

Northern Institute of Applied Carbon Science (NIACS)
A Government/Industry/University Partnership

North Central Research Station, USDA Forest Service
Northeastern Research Station, USDA Forest Service
The Forest Carbon Consortium
Michigan Technological University

The Opportunity: The forests of North America are an important component of the global terrestrial carbon cycle and are potentially an important component of strategies to sequester carbon in order to offset greenhouse gas emissions. Managed forests and plantations in the northern temperate zone could play a role in strategic carbon sequestration and management. These forests have potential to store additional carbon while simultaneously producing sustainable supplies of renewable energy and materials that help society reduce its dependence on fossil fuels. There are significant uncertainties, however, about how these systems might respond to future climate change and how forest management could be used to optimize their long-term contributions to greenhouse gas mitigation. Critical experiments and demonstration projects to address these uncertainties are needed in managed forests of North America.

The Mission: To provide ecological, economic, and social information that can be used to manage forests for the sequestration of atmospheric carbon.

Rationale: No multi-agency, research, development, and application organization exists in the Northeast and Midwest to understand the role of current and potential forests and forest management in reducing atmospheric greenhouse gases or for quantifying and understanding the processes necessary to support complete carbon accounting in northern forests. A partnership has been created among Forest Service Research Stations in the region, The Forest Carbon Consortium (a North American partnership of forest industry, government, and universities herein called the Consortium), and our university partners. Existing climate, the abundance of actively managed forests, and scientists involved in carbon cycle-related research among the partners present a unique opportunity to work together to better develop, coordinate, synthesize, and apply our expertise in silviculture, ecosystem processes, landscape ecology, ecophysiology, economics, and social science.

Outputs: NIACS will develop and disseminate knowledge on carbon cycle science for land managers in the region, apply methods and approaches to carbon inventory and monitoring at a variety of scales, and demonstrate carbon management in managed forests. Significant products of the Institute's research, data assimilation, modeling, and synthesis activities will also support research objectives of the Forest Service Global Change Program.

Outcomes: On-the-ground forest management options for greenhouse gas mitigation through enhanced carbon sequestration and sustainable production of renewable energy and materials.

Organization: NIACS is a regional collaborative effort, a partnership of federal, state, industrial, and higher education organizations, initiated by the USDA Forest Service North Central and Northeast Research Stations, the Consortium, and Michigan Technological University (MTU). Additional partners from diverse sectors will be welcomed and solicited.

NIACS will be physically centered at the USDA Forest Service Forestry Sciences Laboratory on the Michigan Technological University campus in Houghton, MI.

NIACS programs will be under the oversight of a four-person Coordinating Committee, comprised of selected representatives from the USDA Forest Service, the Consortium, and Michigan Technological University. This committee, which provides core funding for the Institute, will set priorities and approve strategic plans for NIACS as well as oversee the research, development, and application programs of the Institute. The Committee should meet at least once annually.

An Advisory Counsel, comprised of a larger body of stakeholders and collaborators, will meet once per year. It will provide feedback and advice to the Coordinating Committee and Institute on program priorities and initiatives, technology transfer and program delivery, and new opportunities for the Institute.

The Dean of Forest Resources and Environmental Science will administer NIACS-supported scientists employed by Michigan Technological University. The Directors of the North Central and Northeastern Research Stations will administer NIACS scientists employed by the respective Stations. The Institute Director is accountable to the Director, NCRS. The aforementioned administrators will ensure that the work of the scientists is consistent with the priorities and plans approved by the Coordinating Committee.

Collaboration between the USDA Forest Service and MTU will be documented in a memorandum of understanding (MOU) that establishes points of mutual agreement with respect to faculty status and privileges for employees of the USDA Forest Service, laboratory and office space, equipment purchase and use, and secretarial and administrative support.

Staffing: NIACS will operate as a virtual center, with core staff located in Houghton, Michigan. NIACS scientists will collaborate with other NCRS units and with scientists from the Northeastern Research Station, MTU, other universities, forest industry, and other partner organizations. Such collaboration would include seeking external support from a variety of possible funding sources. NIACS will engage in technology transfer through the partnerships with the Consortium, the USDA Forest Service Northeastern Area State and Private Forestry, state forestry organizations, MTU Cooperative Extension Service, and extension programs of the land-grant universities in the region.

Funding:

Start-up Funding2004				
(\$K)				
	NCRS	NERS	Consortium	MTU
Staff/Operating	200	100	10	10
In Kind	44	121	30	30

We anticipate that, once the Institute becomes established and develops a long-term strategy, additional investments and in-kind collaboration from other Research Work Units within the Stations and from existing or new partners will grow. In FY 2004 the North Central Research Station will construct a \$550,000 belowground observatory at its Forestry Sciences Laboratory in

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