

DRAFT

**Research Needs & Opportunities
with the Harris Center for Conservation Education**

January 2017



ABOUT THE HARRIS CENTER

The Harris Center for Conservation Education is a member-supported nonprofit organization based in Hancock, New Hampshire. Since 1970, we have worked in the Monadnock Region of southwestern New Hampshire to promote understanding and respect for the natural world. We accomplish this mission in three ways:

Environmental Education

Our school-based education program sends naturalists to 165 classrooms in over 30 Monadnock Region schools each year, where they collaborate with classroom teachers to offer innovative environmental education experiences for students in grades K through 12. Students in Harris Center programs are taken out of the classroom and into their communities, where they study the natural world, develop skills as scientists and historians, and become problem solvers. Our teaching links to science or social studies curricula and aligns with current standards.

Outside of schools, we provide diverse environmental education opportunities for learners of all ages, ranging from short courses for adults to summer camps for children. In addition, we sponsor over 120 lectures, film showings, workshops, and outings for the general public each year.

Land Protection

We are a local land trust responsible for conserving more than 23,000 acres in a connected “SuperSanctuary” that spans 8 towns. Harris Center-conserved lands protect 16 hills and mountains greater than 1,500 feet in elevation, shorefront surrounding or abutting 5 large lakes and 10 smaller ponds, 59 miles along rivers and streams, more than 1,600 acres of diverse wetlands, and 13 miles of scenic hiking trails. Over the years, we’ve joined forces with landowners, towns, government agencies, and dozens of local and regional organizations to protect these special places.

Conservation Research

The Harris Center’s conservation research arm coordinates a variety of successful citizen science projects, including vernal pool documentation initiatives and the celebrated Salamander Crossing Brigades. We also work with local colleges and universities to facilitate research on our conserved lands. Findings from these projects inform our land acquisition, land stewardship, and education programs.

Our three program areas support and build upon one another: the land conservation program protects open space and models exemplary stewardship; the education program helps people of all ages understand the value of these natural resources and creates future stewards; and our conservation research program offers learning opportunities and informs stewardship of our protected lands.

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RESEARCH NEEDS & OPPORTUNITIES: LAND

Natural Communities

Fine-scale natural community inventory and mapping for lands owned and/or managed by the Harris Center (HC)

Forests

Fine-scale forest inventory and mapping for lands owned and/or managed by the HC

Fine-scale inventory and mapping of forest pests and diseases (emerald ash borer, hemlock woolly adelgid, Asian longhorned beetle, beech bark scale disease, and other emerging pests and diseases) on HC-protected lands

Assessment of vulnerability of HC-protected lands to pests, fire, wind, ice storms, invasive plants, beech regeneration, and other threats to forest health

Fields and Meadows

Fine-scale inventory and mapping of meadows and agricultural fields on HC-protected lands

Development of management recommendations for maintaining native grassland habit for birds, pollinators, and rare plant and wildlife species

Invasive Plants

Fine-scale invasive plant inventory and mapping for lands owned and/or managed by the HC

Evaluation of alternative (i.e., non-chemical) methods of control

Assessment of potential for spread in areas subject to timber harvests

Rare Plants

Fine-scale inventory and mapping of rare plant occurrences on HC-protected lands

American Chestnut and Elm

Monitoring the survival and growth of American Chestnut plantings on HC-protected lands

Assessment of the feasibility of reintroducing self-sustaining stands of American Chestnut and Elm throughout the Monadnock Region

Projected Landscape Change

Assessment of the potential impacts of natural gas pipelines, wind farms, housing and industrial development, road construction, and other projected infrastructure changes on wildlife, water quality, and habitat connectivity in the Monadnock Region

Land Conservation

Assessment of the strengths and weaknesses of the portfolio of conserved lands in the Monadnock Region, similar to [the statewide analysis conducted by SPNHF and the Nature Conservancy](#) in 2014

Attitudes Towards Conservation

Assessment of public attitudes towards land conservation in the Monadnock Region

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RESEARCH NEEDS & OPPORTUNITIES: WATER

Vernal Pools

Fine-scale inventory of vernal pools on HC-protected lands

Wetlands

Fine-scale inventory of permanent wetlands on HC-protected lands

Road Salt

Assessment of the impacts of road salt on HC-protected wetlands and vernal pools

Mercury Contamination of Aquatic Ecosystems

Assessment of mercury contaminations of aquatic ecosystems – particularly as exhibited via bioaccumulation in freshwater fish populations – throughout the Monadnock Region

Aquatic Invasive Plants

Fine-scale inventory and mapping of aquatic invasive plants in waterbodies within the Supersanctuary, especially those without lake associations

Evaluation and recommendation of methods for controlling aquatic invasive plant infestations

Assessment of the potential for spread to aquatic ecosystems throughout the Monadnock Region

Lakeshore Habitat

Inventory and assessment of lakeshore development (lawns, unvegetated buffers, docks, etc.) on lakes and ponds within the Supersanctuary

Water Quality

Compilation and analysis of existing chemical, physical, and macroinvertebrate water quality data for lakes and ponds within the Supersanctuary that have water quality monitoring programs

Water quality monitoring (chemical, physical, and/or macroinvertebrate) for lakes and ponds within the Supersanctuary that do *not* have existing monitoring programs

Beaver Activity

Fine-scale inventory, mapping, and monitoring of beaver activity in HC-protected wetlands, including the identification of trails, roads, and other infrastructure that are vulnerable to beaver-related flooding and management recommendations for minimizing those impacts

Road-Stream Crossings

Inventory, mapping, and assessment of road-stream crossings adjacent to or within HC lands for aquatic organism passage and flooding potential

Prioritization of sites for stream connectivity restoration

Phenology

Compilation of local phenological records related to ice-out and ice-in of Monadnock Region lakes and ponds

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RESEARCH NEEDS & OPPORTUNITIES: WILDLIFE

Wildlife Use of Protected Lands

Inventory of wildlife species on HC-protected lands via game cameras, tracking, and other non-invasive techniques

Moose Population Dynamics in the Monadnock Region

Long-term population monitoring of moose in the Monadnock Region

Assessment of the impacts of hunting and/or a comparison of moose populations between areas where hunting is allowed (Robb Reservoir + outside of SupersSanctuary) and areas where it is not permitted (a subset of SuperSanctuary lands)

Deer Impacts

Assessment of the impacts of white-tailed deer grazing on forest regeneration and invasive plant infestations throughout the Monadnock Region

Wildlife Road Mortality

Identification of road mortality hotspots on roads adjacent to HC-protected lands

Assessment of whether wildlife are using existing infrastructure (culverts and bridges) to cross roads within the SuperSanctuary

Recommendations for infrastructure improvements and other mitigation measures at identified road mortality hotspots

Rare Species

Fine-scale inventory and mapping of occurrences of wildlife species of conservation concern on HC-protected lands

Ring-Necked Ducks on Tolman Pond

During the fall migration, Ring-Necked Ducks appear only on Tolman Pond, and not on other lakes and ponds in the Monadnock Region – why?

Pollinator Garden

Inventory and monitoring of pollinator species using the Harris Center pollinator garden, with comparison to local control sites

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RESEARCH NEEDS & OPPORTUNITIES: RECREATION

Hunting

Evaluation of perceptions of the HC's hunting policy, among hunters as well as non-hunting members of the HC community and the general public

Trails

Assessment of trail use for each trail in the HC's trail network – how many people use our trails each year, and which trails are most popular?

Inventory of trail conditions and recommendations for improvement

Evaluation of, and recommendations for increasing, visitor observance of our leash policy for dogs on HC trails

Development of a comprehensive guide to HC trails

Vista Management

Inventory and mapping of viewpoints on HC trails and lands

Development of a management plan for maintaining scenic vistas

Recreational Use of Lakes and Ponds

Assessment of summertime use (swimming, paddling, fishing, motorized boats) of lakes and ponds within the SuperSanctuary – how many people utilize SuperSanctuary lakes and ponds each summer, and which waterbodies are most popular?

Assessment of winter use (ice fishing and bobhouses, skating, skiing, snowshoeing) of lakes and ponds within the SuperSanctuary – how many people utilize SuperSanctuary lakes and ponds each winter, and which waterbodies are most popular?

Inventory, mapping, and assessment of public access to lakes and ponds within the SuperSanctuary – is current access sufficient?

Wild Harvesting

Assessment of wild harvesting (including, but not limited to berries, mushrooms, apples, herbs, ramps, and holiday wreath materials) on HC-protected lands – how many people are wild harvesting on SuperSanctuary lands, and what kind of impact is it having on native plant and wildlife populations?

RESEARCH NEEDS & OPPORTUNITIES: CULTURAL RESOURCES

Stone Walls

Fine-scale inventory and mapping of stone walls on HC-protected lands

Cellar Holes and Mill Sites

Fine-scale inventory, mapping, and historical research of cellar holes, dams, and mill sites on HC-protected lands

Old Roads and Railroads

Fine-scale inventory, mapping, and historical research of old woods roads, farm roads, and railroads on HC-protected lands

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RESEARCH NEEDS & OPPORTUNITIES: **EDUCATION & PROGRAM EVALUATION**

Citizen Science

Evaluation of the educational impacts of the HC's citizen science programs

Community Programs

Evaluation of the educational impacts of the HC's community programs, including events and outings, camps, homeschool programs, family programs, afterschool programs, and our *Environmental Studies Institute* short courses for adults

School Programs

Evaluation of the long-term educational impacts of the Harris Center's school-based education programs

Internships

Evaluation of the long-term impacts of Harris Center internships on the professional development of our interns