CDI FY17 Request for Proposals
The USGS Pollinator Library: Improving Data Services and Information Delivery of a National Database of Plant-Pollinator Interactions

Submission Title: The USGS Pollinator Library: Improving Data Services and Information Delivery of a National Database of Plant-Pollinator Interactions

Lead PI: Clint Otto

Mission Area: Ecosystems

Region: Midwest Region

Organization: Northern Prairie Wildlife Research Center

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Co-PIs and Collaborators:

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Science Support Framework Element 1: Web Services

Science Support Framework Element 2: Science Data Lifecycle - Publishing/Sharing

Science Support Framework Element 3: Information

In-Kind Match: $15,000.00

List of anticipated deliverables from the project: At the end of the project, the Pollinator Library will have the following additional features and capabilities: 1.) an interactive map of pollinator and host plant interactions, 2.) data services including: OpenSearch API, Web Map Service, and Web Feature Service, and 3.) graphical data reports prepared for land managers and researchers.

Lead Cost Center: Northern Prairie Wildlife Research Center

Notes, Comments:

Project Description: We propose to improve the Pollinator Library to include an interactive web map, data services, and a more-graphical interface that provides graphic reports of insect and plant co-occurrence records, pollinator and host plant interactions, dendritic diagram of plant-pollinator networks, pollinator-friendly seeding mixes, and other plots. We believe by providing free access to this essential information, the Pollinator Library improves society's understanding of the foraging and habitat needs of flower-visiting insects and plant-pollinator systems and that these upgrades will make the information shared on the website more useful to land managers and researchers, and appeal to a larger audience.

Total Budget: $50,000.00

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Principal Investigator: Clint Otto

   Insect pollinators are critical for sustaining human wellbeing and ecosystem function. For example, 85% of all flowering plants, and 35% of all agricultural crops, require pollination services via flower-visiting insects. In the US, reliance on insect pollination services is increasing, even as populations of native and managed pollinators exhibit concurrent declines. Pollinator declines have emphasized the need for a greater understanding of plant-pollinator networks and land management activities that improve pollinator habitat. The White House recently unveiled a federal strategy for combating pollinator declines and established a landmark goal of enhancing 7 million acres of pollinator habitat in the US by 2020. The aim of the Pollinator Library, a website managed by USGS Northern Prairie Wildlife Research Center since 2015, is to support management and research of plant-pollinator systems by documenting, synthesizing, and disseminating information on flowers that are utilized by pollinators and other insects.

   By providing free access to essential information, the Pollinator Library improves society's understanding of the foraging and habitat needs of flower-visiting insects and plant-pollinator systems. Currently, the Pollinator Library hosts records of ≈27,000 pollinator and host plant interactions, including records from 13 states. Over 7,035 national and international users have viewed or downloaded data from the Library since May, 2015. While other biological information facilities provide occurrence data (e.g., USGS BISON), the hallmark of the Pollinator Library is hosting pollinator and host plant interactions that are used to construct plant-pollinator networks.

   The current format of the Pollinator Library requires manual searches that return tabular results for viewing and downloading. We propose to use funding from the Community for Data Integration to update the data framework of the Pollinator Library to enable data services and to create a more-graphical interface that includes an interactive map and data query graphics. We believe these upgrades will make the information shared on the website more useful to land managers and researchers, and appeal to a larger audience. Furthermore, we propose to integrate the Pollinator Library into data analysis systems, which will greatly improve the applicability of Pollinator Library data to the researcher community.

   All records in the Pollinator Library include geographic coordinates of the observation. We would like to incorporate into the website an interactive map of search results. The map would provide options to view each observation point or to view a gridded distribution of observations. For each observation point, a click-on window will present data, insect and host-plant photos, and additional metadata. We will create tools and programs on the website that provide data reports of insect and plant co-occurrence records, dendritic diagram of plant-pollinator networks, pollinator-friendly seeding mixes, and other plots. Graphical results of these queries will provide land managers with easy to understand information that can assist in making decisions, and facilitate rapid dissemination of plant-pollinator occurrence data to researchers.

   Download of data from the Pollinator Library is currently only available as comma separated values (CSV) plain text file. We propose to provide an application programming interface using OpenSearch API and Open Geospatial Consortium standards to facilitate better integration into web applications and data services. While these improvements will enhance availability and integration of data into ecological data systems, we will continue to provide the novice user with an intuitive interface and search feature.

   The pollinator research program at Northern Prairie Wildlife Research Center plans to continue to populate the Pollinator Library with published and unpublished work. The enhancements to the website and data services will help increase awareness of the Pollinator Library and attract more data contributors and users. We hope to dedicate a technician to seeking information and entering information into the library.

ESTIMATED BUDGET

Budget Category	Federal Funding "Requested"	Matching Funds "Proposed"
1. PERSONNEL (SALARIES including benefits):		
Federal Personnel Total:	$0	$15,000
Contract/Collaborator Personnel Total:	$40,771.60	$0
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:	$42,771.60	$15,000
Indirect Costs (15%):	$7,228.40	$0
GRAND TOTAL:	$50,000	$15,000