

World Heritage Sites

Protected Areas and World Heritage



YELLOWSTONE NATIONAL PARK UNITED STATES OF AMERICA

Yellowstone National Park, created in 1872, covers 9,000 square kilometres of a vast natural forest of the central Rocky Mountains in the North American west. It contains half of the world's hydrothermal features including 300 geysers also fumaroles, lava formations, hot springs, waterfalls, lakes and canyons. It is equally known for its wildlife: grizzly bears, elk, bison and wolves.

Threats to the Site: These have included: river-borne toxic waste from proposed mining, leaking sewage, infestation by introduced non-native lake trout, brucellosis in the buffalo herds, disturbance from road construction and heavy year-round visitor pressures. Most have been contained. But the park-wide use of individual rather than multi-person snowmobiles remains a contentious issue.

COUNTRY

United States of America

NAME

Yellowstone National Park

NATURAL WORLD HERITAGE SITE

1978: Inscribed on the World Heritage List under Natural Criteria vii, viii, ix and x.

One of the first four natural World Heritage sites to be inscribed.

1995-2002: Listed as a World Heritage site in Danger from multiple threats.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The UNESCO World Heritage Committee issued the following statement at the time of inscription:

Statement of Significance

Yellowstone National Park is a protected area showcasing significant geological phenomena and processes. It is also a unique manifestation of geothermal forces, natural beauty, and wild ecosystems where rare and endangered species thrive. As the site of one of the few remaining intact large ecosystems in the northern temperate zone of earth, Yellowstone's ecological communities provide unparalleled opportunities for conservation, study, and enjoyment of large-scale wildland ecosystem processes.

Criterion (vii): The extraordinary scenic treasures of Yellowstone include the world's largest collection of geysers, the Grand Canyon of the Yellowstone River, numerous waterfalls, and great herds of wildlife.

Criterion (viii): Yellowstone is one of the world's foremost sites for the study and appreciation of the evolutionary history of the earth. The park has a globally unparalleled assemblage of surficial geothermal activity, thousands of hot springs, mudpots and fumaroles, and more than half of the world's active geysers. Nearly 150 species of fossil plants, ranging from small ferns and rushes up to large Sequoia and many other tree species, have been identified in the park's abundant fossil deposits. The world's largest recognized caldera (45km by 75km - 27 miles by 45 miles) is contained within the park.

Criterion (ix): The park is one of the few remaining intact large ecosystems in the northern temperate zone of the earth. All flora in the park are allowed to progress through natural succession with no direct management being practiced. Forest fires, if started from lightning, are often allowed to burn where possible to permit the natural effects of fire to periodically assert itself. The park's bison are the only wild, continuously free-ranging bison remaining of herds that once covered the Great Plains and, along with other park wildlife, are one of the greatest attractions.

Criterion (x): Yellowstone National Park has become one of North America's foremost refuges for rare plant and animal species and also functions as a model for ecosystem processes. The grizzly bear is one of the worlds'

most intensively studied and best-understood bear populations. This research has led to a greater understanding of the interdependence of ecosystem relationships. Protection of the park's flora and fauna, as well as the natural processes that affect their population and distribution allow biological evolution to proceed with minimal influence by man.

INTERNATIONAL DESIGNATION

1976: Recognised as a Biosphere Reserve under UNESCO's Man & Biosphere Programme (898,349ha).

IUCN MANAGEMENT CATEGORY

II National Park

BIOGEOGRAPHICAL PROVINCE

Rocky Mountains (1.19.12)

GEOGRAPHICAL LOCATION

The Park is in the northwestern corner of Wyoming state in the central Rocky Mountains. Its bounding coordinates are 44°08' - 45°07'N and 109°10' - 111°10' W.

DATES AND HISTORY OF ESTABLISHMENT

1872: Designated by the U.S.Congress as the world's first National Park. Protection was provided by several congressional acts, initially under civilian administration;

1886: Under army administration;

1916: The newly created National Park Service assumed management;

1976: The geothermal site designated a UNESCO Biosphere Reserve;

1995-2002: Listed as an endangered site because of proposed adjacent mining, pollution of rivers, road construction and year-round visitor pressure.

LAND TENURE

Federal government, except for 7.7ha. Administered by the National Park Service (NPS).

AREA

898,349 ha (UNESCO WH List, 2007), 96% in Wyoming: 92%, 3% in Montana and 1% in Idaho. The Park is surrounded by six National Forests, two National Wildlife Refuges with Grand Teton National Park 12 km to the south. This Greater Yellowstone area is four times the size of the Park itself and is considered the largest intact ecosystem in the temperate zone.

ALTITUDE

Ranges from 1,610m to 3,462m (Eagle Peak). The plateau averages 2,500m in elevation.

PHYSICAL FEATURES

The Park lies in a wide caldera basin over a volcanic hot spot in the most seismically active region of the Rocky Mountains, which experiences some 2,000 earth tremors and small earthquakes a year. Its central plateau is a 650,000ha forest surrounded by mountains that rise to 4,000m. Crustal uplift 65 million years ago raised vast blocks of Cretaceous marine sedimentary rock to form the southern Rocky Mountains. For 25 million years andesitic volcanic ashflows and mudflows were recurrent, covering and petrifying forests: nearly 200 species of petrified plants have been found, and one of the world's largest petrified forests. A more recent period of rhyolitic volcanism began in the region about two million years ago. During this time thousands of cubic kilometres of rhyolitic magma filled immense chambers under the plateau, then erupted to the surface. Three cycles of eruption, dated at 2.2 million, 1.2 million and 640,000 years ago, produced huge explosive outbursts of ash. The latest eruptive cycle formed the caldera 48km wide by 72km long when the active magma chambers erupted and collapsed, forming the Yellowstone plateau. The crystallising magma and injections of fresh magma are the heat source of the hydrothermal geysers, hot springs, mud pots and fumaroles.

Yellowstone is one of the world's twelve major geothermal areas and contains two-thirds of its geysers, with over 300, 200-250 being active, and more than 10,000 hydrothermal features. It is rated by the Geological Survey as 21st out of the 169 potentially dangerous volcanic centres in the country (Anon, 2005). During the last three years the caldera floor has been seen to become more restless

with multiple episodes of caldera uplift, doming in places by some 7m a year, three times faster than usual. This is probably due to the emergence of a magmatic plume but need not presage eruption (Chang *et al.*, 2007).

Most of the area was glaciated during the Pleistocene under a 900m thickness of ice, and many glacial features remain. The Park lies on the headwaters of three major rivers: the Yellowstone River, a major tributary of the Missouri that flows via the Mississippi to the Gulf, Firehole and Gibbon Rivers that unite to form the Madison River, which also joins the Missouri, and the Snake River that rises near the Park's southern boundary and joins the Columbia to flow into the Pacific. Yellowstone Lake, at 2,357m, is the largest high level lake in North America, 32km by 23km across, 35,400ha in area, with an average depth of 43m and a maximum depth of about 122m. Lower Yellowstone Falls, 94m high, is the highest of more than 40 waterfalls in the Park.

CLIMATE

Precipitation ranges from 258mm on the northern boundary to an estimated 2,050mm in the south-west corner, falling mainly as snow. Temperatures at Mammoth Hot Springs vary from a January mean range of -13°C to 9°C to a July mean of 27°C.

VEGETATION

Approximately 80% of the Park is forested, and 80% of that is dominated by lodgepole pine *Pinus contorta* 15% is grassland. The great elevational differences produce a range of plant communities, from semi-arid steppe to alpine tundra. Eight species of coniferous trees and more than 1,700 species of vascular plants grow in the Park. Two of these species, Ross's bentgrass *Agrostis rossiae* and Yellowstone sand verbena *Abronia ammophila*, are endemic (NPS, *in litt.*, 2002). The thermal areas contain unique assemblages of thermal algae and thermophilic bacteria. There are also more than 170 invasive species (NPS, 2007).

FAUNA

An estimated 40,000 ungulates summer in the Park, descending to lower grasslands both in and out of the north end of the Park in winter. The seven native ungulate species are elk *Cervus elaphus*, mule deer *Odocoileus hemionus*, moose *Alces alces shirasi*, white-tailed deer *Odocoileus virginianus*. Pronghorn deer *Antilocapra americana*, a population recently halved in number, bison *Bison bison* (4,700 animals in summer) and bighorn sheep *Ovis canadensis*. One non-native from the north-west, the mountain goat *Oreamnos americanus*, may be colonizing the Park. The Park has some 52 other species of mammals. Among the carnivores are the nationally threatened grizzly bear *Ursus arctos* with ±600 individuals in the whole area (UNESCO, 2010), over 105 breeding females in the greater Yellowstone area and 205 cubs born between 2000-2002 (NPS *in litt.*, 2002). The American black bear *U. americanus* is also abundant. Some 25-30 mountain lions *Puma concolor* occupy the Northern Range of the Park, others enter the Park seasonally. Canada lynx *Lynx canadensis* are found and coyote *Canis latrans* are numerous though the population in the Northern Range has declined 30-50% since wolves were introduced. The native grey wolf *Canis lupus* was extirpated in the 1930s to protect the elk. It was reintroduced in 1994-5 to reinstate a more natural ecologic balance, with the aim of starting 30 reproducing wolf packs in three recovery areas (Yellowstone, Idaho, northwest Montana) for three successive years. This has succeeded and there are now 300 free-ranging wolves in 14 packs (NPS, 2007).

A palaeotological study of Lamar Cave yielded the remains of over 30 mammal species. This suggests a diversity of fauna (and flora) in prehistoric times much like that found in Yellowstone today. Elk were found in six out of nine levels above and below a layer radiocarbon dated at 960 years BP. Grey wolf bones were found below the 960 BP layer, and a wolf carnassial tooth even lower.

318 bird species have been recorded (McEneaney, 2006), 148 breeding in the Park. Of special interest are the whooping crane *Grus americana* (EN), migrant sandhill crane *G. canadensis*, bald eagle *Haliaeetus leucocephalus*, peregrine falcon *Falco peregrinus*, osprey *Pandion haliaetus* and trumpeter swan *Cygnus buccinator*. There are 18 native fish species. Yellowstone cut-throat trout *Oncorhynchus clarki bouvieri* and Siberian grayling *Thymallus arcticus*, are protected by regulations that also permit taking of non-native introduced species. But the native trout is seriously threatened by competition from six introduced species: brook trout *Salvelinus fontinalis*, lake trout *S. namycush*, brown trout *Salmo trutta*, rainbow trout *Oncorhynchus mykiss* and lake chub *Couecius plumbeus* (NPS pers. comm., 1995). There are also 3 frogs, one salamander, 5 snakes and one lizard.

CONSERVATION VALUE

Yellowstone provides a clear record of eruptive volcanism occurring over the past 55 million years. It contains over 10,000 hydrothermal features, including fumaroles, mudpots, hot springs and more than 300 geysers. The Park is also a reservoir of genetic diversity and contains a natural forest ecosystem vast enough for the perpetuation of grizzly bear, wolf, bison and wapiti populations. It lies within a WWF Global 200 Eco-region. A UNESCO MAB Biosphere Reserve covers the same area.

CULTURAL HERITAGE

The Park's cultural history dates back 12,000 years, evident from the presence of obsidian spearheads. It includes prehistoric and historic use by a variety of Amerindian groups who relied heavily on the resources of the area especially in summer, and by early trappers and adventurers; the Spanish introduced the horse. Lewis and Clark passed by the north end of the Park in 1805. It was used by 19th century American Indians of the Crow, Blackfoot, Shoshone and Bannock tribes. Several hundred lived on the site until the National Park, the world's first, was designated. Following troubles in 1877 which occasioned 300 deaths, the Indians were removed to the Wind River Reservation and in between 1886 and 1918 the Army at Fort Yellowstone, Mammoth Hot Springs, assumed the administration. About 2% of the Park has been inventoried for archaeological resources, and some 1,000 prehistoric and historic archaeological sites have been recorded of which approximately 84% are American Indian (NPS, 2007).

Yellowstone has over 1,100 structures associated with the Euro-American occupation and management of the park where the legacy of the early civilian and army administration and the history of concessions in national parks are preserved (NPS, pers. comm., 1995). Six of these structures are National Historic Landmarks: Fishing Bridge Trailside Museum, Madison Junction Trailside Museum, Norris Geyser Basin Trailside Museum, Northeast Entrance Station, Obsidian Cliff and Old Faithful Inn. There are four National Historic Districts: Lake Fish Hatchery, Mammoth Hot Springs, Old Faithful and Roosevelt Lodge. And there are five National Historic Sites: Lake Hotel, Lamar Buffalo Ranch, Obsidian Cliff Kiosk, Queen's Laundry Bath House and the U.S. Post Office at Mammoth Hot Springs. The Park's collections have some 200,000 natural and cultural objects including artwork, ethnographic and archaeological artifacts, historic objects, and natural resource specimens (NPS, pers. comm., 1995; NPS, *in litt.*, 2002).

LOCAL HUMAN POPULATION

A permanent community of about 300 people associated with Park operations is located at Mammoth Hot Springs, the Park headquarters. Smaller groups are stationed throughout the Park at ten other locations.

VISITORS AND VISITOR FACILITIES

Yellowstone Park has had a long history of tourism, promoted at first by railroads. In 2006 there were 2.8 million visitors for whom a 746km paved and gravelled road system now provides access for an average summer use of up to 25,000 vehicles a day. Viewing the geysers and great herds of elk have always been major attractions. There are five major developed areas in the Park which offer food, lodging, visitors' centres, camping and recreational vehicle parking. These are Mammoth Hot Springs, Old Faithful, Canyon Village, Lake-Fishing Bridge and Grant Village-West Thumb. Smaller areas include the Norris, Basin, Lamar, Tower-Roosevelt, Madison, East Entrance, Northeast Entrance, South Entrance, West Entrance and Bechler. There are nine visitors' centres/museums/information stations, nine hotels and lodges, seven NPS and five concessionary campgrounds with nearly 2,100 campsites. Activities include hiking, biking, horse riding, fishing, ranger-led tours and programs, educational courses and in winter, snow-coaching and cross-country skiing. Ninety-seven trailheads provide access to 1,530km of trails and 287 backcountry campsites (NPS, 2007).

Total visitor numbers fluctuate: they were 2.75 million in 2001, rising to 3.02m in 2003, falling to 2.87m in 2004. In 2001, 6,105 backcountry use permits were issued - 19,230 persons for 43,302 use-nights, and 5,533 stock nights. Winter use has increased from virtually zero 30 years ago, to 143,491 in 2001-2002 or 1,100-1,200 vehicles a day (NPS, pers. comm., 2002). 290 km of roads are groomed for snowcoach and snowmobile use. Individual snowmobiling was limited by the Park Service during the winter of 2002-3 but was permitted again by Federal order in December 2003. Since 2005 under annual winter-use plans, snowmobiles may be used only on roads and as long as their emissions are reduced by 70-90%. There are now 21 snowmobile operators but their use remains a source of contention. The NPS hopes to eventually replace individual use by multi-person snow-coaches to

decrease noise, pollution and disturbance of the back-country (Farquhar, 2003; UNESCO, 2002, 2005, 2010).

SCIENTIFIC RESEARCH AND FACILITIES

There is a well established tradition of scientific research into the wildlife both natural and managed, sustained by over 150 research projects at present. There is a resident research staff of 32 permanent and 40 seasonal employees who study large mammals, especially grizzly bears which have been studied for more than 35 years, fisheries, vegetation, fire ecology and geology and assist with park management and interpretation. Another 250 to 300 independent researchers work in the Park annually. Research projects requiring a natural environment or those oriented to management are given preference. Park scientists working with heat-resistant organisms have applied their use to the issue of brucellosis. Research requiring significant modification of the biota or environment is not permitted. A large area allowing natural processes, including fire, to occur, makes the Park an excellent place to research these. Limited laboratory space is available. Access to the backcountry is limited to non-mechanised means. A wide range of federal agencies pursue scientific projects in Yellowstone, including the Biological Resources Division, U.S. Geological Survey, and NASA (NPS, *in litt.*, 2002). The Heritage and Research Center just north, in Gardner Montana, has a museum, library, archives, herbarium, archaeological laboratory and old vehicle display.

MANAGEMENT

Historically, Yellowstone has been managed for both the preservation of its resources in their natural condition and as the pleasure ground for tourists that it was also created to be. Wolves, mountain lions and coyotes were seen from the first as threats both to the Park's ungulates and to safe tourism, and from 1915 onwards were eradicated in an efficient predator control program. This led to overpopulation and disease amongst ungulates, necessitating large scale culls which caused controversy. Later, the desire to re-establish a more natural ecological balance has led to the reintroduction of some species formerly eliminated. Today there are three defined management zones: Natural, 897,656ha; Historic, 32ha; and Development, 810ha. A Master Plan for the Park dating from 1973, a Land Protection Plan (1986), an Exotic Vegetation Management Plan (1986), a Statement for Management (1991), and a Natural Resources Management Plan (1995) are among the documents that guide conservation of the Park's resources. A Fire Management Plan was adopted in 1972, since revised and expanded five times, following major fires (NPS, *in litt.*, 2002). The pressure on Park roads is very high and they need constant reconstruction or maintenance.

Grizzly bears have been the subject of intensive study and management for more than 35 years. Their recovery has been of highest priority in the greater Yellowstone ecosystem since the species was listed as threatened in 1975 under the Endangered Species Act. This promoted an unprecedented level of interagency cooperation and public controversy. Interagency Grizzly Bear Guidelines (1986) and a 1993 Grizzly Bear Recovery Plan are followed for their management. Cooperative interagency teams also direct the research into, monitoring and management of ungulates, mountain lions, coyotes, peregrine falcons, bald eagles and trumpeter swans with many other species and resources in the greater Yellowstone area. Hunting, logging, mining, and domestic livestock grazing are prohibited. Regulated hunting, fishing and camping are allowed. The summer bison population has now increased to about 4,700 (NPS, 2007). There is now a plan for control of brucellosis by the Interagency Bison Management Plan of the Greater Yellowstone Brucellosis Committee which includes state and federal agencies and local cattle ranchers concerned with the potential spread of the disease.

MANAGEMENT CONSTRAINTS

Although a very large area, Yellowstone is ecologically an island which is subject to the fragmentation of its habitats and is surrounded by logging, livestock raising and mining claims which have made the protection of a buffer area of a Greater Yellowstone ecosystem controversial. Nevertheless the surrounding lands have an important role in maintaining the World Heritage values of the property. This applies especially to its population of bison which are the last wild free-ranging bison in the United States in their ancestral habitat, and have great national symbolic value. Winter weather naturally regulates their numbers in the Park, but snow-ploughing of the roads for snowmobiles facilitates their movement and their recolonising of lands outside the Park. This has led to the perceived need for an annual cull north and west of the Park during which thousands of bison have been killed since 1985 by the US Department of Agriculture and the Montana Department of Livestock. This not only keeps their numbers in check, but is done to reduce the alleged spread of brucellosis, a disease which some of the Yellowstone bison population harbours, causing cows to

abort their calves, and threatening the interstate shipment of cattle. According to the local conservationist Buffalo Field Campaign there has never been a confirmed case of brucellosis transmission from buffalo to cattle under natural conditions, but there is strong opposition from the Montana ranching industry over rights to pasture (Buffalo Field Campaign, 2008).

In 1995 the State of Montana sued the NPS and USDA Animal and Plant Health Inspection Service for delaying their long-term bison management planning. During the winter of 1996-7 its agents shot and shipped to slaughter 1,084 bison in a brucellosis control campaign, which became a nationally important public issue. After long negotiations, the federal agencies developed and in 2000, persuaded the State of Montana to adopt its final environmental impact statement on bison management designed to reconcile the free-ranging population with protection of Montana's livestock industry from the threat of disease. Measures in the 2000 Interagency Bison Management Plan include monitoring the population, permitting bison to range some of the public lands adjoining the Park in winter when there are no cattle present, and eventually, vaccination (NPS, *in litt.*, 2002). However, since 1997, 3,038 buffalo have been culled, including 1,016 during the winter of 2007-8 and 30% of the population in 2009 by or with the encouragement of state and national organisations: the Montana Department of Livestock, the National Park Service and the Fish & Wildlife Service (Buffalo Field Campaign, 2008, UNESCO, 2010). In 2009 the State of Montana signed a 30-year agreement on restricting livestock grazing and the removal of cattle from the northern boundary of the park; former pasture such as on Horse Butte in the west were also closed to cattle and opened to migrating bison (UNESCO, 2010).

The winter range of the northern Yellowstone elk herd has been under study since the 1920s. Past extermination of wolves and winter feeding by the management led to overpopulation and overgrazing. And for decades before their reintroduction and even since, the role of wolves was strongly disputed. Until 1968, elk seen to be surplus were translocated to restock other ranges or culled by rangers. Since then, the National Park Service, U.S. Forest Service, and Montana Department of Fish, Wildlife and Parks have experimented with natural regulation, coupled with continuous monitoring, range studies, and hunting outside the Park. Five of the seven elk herds are migratory which exposes them to conditions outside the Park's boundaries such as the carrying by some elk in both Wyoming and Idaho of brucellosis. The isolated pronghorn population may also be threatened by commercial development and subdivision of private lands north of the Park.

Rainbow and brown trout have replaced cut-throat trout and grayling in much of the Madison River. Predatory lake and brown trout have severely impacted the Snake River fine-spotted cut-throat, which are also affected by disease. Lake trout were illegally stocked in Yellowstone Lake some time before 1994 and threaten the native cutthroat trout and the species and ecosystem that depend on them - grizzly bears, bald eagles and several others. Some progress has been made by an intensive campaign since 1995 to eradicate lake trout - 43,000 were removed in 2001 (UNESCO, 2002). The fishing effort has increased annually and resulted in the destruction of over 100,000 adult and juvenile lake trout. Declining catches suggest that the program measurably reduced the population in 2003 and 2004 (NPS, 2005), but it will need constant work to reduce the invasion. Another threat is invasion by the whitebark pine blister rust which destroys an important source of grizzly bear fodder. But the greatest threats to the grizzly remain road kills, loss of habitat and hunting (UNESCO, 2002).

Among other threats, 248 fire starts were recorded in the greater Yellowstone area in 1988. A let-burn policy towards naturally started fires allowed 31 to burn as prescribed fires, covering 157,480ha. Of five large fires originating outside the Park, three, including the largest of all (the North Fork Fire, 201,610ha) were man-caused. They were fought from the start, but still destroyed 36% (321,300ha) of the Park. Surface mining, oil, gas and geothermal exploration and extraction near Park boundaries, leakage from sewer lines, contamination by wastes, by road construction and maintenance, despite the progress that has been made in the repair of sewer lines and other infrastructure, a proposed nuclear waste incinerator in Idaho and a proposed power plant 190km to the northeast in Montana all potentially threaten the Park's air and water quality, visual integrity and critical habitat for wildlife. The year-round pressure of visitors also contributes to the pressure. One example is the intrusion, sanctioned by the federal government in mid-2002, of individual snowmobiles which may total 75,000 and introduce fumes, disturbance and noise into the winter wilderness. This was done in the face of a previous Park Service ban, the findings of a major study, wide public opposition to snowmobile use and the Park Authority's advocacy of less polluting snow-coaches (Farquhar, 2003; NPCA, 2002). As a result of the controversial Park-wide use of individual rather than multi-person snowmobiles the Park

was again declared a nationally endangered site in 2003. The vigorous contention over this use has caused Park Service policy to fluctuate on this issue (UNESCO, 2005).

A major challenge was the proposed New World mine 4.2 km from the northeast corner of the Park in the headwaters of three streams. Toxic waste from this would have threatened the Park's streams and affected grizzly bears, bald eagles, bighorn sheep, elk, fish and many smaller animals (Anon., 1995; *National Parks*, July 1995, 1997). Such plans to exploit its resources led to Yellowstone being placed on the list of World Heritage in Danger between 1995 and 2003 (UNESCO, 1996), an action vigorously challenged by defenders of national sovereignty over property rights in the U.S. (Rabkin, 1997). In 1998 the government compensated the company with a \$65 million land trade which included clearing up local mine contamination for divesting its interest in the gold mine site (UNESCO, 1999). A moratorium has also been placed on mining around Yellowstone to prevent the expansion of existing mines. However, pollution from abandoned tailings will have to be warded off permanently (NPS, *in litt.*, 2002).

STAFF

There is a permanent staff of 380 organised into seven operating divisions; Management including Planning, Safety and Public Affairs, Interpretation, Resource Management Operations, Business Management, and the Yellowstone Center for Resources. In 2002, permanent and TERM staff expertise and specialists included: 3 public affairs specialists, one industrial hygienist, 20 interpretive park rangers, approximately 8 concessionaires, 57 park law enforcement rangers, 14 fire protection specialists and technicians, 5 engineers, 7 landscape architects, 16 utility system operators, numerous journeymen, craftspeople, equipment operators, automotive mechanics; also 5 planners, one archivist, one museum curator, one historical architect, 23 biologists and resource managers, 6 biological technicians, 3 information technology specialists and various administrative specialists and clerks. There are 18 ranger stations in the Park (NPS, pers. comm., 2002).

In summer, the staff is supplemented by some 420 seasonal employees, including approximately 58 park rangers in interpretation and 71 in visitor protection, 40 fee collectors, 6 forestry technicians, 50 maintenance workers, 50 motor vehicle operators, 95 laborers, 15 equipment operators, 20 biological technicians and aides and 49 other seasonal trade and support personnel (NPS, *in litt.*, 2002). About 3,700 people also work in the various concessions.

BUDGET

80% of entrance, camping and demonstration fees are retained and between 1997 and 2004 yielded \$15 million to pay for projects. US\$ 26,500,000 was budgeted for fiscal year 2002 but this level of support was still not enough to maintain the services of the Park without constant retrenchments. In 2002 \$300 million was granted for road rebuilding and maintenance over the following 15 years (NPS, *in litt.*, 2002). The Yellowstone Park Foundation has funded 145 projects and programs.

LOCAL ADDRESS

The Superintendent, Yellowstone National Park, PO Box 168, Wyoming 82190-0168, U.S.A.

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