National Wildlife Refuge System Inventory and Monitoring Program Organization and Administration (Business Guidelines)

An Addendum to the Strategic Plan

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

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I. INTRODUCTION

The National Wildlife Refuge System (NWRS or Refuge System) is establishing a major new initiative with a vision of coordinating a national program of inventory and monitoring to generate information critical to ensuring the Refuge 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. Collaboration within the NWRS and with other Service programs and State, Federal, and private partners will lead to the effective integration of inventory and monitoring data needed to advance conservation at landscape scales. To accomplish this vision, the NWRS Inventory and Monitoring program (I&M program) must be integrated not only with existing refuge field and regional biological staff, but also with the newly established Landscape Conservation Cooperatives (LCCs). A successful I&M program will deliver valued products to the field, be accountable to Congress and the public, put in place sound business practices, and ensure learning and growth (Figure 1).

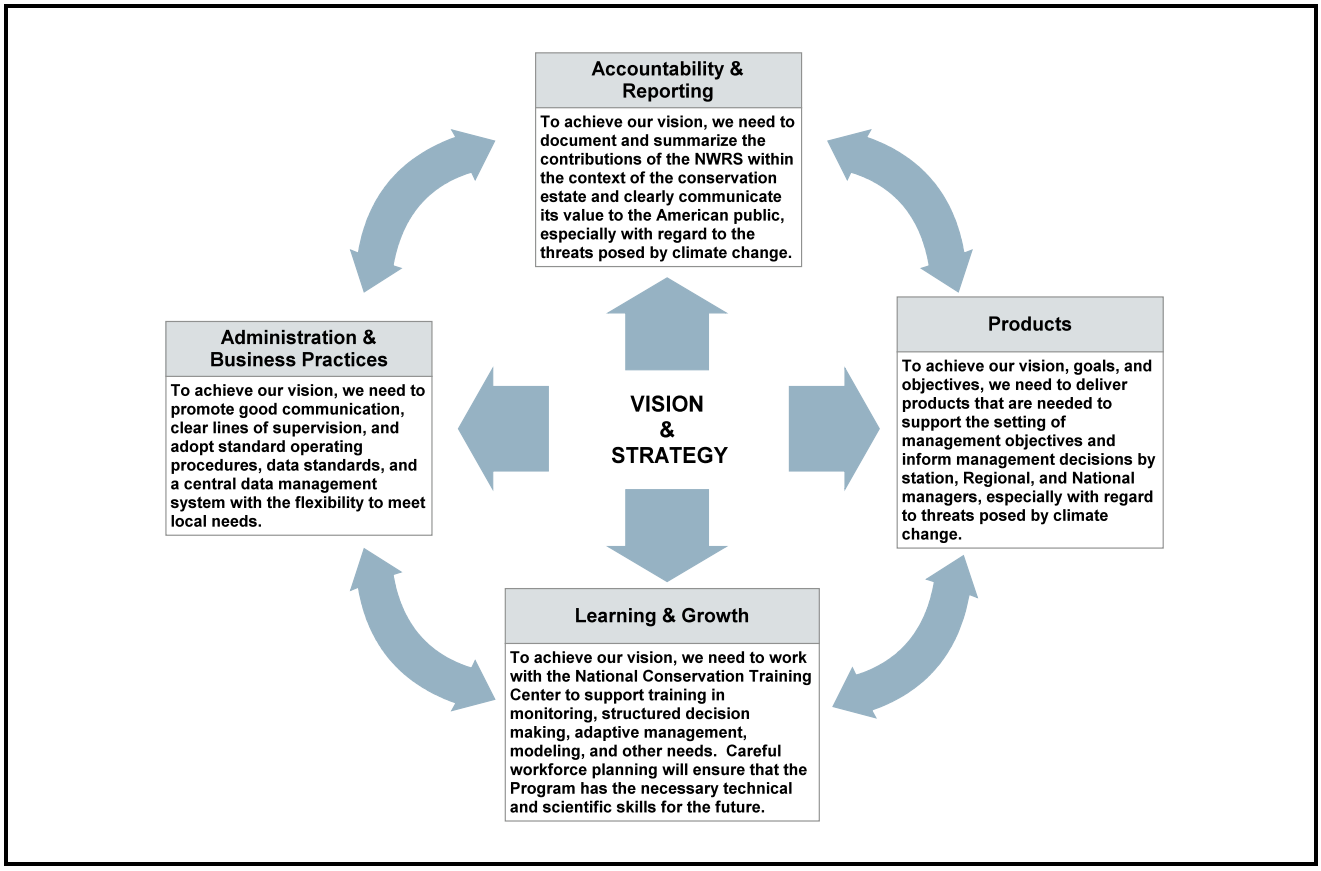

Figure 1. A successful I&M program will address all four elements: administration, reporting, products, and learning and growth.

II. ORGANIZATIONAL FRAMEWORK

STAFFING & HIRING

The initial staffing framework for the I&M program will include a national office in Fort Collins, Colorado, (15 FTEs), eight regional offices (headed by a regional I&M coordinator), a presence within each LCC established (I&M coordinator and I&M database manager), and a minimum of three field positions located at stations served by the LCC.

The coordinator positions at the national, regional, and geographic area/LCC levels will need strong communication and supervisory skills, but should also possess a variety of technical skill sets and experience. Consistency in hiring will be important; common position descriptions and grades should be used as much as possible in all regions. A set of core competencies should be developed that collectively comprise a "suite" of expertise that will be needed among I&M program staff at the national office, regional office, geographic area/LCC, and field stations. For example, we envision that the national, regional, and LCC offices will benefit from staff with skills in adaptive management, modeling, biometrics, structured decision-making (decision analysis), hydrology, invasive species, remote sensing, and a variety of taxonomic and ecosystem expertise such as wetland ecology, ornithology, forest ecology, grassland ecology, and fire ecology. Similarly, data managers at all levels should possess a variety of technical IT/data management skills such as programming, database design, web design, IT, GIS, and modeling.

To ensure the appropriate IT/data management skill sets, for example, the national GIS coordinator and/or appropriate technical staff may serve as consultants in the hiring process for the national office data management positions (remote sensing, database administrator, geospatial manager, and business analyst). The regional GIS coordinator and/or appropriate regional technical staff may serve as consultants in the hiring process for the geographic area data manager. Similar consultations during the hiring process may occur for other technical positions.

SUPERVISION

The following supervisory framework is recommended for the Refuge System I&M program:

National Office – AD-Refuges or designee

Regional I&M Coordinators – ARD-Refuges or designee

Geographic Area/LCC I&M Coordinators – Regional I&M Coordinator

I&M Field Staff – field station Project Leaders or GA/LCC I&M Coordinators

III. ROLES AND RESPONSIBILITIES

The Refuge System I&M program will be nationally coordinated, but integrated with refuge management. The roles and responsibilities of the I&M program are spread among the national, regional, LCC, and field offices (Figure 2). It will be necessary for I&M program staff at all levels to work on the priority tasks

outlined in the *Operational Blueprint* and subsequent Work Plans in order to have a nationally cohesive I&M program. This cohesion derived from working on common tasks will provide a strong foundation for the I&M program as it evolves over time. Leadership for specific projects will depend upon the availability of staffing, skills, and resources. This operational flexibility fits with the operating history and strong regional structure of the NWRS, but also requires strong cooperation and communication among the regions. Integration within existing programs and leveraging existing capacities of the NWRS, the Service, and conservation partners will also be critically important. A nationally coordinated I&M program will benefit from good communication, adoption of a set of standard operating procedures and data standards, a strong and unified data management structure, and reporting requirements.

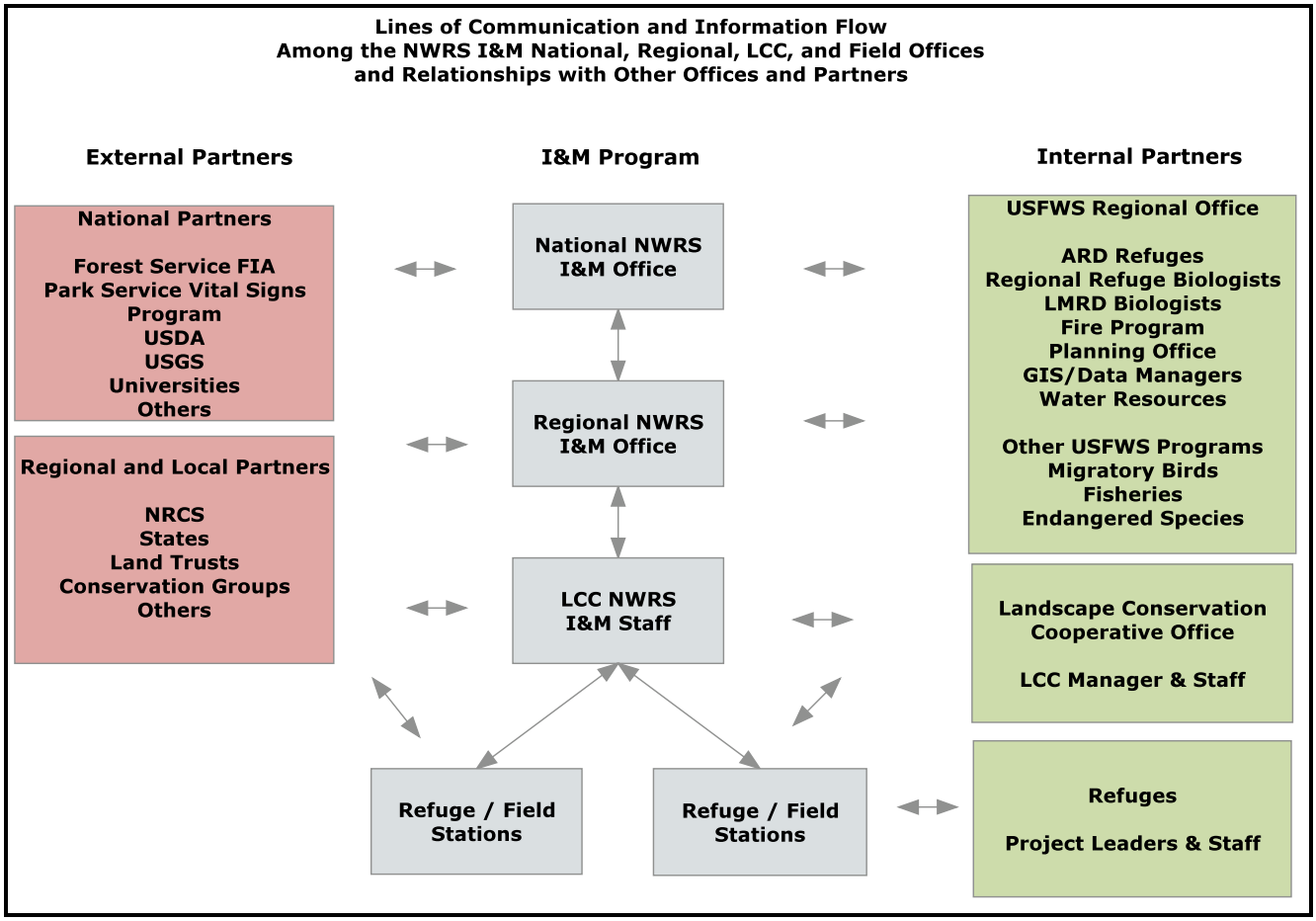

Figure 2. The diagram shows lines of communication and information flow among the national, regional, LCC, and field stations within the Refuge System I&M program. These channels of communication must work efficiently for data and information to flow up and down the program; this will allow for a nationally coordinated I&M program.

NATIONAL I&M OFFICE

A national I&M office will be established in Fort Collins, Colorado (Figure 3). The national I&M program manager will report to the chief of the Natural Resources Program Center, also located in Fort Collins, Colorado. This location is advantageous because it will foster collaboration and partnership with other

federal agencies including the National Park Service (NPS), the U.S. Geological Survey (USGS), and the National Oceanic and Atmospheric Administration (NOAA). We will benefit from the staff experience, protocols, databases, and processes developed over the more-than-10-year history of the NPS Vital Signs Program. Fort Collins is also close to Denver, where the U.S. Fish and Wildlife Service's IT infrastructure resides. Data management is a critical component of the I&M program and will rely heavily on the Service's IT infrastructure.

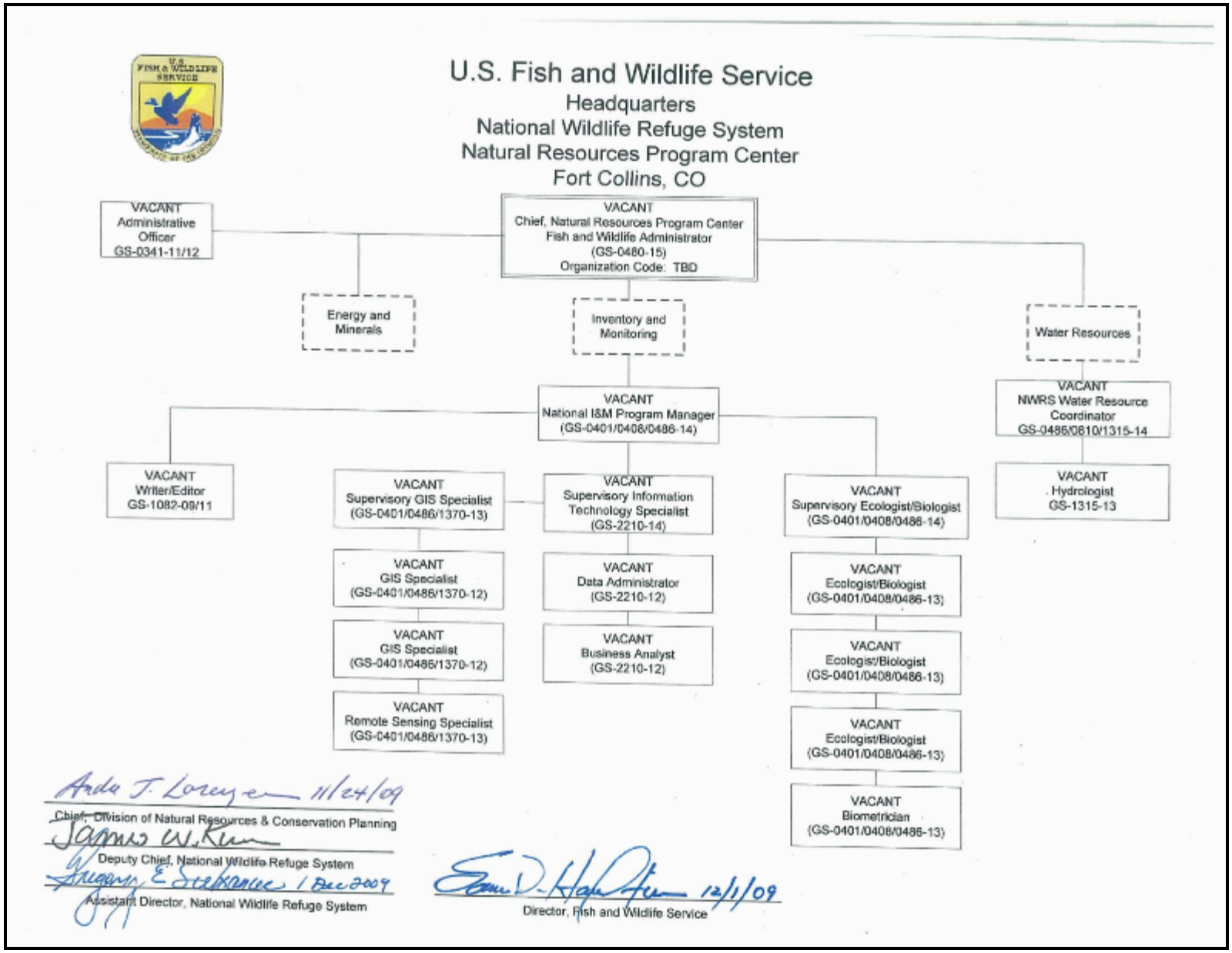

Figure 3. A diagram shows the organization of the NWRS Inventory and Monitoring national office in Fort Collins, Colorado.

REGIONAL OFFICES

The regional office will have a regional I&M program coordinator (one FTE); this position reports to the assistant regional director (ARD) for refuges, or a designee. The regional I&M program coordinators will work cooperatively with each other, the national office, the regional refuge biologists, the LCCs, and the field to create and sustain a nationally coordinated I&M program (Figure 2). The regional I&M program coordinator will have overall responsibility for the content, quality, and effectiveness of the I&M program in that region. The regional I&M program coordinator has the flexibility to hire staff at the LCC and field level to meet local, regional, and national I&M program needs. The regional I&M program coordinator will work with the regional refuge biologists, refuge supervisors, and the ARD for refuges to plan staffing at the field level needed to support inventory and monitoring priorities at multiple spatial scales and ensure that the staff hired have skills complementary to those already represented.

LANDSCAPE CONSERVATION COOPERATIVES

The Service's current management strategy for LCCs is to initiate and staff one LCC in FY 2010 and at least one additional LCC in each subsequent year until all LCCs are operational. The initial LCC operating in each region will have two I&M program FTEs to work cooperatively with the LCC staff, an I&M coordinator and a data manager. We suggest that the I&M coordinator have general structured decision-making and adaptive management expertise because these skills will be central to work done at the LCCs as well as the I&M program. These positions report to the regional I&M program coordinator, who has the flexibility to hire staff with appropriate skills to meet the needs within the geographic area served by the LCC. These positions will support inventories and monitoring on NWRS lands primarily, but will cooperate with the other LCC staff on landscape-scale strategic habitat conservation, or SHC. The specific projects undertaken will be defined by the regional I&M program coordinator, in cooperation with the LCC and the national office. LCC I&M staff will collaborate and communicate within and outside the Service (Figure 2).

FIELD STATIONS

A minimum of three field positions will be located within the geographic area served by the initial LCC or in other LCCs coming online, depending upon the needs of the region. We recommend that these field positions focus on inventory and monitoring pilot project coordination and data collection, in cooperation with the LCC staff. The location of these staff will be defined by the regions, in cooperation with the LCC and the national office. The regions have the flexibility to hire staff with appropriate skills to meet specific needs. Field-based staff will collaborate and communicate within and outside the Service (Figure 2).

IV. PROGRAM IMPLEMENTATION AND ADMINISTRATION

GENERAL

A nationally integrated I&M program will be achieved through strong communication and cooperation among staff at all levels of the I&M program. Business guidelines will promote cohesiveness and common purpose within the I&M program, as well as with existing NWRS and FWS leadership and biological and

technical staff, and effective integration with LCCs. We suggest the following guidelines to promote I&M program coordination and integration.

- All positions funded through this initiative will be responsible for implementing I&M program activities identified in operational plans developed for I&M program area, including supporting landscape-level I&M program needs that will be identified through integration with the Landscape Conservation Cooperatives and included in future operational plans.

- Coordination among the national office staff, regional I&M program coordinators, and geographic area/LCC and field station staff funded through this initiative will be defined in a set of standard operating procedures (SOPs), developed as the I&M program evolves. For example, strategic and annual work planning, priority setting, development and adoption of data standards, and maintaining accountability through reporting will be defined in SOPs.

- I&M program area staff funded under this initiative will coordinate with existing NWRS and Service leadership; biological, planning and technical staff; and programs to help develop priorities and approaches, and to leverage resources to increase effectiveness and efficiency. This will include coordination with regional refuge chiefs, refuge supervisors and project leaders, regional refuge biologists, Land Management and Research Demonstration biologists, refuge biologists, and fire, water resources, invasive species and information technology staff and programs. In some regions, the Division of Natural Resources may provide an organizational 'home' for the regional I&M program.

- National I&M program staff in Fort Collins will provide overall program area coordination and support, and be responsible for national-level collaboration with other agencies.

- Regional I&M program coordinators will provide I&M program support to all geographic areas and field stations within their respective regions.

- I&M program area staff at the geographic area/LCC and field station levels will provide I&M program support to all field stations within their respective geographic areas.

- The program will expand to new geographic areas as new LCCs are funded; if funding does not grow as expected, staff in the existing geographic areas will need to provide I&M program support to those geographic areas that remain without an LCC.

- I&M program staff funded under this initiative will integrate with and support the Service's approach to landscape conservation and response to climate change by coordinating at the national, regional, field station, and geographic area/LCC levels, within the NWRS and with other Service programs, national and regional climate teams, and staff and partners at the LCCs.

- Data standards teams will be formed in FY10 and led by national office data management staff. Team members will consist of all geographic area data managers and the national GIS coordinator or a designee.

- The national office data management staff will produce a handbook describing general data management guidelines and standard operating procedures for geographic area data managers by March 1, 2011.

- Geographic area data managers will produce a data management plan for their geographic area by September 30, 2011.
- A data governance team will be formed in FY 2011 and led by national I&M data management staff with representation from NWRS leadership and at least one biometrician to establish a formalized process for ensuring our data assets are consistent, accurate, complete, accessible, protected, and efficiently managed.

PERFORMANCE METRICS

The NWRS has traditionally measured and reported on dozens of outputs, such as how many acres are in need of habitat restoration or the number of acres treated annually for invasive species. While such quantitative measures are indeed useful to follow, they do not necessarily indicate whether the Refuge System is meeting its biological integrity or environmental health mandates, for example. Sometimes outputs are tracked because they legitimately indicate the degree to which the Refuge System is meeting its fundamental goals or statutory requirements (such as completing Comprehensive Conservation Plans on time), but nearly as often the Refuge System tracks outputs without an obvious connection to its high-level, biological goals. Just as the I&M program intends to provide data necessary for adaptive management decisions, so too, should the Refuge System use performance data to improve conservation delivery. To do so, it's critical that the Refuge System start to dedicate attention not only to *outputs*, but also to biological *outcomes*.

Albert Einstein long ago said, "Not everything that can be counted counts, and not everything that counts can be counted." His words still hold true for the Refuge System today. Fortunately, the Refuge System is at a favorable crossroads with the development of the I&M program, which offers the opportunity to reevaluate what is measured, why it's measured, and how those data are used. While abandoning output-type measures is unnecessary and would be a mistake, the Refuge System should nevertheless develop some performance measures that are more reflective of its fundamental goals. Doing so will offer the Refuge System needed insight into how well it's choosing, managing, and monitoring its conservation targets.

Creating realistic, measurable indicators is an important step in completing the paradigm shift toward adaptive management-based decision-making and showing the Department of the Interior, the Office of Management and Budget, Congress, and the public that the Refuge System is maximizing limited conservation resources. But tracking performance measures that shed light on biological outcomes will also facilitate a learning process for refuge staff and help them understand the reasons for their successes or failures. Tracking performance, whether for habitat quality, population objectives, visitor services, or law enforcement, is not very different from adaptive management: People can use performance data to learn and adapt in the ongoing effort to meet fundamental objectives. Indeed, Meretsky *et al.* (2006) recommended the use of ecological indicators to justify management actions and to measure and communicate progress; and the use of composite or multi-metric indices and other methods to assess ecosystem condition. The Refuge System may also look for opportunities to quantify ecosystem services, particularly metrics related to carbon sequestration.

REPORTING

- NWRS leadership will review and potentially revise the program vision and priorities every five years.
- The I&M program *Strategic Plan* will be revised within two years after I&M program initiation. Reviews will take place at five-year intervals thereafter. The *Strategic Plan* will provide the long-term vision for the I&M program and a scope of work for the upcoming five-year period (National I&M program manager).
- An *Annual Work Plan* will be prepared by September 30 each year to guide activities at all levels of the I&M program during the following fiscal year (Regional I&M program coordinators, lead).
- An *Annual Report* of the previous fiscal year activities will be due on December 1 each year (Regional I&M program coordinators, lead).
- Performance measures will be developed that link to the NWRS strategic plan, FWS performance measures for climate change, and landscape-scale conservation plans.
- A reporting format will be developed that tracks how funds were spent and reports the accomplishments of each geographic area/LCC. The reporting format will facilitate synthesis of individual reports into a summary report for the national level, suitable for reporting to Congress and OMB.

ALLOCATIONS AND EXPENDITURES

- At the discretion of the assistant director for the Refuge System (AD-Refuges), a designated portion of the annual funding received by the NWRS for inventory and monitoring under the current Service climate change initiative and any related future budget initiatives may be retained and administered by Refuge Headquarters prior to allocation to the regions. This funding will address priority "national" or "NWRS-wide" inventory and monitoring data acquisition, data management, data analysis, and dissemination of results, contracts, and staffing. These needs, projects, and associated costs will be described in strategic and annual planning documents for the I&M program and presented to the NWRS Leadership Team in advance.
- The $12 million appropriation received in FY 2010 (after standard adjustments) will be allocated equally to all regions and used for staffing and operations (one regional I&M program coordinator, one geographic area I&M program coordinator and I&M program data manager position per LCC, and three field station I&M program positions within geographic areas establishing LCCs), minus $2 million to be administered by Refuge Headquarters to establish the I&M program office in Fort Collins, Colorado, (10 FTEs) and $1 million to fund priority national-level data acquisition, data management, analysis, and reporting, and/or to support related pilot projects (Appendix B).
- Funding received in FY 2011 in excess of the $12 million received in FY 2010 will be used to add and support additional I&M program staff in the Fort Collins office (five FTEs), to fund priority national level sampling designs, data acquisition, data management, analysis, reporting, or related pilot projects (Appendix B) and to fund I&M program positions at the geographic area/LCC and field station levels in those geographic areas establishing LCCs in FY 2011(following the organizational model and staffing levels initiated in FY 2010).

- Given that it will take time to fill the designated positions, funding received in FY 2010 and FY 2011 but not immediately needed to support I&M program personnel costs (including PCS costs) and/or direct operational costs for support of these personnel, will be made available to fund priority national- and regional-level needs for data acquisition, data management, and related pilot projects (Appendix B).

- Funding received in FY 2012 and successive out-years in excess of that received in FY 2010 and 2011 will be used to meet identified national-level needs and to fund positions at the geographic area/LCC level and field stations, using the organizational model initiated in FY 2010, until all geographic areas are covered at that staffing level (two positions per LCC, three field station positions per region). There is a critical need to increase technical capacity for planning and implementing inventories and monitoring across the Refuge System; the I&M program is a golden opportunity to address these needs.

- When these minimum I&M program area staffing levels are funded and met at the national office, regional offices, and within all geographic areas, an allocation methodology will be developed for determining regional geographic-area allocations for any additional funding received. For example, this allocation methodology could wholly or partially utilize national staffing models identifying field and centralized (regional, geographic area/LCC) staffing needs.

- The AD-Refuges will retain the discretion of withholding future funding received under this or future related funding initiatives from any region if funding is not used to support the planned I&M program activities, priority projects are not completed, or if *Annual Work Plans* and reports are not received on time.