IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 12 November 2014

Please note: this is an archived Conservation Outlook Assessment for Yellowstone National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Yellowstone National Park

SITE INFORMATION

Country:
United States of America (USA)
Inscribed in: 1978
Criteria:
(vii) (viii) (ix) (x)

Site description:
The vast natural forest of Yellowstone National Park covers nearly 9,000 km2; 96% of the park lies in Wyoming, 3% in Montana and 1% in Idaho. Yellowstone contains half of all the world's known geothermal features, with more than 10,000 examples. It also has the world's largest concentration of geysers (more than 300 geyers, or two thirds of all those on the planet). Established in 1872, Yellowstone is equally known for its wildlife, such as grizzly bears, wolves, bison and wapitis. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

The trend since 1995 when Yellowstone was added to the List of World Heritage in Danger has been a gradual improvement in the state of conservation, with Yellowstone's removal from the Danger list in 2003. Six original threats (mining outside park, threats to bison, threats to cutthroat trout, water quality issues, road impacts, and visitor use impacts) are still long-term concerns while new and emerging threats have been identified including: ground transport infrastructure, effects arising from use of transportation infrastructure, surface water pollution, air pollution, input of excess energy, invasive / alien freshwater species, effects of management systems/ management plan, the risk to grizzly bears from declining whitebark pine, the severity of bark pine beetle infestation, the role of changing temperatures in the ecosystem, maintenance of bison migration routes, mitigation of human-grizzly bear conflict, and the population's connectivity with the larger population of bears in the region. Many of these threats are beyond the control of the National Park Service and/or depend upon conditions outside the borders of Yellowstone National Park. They are however critical factors that can degrade the ecological integrity of the World Heritage Site. It is likely that maintaining the values of Yellowstone in the future will depend upon cooperative efforts among the National Park Service, other federal and state agencies, non-governmental organizations, and the private sector.

Current state and trend of VALUES

Low Concern
Trend: Stable

The geologic record is well protected from human alteration and is unlikely to be threatened by environmental factors. There is some concern about biological evolution in that species requiring large areas to survive and/or depending upon gene flow from other populations (such as grizzly bears, bison, wolverine, lynx, fisher) may be too isolated to maintain genetic diversity over long periods of

time. However, there is a reasonable possibility that connectivity may be preserved between Yellowstone and other large intact. Natural phenomena of the site and their scenic value are well protected. There are no geothermal energy production sites that impinge upon the park hydrological and geothermal systems. Geological phenomena, particularly earthquakes, are constantly altering the hydrology and the geothermal structure of the park, but this has always been the case.

Overall THREATS

Low Threat

The values for which Yellowstone was inscribed are threatened but not at immediate risk. Threats are being managed and addressed, although slowly. While most threats to the site’s Outstanding Universal Value are not immediate, constant monitoring and attention is necessary to quickly address those (such as the 1990s mining issues) that may present themselves. Climate change is the most serious potential threat.

Overall PROTECTION and MANAGEMENT

Mostly Effective

Overall protection and management is sufficient right now to maintain the site’s values but is likely to be challenging in the long term.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **A foremost site for the study of evolutionary history of the earth**
  Criterion:(viii)

  Yellowstone is a foremost site for the study of the evolutionary history of the earth, an open natural textbook on fundamental earth-shaping processes. Yellowstone is one of the world's premier textbook sites for the study and appreciation of extensive volcanism centered around the world's largest identified caldera. There is visible evidence of 55 million years of volcanism; volcanic depositions preserving 27 layers of fossilized forests; a variety of lava flows; the world's foremost collection of active geysers and hot springs; and intense continuing earthquake activity. Three catastrophic eruptions have occurred in the past 2.1 million years; these were some of the largest in the earth’s history. The latest caldera forming eruption occurred 640,000 years ago (R2). 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 (R32).

- **Geothermal activity**
  Criterion:(viii)

  The park's geyser and hot spring basins, which include the majority of the world's active geysers, have value not only for their own qualities but as further evidence of the significance of the region's volcanism and as geological agents of change. There are approximately 500 geysers –more than found in all the Earth’s other geyser regions combined. There are more

than 10,000 geothermal features (R2).

► One of the few remaining intact ecosystems in the northern temperate zone

Criterion:(ix)

The park is one of the few remaining intact large ecosystems in the northern temperate zone of the earth (R32). As an area for biological evolution, the park hosts its entire native plant assemblage, and, as of the date of the nomination, almost all of its native animal species, in a wildland in which ecological processes are given free rein to a greater extent than in most parts of the U.S.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.The park is recognized as the core of a far larger ecological entity, the Greater Yellowstone Ecosystem. A significant improvement in ecological integrity was accomplished by the restoration of gray wolves to Yellowstone National Park (R32).

► Extraordinary scenic treasures

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. The cumulative value of Yellowstone's great variety of unique, rare, and superlative natural phenomena, from geothermal activity to extraordinary scenic treasures, has created a whole greater than the sum of its parts. This special value is revealed in such chains of consequence as the violent volcanic history of the landscape which created numerous deeply incised watersheds, whose hundreds of waterfalls form barriers that have created hundreds of distinctive aquatic communities. There are monumental landscape and scenic values. The volcanic history of the region has left its legacy in an incised and topographically irregular landscape. About 350 waterfalls over fifteen feet high are known in the park (R2, R32).

►

Habitats where populations of rare or endangered species of animals still survive

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 refuge for ecosystem processes that are rarely allowed such free expression elsewhere (R32). The park provides for protection of ecosystem components necessary for the continuity of its life forms and forms the core of the extensive wildlands surrounding the park, which allow for a much more expansive and secure home for rare species than would be provided by the park alone (Noss et al. 2002).

Other important biodiversity values

► An area of probable refugia during climate warming

Because of its high elevation, Yellowstone National Park and neighboring areas of the Greater Yellowstone Ecosystem, have a high probability of serving as refugia as the climate warms. Yellowstone Park may harbor many species currently in temperate and boreal ecosystems, while the nearby Beartooth Plateau and Wind River Mountains may harbor many alpine and subalpine species. In some cases species of concern may continue to persist within the ecosystem and the park; in many other cases species that are currently common and widespread may become rare and confined to smaller areas as climatic zones move upward in elevation. It is likely that areas with the same climate as Yellowstone Lake will become much restricted in the region as the climate warms (R2).

► Global Leadership

Largely because of leadership in ecosystem management, Yellowstone has become a world center for dialogue about natural-area conservation and is perhaps the world’s leading laboratory for experimentation in the values and ideas that drive modern conservation.

Assessment information

Threats

Current Threats

Low Threat

The values for which Yellowstone was inscribed are threatened but not at immediate risk. Threats are being managed and addressed, although slowly. While most threats to the site's Outstanding Universal Value are not immediate, constant monitoring and attention is necessary to quickly address those (such as the 1990s mining issues) that may present themselves.

▶ Commercial/ Industrial Areas

Low Threat
Inside site
Outside site

Within the park, the total building footprint has grown from about 0 square feet in 1880, to 1 million square feet around 1920, to 2 million square feet around 1957 after the initiation of Mission 66. It is approaching 3 million square feet today (R3). The rate of growth has decreased somewhat over the last decades.

▶ Other

Data Deficient

Declining Whitebark Pine was identified as a threat to be addressed (R10). Whitebark Pine is a keystone species in Alpine ecosystems. They are long-lived and take about 50 years to reach a mature stage and begin producing cones (reproducing). They are important in helping accumulate snowpack (as water storage) in the shelter of their stands and slowing the rate of water runoff during spring. Loss of Whitebark Pine will accelerate the drying of Alpine Ecosystems and change hydrologic regimes downstream. They also provide an important food source for grizzly bears, red squirrels, Clark's

nutcrackers, and other species.

► Other

High Threat

In 2000, the various state and federal agencies involved in managing brucellosis and/or bison reached an agreement on a bison management plan that is aimed at maintaining wild bison populations and managing risk of the transmission of brucellosis (R20).
A coalition of federal, state, and tribal managers agreed to management practices that would decrease the need for large culls of bison and support population stability. These practices include formal adaptive management agreements to increase tolerance for bison migrating to habitat outside the park's northern and western boundaries, in the state of Montana. In 2008, the agencies agreed that bison would be allowed to remain on Horse Butte, an area outside the west boundary of the park where there are no cattle, until an agreed-upon haze-back date to the park in spring. From 2008 through 2011, up to 700 bison migrated beyond the western boundary of the park and accessed suitable habitat in the Hebgen basin of Montana. In 2008, the State of Montana also signed a 30-year livestock grazing restriction and bison access agreement with the Church Universal and Triumphant, Inc. to remove livestock from the Royal Teton Ranch located north of the park. The National Park Service (NPS) provided $1.5 million to Montana to implement the initial payment for this agreement that should allow progressively increasing numbers of bison to use habitats north of the park. This agreement allowed the agencies to extend the northern migratory route for bison an additional 7 miles beyond the park boundary. During 2011, more than 300 bison migrated north of the park onto habitat in the Gardiner basin of Montana. (R18).

► Tourism/ Recreation Areas

Low Threat
Inside site
Outside site

In 2011 3,090,615 visitors passed through Yellowstone. Visitor facilities are continually upgraded (although slowly) to encourage visitation of at least 3 million per year. The greatest impacts occur in summer (909,935 visitors came in July 2011). The National Park Service is seeking $134 million in

improvements to visitor and employee lodging. The current park concession contract expires in 2013 and a new one will be awarded. The new concessionaire will be required to add rooms at Mammoth Hot Springs Hotel by converting space now used for administrative functions and by renovating 14 cabins used by employees for visitor use. The hotel also would have to be open year-round instead of just summer and winter. At the Old Faithful Snow Lodge, the new concessionaire will be required to build a 77-room employee dormitory and convert 67 cabins now used by workers to be rented out to visitors. Improvements also will be required at Lake Yellowstone Hotel, Canyon Lodge and Lake Lodge including the rehabilitation of 19 cabins, the relocation of 15 more and demolishing an employee dorm and replacing it with a 60-room dorm. The projects, estimated to cost $134 million, would have to be completed between 2015 and 2018 (R3, R19).
This threat level is difficult to assess. Developed areas within the park are limited and access to backcountry areas is controlled by permits. However the infrastructure is continually upgraded which allows more visitation. Annual visitation at Yellowstone passed 3 million for the first time in 1992; since then, it has remained relatively stable, ranging from 2.8 to 3.3 million. Most visitation occurs during the summer; use typically peaks from the last week of July through the second week of August. Although there are no day-use visitor quotas, the park only accommodates 14,341 visitors per night during the peak summer season (this number includes maximum potential occupancy at hotels, campgrounds, and backcountry campsites). Fall visitation began to increase in the 1990s and now comprises approximately 20% of annual use. Winter visitation has never been more than 5% of the annual count. Similar to trends in other western parks, overnight backcountry use in Yellowstone peaked in 1977 at more than 55,000 “people use nights” (the total number of nights spent in the backcountry). Since 1990, people use nights for backcountry users have been fluctuating between 34,000 and 46,000, with an overall downward trend; a recent exact count (for 2008) totaled 39,603 (R18).

► Livestock Farming / Grazing

Low Threat
Outside site

Because of perceived threats to livestock (whether real or not) bison movements are restricted and great expense is incurred by state and federal

livestock agencies to keep bison inside park boundaries.
A potential threat to Yellowstone's bison population arises from the concerns of the livestock regulatory officials that free-ranging bison might transmit brucellosis to domestic cattle on private and public lands outside the Park. These concerns have resulted in a law-suit being brought against the National Park Service in 1995, and created pressure on the Park authorities to develop an interim plan which, amongst other measures, foresaw the capture and slaughter of bison which are infected with the disease both within and outside of the Park.
Elk populations are also under scrutiny and similar containment measures have been discussed, although elk have a much larger constituency in the form of hunters, and efforts to reduce numbers or restrict movement will meet with much greater resistance than with bison.
Populations of many animals such as elk, bears, pronghorn, wolves, and probably bison, require larger areas that exist within the park boundaries (R17). If these species are restricted to habitat only within park boundaries, the populations may decline, and even go extinct; particularly as the climate changes. However, the park itself is buffered by public lands, many of which are wilderness areas.

► Roads/ Railroads

Very Low Threat
Inside site
Outside site

Roads within Yellowstone are used for visitor and administrative access but as traffic and congestion increases, these roads are built to more modern standards which increase lane and roadway width and can impact roadsides through clearing and roadway cuts and fills.

► Mining/ Quarrying

Low Threat
Outside site

The threat of a large gold and silver mine near the northeast boundary of Yellowstone National Park in the 1990s and its inscription on the List of World Heritage in Danger was responded to through an arrangement between the U.S. federal government and the mining company, by which the mining company agreed not to develop the mine and U.S. Congress appropriated

funds for cleanup of a century's worth of accumulated tailings and other toxic overburden (R20)

► Other Biological Resource Use

Low Threat
Inside site
Outside site

The hunting of wolves outside the park has accelerated in recent years. Although state wildlife management agencies in Wyoming, Montana, and Idaho may manage sustainable harvests, there is some chance that the wolf population inside the park may be significantly impacted as individuals and even packs move outside park boundaries where they may be killed.
In 2012 several radio-collared wolves from Yellowstone packs were shot outside of the park. Montana Fish, Wildlife, and Parks responded by imposing a no-hunting buffer zone around the park, but this was challenged in court and the buffer zone was rescinded. The Montana 2013 legislature is considering bills to allow additional increases in hunting and trapping of wolves.

► Other

Low Threat

The Interagency Bison Management Plan (IBMP) has been partially revised to include adaptive management measures, in line with the requests made by the Committee in Decision 32 COM 7B.29. Two areas adjacent to the property have been closed to cattle and opened up to migratory bison. A risk analysis of disease transmission between bison and cattle has been undertaken (including consideration of bison genetics), and ways to improve stakeholder involvement in the IBMP are being considered (R11). Montana Fish, Wildlife & Parks is developing an environmental impact statement on the potential restoration of bison outside Yellowstone National Park, as required by the Montana Environmental Policy Act, even though bison are normally managed by the Montana Department of Livestock. As with all Park wildlife, once bison leave the park boundary the USNPS has no direct control over their management. However, the activities of other agencies such as the Montana Department of Livestock and the federal Animal and Plant Health Inspection Service (APHIS), an agency under the US Department of Agriculture, greatly affect the health and genetics of the Yellowstone bison, and thus the park’s

ability to protect their status. The only effective way to remove the threat of brucellosis to cattle (however large that threat may be) is to develop an effective serum for cattle and require all cattle to be treated.

► Hyper-Abundant Species

High Threat
Inside site
Outside site

The beetles are endemic species that experience cyclical population outbreaks. However, there is clear evidence that recent outbreaks are more severe and widespread than those in the past, and that they are exacerbated by warming temperatures. Specifically, warmer, longer summers allow the beetles to complete a life cycle in one year rather than two, and milder winters do not cause high mortality of the larval stages. The beetles attack a number of pine species, particularly lodgepole pine and whitebark pine. As whitebark pine is an important grizzly bear food source, the beetle infestations may have long-reaching impacts on grizzly bear population dynamics (R10). Mountain pine beetle infestations across the region likely due to warming temperatures are pervasive and lead to increased chance of catastrophic wildfire, especially those which may start through human causes outside Park boundaries and then enter the Park, which impacts the Park goals to implement a natural fire regime.

► Other

High Threat

Restriction of grizzly bear was identified by the WHC in 2010 as a threat to be addressed (R11). Isolation of the Yellowstone population over the past 100 years has led to a reduction in genetic variability. Barriers to movement can prevent the infusion of genes from other populations (R16, R19) as well as reduce the demographic viability of the Yellowstone population should it suffer a decline (R17). To date, no radio-collared grizzly bears are known to have successfully travelled to the Selway-Bitterroot or the Northern Continental Divide Grizzly Bear Recovery Zones from Yellowstone, but they have expanded their range in recent years into closer, smaller area of secure habitat.

► Invasive Non-Native/ Alien Species

High Threat
Inside site
Outside site

Fish from outside the park were first transplanted in 1889-1890 including non-natives such as Brook Trout and Lake Trout that compete with native species. Lake Trout were discovered in Yellowstone Lake in 1994 and they increased greatly while native Cutthroat Trout declined. Lake Trout control measures were begun in 1995 and numbers have been reduced, but eradication is virtually impossible. Other invasive species that are known or are likely to be found in Yellowstone include :
Plants : spotted knapweed, leafy spurge
Birds : Eurasian collared dove, starling, house sparrow
Invertebrates : zebra and quagga mussels. Yellowstone is currently free but introduction is possible. The state of Wyoming requires certification for watercraft and compliance is required within Yellowstone Park.

Potential Threats

High Threat

Potential threats include earthquakes and avalanches which are common in the area, as well as future impacts of climate change, including temperature changes, severe weather events and habitat shifting.

► Droughts

Low Threat
Inside site
Outside site

Climate warming will exacerbate drought conditions, but it is unknown how it will affect precipitation in Yellowstone.

► Earthquakes/ Tsunamis

Low Threat
Inside site
Outside site

Earthquakes are common, but natural systems in Yellowstone have evolved

to adapt.

► Avalanches/ Landslides

Very Low Threat
Inside site
Outside site

Avalanches and landslides are common, but natural systems in Yellowstone have evolved to adapt.

► Temperature changes

High Threat
Inside site
Outside site

Climate warming will exacerbate drought conditions, but it is unknown how it will affect precipitation in Yellowstone.

► Erosion and Siltation/ Deposition

Low Threat
Inside site
Outside site

Erosion and siltation are common and is a result of soil conditions and natural fire regimes, but natural systems in Yellowstone have evolved to adapt. Climate warming however may increase the frequency and severity of fire events thus increasing erosion and siltation.

► Habitat Shifting/ Alteration

High Threat
Inside site
Outside site

Climate warming will exacerbate shifts and alteration of habitat.

Protection and management

Assessing Protection and Management

► Staff training and development

Mostly Effective

Generally speaking staff are adequately trained and utilization of external resources such as nearby universities increases capacity.

► Sustainable use

Mostly Effective

Most resources are sustainably used within the park.

► Relationships with local people

Mostly Effective

Generally speaking, gateway communities adjacent to the park benefit financially from the presence of the Park and its visitors. Some ranchers and hunters dislike the park because of the tension around large predators and perceived and/or real impacts to livestock and ungulate populations (R21). The Park is an area of exclusive federal jurisdiction lying within the three States of Montana, Wyoming and Idaho, which have very limited jurisdiction, but do manage fish and wildlife species outside Park boundaries. Park resource managers work with these agencies to cooperate within law and policy, but resource and management challenges may take years to reach a consensus or decision (see below).

► Legal framework and enforcement

Mostly Effective

The site is governed by the federal statutes that established the Park and the federal laws that established the National Park Service, as well as laws pertaining to air quality, water quality, environmental policy, wild and scenic rivers, wilderness, endangered and threatened species, historic preservation, relationships with aboriginal tribes, archeological resources protection and other pertinent legislation. These statutes are generally effective in maintaining the Outstanding Universal Value of the site.

► Integration into regional and national planning systems

Mostly Effective

The Park is guided by Service-wide policy for planning in national parks. Park managers participate in the Greater Yellowstone Coordinating Committee and the Great Northern Landscape Conservation Cooperative. There is tension in the relationships with surrounding States and examples of truly cross-border projects with shared visions are relatively rare due to different management objectives.

► Management system

Highly Effective

The management system in place is generally adequate, but continually challenged by funding to adequately address needs in all areas.

► Management effectiveness

Highly Effective

The management system of the site is adequate and likely to maintain the site’s values over the medium term. Longer term effectiveness will depend on the development of capacity and support to influence activities far afield of the site boundaries (R25).

► Implementation of Committee decisions and recommendations

Mostly Effective

Yellowstone National Park was inscribed on the World Heritage List in 1978 and subsequently inscribed on the World Heritage list in Danger in 1995. The World Heritage Committee in 2002 urged the State Party (Yellowstone NP) to continue to report on the snowmobile phase-out and other efforts to ensure that winter travel facilities respect the protection of the Park, its visitors, and its wildlife (R4). The State Party provided a report in 2003. The World Heritage Committee in 2003 urged the State Party (Yellowstone NP) to continue to report on winter issues, and the Mclaren Mine tailings and decided to remove Yellowstone from the List of World Heritage in Danger, and invited the State Party to continue to provide reports on long-term issues (mining activities outside the park, threats to bison, threats to cutthroat trout, water quality issues, road impacts and visitor use impacts) (R5). In 2005 the WHC acknowledged the considerable efforts by the State Party to address these threats and requested the State Party to review the currency

and relevance of the 1973 Master Plan, as well as continue to report on continuing threats as well as to report by 1 February 2006 on new and emerging threats and management developments (R8). In 2008 the State Party provided a report and WHC acknowledged progress in implementing the New World Mining District Response and Restoration project, restoring the roads within the guidelines of the National Environment Policy Act, and in implementing water quality improvement measures. The WHC requested a continuation of previous effort and to accelerate the adaptive management changes under the Bison management plan; increase efforts to understand the causes for the slow recovery of the cutthroat trout; and assess the risk to grizzly bears from declining whitebark pine and investigate the severity of bark pine beetle infestation and the role of changing temperatures. In 2010 the State Party provided a report and the WHC welcomed progress in bison management and efforts to rapidly implement the recommendations of the scientific expert panel concerning the restoration of the property's native cut-throat trout population. In 2012 the State Party provided a report and the WHC commended the State Party for the substantial progress made to find effective solutions to conservation issues affecting the property, particularly relating to bison migration, suppression of the lake trout population, mitigation of human-grizzly bear conflict, improvement in winter visitor use, and mining and road impacts; and encouraged the State Party to establish effective co-operative relations between the park and private landowners and State land and wildlife regulatory agencies in lands surrounding the park, in the interest of achieving long-term conservation goals for the park's bison, grizzly and wolf populations (R12).

► Boundaries

Mostly Effective

The boundaries are clear. Like many parks, the park is generally higher in elevation and lower in productivity than surrounding areas. This means that many of the migratory routes are not completely within the park (R23, R24).

► Sustainable finance

Highly Effective

This Park is funded at adequate levels compared to other USNPS World Heritage properties and ranks higher in funding for most needs than many

national parks in the United States. Funding comes from both the federal government and private funds.

► Education and interpretation programs

Mostly Effective

The Park places value on education for park visitors as well as engaging in extensive programs to reach those who are not physically in the park. Some programs are outstanding and others are adequate.

► Tourism and interpretation

Highly Effective

The Park is one of the Parks in the United States with high demand by both domestic and international visitors, which has stresses, but the park both manages the numbers of visitors and provides excellent interpretation for them.

► Monitoring

Highly Effective

A great deal of inventorying and monitoring (from geologic to biological values) occurs in the Park, and the Park participates in some region-wide monitoring as well (e.g., the Greater Yellowstone Network Vital Signs Monitoring Program). (R26)

► Research

Highly Effective

The Park has a long history of research and has extensive research in all areas. It is one of the most studied protected areas in the world.

Overall assessment of protection and management

Mostly Effective

Overall protection and management is sufficient right now to maintain the site’s values but is likely to be challenging in the long term.

► Assessment of the effectiveness of protection and management in addressing threats outside the site

Some Concern

The largest threat to the park is the increasing development in the region, which decreases total ‘core’ natural habitat in the region, and increasingly isolates Yellowstone and the Greater Yellowstone Area from other core areas in the Northern Rockies. Such threats impair processes such as migration and fire and mean that wide-ranging species with small populations in and around Yellowstone will become more and more disconnected from other populations. These issues are not being adequately addressed (R25).

► Best practice examples

Management of visitor use during winter; reintroduction of extirpated species (wolves); integration of management of wildlife species across boundaries with adjacent agencies with differing objectives but needing to manage cooperatively to achieve their objectives; maintenance of long-term research projects in both wildlife, wildfire and geologic areas of interest.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► A foremost site for the study of evolutionary history of the earth

Good
Trend:Stable

The geologic record is well protected from human alteration and is unlikely to be threatened by environmental factors such as climate, weather, pollution, fire, or floods (R33).

► Geothermal activity

Good
Trend:Stable

The geothermal features of the sits are well preserved and are unlikely to be threatened in the foreseeable future (R33).

► One of the few remaining intact ecosystems in the northern temperate zone

Low Concern
Trend:Deteriorating

There is some concern about biological evolution in that species requiring large areas to survive and/or depending upon gene flow from other populations (such as grizzly bears, bison, wolverine, lynx, fisher) may be too isolated to maintain genetic diversity over long periods of time. However, there is a reasonable possibility that connectivity may be preserved between Yellowstone and other large intact populations since approximately one migrant per generation should maintain homozygosity. In addition, gene flow can be maintained by management actions: transplanting individual animals into the system from other populations. If gene flow were restricted, evolution would nevertheless continue; but likely at different rates and in different directions than it would in a system unaffected by isolation due to human activities (R25).

► Extraordinary scenic treasures

Low Concern
Trend:Stable

Natural phenomena are well protected from human alterationGeological phenomena, particularly earthquakes, are constantly altering the hydrology and the geothermal structure of the park, but this has always been the case (R33)

► Habitats where populations of rare or endangered species of animals still survive

High Concern
Trend:Deteriorating

Many habitats are changing; some due to human activities, but most due to climate change. Wolves were removed by humans during the previous century: the restoration of the wolf to the ecosystem has begun to restore some habitats such as willow and aspen that had greatly decreased due to

overgrazing by wild ungulates. Wolf populations have expanded enough that hunting is now allowed outside the park. There is some risk that wolves inside the park may not be numerous enough to survive in the long term if packs outside the park are destroyed and if park wolves are killed whenever they leave the park. A buffer zone of no hunting should be established to protect resident park wolves when they travel seasonally outside park boundaries. There is little risk that all populations outside the park will be extirpated by hunting, but it could happen given political change at the state or federal level.

The introduction of exotic species has also begun to change many habitats. Lake trout in Yellowstone Lake have made much of that aquatic habitat unusable by native cutthroat trout which lake trout prey upon.

Plants such as spotted knapweed, leafy spurge, and Russian thistle have affected wildlife habitat outside of Yellowstone; it is possible that they will also increase within the park in the future. Animals such as zebra mussels and other aquatic organisms are also likely to gain a foothold. Intensive screening of watercraft can reduce the possibility of aquatic invasives, but other sources such as mud in the soles of hiking and wading boots are very difficult to control (R33).

Other important biodiversity values

► An area of probable refugia during climate warming

Because of its high elevation, Yellowstone National Park and neighboring areas of the Greater Yellowstone Ecosystem, have a high probability of serving as refugia as the climate warms. Yellowstone Park may harbor many species currently in temperate and boreal ecosystems, while the nearby Beartooth Plateau and Wind River Mountains may harbor many alpine and subalpine species. In some cases species of concern may continue to persist within the ecosystem and the park; in many other cases species that are currently common and widespread may become rare and confined to smaller areas as climatic zones move upward in elevation. It is likely that areas with the same climate as Yellowstone Lake will become much restricted in the region as the climate warms (R2).

► Global Leadership

Largely because of leadership in ecosystem management, Yellowstone has become a world center for dialogue about natural-area conservation and is perhaps the world's leading laboratory for experimentation in the values and ideas that drive modern conservation.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Stable

The geologic record is well protected from human alteration and is unlikely to be threatened by environmental factors. There is some concern about biological evolution in that species requiring large areas to survive and/or depending upon gene flow from other populations (such as grizzly bears, bison, wolverine, lynx, fisher) may be too isolated to maintain genetic diversity over long periods of time. However, there is a reasonable possibility that connectivity may be preserved between Yellowstone and other large intact. Natural phenomena of the site and their scenic value are well protected. There are no geothermal energy production sites that impinge upon the park hydrological and geothermal systems. Geological phenomena, particularly earthquakes, are constantly altering the hydrology and the geothermal structure of the park, but this has always been the case.

► Assessment of the current state and trend of other important biodiversity values

High Concern

Trend: Data Deficient

The issue of climate change and the impacts that may occur, while postulated, are not addressed at a level that many believe is necessary, but this is an issue that is beyond the scope of Park managers to have direct authority for decision-making. Thus, the Park is one that can have great influence, but a key challenge is to use that influence in a proactive manner, rather than as an example of direct impact and loss of values.

Additional information

Key conservation issues

▶ Declining Whitebark Pine

Local

See above

▶ Changing habitat due to human action and climate change, including regional development beyond Park boundaries

Regional

See above

▶ Restriction of grizzly bear movements

Local

See above

▶ Wolf and bison management

Local

See above

▶ Introduction of exotic species

Local

See above

Benefits

Understanding Benefits

▶ Water provision (importance for water quantity and quality)

Yellowstone lies along the Continental Divide between the Atlantic and Pacific oceans and contains headwaters of two great drainages: the Columbia and the Missouri basins. Aquatic species integrity is thus critical to maintain and protect in as natural and unaltered state as possible.

► Outdoor recreation and tourism

The national park is an important resource to the regional economy especially during summer and winter months.

► Importance for research, Contribution to education

The management of the national park and its OUV are exemplars for other protected area managers. The value of the national park and its OUV by the citizens of the United States of America lends to its ability to achieve funds to study and address management challenges and threats to OUV.

► Sacred natural sites or landscapes

Yellowstone National Park is valued by the general populace of the United States of America, is widely known and its values are generally understood or at least accepted as “high values” even if not always understood. Its popularity is because of its reputation for wild, natural and wilderness characteristics and thus, because it is valued, it is protected.

Summary of benefits

The benefits of the Yellowstone area are critical and important to the Nation and the world.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	US National Park Service (Governmental Organization)		See planning documents

№	Organization/ individuals	Project duration	Brief description of Active Projects
2	Greater Yellowstone Coalition (NGO)		Pervasive; too numerous and dynamic to list
3	US Geological Survey Biological Resources Division (Governmental Organization)		Research in Yellowstone; See website

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