John M. Clark
Curriculum Vitae

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SPECIALIZATIONS

Landscape Ecology, Remote Sensing, Geospatial Programming, Data Visualization, GIS Administration

EDUCATION

M.Sc. in Environmental Sciences - 2013
University of Rhode Island, Department of Natural Resources Science
Advisor: Dr. Yeqiao Wang
Concentration: Remote Sensing and Spatial Analysis
Thesis: "Effects of Climate Change on the Habitats of the Invasive Species *Ailanthus Altissima* along the Appalachian Trail"

B.Sc. in Environmental Science & Management - 2009
University of Rhode Island, Department of Natural Resources Science
Honors: *summa cum laude*

EXPERIENCE

Research Assistant II, August 2017 – August 2019
Above Ground Carbon Dynamics, Woods Hole Research Center
- Led pantropical analysis of aboveground carbon to identify exceptional restoration and avoided loss outcomes.
- Applied image segmentation to global extent, multi-temporal remote sensing data to derive local-scale insights.
- Performed supervised classification of land cover change drivers.
- Adapted legacy codebase to leverage contemporary data processing capabilities provided by onsite and cloud based high performance computing.
- Harmonized spatial and non-spatial datasets ingested from diverse web endpoints.
- Implemented open source web mapping solutions to facilitate seamless interaction with large-scale raster and vector datasets.
- Leveraged relational databases to alleviate performance bottlenecks.
- Conducted independent data exploration to supply actionable insights.
- Refined discoveries to effectively communicate with partners and stakeholders.

Geospatial Data Analyst, September 2014 – September 2016
ORISE Research Participant, National Exposure Research Lab, U.S. Environmental Protection Agency, Research Triangle Park
- Contributed to the Cyanobacteria Assessment Network (CyAN), a multi-agency collaboration to develop an early warning indicator system using satellite data to detect algal blooms in U.S. freshwater systems.
- Developed geospatial tools using R and Python.
- Automated processing of large raster datasets into end user formats.
- Quantified U.S. waterbodies resolved by various remote sensing products.
- Established methods for extracting and reporting algal bloom frequency in recreational waters and drinking water sources from spatiotemporal data.
- Implemented application for interactively displaying spatial data, exploring values, and visualizing trends.

Research Associate, August 2013 – September 2014
Laboratory for Terrestrial Remote Sensing, Department of Natural Resources Science, University of Rhode Island
- Oversaw the continued development of a Decision Support System for the Appalachian Trail (see below), including improvements to online interfaces and facilitating access to geospatial data via mobile devices.
- Authored publications for a variety of mediums, including peer reviewed journals, technical reports to federal agencies, and outreach to citizen scientists.
- Restructured and enhanced network infrastructure within the Laboratory for Terrestrial Remote Sensing.

Geospatial Coordinator, May 2010 - September 2010
Forest Monitoring Field Crew, Appalachian Trail Decision Support System, University of Rhode Island
- Established and sampled long-term forest monitoring plots along the Appalachian Trail.
- Completed National Park Service Inventory and Monitoring Program training.
- Evaluated suitability of candidate sampling locations prior to field season by integrating spatial data and in situ insights.
- Coordinated access and logistics for extended deployment to remote wilderness areas.
- Navigated to sampling locations using GPS and collected extensive forest health data using protocol adapted from the US Forest Service Forest Inventory & Analysis Program.

Graduate Research Assistant, January 2010 – August 2013
Laboratory for Terrestrial Remote Sensing, Department of Natural Resources Science, University of Rhode Island
- Participated in a multi-agency collaboration to establish a Decision Support System for the Appalachian Trail.
- Conducted habitat suitability modeling for an invasive species across a broad geographic range.
- Developed and maintained a large repository of high resolution, seamless, time-series geospatial data.
- Interfaced with NASA Ames Ecological Forecasting Lab to define data standards and retrieve products from the Terrestrial Observation and Prediction System.
- Administered research laboratory, planned and implemented essential network infrastructure upgrades, and provided technical assistance to a diverse group of researchers.

Assistant Network Administrator, May 2009 – January 2010
Environmental Data Center, Department of Natural Resources Science, University of Rhode Island
- Provided geospatial technology support for the Rhode Island Geographic Information System and the RI Ocean Special Area Management Project.
- Maintained a medium sized network including web servers, GIS workstations, license servers, dedicated firewalls, virus protection, data backup, file and print servers, and high capacity data stores.
- Installed, monitored, and updated critical hardware and software.
- Surveyed wetlands within Gateway National Recreation Area wetlands using GPS in collaboration with NPS.

Undergraduate Research Assistant, October 2008 - May 2009
Laboratory for Terrestrial Remote Sensing, Department of Natural Resources Science, University of Rhode Island
- Administered and maintained network, executed scheduled data backups, and provided technical support for colleagues.
- Conducted image enhancement, land-cover classification and change analysis, land-use planning, and authored metadata.

Undergraduate Research Assistant, May 2007
Costa Rica Wildlife Expedition, Department of Natural Resources Science, University of Rhode Island
- Prepared and presented grant proposals, established quadrants in densely vegetated setting, trapped and inventoried small mammals, conducted vegetative analysis, surveyed bat species via nightly mist netting, logged GPS coordinates of catch sites.

PUBLICATIONS
Google Scholar - http://bit.ly/jclark-pubs

Clark, J. M., Schaeffer, B. A., Darling, J. A., Urquhart, E. A., Johnston, J. M., Ignatius, A. R., Meyer, M.H., Loftin, K. A., Werdell, P. J., & Stumpf, R. P. (2017). Satellite monitoring of cyanobacterial harmful algal bloom frequency in recreational waters and drinking water sources. *Ecological Indicators*, *80*, 84-95.

Guo, X. Y., Zhang, H. Y., Wang, Y. Q., & **Clark, J**. (2015). Mapping and assessing typhoon-induced forest disturbance in Changbai Mountain National Nature Reserve using time series Landsat imagery. *Journal of Mountain Science*, *12*(2), 404-416.

Clark, J., Wang, Y., & August, P. V. (2014). Assessing current and projected suitable habitats for tree-of-heaven along the Appalachian Trail. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *369*(1643), 20130192.

PRESENTATIONS

April 2016 - US-International Association for Landscape Ecology - Asheville, NC
"An approach to monitoring cyanobacteria blooms at surface drinking water intakes using satellite imagery"

March 2014 - American Society for Photogrammetry and Remote Sensing - Louisville, KY
"Assessing current and projected suitable habitats for the invasive species tree-of-heaven along the Appalachian Trail"

March 2014 - American Society for Photogrammetry and Remote Sensing - Louisville, KY
"A decision support system for monitoring, reporting and forecasting ecological conditions of the Appalachian Trail"

April 2012 - US-International Association for Landscape Ecology - Newport, RI
"Evaluating current and projected suitable habitats of tree-of-heaven (*Ailanthus altissima*) along the Appalachian Trail"

November 2011 - Southern Appalachian Man and the Biosphere - Asheville, NC
"A decision support system for monitoring, reporting and forecasting ecological conditions of the Appalachian Trail"

April 2011 - US-International Association for Landscape Ecology - Portland, OR
"Evaluating habitat suitability and change along the Northeastern Appalachian Trail using remote sensing and in situ observations"

November 2010 - Northeast Arc Users Group Conference - Newport, RI
"Integrating multi-source geospatial data using GIS to assess ecological conditions along the Northeastern Appalachian Trail"