

CHRISTOPHER DOUGLAS BARTON

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Professor of Forest Hydrology and Watershed Management
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(a) Professional Preparation

Institution and Location	Major	Degree	Year
Centre College, Danville, KY	Biology	B.S.	1989
University of Kentucky, Lexington, KY	Plant and Soil Science	M.S.	1997
University of Kentucky, Lexington, KY	Soil Science	Ph.D.	1999

(b) Appointments

- 2013-Present Professor, Department of Forestry, University of Kentucky, Lexington, KY.
- 2015-2018 Director, University of Kentucky Appalachian Center, Lexington, KY.
- 2008-2013 Associate Professor, Department of Forestry, University of Kentucky, Lexington, KY.
- 2003-2008 Assistant Professor, Department of Forestry, University of Kentucky, Lexington, KY.
- 2002-2003 Research Hydrologist, USDA Forest Service, Charleston, SC.
- 1999-2002 Postdoctoral Research Soil Scientist, USDA Forest Service, Charleston, SC.

(c) Current Research

Kenton Sena, Chris Barton, Tyler Mahoney, and Tanja Williamson. "A Storm is Brewing: Improving flash flood prediction for the Cumberland Plateau using 40 years of Robinson Forest environmental data. 2022-2024. UK for KY Rapid Response Program, UK CARES, \$19,987. Barton coPI.

Steven Price, Christopher Barton, John Cox, Jeff Larkin and Todd Fearer. 2021-2023. Evaluating the Use of Reclaimed Forests by Threatened, Endangered and Species of Concern on Appalachian Coal Mines. USDI-OSMRE Applied Science Program. \$199,397. Barton-coPI.

Crocker, M, E. Santillan-Jimenez, I. Escobar, C. Agouridis, C. Barton, T. Mark, S. DeBolt, L. Moe and J. Landon. 2019-2024. NRT: IN FELLOWS & an Academy of Innovators at the Nexus of Food, Energy & Water Systems. National Science Foundation. \$2,998,456. Barton-col.

(d) Synergistic activities

1. President and Founder of Green Forests Work, a 501(c)3 organization established to reforest land affected by surface mining in Appalachia. Since 2009 Green Forests Work has planted over 6 million trees and engaged over 26,000 volunteers in service-learning projects.
2. Fulbright Distinguished Chair in Science, Technology and Innovation. Position is affiliated with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Brisbane, Australia, Jan 1 – June 30, 2023.
3. National Academies of Science, Engineering and Medicine's Committee on Earth Resources. Jan 2022 – December 2024.
4. Served as major Professor on 24 M.S. and 4 Ph.D. (plus two current) students. Nearly all have performed studies on water and forest resources in the Appalachian region.
5. Major Awards: Kentucky Water Research Institute 2023 William Barfield Award for Outstanding Contributions in Water Resource Research; American Society of Mining and Reclamation, William T. Plass Lifetime Achievement Award; 2020, Kentucky Department of Environmental Protection's Environmental Excellence Award for Resource Caretaker; 2018. American Society of Mining and Reclamation, Richard and Lela Barnhisel Researcher of the Year Award; 2015. United States Environmental Protection Agency; Scientific and Technological Achievement Award; Providing Science to Inform Decisions on Compensatory Mitigation of Headwater Streams Affected by Surface Mining; 2014. United States Department of Interior; Partners in Conservation Award; Appalachian Regional Reforestation Initiative; 2012.

6. Serve on editorial board of the International Journal of Mining, Reclamation and Environment and the International Journal of Phytoremediation.

(e) Recent Publications (underline indicates student, technician or postdoctoral fellow who participated under my supervision)

Mahoney, D.T., J.R. Christensen, H.E. Golden, C.R. Lane, G.R. Evenson, E. White, K.M. Fritz, E. D'Amico, **C.D. Barton**, T.N. Williamson, K.L. Sena, C.T. Agouridis. 2023. Dynamics of streamflow permanence in a headwater network: insights from catchment-scale model simulations. *Journal of Hydrology*. 2023,129422, <https://doi.org/10.1016/j.jhydrol.2023.129422>.

Williamson, Tanja N., Kenton L. Sena, Megan E. Shod and **Christopher D. Barton**. 2023. Four decades of regional wet deposition, local bulk deposition, and stream-water chemistry show the influence of nearby land use on forested streams in Central Appalachia. *Journal of Environmental Management*. 332, 117392. <https://doi.org/10.1016/j.jenvman.2023.117392>

Barton, Christopher, Patrick Angel, Geoffrey Bell, Theresa Burriss and Sarah Hall. 2023. Bringing Back the Forest: University outreach, community engagement, and partnerships for the reforestation of coal mines in Appalachia. Pp, 24-33. *In*. Rebecca Adkins Fletcher, Rebecca-Eli Long, and William Schumann (Eds), *Engaging Appalachia: A Guidebook for Building Capacity and Sustainability*. University Press of Kentucky, Lexington, KY.

Branduzzi, Anna M., **Christopher D. Barton**, Carol C. Baskin, and Allison G. Davis. 2023. Evaluating the use of woody debris to enhance native plant establishment from seeds on legacy coal mines in West Virginia (USA). *Native Plants Journal*. 23(3): 272-287.

Gerlitz, Morgan, Carmen Agouridis, Tanja Williamson, and **Christopher Barton**. 2022. Evaluating the Influence of the Forestry Reclamation Approach on Throughfall Quantity in Eastern Kentucky. *Reclamation Sciences*. *Reclamation Sciences* (2022) 1: 13–24. <https://doi.org/10.21000/RCSC-202200009>

Lambert, M, A.N. Drayer, W. Leuenberger, S.J. Price and **C. D. Barton**. 2021. Evaluation of created wetlands as amphibian habitat on a reforested surface mine. *Ecological Engineering*. <https://doi.org/10.1016/j.ecoleng.2021.106386>

Hutton, J.M., S.J. Price, S.C. Richter and **C.D. Barton**. 2021. Diet composition: A proximate mechanism explaining stream salamander declines in surface waters with elevated specific conductivity. *Global Ecology and Conservation*. <https://doi.org/10.1016/j.gecco.2021.e01719>

Sena, K.L., Yeager, K.M., **Barton, C.D.**, Lhotka, J.M., Bond,W.E., and Schindler, K.J. 2021. Development of Mine Soils in a Chronosequence of Forestry-Reclaimed Sites in Eastern Kentucky. *Minerals* 2021, 11, 422. <https://doi.org/10.3390/min11040422>

Sena, Kenton L., T.N. Williamson, and **C.D. Barton**. 2021. The Robinson Forest environmental monitoring network: Long-term evaluation of streamflow and precipitation quantity and stream-water and bulk deposition chemistry in eastern Kentucky watersheds. *Hydrological Processes*. 2021; 35:e14133. <https://doi.org/10.1002/hyp.14133>

Williamson T.N., and **C.D. Barton**. 2020. Hydrologic modeling to examine the influence of the forestry reclamation approach and climate change on mineland hydrology, *Science of the Total Environment* (2020), <https://doi.org/10.1016/j.scitotenv.2020.140605>

Bowker, Daniel, Jeffrey Stringer and **Christopher Barton**. 2020. Influence of timber harvesting operations and streamside management zone effectiveness on sediment delivery to headwater streams in Appalachia. *Forests* 2020, 11, 623; doi:10.3390/f11060623