



Greater Yellowstone Network



Inventory and Monitoring in the National Park Service

The National Park Service's mission is to manage park resources "unimpaired for future generations." Protecting and managing some of our nation's most significant natural resources requires basic knowledge of the condition of ecosystems and species that occur in national parks. To better understand the health of the parks, the National Park Service Inventory and Monitoring (I&M) Program was established in the early 1990s. This program organized all parks with significant natural resources into 32 networks based on proximity and ecological similarity.

There are two major components to the I&M Program: (1) gather baseline information about parks through natural resource inventories, and (2) conduct long-term monitoring for key indicators of ecological health, or "vital signs".

Park visitors may see scientists working in parks, conducting fieldwork in topics ranging from terrestrial botany to aquatic ecology. This fieldwork provides park managers with credible scientific information to meet the challenges of preserving and protecting park resources for public enjoyment. Scientists, resource managers, and rangers all have a hand in collecting, synthesizing, and using this information.

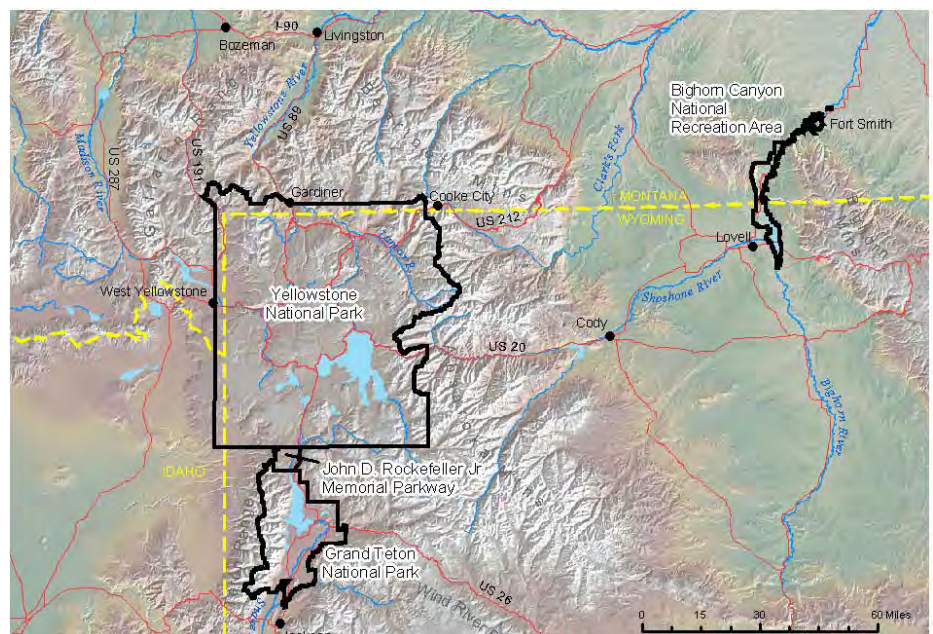
Long-term vital signs monitoring helps determine changing conditions of natural

resources to inform adaptive management decisions, and thus to better protect park resources today and for future generations.

The Greater Yellowstone Network

The Greater Yellowstone Network (GRYN) comprises four national park units in Wyoming, Montana, and Idaho. Bighorn Canyon National Recreation Area includes juniper/mountain mahogany and ponderosa pine woodlands, plus unique desert cushion plant, shrubland, and riparian ecosystems. Grand Teton and Yellowstone national parks, plus the John D. Rockefeller, Jr. Memorial Parkway

make up the core of the 18 million acre Greater Yellowstone Ecosystem, one of the largest, relatively intact natural areas in the contiguous United States. These three units include a broad range of climatic zones, habitat types, and elevation profiles, and thus encompass great biological diversity. Sagebrush, lodgepole pine forest, and alpine meadows are but a few of the vegetative communities. This area is home to the only recovered population of grizzly bears in the continental United States. Additionally, the parks host the largest herds of elk and free-ranging bison in North America, and serve as the only US wintering ground for trumpeter swans.



The Greater Yellowstone Network consists of Yellowstone and Grand Teton national parks, Bighorn Canyon National Recreation Area, and the John D. Rockefeller, Jr. Memorial Parkway.



The Greater Yellowstone Network works with park staff to support monitoring (water quality work shown here) in each network park (left: Bighorn Canyon National Recreation Area, center: Yellowstone National Park, and right: Grand Teton National Park).

Taking Inventory

The National Park Service emphasizes reliance on science to support management decisions and safeguard our natural heritage. An essential component of this strategy is a comprehensive inventory of the natural resources in national parks. Some inventories are park-specific, while others are servicewide. Partnerships are key to the inventory process because they expand the expertise and skills available to the parks, plus allow the National Park Service to acquire inventory data in an efficient, timely, and cost-effective manner. Strong scientific collaborations ensure that inventories yield information that will ultimately benefit natural resource management. To learn more about the GRYN Inventories please go to <http://science.nature.nps.gov/im/inventory/index.cfm>.

As part of the inventory program, a vegetation map is underway at Bighorn Canyon and may be initiated at Yellowstone in 2011. GRYN is also overseeing the development of a Natural Resource Condition Assessment for Bighorn Canyon.

Vital Signs Monitoring

The goals of natural resource monitoring for the National Park Service are to: (1) determine the status and trends in selected indicators (“vital signs”) of the condition of park ecosystems to allow managers to make better-informed decisions and to work more effectively

Table 1. Active vital signs of the Greater Yellowstone Network

Vital Sign	Current Network Activities	Link to Information and Activities
Amphibians	Monitoring in GRTE and YELL since 2006	http://www.greateryellowstonescience.org/topics/biological/amphibians
Climate	Monitoring*	http://www.greateryellowstonescience.org/topics/physical/climate
Land Use	Monitoring	http://science.nature.nps.gov/im/monitor/npscape/index.cfm
Upland Vegetation	Monitoring at BICA since 2011	—
Water Resources	Monitoring in BICA (including arid seeps and springs, since 2005), GRTE (since 2006), and YELL (since 2002)	http://www.greateryellowstonescience.org/topics/physical/water http://www.greateryellowstonescience.org/topics/physical/water/seepsandsprings
Whitebark Pine	Monitoring in GRTE and YELL since 2004	http://www.greateryellowstonescience.org/topics/biological/vegetation/whitebarkpine

* = Climate monitoring is a collaborative effort with the Rocky Mountain Network.

BICA = Bighorn Canyon National Recreation Area; GRTE = Grand Teton National Park; YELL = Yellowstone National Park.

with other agencies and individuals for the benefit of park resources; (2) provide early warning of abnormal conditions of selected resources to help develop effective mitigation measures and reduce costs of management; (3) provide data to better understand the dynamic nature and condition of park ecosystems and to provide reference points for comparisons with other, altered environments; (4) provide data to meet certain legal and Congressional mandates related to natural resource protection and visitor enjoyment; and (5) provide a means of

measuring progress towards performance goals.

The GRYN vital signs (Table 1) include a suite of physical, chemical, and biological elements and processes that are important to network parks.

For more information

Greater Yellowstone I&M Network
2327 University Way Suite 2
Bozeman, MT 59715
406-994-7734
<http://science.nature.nps.gov/im/units/gryn/>
www.greateryellowstonescience.org