Handout 15

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

In Response Reply to:
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September 11, 2013

Memorandum

To: Service Directorate

From: Science Advisor to the Director

Subject: Allocation of Adaptive Science Funding to Projects Supporting the Landscape Conservation Cooperative Network

A portion of the allocation of the FY2013 Service appropriations for Cooperative Landscape Conservation and Adaptive Science was retained in headquarters as a national funding source for the strategic development, support, and expansion of scientific information and decision support tools that benefit the entire LCC network or a substantial subset of LCCs. In order to best invest these funds in the LCC Network, and thus improve the ability of the LCCs to deliver priority conservation outcomes, we refined and implemented a collaborative multi-step process to identify the highest priority LCC needs and to solicit, evaluate, and prioritize project proposals that aimed to address these needs.

This process involved 1) the identification of two priority thematic areas by an ad hoc LCC Workgroup (with input from the LCCs and the Science Application ARDs); 2) the broad announcement on grants.gov of an open funding opportunity for projects that address these themes; and 3) the evaluation and prioritization of submitted proposals by a national review panel comprised of subject matter experts and representatives from the USFWS (Headquarters Program Areas), BLM, USGS, USFS, USEPA, NOAA, as well as LCC Coordinators, Science Coordinators, and the National LCC Coordinators.

The FY2013 national notice of funding availability was entitled *Landscape Conservation Cooperatives – Addressing National Science, Conservation Information, and Related Decision Support Needs.* The two thematic areas to target proposals within this funding opportunity were:

- *Theme A: Integrating Assessment and Planning for Aquatic Resource Conservation at Landscape Scales*

- *Theme B: Developing a Network of Ecologically Functional and Connected Landscapes by Facilitating Landscape Conservation Design*

In response, we received a total of 46 qualifying proposals with a cumulative funding request exceeding $7.4 million, approximately ten times the available funding. Using a tiered evaluation approach, the national review panel subsequently identified and recommended funding four projects that included the two highest ranked proposals from each of the two national thematic areas. After reviewing these projects, and in consideration of the project evaluations and the panel's recommendations, we have decided to fund

the recommended projects. These projects advance the mission of the LCC Network and will greatly enhance the capabilities of the LCC Network to meet its conservation goals. The suite of four projects has a cumulative funding request of $717,493 and will address important needs in both of the thematic areas identified in the national notice of funding availability.

Attached please find a summary table that identifies the project titles, principle investigators and their affiliations, and funding amounts to be provided (Attachment 1). Short summaries for each of the four selected projects are also appended (Attachment 2).

Thank you for your continued support of the LCC Network and its mission. We look forward to sharing the project outcomes as they are realized. If you have any questions, please contact Elsa Haubold (elsa_haubold@fws.gov) or Ben Thatcher (ben_thatcher@fws.gov).

Attachment 1 – FY13 National LCC Funding Opportunity Project Summary Table

Project Title	Principal Investigator	Affiliation	Funding Provided
Facilitating Landscape Conservation Design through a Network of LCC Conservation Planning Atlases	Dr. Tosha Comendant	Conservation Biology Institute, Corvallis, OR	$244,000
Integrating Approaches to Conservation Design across the LCC Network in the East	Dr. Frank R. Thompson	USFS Northern Research Station, University of Missouri, Columbia, MO	$154,685
A National Stream Internet to Facilitate Accurate, High-Resolution Status and Trend Assessments for Water Quality Parameters and Aquatic Biotas	Dr. Daniel J. Isaak	USFS Boise Aquatic Sciences Laboratory, Rocky Mountain Research Station, Boise, ID	$157,488
Systematic review of aquatic ecological integrity assessments in western North America: Identifying challenges and opportunities for integration into landscape conservation plans	Dr. Julian Olden	School of Aquatic and Fishery Sciences, University of Washington, Seattle WA	$161,320

Attachment 2 – FY13 National LCC Funding Opportunity Project Summaries

Title: Facilitating Landscape Conservation Design through a Network of LCC Conservation Planning Atlases

Project Summary: The Conservation Biology Institute (CBI) will partner with 13 Landscape Conservation Cooperatives (LCCs) to develop an expanded set of interoperable Conservation Planning Atlases (CPAs) powered by Data Basin (Bachelet et. al, 2011) and explore ways to integrate the CPAs with existing visualization or data management systems. In the case of California LCC, integrating their proposed CPA with the existing California Climate Commons will be fundamentally important. This project will serve custom spatial data integration, collaboration, and science delivery needs of natural and cultural resource planners, managers, and stakeholders of the LCC partners. This project will expand pilot CPA projects pioneered by the South Atlantic LCC, Gulf Coastal Plains and Ozarks LCC, Southeast Region, North Atlantic LCC, Gulf Coast Prairie LCC, and North Pacific LCC. As a primary collaborator in the Integrated Data Management Network (IDMN), CBI will leverage the developing IDMN framework and technical integration between Data Basin and USGS ScienceBase/LC Map to further facilitate data-driven landscape conservation design and collaborative planning across the LCC network. Lessons learned from the IDMN project will be applied to this new proposed scope of work.

The purpose of the existing and new CPAs is to facilitate communication, evaluation, and conservation planning from common datasets and tools. Expanding the network of CPAs will provide numerous benefits, including easier integration of analyses and planning between LCCs. The CPAs extend basic custom mapping capability to users without desktop GIS software, with an approach that is accessible to a broad audience, ranging from technical GIS specialists to nontechnical decision and policy makers. By lowering technical barriers, more people from a wider range of backgrounds and organizations can actively participate in data visualization, analysis, planning, and collaboration around resource management issues. Also, the analytical tools made available through this expanded network of CPAs will help LCC stakeholders work across organizational and geographical boundaries to integrate and analyze information about the distribution, status, trends, risks, threats, and factors affecting priority wildlife, plants, cultural resources, and ecosystems.

Specifically, we will work with our LCC partners to design, develop, and deliver eight new interoperable CPAs that enhance the management of natural and cultural resources by making it easier to discover and explore spatial information from multiple sources, create interactive maps, generate queries and reports, download data, collaborate on specific topics, and export information. At the request of the Alaska-based LCCs, a single CPA will be constructed that ties the Alaska region LCCs together. Individual branded, interoperable CPAs will be launched for seven LCC partners including California, Great Basin, Desert, Great Northern, Southern Rockies, Peninsular Florida, and Pacific Islands. We will work with the Caribbean LCC, Appalachians LCC, and CA Climate Commons to explore and address interoperability and data sharing based on the guidance and lessons learned from the IDMN project.

Title: Integrating Approaches to Conservation Design across the LCC Network in the East.

Geographic Location: The Eastern United States, including the following LCCs : Appalachian, Caribbean, Eastern Tallgrass Prairie & Big Rivers, Gulf Coast Prairie, Gulf Coastal Plains & Ozarks, North Atlantic, Peninsular Florida, South Atlantic, Upper Midwest and Great Lakes.

Need, goal(s), objectives, activities, beneficiaries, expected outcomes: Designing landscapes capable of sustaining natural and cultural resources at desired levels now and into the future is a hallmark of many LCCs' missions as well as the Network as a whole. Consequently, many LCCs are actively pursuing conservation design within their individual boundaries. However, design efforts need to be compatible and seamless across LCCs to be effectively integrated into individual partner conservation plans (e.g., State Wildlife Action Plans, Forest Management Plans) as well as national conservation visions (e.g., Wildlife Habitat Policy Research Program; National Fish, Wildlife and Plants Climate Adaptation Strategy). Our goal is to foster cross-boundary integration and synthesis of landscape conservation design efforts across LCCs. This is possible now because design efforts are still in development but time is running out – making this project time-sensitive. The objectives of this research are to 1) identify opportunities and challenges in alternative methodologies for making individual LCC's design efforts compatible and 2) to implement a pilot effort to demonstrate these 'best practices' to actually achieve a seamless conservation design across two or more LCCs. We will conduct a technical review of the methods and assumptions currently being employed by LCCs for conservation design, determine opportunities and technical challenges in making the outputs from these approaches compatible and seamless, and pilot efforts to demonstrate how to take advantage of opportunities or overcome challenges in making adjacent LCC products seamless. Beneficiaries will include not only the LCCs involved (and their constituent partners) but also the Network as a whole. A tangible example of compatibility across LCCs will provide strong evidence that the LCC Network can and will achieve the coordinated conservation vision it promises. A roadmap outlining the hazards and quickest routes to seamless design across LCCs will facilitate that achievement elsewhere as well.

Title: A National Stream Internet to Facilitate Accurate, High-Resolution Status and Trend Assessments for Water Quality Parameters and Aquatic Biotas

Geographic Location: All streams and rivers in coterminous U.S.

Need: Accurate, high-resolution, spatially consistent water resource information for rivers and streams is needed nationally to improve strategic coordination among agencies and the effectiveness of management and conservation efforts.

Goal: Fundamentally improve the quality of information about aquatic resources to facilitate better stewardship of these resources within individual landscapes, regionally, and nationally. Create a system for developing this information from existing digital stream infrastructure elements and field measurements that provides significant value to resource stakeholders.

Objectives: 1) Refine key digital stream products for compatibility so that a larger, integrated, and consistent system of databases and stream analyses is possible nationally; 2) engage the leadership of national aquatic programs so that the potential applications of this system to generate massive amounts of new information from existing stream databases is understood.

Project activities: 1) Adapt the NHDPlus national hydrography layer for compatibility with spatial statistical stream models; 2) Update STARS ArcGIS custom toolset to be compatible with ArcMap 10 and higher; 3) Develop websites that disseminate STARS toolset and adapted hydrologic layer; 4) Conduct a workshop with leaders from national aquatics programs to demonstrate how spatial stream-network models enhance traditional analyses and provide better information about aquatic resources.

Beneficiaries: Those working for better conservation and management of stream and river resources.

Project outcomes: A consistent, powerful analytical infrastructure that can be applied to many types of stream data commonly collected across the U.S. This infrastructure will facilitate development of new information from existing databases at low cost and will enable accurate predictions at ungaged/unmonitored sites throughout the 100,000s of stream kilometers in the country. Digital toolsets and websites for disseminating information about this infrastructure will be developed and designed to complement existing digital resources. Leaders of national aquatics programs from multiple agencies will be engaged to discuss the potential applications of these new tools and to develop a high-level user base. The corollary outcome is that better information about aquatic resource status and trends will enable better conservation and management.

Project Title: Systematic review of aquatic ecological integrity assessments in western North America: Identifying challenges and opportunities for integration into landscape conservation plans

Geographic range: Western LCCs

Project Need: The assessment of ecological integrity remains a primary component of present-day conservation strategies for freshwater ecosystems, but approaches vary widely in method, scale, efficiency, and sustainability. The need for standardized assessment practices have been noted in several national conservation initiatives. The range of approaches under development or in use by LCCs and partner agencies offers a timely opportunity to summarize the range of approaches, identify data that would facilitate particularly promising methods, and evaluate the success with which assessments are currently integrated into broad conservation planning and management.

Goals, Objectives, and Activities: Our goals are to provide LCCs and partners with recommendations of best practices for evaluating aquatic ecological integrity at different landscape scales, identify critical data needs, and help develop a sustainable, collaborative network around improving integration of assessment products. We intend to accomplish this by implementing three objectives:

1. *Conduct a comprehensive synthesis and evaluation of existing assessment approaches (National LCCs).* This systematic review will summarize current assessment approaches using quantitative measures such as spatial and temporal scale of the assessment, number and type of physical and biology metrics or indicators measured, ecological process, and details of the data sources used. This objective will benefit the national network of LCCs and landscape conservation practitioners by identifying the attributes of successful approaches, as well as prioritizing outstanding data needs.

2. *Evaluate the effectiveness of integration into conservation planning for aquatic ecosystems and recommend approaches that facilitate translation into management actions (Western LCCs).* This objective will be largely met through a tiered survey process (workshop and comprehensive survey) that incorporates expert knowledge from Western LCC science coordinators, managers, and agency partners. Knowledge of major barriers to integration and attributes of successfully integrated methods will guide recommendations for methods that facilitate large-scale ecosystem management.

3. *Guide selection of approaches that facilitate integration into broad conservation planning across aquatic, riparian and terrestrial ecosystems (Western LCCs).* Through the literature review and incorporation of expert knowledge, we will develop recommendations to aquatic ecosystem managers on selecting or modifying assessment methods to better align with management.