

## National Park Service

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### SERVICEWIDE INVENTORY AND MONITORING INFORMATION BULLETIN

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#### Development of the I&M Program

The National Park Service (NPS) Servicewide Inventory and Monitoring (I&M) Program has evolved out of a task force report prepared for the Associate Director for Natural Resources in 1987 which examined ways to implement natural resources I&M on a programmatic basis throughout the NPS. The goal was to develop an I&M program focused on Servicewide needs and priorities which would also complement individual regional and/or park-based I&M efforts.

The Task Force report recommended a two-phase approach. During the first 10 years (Phase I), the Task Force recommended that the Servicewide I&M Program complete basic natural resource inventories for all park units containing significant quantities of natural resources, implement experimental monitoring programs in a selected sample of "prototype" parks, and design monitoring programs for a portion of the other parks in the system. For Phase II, the Task Force recommended that long-term monitoring be extended to all natural resource parks in the NPS and continued in perpetuity.

Several significant events giving additional structure and direction to the program have been completed since the Task Force completed its deliberations. For example, NPS-75, a Servicewide policy guideline for designing and implementing inventory and monitoring programs in individual park units, has been published. A Servicewide Inventory and Monitoring Coordinator has been hired to work under the supervision of the Deputy Associate Director for Natural Resources in Washington D.C. Finally, a draft strategic I&M action plan, designed to guide Phase I of the program, has been completed and is now in review.

The Servicewide Coordinator works directly with a 14-member National I&M Advisory Committee (Committee) established by the Associate Director for Natural Resources to assist in various aspects of technical program development and implementation. Committee members (Attachment 1) serve 3-year terms and are selected because of their professional expertise and experiences rather than because of their regional and/or park affiliation.

The Committee normally meets twice annually. Most recently, it met in April and December, 1992. In addition to the Committee, the Servicewide Coordinator interacts with Regional I&M Coordinators in each Regional Office to coordinate efforts at the regional and park levels.

In FY 93, the Servicewide I&M budget stands at \$ 4.5 million. Throughout Phase I of the program, annual funding will be used to support four major activities: (1) continued development of basic natural resource inventories, (2) funding for prototype monitoring park activities, (3) limited Research and Development (R&D) activities to develop protocols and related technical methodologies needed to support the Servicewide effort, and (4) salaries and related support for the Deputy Associate Director's Office. Funding for competitive research proposals and existing, non-prototype monitoring efforts are not seen as significant components of the program.

### **Natural Resource Inventories**

In April 1992, the Committee recommended a listing of 12 basic natural resource data "themes", referred to collectively as the Level I natural resource inventory, which it felt represents the minimal level of natural resources data needed for park planning and management. A goal has since been established to complete this basic set of data within the 10-year Phase I period for all of the approximately 250 park units containing significant quantities of natural resources. In August 1992, each park was asked to provide the Washington Office with a priority ranking of those 12 items in terms of park-specific management problems and needs. The purpose for requesting that information was to coordinate the Servicewide resource inventory as much as possible with individual park data management priorities. A summary of the priorities provided to the Washington Office are provided in Attachment 2.

The survey revealed that the Level I natural resource data sets most urgently needed Servicewide are: (1) compilation of known species listings, (2) procurement of a current vegetation map, (3) development of an annotated bibliography / data base, (4) species distribution information, and (5) acquisition of base cartographic information. Therefore, in FY 93, the Servicewide I&M Program will initiate the acquisition of each of these top priority data elements, with the exception of species distribution information. Approximately \$ 2.1 million is available this year for those resource inventories. Annual funding allocations are based upon the estimated total cost and number of years needed to complete each inventory in all units. The Committee realizes that many park units may also require other, more-specialized resource information. However, the acquisition of those data will be the responsibility of the

individual parks. Regional and/or park-based I&M efforts should be designed to meet those specialized needs.

During the December 1992 meeting, the Committee concluded that appropriate protocols are currently not available for conducting systematic flora and fauna surveys in the diversity of habitats occurring throughout the NPS system and therefore recommended that an R&D effort be undertaken to develop those protocols. In addition to protocols for flora and fauna field surveys, the Committee also recommended that Servicewide protocols be developed in FY 93 for vegetation classification and mapping as well as collection and analysis of water quality samples, including both fresh and salt water systems. Approximately \$ 50,000 is also be earmarked for addressing Servicewide data management issues and concerns.

The schedule for initiating the other eight Level I resource inventories, shown in Attachment 3, will also generally adhere to the priority rankings obtained through the Servicewide data call. However, because of budget constraints and competition for available funding, it will also be crucial that those resource inventories be conducted in the most cost-effective manner. To accomplish that goal, the Committee recommended that the inventories be conducted simultaneously over large geographic scales, rather than focused specifically at an individual park level. This approach will allow the Service to take advantage of economies of scale as well as maintain a higher degree of quality control over the inventory process. To illustrate, the Committee recommended that vegetation mapping be conducted at the biome level and all park units within a selected biome be mapped at the same time. However, park and regional priorities should be taken into consideration when deciding which biome(s) to map first. In similar manner, the Committee recommended that travel and related costs could be reduced by completing bibliographies on an entire regional basis, as opposed to working on a small number of bibliographies in each of the 10 NPS regions.

Plans are currently being developed to have the inventories completed through a combination of contractor, cooperative agreement, and in-house efforts. During the December 1992 meeting, the Committee established separate working groups to develop the necessary Request For Proposals (RFPs) and related documents needed for each inventory. Progress towards implementation of those plans will be provided in the next I&M Information Bulletin.

### **Prototype Park Selection**

During Phase I of the I&M Program, the Washington Office plans to provide funding to establish a network of 10

experimental, or "prototype" monitoring parks. The charge to these parks will be to determine how to effectively design and conduct park-wide ecosystem monitoring so that the information gained can be shared with other parks. This effort will be in addition to and complement the issue-specific monitoring studies currently being conducted in many park units. During FY 92, prototype monitoring programs were established in four units -- Denali, Channel Islands, Shenandoah, and Great Smoky Mountains National Parks.

During the December 1992 meeting, the Committee recommended that the remaining six prototype monitoring units be selected in FY 93, even though funding will not be available to support any of those additional programs until at least FY 94. Of the six additional prototype monitoring programs, the Committee recommended that two be clusters of small parks, or one large park surrounded by a cluster of small, satellite park units. The Committee also recommended that the next prototype monitoring program added be a cluster program.

In order to insure that the selected prototype monitoring programs represent the full range of NPS ecological conditions, the Committee has assigned all I&M park units to nine "biogeographic" associations loosely defined in terms of the ecological similarities shared by the units within each association. The nine associations are: (1) Arctic/Sub-Arctic Units, (2) Atlantic/Gulf Coast Units, (3) Cave Units, (4) Arid Lands Units, (5) Deciduous Forest Units, (6) Lakes and Rivers Units, (7) Pacific Coast Units, (8) Tropical/Sub-Tropical Units, and (9) Coniferous Forest Units. The four current prototype monitoring units are included in the Arctic/Sub-Arctic, Deciduous Forest, and Pacific Coast associations. Therefore, no additional prototype monitoring programs will be selected from those associations. One prototype monitoring program will be selected from each of the six remaining biogeographic categories.

The Washington Office will issue an RFP by April 15, 1993 requesting proposals from regions wishing to compete for the prototype monitoring programs. Each region will be allowed to submit one proposal in each of three different biogeographical categories. **No region will be allowed to submit more than three proposals.** Proposals will be due in the Washington Office by September 15, 1993. The I&M Committee membership will evaluate the proposals and select the remaining six prototype programs during the Fall 1993 Committee meeting.

### **New Inventory and Monitoring Course**

A new NPS course, "Inventory and Monitoring of Natural Resources", will be offered for the first time in August 1993 at a location yet to be determined. The course has been designed to

assist park personnel in their efforts to design or improve upon existing natural resource inventory programs in preparation for undertaking long-term monitoring. Objectives of the course are:

1. To present a systematic approach to a fully integrated "holistic" inventory and monitoring program.
2. To introduce the concepts of ecology as applied to an integrated inventory and monitoring program.
3. To discuss the process of developing a strategy for designing an integrated inventory program which meets specific park needs.
4. To identify the ecological components, experimental design, statistical analyses and quality control and assurance needs of an inventory and monitoring program.
5. To discuss the role and methods of information management in an inventory program.
6. To present alternatives, methods, and avenues of accomplishing inventories.

#### **Next Quarter's Major Activities**

During the period January through March, 1993, major planned activities associated with the Servicewide I&M Program for the Washington Office include:

- Conducting an annual coordination meeting with prototype park staff at Channel Islands National Park.
- Convening the next meeting of the Technical Advisory Committee.
- Issuing Requests for Proposals for Level I resource inventories.
- Publishing a manuscript titled, "The National Park Service Inventory and Monitoring Program: Phase I Overview and Strategy"
- Developing draft role and function statements for regional I&M coordinators.

Attachment 1. Servicewide Inventory and Monitoring  
Committee members participating in the December 1992 meeting.

Servicewide I&M Program Coordination

Dennis Fenn, WASO  
Gary Williams, WASO

Inventory Sub-group

John Karish, MARO  
Sue Glenn, WVD  
Tom Stohlgren, RMRO  
Gary Waggoner, GISD  
Bill Jackson, WRD  
Judy Hazen Connery, ACAD  
Nat Kuykendahl, DSC

Monitoring Sub-group

Gary Davis, CHIS  
Caroline Rogers, VIIS  
Phil Brueck, PRWI  
Dale Taylor, ARO  
Miguel Flores, AQD  
Dave Haskell, SHEN

Members Not In Attendance

Abby Miller, WASO

Attachment 2. Number of National Park Service units which placed individual natural resource inventory components into each of the 3 top management priority categories. Percentages are based on a total sample of 244 park units.

LEVEL I NATURAL RESOURCE INVENTORY COMPONENT	PRIORITY LEVEL			TOTAL	
	I	II	III	NO.	%
Species List Compilation	54	46	28	128	52
Vegetation Map	37	37	37	111	45
Annotated Data Base / Bib	61	24	23	108	44
Species Distribution Data	17	45	35	97	39
Base Cartographic Map	20	22	27	69	28
Water Resources Inventory	17	21	23	61	25
Water Quality Data	14	20	24	58	23
Soils Map	7	6	21	34	13
Geology Map	5	8	6	19	7
Air Quality Data	3	6	7	16	6
Precip. / Meteorol. Data	2	3	7	12	4
Air Quality Sta. Location	3	3	2	8	3



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