* (\$5000)
- 2015 *Dille Fund Faculty Student Collaborative Grant, *The Role of Fire on the Transport and Flux of Carbon in Forested Catchments* (\$1500)
- 2015 *Grant Lyddon Faculty Student Collaborative Grant, *The Role of Fire on the Transport and Flux of Carbon in Forested Catchments* (\$2000)
- 2015 *Grant Lyddon Faculty Student Collaborative Grant, *Effects of fire on stream communities in Ponderosa Pine forests* (\$4500)
- 2015 *Colorado College Dean's Office Faculty Student Collaborative Grant, *Effects of high-intensity fire on soil carbon bioavailability in forested ecosystems of the Colorado Rockies* (\$4500)
- 2014 Colorado College Natural Science Division Funding, *The role of fire on forested ecosystem carbon stocks* (\$5000)
- 2014 Colorado College Segway Funding, *The role of fire on forested ecosystem carbon stocks* (\$4750)
- 2014 *Grant Lyddon Faculty Student Collaborative Grant, *Dynamics of Surface Water-Groundwater Interactions and Nitrogen Cycling in a Tidally Influenced River* (\$4500)
- 2012 Rutgers, Institute of Marine & Coastal Sciences Postdoctoral Fellowship, *Sources and Reactivity of Particulate Organic Matter in the Delaware Estuary* (\$95,000)
- 2010 Rice University, Shell Center of Sustainability grant, *Stream Teams: Undergrad-led Research on the Biogeochemistry of River Urbanization*, R. Barnes, C. Masiello, and V. Colvin (\$30,000)

PENDING FUNDING

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- submitted* CAREER: The Legacy of Wildfire on Carbon Watershed Biogeochemistry. *Submitted July 2019*
NSF DEB, \$846,987
- submitted* Engineered ecosystem control points: characterizing the temporal fill and spill dynamics of alluvial floodplain beaver ponds. *Submitted April 2019* DOE SBR, \$408,672 (\$74K)

AWARDS & HONORS

-
- 2019 Sulzman Award for Excellence in Education and Mentoring, American Geophysical Union
- 2018 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) for Earth Science Women's Network Leadership Board activities
- 2016 Editors' Citation for Excellence in Reviewing for Soil Biology & Biochemistry
- 2015 Editors' Citation for Excellence in Refereeing for JGR-Biogeosciences
- 2013 Excellence in Reviewing Award, Biogeochemistry
- 2010 The Dissertation Initiative for the Advancement of Climate Change Research (DISCCRS)

- 2003 Academic Excellence Award, School of Public & Environmental Affairs, Indiana University, Bloomington, IN
- 2002 Pi Alpha Alpha Honor Society (Public Affairs) Inductee
- 1998 Wharton Prize in Geology, Oberlin College, Oberlin, OH
- 1997, 1998 President's Leadership Award, Oberlin College, Oberlin, OH
- 1997 Howard Hughes Teaching Fellowship, Oberlin College, Oberlin, OH

TEACHING EXPERIENCE

- 2015 -present Instructor, Department of Geological Sciences, University of Utah, SPATIAL (Spatio-temporal Isotope Analytics Lab) short course
- 2014 -present Assistant Professor, Environmental Studies Program, Colorado College: Intro to Earth System Science, Intro to Global Climate Change, It is Getting Hot in Here: The Politics & Science of Climate Change, Human Impacts on Global Biogeochemical Cycles, Stream Ecology, Watershed Biogeochemistry, Hydrology
- 2011-2012 Visiting Assistant Professor, Center for Environmental Policy, Bard College: Environmental Science of the Natural Environment, Environmental Science of the Built Environment, Terra Preta to Commercial Product: Can we scale up Biochar?
- 2004-2007 Instructor, School of Forestry & Environmental Studies MODS Program, Yale University: Ecosystem Measurement/Stream Ecology, Urban Ecosystems, Coastal Ecosystem Mini-Mod
- 2004-2007 Teaching Fellow, School of Forestry & Environmental Studies, Yale University: Multivariate Statistics for Environmental Sciences, Introduction to Environmental Statistics, Isotopes in Environmental Science, Organic Pollutants
- 2003 Instructor, Collins Living & Learning Center, Indiana University: Evolution of the Environmental Movement in the U.S. (service learning)
- 2003 Instructor, School of Public & Environmental Affairs, Indiana University: Supplemental course for Introductory Statistics
- 2001-2003 Teaching Assistant, School of Public & Environmental Affairs, Indiana University: Lake and Watershed Management, Statistical Analysis for Effective Decision Making, Environmental Problems & Solutions
- 1998 Assistant Instructor, Department of Geological Sciences, Indiana University: Field Geology in the Rocky Mountains, 7- week field course
- 1998 Teaching Assistant, Department of Geology, Oberlin College: Physical Geology

INVITED SEMINARS & GUEST LECTURES

- Program in Ecology, Utah State University, April 2019
- Department of Integrated Biology, University of Colorado, Denver, Sept 2018
- Hydrologic Sciences Symposium, University of Colorado Boulder, April 2018
- Texas A&M University, Department of Ecosystem Science & Management, March 2018
- The Ohio State University, Department of Geosciences, January 2018
- Marine Biological Laboratory, Woods Hole, MA, November 2017
- University of Wyoming, Program in Ecology, November 2015
- University of Utah, Department of Geology, December 2014
- University of North Carolina–Charlotte, Department of Geography & Earth Sciences, October 2013
- Rutgers, Institute of Marine & Coastal Sciences Seminar Series, September 2012
- Exxon Mobil Corporate Research Program, March 2012
- Lafayette College, Life Sciences Lecture Series, February 2012
- University of North Texas, Department of Geography, October 2011
- Baylor University, Department of Geology, February 2011
- Tulane University, Department of Earth & Environmental Sciences, February 2011
- University of Colorado, Institute of Arctic and Alpine Research, December 2009
- University of Colorado, Environmental Engineering Program, February 2009
- U.S. Geological Survey, National Research Program, Denver, CO, January 2009
- Holy Cross College, Biology Department, March 2008
- Wesleyan University, Department of Geological Sciences, February 2008

1ST AUTHOR CONFERENCE PRESENTATIONS

**oral, **invited*

- *Barnes, R.T., K.Wolf, A.Gilbertson. 2019. Carbon export and storage across charred Colorado landscapes: from soils to streams. Presented at the 2019 Society for Freshwater Sciences Meeting, Salt Lake City, UT 19-23 May.
- **Barnes, R.T., A. Sawyer, D. Tight, C. Wallace. M.G. Hastings. 2018. Hydrogeologic Controls on Nitrogen Dynamics within the Tidal Freshwater Zone. Abstract H31D-08 presented at the 2018 Fall Meeting, AGU, Washington, DC, 10-14 Dec.
- *Barnes, R.T., D. Tight, A. Sawyer, & C. Wallace. 2018. Hydrogeologic Controls on Nitrogen Dynamics within the Tidal Freshwater Zone. Abstract 2018003506, Goldschmidt, Boston, MA, 13-17 Aug.
- *Barnes, R.T., A. Gilbertson, & K. Maxwell. 2017. Burning transformations: Fire history effects on organic matter processing from hillslopes to streams. Abstract B44D-02 presented at the 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 Dec.
- *Barnes, R.T., M. Burt, R. Licker, & T. Holloway. 2017. Changing the face of science: Lessons from the 2017 Science-A-Thon. Abstract ED33B-09 presented at the 2017 Fall Meeting, AGU, New Orleans, LA, 11-15 Dec.
- Barnes, R.T., A.H. Sawyer, C. Wallace. D. Knights. 2017. A Tale of Two Competing Hot Spots: Nitrogen Cycling in the Tidal Freshwater Zone. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology & Geochemistry, June 2017.
- *Barnes, R.T., Wolf, K., Gilbertson, A., Buma, B. 2016. Carbon stocks and fluxes in fire disturbed landscapes of Colorado, U.S.A. Abstract B51J-04 presented at the 2016 Fall Meeting, AGU, San Francisco, CA, 12-16 Dec.
- **Barnes, R.T., Sawyer, A.H, C. Wallace, D. Knights. 2016. Nitrogen biogeochemistry in the stream and transient storage zones of a freshwater tidal ecosystem, Delaware, U.S.A. Abstract B12D-05 presented at the 2016 Fall Meeting, AGU, San Francisco, CA, 12-16 Dec.
- Barnes, R.T. B. Buma, K. Wolf, K. Elwood, T. Fehsenfeld & M. Kehlenbeck. 2015. After the Burn: Forest Carbon Stocks and Fluxes across fire disturbed landscapes in Colorado, U.S.A. Abstract B13F-0685 presented at the 2015 Fall Meeting, AGU, San Francisco, CA, 14-19 Dec.
- *Barnes, R.T. A.H. Sawyer, S. Bray, D. Knights, & C. Wallace. 2015. Nitrogen removal and production within transient storage zones in a freshwater tidal environment, Delaware, USA. Abstract H41I-04 presented at the 2015 Fall Meeting, AGU, San Francisco, CA 14-19 Dec.
- Barnes, R.T., Y.G. Voynova, W.J. Ullman, E.L. Sikes, & A.K. Aufdenkampe. 2014. The Composition and Bioavailability of Organic Matter Fractions Exported from a Salt Marsh of the Murderkill Estuary, Delaware, USA. Abstract B13E-0239 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec.
- *Barnes, R.T., Y.G. Voynova, W.J. Ullman, E.L. Sikes, & A.K. Aufdenkampe. 2013. Salt Marsh Influence on the Composition and Bioavailability of Organic Matter in a Temperate Estuary. Joint Aquatic Sciences Meeting, Portland, OR, 18-23 May.
- *Barnes, R.T., Y.G. Voynova, W.J. Ullman, E.L. Sikes, & A.K. Aufdenkampe. 2013. The Composition and Bioavailability of Organic Matter Fractions Exported from a Salt Marsh of the Murderkill Estuary, Delaware, USA. Abstract H33I-01 presented at 2013 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.
- Barnes, R.T., D.E. Butman, H. F. Wilson, & P.A. Raymond. 2013. Human Impact on the age of riverine DOC. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology & Geochemistry, June 2013.

*Barnes, R.T., M.W. Williams, & J.N. Parman. 2012. Alpine Warming Induced Nitrogen Export from Green Lakes Valley, Colorado Front Range, USA. Abstract B22D-04 presented at 2012 Fall Meeting, AGU, San Francisco, CA, 3-7 Dec.

Barnes, R.T., M.E. Gallagher, C.A. Masiello, B. Dugan, Z. Liu, & J.A. Rudgers. 2011. Changes in water, carbon, and nitrogen fluxes with the addition of biochar to soils: lessons learned from laboratory and greenhouse experiments. Abstract H51D-1227 presented at 2011 Fall Meeting, AGU, San Francisco, CA, 5-9 Dec.

*Barnes, R.T., J.N. Parman, & M.W. Williams. 2011. Implications of alpine warming on biogeochemical cycling in Green Lakes Valley, Colorado Front Range, USA, National Atmospheric Deposition Program Annual Meeting, October 2011.

Barnes, R.T., J.N. Parman, & M.W. Williams. 2011. Climate Change and Biogeochemical Cycling in Green Lakes Valley, Colorado Front Range, USA. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology & Geochemistry, July 2011.

Barnes, R.T., J.N. Parman, & M.W. Williams. 2010. Climate Change and Biogeochemical Cycling in Green Lakes Valley, Colorado Front Range, USA, Abstract B13C-0494 presented at 2010 Fall Meeting, AGU, San Francisco, CA, 13-17 Dec.

Barnes, R.T., R.L. Smith, & G.R. Aiken. 2010. Denitrification and DOM reactivity: A comparison between experimental and modeling results, ASLO – NABS Meeting, June 2010.

*Barnes, R.T. & R.L. Smith. 2009. Linking Carbon Quality to In-stream Nitrogen Processing, Boulder Creek, Colorado, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract B33E-06.

Barnes, R.T. & R.L. Smith. Linking Carbon Quality to In-stream Nitrogen Processing, Boulder Creek, Colorado, LTER All Scientist Meeting, September 2009.

**Barnes, R.T. & R.L. Smith, Linking Carbon Quality to In-stream Nitrogen Processing Across an Ecosystem Gradient, Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology & Geochemistry, July 2009

*Barnes, R.T. & P.A. Raymond. 2008. Land use controls on the delivery, processing, and removal of nitrogen from small watersheds: insights from the dual isotopic composition of stream nitrate, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H23J-05.

*Barnes, R.T. & P.A. Raymond. Scaling up to the Whole: Using Nitrate Isotopic Signatures to Assess Processing and Export. Estuarine Research Federation Conference, November 2007.

*Barnes, R.T. & P.A. Raymond. Scaling up to the Whole: Using Nitrate Isotopic Signatures to Assess Processing and Export. Nitrogen 2007: 4th International Nitrogen Initiative Conference, October 2007.

Barnes, R. T., P.A. Raymond & K.L. Casciotti. Dual isotope analyses indicate efficient processing of atmospheric nitrate by forested watersheds in the northeastern U.S. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology & Geochemistry, July 2007.

*Barnes, R.T. & P.A. Raymond. The Dual Isotopic Composition of Nitrate Exported from Small Temperate Watersheds of Different Land Uses. ASLO, Aquatic Sciences Meeting, February 2007.

Barnes, R.T. & P.A. Raymond. 2006. The Dual Isotopic Composition of Nitrate Exported from Temperate Watersheds of Different Land Uses, Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract B13A-1049.

Barnes, R. T. Nitrogen Export to Long Island Sound: Determining Fluxes and Processes within the Connecticut River Watershed. EPA STAR Graduate Fellow Research Conference, September 2006.

Barnes, R. T., G. Benoit & S.C. Anisfeld. 2004. Managing Nutrients in Long Island Sound: The Feasibility of Using Stable Isotopes to Monitor Nitrate Sources, *Eos Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract H41D-0327.

Barnes, R. T. The Feasibility of Using Stable Isotopes to Monitor Sources of Nitrate to Long Island Sound. EPA STAR Graduate Fellow Research Conference, September 2004.

SYNERGISTIC ACTIVITIES & SERVICE

Grant Reviewing Efforts:

National Science Foundation: Arctic Natural Sciences, Coupled Natural Human Systems, Earth Sciences Postdoctoral Fellowships, Environmental Biology, Hydrologic Sciences, EAR Instrumentation & Facilities, Geobiology & Low Temperature Geochemistry, SEES Postdoctoral Fellowships, REU Programs, as well as, Wisconsin SeaGrant, Louisiana SeaGrant, Swiss National Science Foundation

Journal Reviewing Efforts:

Aquatic Sciences, Aquatic Geochemistry, Atmospheric Environment, Biogeochemistry, Biogeosciences, Ecological Applications, Ecology, Ecosystems, Environmental Management, Environmental Pollution, Environmental Science & Technology, Geoderma, Geophysical Research Letters, Global Biogeochemical Cycles, Hydrological Processes, Limnology & Oceanography, Limnology & Oceanography Letters, Journal of Environmental Quality, Journal of Geophysical Research – Biogeosciences, Organic Geochemistry, Nature Communications, Plant & Soil, PLoS One, Radiocarbon, Science of the Total Environment, Soil Biology & Biochemistry, Water Resources Research

2019 - present *Scientist in Residence* Utah State University's ARTsySTEM Program
2019 *Judge*, Outstanding Student Presentations, Annual SFS Meeting
2016 - present *NCEAS working group participant*: Global patterns in stream energy and nutrient cycling
2016 *Judge*, Student Grant Recipients, Fall AGU Meeting
2015 - present *Volunteer*, Pinon Valley Elementary School – Girls in Science enrichment program
2015 - 2017 *Reviewer*, Research in Residence grant proposals for University of Utah's ISOCAMP and SPATIAL programs
2014 *Session Chair*, AGU Fall Meeting, Soil Organic Matter Dynamics: Novel Techniques, Big Data, and Functional Models
2013 Gordon Conference Research Seminar *Discussion Leader*, Catchment Science: Interactions of Hydrology, Biology and Geochemistry.
2013, 2014 *Invited Participant*, The Novus Project for Integrating Paleo- and Neo-ecosystem Ecology
2013 *Participant*, Inland-Waters Geochemistry, Biogeochemistry and Fluvial Sedimentology: EarthCube, NSF sponsored workshop
2012 - present *Leadership Member*, Earth Science Women's Network
2011 – 2013 *Mentor*, Student Conference on Conservation Science
2010 – 2015 *Judge*, Outstanding Student Paper Awards, Fall AGU Meeting
2011 – 2013 *Participant Reviewer* for the Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS)
2011 Gordon Conference Research Seminar *Chair*, Catchment Science: Interactions of Hydrology, Biology and Geochemistry. Theme: Watershed as Sentinels of Global Change.
2010 *Session Chair*, ASLO NABS Joint Meeting, Sources, Transport, and Cycling of Nutrients in Aquatic Ecosystems
2009 *Invited participant*, Frontiers in Exploration of the Critical Zone II: The Geobiology of Weathering and Erosion, NSF sponsored workshop
2007 *Session Chair*, Estuarine Research Federation Conference, ¹⁵N as a Tracer for Nitrogen Pollution Sources

Institutional Service:

2019 – present Title IX Education & Prevention Working Group
2019 – present Colorado College Institutional Representative, National Academy of Sciences Action Collaborative on Sexual Harassment
2018 – 2019 Science Building Committee, Colorado College

2018 – 2019 Advancement Committee, Colorado College
2018 Friends & Family TigerED speaker, Colorado College
2016 – present Faculty advisor, Women in STEM student interest group, Colorado College
2016 – present Goldwater Scholarship Campus Representative, Colorado College
2016 – 2017 Faculty Steering Committee, Summer Collaborative Research Program, Colorado College
2015 – 2017 Faculty Steering Committee, State of the Rockies Program, Colorado College
2015 – 2017 Natural Sciences Division Rep, Assessment Committee, Colorado College
2015 – 2016 Member, Innovation Certificate Task Force, Colorado College
2005 – 2007 Student Representative, Curriculum Committee, Yale F&ES
2006 Doctoral Student Representative, Student Affairs Committee, Yale F&ES
2005 Conference Chair, 21st Annual Doctoral Research Conference, Yale F&ES

STUDENT MENTORING

Undergraduate Theses & Senior Projects

John Crawford, University of Colorado, Environmental Studies Program, 2009-10

Jim Elder, Rice University, Department of Earth Sciences, 2010-11

Colorado College: Sam Bray 2014 -15, Ross Sherman 2014 -15, Kyra Wolf 2015-17, Maggie Kehlenbeck 2015-16, Theodosia Fehsenfeld 2015-16, Colleen Orr 2016-17, Patrick Journey 2016-17, Asheton Gilbertson 2016-18, Emily Cain 2017-18, Emily (Fiona) Cerf 2017 -18, Emily Komie 2017-18, Alice Oline 2017-18, Delaney Tight 2017-18, Arielle Link 2018-19, Carly Bonwell 2019 – present, Robin Grathwohl 2019 – present, Cheristy Jones 2019 – present, Marguerite Spaethling 2019 - present

Master's Students

Jordan Parman, Univ. of Colorado, Department of Geography, 2008-10; BobbiJo Littrell, CO School of Mines, May-Aug. 2010; *Bard CEP, Master's Theses, 2011-13*: Brandy Chambers, Michael Bernstein, Kristine Pierce, Michelle Phillips, Bartek Starodaj, Carol Smillie, Simon Topp, Nai-Hui Wang, Kendall Lambert

PhD Students

Corey Wallace, The Ohio State University, 2015-19, Deon Knights, The Ohio State University, 2014 – present, Sydney Clark, Brown University, 2017– present

PROFESSIONAL SOCIETY MEMBERSHIP

American Geophysical Union (AGU), Association for the Sciences of Limnology & Oceanography (ASLO), Society for Freshwater Sciences (SFS)