CDI FY17 Request for Proposals

Extending ScienceCache—a Mobile Application for Data Collection—to Accommodate Broader Use within USGS

Submission Title: Extending ScienceCache—a Mobile Application for Data Collection—to Accommodate Broader Use within USGS

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Mission Area: Ecosystems

Region: Midwest Region

Organization: Northern Prairie Wildlife Research Center

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Co-PIs and Collaborators:

Science Support Framework Element 1: Applications

Science Support Framework Element 2: Science Data Lifecycle - Acquisition

Science Support Framework Element 3: Science Project Support

In-Kind Match: $16,000.00

List of anticipated deliverables from the project: A web interface will be created to enable USGS users to create and deploy data collection surveys to mobile devices.

Lead Cost Center: Northern Prairie Wildlife Research Center

Notes, Comments:

Project Description: We propose to extend the existing ScienceCache Mobile App to a universal mobile data collection framework that meets minimum needs for systematic or opportunistic data collection to support internal research studies and citizen science projects. A primary goal of the proposed project will be to keep creation and deployment of new data collection surveys simple enough that research teams can independently manage surveys. Efforts from this project will be transferrable to a community development project for further development beyond a minimum viable product.

Total Budget: $21,100.00

Extending ScienceCache—a Mobile Application for Data Collection—to Accommodate Broader Use within USGS

Principal Investigator: Mark T. Wiltermuth

ScienceCache is a Mobile App project managed by the USGS Fort Collins Science Center. The original intent was to create a mobile-based application to be used for a citizen science project. While data collection in the field continues to be a staple activity for science within USGS, research teams could benefit from extending ScienceCache to accommodate internal data collection. Northern Prairie Wildlife Research Center proposes to work with the Fort Collins Science Center Information Science team to modify the existing mobile-based data collection application to a universal mobile data collection framework that can be used as a template for any data collection effort within USGS or USGS led citizen science project.

ScienceCache uses several pieces of software that allow users, through web interfaces, to create data collection forms, create and connect to databases, and deploy data collection. The application has a functioning platform and software infrastructure to take version 1 that was specifically built for a citizen science need to version 2 that incorporates flexibility and extensibility to accommodate diverse needs for internal research studies. A primary goal of the proposed project will be to keep creation and deployment of new data collection surveys simple enough that research teams can independently manage surveys.

There are two stages to creating a minimum viable product for version 2. First, internal research projects will require user authentication and role-based security managed through either Active Directory or myUSGS accounts; however, research projects that are private will not need to comply with OMB requirements for citizen science. Second, internal research projects will require more flexibility in types of features within a survey, attribute types within features, and validation of entered data. Some examples of flexibility include: 1.) use of both predefined survey locations and opportunistic survey locations; 2.) ability to set multiple types of features in a survey, like nest sites, banding events, bird observations, etc.; 3.) ability to limit attribute values to a selection list that comes from a lookup table in the database; and 4.) value validation at time of entry to ensure values entered are of correct type and within an acceptable range or width. The current version of ScienceCache already uses the mobile device global positioning system to store locations and the device camera to take photographs. We propose for the development team to use exiting code when available and a modular approach for development to increase flexibility of the source code.

Given much shared interest among Science Centers in an easy-to-use, versatile, mobile-based application for data collection, we propose to use a collaborative decision making approach aimed toward creating a framework that will be suited to any type of systematic or opportunistic data collection. Development of ScienceCache version 2 will start by defining a minimum viable product that meets the minimum needs of users for internal research studies and citizen science projects. There is potential for further development beyond a minimum viable product, but that effort might be best managed through a community development effort using existing collaboration tools, such as those available through myUSGS. We plan to make efforts from this project transferrable to a community development project.

ESTIMATED BUDGET

Budget Category	Federal Funding "Requested"	Matching Funds "Proposed"
1. PERSONNEL (SALARIES including benefits):		
Federal Personnel Total:	$0	$0
Contract/Collaborator Personnel Total:	$16,000	$16,000
Total Salaries:	$0	$0
2. TRAVEL EXPENSES:		
Travel Total (Per Diem, Airfare, Mileage/Shuttle) **x** # of Trips:	$2,000	$0
Other Expenses (e.g. Registration Fees):	$0	$0
Total Travel Expenses:	$0	$0
3. OTHER DIRECT COSTS: (itemize)		
Equipment (including software, hardware, purchases/rentals):	$0	$0
Publication Costs:	$0	$0
Office Supplies, Training, Other Expenses (specify):	$0	$0
Total Other Direct Costs:	$0	$0
Total Direct Costs:	$18,000	$16,000
Indirect Costs (15%):	$3,100	$0
GRAND TOTAL:	$21,100	$16,000