

Catskill Science Collaborative

Request for Proposals for 2025 Catskill Research Fellowships

Purpose of RFP: The purpose of this RFP is to solicit proposals for *Catskill Research Fellowships*. The Fellowships are student research projects mentored by a professor, or other scientist, that address both the research needs of natural resource managers in the Catskill region and provide a positive research experience to the Fellow.

About the Catskill Science Collaborative: [The Cary Institute of Ecosystem Studies](https://www.catskillscience.org) hosts the [Catskill Science Collaborative](https://www.catskillscience.org) (CSC), a program funded by the NY State [Environmental Protection Fund](https://www.catskillscience.org) through a grant from the New York State Department of Environmental Conservation (DEC) and with further support for research from the New York City Department of Environmental Protection (DEP) and private donors. The CSC facilitates and communicates environmental science in the Catskill region through sharing science with the public, promoting science-informed resource management, and enabling data- and idea-sharing among scientists working in the Catskills. More information about the CSC can be found on our website: www.catskillscience.org

Catskill Research Fellowships are offered by the CSC to generate scientific information to inform natural resource management, while providing students applied scientific training in an experiential learning environment. More broadly, the program is intended to strengthen relationships between natural resource managers and researchers and to attract new scientists to conduct research in the Catskills.

Who can apply: College professors and other professional scientists in collaboration with a student interested in conducting research in the Catskills, who will be the Fellow. Fellows may be either graduate or undergraduate students but preference is given to more experienced applicants.

Number of fellowships available: A minimum of four Fellowships will be awarded. More Fellowships may be awarded depending on funding availability.

Funding available per fellowship: A maximum of \$18,000 -- see budget stipulations below. Please note that fellowship awards are contingent on available funding. On occasion, the CSC will be able to provide supplemental funds to managers and professors who have completed a CSC project in the past three years and have ideas for follow-up work. If you have an idea for a project please contact the CSC Coordinator at damonj@caryinstitute.org.

Research Needs: Appendix 1 lists research needs that have been identified by natural resource managers. All proposals should be targeted to address one of these research needs. Professors and sponsoring scientists may submit more than one proposal and sponsor more than one student, recognizing that the mentor plays a critical role in supervising and overseeing the field research conducted by the Fellow.

Timeline:

- **Applications are due by Friday, January 10, 2025.**
- Notifications about selections will be made in early February 2025.
- It is expected that projects will begin around the end of May 2025, although some research may require an earlier start date.
- The Fellow will be required to attend 2-3 in-person CSC gatherings between June and August. The intention of these gatherings is to encourage community building among the Fellows and to provide an educational experience regarding management work in the Catskills.
- Fellows will be expected to present their work at the Catskill Environmental Research and Monitoring Conference (CERM) in October 2025.
- The project must be completed and the final report submitted by December 31st, 2025.

Application: The fellowship is intended to help build relationships between resource managers and researchers. **Academic supervisors are primarily responsible for oversight of research and facilitating coordination with Managers.** Therefore professors/sponsoring scientists are required to contact the resource manager associated with their research need of interest, as noted in Appendix 1. The purpose of this contact is to gather more information and collaborate on developing a preliminary proposal. It is expected that some refinement of the preliminary proposal may be required prior to awarding the fellowship. Preliminary proposals should contain the following:

1) Cover page including:

- Project Title
- Professor/sponsoring scientist's name
- Student/Fellow name
- College or University Name
- Natural resource manager contact name and agency
- Research need addressed by the proposal (from Appendix 1)
- Certification that the proposal was reviewed and approved by the office at their institution that is responsible for approving external research contracts (e.g. the sponsored programs or grants office) prior to submission.

2) Proposal narrative (maximum 4 pages) including:

- Background on research question
- Goals and objectives
- Methods
- Outcomes and Deliverables
- Timeframes for data collection, analysis and written report (see Timeline and Expectations/Stipulations)

3) Budget with line items for allowable budget categories as discussed in "Budget Stipulations" below. Please also include a budget narrative to describe proposed expenses, fringe benefits rates, etc.

4) Professor/Sponsoring scientist's CV

5) Student's Resume

Applications are made to the Catskill Science Collaborative, not to the managers directly. Please email your proposal **as a single PDF file** to damonj@caryinstitute.org, copied to ginsbergj@caryinstitute.org, with the subject line: **Catskill Research Fellowship Proposal**. We encourage discussion with targeted managers, but please note that **CSC runs the application review process**. Projects for successful candidates will be contracted with the University or Research Institution, not the Fellow or advisor directly.

Application Evaluation Criteria: Applications will be evaluated based on the following criteria:

- Degree to which research design meets the research need
- Evidence of partnership with resource management agency
- Potential for positive research experience for student
- Feasibility of project within the time frame specified
- Degree to which professor's expertise meets research need
- Qualifications of the student
- Safety measures (e.g. field work safety)

Budget stipulations:

- **Maximum award request: \$18,000**
- Fellows will be awarded at least \$8,500
- Professor compensation allowed up to \$2,500
- Indirect costs capped at 20% of total direct costs
- Other allowable budget categories include: Fringe benefits at rates approved by the submitting institution, supplies, travel, communications

Other stipulations:

- Contracts for the Fellowship will be made with the institution, not the student. The mentor must manage communications with the office at their institution that is responsible for approving external research contracts to ensure timely execution of a contract. This is essential for the fellowships to begin on time.
- The Fellow will be covered by college/institutional insurance and workers compensation.
- The Fellow will attend a virtual orientation.
- The Professor/sponsoring scientist and Fellow will participate in monthly check-in meetings during the field season with the resource manager and CSC in person, by video conference, or by phone to promote a team culture and ensure all parties are informed about the progress of the project.
- The Fellow will regularly check email and voice messages to facilitate communication between the CSC and Fellowship program operation.
- Fellows working in locations without cell phone service will be required to have a satellite communication device for emergency contact.

- Data generated from the fellowship will be formatted and made available for the CSC to place on the Catskill Data Portal (<https://www.uvm.edu/femc/catskill#home>), pending data sensitivity and data sharing policies of resource management agencies.
- Fellows will be required to find their own housing, though every effort will be made by the natural resource manager and CSC to help connect them to affordable housing opportunities.

Email the CSC Coordinator at damonj@caryinstitute.org regarding any questions.

Roles & Responsibilities

Fellow Role

Fellows will participate in monthly check-in meetings during the field season with the resource manager and CSC in person, by video conference, or by phone to promote a team culture and ensure all parties are informed about the progress of the project. The Fellow should set the agenda for these meetings and share a progress update, which could include data collection progress and preliminary findings. Additionally, the Fellow will be required to attend 2-3 in-person CSC gatherings over the course of the summer.

Professor/Sponsoring Scientist Role

The professor/sponsoring scientist will be the primary supervisor of the Fellow and will be supportive of and encourage a team culture and collaborative spirit. The professor/sponsoring scientist will be responsible for deliverables. They are expected to attend an orientation and presentation of the Fellow's work. They are also expected to participate in regular check-in meetings with the fellowship team.

It is the professor/sponsoring scientist's responsibility to manage the contract with the office at their institution that is responsible for approving external research contracts. The CSC is happy to assist in this process.

As part of the responsibility for deliverables, the professor/sponsoring scientist will ensure that all members of the research team are appropriately credited for their contributions. If publications are derived from a fellowship, and long-term datasets provided by the manager or agency are used, the professor/sponsoring scientist will ensure that these data are properly credited and that the manager is offered co-authorship on the paper.

Natural Resource Manager Role:

Natural resource managers are expected to participate in the study design and refinement process. They are expected to be available throughout the study to answer questions that the professor and Fellow may have. They will provide any necessary and agreed upon agency or organizational resources for the study. They will provide an orientation to the Fellow and introduce them to others they may work with. Past Fellows have remarked on the value of meeting and working with professionals in their field and that it was a highlight of their fellowship. Depending on the project, it may be helpful for the resource manager to occasionally

visit the Fellow to check in on fieldwork. Resource managers are expected to attend an orientation and presentation of the Fellow's work. They are also expected to participate in regular check-in meetings with the professor, Fellow, and CSC.

CSC/Cary Institute of Ecosystem Studies Role:

The CSC assists in the proposal selection process and the Cary Institute of Ecosystem Studies Grants Office awards the contract to the College or University. The CSC coordinates events and meetings for the Catskill Research Fellowship to ensure communication between all parties and ensure a positive learning experience for the Fellow.

Acknowledgments

The Environmental Protection Fund of New York State, administered by the DEC, provides the core funding for the CSC. **It is required that the DEC be credited on all papers and presentations produced by the Fellow or Mentor that are representing the work done under the fellowship ([link to logo](#)).** If a project also receives funding from another source (e.g. the NYC-DEP, USGS, etc), these entities must also be given credit. In addition, we ask that all participants in these research projects (e.g. managers, mentors, and fellows) be given appropriate credit and/or authorship on papers and reports generated by the fellowship.

Appendix I

Natural Resource Manager Research Needs

1. Baseline data on natural resources and recreation

Collect baseline data either for recreational use, visitor experience, or natural resources, focusing on how these fields of observation impact each other. Fellowship projects can be narrowed down to a specific recreational hotspot or ecological component. For example, if researchers are interested in selecting a specific recreational type or hotspot, DEC staff would ask that they focus on the visitor experience and/or the impact of that recreation on the natural resources of the area. Similarly, if they are interested in researching specific plants, animals, natural communities, water quality, etc., we ask that they focus on the impact of recreation on those natural resources, or how the condition of those natural resources impacts visitor experience or recreational activities. Being managers of recreational use as well as stewards of the Catskill Park, DEC staff would find most helpful the type of research that provides baseline data for our visitor use management efforts. We also ask that proposed research projects target areas outside of the Kaaterskill Clove, since that spot is getting enough research attention right now.

Contact: Sara Hart, sara.hart@dec.ny.gov, New York State Department of Environmental Conservation

2. Role of Riparian Vegetation in Forested Watersheds

Riparian vegetation is recognized as a nature-based solution for climate change adaptation in watersheds, offering multiple co-benefits. Beyond improving water quality by reducing nutrient and sediment influx into waterways, riparian vegetation provides essential wildlife habitats and can regulate stream temperatures. Additional reported co-benefits include enhanced biodiversity and ecosystem services, such as carbon sequestration by riparian forest buffers.

In New York City (NYC) water supply watersheds, riparian buffer planting is a key component of the watershed protection program. This initiative aims to reduce sediment, nutrients (phosphorus and nitrogen), and pathogens entering streams and reservoirs in the NYC water supply system. Currently, riparian buffer planting is active in farmland (cropland and pasture) and non-agricultural riparian (streamside) forested areas within the NYC watersheds. However, the effectiveness of the current buffer placement configuration in filtering runoff and contaminants is not fully understood. It is also crucial to identify specific locations within the riparian corridor where most contaminants enter waterbodies.

The proposed study will employ geospatial tools to develop landscape metrics that assess the efficacy of riparian buffers and pinpoint critical contaminant loading areas. Additionally, the study will include a comprehensive literature review on riparian buffer design considerations and a geospatial analysis of the riparian corridor in NYC watersheds. The goal is to identify areas for targeted placement of buffer strips to maximize benefits by reducing carbon, nutrient, and sediment inputs into streams, alongside other ecosystem benefits.

The sponsoring professor or scientist should have a background in Environmental Science, Ecology, Geospatial Modeling, or Forest Hydrology. Prospective students should have

an interest in environmental science and can expect to gain experience in GIS, data analysis, scientific writing, and presentation.

Contact: Rajith Mukundan (rmukundan@dep.nyc.gov), NYC Department of Environmental Protection

3. Forest Phenology in NYC Water Supply Watersheds

Forest phenology in the NYC water supply watersheds plays a crucial role in regulating the carbon cycle, water cycle, and the exchange and transport of sediment and nutrients, which are essential for discharge and water quality management. Climate-change driven changes in precipitation and temperature characteristics are expected to increase the intensity and frequency of climate extremes. These extreme conditions can alter forest phenology, which has important implications for carbon and water cycles, as well as water quality. The purpose of this study will be to provide insights into how the response of forest phenology to extreme hydro-climatic conditions influences water quality in the West of Hudson NYC water supply watersheds. This study will include a comprehensive literature review to examine the current scientific understanding of the effects of climate extremes on phenology and water quality. This study will perform geospatial analysis to explore the relationship between climatic variables, forest phenology, and water quality (nitrogen and dissolved organic carbon) in the West of Hudson NYC water supply watersheds.

Contact: Interested researchers should contact Rakesh Gelda for additional information as they develop their proposals (rgelda@dep.nyc.gov)

4. Trail Condition and Sustainability Assessments for Formal Trails in the Catskill Forest Preserve

A notable data gap in the Catskills is the baseline documentation of the visitation-related impacts occurring on formal trails in the Catskills. While condition monitoring is an important component of effective land management, data collection and analysis requires a significant investment of time which is a limiting factor for many land managers. The 2020 report titled “Improving the Sustainability of the Appalachian Trail: Trail and Recreation Site Conditions and Management” by Marion, Wimpey, Arredondo, and Meadema, outlines field research protocols which evaluate formal trails for factors that influence trail condition and sustainability against visitation-related impacts such as trail soil loss, trail muddiness, and trail widening. This project could be replicated and applied to the stretch of the Long Path that co-aligns with Catskill Forest Preserve trails. Field seasons could be broken out by Forest Preserve Unit (e.g. Kaaterskill Wild Forest, Indian Head Wilderness, etc.). This project would provide land managers with the foundational information necessary to effectively implement adaptive management strategies, advance efforts to build and maintain more sustainable trails, and lay the groundwork for long-term trail monitoring.

Contact: Alicia van der Veur alicia.vanderveur@dec.ny.gov, New York State Department of Environmental Conservation

5. Effects of Invasive Species on Forest Ecosystems

What is the impact of invasive species on forest ecosystem processes and forest regeneration in the Catskills? Besides removing invasive plants, what are management actions we can take to mitigate those impacts? In some areas where we have removed invasive plants and there is a lack of regeneration of forest canopy trees, we have planted native tree seedlings and protected those seedlings from deer. Are there other actions we could take to increase forest resilience in these stands? How can we evaluate long-term success in areas that we are managing?

Contact: John Thompson, jthompson@catskillcenter.org, Catskill Regional Invasive Species Partnership

6. Traditional Ecological Knowledge on Native Plants

The Rondout Neversink Stream Program (RNSP) is seeking to expand the application of traditional ecological knowledge about native plants to stream restoration and education. This educational research project is designed to foster a deeper ecological connection by spending time with plants at different stages of their life, recovering and learning the Munsee names for plants and related meanings and implications, and traditional knowledge about plants and plant management systems. The project may have a field internship or service work component with the RNSP installing plants on restoration projects, managing a native plant nursery, and/or collecting seed from the watershed. Academic partners and the student Fellow may propose variations on this project that meet student and indigenous community needs.

Contact: Stacie Howell, showell@rondoutneversink.org & Brenden Wagner, bwagner@rondoutneversink.org, Rondout Neversink Stream Program, Sullivan County Soil and Water Conservation District

7. Catskill Research Forest Siting Study Update

The Catskills lack a designated Research Forest where research infrastructure and collaborative research between agencies can take place. To identify candidate Research Forest watershed locations, a comprehensive analysis of the watersheds in the NYC-West of Hudson Watershed boundary and the Catskill High Peaks Eco-Region was conducted in 2013. Steps were taken in 2024 to update the siting study criteria and to expand the study to include the Neversink Highlands Eco-Region, the Delaware Hills Ecoregion and the Schoharie Hills Ecoregion but the watershed mapping was never completed. This project aims to complete the watershed mapping effort for the 2025 siting study to include watersheds within the eco-regions that were not included in the 2013 siting study and to account for new acquisitions that were not included in the 2013 analysis. The purpose of this project is to create a 2025 siting study that will identify the best candidate watersheds in the Catskills for possible designation as a Research Forest. Qualifications: Graduate Student Preferred. Experience in ArcPro necessary.

*Remote internship option available

Contact: Pine Roehrs, pine.roehrs@dec.ny.gov, New York State Department of Environmental Conservation

8. Reptile and Amphibian Distribution and Habitat Use

The student would be conducting presence/absence surveys in appropriate habitat including stream systems and ridge areas in the Catskills following appropriate survey protocols. Focal species may include salamander species, and rattlesnake/copperhead. Survey locations will be determined in consultation with DEC staff. Additional surveys of focal species habitat characteristics in study areas would also be collected in hopes of generating occupancy models and maps of important habitat features. Information collected during the organized survey efforts could also be used to update State HERP Atlas data, and help identify management needs for the focal species in the Catskills.

Contact: Lisa Masi, lisa.masi@dec.ny.gov, New York State Department of Environmental Conservation

9. Juvenile Wood Turtle Habitat Use and Movement Patterns

The student would undertake a telemetry based field study of juvenile wood turtles at sites selected in consultation with DEC staff. Habitat characteristics and movement data would be collected. Information on the history of the stream corridor, past storm/flooding history, and stream management would also be researched to pull together an evaluation of current condition conducive to juvenile survival in the study area.

Contact: Lisa Masi, lisa.masi@dec.ny.gov, New York State Department of Environmental Conservation

10. Catskill Forest Preserve Parcels and Aboveground Biomass

The Forest Preserve portion of the Catskill Park consists of a patchwork of parcels acquired at different times throughout the Park's history. Studying the relationship between acquisition dates and forest structure can help increase our understanding of how long-term preservation may affect carbon sequestration of forests. While the Forest Preserve acquisition dates have been digitized for the Adirondack Park (Colin Beier, personal communication), that is not the case for the Catskill Park. We know that Michael Kudish has begun this research (Michael Kudish, personal communication), however, we are unaware of a Park-wide effort in the Catskills.

The purpose of this project would be to digitize the acquisition dates of all Forest Preserve parcels in the Catskill Park using existing data from Michael Kudish and tax parcel and deed records through DEC. The Fellow would then compare acquisition dates to a time-series (1990-2019) of aboveground biomass (AGB) estimates produced by CAFRI and available for the Catskill Park through the New York Natural Heritage Program. We hypothesize that those parcels with the earliest acquisition dates will have both (1) the highest average AGB and (2) higher sequestration of carbon over the nearly 20 years of available AGB estimates. Academic partners and the student Fellow may propose other analyses assessing the significance of parcel acquisition date to metrics about the forests within the parcels.

Contacts: Sara Hart, sara.hart@dec.ny.gov, New York Department of Environmental Conservation & Max Henschell, max.henschell@dec.ny.gov, New York Natural Heritage Program