

NORTH ATLANTIC LANDSCAPE CONSERVATION COOPERATIVE GRANT 2013 PROGRESS REPORT

Quarter: (circle one)

2013 1st

2013 2nd

2013 3rd

2013 4th

Grant Program, Number and Title: Grant 2011-07; **ASSESSING PRIORITY AMPHIBIAN AND REPTILE CONSERVATION AREAS (PARCAS) AND VULNERABILITY TO CLIMATE CHANGE IN THE NORTH ATLANTIC LANDSCAPE**

Organization: Association of Fish and Wildlife Agencies, University of Maine (USGS MCFWRU), Clemson University

Project Leader: Priya Nanjappa

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.

Were planned goals/objectives achieved last quarter? **YES**

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

Objective 1: *Work directly with state fish and wildlife agency personnel throughout the NA-LCC states to gather data toward PARCA criteria review and proposed conservation area identification.*

Clemson: On January 27 – 28 Barrett travel to Orono, Maine to meet with the U Maine/MDIFW team (deMaynadier, Loftin, Moody) to discuss progress and goals associated with data collection from state fish and wildlife agencies. Specifics of how to assign PARCAs and how to map future vulnerabilities were also discussed.

UMaine: Moody has requested and received species occurrence data from across the Northeast including DC, which previously had been unresponsive to data requests. The occurrence data received from the states continue to be assembled into a database and spatial information are being associated with the data. Moody, Loftin and deMaynadier have drafted an outline of how further information from stakeholders will be elicited and used in the modeling process.

AFWA: Nanjappa is assisting to contact the two remaining states to obtain data.

Objective 2: *Provide spatially-explicit maps of current and future climatic suitability for priority amphibians and reptiles in the NA-LCC region, and then use these data a) to rank species vulnerability to climate change based projected losses in the species' ranges, and b) to identify areas within the NA-LCC where either there are high losses of vulnerable species or there is high potential for climatic refugia for priority species, and c) identify species for which this Objective cannot be completed due to gaps in current known distributional data and thus identifies priorities for species data acquisition.*

Clemson: Climatic niche models have been constructed for all target (high priority) amphibians and reptiles within Maine (state selected as a pilot area for PARCA assignment). In addition, these models have been used to evaluate future climatic suitability for these same species (mid-century).

On February 18 Dr. Bill Sutton began work on this project as a Postdoctoral Research Associate. (25% of Sutton's time is allocated toward the project.) Dr. Sutton has acquired computing resources, the necessary species and landscape data, and has been actively working to assemble a workflow that will allow us to assess climatic suitability for target species and overall future vulnerability of PARCAs due to climate change and land use change. This workflow will incorporate metrics to assess the overall exposure, sensitivity, and adaptive capacity of PARCAs to climate change.

UMaine: A list of priority species according to the PARCA criteria has been drafted using a list of northeastern reptiles and amphibians and their threat status (as described in the previous progress report). Modeled species occurrence data from national GAP were downloaded where available. Climate data (temperature and precipitation) for current and future conditions under three different climate scenarios have been received from Brad Compton, Joanna Grand and Kevin McGarigal at University of Massachusetts. Other significant national datasets for species distribution modeling have been obtained (e.g. National Wetlands Inventory, WorldClim, National Elevation Datasets, impervious surfaces data layer). Moody has developed several models of species distributions in Maine using MaxEnt as a pilot for the larger region. DeMaynadier and Loftin have ranked importance of variables to be considered for each species prediction model in a spreadsheet. These variables will be used by Moody in MaxEnt modeling for the species distributions in Maine.

Objective 3: Summarize these results with respect to species occurring on lands under current state and federal management.

UMaine: Data layers containing location of and jurisdictional information for conservation lands have been downloaded to allow for this future summarization.

Objective 4: Conduct an analysis of candidate PARCAs to help identify those highest priority conservation areas supporting reptiles and amphibians in the Northeast that are not currently protected.

This objective has not yet been addressed.

Objective 5: Incorporate climate vulnerability projections into final PARCA analysis, including a ranking of high priority current and future conservation areas.

This objective has not yet been addressed, though see Objective 2 above.

Objective 6: Communicate results to key state, federal, and NGO partners via publications and a Northeast regional workshop.

An email thanking our partners for their cooperation and outlining the next steps in the process has been sent. An overview presentation by Moody and a breakout workshop for all interested people (including partners) has been tentatively scheduled for the Northeast Partners in Amphibian and Reptile Conservation Meeting in New Jersey in July 2013.

Difficulties Encountered:

We still have not heard from two states (Connecticut and Pennsylvania) regarding data. Unfortunately, this lack of response may suggest concerns with our project or with data sharing in general; however, we have not yet been able to reach our contacts to learn more about their concerns or determine how we can still collaborate with them. Nanjappa will be following up further with these state contacts.

Activities Anticipated Next Quarter:

- 1) (All) Continue monthly progress update conference calls among the team
- 2) (Clemson) Identify all species for which data are insufficient to generate a climatically-based niche model (Clemson)
- 3) (Clemson) For species with sufficient data, we will continue to build climatically-based niche models.
- 4) (AFWA) Continue to try to contact CT and PA regarding data sharing and any related concerns.
- 5) (UMaine) Begin review of Maine priority species and habitat/climate associations with experts in the state (university, agency, and non-agency herpetologists)
- 6) (UMaine) Create spatially-explicit maps of currently suitable habitat for priority species using the results of the above process and use this information to determine draft PARCAs, with initial focus on Maine species
- 7) (Clemson) Further develop and test the vulnerability framework
- 8) (UMaine) Present pilot to partners at NEPARC meeting in view of soliciting experts to review the larger PARCA project

Expected End Date: Dec. 31, 2014

Costs:

Total life to date expenses (include this quarter): **\$95,556.73** (2012 Q4: \$73,883.47 + 2013 Q1: 2,354.89 Clemson University + 19318.37 UMaine + \$0 AFWA)

Total Approved Budgeted Funds: **\$315,902**

Are you within the approved budget plan and categories? **YES**

Signature:

A handwritten signature in black ink, appearing to read "F. J. H. H. H.", is written over a light blue horizontal line.

Date: 23 April 2013