

Matthew R.V. Ross

Professional Preparation

University of Colorado	Boulder CO	B.A. Ecology and Evolutionary Biology, Minor in French	2010
Duke University	Durham NC	PhD Ecology	2017
University of North Carolina	Chapel Hill NC	Post-doc in remote sensing	2017-2018

University of Colorado Boulder CO B.A. Ecology and Evol. Biology Minor in French 2010
Duke University Durham NC Ph.D. Ecology 2017
University of North Carolina at Chapel Hill; NC, Post-doc in aquatic remote sensing 2017-2018

Employment

Colorado State University Department of Ecosystem Science and Sustainability

Assistant professor of water quality 2018–present

Publications

5 most relevant to this proposal

AA Perićak CJ Thomas, DA Kroodsma, MF Wasson, MRV Ross, NE Clinton, DJ Campagna, Y Franklin, ES Bernhardt, JF Amos. *Mapping the yearly extent of surface coal mining in Central Appalachia using Landsat and Google Earth Engine*. PLOS ONE. 2018. 10.1371/journal.pone.0197758

MRV Ross, BL McGlynn, ES Bernhardt. *Deep impact: effects of mountaintop mining on surface topography, bedrock structure, and downstream waters*. 2016. Environmental science & technology. 10.1021/acs.est.5b04532

MRV Ross, F Nippgen, BA Hassett, BL McGlynn, ES Bernhardt. *Pyrite oxidation drives exceptionally high weathering rates and geologic CO₂ release in mountaintop-mined landscapes*. Global Biogeochemical Cycles. 2018. 10.1029/2017GB005798

F Nippgen, MRV Ross, ES Bernhardt, BL McGlynn. *Creating a more perennial problem? Mountaintop removal coal mining enhances and sustains saline baseflows of Appalachian watersheds*. Environmental science & technology. 2017. 10.1021/acs.est.7b02288

MRV Ross, ES Bernhardt, MW Doyle, JB Heffernan. *Designer ecosystems: incorporating design approaches into applied ecology*. 2015. Annual Reviews of Environment and Resources. 10.1146/annurev-environ-121012-100957

Additional publications

Barger, N. N., Gardner, T. A., Sankaran, M., Belnap, J., Broadhurst, L., Brochier, V., Isbell, F., Meyfroidt, P., Moreira, F., Nieminen, T. M., Okuro, T., Rodrigues, R. R., Saxena, V., and Ross, M. *Chapter 3: Direct and indirect drivers of land degradation and restoration*. In IPBES (2018): The IPBES assessment report on land degradation and restoration. Montanarella, L., Scholes, R., and Brainich, A. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany, pp. 137-218

MC Arnold, LA Friedrich, TT Lindberg, MRV Ross, NM Halden, ES Bernhardt, VP Palace, RT Di Giulio. *Microchemical analysis of selenium in otoliths of two West Virginia fishes captured near mountaintop removal coal mining operations*. 2015. Environmental Toxicology and Chemistry. 10.1002/etc.2885

MR Ross, SC Castle, NN Barger. *Effects of fuels reductions on plant communities and soils in a Pi~non Juniper woodland*. 2012. Journal of arid environments. 10.1016/j.jaridenv.2011.11.019

Synergistic activities

Maintenance and construction of AquaSat - AquaSat is a dataset that uses Google Earth Engine and R to join *in-situ* measurements of Water Quality with Landsat imagery. These matchups can be used to build continental scale predictions of water quality. I am the lead maintainer and developer for this semi-annually updated dataset which is pending publication.

Lead for watershed major curriculum changes at CSU - I am leading changes in our curriculum at Colorado State to make sure our Watershed major students have modern analytical skills. This involves a commitment to teaching both faculty and students a cohesive approach to analyzing watershed data and building tutorials to that end.

NREL Education Committee Chair - As part of my position at CSU, I am the chair of the Natural Resource Ecology Lab's educational activities. This includes activities building, supporting, and maintaining summer education institutes to develop modern data analytics skills and share these analyses with a broad audience using the interactive web building tools from Shiny R.

Collaborator with the USGS Integrated Information Dissemination Division - For ongoing work and pending proposal's I am a close collaborator with the USGS IIDD, part of the Water Mission Area at USGS. IIDD works to analyze, visualize, and disseminate relevant water data to the world, and I have been involved with their efforts to streamline analysis pipelines as well as distribution of these data.

Coordinator and lead of Open Eco Data Lab - I am working with graduate students in the Graduate Degree Program in Ecology at CSU to build a permanent and stable portal for students to learn how to use R. This portal will house both tutorials built by other researchers and ones that I, my lab, or other students create.