Natural Resource Bibliography

Background

The Natural Resource Bibliography has been developed by the National Park Service (NPS) in order to catalog and manage natural resource-related information products pertaining to national parks. One of the 12 core NPS natural resource inventories, the bibliography centralizes a wide range of information and makes it readily available and easy to locate.

The data system supporting the Natural Resource Bibliography has undergone an extensive redesign, and in 2010 records in the previous system, known as NatureBib, were migrated to the NPS Data Store, which is part of the Integrated Resource Management Applications (IRMA) site(http://nrinfo.nps.gov).

The focus of these records is primarily on reports, articles, conference proceedings, theses and dissertations, gray literature, and other documents that contain information on park natural resources. In particular, the inventory captures references that may not be easily located via commercial on-line reference services (e.g., BIOSIS, JStor) or via public or academic libraries. In addition to standard bibliographic information, the IRMA-based Data Store permits the uploading of full-text versions of documents and publications, so that users can view or download documents corresponding to their search results.

As a general rule, the Natural Resource Bibliography is not intended to be a definitive bibliographic source for all literature available on a particular park or resource, nor is it intended for very general references (e.g., Birds of North America; Weeds of the West). Information that pertains to lands or resources adjacent to park units is appropriate for inclusion in if it has relevance to park management issues. Miscellaneous items such as maps or correspondence also have a place in the system, based upon their content.

Dall sheep (*Ovis dalli*), Denali National Park.

Status

The Data Store in IRMA currently houses over 350,000 records. It also contains thousands of geospatial and other data sets. NPS staff across the country continue to add and update records on a daily basis.

Products

Access to records resulting from this inventory is available via IRMA at http://nrinfo.nps.gov. No login or password is required. While full access to data is available to NPS users, a limited number of records is currently available to partners and the general public. This number will be steadily increasing as quality assurance steps are completed and sensitive data are protected.

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Base Cartography Data

Background

The Base Cartography inventory is one of 12 core inventories identified by the National Park Service as essential to effectively manage park natural resources.

Cartographic information from this inventory provides geographic information systems (GIS) data layers to National Park resource management staff, researchers, and research partners. The inventory acquires, processes, and distributes GIS data that complement other inventory projects, as well as many GIS mapping and analysis projects throughout the Park Service.

Base cartographic inventory products are used by the National Park Service and others for many different applications, ranging from making maps, to spatial data verification, to designing monitoring sampling frameworks. For example, digital orthophotos (see graphic), provide credible, high-resolution spatial information that can be used to verify the spatial accuracy of cartographic products. The thematic information content in existing digital imagery and elevation data sets are very useful for analysis to ensure the range of landscape conditions is reflected in monitoring sampling designs.

Products

The program delivers customized geospatial products including:

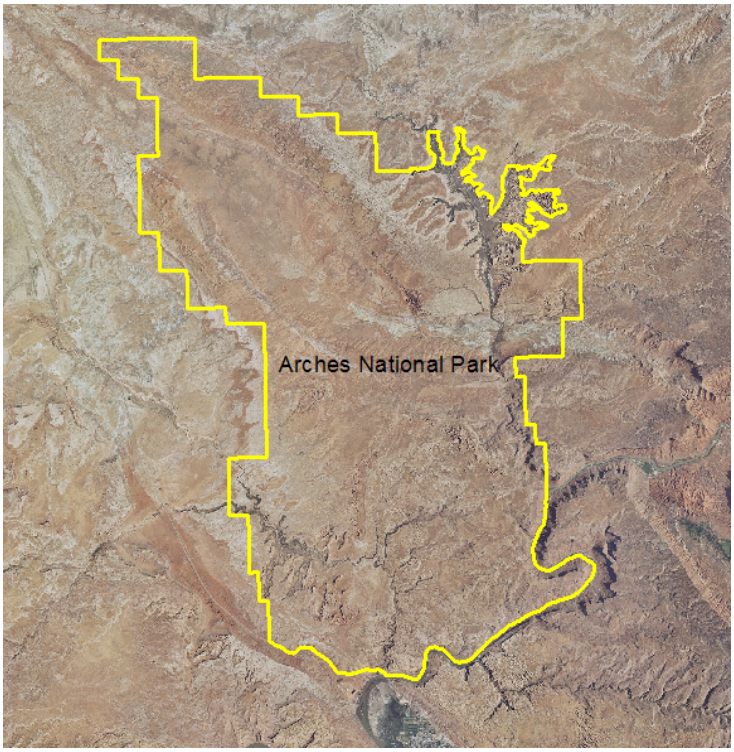
1. Digital Elevation Models (DEM) - digital files consisting of terrain elevations for ground positions at regularly spaced horizontal intervals.

2. Digital Orthophoto Quarter Quadrangles (DOQQ) - A digital orthophoto quadrangle is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed.

3. National Elevation Dataset (NED) - designed to provide national elevation data in a seamless form with a consistent datum, elevation unit, and projection.

4. National Agricultural Imagery Program (NAIP) imagery - geo-referenced imagery acquired during the agricultural growing seasons in the continental U.S.

The final products, when completed, will be kept up-to-date, in a seamless format, and ready for use in ESRI GIS software packages. Some additional derived products are included, such as hillshade, aspect, and slope grids which are created from elevation data.



Composite image mosaic of 2009 NAIP imagery for Arches National Park.

Status

This inventory is currently in progress. The Integrated Resource Management Applications site (IRMA) is the primary distribution point for base cartography data (https://nrinfo.nps.gov/). Special requests for data may be made by contacting the NPS Inventory and Monitoring Division staff.

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Natural Resource Stewardship and Science
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Air Quality Data

Background

The quality of air in national parks can significantly affect park resources such as vegetation, soils, water, and buildings and monuments, as well as park visitors. Visibility, for example, has a strong impact on a visitor's experience and the perception of a national park. In some instances, air pollutants such as ozone, sulfur dioxide, or particulate matter can reach concentrations that injure plants or cause adverse health effects for persons visiting or working in parks.

The Environmental Protection Agency (EPA) has defined a number of air pollutants known to cause adverse effects and has set standards for unacceptable concentrations. Other potentially hazardous or troublesome air pollutants have also been recognized by EPA, including mercury and acidic deposition; however, no direct standards have been set. Particles that cause haze and poor visibility are regulated by standards and rules designed to bring visibility in protected natural areas back to natural conditions.

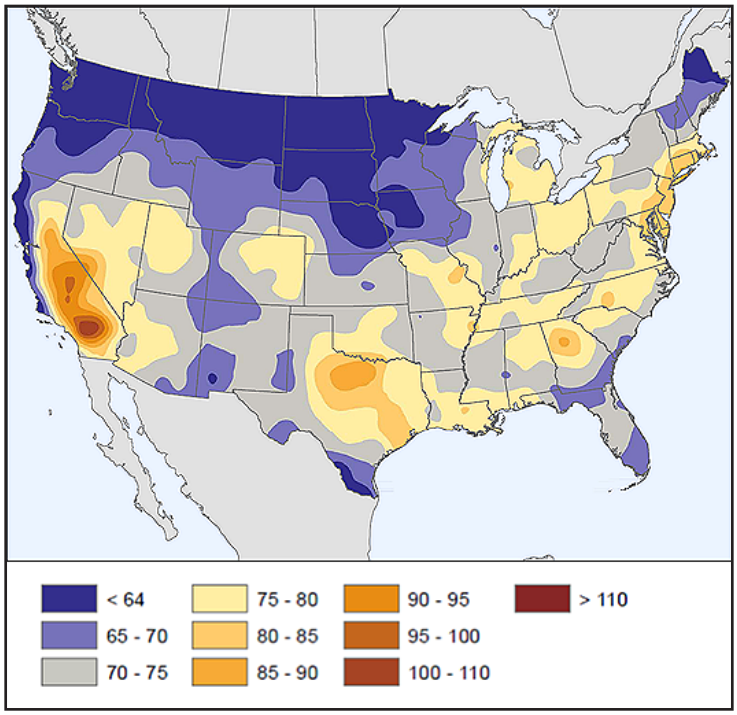
The Air Quality Inventory focuses on indicator pollutants regulated under the Clean Air Act. Air quality assessments require monitoring to determine current conditions in relation to standards or limits that are designed to protect human health and sensitive vegetation. Trends and spatial variability are important for assessing the potential impact of air quality on natural resources.

As with the weather, air quality can vary from day to day, and monitoring requires measurements taken over the long term in order to assess conditions and trends. The challenge is to take air quality data that are available and determine how to best apply them to help understand current conditions in parks.

Products

Statistical summaries have been prepared from data collected by the national air monitoring networks during five-year periods of observation. These data were entered into a geographic information system (GIS) database where inverse distance-weighted and kriging techniques were applied to create gridded air quality estimates for the contiguous 48 states. The result is a series of GIS maps that portray the spatial concentrations of air pollutants over the U.S.

The maps and estimated pollutant values at park locations are presented in a product called Air Atlas. The Air Atlas GIS viewer and five-year average estimated values are available on the web and from the Integrated Resource Management Applications website (IRMA).



Example from Air Atlas 2005-2009 displaying the 4th highest annual value of the maximum daily 8-hour ozone concentration in parts per billion.

Status

The initial Air Quality Inventory using the GIS interpolation method was completed for the period 1995-1999 and posted to the web as Air Atlas. Three updates have been completed since then for the periods 1999-2003, 2001-2005, and 2005-2009. Air quality maps and estimate tables for 270 natural resource parks are complete.

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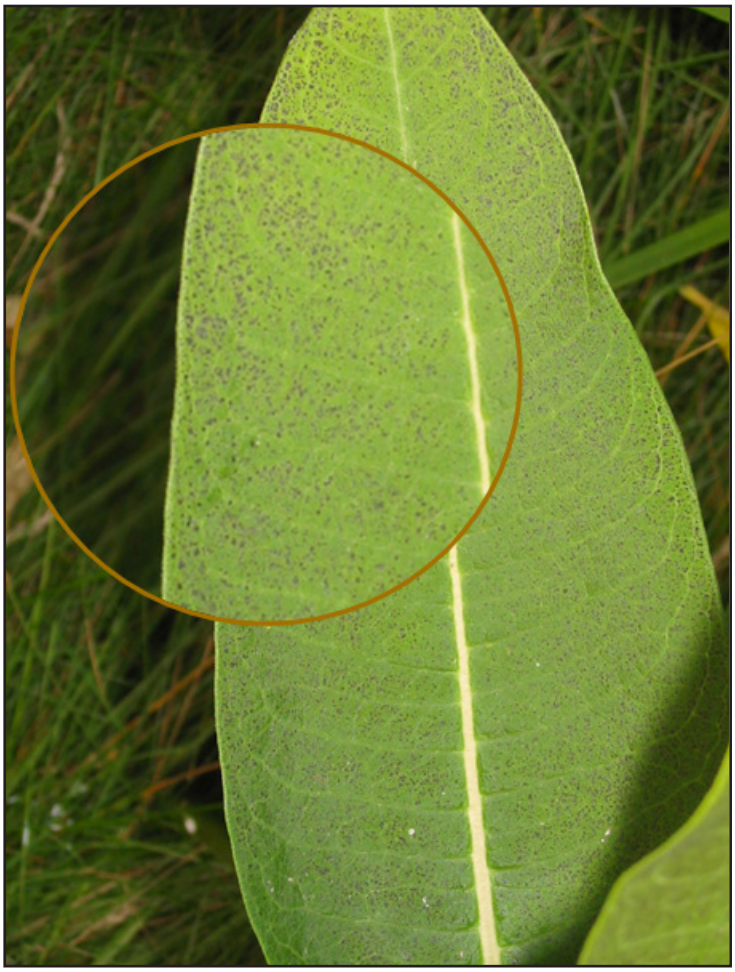
Air Quality Related Values

Background

Air quality related values (AQRVs) are resources sensitive to air quality and include a wide array of vegetation, soils, water, fish and wildlife, and visibility. The goal of the AQRV inventory is to provide park-specific information on location, distribution, and relative sensitivity of AQRVs. And, where possible, the AQRV inventory will provide information on the types and amounts of air pol¬lutants that cause harmful changes to AQRVs. Two series of network-specific inventory reports identify and map AQRVs in parks and networks that are sensitive to either the acidifying effects of nitrogen and sulfur deposited from air pollution or the nutrient enrichment effects of nitrogen deposition, and ranks parks and networks according to their relative risk from these pollutant effects. A third series of reports identifies plant species in parks and networks that are known to be sensitive to the phytotoxic effects of ozone and ranks parks according to relative risk from ozone injury.

Additional inventory reports and publications identify "critical loads" for AQRVs. The critical load is the amount of a specific pollutant that causes harm to an AQRV. The NPS Air Resources Division (ARD) is collaborating with federal and university scientists on a number of projects in parks to test approaches for determining critical loads that can eventually be applied more widely. These projects are prioritized according to AQRV sensitivity, and current or future threats to AQRVs. Critical loads developed for the most sensitive AQRVs will provide the basis for management goals and desired future conditions that, when attained, are expected to provide protection for AQRVs from atmospheric deposition of pollutants. AQRV inventory information can also be used by park managers and planners, and state, local, and federal air quality agencies, to ensure that activities within and outside parks do not harm AQRVs and ensure that air quality management strategies provide the highest level of protection to AQRVs.



Closeup of ozone injury to milkweed (*Asclepias sp.*) at Allegheny Portage National HIstoric Site.

Products

Information on AQRVs can be accessed from the Air Resources Division's Air Quality in Parks web pages (http://www.nature.nps.gov/air/) and through the Integrated Resource Management Applications site (IRMA)(https://nrinfo.nps.gov/). Air Quality in Parks is organized by park or network, with special emphasis on the 48 NPS Class I air quality areas that are afforded the highest protection under the Clean Air Act.

Status

Reports, organized by I&M networks, are available identifying location, distribution, and relative risk of AQRVs sensitive to acidification and nutrient enrichment effects from airborne pollutants. Reports are also available for all networks identifying ozone-sensitive plant species in parks and rating relative risk to vegetation from ozone. And, an interactive web mapping application is under development to identify network and park ecosystems at risk from atmospheric deposition of mercury. Work continues to develop thresholds and critical loads for effects to vegetation, soils, lakes, and streams from pollutant deposition

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Climate Inventory

Background

Understanding current and historical climate trends is essential for interpreting ecological conditions and changes in national parks, and for determining associated management strategies and actions. Access to climate data, especially in light of climate change, is fundamental to our understanding of the status of ecosystems and species and their response to climate variability. In addition, weather and climate profoundly influence everyday park operations such as fire management, search and rescue, visitor services, and maintenance of park infrastructure.

As one of the 12 basic natural resource inventories, information on climate has been compiled via the inventories of climate observations stations relevant to parks, acquisition of historical climate data, and development of tools that facilitate acquisition, processing, evaluation, and reporting weather and climate data.

Weather station at Chiricahua National Monument. Photograph copyrighted by Greg McCurdy.

Products and Status

An inventory of climate stations within and adjacent to NPS units has been completed, with results compiled in 32 Inventory and Monitoring Network-specific reports. These reports include information on regional climate drivers, monitoring station locations, data provenance, measurements, periods of record, and other station metadata. Access to these reports is available online via IRMA—Integrated Resource Management Applications (http://nrinfo.nps.gov), or by using this **Direct Link**.

An initial acquisition of a static climate data set for this inventory (NOAA Coop Data) was eventually superseded by multiple on-line data sources that are kept up-to-date and provide a variety of visualization and download capabilities. Climate inventory data needed by NPS are currently managed and stored by outside organizations that specialize in managing climate inventory data. These data sources include:

- PRISM Climate Group (http://www.prism.oregonstate.edu/)
- NRCS Snotel Data (http://www.wcc.nrcs.usda.gov/cgibin/tab.pl)
- NRCS SnowCourse (http://www.wcc.nrcs.usda.gov/cgibin/statesite.pl?report=snowcourse)
- National Climatic Data Center (http://www7.ncdc.noaa.gov/CDO/dataproduct)
- Applied Climate Information System (http://www.rcc-acis.org/)
- Interagency Remote Automated Weather Stations (RAWS) (http://raws.fam.nwcg.gov/)
- Snow Data Assimilation System (SNODAS) (http://nsidc.org/data/g02158.html)
- USGS Stream Gaging Data (http://waterdata.usgs.gov/nwis/)
- Western Regional Climate Center (http://www.wrcc.dri.edu/NPS.html)

The Inventory and Monitoring Division has also developed a stable repository for climate data. This repository provides a means for NPS staff to access, manage, and use climate data in a single and consistent format, thereby averting duplications of effort. Use of this database is documented through a series of standard operating procedures (SOPs) which are available from IRMA via this **Direct Link**.

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Geologic Resources Inventory

Background

Recognizing the interrelationships between the physical (geology, air, and water) and biological (plants and animals) components of the Earth is vital to understanding, managing, and protecting natural resources. The Geologic Resources Inventory (GRI) helps make this connection by providing information on the role of geology and geologic resource management in parks.

Geologic resources for management consideration include both the processes that act upon the Earth and the features formed as a result of these processes. Geologic processes include: erosion and sedimentation; seismic, volcanic, and geothermal activity; glaciation, rockfalls, landslides, and shoreline change. Geologic features include mountains, canyons, natural arches and bridges, minerals, rocks, fossils, cave and karst systems, beaches, dunes, glaciers, volcanoes, and faults.

The Geologic Resources Inventory aims to raise awareness of geology and the role it plays in the environment, and to provide natural resource managers and staff, park planners, interpreters, researchers, and other NPS personnel with information that can help them make informed management decisions.

The GRI team, working closely with the Colorado State University Earth Science Department and a variety of other partners, provides more than 270 parks with a geologic scoping meeting, digital geologic map data, and a park-specific geologic report.

Products

Scoping Meetings: These park-specific meetings bring together local geologic experts and park staff to inventory and review available geologic data and discuss geologic resource management issues. A summary document is prepared for each meeting that identifies a plan to provide digital map data for the park.

Digital Geologic Maps: These maps reproduce all aspects of traditional paper maps, including notes, legend, and cross sections. Bedrock, surficial, and special purpose maps such as coastal or geologic hazard maps may be used by the GRI to create digital data and meet park needs. These digital data allow geologic information to be easily viewed or analyzed in conjunction with a wide range of other resource management information in park geographic information systems.

Geologic Reports: Park-specific geologic reports identify geologic resource management issues as well as features and processes that are important to park ecosystems. In addition, these reports present a brief geologic history of the park and address specific properties of geologic units present in the park.

GRI scoping participants examine an igneous dike during a geologic field trip to the Schoodic Peninsula of Acadia National Park in Maine.

Status

The geologic inventory effort in the NPS began in 1998 with the goal of providing digital geologic map coverage for over 270 parks with significant natural resources. Since that time, 263 parks have participated in scoping meetings, 189 parks have received geologic maps, and 91 geologic reports have been completed.

Additionally, the GRI is partnering with the USGS, state surveys, and academic institutions to complete field mapping in over 30 parks and has another 19 geologic reports in progress.

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http://www.nature.nps.gov/geology/inventory/gre_publications.cfm

Soil Resources Inventory

Background

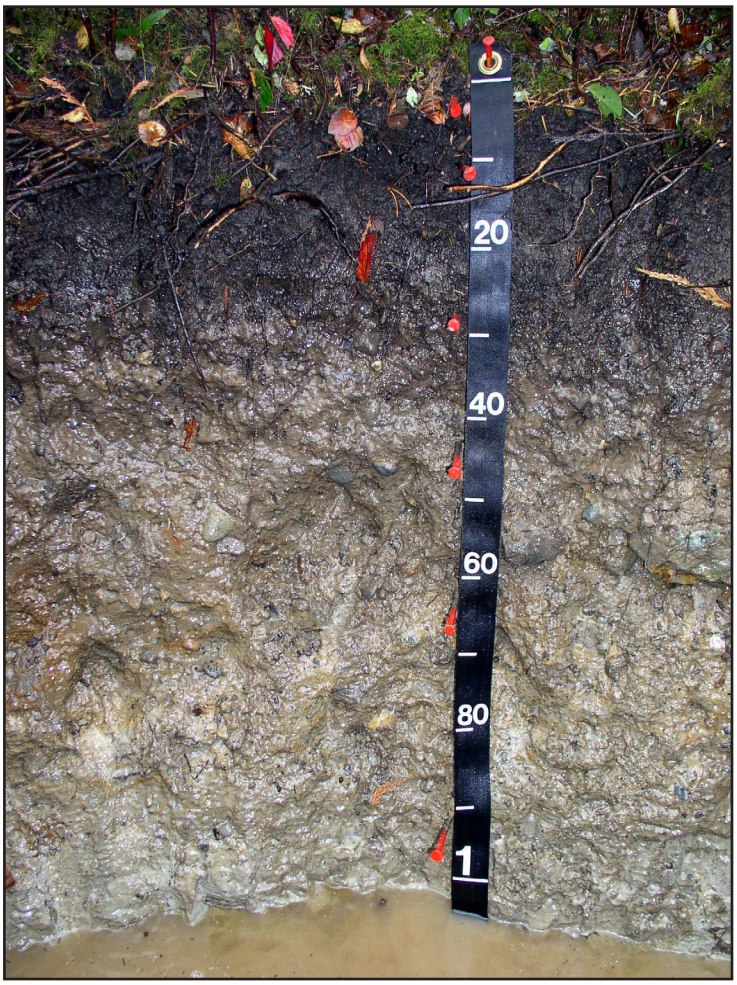
Soil is defined as the unconsolidated portion of the earth's crust modified through physical, chemical, and biotic processes into a medium capable of supporting plant growth. Soil properties influence the natural and the physical infrastructure of the landscape and ecosystems. The National Park Service (NPS) recognizes that a thorough inventory and evaluation of soil resources within national parks is needed for comprehensive management, interpretation, and understanding of park resources.

Soil surveys conducted throughout lands under NPS stewardship provide an orderly, on-the-ground, scientific inventory of soil resources.

The Soil Resources Inventory (SRI) includes:

- Maps of the locations and extent of soils
- Data about physical, chemical, and biological properties of those soils
- Information derived from those data about potentialities and problems of use on each kind of soil

The information is in sufficient detail for application by park managers, planners, engineers, and scientists to specific areas of concern. The Inventory & Monitoring (I&M) Program supports soils mapping and inventory based on standard terminology and techniques of the National Cooperative Soil Survey (NCSS). SRI staff assist parks with identifying needs for soil mapping, so that park objectives are met through appropriate data collection and map scale.



A typical soil profile of Bazal mucky loam from San Juan Island National Historical Park. These are poorly drained soils forming in glacial outwash material over dense glaciomarine deposits and have a seasonal high water table. Numerals on tape are in centimeters. Photo by Pete Biggam.

Products

Products of the Soil Resources Inventory include:

- Geospatial soils data meeting Soil Survey Geographic (SSURGO) standards
- Soil attributes, properties and interpretations exported from the National Soil Information System (NASIS) in a MS Access format
- Soil survey manuscript in both hardcopy and digital format
- Metadata following the Soil Survey Geographic Data Standard

Status

Working in partnership with the Natural Resources Conservation Service (NRCS), the SRI has completed mapping in 217 park units. Mapping is in progress in an additional 26 units. The NRCS will continue to support soil mapping until the project is completed. Special strategies are being developed in cooperation with the NRCS and private contractors to utilize advanced soil mapping technologies to handle the large-area mapping for parks in Alaska, Arizona, California, Florida, Montana, New Mexico, Utah, and Washington.

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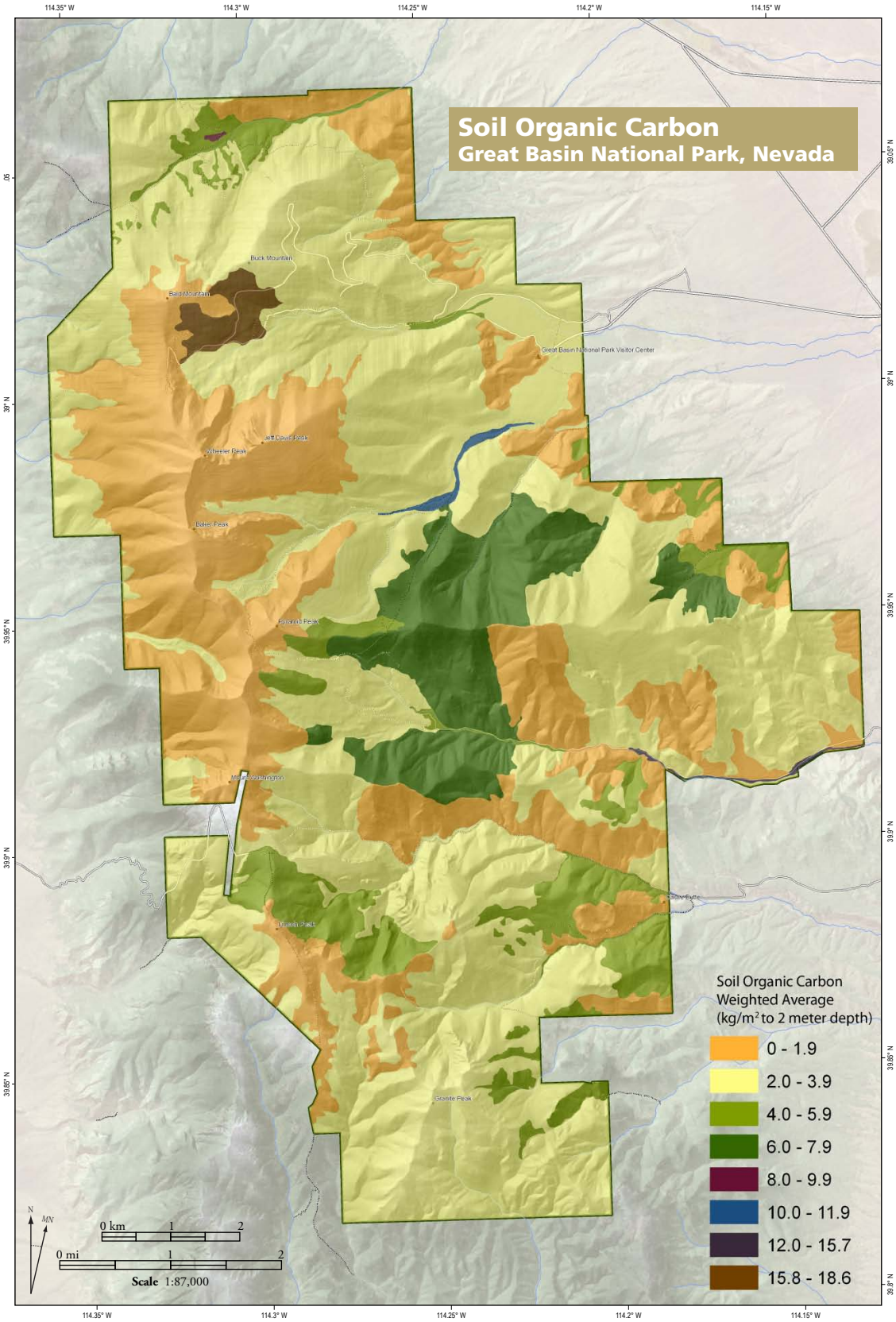

Soil organic carbon at Great Basin National Park. SRI and NPS staff have recently begun addressing soil organic carbon as a portion of the soil inventory. A variety of issues from habitat management to climate change rely on a keen understanding of organic and inorganic carbon in soil. The map at right represents a November 2009 assessment of soil organic carbon at Great Basin National Park in Nevada.

Water Body Location and Classification

Background

Water is an essential natural resource that shapes our landscape and the life it supports. As one of the 12 core National Park Service (NPS) natural resource inventories, knowledge of the locations and characteristics of water resources in parks is fundamental to understanding park ecological and physical systems and processes.

To obtain the locations of hydrographic features in digital form, the NPS Inventory & Monitoring (I&M) Program and the Water Resources Division (WRD) partnered with the U.S. Geological Survey (USGS), states, and other federal agencies to create the high-resolution (1:24,000, 1:63,360 in Alaska) National Hydrography Dataset (NHD) for 8-digit hydrologic units/subbasins containing national park units.

The NHD is a feature-based geographic database that interconnects and uniquely identifies all the stream segments (or "reaches") that comprise surface water drainage systems. Included in NHD are hydrographic features such as streams, rivers, canals, lakes, ponds, reservoirs, springs, wells, swamps, and other hydrologic phenomena that appear on the typical USGS 7.5 minute (15' Alaska) topographic map series. A significant component of this inventory entailed incorporating park hydrographic data into NHD whenever a park had better data available than what was typically used to build the NHD.

In addition to location, this inventory also provides water quality use classifications and impairment status for park water bodies. Under the Clean Water Act, states are required to specify the designated beneficial uses (e.g. warm water fishery, cold water fishery, drinking water, primary contact recreation, etc.) of water bodies within their borders and promulgate legally enforceable water quality criteria that protect and preserve those uses. Water bodies that fail to achieve the specified water quality criteria are reported as 'impaired' on the state's 303(d) list and measures must be taken to bring the water into compliance.

The I&M Program and WRD have partnered to create the Hydrographic and Impairment Statistics (HIS) database (NPS use only) to track NHD-generated hydrographic statistics and Clean Water Act 303(d) listed impairments for parks.

Products

High-resolution NHD information is currently available for download using the NHD Viewer accessed from the USGS' NHD website (see link below).

http://nhd.usgs.gov/

Little River at DeSoto Falls in Little River Canyon National Preserve.

Hydrographic statistics generated from the high-resolution NHD and 303(d) impairment information gleaned from state Clean Water Act reports can be obtained from the HIS database at:

http://www1.nrintra.nps.gov/wrd/his/ (NPS only)

Status

NHD is a dynamic database and is frequently revised with new or better hydrographic information, particularly as states begin incorporating large-scale LIDAR-derived hydrography. Users are encouraged to check that they have the most recent information.

Wetland locations and state-designated beneficial use classifications for many parks are either incomplete and/or have been deferred pending more cost-effective acquisition.

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Baseline Water Quality Data

Background

Preserving and protecting water resources and water- dependent environments in parks is fundamental to the National Park Service (NPS) mission. Parks need to ensure that the physical, chemical, and biological characteristics of their waters sustain healthy aquatic ecosystems, support the purposes of the park, and attain all state-designated beneficial uses. Consequently, baseline water quality data for key park water bodies were identified as one of the 12 core NPS natural resource inventories.

Many different public, private, and non-profit organizations across the country collect physical, chemical, and biological water quality data for a variety of purposes. The first step in this NPS Water Quality Data Inventory was to document and summarize all of the existing, readily-available, digital water quality data collected in the vicinity of parks.

To accomplish this task, data retrievals were made from the primary national water quality databases: the Environmental Protection Agency's (EPA) STORET Data Warehouse and the U.S. Geological Survey's (USGS) National Water Information System. Hard-copy water quality data found in parks or in the NPS Water Resources Division (WRD) files were digitized and entered into STORET for inclusion in the report. When a park's Baseline Water Quality Data Inventory and Analysis Report revealed an absence or paucity of data or only very old data for key park water bodies, the park was provided funding to collect the primary and secondary water quality characteristics necessary to construct an initial baseline, which is called a Level I Inventory.

Monitoring water quality at Sinking Spring, Abraham Lincoln Birthplace National Historic Site.

Status

Baseline water quality data for key park waterbodies exist in the EPA's STORET Data Warehouse or the USGS's National Water Information System. Baseline Water Quality Data Inventory and Analysis Reports exist for all but 40 parks. WRD continues to digitize and upload water quality data to STORET for those parks and others as resources allow. Results from the remaining Level I inventories are still being obtained for upload to STORET.

Products

A range of products have resulted from the Baseline Water Quality Data Inventory, including:

1. Baseline Water Quality Data Inventory and Analysis Reports. These reports summarize publicly-available physical, chemical, and biological water quality data contained in EPA's STORET Data Warehouse, EPA's Legacy Data Center, and the USGS National Water Information System.

2. Numerous physical, chemical, and biological water quality data digitized or archived in EPA's STORET Data Warehouse, including over 5.7 million results at more than 45 thousand sample sites for 1,160 projects.

3. Level I Inventories conducted for more than 70 national park units.

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Vegetation Inventory

Background

The Vegetation Mapping Inventory is an effort by the National Park Service (NPS) to classify, describe, and map detailed vegetation communities in more than 270 national park units across the United States.

The primary objective of the Vegetation Mapping Inventory is to produce high-quality, standardized maps and associated data sets of vegetation and other land-cover occurring within parks. This information fills and complements a wide variety of resource assessment, park management, and conservation needs.

Vegetation species and communities are unique from park to park. The inventory of these resources helps park managers conserve plant biodiversity, manage challenges such as exotic species, insect outbreaks, and diseases, and understand resources and proceses such and wildlife habitat relationships and wildland fires.

For example, in Sequoia and Kings Canyon National Parks, the 2007 vegetation map and digital database provided the park with tools to better manage foxtail pines (Pinus balfouriana ssp. austrina), an endemic species to the southern Sierra Nevada. Foxtail pines live more than 1,000 years and their tree rings contain valuable information about past climate fluctuations. In Rocky Mountain National Park, vegetation map and inventory data aid in the study of elk damage to aspen and willow trees along elk wintering grounds.

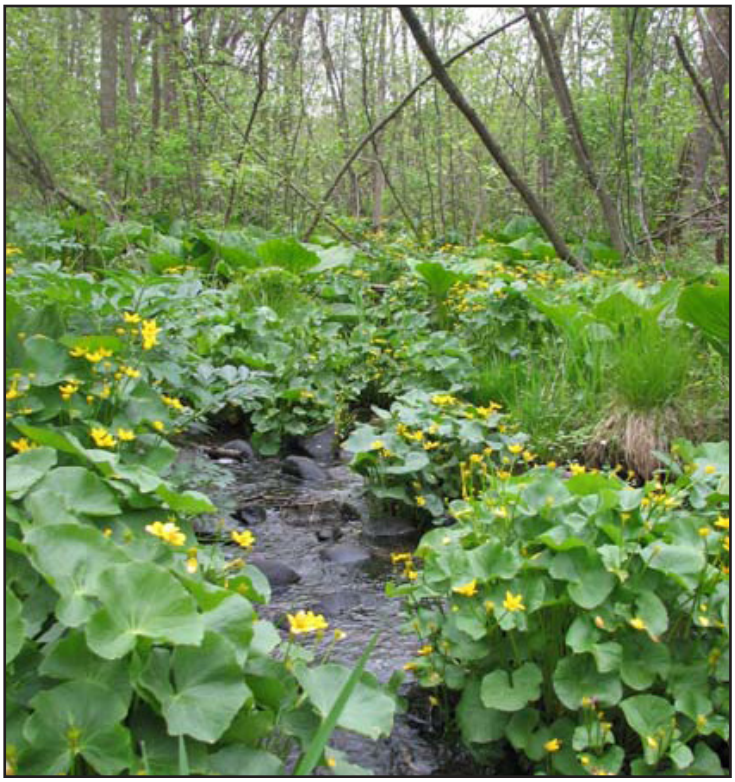
NPS vegetation mapping follows well-established procedures that are compatible with other agencies and organizations. The inventory uses the National Vegetation Classification Standard, a system that is integrated with the major scientific efforts in the taxonomic classification of vegetation, and is a Federal Geographic Data Committee standard. In addition, stringent quality control procedures ensure the reliability of the vegetation data and encourage the use of resulting maps, reports, and databases at multiple scales.

Products

A complete vegetation mapping project for a park includes the following products:

- Detailed vegetation report
- Digital vegetation map
- Vegetation plot data
- Accuracy assessment data & analysis
- Dichotomous vegetation key
- Photo-interpretation key

Maps are produced in UTM coordinates (NAD 83) with a 1:24,000 scale and a minimum mapping unit of 0.5 hectares. The vegetation maps must meet the National Map Accuracy Standards for positional accuracy, and the minimum class accuracy goal across all vegetation and land cover classes of 80 percent.



Red Maple-Ash-Birch Swamp Forest with Marsh-marigold (*Caltha palustris*), Skunk-cabbage (*Symplocarpus foetidus*), and Brome sedge (*Carex Bromoides*). Saint Croix National Scenic River. Photo by Chris Lea.

Status

In the lower 48 states and Hawaii, over 100 NPS units have completed vegetation mapping inventories totaling over ten million acres of NPS lands. Mapping projects are ongoing at 150 parks. Currently, 19 parks are planned but have not yet started with vegetation inventory projects. This inventory is 35% complete. NPS units in Alaska have a different vegetation mapping protocol.

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Species Lists

Background

An important function of the National Park Service (NPS) is protecting and maintaining the level of biological diversity found within parks. Park managers, planners, and scientists require basic information on the status of species occurring in parks as a basis for making decisions and working with other agencies, the scientific community, and the public for the long-term protection of park ecosystems. As one of the 12 core natural resource inventories, the I&M program provided parks with funding and technical assistance to compile existing data and to undertake targeted field investigations to document the occurrence of at least 90 percent of the species of vascular plants and vertebrates (birds, mammals, fish, amphibians, reptiles) currently estimated to occur in parks.

Products

The core of the Species Lists inventory is the NPSpecies information system. This system is a compilation of existing species lists and evidence records (vouchers, scientific documents, and observation records that support the species occurrences) for vertebrates and vascular plants in more than 270 parks with significant natural resources. The data are quality-checked and certified by subject-matter experts.

NPSpecies includes standardized information associated with the occurrence of species in parks, including scientific names and their synonyms, common names, abundance, residency, nativity, T&E status, and reasons why a species may be of particular management interest to a park.

The certified species lists and supporting evidence records in NPSpecies support NPS staff and collaborators at the park, network, regional, and national levels by managing fundamental park-level species information, and making this information available to other applications and databases for more specialized analyses.

Status

In 2011, the NPSpecies information system was moved to a web-based information management platform known as IRMA (Integrated Resource Management Applications), accessible at http://nrinfo.nps.gov. This move has vastly increased the ease of access to NPSpecies data.

Within IRMA, a variety of searching and reporting options are available for NPSpecies, including the ability to:

- view a park species record and a list of all other NPS units in which the species is reported
- view park species and their USFWS Endangered Species Act status, as well as any state species-of-concern status
- view lists of species that are ozone-sensitive
- view the NatureServe Global Conservation Ranks of park species
- view the associated taxonomic hierarchy for any species
- easily and quickly view and download a park species list.

Cascade frogs (*Rana cascadae*) at Crater Lake National Park. The floating plants are a new species (*Eleocharis acicularis*) added to the park during the biological inventories..

NPSpecies also leverages a sophisticated taxonomic application within IRMA that allows species list customization to accommodate local naming conventions or preferences. It also allows multiple taxonomic sources, such as ITIS (Integrated Taxonomic Information System) or USDA PLANTS.

Species list edits and additions are managed through designated NPS Points of Contact, which ensures that records are carefully vetted, documented, and evaluated before entered into the system.

The initial work to produce certified species lists was completed in 2008. Up to this point the focus of NPSpecies has been limited to vertebrates and vascular plants because of data availability and funding constraints; however, the data system is now designed to manage information for all taxa and all parks in NPS. Development and expansion of NPSpecies data will be a continual process as NPS obtains funding and develops partnerships to conduct additional inventories of different species groups.

More Information

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Species Occurrence and Distribution

Background

An important function of the National Park Service (NPS) is protecting and maintaining the level of biological diversity found within parks. Park managers, planners, and scientists require information on species occurrence as a basis for making decisions and working with other agencies, the scientific community, and the public for the long-term protection of park ecosystems.

Information related to species occurrence and distribution has been addressed by providing funding and technical assistance for parks to compile existing information on vertebrates and vascular plants, and to conduct new field investigations of species identified as high-priority by parks. The available funding for this inventory was distributed among the 32 Inventory & Monitoring (I&M) Program networks of parks, which leveraged the funds through partnerships with various universities, agencies, and other organizations.

Products

The primary products resulting from these inventories are reports and associated data sets (e.g., species lists with related attribute and spatial data). Reports document vertebrate or vascular plant species, and describe survey methods, species locations, associated habitat, observation details, and other attributes.

Associated data sets typically follow service-wide I&M data structures and are standardized with location and observation data. In addition to these products, the results of species detections are incorporated into the national NPSpecies database.

Status

The initial funding provided in 2000-2005 allowed most parks to conduct field studies to determine the occurrence of vertebrates and vascular plants. These are groups for which methodology and taxonomy were better developed at the time, and therefore could be surveyed more efficiently; however, only limited work on the distribution and abundance of the park's highest-priority species could be undertaken.

Additional field investigations will be conducted as funding becomes available to provide baseline data on the occurrence, distribution, and abundance of species that parks determine to be of highest priority for management and conservation. Advances in methodology, technology, and taxonomy now make it possible to efficiently survey groups other than vertebrates and vascular plants that were not included in the initial inventory efforts.

Seining for fish at Tallgrass Prairie National Preserve.

Information resulting from these inventories, including reports and species lists, can be discovered via IRMA -- the Integrated Information Management Applications website, at http://nrinfo.nps.gov.

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