

# 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 International Journal of Digital Earth.

### IN PRESS

- 2021 **Mahoney, M. J.**, Beier, C. M., and Ackerman, A. C. In Press. Interactive landscape simulations for visual resource assessment. Proceedings of the 2021 Visual Resources Stewardship Conference.

### PEER-REVIEWED PUBLICATIONS

- 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 **terrainr: Spatial Data Access and Visualization in R.** Mahoney, M. J. Earth Science Information Partners, Severna Park, MD (Virtual).
- 2021 **Accessing the USGS National Map and Making 3D Maps with terrainr.** Nell, C., Mahoney, M. J., and Platt, L. USGS Center for Data Integration, Lakewood, CO (Virtual).
- 2021 **terrainr: Landscape Visualizations Using Data from the National Map.** Mahoney, M. J. USGS National Geospatial Technical Operations Center, Denver, CO (Virtual).

# Conference Activity

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## WORKSHOPS FACILITATED

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

## CONTRIBUTED TALKS

- 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

- 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.

# Teaching Experience

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## 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).

## Research Experience

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

## Community Involvement and Outreach

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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

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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

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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.