IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 09 November 2017

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

2017 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 continuing improvement in the state of conservation, with Yellowstone's removal from the Danger list in 2003. The six original threats (mining outside park, threats to bison (Bison bison), threats to cutthroat trout (Oncorhynchus clarki), water quality issues, road impacts and visitor use impacts) are still long-term concerns. In addition, new and emerging threats have been identified including park development, invasive species, the risk to grizzly bears (Ursus arctos) from declining whitebark pine (Pinus albicaulis), the severity of bark pine beetle (Dendroctonus ponderosae) 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 existing and potential threats, which are critical to the ecological integrity of the values of the site, are beyond the direct control of the National Park Service and/or depend upon conditions outside the borders of Yellowstone National Park. The maintenance of some of the values of the site in the future will depend upon cooperative efforts among the National Park Service, other federal and state agencies, non-governmental organisations 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, efforts are being made to address connectivity and range

expansion (National Park Service, 2016). Natural phenomena of the site and their scenic value are well protected. There are no geothermal energy production sites that impinge upon the Park's hydrological and geothermal systems.

Overall THREATS

Low Threat

While most threats to the site's OUVs are not imminent, constant monitoring and attention is necessary to address those that may quickly emerge. Climate change (Saunders et al., 2011) and land use, development and natural resource management outside the Park are the most serious potential threats.

Overall PROTECTION and MANAGEMENT

Mostly Effective

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

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Outstanding examples representing on-going geological processes and the Earth's history**
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 and one of the world's premier textbook sites for the study and appreciation of extensive volcanism centred around the world's largest identified caldera. There is visible evidence of 55 million years of volcanism, volcanic depositions preserving 27 layers of fossilised 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 (World Heritage Committee, 2006). 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 (Marcus et al., 2012; National Park Service, 2014a, State Party of the USA, 2015).

▶ **Outstanding examples representing significant on-going ecological and biological processes 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 (Marcus et al., 2012). 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.A. As the site of one of the few remaining intact large ecosystems in the northern temperate zone of the Earth, Yellowstone's ecological communities provide unparalleled opportunities for conservation, study and enjoyment of large-scale wildland ecosystem processes. The Park is recognised 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 (Canis lupus) to Yellowstone National Park (Marcus et al., 2012; National Park Service, 2014a, State Party of the USA, 2015).

► **Exceptional natural beauty**
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 Park's geyser and hot spring basins 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. The Park contains some 500 geysers, including the world's tallest active geyser; more than found in all the Earth's other geyser regions combined. There are more than 10,000 geothermal features and active travertine terraces (National Park Service, 2014a; World Heritage Committee, 2006). 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 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 15 feet high are known in the Park (World Heritage Committee, 2006; Marcus et al., 2012; National Park Service, 2014a).

►

Significant habitats for in-situ conservation of rare or endangered species

Criterion:(x)

Yellowstone National Park is one of North America's foremost refuges for rare plant and animal species, and functions as a refuge for ecosystem processes that are rarely allowed such free expression elsewhere (Marcus et al., 2012). The Park protects the ecosystem components necessary for the continuity of its life forms and, at the macro level, 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; National Park Service, 2014a, State Party of the USA, 2015). At the micro level, the hydrothermal features create habitats for microbes that provide links to primal life and insights for studying medical and environmental issues (National Park Service, 2014b).

Other important biodiversity values

► An area of probable refugia during climate warming

Because of its high elevation, Yellowstone National Park and neighbouring areas of the Greater Yellowstone Ecosystem have a high probability of serving as refugia as the climate warms. Yellowstone Park may harbour many species currently in temperate and boreal ecosystems, while the nearby Beartooth Plateau and Wind River Mountains may harbour 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 upwards 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 (World Heritage Committee, 2006).

► Global Leadership

Largely because of leadership in ecosystem management, Yellowstone has become a world centre 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. As the world's first national park, Yellowstone serves as an inspiration for conservation.

Assessment information

Threats

Current Threats

Low Threat

The majority of threats to Yellowstone are beyond the direct control of the park managers as they are outside the Park or related to climate change, and although these threats are real, the OUVs for which Yellowstone was inscribed are not at immediate risk. With cooperation and support from external forces, these threats should be manageable (Berger, 2004).

▶ **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 resulting inscription on the List of World Heritage in Danger in 1995 was addressed through an arrangement between the Federal Government and the mining company. In the arrangement, the mining company agreed not to develop the mine and U.S. Congress assigned funds for the clean-up of a century's worth of accumulated tailings and other toxic overburden (World Heritage Committee, 1977). In 2016, the Federal Government placed a two-year moratorium on mining on 30,000 acres of public national forest land; however, there is a current interest for gold exploration on private land near the Yellowstone River.

▶ **Tourism/ visitors/ recreation**

Low Threat

Outside site

Gateway communities at the Park's entrances provide many services that need not be duplicated in the Park, thus reducing the visitor development needs in the Park and lessening the potential impact of those needs on the Park's values. However, the type and scale of development at the gateway communities has the potential to impact the natural beauty of the Park as well as animal movements between the Park and the surrounding Greater Yellowstone Ecosystem.

► Other Ecosystem Modifications

Low Threat
Outside site

Restriction of grizzly bear range was identified by the World Heritage Committee (WHC) in 2010 as a threat to be addressed (Berger, 2004). Isolation of the Yellowstone population over the past 100 years has led to a reduction in genetic variability as barriers to movement can prevent the infusion of genes from other populations (Knibb, 2008; World Heritage Committee, 1978) as well as reduce the demographic viability of the Yellowstone population should it suffer a decline (Craighead & Vyse, 1996). 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 areas of secure habitat.

► Other

Low Threat
Outside site

Bison are an iconic feature of Yellowstone. However, the threat of disease transmission to cattle and the real and perceived conflicts, such as competition for grasses, public safety and property damage, has limited the tolerance for bison that range outside the Park. To address these issues and the management of bison generally inside the Park, an Interagency Bison Management Plan (IBMP) was developed in 2000 by officials from the Park and the State of Montana. The plan has undergone several iterations and addresses the sustainable population in the Park and attendant management measures. The plan has been influenced by public reviews and research

(State Party of the USA, 2015; 2016; Halbert et al., 2012) and, as a result, more tolerance and support for bison has emerged and additional strategies are under consideration to facilitate the migration of bison beyond the park boundary. This cooperative management has reduced the threat.

► Other Ecosystem Modifications

High Threat
Inside site, widespread(15-50%)
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 are exacerbated by warming temperatures. The beetles attack a number of pine species, particularly lodgepole pine (Pinus contorta) and whitebark pine (Pinus albicaulis). Declining whitebark pine, a keystone species in alpine ecosystems, was identified as a threat to be addressed (Hilty et al., 2012). 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 (Tamiasciurus hudsonicus), Clark’s nutcrackers (Nucifraga columbiana) and other species. As whitebark pine is an important grizzly bear food source, the beetle infestations may have long-reaching impacts on grizzly bear population dynamics (Hilty et al., 2012). Mountain pine beetle infestations can also lead to increased risk of catastrophic wildfire, especially those which may start outside the Park boundaries and then enter the Park, impacting the Park’s goal to implement a natural fire regime.

► Other Biological Resource Use

Low Threat
Outside site

The gray wolf (Canis lupus), eliminated from the Park by the 1920s under a different park management philosophy, was successfully reintroduced into the Park in 1995 (State Party of the USA, 2015; Povilitis, 2015). Similarly, the grizzly bear (Ursa arctos horribilis), generally eradicated from the western

United States except in Yellowstone, found refuge in the Park.

These two iconic species, along with a number of other species, represent Yellowstone. As wildlife generally has little understanding of park boundaries, hunting outside the Park can have a significant effect on those animals that generally inhabit the park. In keeping with best practices of park management, Yellowstone has partnered with neighbouring States and associated foundations to increase the knowledge of these species and conduct public outreach and lessen the impact of hunting outside the Park. These partnerships include the Interagency Grizzly Bear Committee, Wyoming Bear Wise Project and the Yellowstone Ecosystem Committee (State Party of the USA, 2015).

Although this threat is considered low and grizzly bears are on the Endangered list, removal from the list, which is currently being proposed by the Federal Government, and increased hunting pressure outside the Park, which has been supported by the surrounding States, has the potential to move the threat to a higher category (Povilitis, 2015; Montana Fish, Wildlife and Parks, 2017).

► Other Ecosystem Modifications

Low Threat
Inside site, widespread(15-50%)
Outside site

Fish from outside the Park, including non-natives such as brook trout (Salvelinus fontinalis) and lake trout (Salvelinus namaycush), which compete with native species, were introduced in 1890. Lake trout were discovered in Yellowstone Lake in 1994 and they increased greatly, while native cutthroat trout declined. Lake trout control measures began in 1995 and although numbers have been reduced, eradication is virtually impossible. Other invasive species that are known or are likely to be found in Yellowstone include:
Plants: spotted knapweed (Centaurea stoebe), leafy spurge (Euphorbia esula)
Birds: Eurasian collared dove (Streptopelia decaocto), starling (Sturnus vulgaris), house sparrow (Passer domesticus)
Invertebrates: zebra mussels (Dreissena polymorpha) and quagga mussels (Dreissena bugensis). Yellowstone is currently free but introduction is possible. The State of Wyoming requires certification for watercraft and

compliance is required within Yellowstone Park.
A 2013 Invasive Species Management Plan has been prepared (State Party of the USA, 2014).

Potential Threats

Low Threat

Potential threats include earthquakes, as well as future impacts of climate change, including temperature changes, ground water recharge, timing and frequency of fires and associated degraded air quality, severe weather events, accelerated invasion of non-native species and habitat alteration.

► Habitat Shifting/ Alteration

Low Threat
Inside site, throughout(>50%)
Outside site

Climate change can be viewed as both a threat and an adaptable occurrence (Westerling et al., 2011; McMenamin et al., 2009; Hilty et al., 2012).

The National Park Service (NPS), along with its partners, is developing a Climate Change Response Strategy to monitor the effects of climate change on the park resources (State Party of the USA, 2015).

► Earthquakes/ Tsunamis

Low Threat
Inside site, extent of threat not known
Outside site

Earthquakes have the potential to destroy the existing geothermal features but conceivably, establish new ones.

► Tourism/ visitors/ recreation

Very Low Threat
Inside site, localised(<5%)

Yellowstone’s visitation has increased significantly over the last decade and now receives over 4 million visitors annually with more than half of those visits in July and August. The visitors are serviced by some 300 park staff and 300 concession staff live in the Park. Park facilities include 1,500 buildings,

700 kilometres of road, 1,600 kilometres of trail and accommodation for 4,000 people and, as with all parks that have a long history, park planning and development has been piece-meal (National Park Service, 2003, 2014a, State Party of the USA, 2014).

During the peak summer months, overuse can result in a degraded experience including increased traffic and general overcrowding, vandalism, loss of natural light and sound quality and reduction in wildlife viewing opportunity (National Park Service, 2014a).

Within the Park, the total building footprint was 3 million square feet in 2012. During the last five years, the rate of growth has decreased somewhat over the previous decades.

All proposed (re)development is subject to NPS environmental impact study policy (National Park Service, 2014a).

Protection and management

Assessing Protection and Management

► Relationships with local people

Mostly Effective

Gateway communities adjacent to the Park benefit financially from the presence of the Park and its visitors (National Park Service, 2017) and are supportive of park management. Some ranchers and hunters disagree with park management practices dealing with bison and large predators and perceived and/or real impacts to livestock and ungulate populations (State Party of the USA, 2008). To address this issue, park resource managers work with other federal and state agencies. At present, only bison management remains an issue, although hunting outside the park has the potential to impact park resources. Negotiations continue to find a balance. The Park has an extensive public and institutional outreach programme at the community and international level to involve others in park management.

Indigenous participation in park management includes hosting a Native American internship programme where interns participate in natural and

cultural resource management. Additionally management consults regularly with tribal representatives through site visits, staff exchanges and formal government-to-government meetings.

The Park's Twitter feed has more than 50,000 followers (National Park Service, 2014a).

▶ Legal framework

Highly 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, archaeological resources protection and other pertinent legislation. These statutes are effective in maintaining the Outstanding Universal Value of the site.

▶ Enforcement

Highly Effective

Enforcement of visitor behaviour, permits and management of park resources is governed by federal statutes and regulations and conducted by park staff effectively. The Park has custodial facilities. Legislation allowing fire arms presents legal enforcement challenges (State Party of the USA, 2014).

▶ 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, the Great Northern Landscape Conservation Cooperative, NPS Climate Change Response Program and the Interagency Grizzly Bear Committee as well as a number of interagency management plans (State Party of the USA, 2014). Although there can be tension in the relationships with surrounding States due to varying resource management objectives, the site has enjoyed models of success include mining reclamation and improved water quality.

► Management system

Highly Effective

The management system in place, supported by the Foundation Document and numerous natural resource management plans prepared with public input, is generally adequate, but continually challenged by funding to adequately address needs in all areas (National Park Service, 2014a, State Party of the USA, 2014).

► Management effectiveness

Highly Effective

The effectiveness of 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 outside the Park's boundary (World Heritage Committee, 2006; National Park Service, 2014a).

► Implementation of Committee decisions and recommendations

Highly 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. Over the years, the Park has continued to report on winter use and its impact on other users and park wildlife, mining activities outside the park, threats to bison, threats to cutthroat trout, water quality issues, road impacts and visitor use impacts (Rasker & Hansen, 2000; State Party of the USA, 2003; 2008), the 1973 Master Plan, the assessment of the risk to grizzly bears from declining whitebark pine and the investigation of the severity of pine beetle infestation and the role of changing temperatures. The WHC has commended Yellowstone over that time period for the substantial progress made in finding effective solutions to conservation issues affecting the Park, particularly relating to bison migration, suppression of the lake trout population, mitigation of human–grizzly bear conflict, improvement in addressing the impacts of winter visitor use, and mining and road impacts. Most recently, the WHC encouraged Yellowstone to establish effective cooperative 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 (Weber, 2004; Garrott et al., 2009; Clark & Rutherford, 2014). In 2015, Yellowstone submitted its report addressing these issues (State Party of the USA, 2015).

► Boundaries

Mostly Effective

The boundaries are legislated and marked. As noted, some areas outside the park boundary are important for some park species. Cooperative interagency planning is assisting in expanding and protecting migratory routes (World Heritage Committee, 2008, 2010; National Park Service, 2014a).

► Sustainable finance

Highly Effective

This Park is funded at adequate levels compared to other 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.

► Staff training and development

Mostly Effective

Generally speaking, staff are adequately trained and utilisation of external resources such as nearby universities increases capacity. Bureaucratic record keeping ensures institutional memory.

► Sustainable use

Highly Effective

The use of the Park's resources for conservation and recreation purposes, in keeping with the multiple resource use plans, appears sustainable and resource use on the park's perimeter is managed considering its impact on the Park's resources (World Heritage Committee, 2005). In 2012, the Park completed a Strategic Plan for Sustainability (National Park Service, 2014a). The implementation of the plan included a mini-hydro project, the installation of power-saving units on emergency vehicles, employee ride-sharing and bus

transportation and building renovations to LEED certification.

► Education and interpretation programs

Highly Effective

The Park places value on education for park visitors as well as engaging in extensive programmes to reach those who are not physically in the Park. Some programmes are outstanding and others are adequate (National Park Service, 2014a). Visitor behaviour around wildlife remains an education issue (IUCN Consultation, 2017).

► Tourism and visitation management

Highly Effective

As arguably the most internationally known park, and with some 3 million visitors annually, the understanding and promotion of Yellowstone is self-evident. The Park's Foundation Document was approved in 2014 and guides resource protection and management, visitor use and facility development (National Park Service, 2014a).

► Monitoring

Highly Effective

Inventorying and monitoring (from geologic to biological values) occurs constantly in the Park, and the Park participates in region-wide monitoring as well (e.g. the Greater Yellowstone Network Vital Signs Monitoring Program) (Yellowstone National Park, 2007; Rasker & Hansen, 2000; Noss et al., 2002; Jean et al., 2005; World Heritage Committee, 2005).

► Research

Highly Effective

The Park has encouraged purposed and empirical research at both the personal and institutional level and conducts its own research to support park management (National Park Service, 2014a).

Overall assessment of protection and management

Mostly Effective

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

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

Some Concern

The external threats impact the overall state of protection and management and challenge park management, and park resources, to focus on issues beyond their direct control.

Within the Park, the Foundation Document and associated plans adequately guide effective park management.

► **Best practice examples**

As a provider of global leadership in park management, Yellowstone has numerous examples of best practice including the encouragement of research on the Park's natural and cultural resources, assessing the environmental impacts of proposed modifications, engagement of others in park management and effective participation in issues outside the direct control of the Park.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Outstanding examples representing on-going geological processes and the Earth's history**

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 (UNESCO, 1998).

► Outstanding examples representing significant on-going ecological and biological processes in the northern temperate zone

Low Concern
Trend:Stable

There is some minor 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 (Gulo gulo), lynx (Lynx canadensis), fisher (Martes pennanti)) 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 (World Heritage Committee, 2006).

► Exceptional natural beauty

Good
Trend:Stable

Natural phenomena are well protected from human alteration. Geological phenomena, particularly earthquakes, are constantly altering the hydrology and the geothermal structure of the Park, but this has always been the case (UNESCO, 1998; State Party of the USA, 2014).

► Significant habitats for in-situ conservation of rare or endangered species

Low Concern
Trend:Stable

Many habitats are changing; some due to human activities, but most due to climate change. 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 not managed with that objective. Similarly, if grizzly bears are removed from

the Endangered list and hunted outside the Park, the effect of the hunting pressure would increase the concern on the viability of their long term survival. The introduction of exotic species has also changed 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 (Salsola tragus) have affected wildlife habitat outside 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 invasive species, but other sources such as mud on the soles of hiking and wading boots are very difficult to control (UNESCO, 1998).

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, efforts are being made to address connectivity and range expansion (National Park Service, 2016). Natural phenomena of the site and their scenic value are well protected. There are no geothermal energy production sites that impinge upon the Park’s hydrological and geothermal systems.

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

Good

Trend: Improving

Yellowstone continues to provide global leadership and inspiration on other biodiversity values. The issue of climate change in the Park and its attendant

impact requires constant monitoring.

Additional information

Benefits

Understanding Benefits

► **Carbon sequestration, Soil stabilisation, Water provision (importance for water quantity and quality), Pollination**

Environmental services reflect those representative of the Continental Divide between the Atlantic and Pacific oceans.

Assumption of an increasing trend is intuitive.

► **Outdoor recreation and tourism, Natural beauty and scenery**

The national park is a destination for many people and an important resource to the regional economy especially during summer and winter months.

Assumption of an increasing trend is intuitive.

► **Importance for research, Contribution to education, Collection of genetic material**

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 receive financial support to study and address management challenges and threats to its OUV as well as common protected area issues.

Assumption of an increasing trend is intuitive.

►

Cultural identity and sense of belonging, History and tradition, Sacred or symbolic plants or animals, Sacred natural sites or landscapes, Wilderness and iconic features

The Park is valued by the general populace of the United States of America and the conservation world as a conservation icon and model for addressing park management issues.

Assumption of an increasing trends is intuitive.

Summary of benefits

The conservation benefits of the Yellowstone World Heritage Site are critical and important to the American nation and the world.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	US National Park Service	From: 2009	Each year, there are numerous research projects undertaken on the site. In 2016, in addition to conservation projects managed by the NPS, there were over 120 independent, permitted projects on the projects list. In addition, the NPS partners with the Greater Yellowstone Network, Northern Rocky Mountain Science Centre and the Rocky Mountain Cooperative Ecosystem Studies Unit on collaborative conservation research.
2	Yellowstone Forever	From: 2009	Yellowstone Forever is the result of a merging of the Yellowstone Association and the Yellowstone Foundation. It is expected that the organisation will sponsor conservation projects as well.

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Data Needs	The Foundation Document (National Park Service, 2014a) lists several conservation data needs including weather monitoring, stream gauging, snowpack measurements and air quality as well as archaeological and cultural landscape inventory and infrastructure conditions and needs to ensure minimal impact on natural and cultural resources.	From: 2014 To: 2024
2	Natural and Cultural Resource Management Plans	The Foundation Document (National Park Service, 2014a) identifies the need for management plans for ungulates, archaeology resource protection, science, museum collections and historic structures located in geothermal systems.	From: 2014 To: 2024

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