

NORTH ATLANTIC LANDSCAPE CONSERVATION COOPERATIVE GRANT 2015 PROGRESS REPORT

Quarter: (circle one) 2015 1st 2015 2nd 2015 3rd 2015 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 CONSERVATION COOPERATIVE**

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

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Project Scientists: Cynthia Loftin, U.S. Geological Survey-Maine Cooperative Fish and Wildlife Research Unit
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Phillip deMaynadier, Maine Department of Inland Fisheries and Wildlife

Kyle Barrett, Clemson University

Allison Moody, University of Maine (resigned from project August 2014)

Were planned goals/objectives achieved last quarter? The UMaine and Tennessee State University team have made significant progress towards completing project goals and objectives. We are on track to continue this progress in the next quarter. Details are provided below.

July-September 2015 Activity Summary

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.*

Draft PARCA development and distribution to state experts for review

We completed development of draft PARCAs and distributed materials to state experts for their review. Each state and the District of Columbia received a letter (see attached example for MA) requesting their assistance with evaluating the modeled draft PARCAs, a printed narrative document describing our PARCA modeling process (see attached), printed maps of the draft PARCAs in each EPA Level-III ecoregion in their state (see attached examples for MA), and a USB stick drive with digital copies of the maps. We included additional supportive materials (see attached examples for MA) on the USB drive for reference during map review.

Materials were mailed to the states in late September following contact by e-mail to alert them of the mailing. We will contact the experts in mid-October to query their progress, address questions, and discuss options for returning the evaluated maps to us in late-October/early-November. After we have received the “marked-up” maps, we will arrange a conference call with a shared desktop in early- to mid-November to discuss proposed edits to the draft PARCAs. We will use this opportunity to clarify the edits to the proposed draft PARCAs and gather information about why the experts suggested the changes to incorporate in our project summary. We anticipate finalizing the proposed PARCA boundaries in late November.

Our approach to spatially implementing the guidelines of Sutherland and deMaynadier (2012) was determined by available information about species distributions, species richness, and landscape integrity. Given that species GAP models were not available across the 12 states and DC and for all priority species, we used state-provided occurrence data supplemented with national databases (BISON and HerpNet) to model habitat

suitability. We used state-provided species richness data supplemented with richness calculated from range maps where state-level data were missing. We explored both the Natural Landscapes (Theobald 2010) layer and the UMass Designing Sustainable Landscapes (DSL) project's Index of Ecological Integrity (IEI) to represent landscape viability, and selected the DSL HUC6 IEI given its 30 m resolution and watershed scaling. Alternative approaches were used to model PARCAs in California and the southeastern US given data available in those regions. Currently, we are using Theobald's Natural landscapes layer, GAP maps (for comparison with the SE approach), and occurrence data (for comparison with the CA approach) for priority reptile and amphibian species to model draft PARCAs in Maine, to compare with the methods we used to model PARCAs in the northeast region. This evaluation will be summarized to provide guidance for approaches to PARCA mapping in other regions.

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.*

No recent activity.

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

Our draft PARCAs are mapped with lands identified in conservation management in the PADUS v.1.3 Protected Areas Database (<http://gapanalysis.usgs.gov/padus/>) so that state experts can identify where draft PARCAs and conservation lands co-occur. The draft PARCAs and PADUS lands were plotted on a road network basemap to facilitate locating the proposed PARCAs. Pending receipt of the draft PARCA evaluations, we may also explore the National Conservation Easement Database (<http://conservationeasement.us/>) to address this Objective, in particular for mapped PARCAs that do not fall on PADUS lands but that can be located with reference to the roads network.

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 will be addressed during November-December 2015 pending feedback from state experts on draft PARCAs.

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

Significant progress on this objective has been completed. We will apply the vulnerability framework developed by Drs. Sutton and Barrett to candidate PARCAs during December 2015-January 2016.

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

We mailed materials during late September 2015 to state experts for their review during October-November 2015. We presented our PARCA modeling approach at the PARC Symposium at the 2015 Society for the Study of Amphibians and Reptiles annual meeting in Lawrence, Kansas, in late July, and we incorporated feedback from those discussions (e.g., using state-provided richness data, evaluating the DSL IEI vs Theobald's Natural

Landscapes Index, scaling PARCAs to EPA Level-III ecoregions within states vs at the state-level) in our PARCA modeling process during August.

Activities Anticipated Next Quarter:

- Complete draft PARCA feedback process and incorporate suggested edits into the PARCA maps.
- Distribute final PARCA maps to state experts.
- While draft PARCAs are in state-review, we will delineate PARCAs following approaches used in other regional projects to compare with our approach.
- We will evaluate draft PARCAs with respect to conservation lands in the PADUS and National Conservation Easement datasets.
- We will begin incorporating the finalized PARCAs into the vulnerability assessment.
- We will begin development of manuscripts summarizing the project.

Expected End Date:

June 30, 2016

Costs:

Total life to date expenses (include this quarter):

- University of Maine= \$164,439.82; UMaine reimbursed WMI \$2,481.87. Final expenditures by UMaine = \$161,957.95
- Tennessee State University \$4,005.98

Are you within the approved budget plan and categories? UMaine revised the contract to move \$27,000 to Tennessee State University with an additional \$2,481.87 removed from the available funds. UMaine's final contact total expenditures = \$161,957.95.

Signature: _____



Date: October 7, 2015