

**Recommendation 7:** Institutionalize a purpose-driven, nationally coordinated effort to inventory and monitor wildlife and habitats to obtain data that inform planning and management decisions; and develop a state-of-the-art data management system that can be integrated with the broader scientific community and key partners.

Overview: The goal is for the National Wildlife Refuge System (NWRS) to conduct inventory, monitoring, and research at multiple spatial scales that evaluates and maintains biological integrity, diversity, and environmental health. Work is coordinated at the national level and effectively contributes to collaborative conservation and management of priority issues within a shared landscape. We employ strict data standards, standardized peer-reviewed protocols, and ensure consistency and transparency. Information is stored in an organized and efficient manner that is easily accessible to Fish and Wildlife Service (FWS) employees and partners.

Deliverable 1: Synthesis of biological and physical inventory and monitoring data (I&M) for each refuge.

- *Description:* NWRS I&M data will be used to provide baseline information for various multi-scale analyses. Therefore, this information should be catalogued and assessed to (1) help prioritize and inform existing and future NWRS I&M initiatives; (2) determine if the data are suitable for landscape scale assessments that could inform future planning scenarios; and (3) determine what other partners may have relevant datasets that could be compiled with existing refuge data.
- *Approach:* The NWRS Natural Resource Program Center (NRPC) is currently developing a data information system that can be used to catalog and retrieve FWS I&M information. Refuge staff will be trained by the NWRS I&M Coordination Team in the use of the data information system, specifically populating the PRIMR, ServCat, and NWRS species (currently unnamed) databases. The Science Team will assemble a subteam to provide guidance and oversight on the identification of relevant non-refuge datasets and conducting meta-analyses to assess commonalities and shared priorities between the NWRS and partner I&M efforts and data. Identification of non-refuge datasets and meta-analyses will be conducted at the individual refuge or regional level and can be easily synthesized and tracked at the local, regional, or national level. LEADS: Natural Resource Program Center, subteam.
- *Major Milestones:* Centralized data information systems implemented by 12/2012; partner dataset and meta-analyses guidance issued by 4/2013, first round of partner datasets identified by 7/2013 and meta-analysis conducted by 12/2013, recurring annually thereafter; subteam to assess implementation by 7/2015 and 7/2017.
- *Coordination Need:* Subteams for Recommendations 6 and 9, Strategic Growth Team.
- *Success and Evaluation:* Progress will be measured through # of refuges that enter I&M metadata into the information management system and # meta-analyses conducted annually.

Deliverable 2: Guidance on I&M Protocols.

- *Description:* Guidance on standardized I&M protocols will detail a complete protocol, approval process, appropriate level of peer review, and provide a template. Standardized protocols ease understanding, duplication, and serve as templates for defensible science.
- *Approach:* NRPC will establish a subteam to develop a guidance document on I&M protocols. The subteam will generate an implementation schedule for needed protocols and along with refuge staff, upload existing protocols into ServCat. LEAD: NRPC.
- *Major Milestones:* Subteam established by 4/2012; guidance document created by 9/2012; implementation schedule for needed protocols generated by 10/2012; existing protocols uploaded into ServCat by 5/2013.
- *Coordination Need:* Subteam for Recommendation 9.
- *Success and Evaluation:* Evaluate success by quantifying the # of protocols in the database, the # of baseline protocols implemented on refuges, and obtaining appropriate peer-reviewed acceptance of the protocols.

Deliverable 3: 7-Year Inventory and Monitoring Roadmap and Business Plan (Plan).

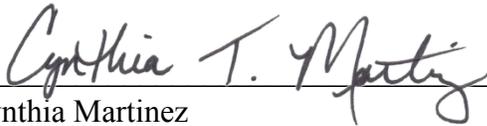
- *Description:* The implementation of the NWRS I&M Strategic Plan is guided by the 2-year Operational Blueprint. The 7-year Plan will identify the steps necessary for implementation of the I&M Strategic Plan beyond the Operational Blueprint and will include the existing approved regional staffing recommendations and an internal and external communication strategy. The Plan will address integration and assessment of I&M at multiple scales, including implementation of I&M initiatives across refuges at geographic scales necessary to facilitate adaptation to climate change, land use changes, and other landscape-level drivers of environmental change.
- *Approach:* NRPC will establish a subteam to guide development of the Plan, assess implementation for the Plan, and recommend revisions as necessary.
- *Major Milestones:* Subteam established by 4/2012; Plan completed by 12/2012; subteam will assess implementation progress and recommend needed revisions by 12/2014 and 12/2017.
- *Coordination Need:* Subteam for Recommendation 6, Landscape Conservation Cooperative (LCC) Coordinators.
- *Success and Evaluation:* Success is a completed Plan by 12/2012 that is fully implemented by 12/2019. This will be evaluated by the review schedule delineated above.

For Deliverables 1, 2, and 3:

- *Communications:* Factsheets, FWS web sites, webinars, and coordination meetings. Specific details will be identified in the I&M Business Plan.
- *Overall Success and Evaluation:* We will know are successful if:
  - a) The majority of refuge I&M activities use appropriately peer-reviewed protocols.
  - b) Inventories inform and prioritize refuge monitoring and frequency as tracked in development and implementation of refuge Comprehensive Conservation Plans and landscape scale conservation strategies.

- c) I&M data and results inform research agenda for the NWRS.
- d) Biological and physical resource inventories and monitoring provide a baseline to understand and track future changes and reduce uncertainty associated with climate change and other environmental drivers on and across refuges in a landscape context.
- e) Biological and physical inventories and monitoring inform strategic growth of the NWRS by identifying gaps and shortfalls in ecosystem function and the biological integrity, diversity, and environmental health of the NWRS.

**Executive Implementation Council Approval:**

  
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U.S. Fish and Wildlife Service

*APR 30 2012*  
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Date