The South Mountain Research Corps (SMRC) is seeking opportunities to support academic and student-focused research in environmental sciences, forestry, agriculture, cultural and historic resources, geology, geography, and land use planning. Listed below are potential inventory, research, and monitoring priorities that could be conducted on public or private lands within the South Mountain landscape. The documents are organized by general program area. The potential projects listed are the result of priorities expressed by researchers and agencies, as well as community feedback and the results of the State of the Region report. More detailed problem statements for each potential project are available upon request, and there is a contact name and email attached to each one.

This year the SMRC will accept applications for research projects that help address our research priorities within the range of $1,000 to $5,000. Previous projects have averaged around $3,000.

Priority will be given to proposals that address the research priorities, to proposals that are multidisciplinary in scope, and to proposals that help students develop the skills and expertise necessary for successful careers in land and resource management.

Some important details to include regarding the proposals and grants:

- ➔ **The grants require a 1 to 1 cash or in-kind match**.
- ➔ **A succinct project proposal** that addresses the chosen problem statement includes who will conduct the research and who will supervise it, and states **specifically** what will be delivered to address the problem statement (e.g. a technical report, a journal article, a video, etc.)
- ➔ **A proposed budget (one page), and timetable/project schedule**, the budget should note if your match is cash or in-kind and the source of the match.
- ➔ **Eligible costs include; research costs, travel, student stipends or compensation [hourly wage or honorarium].**
- ➔ Eligible match can include cash costs as well as in-kind university match such as staff time.
- ➔ Curriculum Vitae of the supervising faculty member(s) and student(s) working on the project
- ➔ **Projects must impact or occur in Adams, Cumberland, Franklin, or York Counties. Applying Educational Institutions can be located anywhere in Pennsylvania.**

NEW THIS YEAR! Proposals will be accepted on a rolling basis on the following dates:

JANUARY 3RD
JUNE 6TH
SEPTEMBER 5TH

Funding decisions will be made approximately 2 weeks following the deadline, and projects can begin 2 weeks after that. All projects must be completed by December 1, 2025. *(example; if applying for the June deadline, your project could begin in July and must be completed by December 2025)*

APPLY HERE. For questions about this program, please contact Julia Chain at jchain@appalachiantrail.org

2025 Research Problems in Land Use Planning

The South Mountain Research Corps will support academic and student-focused research in the South Mountain region of south central Pennsylvania in Adams, Cumberland, Franklin, and York counties. The topography, climate, soils, geology, and society and culture of the South Mountain region supports a unique confluence of forests, plant communities, wildlife, and agricultural landscapes and practices. The South Mountain Landscape is one of the fastest growing regions in the Commonwealth, and new land use patterns and practices are evolving that are profoundly affecting traditional practices, regional infrastructure, water and air quality, public lands, recreation, quality of life, and other critical resources. Rapid land conversion from forestland or agriculture to developed buildings and infrastructure, and high visitation and use of public lands are challenges to the preservation and promotion of the region's economy, resident health, and overall quality of life. The following is a list of potential research and monitoring priorities provided by local partners that could be conducted on public or private lands within the South Mountain region.

Research Questions	**For more information contact:**
Plan for long distance cross-county multi-use trails - explore potential long-distance trail alignments using existing and emerging trail alignments. Assess quality and feasibility of routes from the resident and visitor perspectives (connect communities to one another, to schools, workplaces, social services, healthy food, and provide access to cultural resources, agritourism opportunities, and other unique assets and attractions in the South Mountain region). ***SMP State of the Region Priority - This recommendation focuses on multi-use trails that can be used by cyclists, hikers, joggers, and walkers. Such a system would create physical connections between parks, other regional recreation areas and towns; and contribute to the region's public open space system and to economic development by making the region more of an outdoor recreation destination.	See State of the Region Final Report, specifically page 36 for more details. Contact Katie Hess at khess@apalachiantrail.org
Identify potential Wildlife Corridors or greenways to connect the South Mountain with neighboring Kittatinny Ridge and Highlands Region to the east. ***SMP State of the Region Priority - A planned wildlife corridor using greenways (and other lands) would connect the South Mountain region to the Kittatinny Ridge across the Cumberland Valley and to the Highlands region across York County to address habitat and population fragmentation that occurs due to land development that removes habitat, such as streets and buildings, cutting off open spaces.	See State of the Region Final Report, specifically page 38 for more details. Contact Katie Hess at khess@apalachiantrail.org
Synthetic research and compilation of successful and innovative municipal sample ordinances and zoning	Katie Hess at khess@appalachiantrail.org

regulations	
The gathering, compilation and analysis of public input on comprehensive land use planning at the county and municipal level.	Katie Hess at khess@appalachiantrail.org
Data gathering, modeling and analysis of the effects of warehousing, logistics and distribution networks on regional, county and municipal transportation infrastructure, air and water quality, traditional land uses, open space preservation, and economies	Katie Hess at khess@appalachiantrail.org
Identifying BMP's and models for residential development.	Katie Hess at khess@appalachiantrail.org
Data gathering, modeling and analysis of the effects of large scale solar farms on water quality, traditional land uses, open space preservation, and economies	Katie Hess at khess@appalachiantrail.org
Research and design of stormwater BMPs that are effective in poorly drained soils in the region, and summary and distribution of these BMPs to county and municipal planners.	Katie Hess at khess@appalachiantrail.org
Impact of surrounding land on Michaux State Forest: Quantifying and mapping the impact of these issues.	Roy Brubaker (robrubaker@pa.gov)
Transportation use on Michaux State Forest Roads: Establishing a sampling and monitoring protocol for the volume of vehicles on State Forest Roads	Roy Brubaker (robrubaker@pa.gov)

2025 Research Problems in Geology, Geography and Geosciences

The South Mountain Research Corps will support academic and student-focused research in Geology, Geography, Geosciences and related disciplines in the South Mountain region of south central Pennsylvania in Adams, Cumberland, Franklin, and York counties. The geological and geographical contexts of the South Mountain landscape include large areas of Karst topography in the Cumberland Valley, the metamorphic and igneous geology of the South Mountain itself, and areas of Triassic geology on the east side of the South Mountain. The following is a list of potential research and monitoring priorities provided by local partners that could be conducted on public or private lands within the South Mountain region.

Research Questions	**For More Information Contact:**
The study of the subterranean movement and chemistry of water within the karst topography of the Cumberland Valley.	Joe Baker [joebear81@comcast.net]

Additional research and public education efforts focused on the South Mountain metarhyolite quarries on and near the Michaux State Forest	Joe Baker [joebear81@comcast.net]
The development of Middle School and High School geography curriculum focused on the South Mountain Landscape	Joe Baker [joebear81@comcast.net]
The study of the effects/influence of karst topography & spring-fed streams on South Mountain's groundwater and its reintroduction to surface water. (i.e. effects of infiltration (in karst/spring landscape) on water quality in streams & effectiveness of land BMPs on water quality)	Joe Baker [joebear81@comcast.net]

2025 Research Priorities: Cultural and Historic Resources

The South Mountain Landscape has a record of human land use that stretches to the Pleistocene. It is a record often but not exclusively focused on resource procurement and exploitation that begins with Native American tool stone quarrying, and continued through the 18th, 19th and 20th centuries with the timber and iron industries and their related practices. It also has a completely unique and idiosyncratic agricultural legacy as one of the most important fruit-producing regions in North America. Ethnic and cultural diversity have been an earmark of this heritage as Native American, Scots-Irish, African American, German, and Latinx people have all left an enduring mark on the region's historic record. All of these cultures have living descendant communities in and near the South Mountain Landscape to whom this heritage belongs. Rapid growth in the partnership counties and high visitation and use of public lands are challenges to the preservation, study, and interpretation of the region's heritage. The South Mountain Research Corps will support research, inventory, and modeling of issues in cultural and historic resource management including but not limited to the following topics. This list is based on priorities expressed by researchers and agencies, as well as community feedback. More detailed problem statements for each project can be made available upon request.

The following is a list of potential research and monitoring priorities provided by local partners that could be conducted on public or private lands within the South Mountain region.

Research Question	**For more information contact:**
Contributions to the inventory of Historic and Cultural Resources in the South Mountain, and/or potential citizen science methods and digital tools to gather this data. ***SMP State of the Region Priority - this recommendation is for a region-wide inventory to document cultural resources that represent pre-historic and historic contexts already identified in the Cultural Landscape Assessment for Michaux State Forest prepared by South Mountain Partnership, plus other contexts deemed a priority. This will provide the basis for additional preservation efforts, increase appreciation of those resources by residents, and enhance heritage tourism, another valuable form of economic development and outdoor recreation.	See State of the Region Final Report, specifically page 39 for more details. Julia Chain at jchain@appalachiantrail.org
Farm Labor Oral History	Maria Bruno at mariabruno@unr.edu
History and Evolution of Regional Agriculture	Maria Bruno at mariabruno@unr.edu
Native American Interactions with Forest Communities and Ecosystems	Maria Bruno at mariabruno@unr.edu
Legacy of charcoal production and the iron industries of the South Mountain	Maria Bruno at mariabruno@unr.edu
Early European settlement history and landscape evolution at Camp Michaux	Maria Bruno at mariabruno@unr.edu
Continuing Investigations Native American Metarhyolite Quarries	Maria Bruno at mariabruno@unr.edu
Develop a Historic Context as outlined in the Cultural Landscape Assessment	Katie Hess at khess@appalachiantrail.org

Effects of historic mill dams on legacy sediment and erosion of sediment in South Mountain Landscape.	Julia Chain at jchain@appalachiantrail.org

2025 Research Problem Statement: Environmental Sciences, Forestry, and/or Agriculture

The South Mountain Research Corps will support academic and student -focused research in environmental sciences, forestry, agriculture and related life-science disciplines in the South Mountain region of south-central Pennsylvania in Adams, Cumberland, Franklin, and York counties.

The topography, climate, soils, geology, and society and culture of the South Mountain region supports a unique confluence of forests, plant communities, wildlife, and agricultural landscapes and practices. The region's wild, managed, and agricultural lands are also challenged by residential and commercial development, expanding energy and transportation infrastructure, climate change, and intensive recreational and extractive uses.

Within these disciplines, the following is a list of potential research and monitoring priorities provided by local partners that could be conducted on public or private lands within the South Mountain region.

Invasive Species, Native Species, Ecological Communities and Wildlands Management

Research Question	**For More Information Contact:**
Compare updated Natural Heritage Inventory (2026) data with a variety of seemingly unrelated data to understand how spatial patterns and habits interact to affect environmental and public health. For example: compare newly available NHI data against human development patterns to identify ecologically high-value areas in need of protection OR How often, or to what degree, are Natural Heritage Inventory data being used by local leaders and planners. ***SMP State of the Region Priority to help address the challenges of Loss of Farmland, Habitat, Historic/Cultural, Open Space, and Forests by understanding ecological conditions and making recommendations for their preservation and conservation. Please note, that this research will be available for 2026 projects.	See State of the Region Final Report, specifically page 35 for more details. Katie Hess khess@appalachiantrail.org
Management Issues at Mount Holly Preserve Natural Resources	Stephanie Williams at the Cumberland County Planning Office

	sjwilliams@ccpa.net
Timber rattlesnakes in Michaux State Forest	Aura Stauffer (astauffer@pa.gov)
Vernal pools within the South Mountain landscape	Aura Stauffer (astauffer@pa.gov) or Larry Klotz (lhklot@retiree.ship.edu)
Declining early successional habitat (ESH) game species (ruffed grouse, woodcock, wild turkey).	DCNR biologists Robin Eng, Wildlife Ecologist (Reng@pa.gov)or PGC turkey biologist Mary Jo Casalena (mcasalena@pa.gov)
Coldwater fisheries and species like the brook trout	Bryan Chikotas (bchikotas@pa.gov)
Watershed-level water quality assessments, monitoring, and best practices	Jinnie Monismith/ ALLARM (monismij@dickinson.edu)
Understanding and controlling invasive plant species in the South Mountain landscape	DCNR botanist Kelly Sitch (kesitch@pa.gov)
Survey and monitoring of several state-listed plant species.	DCNR botanist Kelly Sitch (kesitch@pa.gov) or Larry Klotz (lhklot@retiree.ship.edu)
Synthetic research and monitoring of birds within the South Mountain Region	Aura Stauffer (astauffer@pa.gov)
Inventory and evaluation of prescribed burns.	Roy Brubaker (robrubaker@pa.gov)
Best practices research and inventory work to address the problem of habitat and population isolation and connectivity	Aura Stauffer (astauffer@pa.gov)
Inventory and research efforts to gather and analyze data on the effects of intensifying recreational use on public land:	Roy Brubaker (robrubaker@pa.gov)

Agriculture and Forestry

Research Question	**For More Information Contact:**
Anticipated changes to forest communities from climate change	Roy Brubaker (robrubaker@pa.gov)
Evaluating hunter satisfaction and Willingness to harvest antlerless deer	Roy Brubaker (robrubaker@pa.gov)
Regenerative agricultural practices.	Katie Hess (khess@appalachiantrail.org)
Maintaining a diverse and vibrant agricultural landscape/economy while adapting to climate change, invasive pest species (e.g. Spotted Lantern Fly), evolving market/labor conditions, and aging of farmers.	Katie Hess (hess@appalachiantrail.org)

Hydrology and Stormwater

Research Question	For More Information Contact:
Stormwater management	Julia Chain (jchain@appalachiantrail.org)
The study and management of flooding and floodplains	Julia Chain (jchain@appalachiantrail.org)
Subterranean movement and chemistry of water within the karst topography of the Cumberland Valley	Joe Baker [joebear81@comcast.net]
Determining a baseline for water quality where gaps exist & furthermore, agricultural and “natural” BMP effectiveness on that water quality.	Julia Chain (jchain@appalachiantrail.org)