Madeline A. Grupper

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Researcher and scientific communicator with a passion for exploring connections between people and freshwater systems

EDUCATION

PhD Candidate in Engineering | University of Melbourne — Present
Department: Water Resources Group, Infrastructure Engineering

Master of Science | Virginia Tech | GPA: 3.8/4.0 — 2020
Department: Forest Resources and Environmental Conservation
Graduate Certificate: Geographic Information Technology

Bachelor of Arts | University of Wisconsin-Madison | GPA: 3.5/4.0 (Dean's List) — 2014
Majors: Conservation Biology & Psychology
Minor: Environmental Studies

HONORS & AWARDS

Faculty Winner, Department Winner, & University Finalist – 3 Minute Thesis, University of Melbourne (2025)
Best Presentation - Infrastructure Engineering Graduate Research Conference, University of Melbourne (2024)
Endowment Award Recipient - Society for Freshwater Sciences (2024)
Diversity Scholar Award Winner - Office of Recruitment, Diversity, and Inclusion, Virginia Tech (2019)
Live Your Dream Grant Recipient - American Alpine Club (2019)
First Place - The Nutshell Games, Center for Communicating Science, Virginia Tech (2018)
Featured Product: *Lunch Talks* - ArcGIS storytelling platform about communities whose food and water have been influenced by climate change: https://tinyurl.com/y2qmb4sj

RESEARCH EXPERIENCE

PhD Candidate | Water and Infrastructure Engineering, University of Melbourne — June 2022 - Present
- Worked on an interdisciplinary team to incorporate social science and stakeholder value studies into environmental flow management models for freshwater climate change decision making
- Facilitated manager workshops and collaborated with local management organizations to engage stakeholders
- Scheduled and conducted over 40 interviews with diverse community members about their water values
- Served as Teaching Assistant for *Environmental Monitoring* (Master's course, 2023-2024) and *Partnerships for Sustainability* (Master's course, 2025), leading weekly tutorials and facilitating week-long field trips
- Presented work at international and institutional conferences

Research Assistant | Faculty of Geoinformatics, University of Melbourne — Aug 2025 - Present
- Conducted literature reviews and policy analysis to create a framework for the novel concept of digital dispossession
- Worked with local Traditional Owners from the Taungurung Land and Waters Council to understand how digital dispossession operates within their lived experiences

Research Assistant | School of Humanities and Social Sciences, University of Melbourne — Aug 2023 - Oct 2024
- Conducted interviews online and in-person with researchers about their experiences in interdisciplinary departments
- Qualitatively coded interviews and prepared publications and grant applications based on results

Human Mobility Data Fellowship | EnviroAtlas Team, U.S. E.P.A. — Feb 2022 - Jun 2022
- Prepared, wrote, and submitted publications for academic journals and science communication outlets on how mobile datasets could supplement visitor counting in national parks and help understand demographic trends
- Analyzed data using R, Python, and GIS to understand national human mobility and National Park visitor data
- Presented educational and outreach presentations to stakeholder groups (including town government, nonprofit, and grade school educators) interested in incorporating EnviroAtlas into their work

Graduate Research Assistant | Conservation & Social Science Lab, Virginia Tech Fall 2018 - Summer 2020
- Worked on an interdisciplinary team to increase resilience of social-ecological water systems by researching social perceptions of drinking water in Roanoke, VA in response to water forecasting technology
- Recruited and managed a crew of 7 undergraduate research assistants distributing surveys via a drop-off/pick-up method and entering data for seven days a week over two months
- Crafted a survey instrument and distribution method to answer research questions based on prior literature
- Served as project manager, creating budgets, scheduling logistics, and purchasing study materials
- Prepared, wrote, and submitted publications for academic journals, reports, and science communication outlets
- Communicated with the local water utility and general public about research and potential community benefits
- Served as Teaching Assistant for two undergraduate courses: *Outdoor Recreation Management* & *Planning*

Research Assistant | Behavioral Endocrinology Lab, UNC Greensboro Spring 2015, Spring 2018
- Researched testosterone modulation of parental behavior in monogamous Peromyscus californicus mice
- Independently planned and trailblazed trapping locations, trapped, identified, and radio-collared mice
- Used telemetry to locate nests and monitored behavior by analyzing camera and acoustic recording data
- Independently assembled thermal imagery cameras, acoustic recorders, and thermal perimeters around nest sites

Research Assistant | Harackiewicz Motivation Lab, UW Madison Jan 2013 - May 2014
- Researched the mechanisms underlying the educational achievement gap in first-generation college students
- Independently led college students through affirmation exercises and educational tests
- Entered and coded data, wrote literature reviews, and edited protocols

Research Assistant | Waller Botany Lab, UW Madison Jan - May 2014
- Determined nitrogen content for species across Wisconsin by preparing and analyzing native botanical samples

PROFESSIONAL EXPERIENCE

Science Communicator | Science in Public May 2024 - Present
- Interviewed scientists and wrote press briefings about their work
- Co-produced and published outreach bulletins and event notices for diverse clients
- Managed and updated social media pages on behalf of Science in Public's personal and client organizations

Co-Lead Editor & Creator |Center for Communicating Science, Virginia Tech Jan 2021 - Jun 2023
- Co-created Food, Water, and Communities, an ArcGIS Storymap platform designed to humanize science and scientists by highlighting stories of communities that inspired food and water research: tinyurl.com/y2qmb4sj
- Recruited writers, edited, formatted, and published their stories as well as interviewed and wrote three stories
- Recruited, interviewed, hired, and trained junior editors for the project
- Wrote detailed technical instructions and writer's guides so future students could continue the project

Biological Science Technician | USDA, Shasta Trinity National Forest May - Sept 2017
- Supported wildlife monitoring and NEPA efforts to survey forests for endangered Spotted owls and threatened Northern goshawks to preserve their nesting sites from timber projects
- Designed and executed a project to map bat habitat by installing acoustic detectors and analyzing acoustic output using Kaleidoscope software to identify species, and using GIS to create species range maps
- Evaluated meadow restoration by performing stream and shoreline surveys, and aquatic species surveys
- Led educational outreach programs for K-12 groups in greenhouse growing and local California plants

Interpretation Intern | SCA/AmeriCorps, Thomas Edison National Historic Park Jul - Oct 2016
- Developed and taught programs to educate visitors in the history, chemistry, and dendrology of the Edison age

Biological Science Technician | Cal F&W/University of California Fresno Foundation Feb - Jul 2016
- Helped develop a first-year study researching the effect of the California drought on Mojave Desert ecosystems
- Created team protocols, prepared and procured materials, filed permit requests, and planned project routes
- Worked unsupervised for extended periods to identify herptiles, plants, and birds on 150+ backcountry plots
- Led volunteer groups on multi-day research trips to install acoustic recorders and wildlife cameras on sites

Aquatics Technician | NPS/AmeriCorps, Yosemite National Park May - Oct 2015
- Performed 8-day long unsupervised backcountry surveys to identify endangered aquatic species ranges and eradicate invasive trout and bullfrogs in 100+ backcountry lakes
- Trapped, collected data on, and relocated critically endangered Western Pond Turtles for a mark-recapture survey to establish new populations of native species in lower Yosemite Valley
- Led week-long citizen science educational trips for middle school students
- Performed bird banding surveys, camera trap surveys for endangered Sierra Red Fox, and Spotted Owl surveys

Wildlife Technician - Utah Division of Wildlife Resources Jun - Sept 2014
- Supported the habitat conservation plan for the threatened Utah Prairie Dog
- Trapped, pit tagged, measured, and relocated Prairie Dogs away from human infrastructure and into the desert
- Conducted educational outreach to the public about assuaging concerns with controversial management plans
- Aided in mist netting and bird banding surveys as well as with small rodent trapping for a plague study

VOLUNTEER WORK & STUDENT INVOLVEMENT
- **Social Chair** | FEIT Graduate Student Assembly, University of Melbourne | 2022 - Present
- **Pen-pal** | Letters to a Pre-Scientist | 2019 - Present
- **Pod Member** | 500 Women in Science, Blacksburg | 2019 - 2021
- **Social Chair** | Forestry Graduate Student Assembly, Virginia Tech | 2019 - 2020
- **Exhibitor** | Giles County STEMposium - Groundwater | 2019

PUBLICATIONS
Peer-Reviewed Articles
Grupper, M. A., Horne, A. C., Webb, J. A., Ho, S., & Olden, J. (2025). The unpredictability of community priorities in planning for water-scarce futures in the Goulburn-Broken River Basin. *[Manuscript submitted for publication]*

Grupper, M. A., Horne, A. C., Webb, J. A., & Olden, J. (2025). Water scarcity reveals fundamental differences between community values and priorities informing management. *[Manuscript submitted for publication]*

Kennedy, M., Mussehl, M., Horne, A. C., Feldman, H., Wyborn, C., Grupper, M. A., & Holder, C. (2025). Articulating values for effective water management. *[Manuscript submitted for publication]*

Grupper, M. A., Horne, A. C., Webb, J. A., & Olden, J. (2025). Identifying and approaching barriers to environmental flow implementation using social-ecological systems thinking. *WIREs Water, 12*(e1764). https://doi.org/10.1002/wat2.1764

Kosovac, A., & Grupper, M. (2024). Through a different lens: Unravelling perspectives on women's roles in farming and drought resilience. *EGUsphere.* https://doi.org/10.5194/egusphere-2024-1281

Tsai, W. L., Merrill, N. H., Neale, A. C., & Grupper, M. A. (2023). Using cellular device location data to estimate visitation to public lands: Comparing device location data to U.S. National Park Service's visitor use statistics. *PLOS ONE, 18*(11), e0289922. https://doi.org/10.1371/journal.pone.0289922

Grupper, M. A., Sorice, M. G., Stern, M. J., & Schreiber, M. E. (2021). Evaluating determinants of social trust in water utilities: Implications for building resilient water systems. *Ecology and Society, 26*(4), 41. https://doi.org/10.5751/ES-12833-260441

Grupper, M. A., Schreiber, M. E., & Sorice, M. G. (2021). How perceptions of trust, risk, tap water quality, and salience characterize drinking water choices. *Hydrology, 8*(1), 49. http://dx.doi.org/10.3390/hydrology8010049

Science Communication & Popular Press
Grupper, M. A., & Byrne, N. (2024). A galactic conspiracy disproven: Stars and dark matter are not interacting in 'impossible ways'. *Science in Public Media Releases.* https://www.scienceinpublic.com.au/media-releases/a-galactic-conspiracy-disproven

Grupper, M. A. (2021, March 2). Trust might be one of the most valuable resources for climate change adaptation. *Medium; The Scope - Yale Scientific.* https://medium.com/the-scope-yale-scientific-magazines-online-blog/trust-might-be-one-of-the-most-valuable-resources-for-climate-change-adaptation-6a897d3bfffc

Grupper, M. A. (2021, January 16). Oyster fishery collapse in Apalachicola, Florida, U.S.A. 2013. *Food, Water, & Communities.* https://storymaps.arcgis.com/stories/9f790778315b495f8bf46ef1101ca0588

Grupper, M. A. (2021, January 16). Algae bloom in Toledo, Ohio, U.S.A. 2014. *Food, Water, & Communities.* https://storymaps.arcgis.com/stories/7668f8704b364238ac2a32d2e59401b0

Grupper, M. A. (2021, January 16). Arsenic in San Rafael Las Flores, Guatemala, 2018. *Food, Water, & Communities.*

https://storymaps.arcgis.com/stories/47823c04b2d34940b76d16c59dbf1648

Grupper, M. A. (2020). *Exploring the role of trust in drinking water systems in Western Virginia* [Master's thesis]. Virginia Tech Works. http://hdl.handle.net/10919/99860

Grupper, M. A., & Sorice, M. G. (2020). *Understanding residents' perspectives about drinking water in the Roanoke Valley* [Report]. Virginia Tech Works. http://hdl.handle.net/10919/100105

PRESENTATIONS

Academic Conferences:

Grupper, M,. Horne, A., Webb A., Olden, J. (2024). *Community priorities in a water scarce future.* Australian Freshwater Sciences Society Conference

Grupper, M., Horne, A., Webb A., & Olden, J. (2024). *Community priorities in a water scarce future.* Australian Freshwater Sciences Society Conference

Grupper, M., Horne, A., Webb A., & Olden, J. (2024). *Community Priorities for Climate Change Adaptation.* Infrastructure Engineering Graduate Research Conference

Grupper, M., Horne, A., Webb A., & Olden, J. (2024). *Community Priorities for Climate Change Adaptation.* Society for Freshwater Sciences Conference

Grupper, M., Horne, A., Webb A., & Olden, J. (2023). *Community Priorities for Climate Change Adaptation in Rivers.* Infrastructure Engineering Graduate Research Conference

Grupper, M., Horne, A., Webb A., & Olden, J. (2023). *Where do environmental flows fit within social-ecological systems?* Society for Freshwater Sciences Conference

Grupper, M., Sorice, M., & Stern, M. J. (2020). *Drink it up: Exploring Trust in Drinking Water across Western Virginia.* Association for Environmental Studies and Sciences Conference

Grupper, M., & Sorice, M. (2020). *All Bottled Up: How Perceptions of Risk and Salience Influence Drinking Water Source Choice in Western Virginia Homes.* Virginia Lakes and Watershed Association Conference, Richmond, VA

Poster Presentations

Grupper, M., & Sorice, M. (2019). *Trust in Water Quality: How information about SCC technology impacts social trust.* Smart and Connected Communities Workshop, Blacksburg, VA

Grupper, M., Radell, P., & Sorice, M. (2019). *Improving landowner connections to conservation: linking organizational and landowner values in wildlife incentive programs.* National Environment & Recreation Research Symposium, Annapolis, MD

Invited Talks

"Regional water management webinar: values, priorities and decision making" | Australian Water School Lunchtime Webinar (2025)

"System Thinking" | Guest Lecture, *Water Planning and an Uncertain Future*, University of Melbourne (2022, 2023, 2024, 2025)

"Your Research in a Nutshell" | Communicating Science Conference, Virginia Tech (2019, 2020) https://tinyurl.com/qk4gevf

"What are we Drinking?" | New River Valley Science on Tap (2019)

"Presenting Your Research Poster for Undergraduates" | Center for Communicating Science, Virginia Tech (2019)

"System Thinking: Socio-Ecological Systems" | Guest Lecture, *Natural Resource Management Planning Class*, Virginia Tech (2019)

TECHNICAL SKILLS

Software	Tools	Skills
R	Camera traps	Data analysis and entry
ArcGIS & QGIS	Acoustic detectors	Survey design and analysis
Python	Microbalance	Interviews
MATLAB	Electro-fishers	Workshop facilitation
Qualtrics	Water quality meters	Scientific writing
JMP	Pit tags	Project management
STATA	Gill and hand nets	Scientific communication
Microsoft programs	Crosscut saws	Outreach and education
Avisoft	Radio collars	Fieldwork/Backpacking
Fusion	Telemetry	Animal handling
SPSS	Nitrogen spectrometer	Identification of herptiles,
Kaleidoscope Anabat	Tree stand measurement tools	mammals, scat, and botany
Amazon Turk	Motor and paddle boats	**Certs:** Wilderness first responder, Working with Children, First Aid