



## U.S. Fish and Wildlife Service

# Inventory and Monitoring Initiative

## *Natural Resource Program Center*

*The Refuge System I&M initiative advances a nationally coordinated approach to inventory and monitoring efforts throughout the Service to support resource management and conservation.*

*The goal of the I&M effort is to increase the scientific capacity of the National Wildlife Refuge System through support of the station biological program, protocol development, and increased efficiency in information management and data sharing.*



Biologists use a soil core to identify hydric soils in a degraded wetland basin.

### **Background**

We face a rapidly changing environment with complex, landscape-scale challenges including sea-level rise, wide-spread droughts, and invasion of non-native species that often cross refuge boundaries. The Inventory and Monitoring (I&M) initiative directs a nationally coordinated approach for the design, collection, retention, and analysis of the critical scientific information spanning the entire Refuge System to help adapt management to compete with rapid and large-scale environmental change.

We use an integrated approach to apply Strategic Habitat Conservation, the U.S. Fish & Wildlife Service's model for adaptive management. Through internal collaboration and external partnerships with Landscape Conservation Cooperatives (LCCs) and others, we assess the status of refuge lands, waters, plants and animals, and support conservation objectives at local, regional and national levels.

### **Supporting our Scientific Foundation**

The I&M initiative supports refuge biology through the development of Inventory and Monitoring Plans (IMPs) and rigorous scientific protocols. Direct support to the field is provided through regional I&M staff, including regional I&M coordinators, zone biologists, and data managers to support the development of IMPs.

IMPs document the prioritization and selection of surveys to assess the status and trends of natural resources and the effectiveness of management conservation actions. IMPs also document resource needs and capacity challenges for refuges and can be easily revised to address shifts in priorities due to environmental change.

A Survey Protocol Handbook provides guidance for developing the most appropriate surveys to support specific management objectives and ensures that survey protocols and the collected data meet rigorous scientific standards. Survey protocol frameworks are being developed that can easily be adapted to incorporate site specific needs.



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### Supporting our Information Management

The I&M initiative makes data and information readily available, increasing efficiency and informing management decisions. We use web-based tools to connect data information modules, instead of stand-alone databases. This eliminates the need to enter the same information multiple times and enables us to recombine and, ultimately, serve the information in formats and combinations specific to the needs of the end-user. Our commitment to integrated systems means that methods and protocols for biological surveys conducted on refuges are properly and securely documented and linked, resulting in more collaboration through data sharing.

Three integrated I&M information modules, ServCat, PRIMR, and WRIA, are currently available to Service employees at <https://ecos.fws.gov/>.

- PRIMR stores the how, why, what, when, and where of a refuge's inventory and monitoring surveys. It allows refuge biologists to identify other types of surveys being performed across the Refuge System and serves as the institutional knowledge for a station.
- ServCat organizes and stores documents relevant to management, including management plans, reports, tabular and geospatial data, and protocols. Historically important and management-relevant information that could be lost is now archived on a secure system.
- WRIA enables staff to store and retrieve water resource information at multiple scales. This streamlines the production of Water Resource Assessments and supports refuge planning and management of our water resources.

These databases are housed on the Integrated Refuge Information System (IRIS). IRIS supports collaboration across disciplines and with other agencies, ensuring the Refuge System is a key contributor to the larger scientific body of knowledge and helps us meet the President's Open Data Initiative.

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U.S. Fish & Wildlife Service  
National Wildlife Refuge System

<http://www.fws.gov/refuges>



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A monarch butterfly rests on Joe Pye Weed.