NORTH ATLANTIC LANDSCAPE CONSERVATION COOPERATIVE GRANT 2014 PROGRESS REPORT

Quarter: (circle one)   2014 1st 2014 2nd (2014 3rd)   2014 4th

Grant Program, Number and Title: Priority Science Grant Program, NALCC 2013-03
Conserving Important Habitat for Amphibians and Other Wildlife: Compilation of Vernal Pool Mapping Efforts across the North Atlantic Region.

Organization: Vermont Center for Ecostudies

Project Leader: Steve Faccio

Abstract: Please provide a short (1-2 paragraphs) abstract that addresses EACH of the following: the objectives of your project, accomplishments to date, future plans and timelines with an estimate for when the project will be completed.

This project has four primary objectives: 1) compile a comprehensive database of vernal pool locations; 2) describe the vernal pool mapping and verification approaches currently being employed in the region; 3) develop a remote sensing method using LiDAR to efficiently identify potential vernal pool locations; and 4) prioritize areas for future vernal pool mapping.

During the third quarter, we made significant progress developing a methodology to identify woodland vernal pools using LiDAR. Focusing on Addison County, Vermont, and utilizing the software, eCognition, we used LiDAR derivatives to first identify depressions on the landscape that may or may not be actual vernal pools. We then experimented with a variety of input datasets to reliably predict which of those depressions have a high probability of being functional vernal pools. We determined that the two most reliable input datasets are, 1) high-resolution, leaf-off (spring) color-infrared (CIR) imagery, and 2) LiDAR Intensity data. We also began to experiment with LiDAR data from southern NJ in order to identify vernal pools in the coastal plain region.

In addition, S. Faccio attended the NEPARC meeting in August and gave an oral presentation about the Vernal Pool Data Cooperative (VPDC). He also led a discussion during the Vernal Pool Working Group breakout to address questions and solicit feedback about the project, which was well-received by the NEPARC group.

During September we finalized our plans to host a Mid-Atlantic Vernal Pool Workshop on Oct 24th in Smyrna, DE. The 1-day workshop will feature an introduction to the VPDC and our LiDAR modeling work, presentations on state vernal pool mapping efforts, facilitated breakout discussions, and a field trip. The workshop is free to all attendees and includes overnight accommodations provided by the DE DNREC.

Future plans include refinement of rule sets for identifying woodland vernal pools remotely for two different bioregions (central VT and southern NJ). We will also begin to request vernal pool datasets from our growing list of cooperators in order to begin populating the database.

Were planned goals/objectives achieved last quarter?

Yes (see planned and accomplished goals/objectives in matrix below).

Progress Achieved: (For each Goal/Objective, list Planned and Actual Accomplishments)

Goal/Objective	Planned	Accomplished by 30 Sep.
Goal 1 - Compile a comprehensive dataset of vernal pool locations in the NALCC region, including potential and verified pools.		
Assemble project steering committee and hold first conference call	X	X
Plan and host regional workshop at NE Natural History Conference	X	X
Present oral paper at NEAFWA Conference	X	X
Build database to archive geospatial and associated attribute data	X	
Build a metadata library	X	
Host workshop at NEPARC meeting (western NY)	X	X
Receive and archive data into database; proof and complete metadata	X	
Present a draft of the VPDC framework for review at the fall meeting of the NE Fish and Wildlife Diversity Technical Committee (pending an invitation)	X	
Provide vernal pool data to NALCC	X	
Goal 2 – Compile and describe the various mapping and certification approaches currently being employed in the region		
Identify and review all coordinated mapping projects	X	
Prepare review document	X	
Goal 3 – Develop a method to identify potential vernal pools using Light Detection and Ranging (LiDAR) technology and object-based image analysis (OBIA)		
Compile vernal pool and LiDAR data for NJ and VT	X	X
Conduct preprocessing of LiDAR and other (NHD) data and imagery	X	X
Define characteristics of vernal pools in LiDAR	X	X
Prototype OBIA expert system	X	X
OBIA system development	X	
Evaluation and Accuracy Assessment	X	
Reporting	X	

Difficulties Encountered:

NA

Activities Anticipated Next Quarter:

1) Incorporate feedback from workshops and meetings into planning and development of VPDC
2) Complete database and metadata library
3) Continue identification and review of all coordinated mapping projects
4) Refine rule sets for identifying vernal pools remotely using LiDAR
5) Update steering committee on progress and seek feedback

<u>Expected End Date:</u>

December 2015

<u>Costs</u>:

Total life to date expenses (include this quarter): $30,659.81

Total Approved Budgeted Funds: $100,000

Are you within the approved budget plan and categories? Yes

Signature:

Date: October 8, 2014