Matthew R.V. Ross

Assistant Professor at Colorado State University starting Aug, 2018

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**Education**

**2017-2018** Post-doctoral fellowship in remote sensing of water quality at UNC-Chapel Hill with Tamlin Pavelsky

**2011-2017** Ph.D. Program in Ecology at Duke University

**2006-2010** B.A. Ecology and Evolutionary Biology, minor in French. *Summa Cum Laude*. CU-Boulder, CO.

**Awards and Fellowships**

**2016** Grand Prize AGU/NASA Data Visualization and Storytelling Competition ($6,000)

Fellow for Intergovernmental Panel on Biodiversity and Ecosystem Assessment

Finalist for Mozilla Fellowship for Open Science

**2015** Third Place Duke Data Visualization Contest

Duke Data+ Mentor ($2,500)

Gordon Research Conference Rising Star

**2013** NSF Graduate Research Fellowship ($132,000)

**2012** NSF IGERT for Wireless Intelligent Sensor Networks ($84,000)

Honorable Mention NSF Graduate Research Fellowship

**Publications -** *published*

**Ross, M.R.V.,** McGlynn, B.L., Bernhardt, E.S. Deep impact: Effects of mountaintop mining on surface topography, bedrock structure, and downstream waters. *Environmental Science & technology* **50.4**, 2064-2074 (2016) \**Covered in popular press outlets such as: NY Times, The Atlantic, ThinkProgress, and Charleston Gazette*

**Ross. M.R.V.,** Bernhardt, E.S., Doyle, M.W., Heffernan, J.B. Designer Ecosystems: Incorporating design approaches into applied ecology. *Annual Reviews of Environment and Resources* **40**, 419-443 (2015)

Arnold, M. C., Friedrich, L. A., Lindberg, T. T., **Ross, M.R.V**., Halden, N. M., Bernhardt, E., & Di Giulio, R. T. Microchemical analysis of selenium in otoliths of two West Virginia fishes captured near mountaintop removal coal mining operations. *Environmental Toxicology and Chemistry* (2015).

**Ross, M. R.,** Castle, S. C. & Barger, N. N. Effects of fuels reductions on plant communities and soils in a Piñon-juniper woodland. *Journal of Arid Environments* **79**, 84–92 (2012).

Nippgen, F, **Ross, M.R.V.,** Bernhardt, E.S., McGlynn, B.L., Creating a more perennial problem? Mountaintop removal mining enhances and sustains baseflow of Appalachian watersheds. *Environmental Science & Technology* ***51.15****, 8324-8334*

Pericak, A., Kroodsma, D., Thomas, C., Wasson M., Deal J., Amos, J., Franklin, Y., Burker, B., Clinton, N., **Ross M.R.V.,** Bernhardt, E.S. Mapping yearly extent of surface coal mining in Appalachia since 1972 using Google Earth Engine. *In press at PLOS ONE*

**Publications –** *Submitted/in revision*

Jaeger, K. **Ross. M.R.V.,** Process domains in synthetic landscapes: slope-area relationships in the mountaintop mining region  of Central Appalachia. *In revision at Journal of Geophysical Research*.

**Ross, M.R.V.,** Nippgen, F., Hassett, B. McGlynn, B.L. Bernhardt, E.S., Surface mining for coal creates landscapes with exceptionally high weathering rates. *In revision at Global Biogeochemical Cycles*

**Publications –** *In preparation­­­­­­* **­­­­**

**Ross, M.R.V.,** Nippgen, F., Hassett, E. Moore, E. McGlynn, B.L. Bernhardt, E.S., Long-term changes in water and element flux across a range of mountaintop mines from 0-30 years old.

**Ross, M.R.V.,** Marani, M., D’Alpaos, A., Bernhardt, E.S., Controls on soil oxygen by salt marsh plants in the Venice Lagoon.

Brooks, A., **Ross, M.R.V.,** Nippgen, F., Hassett, B. Moore, E. McGlynn, B.L. Bernhardt, E.S Long-term increase in nitrogen flux out of mountaintop mined watersheds.

**Presentations**

**Ross M.R.V.,** Nippgen, F., McGlynn, B.L., Bernhardt, E.S., *Disturb 1% of the land, generate 50% of the regional ion flux*. Society for Freshwater Science, Raleigh, June, 2017.

**Ross M.R.V.,** Nippgen, F., McGlynn, B.L., Bernhardt, E.S., *Tracing disturbance impacts on water quantity and quality through a stream network*. European Geophysical Union, Vienna, April, 2017

**Ross, M.R.V.,** Nippgen, F., Hassett B., McGlynn, B.L., Bernhardt, E.S. *Melting mountains of Appalachia: exceptionally high weathering rates in mined watersheds*, American Geophysical Union Fall Meeting, 2016

**Ross, M.R.V.,**  Nippgen, F., McGlynn, B.L., Bernhardt, E.S. *Contaminants in time and space: Mountaintop mining impacts on stream hydrology, biogeochemistry and macroinvertebrates.* Society for Freshwater Sciences, Sacramento, May 2016

**Invited Seminars**

**Ross, M.R.V.,** Nippgen, F., McGlynn, B.L., Bernhardt, E.S., *Yesterday’s forest, tomorrow’s savanna? Legacies of mountaintop mining in Appalachia.* American Geophysical Union, New Orleans, LA, December 2018

**Ross, M.R.V.,** Nippgen, F., McGlynn, B.L., Bernhardt, E.S. *When everything changes: Catchment scale biogeochemical impacts of mountaintop mining*. Gordon Research Conference, Hanover, NH, June, 2015

**Ross, M.R.V,** Visualizing complex spatiotemporal data using R and ShinyR. Duke Data+ Seminar Series. *July 2016*.

**Posters**

**Ross, M.R.V., Pavelsky, T., Yang, X.,** *National and decadal water quality mapping in the conterminous USA*, American Geophysical Union, New Orleans, LA, December 2018.

**Ross, M.R.V.,** *Sensing rivers and streams*. Gordon Research Conference, Lewiston, ME, June 2017

**Ross, M.R.V.,** Nippgen, F., McGlynn, B.L., Bernhardt, E.S. When everything changes: Catchment scale biogeochemical impacts of mountaintop mining. Gordon Research Conference, Hanover, NH, June, 2015

Jaeger KL, **Ross M.R.V.,** Process domains in synthetic landscapes: slope-area relationships in the mountaintop mining region of central Appalachia. American Geophysical Union Fall Meeting. San Francisco, CA. (12/2014)

**Ross, M.R.,** Lindberg, T.T., Voss, K., Bernhardt, E.S., Impacts from valley fill design and age on water quality  
in mountaintop mined watersheds. American Geophysical Union (AGU). San Francisco Dec 3-7 2012

**Outreach Activities**

**2015-2016** Helped build and test Duke University wide support for production of interactive data visualizations

**2014-2017** PhD Liaisonfor Student Association for Geospatial Analysis (SAGA)

**2015-2017** Duke Data+ Mentor, mentored five undergraduates in advanced data visualization for 20 weeks.

**2014-2015** Coordinator of Duke Ecology Symposium (3 day symposium of ~100 ecology presentations)

**2013-2015** Field Assistant for Water Resources Course at Durham School of Math and Science, NC