



# Inventory and Monitoring Program

## Background

Park managers across the country are confronted with increasingly complex and challenging issues that require a broad-based understanding of the status and trends of park natural resources as a basis for making decisions, working with other agencies, and communicating with the public.

As part of the National Park Service's effort to "improve park management through greater reliance on scientific knowledge", a primary role of the Inventory and Monitoring (I&M) Program is to collect, organize, and make available natural resource data and to contribute to the Service's institutional knowledge by transforming data into information through analysis, synthesis, and modeling.

The primary goals of the I&M Program are to:

- Inventory the natural resources under National Park Service stewardship to determine their nature and status.
- Monitor park ecosystems to better understand their dynamic nature and condition and to provide reference points for comparisons with other, altered environments.
- Establish natural resource inventory and monitoring as a standard practice throughout the National Park system that transcends traditional program, activity, and funding boundaries.
- Integrate natural resource inventory and monitoring information into National Park Service planning, management, and decision making.
- Share National Park Service accomplishments and information with other natural resource organizations and form partnerships for attaining common goals and objectives.

The I&M Program provides guidance, funding, and technical assistance to complete a set of 12 baseline natural resource inventories for parks. These inventories serve as the baseline for establishing long-term ecological monitoring, known as "Vital Signs Monitoring."

Vital signs are a subset of physical, chemical, and biological elements and processes of park ecosystems that are selected to represent the overall health or condition of park resources, known or hypothesized effects of stressors, or elements that have important human values.



The Inventory and Monitoring Program is providing data to improve our understanding and management of park natural resources. Like this hare, our staff have big ears and listen closely to determine needs.

To facilitate collaboration, information sharing, and economies of scale in inventory and monitoring, the NPS has organized more than 270 parks with significant natural resources into 32 ecoregional networks to conduct inventory and monitoring activities.

## Highlights and Accomplishments

Baseline natural resource inventories are extensive point-in-time surveys to determine the location or condition of resources in national parks, including the presence, class, distribution, and status of biological resources such as plants and animals, and information on abiotic resources such as air, water, soils, landforms, and climate. Inventories were designed to contribute to our knowledge of the condition of park resources and to establish baseline information for subsequent monitoring activities.

The I&M Program has developed and delivered more than 2,362 baseline inventory datasets to more than 270 parks, and is continuing to fund and develop inventories to meet the highest-priority needs of the parks.

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## More Information

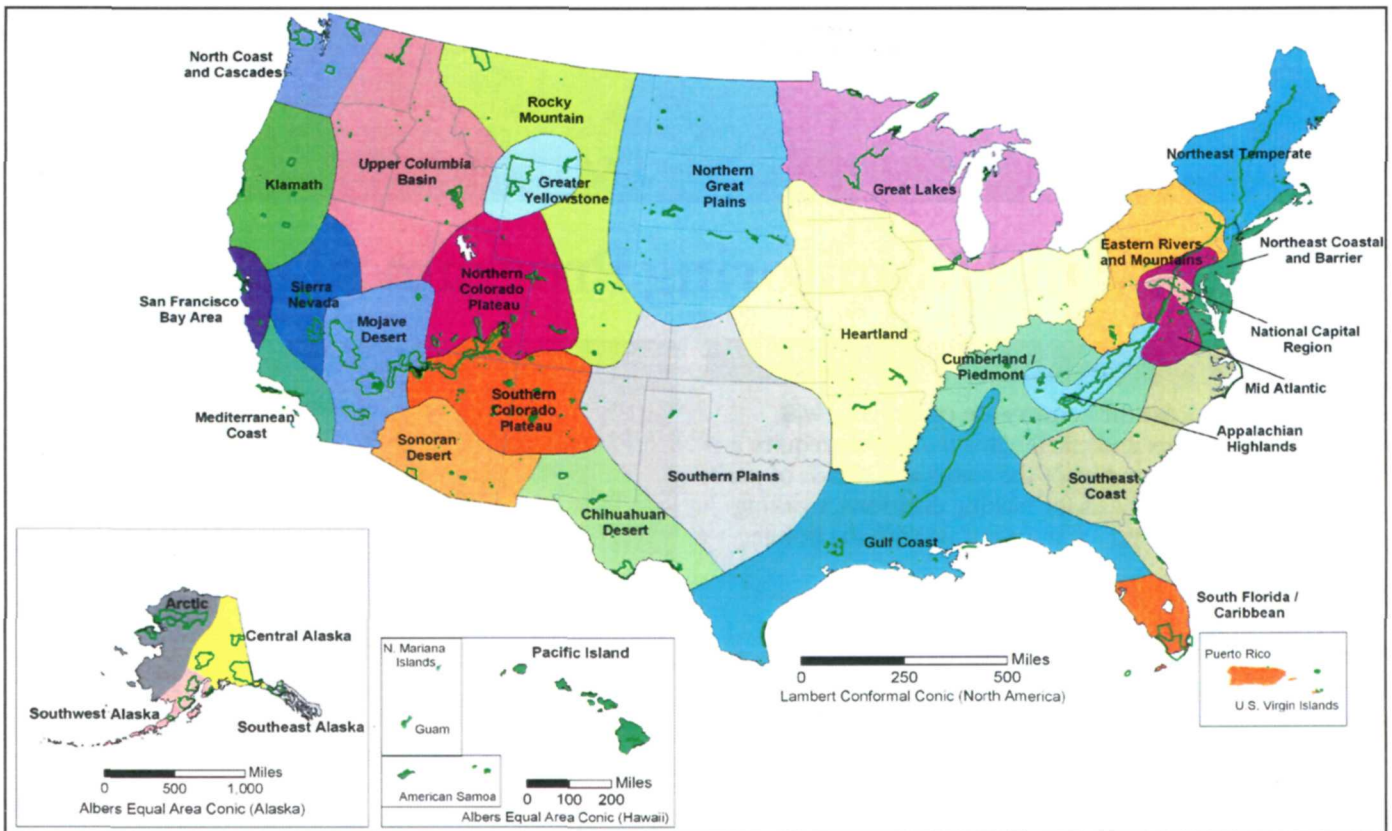
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Map of the 32 I&M ecoregional networks that include more than 270 park units with significant natural resources. The 32 networks share core funding and a professional staff to inventory park natural resources and conduct long-term monitoring of park ecosystems.

The 12 baseline inventories include:

- Natural Resource Bibliography
- Base Cartography Data
- Air Quality Data
- Air Quality Related Values
- Climate Inventory
- Geologic Resources Inventory
- Soil Resources Inventory
- Water Body Location and Classification
- Baseline Water Quality Data
- Vegetation Inventory
- Species Lists
- Species Occurrence and Distribution

**Vital signs monitoring** provides scientifically sound information on park natural resources from systems-based monitoring. Monitoring data supports management decision-making, park planning, research, education, and promotes public understanding of park resources.

Vital signs monitoring has been implemented in all 32 networks to address physical resources and processes (e.g., air, water, climate, soils, fire, erosion), biological attributes (e.g., species, communities), and ecological processes (e.g., disturbance, productivity).

Each network developed a monitoring program tailored to the highest needs of their parks by defining network goals and objectives, identifying and prioritizing potential vital signs, and selecting a modest set of vital signs for long-term monitoring. Criteria used

in the final selection of vital signs included ecological significance, management relevance, and legal mandate.

**Data and information management** based on state-of-the-art data practices is a hallmark of the I&M Program. Each network planned and implemented a comprehensive data management system that protects and enhances the long-term value of monitoring data.

All networks and the national program office have made a sustained and substantial investment in database design, data archiving, and in reporting data and derived information.

Results of inventories and monitoring are used in resource condition assessments and park planning documents, and are provided to managers, planners, interpreters, scientists, and the general public through numerous approaches such as websites, technical reports, resource briefs, journal publications, and oral presentations.

### Status and Future

More than 1,000 scientists, resource specialists, park managers, and data managers actively contributed to the design and implementation of this long-term program. This highly collaborative effort developed an integrative, park-based program with a strong link between inventory and monitoring information and management needs. The I&M Program effectively leverages current monitoring investments by NPS and other partners, and it provides basic information needed by a variety of other NPS stewardship programs.