

NORTH ATLANTIC LANDSCAPE CONSERVATION COOPERATIVE GRANT 2014 PROGRESS REPORT

Quarter: (circle one)

2014 1st

2014 2nd

2014 3rd

2014 4th

Grant Number and Title: **NALCC 2012-01 Extending Habitat Map into Canada**

Grant Receipt/Organization: The Nature Conservancy

Grant Project Leader: Dr. Mark Anderson

Were planned goals/objectives achieved last quarter? Yes

NALCC Conservation Need Addressed: Supporting a Standardization of Terrestrial and Wetland Habitat Classification and Mapping that Includes Characterization of Climate Sensitive Systems.

Progress Achieved: (For each Goal/Objective, list Planned and Actual Accomplishments)
This quarter we moved into the mapping phase.

Summary of Progress: (Provide a paragraph describing progress, work to come, and timelines)
As of this point we have finalized the classification and compiled and processed all the necessary dataset for mapping. This includes the four Provincial Forest Inventory datasets that now have standard attributes on tree composition and environmental datasets on climate, soil, bedrock etc. This quarter we begin the mapping process and discovered the volume of information was more than our systems could process, so we developed new methods to subdivide and model the ecological systems. We presented early results for conifer forest types to the steering committee and received very useful feedback and ideas for both shortcuts and ways to improve the models. Specific goals were as follow:

Goal 1) Host Web/Phone meetings with the steering and classification committees to bring them up to date on progress and to get feedback, and to review the developing habitat classification.

Extensive communications with individual Canadian scientists happened early in the quarter, as we firmed up our understanding of the ecological systems and sought input on the best approaches to mapping them. Later in the quarter we host a Web-ex phone meeting with members of the committees in which we presented progress and problems to date and again asked for any suggestions and advice they might have. To prepare for this we developed sample maps of conifer systems in Nova Scotia. The committee was very engaged with the work and gave thoughtful feedback on the samples and mapping process. We will come back to them repeatedly in the next quarter to present results to date and ask for review.

Goal 2) With the help of the Canadian ecologists, make any required refinements to the habitat classification, and finalize it.

Done. The classification is finalized and we have developed mapping signatures for most of the types. These have been tested for conifer forests.

Goal 3) Make a major push to map out forested and wetland systems in the classification, using provincial forest inventories and other biological datasets, along with supporting environmental data. The Nova Scotia forest inventory is extremely detailed and contains information on (among other things) overstory tree species mixes for about 800,000 forested stands. This is both a blessing and a bit of a curse, as the huge amount of information, at the same time that it holds potential for accurate habitat mapping, poses real challenges for structuring in such a way that it can be used in mapping these often generalized system types. We had to experiment with multiple ways of processing all the information, and after a few dead ends we developed and applied an algorithm that classifies the stands into one of 60 or so conifer-dominated, mixedwood, or hardwood-dominated forest types. These types are similar to the “forest unit name” (FUNA) attribute used in the New Brunswick forest inventory, though they have been altered in some cases to suit our ecological mapping (as opposed to silvicultural) objectives. In tandem with the more than 30 geographic, climatic, and topographic variables each of the forest stands has been attributed with, we have good tools to discriminate and map system types. In addition, we used powerful decision tree classification software in Nova Scotia to split out two upland forest systems that were tightly intermixed, and we will use that tool in the future when we encounter similar situations.

3b) Develop a process for modeling systems for industrial forest areas in New Brunswick where biological data is lacking. (It appears we will not be able to procure data from Irving, for example.)

In a late development, it appears The Irving Timber Company may be willing to let us use the forest inventory data for their extensive holdings in New Brunswick, something they’ve till now been reluctant to commit to. This has the potential to save us some time and effort in that province.

Difficulties Encountered:

As described above the major difficulty we encountered was the sheer volume of information. The method we developed to deal with this is in some ways more similar to how we mapped the Northeast US, and should allow us to finish the product by the end of January as expected. The timeline is short, there is much to do, but we have a methodology down and things should go well.

Activities Anticipated Next Quarter:

Goals for the upcoming Quarter include:

- Finish the mapping for 1) terrestrial upland habitats in Nova Scotia, 2) wetland habitats for Nova Scotia. Send out for review in early November, then repeat for 3) New Brunswick, 4) PEI, and 5) Quebec.
- Consult at very regular intervals with ecologists and foresters in the respective provinces, to make sure the final products reflect what they know of the distributions of these habitats.
- Toward the end of the quarter we will host another call with the steering committee to present results and get feedback.

- Integrate the final results into a single unified map across the provinces and across the Canada/US border.

Expected End Date:

We have received a no-cost extension to January 31, 2015 on the USGS NECSC award through the University of Massachusetts. Since this NALCC award ends on February 28, 2015, we will be able to ensure that all deliverables between USGS and NALCC are completed on schedule.

Costs:

Total life to date expenses (include this quarter): \$ 74,073.31

Total Budgeted Funds: \$95,238.00

Are you within the approved budget plan? Yes

Signature:

A handwritten signature in black ink, appearing to read "Mark Anderson", is enclosed within a thin black rectangular border.

Mark Anderson
Director of Conservation Science
The Nature Conservancy, Eastern Division

Date: Oct. 29, 2014