



U.S. Fish & Wildlife Service

Inventory & Monitoring Program

U.S. National Wildlife Refuge System

Natural Resources Program Center
National Office
USFWS

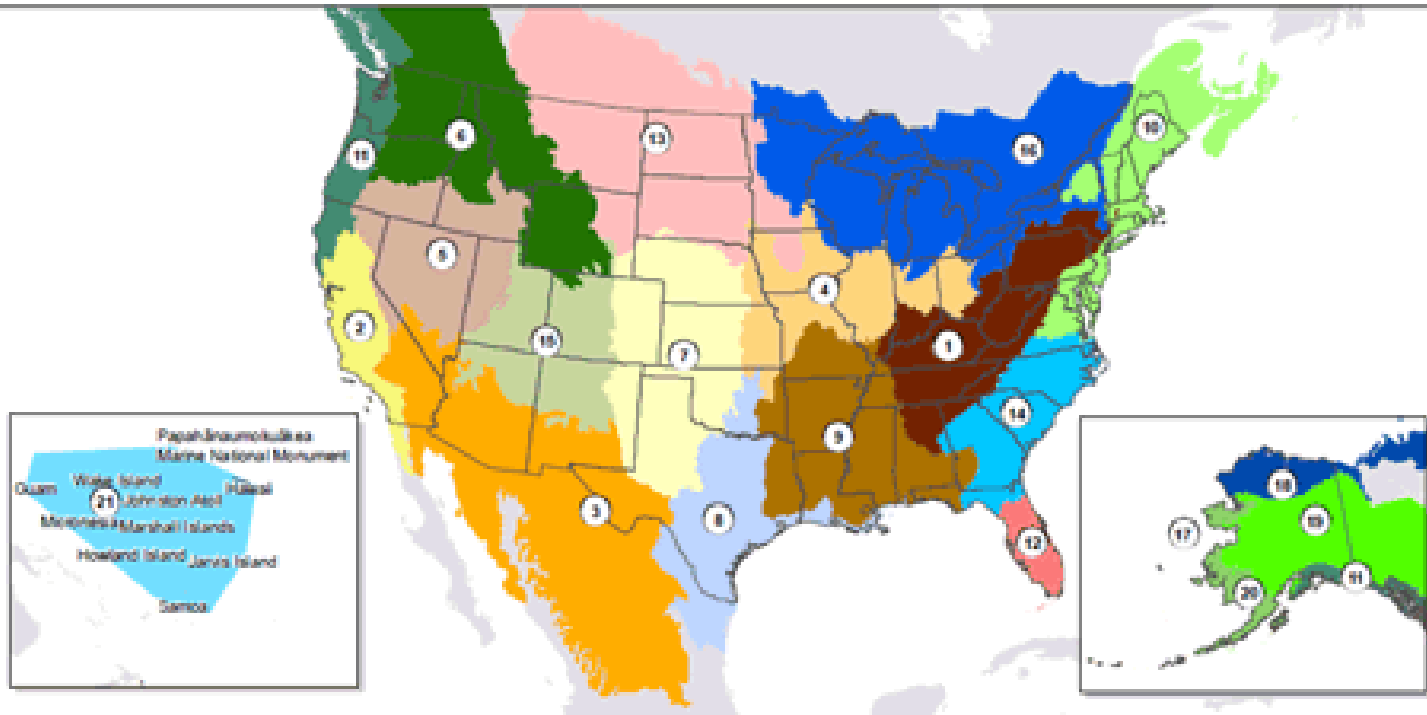


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Agenda

- Origins
- History
- I&M Program
 - Architecture
 - Status
 - Tasks

Landscape Conservation Cooperatives



Landscape Conservation Cooperatives

- 1. Appalachian
- 2. California
- 3. Desert
- 4. Eastern Tallgrass Prairie and Big Rivers
- 5. Great Basin

- 6. Great Northern
- 7. Great Plains
- 8. Gulf Coast Prairie
- 9. Gulf Coastal Plains and Ozarks
- 10. North Atlantic
- 11. North Pacific

- 12. Peninsular Florida
- 13. Plains and Prairie Potholes
- 14. South Atlantic
- 15. Southern Rockies
- 16. Upper Midwest and Great Lakes
- 17. Aleutian and Bering Sea Islands

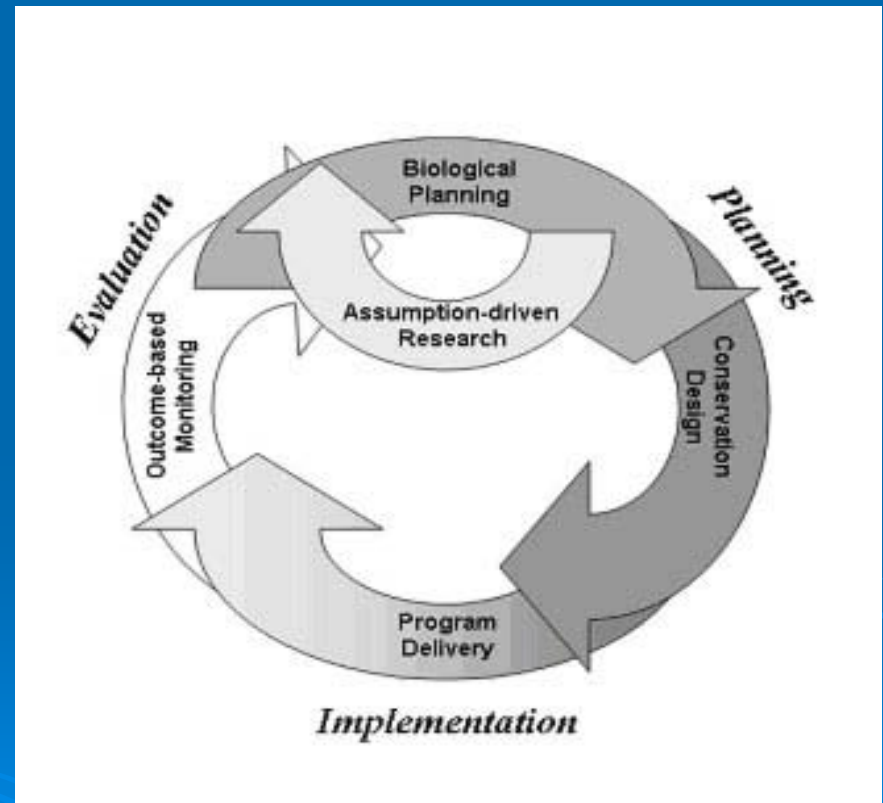
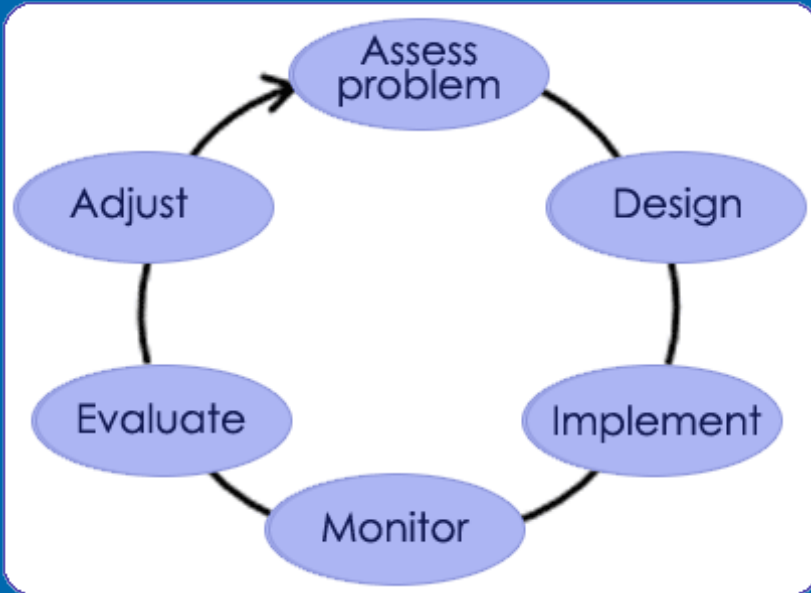
- 18. Arctic
- 19. Northwestern Interior Forest
- 20. Western Alaska
- 21. Pacific Islands
- Unclassified

Albers Equal Area Conic NAD83
 Produced by FWS, RTM, Denver, CO
 Map Date: 2016010



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Foundational Pillar of AM and SHC



If you aren't monitoring, you aren't doing AM (adaptive management) or SHC (strategic habitat conservation!)



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USFWS Regions





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The Genesis

➤ The National Wildlife Refuge System Improvement Act (NWRRIA) of 1997

- Provide for the conservation of fish, wildlife, plants and their habitats;
- Ensure the biological integrity, diversity, and environmental health;
- Plan for the continued growth of the System;
- Assist in the maintenance of adequate water quantity and quality....;
- Acquire water rights....;
- ***Monitor the status and trends of fish, wildlife, and plants in EACH refuge***



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Background/History

- National Park Service begins I&M program in 1992
- Regions 3&5 formed Biological Monitoring and Database Team in 2005
- In August 2009, the Core Planning Team formed to draft strategic plan and operational blueprint for I&M effort



U.S. Fish & Wildlife Service Foundations

Operational Blueprint for Inventory and Monitoring on National Wildlife Refuges: Adapting to Environmental Change

U.S. Fish and Wildlife Service, National Wildlife Refuge System

September 1, 2010

Strategic Plan for Inventories and Monitoring on National Wildlife Refuges: Adapting to Environmental Change

U.S. Fish and Wildlife Service, National Wildlife Refuge System

September 1, 2010



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Vision

A **nationally coordinated program** of inventory and monitoring on the National Wildlife Refuge System generates information critical to ensuring the System's ongoing contributions to the conservation of the nation's fish, wildlife and plant resources in the face of climate change and other environmental stressors... Inventory and monitoring documents status, assesses condition and detects changes in the Refuge System's diverse fish, wildlife and plant communities, physical resources including water, air and soils, and ecological processes in order **to support science-based conservation planning and management at multiple spatial scales...**

Strategic I&M Plan September, 2010



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Vision

“The purpose of this effort is to collect and synthesize information which supports management at multiple geographic scales and informs decisions at all organizational levels”

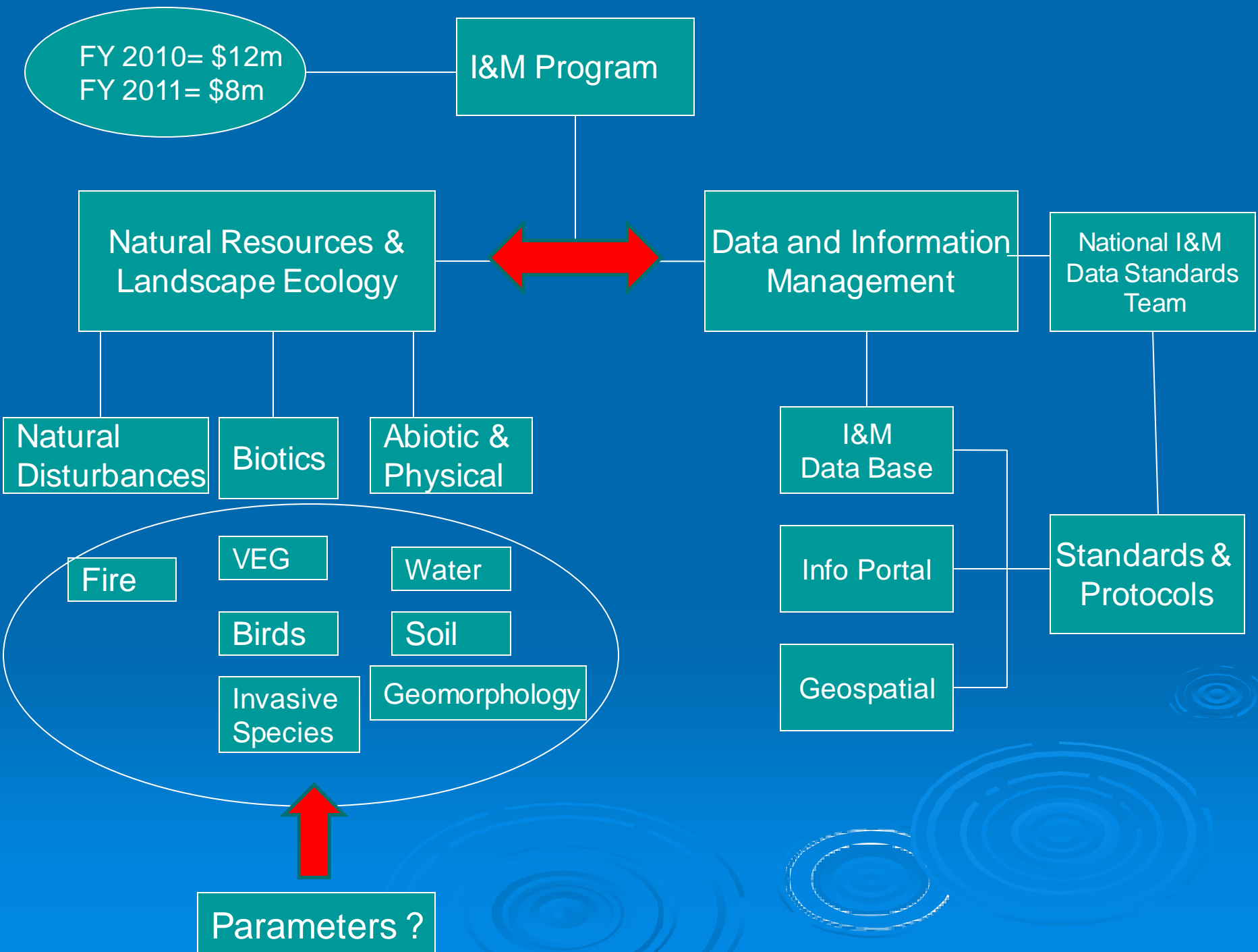
Strategic I&M Plan September 2010



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Implementation

- Regions initiate hiring of 6 regional I&M staff in 2010.
 - one position must be a Database Manager
- In 2010, headquarters begins hiring national I&M staff and establishes a new office co-located with the NPS I&M program staff in the Natural Resources Program Center in Fort Collins, CO





U.S. Fish & Wildlife Service Projects with NPS

National Park Service
U.S. Department of the Interior
Natural Resource Program Center

Natural Resource Information Portal

Home References Geospatial Air & Climate Geology & Soils Water Landscapes Human Use Tools

Welcome: Guest

- References

+ Reference Application

References

▲ NRInfo Reference Application

NRInfo References merge data previously contained in NatureBib and the NPS Data Store. References include reports, publications, articles, gray literature, maps, databases, GIS layers, and more. Only public References are available from this version of the Portal.

for Documents and Datasets

Reference App News

- Reference Help
- New in Reference

▲ More References - Public Links

- NatureBib - RETIRED
- NPS Data Store - RETIRED
- NPS Focus– digital library and research station
- NPS Natural Resource Publication Series
- Voyager– catalog of NPS library collections

Best viewed in Internet Explorer
NRPC Internet

<http://nrinfo.nps.gov/Home.mvc/showWelcomePage>



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Inventory and Monitoring Plan Database

Main Menu

Data Entry	Print Reports
Enter Goals and Objectives	Ranked List Priority Surveys: Exhibit 2, Table 1
Inventory and Monitoring Surveys and Datasets	Survey Description Report: Exhibit 2, Table 2 Full Detail Version
Enter Survey Description and Phase Details	Survey Description Report: Exhibit 2, Table 2 Annual Summary
Rank Priority Surveys	Survey Description Report: Exhibit 2, Table 2 Plan Summary Version
Develop Annual Calendar of Survey Activities	Annual Calendar of Surveys: Exhibit 2, Table 3
Inventory and Monitoring Draft Policy 701FW2	Inventory and Monitoring Signature Page
Inventory and Monitoring Exhibit 1 Guidance	Report of Inventory and Monitoring Surveys Objectives and Partners
Goals and Objectives Report	



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Inventory of Surveys and Datasets

[Add New Survey](#)[Back to Main Menu](#)[Close](#)Survey Name or Have the data been published? Yes NoTaxa Group: Publication Title or Citation Refuge Name: Survey Group: Survey Status: Survey Category: Start Year: End Year: Survey Type: Survey Lead:

Does survey support T and E species goals or objectives?

 Yes NoLiteral: Tier: Number of survey activity years (excluding off years):

Write a justification for the survey activity. Explain why it is important to conduct the survey. How the results will be used to inform refuge management decisions.

Track breeding bird populations in the grassland restoration units. Long-term monitoring to track breeding songbird populations in the restoration units.

What specific management objective does the survey support? Is the objective derived from a CCP, HMP, other?

Supports implementation of OR-150 Grant from OWEB, to improve western meadowlark habitat.

Timing: Is a Protocol Available? Yes No

Protocol Citation:

Huff, M. H. et al. 2000. A habitat-based point-count protocol for terrestrial birds, emphasizing Washington and Oregon. Gen. Tech. Rep. PNW- G T R - 5 0 1 . Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 39 p.

Data Format: Geographic Extent: Have the data ever been analyzed? Yes No Who analyzed the data? Have the results of the effort been summarized in other than a published report? Yes NoHave the data from this effort been used in the management of your refuge? Yes NoSurvey ID: Duration:



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Ongoing Projects



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National Wildlife Refuge System - Species

[Home](#)

[Home](#)

[Basic Reporting](#)

[Species by Refuge](#)

[Refuges by Species](#)

[Species Search](#)

[Edit Refuge Species \(Restricted\)](#)

[Add Refuge Record](#)

[Update Existing Refuge Records](#)

[Add Taxonomic Information \(Restricted\)](#)

[Add Taxon to Database](#)

[Update Taxon Record](#)

[Access, Comments and Requests](#)

Welcome to the Refuge Systems Species Information Portal

This site allows you to explore, edit and add to a comprehensive dataset of taxonomic information for your Refuge.

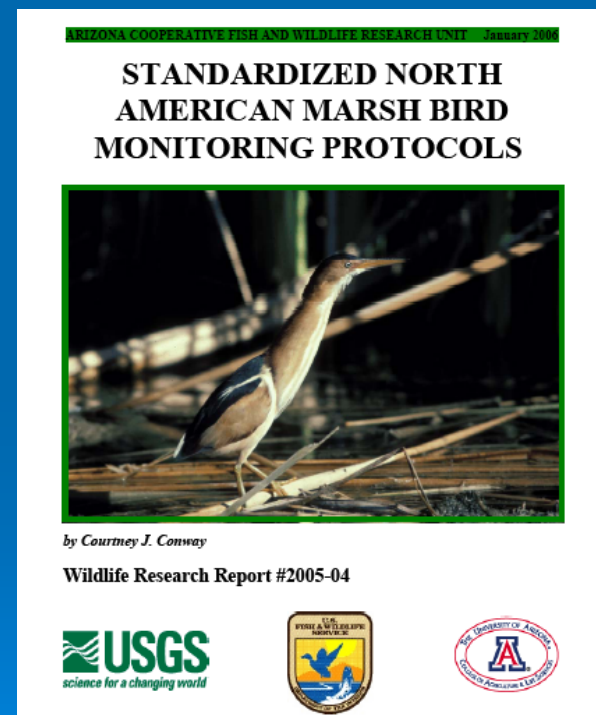
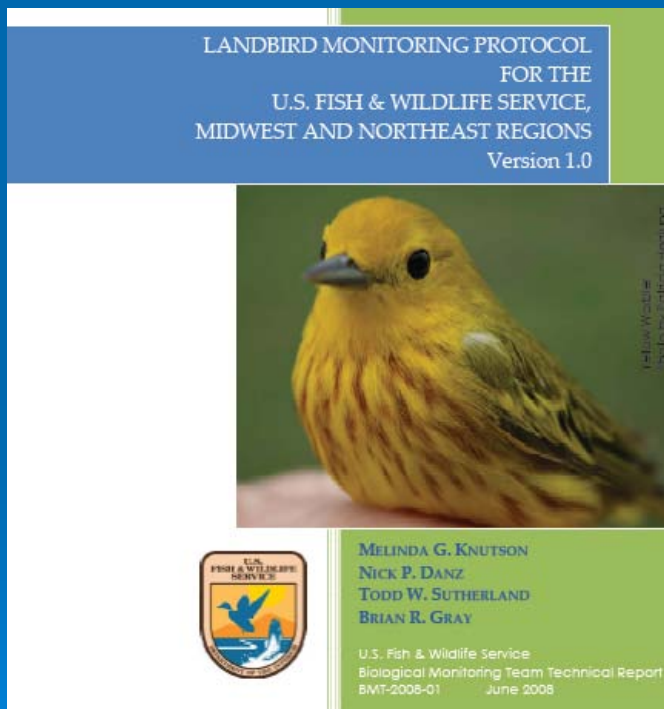
- [Basic Reporting](#) - Generate taxonomic lists or find a taxonomic record based on a variety of search criteria
 - [Species by Refuge](#) - Generate taxonomic lists for a selected refuge or wetlands management district
 - [Refuges by Species](#) - Jurisdictions recorded for a selected species
 - [Species Search](#) - Search for a taxonomic record
- [Edit Refuge Species \(Restricted\)](#) - Add, change, or delete refuge record
 - [Add Refuge Record](#) - Add a species record to a refuge
 - [Update Existing Refuge Records](#) - Update or delete an existing refuge record
- [Add Taxonomic Information \(Restricted\)](#) - Edit Taxonomic Database
 - [Add Taxon to Database](#) - Add a record to the Taxonomic Database
 - [Update Taxon Record](#) - Update a taxonomic record
- [Access, Comments and Requests](#) - Application access, comments or system request



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Ongoing Blueprint Tasks

➤ Develop Protocols standards





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Ongoing Blueprint Tasks

- Design and develop a database for documenting legacy data along with historic and current occurrences of species
- Complete baseline hydrogeomorphic (HGM) analyses at selected NWRS stations.
- Complete a baseline, reconnaissance-level inventory of water resources, including an assessment of water quality, at all refuges.



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Ongoing Blueprint Tasks

- Prioritize geographic areas and species based on ecosystem vulnerability
- Coordinate bird monitoring with Migratory Birds and other partners
- Coordinate with science partners to understand relevance of models and predictors of change in Arctic and high-latitude environments



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Planned Blueprint Tasks

- Assemble existing abiotic data sets needed by NWRS managers to set management objectives
- Fire Regimes - Scope an approach for establishing and reporting standard reference points for measuring long-term, landscape-scale, fire regime shift under climate change and other stressors.
- Coordinate with science partners to understand relevance of models for various oceanographic variables



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Collaborations

- Other FWS programs (IT)
- Landscape Conservation Cooperatives (LCCs)
- Local universities
- Other agencies (NPS)
 - <http://science.nature.nps.gov/im/index.cfm>
- Neighboring countries



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National Office Contacts

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- National I&M Program Manager
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