

CDI FY17 Request for Proposals

Nested Sample Frames to Support Multiple Collaborative Monitoring Programs

Submission Title: Nested Sample Frames to Support Multiple Collaborative Monitoring Programs

Lead PI: Jennifer Bayer

Mission Area: Ecosystems

Region: Northwest Region

Organization: Pacific Northwest Aquatic Monitoring Partnership

Orcid: 0000-0001-9564-3110

Phone: 5032014179

Email: jbayer@usgs.gov

City: Cook

State: WA

Co-PIs and Collaborators:

Type: CO-PI

Name: Wayne Thogmartin

Mission Area: Ecosystems

Region: Midwest Region

Organization: Upper Midwest Environmental Sciences Center

Orcid: NA

Phone: 6087816309

Email: wthogmartin@usgs.gov

City: La Crosse

State: WI

Type: CO-PI

Name: Tom Roadhouse

Mission Area: Not Applicable

Region: Northeast Region

Organization: National Park Service Inventory and Monitoring Program;

Orcid: NA

Phone:

Email: tom_rodhouse@nps.gov

City:

State:

Type: Collaborator

Name: Rebecca Scully

Mission Area: Ecosystems

Region: Northwest Region

Organization: Pacific Northwest Aquatic Monitoring Partnership

Orcid: 0000-0003-0704-8907

Phone: 5095382920
Email: rscully@usgs.gov
City:
State:

Type: CO-PI

Name: Jake Weltzin
Mission Area: Ecosystems
Region: Headquarters

Organization: National Phenology Network
Orclid: 0000-0001-8641-6645

Phone: 5206263821
Email: jweltzin@usgs.gov
City: Tucson
State: AZ

Type: CO-PI

Name: Kathryn Irvine
Mission Area: Ecosystems
Region: Northwest Region

Organization: Northern Rocky Mountain Science Center
Orclid: NA

Phone: 4069947492
Email: kirvine@usgs.gov
City: Bozeman
State: MT

Science Support Framework Element 1: Science Data Lifecycle - Planning

Science Support Framework Element 2: Science Data Lifecycle - Processing

Science Support Framework Element 3: Science Data Lifecycle - Analysis

In-Kind Match: \$15,983.00

List of anticipated deliverables from the project: 15 fully developed, documented and published sample frames and one (peer-review) published paper

Lead Cost Center: USGS Northwest Region/PNAMP

Notes, Comments:

Project Description: We propose to develop and host an enterprise level framework and web-based toolkit to support the design, coordination, and implementation of broad-scale collaborative monitoring across North America. To date, most monitoring programs are developed in individual "silos" that thwart discovery and identification of opportunities for broad regional and continental co-location and collaboration. MonitoringResource.org will facilitate discovery and enable partners to design and implement "master sample" strategies. The master sample concept has been successfully used at a regional scale but its real power to harness regional and continental scale collaborations has not been realized. We will build and publish a suite of multi-scale grid-based sample frames and corresponding master samples for Alaska, Canada, continental US (CONUS), Mexico, and Hawaii. These frames are already in use by the nascent North American Bat Monitoring Program (NABat) and we will use NABat as a proving ground for concepts and tools developed during this project. The Monarch Monitoring Program in development by USGS and US FWS will also be a motivating example. MonitoringResources.org will host the frames and samples and provide web environment and tools they need to interact with partners to visualize, explore, design, and execute large-landscape endeavors. This project presents a tremendous increase in capacity for environmental monitoring and research programs to collaborate and build economies of scale.

Total Budget: \$49,911.00

Section 1: Statement of Interest

Nested Sample Frames to Support Multiple Collaborative Monitoring Programs, Jenifer Bayer

The monitoring of ecological resources over broad spatial and temporal scales often requires an abundance of financial and logistical resources unavailable to any single authority. Therefore, communities of governments, organizations, and individuals are often needed to provide the valuable information required for sound natural resource management. The complexity of this task can only be accommodated through concerted coordination of activities, bringing monitoring resources to bear where they can provide the greatest use and avoiding duplication of effort where information has already been gathered. The goals are to (1) provide best practices tools to support science data management for research activities within USGS (e.g., at the project or Center level), and (2) provide capacity and leadership for information management within other DOI Bureaus (e.g., USFWS, NPS) charged with implementing regional to national-scale monitoring activities.

We propose to develop and host an enterprise level framework and web-based toolkit to support the design, coordination, and implementation of broad-scale collaborative monitoring initiatives across North America. This toolkit will be an element of MonitoringResources.org, which was developed by the Pacific Northwest Aquatic Monitoring Partnership (PNAMP) to provide online public structured documentation of protocols, methods and designs in a consistent format to improve data documentation, discovery. The tools may be accessed and used by any entity seeking sustained public documentation; thus reuse of this existing tool efficiently offloads part of entities' data management needs to a public registry.

The MonitoringResource.org environment will enable partners to design and implement “master sample” strategies. The master sample concept has been successfully used for some local water quality monitoring programs but its real power to harness big regional and continental scale collaborations has not yet been realized. We will build and publish a suite of multi-scale grid-based sample frames and corresponding master samples for Alaska, Canada, continental US (CONUS), Mexico, and Hawaii. These frames are already in use by the nascent North American Bat Monitoring Program (NABat) and we will use NABat as a proving ground for concepts and tools developed during this project. We will host the frames and samples at MonitoringResources.org and provide users the web environment and tools they need to interact with their partners to visualize, explore, design, and execute large-landscape endeavors. This project presents a tremendous increase in capacity for environmental monitoring and research programs to collaborate and build economies of scale.

We propose to begin by supporting two programs specifically, the North American Bat Monitoring Program (NABat) and the Monarch Monitoring and the Resources that Sustain Them initiative. The NABat program plans to create a continental-wide program for monitoring that status and trend of bats at local to range-wide extents. These data are intended to provide reliable information for effective conservation decision-making for promoting the long-term viability of bat populations across the continent. NABat has created a sample plan with a robust continental-scale sample design. To support NABat's needs to coordinate, collaborate sample designs across continental scales, MonitoringResources.org and NABat will use MonitoringResources.org to serve the NABat sample frame and metadata. This project would support NABat by attributing the 10K and 5K sample frame and creating robust metadata and documentation.

Similarly, the Monarch Monitoring and the Resources that Sustain Them initiative is focused on providing insight into the status and trend of the imperiled monarch butterfly and the resources that sustain them via national and tri-national (Canada, U.S., and Mexico) monitoring initiatives. Data have long been gathered by numerous citizen science efforts, but none of these are sufficiently embedded within a robust statistical design allowing for unbiased assessment of species status. MonitoringResources.org and the associated multi-scaled master samples can provide both important statistical design elements to organize current data collection efforts as well as orient activities to gaps in coverage. Without coordination of the many efforts currently ongoing, coordination made possible by the tools provided by this project, data will not be available to make many important decisions relating to regional prioritization, strategic habitat conservation, and recovery considerations. This project will support national and tri-national monarch monitoring by attributing 10K and 1K sample frames and creating robust metadata and documentation.

USGS staff will facilitate work sessions and development work to build the nested sample frames by early summer, publish the frames on MonitoringResources.org by August and a draft of a supporting paper by September.

SECTION 2. ESTIMATED BUDGET

| | Federal Funding “Requested” | Matching Funds “Proposed” |
|--|-----------------------------|---------------------------|
| 1. SALARIES (including Benefits): | | |
| Personnel Total: | \$ 26,214 | \$ 15,983 |
| Contract Personnel Total: | \$ 5,335 | \$ |
| Total Salaries: | \$ 31,549 | \$ 15,983 |
| 2. TRAVEL EXPENSES: | | |
| Travel Total (Per Diem, Airfare, Mileage/Shuttle) x # of Trips: | | |
| *Travel for 2 staff to CDI meeting | | |
| **Travel for 3 staff to PDX for fall workshop | | |
| | \$ 5,000 | \$ 0 |
| Other travel expense (Registration fees): | \$ 0 | \$ 0 |
| Total Travel Expenses: | \$ 5,000 | \$ 0 |
| 3. OTHER DIRECT COSTS: (itemize) | | |
| Equipment (inc. software, hardware): | \$ 0 | \$ 0 |
| Publication Costs: | \$ 4700 | \$ 0 |
| Office supplies, Training, Other expenses: | \$ 0 | \$ 0 |
| Total Other Direct Costs: | \$ 4,700 | \$ 0 |
| Total Direct Costs: | \$ 41, 249 | \$ 0 |
| Indirect Costs (21.158% for reimbursable funds on federal salaries): | \$ 8,662 | \$0 |
| GRAND TOTAL: | \$ 49,911 | \$ 15,983 |

USGS staff have checked with and received confirmation from the Contracting Officer’s Representative (COR) that their contracting staff can participate in sending funds outside USGS.