

Mike Mahoney

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Education

State University of New York College of Environmental Science and Forestry (SUNY-ESF)

DOCTOR OF PHILOSOPHY IN ENVIRONMENTAL SCIENCE (AREA OF STUDY: COUPLED NATURAL AND HUMAN SYSTEMS)

Syracuse, New York

August 2020 - Present

State University of New York College of Environmental Science and Forestry (SUNY-ESF)

BACHELOR OF SCIENCE WITH HONORS MAGNA CUM LAUDE IN FOREST ECOSYSTEM SCIENCE (GPA: 3.723)

Syracuse, New York

December 2018

- Thesis: Beaver Foraging Preferences and Impacts on Forest Structure in New York's Adirondack Mountains

Publications

IN REVIEW

- 2021 Tamiminia, H., Salehi, B., Mahdianpari, M., Beier, C. M., Johnson, L. K., Phoenix, D. B., and **Mahoney, M. J.** In Review. Decision tree-based machine learning models for above-ground biomass estimation using multi-source remote sensing data and object-based image analysis. In review at Geocarto International.
- 2021 **Mahoney, M. J.**, Johnson, J. K., Bevilacqua, E., and Beier, C. M. In Review. Ground noise filtering produces inferior models of forest aboveground biomass. In review at Remote Sensing of Environment.
- 2021 **Mahoney, M. J.**, Beier, C. M., and Ackerman, A. C. In Review. Interactive 3D visualizations of geospatial data using the terrainr R package. In review at Environmental Modeling and Software.

PEER-REVIEWED PUBLICATIONS

- 2021 **Mahoney, M. J.**, Beier, C. M., and Ackerman, A. C. 2021. Interactive landscape simulations for visual resource assessment. VRSC 2021 Conference Proceedings.
- 2020 **Mahoney, M. J.** and Stella, J. C. 2020. Stem size selectivity is stronger than species preferences for beaver, a central place forager. Forest Ecology and Management 475 118331.
<https://doi.org/10.1016/j.foreco.2020.118331>

Awards and Honors

- 2021 New York State GIS Association Application Award
- 2020 EarthCube AGU Scholarship
- 2018 Robin Hood Oak Award for Academic Excellence
- 2018 Robert M. Hicks Award for Academic Achievement
- 2018 ESF Career Fellowship
- 2017 Outstanding Student Award for Accomplishments in Field Ecology and Dendrology

Invited Talks

- 2021 **Mahoney, M. J.** terrainr: Spatial data access and visualization in R. Earth Science Information Partners, Severna Park, MD (Virtual)..
- 2021 Nell, C., **Mahoney, M. J.**, and Platt, L. Accessing the USGS National Map and making 3D maps with terrainr. USGS Center for Data Integration, Lakewood, CO (Virtual)..
- 2021 **Mahoney, M. J.** terrainr: Landscape visualizations using data from The National Map. USGS National Geospatial Technical Operations Center, Denver, CO (Virtual)..

Conference Activity

WORKSHOPS FACILITATED

- 2021 Interactive 3D visualizations of environmental data using the terrainr R package. Beier, C. M., and Ackerman, A. C. Workshop organized at the Visual Resources Stewardship Conference, Syracuse, NY (Virtual)..

CONTRIBUTED TALKS

- 2021 **Broad-scale forest biomass mapping: generating contiguous high-resolution predictions using a spatio-temporal patchwork of LiDAR coverages across a mixed-use landscape** Johnson, L. K., Mahoney, M. J., Bevilacqua, E., and Beier, C. M. American Geophysical Union Fall Meeting, New Orleans, LA.
- 2021 **Greening Up Before Growing Up: Challenges in Modeling Forest Biomass Recovery Post-Harvest Using Satellite Imagery.** Johnson, L. K., Beier, C. M., and Mahoney, M. J. Society of American Foresters National Convention. Virtual.
- 2021 **Interactive 3D visualizations of environmental data using the terrainr R package.** Mahoney, M. J., and Beier, C. M., and Ackerman, A. C. Paper presented at the Visual Resources Stewardship Conference, Syracuse, NY (Virtual).
- 2021 **Virtual Environments: Using R as a Frontend for 3D Rendering of Digital Landscapes** Mahoney, M. J., and Beier, C. M., and Ackerman, A. C. useR! 2021, Zürich, Switzerland (Virtual).
- 2018 **Beaver Foraging Preferences and Impacts on Forest Structure in the Adirondack Mountains of New York.** Mahoney, M. J., and Stella, J. C. Forest Ecosystem Monitoring Collective Conference, Burlington, VT.
- 2018 **Beaver Foraging Preferences and Impacts on Forest Structure in the Adirondack Mountains of New York.** Mahoney, M. J., and Stella, J. C. Rochester Academy of Sciences Fall Scientific Paper Session, Geneseo, NY.

POSTER PRESENTATIONS

- 2021 **Filtering ground noise from LiDAR returns produces inferior models of forest aboveground biomass.** Mahoney, M. J., Johnson, L. K., Bevilacqua, E., and Beier, C. M. American Geophysical Union Fall Meeting, New Orleans, LA.
- 2019 **Nutritional Impacts on Invasive Beech Scale Quantification in Beech Bark Disease Aftermath Forests.** Dillon, G., Mahoney, M. J., Chase, S., and Johnston, M. New York Society of American Foresters Annual Meeting, Syracuse, NY.
- 2018 **Impacts of Beaver on Forest Structure and Composition.** Mahoney, M. J., Zevin, R., and Stella, J.C. Spotlight on Student Research, Syracuse, NY.
- 2018 **Impacts of Fertilization on Causal Organisms of Beech Bark Disease.** Mahoney, M. J., Leimanis, V., Desrochers, M. L., Giambona, B., Johnston, M. T., Yanai, R. D., and Dillon, G. A. Spotlight on Student Research, Syracuse, NY.
- 2017 **An Investigation of Nutritional Effects on Beech Bark Disease Causal Organisms.** Lasser, G. A., Johnston, M., Mahoney, M., Leimanis, V., and Stoodley, J. Forest Ecosystem Monitoring Collective Conference, Burlington, VT.
- 2017 **An Investigation of Nutritional Effects on Beech Bark Disease Causal Organisms.** Lasser, G. A., Johnston, M., Mahoney, M., Leimanis, V., and Stoodley, J. Poster session presented at the Rochester Academy of Sciences Fall Scientific Paper Session, Rochester, NY.

Research Experience

- 2020- **Climate And Applied Forest Research Institute, SUNY-ESF**
Present Research Assistant

Teaching Experience

GRADUATE COURSES

Machine Learning Concepts and Applications. Instructor of Record. Fall 2021

WORKSHOPS FACILITATED

2021 **Computational Skills for Researchers.** Mahoney, M. J. SUNY-ESF, Syracuse, NY.

2021 **Software Carpentry: The Unix Shell, Version Control with Git, and R for Reproducible Scientific Analysis.** Mahoney, M. J., and Devlin, M.D. SUNY-ESF, Syracuse, NY (Virtual).

Community Involvement and Outreach

2019-2020 **Code for Boston - Clean Slate Project.** Data Scientist and Project Manager (Volunteer).
Project working with Greater Boston Legal Society to advance criminal justice reform efforts.

Software Development

2021 **terrainr:** Lead developer
Retrieve Data from the USGS National Map and Transform it for 3D Landscape Visualizations.

2020 **heddlr:** Lead developer
Tools to enable functional programming workflows for dynamic R Markdown document generation.

2020 **spacey:** Lead developer
USGS and ESRI data access for beautiful landscape visualization.

Affiliations

2021 -
Present **The Carpentries.** Instructor in good standing.

2021 -
Present **American Geophysical Union.** Member.

2021 -
Present **NYS GIS Association.** Member.

2019 -
Present **Data Visualization Society.** Member.