Sichuan Giant Panda Sanctuaries – Wolong, Mount Siguniang & Jiajin Mountains

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: China
Inscribed in: 2006
Criteria: (x)

Sichuan Giant Panda Sanctuaries, home to more than 30% of the world's pandas which are classed as highly endangered, covers 924,500 ha with seven nature reserves and nine scenic parks in the Qionglai and Jiajin Mountains. The sanctuaries constitute the largest remaining contiguous habitat of the giant panda, a relict from the paleo-tropic forests of the Tertiary Era. It is also the species' most important site for captive breeding. The sanctuaries are home to other globally endangered animals such as the red panda, the snow leopard and clouded leopard. They are among the botanically richest sites of any region in the world outside the tropical rainforests, with between 5,000 and 6,000 species of flora in over 1,000 genera. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 02 Dec 2020

GOOD WITH SOME CONCERNS

The incorporation of the site into the new Giant Panda National Park is likely to address a number of threats to the values of the site including those arising from mining, road and dam developments. Under the reform, management will be brought under one organization instead of many different management organizations for separate components and will likely enhance the management effectiveness in the site. Natural restoration is a requirement under the national park management objectives and wild populations of giant panda are now receiving very high conservation interest despite concerns that captive breeding is granted greater emphasis. Tourism development in and out of the site and small town development outside of the site have been major concerns in the past, but are now subject to management interventions. The latest IUCN reactive monitoring mission in 2010 recommended extending the site to enhance its integrity. This has been addressed, albeit not yet through the mechanisms of the Convention, by the establishment of the Giant Panda National Park which includes 80% of the natural range of giant panda habitat. The transition to the new management organization and system will require coordination with the zoning system of the existing World Heritage site boundaries.
FULL ASSESSMENT

Description of values

Values

World Heritage values

► High proportion of global population of iconic giant panda

The Sichuan Giant Panda Sanctuary includes more than 30% of the world's population of giant panda and constitutes the largest and most significant remaining contiguous area of panda habitat in the world. It is the most important source of giant panda for establishing the captive breeding population of the species (World Heritage Committee, 2012).

► Rich montane flora, with many endemic species

The property is also one of the botanically richest sites of any temperate region in the world or indeed anywhere outside of the tropical rain forests (World Heritage Committee, 2012). The property contains more than 10,000 plant species making it possibly the richest temperate flora in the world with high levels of endemism; for example more than 200 species of rhododendron are located here, almost all endemic to China and many confined to this property. Other significant floral elements include magnolias, orchids, lilies, primulas, alpine flora, relict trees and endangered medicinal plants (State Party of China, 2006; UNEP-WCMC, 2012).

► Rare and endemic birds

The property constitutes best protected examples of two Endemic Bird Areas (EBAs) – Central Sichuan Mountains and West Sichuan Mountains (ICBP, 1992) and contains 5 recognised Important Bird and Biodiversity Areas (IBAs) – Wolong, Anzihe, Heishuihe, Fengtongzhai and Labahe (BirdLife International, 2009). The site lists more than 300 resident breeding bird species including many local endemics. This is a radiation centre for pheasants – 11 species (State Party of China, 2006).

► Rare and threatened mammals

The property lists some rare species – snow leopard, clouded leopard, blue sheep and wolf – probably in non-viable numbers (a recent study suggests that there might be a viable, even though still small and probably declining, population of snow leopard within the property (Liu, 2011); but contains viable and significant population of many other rare, endemic and protected mammals including takin, red panda and golden monkey (State Party of China, 2006; UNEP/WCMC, 2012; Smith & Xie, 2008).

► Diversity of habitats

The property's biological richness, ecological resilience and scenic values are due to its large size, wide altitudinal range, steep profiles and great diversity of habitats. There is a continuum from the permanent glaciers of Siguniang eastwards through coniferous and temperate broadleaf forests to evergreen subtropical forests and westwards through alpine grasslands to less humid scrub oak, larch and birch woodlands. Mountain streams form breeding catchments of several different rivers (State Party of China, 2006).

► Diverse endemic richness of other groups

Overall richness and/or high levels of endemism are repeated in many other taxa including fungi, insects (Bhutanitis, Apollo, etc.), amphibians (salamanders) and fish (rare Yangtze catfish endemics) (State Party of China, 2006).
Assessment information

Threats

Current Threats

Several high threats identified with serious impacts on aquatic habitat and forests, including roads, dams, earthquakes and landslides in the past are all adjusted since 2017 after the strict supervision from the government and the site is included in the Giant Panda National Park.

▶ Tourism/ Recreation Areas

(Hotels, viewing trails.)

Major investments in Wolong, Dujiangyan, Yaan and Qiaoqi among other towns increase impacts of tourism (Liu et al., 2012).

▶ Roads/ Railroads

(Roads and railroads)

A few roads cross the property and/or are likely to impacts the values of the property, including the Wolong to Xiaojin Highway and farming land on both sides; the highway from Chengguan to Qiaoqixiang in Baoxing County; the highway of Baishahe in Tianquan County (Sichuan Forestry and Grassland Bureau, 2016). The road from Balangshan from Wenchuan to Aba prefecture is especially sensitive (Smith & Xie, 2008; Liu et al., 2012); however, with the opening of the Balangshan Tunnel, the impact on the mountain above the tunnel has been greatly reduced. Recently a project was prepared to build a new electric railway line from Dujiangyan to Mt Siguniang (> 100 km), in order to provide a safer and more ecological transportation to local people and tourists and for good transportation for which a strategic environmental impact assessment is planned (IUCN Consultation, 2020).

▶ Agricultural effluents

(Fertilizer run-off)

Fertiliser and insecticide run-off from agricultural lands is thought to represent a low level threat to the values of the site (Smith & Xie, 2008), although more recent monitoring data is not available.

▶ Solid Waste

(Some dumping in river)

Fly tipping of waste into the rivers is quite common in most towns and villages (Smith & Xie, 2008; Liu et al., 2012) and therefore represents a low level threat through solid waste pollution.

▶ Mining/ Quarrying

(Abandoned mines for silver and tin)

Old mine shafts remain in Pitiao and other valleys which may be causing toxic run off. This has been used to explain low fish density in and around the site in the past (Liu, 2011). There is no information to indicate that this particular issue has been addressed and therefore remains a threat, albeit very low due to the inactivity of any mining operations.

▶ Housing/ Urban Areas

(Villages and small towns)

Many small villages and some towns within the property or buffer enclaves create disturbance (Liu, 2011; Smith & Xie, 2008). There are 16662 residents living in Qingchengshan-Dujiangyan Landscape and Historical Site (Deng et al. 2019). Whilst recognised as a high threat, the expansion of small villages
and some towns within the property or buffer has been greatly alleviated due to restrictions on population immigration in protected areas, and related problems are improving (IUCN Consultation, 2020). Furthermore, following strict environmental inspections between 2018 and 2020, the issue of illegal housing construction in Qingchengshan-Dujiangyan-related areas has been addressed (IUCN Consultation, 2020).

▶ **Invasive Non-Native/ Alien Species**
*(Inappropriate planting roadside trees, bamboos and reforestation of bare lands)*

Planting of non-native species - including metasequoia, cryptomeria, gingko, non-local bamboos plus reforestation on landslide areas may be inappropriate for the conservation of the values of the site. Therefore this is considered a low threat, which has the potential to increase should these non-native species begin to have negative effects on the species which comprise the site's OUV (IUCN Consultation, 2020).

▶ **Commercial/ Industrial Areas**
*(Hydro and irrigation dams)*

The Major Qiaoqi dam and many other smaller dams exist on the Donghe, Baoxing, Pitiao and other rivers of property. These have high impact on river fauna but low impact on the Outstanding Universal Value of the site (Liu, 2011).

▶ **Crops**
*(Maize, vegetables and mushrooms)*

Agriculture is practised in small patches of inhabited valleys, causing some encroachment and disturbance (Liu, 2011; He et al., 2008; Smith & Xie, 2008; Liu, 2012; Liu et al., 2012). The separation of Wolong to Xiaojin Highway and farming land on both sides; and the farming zone of Baishahe in Tianquan County may also compund this threat (Sichuan Forestry and Grassland Bureau, 2016).

▶ **Livestock Farming / Grazing**
*(Yaks on alpine pastures)*

Yaks graze on most high pastures, competing with wild ungulates and leading to illegal human persecution of carnivores (Liu et al., 2012).

▶ **Livestock Farming / Grazing**
*(Cattle and horse grazing in forests.)*

Cattle and horse grazing in forests has led to altered understory vegetation structure and species composition (with long-term implications for forest regeneration) and reduced bamboo biomass for pandas (UNEP-WCMC, 2012; IUCN, 2010; Hull et al., 2014). Generally, in Wolong forests, cattle and goats are much more common than horses, and they generally cause less damage. However, in recent years, livestock grazing has become more common in giant panda habitat. For example, in Wolong Nature Reserve the total number of livestock had increased by 43.37% in 2015 compared to 2003 (Wang et al. 2018). Some researchers have reported the phenomenon and studied the impact of grazing in giant panda habitat (Wang et al. 2019).

▶ **Mining/ Quarrying**
*(Marble mines in Baoxing and coal mining in Tianquan.)*

Marble mines cause disturbance, noise, dust and rubble. Now being contained and controlled (Liu, 2011; Smith & Xie, 2008).
IUCN World Heritage Outlook: https://worldheritageoutlook.iucn.org/
Sichuan Giant Panda Sanctuaries – Wolong, Mount Siguniang & Jiajin Mountains - 2020 Conservation Outlook Assessment

► Logging/ Wood Harvesting
(Cutting for fuel, housing and mushrooms.)

Former commercial logging farms have been closed since 1980s. However, villagers cut trees for fuel, house construction and growing mushrooms (Liu, 2011).

▶ Low Threat
Inside site, localised(<5%)
Outside site

► Tourism/ visitors/ recreation
(Growing tourism industry)

Tourism declined after the 2008 earthquake, but is set to be reopened and increase greatly (Liu et al., 2012). New investments have been made into large-scale tourism development in Tianquan and Lushan after the 2013 earthquake. There is a crossing route through Xiao Jin across the Wolong Reserve. During June–November is the peak period, leaving large amounts of domestic waste and tree-cutting for heating (Cheng et al. 2016).

▶ Low Threat
Inside site, scattered(5-15%)
Outside site

► Dams/ Water Management or Use
(Major dam at Qiaoqi, small dams in Wolong)

Dams create new still water habitat but greatly change annual water flow critical to fish and rare salamanders (Liu et al., 2012). Whilst acknowledged as a high due to the threat that these hydropower stations have posed to date, improvements have been made. Since 2017, China has enforced strictly and extensive evaluation on illegal construction in all national and many provincial nature reserves. As such, the government has gradually shut down small hydropower stations in this region, with more than 80% of hydropower stations now no longer operating (IUCN Consultation, 2020). Only a small number of hydropower stations have been retained after rigorous biodiversity impact assessments. Licenses for these hydropower stations will not be renewed and a commitment has been made that there will be no new hydropower stations in the World Heritage site in the future (IUCN Consultation, 2020).

▶ High Threat
Inside site, localised(<5%)
Outside site

► Other
(Pre-occupation with captive breeding of rare animals)

Large-scale research facilities for captive breeding of giant pandas in Chengdu, Dujianyan, Yaan and Wolong plus breeding centres for golden monkeys, rare pheasants, etc. all have overall negative impact on wild populations until such time as reintroduction programmes become effective (Liu et al., 2012). There is a need for more actions and research on wildness training and the reintroduction to the wild in these centres to address this issue.

▶ Low Threat
Inside site, localised(<5%)
Outside site

► Hunting and trapping
(Poaching by local villagers)

Snare lines are set in remote areas and near cropland by local villagers, local villagers and outsiders hunt using guns and dogs, local herders set snares and use poison around pasture land (Liu, 2011; He et al., 2008; Smith & Xie, 2008). The issue of illegal hunting by local villagers is now subject to management interventions and reported to be improving as a result (IUCN Consultation, 2020).

▶ Data Deficient
Inside site, localised(<5%)
Outside site

► Air Pollution
(Acid rain and smog)

Atmospheric pollution sourced from industrial activities outside the site have impacted the natural values of the site. For example, the leaves of trees in eastern parts of the the site have previously been reported to have been coated with a layer of black soot from smog due to heavy industry on the Chengdu Plain and in surrounding areas (IUCN Consultation, 2020).

▶ Low Threat
Inside site, localised(<5%)
Outside site
Earthquakes/Tsunamis

The Richter 8 Wenchuan earthquake in 2008 and Richter 6.6 Lushan/Yaan earthquake in 2013 both caused landslides and much destruction to forest and infrastructure. It was found that the forest coverage in the post-earthquake, Wolong and Caopo nature reserves decreased from 56.66% to 48.11%, with a decrease of 8.55%. As of March 2011, forest cover had increased to 48.52 per cent, with an additional area of 9.19 sqkm, or 13.24 per cent of the damaged area. The study shows that the 2008 Wenchuan earthquake caused damage to the forest of giant panda habitat, but the forest cover of habitat is gradually recovering through natural restoration and artificial intervention (Zhou and Chen 2017).

Other Biological Resource Use

Several medicinal plants are harvested to critical levels, including gastroidea, gentians, caterpillar fungus amongst others. (He et al., 2008; Liu, 2012; Smith & Xie, 2008; Liu et al., 2012). Up to 20 families and 45 species of wild medicinal plants were harvested in Wolong National Nature Reserve (Tan 2017).

Avalanches/Landslides

The forest is a mosaic of former landslides and earthquakes. Damage to giant pandas appears to be not so serious and dynamic geology may indeed be biologically enriching. Therefore landsides are assessed as a low threat only.

Other Ecosystem Modifications

The bamboo-free area formed by the large-scale flowering and death of arrow bamboo in Xihe in Baoxing County (Sichuan Forestry and Grassland Bureau, 2016).

Potential Threats

Some new threats may be on the horizon, including management capacity of the Giant Panda National Park Administration and tourism development. Climate change and growing pressure from tourism, roads and increasing population will likely increase in the future, bringing greater impacts to the World heritage site if not actively mitigated against. However, the whole site will be managed by one management organization and capacity of address such threats should be improved largely than current devolved management structure.

Temperature extremes

Extreme snow and cold weather occurred in 2007/8 followed by extreme high rainfall in 2012 and 2013. Such extreme weather events are predicted to become more frequent with climate change.

Mining/Quarrying

Potential discovery of valuable mineral deposits could lead to heavy disturbance and pollution, but there are no current plans for such developments. However, since 2017, nature reserves have been supervised comprehensively by the government for mining, dams and construction, and many of them
are removed or adjusted. In addition, the whole site is now included in the Giant Panda National Park and such threats will be under control (Chinese Government, 2017; Aba Government, 2017; Sichuan Forestry and Grassland Bureau, 2019).

Tourism/ Recreation Areas

(Many areas in the site)

▶ Low Threat

The site is now a part of the Giant Panda National Park, there would be big need on tourism development in and outside of the site, and also small town development outside of the national park. However, since the national park will be managed strictly and current now we don't know how big the pressure would be (Sichuan Forestry and Grassland Bureau, 2019).

Overall assessment of threats

Although several high threats exist, these are limited to rivers and less remote sectors of the the Sichuan Giant Panda Sanctuaries. Relatively few threats directly impact on giant pandas and consequently the Outstanding Universal Value of the property. Areas adjacent to human developments are somewhat compromised, but are small in total area and peripheral to the core values of the site. The earthquakes that are of great concern to human residents are considered a natural part of the site’s geography and ecology, and landslides caused by earthquakes are healing through natural recolonisation. The changing climate is causing forest zones to climb further up the mountains, reducing the habitat area for important alpine communities. As a part of the Giant Panda National Park, many threats as mining, dams, roads, poaching would be reduced. However, the tourism and small town development outside of the site may become of some concern.

Protection and management

Assessing Protection and Management

▶ Management system

The site is managed under the auspices of the Sichuan World Heritage Management Committee (SWHMC) and has a cascading structure of governance that includes representatives from the relevant government ministries and agencies involved in the site (State Forest Administration (SFA), Ministry of Construction (MOC) and Ministry of Environment (MEP, formerly State Environmental Protection Agency (SEPA)). The state of conservation report submitted to the World Heritage Committee at 34 COM mentions that “the management authority should establish regular reporting on the property’s state of conservation to the SWHMC, including information on habitat, wildlife populations and the conditions of local people, in order to allow the Committee to proactively manage the property and identify issues of concern early on” (State Party of China, 2010; Sun et al., 2006; Liu, 2011; He et al., 2008; Smith & Xie, 2008; Liu et al., 2012). Since 2017, the site becoming a part of Giant Panda National Park, the new management system is under developing (Sichuan Forestry and Grassland Bureau, 2019). An overall management strategy based on community development since the inscription would be welcome corresponding to the IUCN and WH committee expectations (IUCN, 2006; 2010).

Effectiveness of management system

Some concerns were expressed at the time of inscription of the property with regards to the management effectiveness. The World Heritage Committee requested the State Party to “Ensure the Sichuan World Heritage Management Committee has sufficient powers, resources and authority to ensure it can effectively carry out its role in relation to management of the property, including in relation to the review and approval of any major development proposals which may impact on the natural values of the nominated property” (World Heritage Committee, 2006). The site is now becoming a part of Giant Panda National Park, under the auspices of which the management will become
strengthened and once the new management system is established, the management effectiveness will likely be much improved (Sichuan Forestry and Grassland Bureau, 2019).

**Boundaries**

The site boundaries are deemed to be adequate (Liu, 2011; Smith & Xie, 2008) but could be extended (Liu et al., 2012) and due to technical reasons at the time of inscription, there are some remaining issues with some unsuitable locations technically classified as under protected management (IUCN Consultation, 2020). However, through inclusion into the Giant Panda National Park, the IUCN recommended areas are included into the national park, and therefore protected under the highest level of national designation in China. Consideration is required to better coordinate with the Zoning Control of Giant Panda National Park with respect the the boundaries of the World Heritage site (IUCN Consultation, 2020).

**Integration into regional and national planning systems**

Integration into regional and national planning systems is rather weak, needing more mainstreaming (Smith & Xie, 2008; Liu et al., 2012). China established the Giant Panda National Park and the overall plan the component protected areas of the Sichuan Giant Panda Sanctuaries World Heritage site therein. There will be much better integration into regional and national planning systems concurrently, including a unified and stronger management mechanism through which to coordinate with such planning systems (National Forestry and Grassland Administration, 2019).

**Relationships with local people**

Evidence presented in the past has suggested that locals, especially those from economically disadvantaged backgrounds, do not benefit much from the site, are losing access and have been relocated in certain instances (Smith & Xie, 2008; Liu et al., 2012). Furthermore, local human wildlife conflict has increased rapidly in recent years, with compensation and community development plans required in order to address these (Xu et al., 2019). In recent years, there have been programs to compensate local people or mitigate poverty by providing stipend or jobs through which many local people have reportedly benefitted amid an urgent need to develop environmentally friendly and sustainable alternative livelihoods (IUCN Consultation, 2020). However, overall, the relationships with local people remain of some concern.

**Legal framework**

The site is covered by a range of laws and regulations at national and provincial levels. These include the ‘Regulations of the People’s Republic of China on Nature Reserves’ and ‘Regulations on the Management of Nature Reserves of Sichuan Province’. A specific regulation relating to the protection of World Heritage in Sichuan Province has been developed, to apply to the site, which represented the first of its kind in China. These regulations provide an adequate legal framework for protection of the site. Challenges to date have centred around their effective implementation and the effective coordination between all relevant agencies and stakeholders (Liu et al., 2012). However, more comprehensive Protected Area Law or National Park Law is now under development, particularly in relation to the Giant Panda National Park (National Forestry and Grassland Administration, 2019), and should address these challenges.

**Law enforcement**

Since 2017, China has implemented very strict law enforcement in all nature reserves. Many mining sites and dams have been shut down or adjusted, and illegal houses have been removed and vegetation restored (Chinese Government, 2017; Aba Government, 2017).

**Implementation of Committee decisions and recommendations**

At the time of inscription, the World Heritage Committee requested the State Party to implement certain measures regarding management effectiveness, existing infrastructure within the property, existing and proposed dams and tourism development (World Heritage Committee 2006). Certain progress has been
achieved in addressing some of the issues as evidenced by the 2010 Mission report – “Efforts are being made on the part of the State Party to enhance management so as to improve the integrity of the property. The problems of hydropower stations and dams have now been reportedly alleviated. A large number of hydropower stations have been shut down and there will be no more hydropower stations or dams (IUCN Consultation, 2020). While action has been taken on all issues identified at the time of inscription, a number of issues remain in addition to some issues arising subsequent to inscription” (Liu et al., 2012).

► Sustainable use  
Unsustainable tourism and other forms of unsustainable land use have been reported as a concern in the past (Liu, 2011; He et al., 2008; Liu et al., 2012; Smith & Xie, 2008). There is a lack of evidence to suggest that this has been sufficiently addressed and therefore remains of some concern. However, environment-friendly agriculture and sustainable tourism is recognised by the management authority as an important way to promote sustainable resource utilization and a direction of efforts towards these ends is currently being pursued (IUCN Consultation, 2020).

► Sustainable finance  
The site enjoys overall relatively high levels of finance, with a high level of variation between national and regional level protected areas. Provincial and county level protected areas and buffer areas do not receive enough finance for monitoring and management activities (Liu et al., 2012). The financing structure of the component protected areas which comprise the World Heritage site under the Giant Panda National Park remains to be seen and therefore is not assessed.

► Staff capacity, training, and development  
Shortcomings have been previously noted, with capacity building in disaster risk management especially needed (Liu et al., 2012). Therefore staff capacity remains of some concern, however noting that this may be addressed under the current reforms to the protected area (National Park) system under which the site will be administered in the future.

► Education and interpretation programs  
Education relating to the values of the site is of some concern, however not without cause for optimism with increased education programs running at Ya'an and National Nature Reserves. Each year, there is Giant Panda Eco-tourism Festival held in Ya'an and a Giant Panda Culture Alliance was established in 2018 to promote eduction on Giant Panda (Sichuan Forestry and Grassland Bureau, 2019).

► Tourism and visitation management  
Management of tourism development activities has been greatly strengthened in recent years. Since 2017, the construction of illegal tourism infrastructure in Wolong and other places have been significantly curbed, and all tourism development activities have been subject to strict planning consistency and biodiversity impact reviews (IUCN Consultation, 2020). However, less attention has been paid to increasing tourism staff capacity or tourist visitor awareness of conservation issues (Liu et al., 2012), which could be improved upon further.

► Monitoring  
There is comprehensive survey on giant panda every 10 years and monitoring programmes for the species can be considered highly effective. The most recent to date (the fourth survey) was finished in 2014. Compared with the third survey, the results of the fourth giant panda survey showed the following characteristics: 1) the number of wild populations increased steadily. The number of wild giant pandas in the country increased by 268 to 1864, an increase of 16.8%, compared with the third survey, and the average population density was 0.072 per square kilometer. Among them, there are 1387 pandas in Sichuan Province, accounting for 74.4% of the total number of wild pandas in the country. Second, the scope of habitat is obviously expanded. Habitat area increased by 11.8% and potential habitat area increased by 6.3% (National Forestry and Grassland Administration, 2015). Whilst the monitoring of giant panda populations is relatively comprehensive, there is little data collected on the wider
ecosystem, which may be important to address given that the site is also 'an important centre of endemism for some bird taxa with 365 bird species recorded, 300 of which breed locally' and 'particularly important for flora, being one of the botanically richest sites of any temperate region in the world with some 5,000 - 6,000 species recorded' (World Heritage Committee, 2012).

▶ Research

Much research has been done in the site, but this is still not enough to meet the existing challenges. Especially needed is research that would integrate biodiversity conservation, rural development and disaster risk reduction for overall sustainability and resilience of the World Heritage site.

**Overall assessment of protection and management**

Wolong as the central protected area of the site has always enjoyed first place in concern, financial and manpower investment of all China’s protected areas. Some of the other county sites are still poorly supported and require improvements in staffing, operational budgets, basic ecological training and management capacity. Investment in protection and management of the habitats and ecosystems for which the site is inscribed is relatively low compared to the investment in captive breeding of giant pandas. Better integration of local communities into the site management is also recommended. The problem of weak coordination of management between sub-sites via the World Heritage office has been addressed by the whole site becoming a part of Giant Panda National Park and will be managed under one management organization (Sichuan Forestry and Grassland Bureau, 2019). There is also a major gap in integrating conservation and development policies with effective disaster risk management planning and implementation.

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

Giant panda habitat conservation has a long history and China has put significant efforts towards this end. Since 2018, the area has been included in the new development of the Giant Panda National Park, which should extend protection of key habitats outside the site and improve ecological connectivity. Concerns regarding tourism management and urban development outside of the site are subject to attention from the management authorities, having been a concern in the past.

▶ Best practice examples

Wolong Nature Reserve tries to implement grid supervision platform, use information technology to implement grid management of protected areas, digitize the personnel, events and resources of protected areas, promote the transformation of daily management and field patrol management mode from passive response to active supervision, and improve the quality and effectiveness of fine management of protected areas (Ye et al. 2019).

**State and trend of values**

Assessing the current state and trend of values

**World Heritage values**

▶ High proportion of global population of iconic giant panda

Continued improvement of bamboo habitat following the flowering and die-off in the 1980s plus good protection and connectivity and low mortality in earthquakes supported by periodic new surveys indicate a healthy and increasing population. According the comprehensive Giant Panda surveys
conducted in 2001 (The 3rd National Survey of Giant Panda) and 2012 (4th), the number of pandas in the country, and in Caopo increased from 28 to 48 (Rao et al. 2018).

Rich montane flora, with many endemic species

Satellite imagery indicates forests and vegetation remain in good condition so, apart from over-collected rare medicinal plants, richness of flora should be retained and resilient against climate change.

Rare and endemic birds

Apart from some peripheral hunting of song birds (hwamei) and pheasants, the bird fauna remains undisturbed and no indications of declines.

Rare and threatened mammals

Despite a small amount of illegal poaching, with the strengthening of protection measures, the number of mammals has risen in a restorative manner. The monitoring of Wolong snow leopards has shown increased population size than previously thought as well as prey species population increases, such as rock sheep. Wildlife populations are mostly stable or improving. Giant panda, golden monkeys, takins and red panda are all at least stable, with some improving.

Diversity of habitats

Full range of habitats maintained.

Diverse endemic richness of other groups

General condition for many species in the site is improving, although there are some concerns on aquatic species and economic important species.

Summary of the Values

Assessment of the current state and trend of World Heritage values

Despite some damage from earthquakes and human developments (roads, mining, Qiaoji dam, etc.), the site retains its essential World Heritage values and remains in a very natural state over the great majority of its area. It continues to serve as the heart of China’s wild giant panda population and the hub of giant panda conservation which will be further enhanced as the whole site is becoming a part of the Giant Panda National Park, covering territories from 3 provinces.

Additional information

Benefits

Understanding Benefits

Outdoor recreation and tourism

Tourism is becoming the major commercial industry for many villages and towns around the property. Recent earthquakes have demonstrated that this is a vulnerable reliance. Benefits from tourism could be better distributed among local communities to encourage greater participation.
► Water provision (importance for water quantity and quality)

The property forms part of the critical water catchment of the Yangtze River on which hundreds of millions of people depend and vast hydro-investments (Three Gorges Dam, Zhouba, etc.) are also dependent. Water supply and flood prevention are crucial services.

► Soil stabilisation

Healthy forests in the property provide protection for human settlements from small-to-medium scale landslides and debris flows, and may contribute to reduced economic loss and mortality in major disaster events (e.g. the earthquakes).

► Carbon sequestration

The area is a large healthy forest contributing to carbon sequestration and local climate amelioration, serving as a wonderful green lung on the edge of the densely populated Sichuan basin.

► Collection of genetic material

Although not very developed, the property constitutes a vast gene bank of rare trees, valuable horticultural plants (rhododendrons, magnolias, etc.), wild fruit relatives (plums, cherries, apples, pears) and valuable medicinal plants.

Summary of benefits

The property is recognised as a valuable generator of tourism industry (both direct and indirect) and provider of vital ecosystem services. It is zoned as an ecological priority area in both the National Biodiversity Strategy and Action Plan and also the National Hydrological map of key areas for conservation. It has been included in the Giant Panda National Park, which is the highest rank of protected area management categories in China since 2017 and will benefit much wider visitors from China and other countries.

Projects

Compilation of active conservation projects

<table>
<thead>
<tr>
<th>№</th>
<th>Organization</th>
<th>Brief description of Active Projects</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shan Shui (domestic NGO)</td>
<td>Long-term interest in panda monitoring and some community projects.</td>
<td>Shan Shui, Beijing (<a href="http://www.shan-shui.org">www.shan-shui.org</a>)</td>
</tr>
<tr>
<td>2</td>
<td>WWF</td>
<td>Original foreign partner in developing Wolong research and breeding centres. Continued support for monitoring and some community projects.</td>
<td>WWF China, Beijing</td>
</tr>
<tr>
<td>3</td>
<td>NFGA (National Forestry and Grassland Administration)</td>
<td>NFGA manages several major national projects within the property including Natural Forest Protection Program, Sloping Land Conversion Program, Post-earthquake Ecological Restoration Programme, panda breeding centre and release trials. Now it will manage the Giant Panda National Park directly.</td>
<td>NFGA, Beijing, Chengdu</td>
</tr>
<tr>
<td>4</td>
<td>European Investment Bank</td>
<td>Sichuan Forestry Department received large-scale loan for investment in reforestation - post 2008 earthquake. Activities mostly outside but close to property.</td>
<td>EU Delegation, Beijing</td>
</tr>
<tr>
<td>5</td>
<td>HELP (Human and Environment Linkage Programme)</td>
<td>Long-term interests and efforts in integrated and adaptive management at community, reserve and World Heritage scales. Partners with Wolong Nature Reserve and Sichuan World Heritage Management Office on various projects since 2006. NGO partner with UNESCO in post-Lushan-earthquake sustainable community reconstruction project since 2013.</td>
<td>HELP, Chengdu and Beijing</td>
</tr>
<tr>
<td>№</td>
<td>Organization</td>
<td>Brief description of Active Projects</td>
<td>Website</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>6</td>
<td>CAS (Chinese Academy of Sciences)</td>
<td>CAS has several institutions in Beijing and Chengdu which are doing various project in the site, such as species research, ecosystem monitoring, remote sensing assessment and many others.</td>
<td><a href="http://www.cas.cn/">http://www.cas.cn/</a></td>
</tr>
<tr>
<td>7</td>
<td>Peking University</td>
<td>Students in the university are doing many studies in the site, including species conservation and community development.</td>
<td><a href="https://www.pku.edu.cn/">https://www.pku.edu.cn/</a></td>
</tr>
<tr>
<td>8</td>
<td>Duke Kunshan University</td>
<td>Duke university is doing research on grazing impact to giant panda.</td>
<td></td>
</tr>
</tbody>
</table>
# REFERENCES

<table>
<thead>
<tr>
<th>№</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>IUCN Consultation (2020). IUCN Confidential Consultation- Sichian Giant Panda Sanctuaries- Wolong, Mount Siguniang &amp; Jiajin Mountains, China.</td>
</tr>
<tr>
<td>№</td>
<td>References</td>
</tr>
<tr>
<td>----</td>
<td>------------</td>
</tr>
</tbody>
</table>