

# NORTHEAST REGIONAL CONSERVATION NEEDS GRANT QUARTERLY REPORT

Grant Number: 2011-05

Grant Title: Permeable Landscapes for Species of Greatest Conservation Need.

Grant Receipt: The Nature Conservancy

Grant Contact Name: Mark Anderson

Report # 3 (July 1, 2012 through September 30, 2012)

Were planned goals/objectives achieved last quarter?

*Yes*

Regional Conservation Need Addressed: RCN Topic 4: Identification of Regional Focal Areas and Corridors for the Conservation of Species of Great Conservation Need in the Northeast

Progress Achieved:

## **GOAL 1: Update and enhance base resistance grids**

We have been working on improving our base resistance grids. We are updating the base grids from NLCD 2001 to NLCD 2006. We are also updating the roads grid and railroads to the latest base datasets distributed with ArcGIS 10.

The major updates and changes we have made to the weighting of resistance grid are:

1a. Separate Hay/Pasture from Cultivated Crop. Use an ecoregional stratification to apply this section:

- 1) Weight Cultivated classes with 80
- 2) Weight Pasture with 30 in Coastal plain
- 3) Weight Pasture with 50 in the forested part of the region

In the coastal plain areas there is less difference in landscape between hay/pasture and other natural lands. In the more mountainous part of the rest of the ecoregion there is a more stark contrast between dense forests and hay/pasture lands. This contrast would cause more resistance.

1b. Weight Water based on Distance from Shore (NLCD value class 81). Water body resistance depends on several factors such as size, width, impounded etc. River and lake shoreline can act as a conduit for species movement and needs to be treated as natural. We decided to weight water bodies based on the distance from shore:

- 1) 0 – 200 meter buffer – score of 10 – same as natural
- 2) 200 -500 meter buffer – score of 30
- 3) Above 500 meters – score of 50

1c. Further Separate “Barren” Land. The Barren Land Category in the NLCD contains two very different kinds of land with very different resistance values. The first is barren natural land like sandy beaches, mountaintops, and rocky lakeshores. These are barren and natural. The other types of natural land are barren and highly disturbed/developed things like mines, quarries and bombing fields. The Northeast Habitat map separates and identifies these two different types of barren land. This was integrated into the resistance grid.

**GOAL 2: Program the processing of the input data to run regional connectivity.**

The method developed to run the regional connectivity model/circuitscape requires tilling and a significant amount of preprocessing to run the analysis. Doing this preprocessing is feasible if only running a single final run, but it will be more efficient to run multiple scenarios with the input data creation automated. During the past quarter the input steps were automated with scripting in python.

Difficulties Encountered: None yet.

Activities Anticipated Next Quarter:

- Re-run resistant kernel analysis for the Northeast (or at least NAP) with the 2006 NLCD and resistance layer improvements.
- Write program in python to automate individual runs of the circuitscape tiles for regional connectivity and also post process the results to create the final grid.
- Change the regional connectivity parameters (cell size, tile size, water weighting) to improve the model and test the sensitivity of the model to input parameters.

Costs:

Are you within the approved budget plan? Yes

Are you within approved budget categories? Yes



Signature: Mark Anderson, Director of Conservation Science

Date: October 30, 2012