

# CDI FY17 Request for Proposals

## AlaskaBirds: A web-based tool for visualization of integrated scientific data sets on avian distribution and abundance in Alaska

**Submission Title:** AlaskaBirds: A web-based tool for visualization of integrated scientific data sets on avian distribution and abundance in Alaska

**Lead PI:** Colleen Handel

**Mission Area:** Ecosystems

**Region:** Alaska

**Organization:** Alaska Science Center

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**Region:** Alaska

**Organization:** Alaska Science Center

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**Science Support Framework Element 1:** Data

**Science Support Framework Element 2:** Science Data Lifecycle - Processing

**Science Support Framework Element 3:** Science Data Lifecycle - Publishing/Sharing

**In-Kind Match:** \$33,013.00

**List of anticipated deliverables from the project:** This project will produce a SQL database that integrates spatially referenced point-count data from multiple inventories, monitoring programs, and targeted studies of birds conducted or coordinated by USGS scientists in Alaska. It will also produce a USGS web-based portal that provides interactive access by the public and Federal, State, and private collaborators to maps and tabular displays of bird survey data at several spatial scales.

**Lead Cost Center:** Alaska Science Center

**Notes, Comments:** This project will leverage over \$5 million dollars in Federal funding (including from many DOI partners) that has been spent to collect the data and will provide easy access to raw and summarized data to collaborators and to the public.

**Project Description:** This project will integrate multiple data sets from spatially referenced, point-based avian surveys that have been conducted or coordinated by USGS scientists in Alaska during the past 40 years. The data will be assembled using common data fields into a cohesive framework, and an interactive, web-based tool will be developed to provide maps, raw data, and tabular summaries to visualize the distribution and abundance of birds by species from over 800,000 records at about 10,000 points across Alaska. This framework will be readily adaptable to incorporate additional Alaskan data or to tailor to other similar point-based survey data elsewhere in the U.S.

**Total Budget:** \$49,975.00

## SECTION 1. PROJECT SUMMARY

**Project Title:** AlaskaBirds: A web-based tool for visualization of integrated scientific data sets on distribution and abundance of birds in Alaska

**USGS Principal Investigator:** Colleen M. Handel, Research Wildlife Biologist, Alaska Science Center

### **Narrative Summary:**

Alaska, which encompasses more than 1.4 million km<sup>2</sup> and is one-fifth the size of the contiguous United States, provides breeding habitat for about 500 species of birds, including more than 135 species of regularly breeding landbirds and 40 species of shorebirds. Despite the unique importance of these areas to Arctic, subarctic, and boreal populations, little is understood about the distribution and abundance of species, particularly landbirds and shorebirds, across the landscape. General distribution patterns are portrayed at a very gross level in various field guides, but even these vary significantly in their distribution maps. There is no source of data readily available on relative abundance of terrestrial birds across northern landscapes aside from the North American Breeding Bird Survey, which is extremely limited in geographic coverage because of the paucity of roads throughout much of Alaska. Similarly, data available on avian distribution through the public's use of eBird are largely limited to popular hotspots for birding that are economically and seasonally accessible. About 88% of Alaska lands are publicly owned, managed by Federal and State agencies. National Parks and Preserves, National Wildlife Refuges, and National Forests constitute the largest part, about 40% of Alaska's lands. Large tracts are also managed by the Bureau of Land Management and Department of Defense. Despite these large Federal holdings, there is no integrated source of data readily available on the distribution and abundance of migratory bird populations, which all agencies have some Federal mandate to manage and protect.

During the past 40 years, USGS biologists have conducted and coordinated a number of inventories, monitoring programs, and targeted studies of birds that have collected data on breeding distribution and abundance across Federal, State, and private lands in Alaska. Many of these studies have employed georeferenced point counts of birds in prescribed areas across the landscape in systematic or stratified random designs, which allow inference beyond the specific sites to the entire study areas. Although methodology varies across the specific studies, the common underlying techniques would allow integration of these data sets to provide cohesive depiction of occurrence of birds across Alaska.

For this project, we propose to assemble multiple data sets that have been collected by USGS biologists during the past 40 years into a common georeferenced framework. These include more than 800,000 observational records of over 300 species of birds from about 10,000 points across Alaska. These will be integrated with common fields into a single coherent data structure that will provide associations between GPS points, bird survey data, and pertinent GIS data layers, including elevation and land cover, which will then be loaded into a spatially enabled SQL database. We will work with a contractor to develop and deploy a web-based USGS data portal to provide users with interactive access to bird and habitat data to select species, elevations, years, and geographic areas of interest. Data will be displayed as maps of occurrence and relative abundance and as tabular displays of raw data per point or summarized data at several geographic scales. This framework, which will leverage over \$5M of Federal funds to collect the data, will be readily adaptable to incorporate additional data from Alaska as they become available, or to tailor to other regions of the U.S. with similarly structured point-based survey data.

**SECTION 2. ESTIMATED BUDGET**

Budget Category	Federal Funding "Requested"	Matching Funds "Proposed"
<b>1. PERSONNEL (SALARIES including benefits)</b>		
Federal Personnel Total:	\$24,250	\$24,250
Contract/Collaborator Personnel Total:	15,000	0
<b>Total Salaries:</b>	39,250	24,250
<b>2. TRAVEL EXPENSES:</b>		
Travel Total (Per Diem, Airfare, Mileage/Shuttle) x # of Trips: (one trip to CDI event)	2,000	0
Other Expenses (e.g. Registration Fees):	0	0
<b>Total Travel Expenses:</b>	2,000	0
<b>3. OTHER DIRECT COSTS: (itemize)</b>		
Equipment (including software, hardware, purchases/rentals):	0	2,500
Publication Costs:	0	0
Office Supplies, Training, Other Expenses (specify):	0	500
<b>Total Other Direct Costs:</b>	0	3,000
<b>Total Direct Costs:</b>	41,250	27,250
<b>Indirect Costs (21.149%):</b>	8,725	5,763
<b>GRAND TOTAL:</b>	\$49,975	\$33,013