The Vermont Monitoring Cooperative

2012 Request for Proposals

Date: April 1, 2012

Proposals Due: May 15, 2012 (by 4:30 PM)

Project Dates: July 1, 2012 to June 30, 2014

Project Description

The Vermont Monitoring Cooperative (VMC) is requesting research proposals designed to estimate tree growth and identify patterns or trends in growth rates over the past two decades at a long-term study site in Vermont, located on Mt. Mansfield***** (see map). The VMC Mt. Mansfield intensive study site has historical data on forest condition, wet deposition chemistry and air quality, and weather. The proposed project should utilize available data from the VMC data archives, as well as relevant data from other Vermont sources, as much as possible.

The contractor should consult with the Vermont Department of Forests, Parks and Recreation prior to beginning the project. Any field work on Mt. Mansfield must be conducted in coordination with personnel from the Department of Forests, Parks and Recreation. This includes securing any necessary permits for field sampling activities on the site.

The work funded under this RFP should address yearly growth rates and assess growth responses to different stressors measured by tree wood signals, dendrochronology and/or wood density. Stressors should be identified by the proposer along with proposed methods to relate them to forest growth data. The VMC study site at Mount Mansfield may represent "ideal" environmental conditions, since this site is somewhat isolated from some anthropogenic stress factors.

The analyses of growth trends compared to environmental variables should be focused on the last 20 years to correspond with the VMC archive of air quality, wet deposition chemistry, disturbance events and weather data. The project selected for funding will be viewed as a pilot study, using this VMC intensive study site, that could lead to additional growth rate assessments with a broader selection of landscapes, forest types, and management regimes in subsequent years.

*****_If there is time within the contract and budget constraints shown, the selected contractor will be asked to work with VMC and the Green Mountain National Forest to initiate growth analyses on a second VMC intensive site located at the Lye Brook Wilderness Area in southern Vermont._

Background and Mission

The Vermont Monitoring Cooperative (VMC) is a partnership among the USDA Forest Service, the Vermont Agency of Natural Resources and The University of Vermont. VMC was established in 1990 to track changes occurring in Vermont's forests. This cooperative effort collects, assembles, and distributes high-quality, documented data and information to promote better understanding of environmental changes and their impacts on Vermont's forested ecosystems. The VMC's mission is: "To provide the information needed to understand, manage, and protect Vermont's forested ecosystems within a changing global environment". The VMC data library provides a dedicated, centralized, and stable location for storing, maintaining, and distributing important ecological data. VMC stakeholders include other scientists, resource managers, community members, government agencies and policy makers, non-government organizations, businesses, and educators.

Project Goals

1. Assess patterns and trends in forest growth over the last 20 years on the VMC intensive research/monitoring site located on Mt. Mansfield;

2. Determine growth rates for key forest tree species (sugar and red maple, yellow birch, beech, hemlock, balsam fir and red spruce) in the three major forest cover types - deciduous, coniferous and mixed forest, and

3. Identify significant environmental drivers in varying growth rates, including:
    - **a.** Historical weather data (i.e. temperature, precipitation, wind and light);
    - **b.** Precipitation chemistry and deposition (NO_3, SO_4, Hg, and cations, pH and etc.);
    - **c.** Documented stress events (pests, pathogens, wind or ice events and etc.) and
    - **d.** Other potential stress agents.

Project Deliverables

1. A detailed report, preferably ready for refereed journal submission, including analysis of:
    - **a.** Yearly forest basal area increments for Mt. Mansfield
    - **b.** Long term trends or patterns in basal area increment
    - **c.** Differences and/or similarities in growth rates among the major forest types
    - **d.** Comparison to other regional studies of forest growth rate dynamics and long-term trends.
    - **e.** Primary environmental drivers of growth rates and
    - **f.** Comparison of species growth rates

2. A complete documented and spatially referenced dataset suitably formatted for the VMC data library.

Results should be expressed as diameter growth increment change (i.e. basal area increment; cm^2/yr.). All data should be available for *public access* at a negotiated date following termination of the project. The project reports should also address the following questions.

1. What insights have been gained about how well our high elevation forests are growing? Are recent growth trends consistent with a healthy, productive forest? How do growth rate trends correlate with environmental parameters such as weather/climate, air quality and precipitation chemistry, forest health measurements and etc. (recorded by VMC)?

2. What data gaps still need to be addressed for VMC to effectively meet its mission?

Timeline

April 1, 2012	RFP released
May 15, 2012	Proposals due
June 4, 2012	Successful proposal announced
July 1, 2012	Project to begin
June 30, 2013	Progress report due to VMC
June 30, 2014	Final report and complete documented dataset due to VMC

Proposal format

Proposals should not exceed 10 pages in length, including graphs and figures, but excluding references and curricula vitae. Font size should be no smaller the 12-point and pages should have no less than 1" margins. All proposals should have the following sections:

Cover Page
- Project Title
- Lead Principal Investigator***** (Name, Institution, Address, Phone(s), FAX, and E-mail)
- Co-PIs, Cooperators, and Other Participating Institutions (with contact information)
- Total Amount Requested *and the Amounts Requested per Project Year*

Project Summary

Project Description (include problem statement and a review of pertinent literature)

Goals and Objectives

Research Approach and Methods

Project Timeline

Expected Products, Outcomes and Deliverables

Budget Details *(by Project Year)* and Narrative, with Justification

References

One-page Curriculum vitae for all PIs, Co-PIs and Cooperators listed on the cover page

Evaluation Criteria

Proposals will be evaluated, assessed and ranked based on the following criteria:

- The scientific soundness of the proposed research and likelihood that the results will accomplish the project goals and produce the required deliverables;
- The apparent ability of the contractor to implement and complete the project within the contract timeline;
- The experience and qualifications of the contractor and project team; and
- The cost of the proposed research.

Project Funding

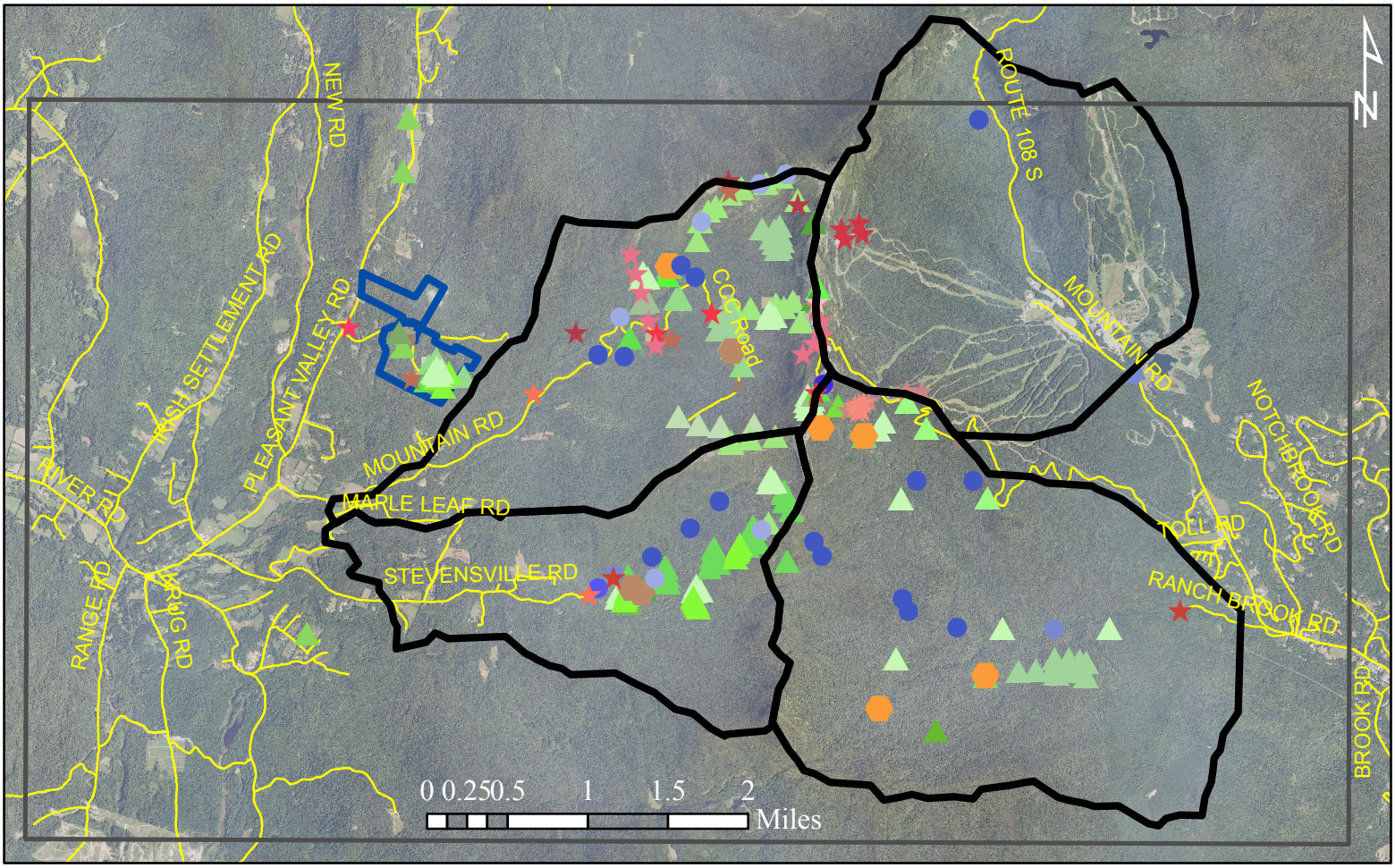
Up to $40,000 may be requested and used for project activities over two project years. Funding for a second year of work will be dependent on significant, demonstrated progress being shown in the form of data and results during project year one.

Proposal Submission

Proposals will be submitted in electronic format (WORD or PDF) only to:

Carl Waite, Program Coordinator (carl.waite@uvm.edu)
Vermont Monitoring Cooperative
George D. Aiken Forestry Sciences Laboratory
705 Spear Street
South Burlington, VT 05403
(802) 656-0683

Mount Mansfield Intensive Site



- VMCBORDR Polygon
- Stevensville Brook Watershed (SW)
- Ranch Brook Watershed (SE)
- Browns River Watershed (NW)
- NE_Watershed
- Proctor Maple Research Boundary

Air Project

- Air Quality
- Ozone Bioindicator
- Ozone Biomonitoring
- Source And Sinks Of Chloroform
- TOWER
- Weather

Water Project

- Acid Precipitation Monitoring
- Cloud Water Chemistry Monitoring
- Groundwater Recharge
- Stream Algae
- Stream Chemisty
- Stream Gage

Forest Project

- Birch Health
- Birch Productivity
- Cold Hardiness Of Balsam Fir
- Fall Color
- Forest Health Monitoring
- Forest Health Monitoring Research
- Forest Tent Caterpillar
- Gyspy Moth Monitoring
- Hemlock Looper Trap
- Ice Damage Canopy Photography
- Nitrogen Resorption
- Pear Thrips Monitoring
- Red Spruce Growth
- Spruce Budworm
- Sugar Maple Regeneration and Liming
- Trail Treadway Impact
- Tree Nutrition
- Tree Phenology
- Tree Physiology
- Tree Species Elevation Limits
- Vegetation Analysis

Wildlife Project

- Amphibian Monitoring
- Amphibian Survey
- Aquatic Biomonitoring
- Bicknell Thrush
- Bird Transect
- FBCommTrans
- FBPitfallTraps
- FBPreyBiomass
- Insect Survey
- Small Mammals
- Stream Biology

Soil Project

- Soil Climate
- Soil Mercury
- Soil Monitoring