



HUBBARD BROOK RESEARCH FOUNDATION

Promoting the understanding and stewardship of forest ecosystems through scientific research and monitoring, policy outreach, and education

A REPORT FOR 2008



The mission of the Hubbard Brook Research Foundation (HBRF) is to promote the understanding and stewardship of ecosystems through scientific research, long-term monitoring, and education. Founded in 1993, HBRF works to sustain and enhance the Hubbard Brook Ecosystem Study in New Hampshire, in partnership with the U.S. Forest Service/Northern Research Station, the National Science Foundation's Long-Term Ecological Research Network, and many colleges, universities, and other research institutions.

FROM OUR EXECUTIVE DIRECTOR

People often ask me, “What happens at Hubbard Brook?” While trying to frame an answer, my mind races with the enormity of what has occurred since 1963 when four scientists began walking the wooded landscape of the Hubbard Brook valley to do ecological research. They measured the flow rates of brooks and streams. They recorded air temperatures, snow depths, and the acidity of rainwater. They began cataloguing the biota in the forest. Over time the number of boots in the forest increased dramatically as graduate students became senior investigators and took on graduate students of their own. Now fast forward to the present: more than 40,000 water samples have been gathered, each typically analyzed for 17 chemical components; 12,000 birds have been banded; thousands of individual trees have been measured, literally from their root tips to their canopies. Consider this one startling measure of scientific output, among many others: more than 90 Ph.D. dissertations have been published on Hubbard Brook topics! What is Hubbard Brook? Quite simply, it is among the longest running, most influential ecosystem studies in the world.

The Hubbard Brook Research Foundation (HBRF) exists to support the science at Hubbard Brook by providing housing and other support services; by sharing research results through educational programs; and by connecting scientists with people working to craft sound environmental policies. This annual report lists some of HBRF's recent accomplishments as well as plans for the future. We invite you to visit us in two ways: digitally at our web site (www.hubbardbrookfoundation.org) or, better yet, in person by attending a HBRF-sponsored event.

– David Sleeper, *Executive Director, April 2009*

SCIENCE AT HUBBARD BROOK

The Hubbard Brook Ecosystem Study is among the longest-running and most comprehensive ecosystem studies in the world. The goal of the study, which is conducted at the 7,800-acre Hubbard Brook Experimental Forest in central New Hampshire, is to better understand the ecological patterns and processes



that characterize the Northern Forest in eastern North America. Hubbard Brook is renowned for its long-term record of measurements, landscape-scale experiments of whole watersheds, and the involvement of scientists from diverse disciplines and institutions.

In the mid-1950s, Forest Service scientists focused on the relationships among forest management practices, erosion, and stream flow. The scope of research was expanded in 1963 when scientists pioneered the “small watershed approach” to study nutrient cycling in ecosystems. This groundbreaking method uses the forest as a living laboratory, monitoring changes in stream flows, in soil and water chemistry, in forest growth, and in plants, wildlife, and associated biota.

Over the years, the number of scientists working at Hubbard Brook has grown into the hundreds, representing more than 40 research institutions. Pivotal scientific accomplishments are legion, including: the discovery of acid rain in North America; the effects of forest disturbances such as clearcutting and ice storms on calcium, nitrogen, and other critical elements; and how Neotropical migratory songbird populations are changing because of breeding-season events, including climate change. According to F. Herbert Bormann, who with Gene E. Likens, Robert Pierce, and Noye Johnsen founded the Hubbard Brook Ecosystem Study in 1963, the Study has become a “world force in ecosystem thinking and theory.”

The long-term studies at Hubbard Brook have proven invaluable for identifying and helping to solve vexing environmental problems.

SCIENCE AND PUBLIC POLICY

Communicating and sharing the wealth of scientific knowledge from Hubbard Brook forms the backbone of HBRF’s mission. Our **Science Links** program was created to narrow the gap between ecosystem science and public policy by connecting teams of scientists led by Hubbard Brook researchers with policymakers, land managers, and other members of the public. Previously completed Science Links projects have addressed such key issues as acid rain, nitrogen pollution, and mercury pollution. Nearing completion is our carbon project, which is developing tools and strategies to mitigate carbon at the local level, assisting communities to make climate-friendly decisions, especially regarding forest carbon. Future Science Links projects will deal with migratory birds and the pressures they face from climate change, invasive plants

and insect pests, atmospheric pollutants, wildlife diseases, and loss of critical habitat; and pilot projects are underway to establish local markets for ecosystem services, including watershed services (water purification, for example) and wood biofuels as a substitute for fossil fuels.

Current Science Links projects have been generously supported by the Jessie B. Cox Charitable Lead Trust, the Merck Family Fund, Orchard Foundation, the Robert & Patricia Switzer Foundation, Sudbury Foundation, and the Northeastern States Research Cooperative.

The **Hubbard Brook Roundtable**, first convened in 2006, provides a forum for ecosystem scientists to meet in a facilitated setting with leaders from a wide array of disciplines (economists, land managers, government officials, timber companies, conservation groups, and others) to promote “ecosystem thinking” as a



framework to discuss environmental threats facing the Northern Forest Ecoregion and to suggest innovative solutions. In 2008, Hubbard Brook Roundtables convened to discuss forest carbon and its importance to the Regional Greenhouse Gas Initiative (RGGI); the importance of long-term ecosystem monitoring; and strategies to promote the identification and valuation of ecosystem services at the local scale.

EDUCATION

Honoring its deep commitment to ecological education, HBRF launched its **Environmental Literacy Program** (ELP) to bring the lessons of Hubbard Brook research to teachers, students, and the public. Workshops for teachers were held at schools and conferences around the region. HBRF and its partners at Plymouth State University and the Smithsonian Migratory Bird Program piloted a new scientifically rigorous migratory bird project which pairs classrooms in New Hampshire and Nicaragua so that students better understand the habitats and cultures of the lands the birds visit during their annual travels. Building on this work, new interactive teaching guides on acid rain and migratory birds are being developed and tested for broad distribution. Another ELP event

in 2008 convened an Environmental Literacy Summit at Hubbard Brook to discuss how strong partnerships could be forged among Forest Service and other scientists, NGOs specializing in environmental education, and local schools. The summit's keynote address was given by Michael Rains, Director of the Forest Service's Northern Research Station.

Hubbard Brook will host its second **Research Experience for Undergraduates** (REU) program this summer, in coordination with its partners: Plymouth State University, the U.S. Forest Service, and Hubbard Brook scientists who serve as mentors to the students. The program emphasizes the societal relevance of ecology and ecosystem science through field studies and outreach projects. Eleven students from colleges

and universities around the country will be selected to participate in this 10-week program. Funding comes from the National Science Foundation's REU program and the Hubbard Brook Consortium.



REU students created a poster to share their findings.

HBRF's Environmental Literacy Program is committed to bringing the lessons of Hubbard Brook research to teachers, students, and the public.

PUBLIC OUTREACH

HBRF continues to showcase Hubbard Brook science at venues around the region. In 2008, scientists presented their work at public events in Burlington, Vermont; Millbrook, New York; and Hanover, Plymouth, and Woodstock, New Hampshire. Topics included forest carbon sequestration and climate change, migratory birds, moose populations at Hubbard Brook, and the global nitrogen cycle.



MEETINGS AND FACILITIES

During the summer research season, HBRF's facilities at Pleasant View Farm and Mirror Lake are filled with researchers, technicians, and students. These residences provide convenient housing near the forest in a collegial, campus-style setting. Off season, both facilities provide excellent meeting places for conferences, college classes, and retreats. Pleasant View Farm is a historic house with dormitory-style living. The Mirror Lake Campus offers individual cottages with 2-3 bedroom living units overlooking the pristine, intensively-studied lake. Nonprofit and educational institutions are welcome to inquire about hosting their meetings at Hubbard Brook.

Left: Dr. Nick Rodenhouse shares his expertise on birds at Hubbard Brook.



Members of the U.S. Forest Service's Research Executive Team, hailing from around the country, met at Hubbard Brook in 2008. Inset: Waterfront cottage at Mirror Lake.



Hubbard Brook Research Foundation

Statements of Financial Position

December 31, 2008 and 2007



Assets	2008	2007
Current assets:		
Cash and cash equivalents	\$ 203,095	\$ 227,588
Pledges receivable	7,900	12,500
Grants receivable	42,354	50,522
Other receivables	4,785	370
Deferred expenses	-	1,218
Prepaid expenses	2,908	5,072
Total current assets	261,042	297,300
Property and equipment:		
Buildings and improvements	1,854,914	1,838,930
Equipment	67,952	74,084
Land	470,200	470,200
	2,393,066	2,383,214
Less: accumulated depreciation	334,922	284,243
Total property and equipment	2,058,144	2,098,971
Total Assets	\$ 2,319,186	\$ 2,396,271
Liabilities and Net Assets		
Current Liabilities:		
Accounts payable and accrued liabilities	\$ 20,345	\$ 10,950
Deferred income	26,092	31,600
Accrued interest	773	1,610
Total current assets	47,210	44,160
Note Payable	667,976	644,217
Net Assets:		
Unrestricted	1,323,668	1,408,866
Temporarily restricted	280,332	299,028
Total net assets	1,604,000	1,707,894
Total liabilities and net assets	\$ 2,319,186	\$ 2,396,271

Statements of Activities and Changes in Net Assets

Note: These schedules should not be confused with HBRF's audited financial statements.

That report, including footnotes and the auditor's opinion, is available upon request or may be found on the HBRF website.



Support ecosystem science on-line at
www.hubbardbrookfoundation.org/donate

Revenue & support		
Contributions and grants	\$ 498,979	\$ 619,480
Rental income	81,628	76,830
HBRF Consortium dues	49,008	-
Other Income	4,632	8,970
Total revenues and support	634,247	705,280
Expenses		
Program costs:		
Facilities	229,660	208,919
Education	289,356	157,389
Total program expenses	519,016	366,308
Supporting services expense:		
Management and general	132,087	126,132
Fundraising	87,038	115,585
Total supporting services	219,125	241,717
Total expenses	738,141	608,025
Change in net assets	(103,894)	97,255
Net assets, beginning of year	1,707,894	1,610,639
Net assets, end of year	\$ 1,604,000	\$ 1,707,894

OUR SUPPORTERS

Thank You, Donors, for your generous support in 2008! Every donation helps sustain the work we do to support ecosystem science and make it available to decision makers, educators, and the general public.

HBRF's Stewardship Circle honors those who donate \$1,000 or more annually, OR those who stretch their giving by *doubling* their highest previous gift. Whatever your level of giving, the Hubbard Brook community extends a heartfelt thanks to you!

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Allegheny College
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 U.S. Geological Survey
 Virginia Tech
 Washington State University
Wellesley College
 Wright State University
 Yale University



The porch at Pleasant View Farm provides a casual meeting place for scientists, students and others.



Hubbard Brook Research Foundation

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25 Dobson Hill Road

Thornton, NH 03285

Tel: 603-726-8911

Fax: 603-726-4451

Hubbard Brook Experimental Forest

Robert S. Pierce Laboratory

Owned and operated by the

U.S. Forest Service

Tel: 603-726-8902



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