



U.S. Forest Service, Northern Research Station, NYC Urban Field Station 2008 Accomplishment Report



Background: The Northern Research Station's Urban Field Station (NRS UFS) promotes natural resource stewardship and ecological literacy to advance human well-being in the country's largest metropolitan area, New York City. The NYC field station is both a physical place to conduct research and a network of relationships among a growing number of scientists, practitioners, university cooperators and facilities focused on urban ecology. Recognizing New York City Department of Parks and Recreation (NYC Parks) as a nationwide leader in urban forestry, NRS signed a Memorandum of Understanding with NYC Parks in 2006 to establish a long-term research partnership to deepen our understanding and strengthen urban natural resource stewardship. Since that time, the field station has engaged over 30 non-profit, academic, and government partners creating innovative "research in action" programs to support urban ecosystem management. The NRS UFS and NYC Parks are collaborating on renovation of a shared office and residential space at Fort Totten in Bayside, Queens. The NRS UFS received the 2008 Partnership Award for the Northern Research Station.

2008 NYC Projects and Accomplishments:

Million Trees NYC:

NYC Parks and the nonprofit New York Restoration Project are embarking on a new era in park, open space, and urban forestry development, with a goal of planting 1 million new trees in the city over the next 10 years on a wide range of land jurisdictions. Chief Abigail Kimbell participated in the citywide launch of the campaign in Oct 2007. NRS UFS serves on the Advisory Board to the overall Million Trees Campaign as well as the NYC Parks Natural Resource Group 2,000 acre reforestation Advisory Board. The field station continues to assist with the implementation, adaptation, modification, and evaluation of the campaign.



Highlights:

- Conducted citywide analysis of Urban Tree Canopy that laid groundwork for creation of the campaign
- Created an updated bibliography of urban forestry research that is publicly accessible for download via the NRS UFS website
- Coordinating a diverse team of academic, municipal, and nongovernmental researchers and practitioners as co-chairs of the Million Trees Research Subcommittee. This committee is currently developing research and evaluation priorities for Million Trees and planning a 2009 research symposium.

GIS Analysis of New York City's Ecology: Using spatial analysis tools to assist the Million Tree Campaign

Advanced spatial analysis students from the Rubenstein School of Environment and Natural Resources at the University of Vermont are working with FS scientists and natural resource professionals from NYC Parks in the Summer/Fall 2008. The course began with a four-day site visit to New York City in August where students met with leadership at NYC Parks, neighborhood stewardship groups, and other city and federal agencies. Students will design and develop several alternative methods to determine priorities for planting. Selection of priority areas will identify the need for new vegetation, accounting for factors like the level (and potential health) of vegetation cover, land use, socioeconomic characteristics of residents, and proximity to other features, both natural and built. Using data from recent FS and NYC research, students will ultimately develop prescriptive prioritization maps for targeting tree planting and other 'green investments.' A Model builder environment in ArcGIS will be used to formalize the processes students develop and, in doing so, generate tools that can be re-deployed by the City. Final spatial models and projects will be shared with all partners in December 2008.



NRS Leads Grove, O'Neil-Dunne

Highlight: Fourteen graduate and advanced undergraduate students bring their knowledge to a real-time urban ecological management challenge.

Advising NYC Mayor's Office of Long Term Planning and Sustainability

The NYC Mayor's Office of Long Term Planning and Sustainability is developing indicators to gauge the City's progress on the 127 sustainability initiatives encompassed in Mayor Michael Bloomberg's PlaNYC 2030 (<http://www.nyc.gov/planyc2030>). Forest Service researchers from three different NRS units advised the Mayor's Office, along with NYC Parks partners, on metrics related to urban forestry, air quality, water quality, environmental stewardship, human health, and neighborhood quality of life. FS researchers will continue to advise, as per letter of request from Mayor's Office.

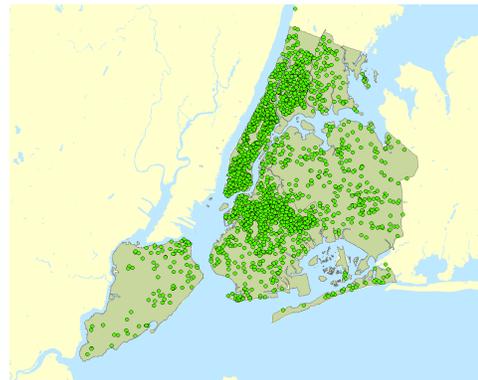
NRS Participants: Svendsen, Campbell, Grove, Nowak, O'Neil-Dunne, Twery, Westphal

Highlight: Metrics related to Urban Tree Canopy and Carbon sequestration are being considered for immediate use by the city; stewardship, water quality, and tree mortality rates continue to be areas of interest.



Stewardship Mapping and Assessment Project (STEW-MAP)

STEW-MAP fills the gap in understanding about how individual citizens, non-profit organizations, businesses, and governments work together as environmental stewards by conserving, managing, monitoring, advocating for, and educating the public about their local environments (including water, land, air, waste, toxics, and energy issues). A structured assessment of almost 2,800 NYC based non-profit or community-based stewardship groups was completed in 2007. Researchers conducted more than a dozen presentations on methodology, findings and applications, including: an UNRI webcast; an ISSRM coordinated session with researchers from UK and Australia; and presentations to local data providers, constituents, natural resource management agencies, and funders. Through an RJVA with the City University of New York, the STEW-MAP team is engaging with GIS and web designers to make data and maps publicly available on OASIS in FY2009.



http://www.nrs.fs.fed.us/nyc/focus/stewardship_mapping/

NRS Leads: Svendsen and Campbell

Highlights:

- Published "Urban ecological stewardship: understanding the structure, function and network of community-based urban land management" in *Cities and the Environment* <http://escholarship.bc.edu/cate/vol1/iss1/4/>
- Responded to STEW-MAP data requests from local land managers, including Mayor's Office of Long-term Planning and Sustainability climate change preparedness project; NYC Parks; Million Trees Campaign; and the Brooklyn Waterfront Greenway

New York City's CarbonPlus Calculator

This calculator is based initially on the structure of the U.S. EPA Personal Emissions Calculator which has been customized to use localized parameters in energy calculations. FS researchers working in partnership with the city of Boston and Davey Tree initially customized the parameters for Boston. Specific calculations of the energy benefits of trees, local utilities, plus other information about the roles trees play in urban settings are being modified for other localities. FS researchers are now working with NYC Parks and the Mayor's Office to design a version of this calculator for New York City; scheduled for completion in January 2009. <http://carboncalculator.growbostongreener.org>.

NRS Lead: Twery

Highlight: The completed version 2 of the CarbonPlus calculator will be programmable by individual localities for their specific conditions without redesign or new development required.

Young Street Tree Mortality Study

This study was initiated by NYC Parks Central Forestry and The Tree Trust and includes researchers from the Forest Service, Rutgers University, and Parsons New School for Design. A large scale study, it investigates multiple factors related to survival and mortality of New York City's young street trees. Specifically, the team is studying environmental and neighborhood characteristics to determine planting and stewardship strategies that will most likely prolong the life of an urban street tree. Descriptive statistics, attribute maps, exploratory analysis, and hypothesized causality relationship diagrams have been generated. Preliminary report will be completed FY2009.

NRS Leads: Svendsen and Campbell

Highlight: Over 14,000 street trees were inventoried using biophysical and social field observation methods during the summers of 2006 and 2007.



Restorative Commons: Creating Health and Well-being through Urban Landscapes

Restorative Commons is an edited volume being published by the Forest Service in January 2009. This volume builds from a conference that the nonprofit Meristem organized at the New York Academy of Medicine, exploring the relationships between human health, well-being, and the urban landscape. This volume documents some of the most compelling practices and principles that are currently



utilized to create restorative commons – either as small-scale experiments or as larger efforts to “institutionalize innovation”. It includes academic writing of researchers in the fields of medical history, evolutionary biology, and urban planning. And it couples this writing with practitioners’ knowledge presented as essays, thought pieces, and interviews. The observations of practitioners and writings of theorists echo each other’s recognition of the primacy of citizen stewardship and creative design in developing new health-promoting environments.

NRS Leads: Campbell, Svendsen

Highlight: Created a FS-published edited volume with 19 contributors spanning multiple academic disciplines and natural resource management fields. The book is being designed by NYC firm *Pure+Applied* and is intended to appeal to the public, researchers, and practitioners – including the design community.

Bronx Youth Urban Forestry Empowerment Program:

This project provided underserved youth from the Bronx sustained, hands-on education through employment in tree care, tree identification, tree pit gardening, tree inventory, parkland habitat restoration. It was funded through a 2008 More Kids in the Woods Grant, in a core partnership with Trees New York and the NYC Housing Authority. The program aimed to increase the students’ understanding of their local environment and related social issues by empowering them to become stewards of their urban environment, starting with the landscape at the Soundview public housing development and moving outward to local and regional natural resources. This internship also intended to enhance students’ reading, critical thinking, work readiness and problem-solving skills. NRS staff conducted structured program evaluation of project outcomes and impacts, in partnership with University of Michigan researches behind My Environmental Evaluation Research Assistant (MEERA).



NRS Leads: Campbell, Smith, McGuinness

Highlight: Actively engaged 19 urban youth with their local open space and urban forest through paid summer employment; pre and post test evaluation found a statistically significant increase in measure of self-efficacy and self-confidence for these participants.

Nature Fieldwork Partnership

Jointly with the Harlem Link Charter School, NRS UFS created a Nature Fieldwork Partnership that brought the elementary school's students to surrounding forests, wetlands, and restoration sites throughout the New York City region. This project was funded through the 2007 More Kids in the Woods program. The goal of this Partnership is for urban students to have a meaningful, hands-on experiential learning experience with public lands that will make a lifelong impression. Harlem Link students experienced large, natural environments through physical activity--walking or hiking—which was a second main goal of the Partnership. The children demonstrated a natural curiosity for increasing their environmental knowledge.



Following on the 2007 Partnership, the Cooperative Agreement was extended in to fund administration, consultants, and staff to work on the further integration of field-based, ecological education into the school's overall science curriculum.

NRS Leads: Campbell, Svendsen, Twery, McGuinness

Highlight: 216 youth in first and second grade, the majority of which come from underserved communities, visited three regional natural resource areas and participated in experiential environmental education in 2007-2008 school-year.

Green Collar Mentoring Series

Supported by FS Civil Rights Special Project funding, this series introduces teenagers living in public housing to environmental careers through mentoring sessions provided by leaders in the urban environmental, forestry, and horticulture fields who are themselves from minority communities. The project introduced themes of ecological awareness with a focus on real educational and career opportunities. Outreach sessions at New York City Housing Authority community centers included discussions of opportunities for stable employment and advancement in these fields, and the importance of environmental literacy and natural resource management in the urban environment, supported by hands-on field projects. Research components were integrated into the sessions to provide meaningful data for future programs. NRS researchers are authoring an article about the environmental knowledge and attitudes towards green collar jobs of urban, minority teenagers based on field observations and group discussion. NRS UFS received the 2008 Civil Rights *Outstanding Location* Award.



NRS Leads: Campbell, Smith

Highlight: 54 teenage residents of public housing were exposed to mentors with green collar jobs; hands-on field data collection; and group discussion about urban ecological research, management, and careers

Living Memorials Project (LMP)

The Living Memorials National Registry project was started in New York City to collect, analyze, and present the dispersed public response to the tragedy of September 11, 2001 through the urban landscape. "Land-markings: 12 Journeys through 9/11 Living Memorials" is a multimedia award-winning exhibition that compresses four years of this research and analysis on over 700 living memorials into 12 journeys. Through an RJVA with CUNY, researchers are updating the technology of the LMP National Registry database. A partnership with a UVM spatial analysis course in fall 2008 will create an update to the LMP map. NRS researchers are authoring a peer-reviewed article for submission in FY2009 to a special journal issue on commemorative landscapes.

