Thomas A. Ruggles

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Educational Background:

A. Degrees

2017- 2019	M.S., Ecology, Kent State University, Kent, OH
2014-2017	B.S., Environmental and Conservation Biology, Kent State University

B. Academic Awards

2017	*Magna Cum Laude*, University Honors, Kent State University
2016	President's List, Kent State University (Spring Semester)
2014-2017	Dean's List, Kent State University (4 semesters)
2013-2017	College Now of Greater Cleveland Scholarship
2013	Dean's List, Lorain County Community College, Elyria, Ohio (Spring Semester)

Employment and Service:

A. Professional Employment

2020-Present   Environmental Sciences Div., Oak Ridge National Laboratory | Oak Ridge, TN
Geospatial Data Analyst
- Preformed quality assurance on a variety of geospatial data formats, authored user guide's, and reported metadata for datasets submitted to the ORNL Distributed Active Archive Center (DAAC).
- Curated and published datasets, improved data storage and organization, maintained two websites while serving as a data manager for the SPRUCE project and Terrestrial Ecosystem Science Scientific Focus Area (TES-SFA).
- Conducted data analysis, updated internal reports, and produced figures and maps for the HydroSource project to evaluate candidate stream reaches for conservation opportunities.
- Developed ArcGIS Online Story Maps and interactive maps on ArcGIS Online for the HydroSource project to relay geospatial information to stakeholders in an engaging manner.
- Improved HydroSource's web presence by adding J-SON metadata to web pages, updating the HydroSource data model, improving landing page metadata, and collaborating with the Internet of Water to work toward integrating HydroSource as a data hub within the Internet of Water network.

2017-2019   Dept. of Biological Sciences, Kent State University | Kent, OH
Graduate Teaching Assistant
- Conducted two studies on plant communities and soil chemistry of reclaimed surface mines in Northeast Ohio.
- Used GPS and GIS to set up an LTER forest restoration project and created and managed databases housing information on nearly 4,000 planted saplings
- Trained and supervised eight undergraduate volunteers and employees, working regularly with NPS volunteers
- Instructed five sections of Biological Diversity Laboratory and one section of General Ecology Laboratory
- Taught students to conduct various lab and field methods

▪ Mentored students on scientific writing and presentation, statistical analyses, and to execute independent research projects

2016-2017   Lorain County General Health District | Elyria, OH.
Environmental Health Intern
▪ Worked in the Mosquito Control Program trapping mosquitos, larvaciding, adulticiding, and surveying land for breeding
▪ Interacted with the public addressing questions/concerns and informing them of mosquito management strategies
▪ Used GPS to record locations of roadway catch basins and map areas of adulticide treatment
▪ Compared the efficacy of a new model of mosquito trap with traditional models in first year
▪ Supervised and coordinated newer interns in the second year

B. Service

2022-Present   Rooted East Collective | Knoxville, TN
Board Member
▪ The Rooted East Knoxville Collective is committed to addressing food apartheid by restoring power back to the black community through self-sufficiency, gardening, food education, and overall wellness. Provides continued support to reach this goal through aiding in grant acquisition efforts, creating partnerships with community members and organizations, developing processes and workflows, producing maps and figures, and locating and obtaining urban farming resources.

Sleeves4Needs | Knoxville, TN
2020-Present   General Volunteer
▪ Sleeves4Needs delivers basic goods and services to individuals, veterans, families, and groups in underserved/under resourced communities. Supported weekly food distribution and/or free lawncare service to those in need, building relationships with community members along the way.

2021-2024   Appalachian Regional Commission STEM Academy | Oak RIdge, TN
Guest Instructor
▪ The STEM Academy is a 2-week program for high school students to participate in a hands-on learning experience in a STEM field of their choice. Annually, presented a lecture on the importance of open data and FAIR data practices, as well as how data are managed at NASA EarthData. Also, provided an activity to students where they would become familiar with browsing datasets and using tools available on the ORNL DAAC website. In some years, assisted students in the search and curation of publicly available data for their group research project

2022   Socially Equal Energy Efficient Development (SEEED) | Knoxville, TN
Guest Instructor
▪ SEEED provides pathways out of poverty for young adults through career readiness training, environmental education, and community engagement. . With a colleague, taught students in the Career Readiness Program a multi-session introduction to mapping and GIS skills, as well as how navigate and create content in ArcGIS Online's Map Viewer.

2021   Annual Knoxville Juneteenth Event | Knoxville, TN
     Planning Committee Member
     ▪ Formed collaborations with local organizations and vendors taking part in the event; involving regular correspondence with interested parties, developing event itineraries and instructions, creating maps of the event layout, and leading a team of volunteers aiding with set up and breakdown the day of the event.

2017   Soil Ecology Laboratory, Kent State University | Kent, OH.
     Undergraduate Volunteer
     ▪ Learned and executed methods to conduct chloroform fumigation extraction, remove organic matter from soil, and measure soil pH
     ▪ Was responsible for accurately recording data and practicing proper laboratory safety

Publications:

Hansen, CH, **TA Ruggles**, D Singh, & BM Pracheil. 2022. *Wild and Scenic River characteristics: Intersection with hydropower infrastructure and increases to connectivity of protected rivers*. Manuscript in preparation.

Ruggles, TA, JA Gerrath, D Ward, AJ Jefferson, CA Davis, & CB Blackwood. 2022. *Invasive autumn olive (Elaeagnus umbellata) and native black locust (Robinia pseudoacacia) fix nitrogen but have little effect on surrounding plants during early stages of colonization.* Manuscript in preparation.

Zhao, H, H Chen, **TA Ruggles**, Y Feng, D Singh, & HJ Yoon. 2024. Improving Text Classification with Large Language Model-Based Data Augmentation. Electronics, 13(13), 2535. https://doi.org/10.3390/electronics13132535.

Ruggles, TA, JA Gerrath, CT Ruhm, AJ Jefferson, CA Davis, & CB Blackwood. 2021. Surface mines show little progress towards native species forest restoration following 35 years of passive management after initial reclamation. *Land Degradation & Development*, *32*(7), 2351-2359. https://doi.org/10.1002/ldr.3904.

Ruggles, TA. 2019. *Plant communities on reclaimed surface mines in Northeast Ohio: Effects of succession and nitrogen-fixing autumn olive*. MS Thesis, Kent State University. http://rave.ohiolink.edu/etdc/view?acc_num=kent1574681631819824.

Data Products:

Ruggles, TA & D Singh. U.S. Water Use Estimates Summarized by HUC10, 2000-2015. HydroSource. *In preparation for public release*.

D Singh, **TA Ruggles**, E Schmidt, M Johnson & M McHale. 2023. Lifecycle of US Hydropower Facilities: How data at every stage drives growth (ArcGIS StoryMap). HydroSource, Oak Ridge National Laboratory, Oak Ridge, Tennessee. Available at: https://storymaps.arcgis.com/stories/ce2e049223e54f75a6d017bba4d61511.

Ruggles, TA, D Singh, & BM Pracheil. Basin-Scale Relicensing Opportunity. 2023. HydroSource, Oak Ridge National Laboratory, Oak Ridge, Tennessee. *In preparation for public release*. https://doi.org/10.21951/Basin_Relicensing/1997351.

Samu, NM, **TA Ruggles**, & D Singh. 2021. HydroSource: A Platform for US Hydropower Data for Basin-Specific Applications (ArcGIS StoryMap). HydroSource, Oak Ridge National Laboratory, Oak Ridge, Tennessee. Available at: https://storymaps.arcgis.com/stories/7e7a2ea2169442f0862814a85172a50e.

Hanson, PJ, JR Phillips, SD Wullschleger, WR Nettles, JM Warren, EJ Ward, JD Graham & **TA Ruggles**. 2018. SPRUCE Tree Growth Assessments of Picea and Larix in S1-Bog Plots and SPRUCE

Experimental Plots beginning in 2011. Oak Ridge National Laboratory, TES SFA, U.S. Department of Energy, Oak Ridge, Tennessee, U.S.A. https://doi.org/10.25581/spruce.051/1433836.

Conference Presentations:

Ruggles, TA, D Singh, HJ Yoon, & H. Zhao. 2023. Hydropower Mitigation Database: Cataloging environmental mitigation measures required by hydropower licenses. Poster presentation, American Geophysical Union (AGU) 105th Annual Fall Meeting, San Francisco, CA.

Ruggles, TA. 2023. ORNL Terrestrial Ecosystem Science SFA's Approach to Mirroring Previously Published Data at ESS-DIVE. Oral presentation, 2023 ESS-DIVE Metadata Workshop, Virtual Conference.

Ruggles, TA, T. Velliquette, & PJ Hanson. 2023. Archival of Previously Published SPRUCE Experiment Data at ESS-DIVE: Approach, Successes, and Challenges. Poster Presentation, 2023 DOE Environmental System Science PI Meeting, Washington, DC.

Ruggles, TA, C DeRolph, C Hansen, R Uría-Martínez, & D Singh. 2022. Leveraging HydroSource Data to Facilitate Socially Conscious Decision-Making in the Hydropower Community. Poster presentation, American Geophysical Union (AGU) 104th Annual Fall Meeting, Chicago, IL/Virtual Conference.

Wei Y, R Shrestha, M Thornton, M Shook, G Chen, **TA Ruggles**, JN Welch, M Donovan, S Pearson, C Sanderson, D Singh, T Walker, & B Wilson. 2022. Enhancing the FAIRness of Airborne Atmospheric Composition Data: Lessons Learned from Two NASA Earth Venture Suborbital Missions. Poster presentation, American Geophysical Union (AGU) 104th Annual Fall Meeting, Chicago, IL/Virtual Conference.

Ruggles, TA, B Pracheil, & D Singh. 2021. Accessibility, Usability, and Visualization of HydroSource Data for River Basin-Scale Decision Making. Poster presentation, American Geophysical Union (AGU) 103rd Annual Fall Meeting, New Orleans, LA/Virtual Conference.

Jones, RA, SM Moledor, **TA Ruggles**, CA Davis, & CB Blackwood. 2021. Boosting tree survivorship: Reclaiming minded lands in Northeast Ohio. Poster presentation, 11th Annual Chapter Meeting of the Midwest-Great Lakes Chapter of the Society for Ecological Restoration (SER), Virtual Conference.

Blackwood, CB, & **TA Ruggles**. 2020. Invasive autumn olive does not share fixed nitrogen and slows establishment of native woody species. Oral Paper Abstract, Ecological Society of America (ESA) 105th Annual Meeting, Virtual Conference.

Ruggles, TA, CT Ruhm, AJ Jefferson, CA Davis, AJ Minerovic, CA Bahlai, & CB Blackwood. 2019. The FoSTER (Forest Soils and Trees Ecosystem Restoration) Project: Reforesting Cuyahoga Valley National Park and setting the stage for long-term ecological study. Poster presentation, Environmental Science and Design Research Initiative (ESDRI) Symposium, Kent, OH.

Ruggles, TA, CT Ruhm, AJ Jefferson, CA Davis, & CB Blackwood. 2019. Influence of the invasive nitrogen fixing shrub autumn olive on soil chemistry and vegetation on reclaimed surface mines. Poster presentation, Kent State University Graduate Research Symposium, Kent, OH.

Ruggles, TA, CT Ruhm, AJ Jefferson, CA Davis, & CB Blackwood. 2018. Influence of the invasive nitrogen fixing shrub autumn olive on soil chemistry and vegetation on reclaimed surface mines. Poster presentation, American Geophysical Union (AGU) 100th Annual Fall Meeting, Washington, DC.

Ruhm, CT, AJ Jefferson, CB Blackwood, AJ Minerovic, CA Davis, & **TA Ruggles**. 2017. Forest restoration of an abandoned mine site. Poster presentation, Kent State University 5th annual Land and Water Symposium, Kent, OH.