

Dr. Rebecca T. Barnes

CURRICULUM VITAE

Environmental Studies Program
Colorado College
14 E Cache La Poudre
Colorado Springs, CO 80903

office: 719.389.7466
cell: 203.676.7285
becca.barnes@gmail.com
sites.coloradocollege.edu/rebeccabarnes/

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

- 2020 – present Associate Professor, Environmental Studies Program, Colorado College, Colorado Springs, CO
- 2014 – 2020 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

Wymore, A.S., P.J. Johnes, S. Bernal, E.N.J. Brookshire, H.M. Fazekas, A.M. Helton, A. Argerich, **R.T. Barnes**, A.A. Coble, W.K. Dodds, S. Haq, S.L. Johnson, J.B. Jones, S.S. Kaushal, P. Kortelainen, C. Lopez-Loreda, B. M. Rodriguez-Cardona, R.G.M. Spencer, P.L. Sullivan, C.A. Yates, W.H. McDowell. *Accepted*. Gradients of anthropogenic nutrient enrichment alter N composition and DOM stoichiometry in freshwater ecosystems. *Global Biogeochemical Cycles*

Cheng, S. J., M. Zaringhalam, A.P.S. Carvalho, **R. Barnes**, G. Goldman, J. Simonis ... J. Zelikova. *Accepted*. 10 Practices for Moving Scientific Publishing toward Social Justice. *Inside Higher Education*

Marin-Spiotta, E., L. Gundersen, **R. Barnes**, M. Hastings, B. Schneider, and J. Stemwedel. *Accepted*. Harassment as scientific misconduct. In: J. Faintuch and S. Faintuch (eds). *Integrity of Scientific Research: Fraud, Misconduct and Fake News in the Academic, Medical and Social Environment*. Springer

Xenopoulos, M.A., **R.T. Barnes**, K. S. Boodoo, D.E. Butman, N. Catalán, S.C. D’Amario, Christina Fasching; D.N. Kothawala, O. Pisani, C.T. Solomon, R.G.M. Spencer, C.J. Williams, H.F. Wilson. 2021. How humans alter dissolved organic matter composition in freshwater: relevance for the Earth’s biogeochemistry. *Biogeochemistry*. doi: 10.1007/s10533-021-00753-3

Knights, D.#, A.H. Sawyer, **R.T. Barnes**, A. Piliouras, J. Schwenk, D.A. Edmonds, & A.M. Brown. 2020. Nitrate removal across ecogeomorphic zones in Wax Lake Delta, Louisiana (USA). *Water Resources Research*. doi: 10.1029/2019WR026867

Hernandez, P.R., A.S. Adams, **R.T. Barnes**, M. Burt, S.M. Clinton, W. Du, H. Henderson, I.B Pollack, & E.V. Fischer. 2020. Inspiration, inoculation, and introductions: Critical elements to improving persistence for

undergraduate women pursuing geoscience careers. *Communications Earth and Environment*, doi: 10.1038/s43247-020-0005-y

Marín-Spiotta, E., **R.T. Barnes**, A.A. Berhe, M.G. Hastings, A. Mattheis, B. Schneider, & B. Williams. Building partnerships for cultural change in the geosciences. 2020. *Advances in Geosciences*, doi: 10.5194/adgeo-53-117-2020

Wallace, C.D.[#], A.H. Sawyer, M.R. Soltanian, & **R.T. Barnes**. 2020. Nitrate removal within heterogeneous riparian aquifers under tidal influence. *Geophysical Research Letters*. doi: 10.1029/2019GL085699

Wallace, C.D.[#], A.H. Sawyer, **R.T. Barnes**, M.R. Soltanian, R.S. Gabor, M.J. Wilkins, Myles T. Moore[#]. 2020. A model analysis of the tidal engine that drives nitrogen cycling in coastal riparian aquifers. *Water Resources Research*. doi: 10.1029/2019WR025662

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: 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

Pendergrass, A., J. Zelikova, J. Arnott, H. Bain, **R. Barnes**, J. Baron, K. Dutt, M. Gay-Antaki, R. Haacker, E. Jack-Scott, AJ Lauer, A. Morris, D. Morrison, A. Nunez, H. Steltzer, L. Thompson. 2019. Inclusive Scientific Meetings: Where to Start. available online: http://bit.ly/inclusive_scientific_meetings_guide [white paper]

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 [invited]

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. [invited]

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*)

Berhe, A.A., **R.T. Barnes**, M.G. Hastings, A. Mattheis, B. Schneider, B. Williams, E. Marin-Spiotta. Leaky Pipeline vs. Vicious Obstacle Course: metaphors for the persistent exclusion of minoritized scholars from STEM. *in revision*

Bloodhart, B., P. Hernandez, A.S. Adams, **R.T. Barnes**, M. Burt, S.M. Clinton, E. Godfrey, H. Henderson, I.B. Pollack, & E.V. Fischer. Too Feminine for STEM? Interference between Gender and Science Identities Impacts Women's Interest in Science. *in revision*

Clark, S, **R.T. Barnes**, I. Oleksy, J. Baron, & M.G. Hastings, Meredith. Persistent nitrate in alpine waters with changing atmospheric deposition and warming trends, *in revision*

Knights, D., A.H. Sawyer, D.A. Edmonds, E.A. Olliver, **R.T. Barnes**. The Relationship between Delta Form and Nitrate Retention Revealed by Numerical Modeling Experiments, *in revision*

Marin-Spiotta, E., A. Mattheis, C.F. Bell, **R.T. Barnes**, A.A. Berhe, M.G. Hastings, J. Maertens, B. Schneider and B.M. Williams. A critical feminist approach to transforming workplace climate in the geosciences through community engagement and partnerships with societies, *in review*

Rodríguez-Cardona, B.M, A.S. Wymore, A. Argerich, **R.T. Barnes**, S. Bernal, E. N. J. Brookshire, A.A. Coble, W.K. Dodds, H. M. Fazekas, A. M. Helton, P. J. Johnes, S.L. Johnson, J. B. Jones, S.S. Kaushal¹², P. Kortelainen, C. López-Lloreda, R.G.M. Spencer, & W.H McDowell. Shifting Stoichiometry: Long-term trends in stream dissolved organic matter alter C:N ratios due to history of atmospheric acid deposition, *in revision*

EXTERNAL FUNDING

2021 - 2024	Collaborative Research: Role of soil microbiome resilience in ecosystem recovery following severe wildfire, NSF DEB (\$844,435 \$62,000), PI
2020 - 2026	Collaborative Research: <i>PRomoting, Geoscience, Research, Education, and SuccesS (PROGRESS) through Mentoring</i> , NSF IUSE (\$3 million \$123K), PI
2020	NSF RAPID: <i>Collaborative Research: Increased access to infrastructure for distance education in hydrologic science</i> (\$90,000), co-PI
2020 -2026	CAREER: <i>The Legacy of Wildfire on Carbon Watershed Biogeochemistry</i> . NSF DEB, \$846,987
2019	Yale Institute for Biospheric Studies, Yale Analytical & Stable Isotope Center Matching Grant Program: <i>Legacy of fire on carbon cycling from hillslopes to streams</i> (\$1000)
2017 -2021	NSF ADVANCE Partnership: <i>From the Classroom to the Field: Improving the Workplace in the Geosciences</i> (\$1.1 million \$94,334), PI
2016	Yale Institute for Biospheric Studies, Yale Analytical & Stable Isotope Center Matching Grant Program: <i>Examining the Impact of the northward movement of Yellow Cedar in Southeast Alaska on the Net Ecosystem Carbon Balance</i> (\$375)
2016	Yale Institute for Biospheric Studies, Yale Analytical & Stable Isotope Center Matching Grant Program: <i>Effects of wildfire on soil carbon bioavailability in montane and subalpine forests of Colorado</i> (\$625)
2015	NOVUS Research Coordination Network Scientific Exchange Program: <i>The role of fire on forested ecosystem carbon stocks: Examining the recovery and resilience of carbon stocks in Colorado watersheds</i> (\$1500), PI, linked proposals with B. Buma
2015 -2019	NSF Hydrologic Sciences <i>Dueling hotspots in the freshwater tidal zone--Surface water-groundwater connectivity and the fate of nitrogen in tidal rivers</i> (\$320,000 \$95,000), PI
2014 -2019	NSF Improving Undergraduate Education <i>Improving the recruitment and persistence of women in the geosciences: Exploring deliberate mentoring approaches aimed at undergraduate students</i> . (\$1.7 million \$45,000), PI
2009	NSF Long Term Ecological Research Cross-Site Synthesis Workshop Grant, <i>Predicting the influence of inland climate change on continental-scale carbon and nutrient processing in river networks</i> , Kominoski et al. (\$11,300), Co-PI
2008 -2010	NSF Earth Sciences Postdoctoral Fellowship, <i>Linking Carbon Quality to In-Stream Nitrogen Processing Across an Ecosystem Gradient</i> (\$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, <i>Managing nutrients in two New England estuaries: The feasibility of using stable isotopes to monitor nitrate sources</i> (\$110,000)
2004	NOAA National Estuarine Research Reserve Graduate Research Fellowship, <i>Managing nutrients in two New England estuaries: The feasibility of using stable isotopes to monitor nitrate sources</i> , (\$60,000, declined)
2003	The Sounds Conservancy, Quebec-Labrador Foundation (\$2000)

INTRAMURAL FUNDING

**student-faculty collaborative grant*

- 2020 Legacy of fire on soil carbon and microbiome: a story of recovery or transition? Colorado College Natural Science Divisional Funds (\$4000)
- 2019 *Jackson Fellowship, Hulbert Center for Southwest Studies, *How has fire shifted aquatic carbon cycling in montane forests?* (\$4000)
- 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)

AWARDS & HONORS

- 2020 Nature Inspiring & Innovating Science Award in Outreach *short-list*, for PROGRESS (PRomoting, Geoscience, Research, Education, and SuccesS) mentoring program

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, <i>Department of Geological Sciences, University of Utah</i> : SPATIAL (Spatio-temporal Isotope Analytics Lab) short course
2014 -present	Assistant/Associate Professor, <i>Environmental Studies Program, Colorado College</i> : 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, <i>Center for Environmental Policy, Bard College</i> : 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, <i>School of Forestry & Environmental Studies MODS Program, Yale University</i> : Ecosystem Measurement/Stream Ecology, Urban Ecosystems, Coastal Ecosystem Mini-Mod
2004-2007	Teaching Assistant, <i>School of Forestry & Environmental Studies, Yale University</i> : Multivariate Statistics for Environmental Sciences, Introduction to Environmental Statistics, Isotopes in Environmental Science, Organic Pollutants
2003	Associate Instructor, <i>Living & Learning Center, Indiana University</i> : Evolution of the Environmental Movement in the U.S. (service learning)
2003	Instructor, <i>School of Public & Environmental Affairs, Indiana University</i> : Supplemental course for Introductory Statistics
2001-2003	Teaching Assistant, <i>School of Public & Environmental Affairs, Indiana University</i> : Lake and Watershed Management, Statistical Analysis for Effective Decision Making, Environmental Problems & Solutions
1998	Associate Instructor, <i>Department of Geological Sciences, Indiana University</i> : Field Geology in the Rocky Mountains, 7- week field course
1998	Teaching Assistant, <i>Department of Geology, Oberlin College</i> : Physical Geology

INVITED SEMINARS & GUEST LECTURES

Director's Seminar Series, Environmental Sciences Division, Oak Ridge National Lab, April 2021
 Central New York Earth Science Student Symposium, *Keynote Speaker*, April 2021
 Department of Biology, Duke University, March 2021
 System Ecology Program, University of Montana, March 2021
 Office of Diversity & Equal Opportunity & WISDom ERG, U.S. Geological Survey, March 2021
 Next-Generation Ecosystem Experiments Arctic All Hands Meeting, January 2021
 Department of Earth & Environmental Sciences, University of Pittsburgh, November 2020
 Department of Earth & Atmospheric Sciences, Indiana University, October 2020
 O'Neill School of Public & Environmental Affairs, Indiana University, October 2020
 Hubbard Brook Annual Cooperators' meeting, July 2020
 Department of Geological Sciences, University of Colorado-Boulder, April 2020 *postponed*
 Department of Environmental & Forest Sciences, University of Washington, November 2019
 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

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

1ST AUTHOR CONFERENCE PRESENTATIONS (last three years)

**oral, **invited*

*Barnes, R.T. C. Bell, A.A. Berhe, M.G. Hastings, A. Mattheis, J. Maerten, B. Schneider, B.W. Williams, E. Marín-Spiotta. Improving workplace culture, indoors and out: Challenges and opportunities to make the geosciences more inclusive and welcoming. presented at the 2021 Society for Freshwater Sciences annual meeting, *virtual* 23-27 May.

*Barnes, R.T., C. Bonwell, C.P. Jones, A. R. Nelson, M.J. Wilkins, & M. Wolford. The legacy of severe fire on carbon dynamics within montane watersheds: linking soils to streams. Abstract B058-05 presented at the 2020 Fall Meeting, AGU, *virtual* 1-17 Dec.

*Barnes, R.T. C. Bell, A.A. Berhe, M.G. Hastings, A. Mattheis, B. Schneider, B.W. Williams, E. Marín-Spiotta. Improving workplace culture, indoors and out: Challenges and opportunities to make the geosciences more inclusive and welcoming. Abstract SY037-07 presented at the 2020 Fall Meeting, AGU, *virtual* 1-17 Dec.

**Barnes, R.T., E.R. Hotchkiss, & D.E. Butman. 2019. Shifting flow paths: How disturbance alters carbon export and fate. Abstract B13C-07 presented at the 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.

Barnes, R.T., P.R. Hernandez, B. Bloodhart, A.S. Adams, M. Burt, S.M. Clinton, W. Du, E. Godfrey, H. Henderson, I.B. Pollack, & E.V. Fischer. 2019. The Value of Role Models in Retaining Undergraduate Women in the Geosciences Abstract ED33F-1042 presented at the 2019 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.

**Barnes, R.T. 2019. ADVANCEGeo Partnership: Empowering geoscientists to transform workplace climate through behavioral and institutional change, *Bystander Intervention and Approaches for Correcting Behavior Before It Escalates*, presented at the National Academy of Sciences Action Collaborative on Preventing Sexual Harassment in Higher Education, Seattle, WA, 21-22 Nov.

*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.

SYNERGISTIC ACTIVITIES & SERVICE

2021 *Invited Mentor*, NSF Innovation Workshop: Fire and the Biosphere
2020 – present *Leadership*, 500 Women Scientists
2019 - 2020 *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 - 2020 *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 STEM @ CC Task Force
2019 – 2021 Title IX Education & Prevention Working Group
2019 – 2021 Colorado College Institutional Representative, National Academy of Sciences Action Collaborative on Preventing Sexual Harassment in Higher Education
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

Grant Reviewing Efforts:

National Science Foundation: Arctic Natural Sciences, Coupled Natural Human Systems, Earth Sciences Postdoctoral Fellowships, Environmental Biology, EPSCoR, 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, Ecosphere, Environmental Management, Environmental Pollution, Environmental Science & Technology, Frontiers in Water, 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, Nature Geosciences, Plant & Soil, PLoS One, Radiocarbon, Science of the Total Environment, Soil Biology & Biochemistry, Water Resources Research

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 2019-20, Robin Grathwohl 2019-20, Cheristy Jones 2019-20, Marguerite Spaethling 2019-20, Michelle Wolford 2019-21, Oliver Dunn 2020-21, Cosette Turvold 2020-21

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 – 2020, Sydney Clark, Brown University, 2017– 2020, Amelia Nelson, Colorado State University, 2020 – present