

Bwindi Impenetrable National Park

2020 Conservation Outlook Assessment

SITE INFORMATION

Country: Uganda
Inscribed in: 1994
Criteria: (vii) (x)



Located in south-western Uganda, at the junction of the plain and mountain forests, Bwindi Park covers 32,000 ha and is known for its exceptional biodiversity, with more than 160 species of trees and over 100 species of ferns. Many types of birds and butterflies can also be found there, as well as many endangered species, including the mountain gorilla. © UNESCO

SUMMARY

2020 Conservation Outlook

Finalised on 01 Dec 2020

GOOD WITH SOME CONCERNS

Bwindi Impenetrable National Park remains in overall good and relatively stable condition as the site remains of critical importance to the conservation of a number of species and ecosystems, largely due to intensive conservation efforts on behalf of the Ugandan Wildlife Authority and other partners, as well as local government. The population of mountain gorillas has increased slightly in number in recent years, and although there is a relative lack of data on other species richness and ecosystem function values, these would appear to be good and stable. Gaining a greater understanding of these aspects of the site could help inform overall management. Threats to the site are generally moderate and localized. However, as a relatively small, ecologically isolated island of Afromontane forest in one of the most densely populated parts of Africa, Bwindi faces enormous pressure from surrounding communities, which have traditionally used the forest's resources but are now prevented from doing so. Conflict over resource access rights remains an issue. Achievements have been made in improving park-community relations, but there needs to be better understanding of linkages between national park conservation and poverty alleviation and of the interventions that can address both issues, including greater equity and transparency in sharing the benefits of conservation both financially and in terms of human/social capital. The impacts of COVID-19 on funding of projects to achieve these goals is uncertain but will likely have negative impacts given the contribution of tourism to the revenue of the site. The issue of human wildlife conflict as a result of crop raiding animals still remains an issue of concern for park management, however a dedicated team now works on managing these conflicts but there is no reliable information to assess the efficacy of their efforts in this regard. Overall, whilst the values of the site remain in good condition, there are some concerns to address in the management of the site to ensure that the conservation of the sites values are sustainable.

FULL ASSESSMENT

Description of values

Values

World Heritage values

► **Mountain Gorillas and other threatened mammals**

Criterion:(x)

Bwindi is home to 459 (51%) of the world's mountain gorillas (Hickey et al., 2019), and other rare and endangered mammals, including approximately 76 elephants, as well as chimpanzee and l'Hoests monkey (World Heritage Committee, 2011; Hickey et al., 2019). The property has an unusually rich small mammal fauna with 47 species of rodents, 20 shrews, and numerous bats (UNEP-WCMC, 2012), at least four of which are rare Albertine Rift endemics (Davenport et al., 1996).

► **Rich montane flora and fauna.**

Criterion:(x)

The park has one of the richest montane floras of any site in Africa, including many endemic species. For all major taxonomic groups, available information indicates unusually high total species counts for an area of this size. The property has the highest diversity of tree species (over 200 species including 10 endemics) and ferns (some 104 species) in East Africa, and maybe the most important forest in Africa for montane forest butterflies with 202 species (84% of the country's total), including eight Albertine endemics (World Heritage Committee, 2011). There are at least 1,000 known species of flowering plants, 120 species of mammals, 350 species of birds in an area of just 321 km² (UNEP-WCMC, 2012; Ugandan Wildlife Authority, 2014)

► **Rare and endemic birds**

Criterion:(x)

The property is internationally recognized as an Important Bird Area (BirdLife, 2012; NatureUganda, 2015) and lies within the Albertine Rift Mountains Endemic Bird Area (Stattersfield et al., 1998). At least 350 species of birds have been recorded, including 22 of the 36 known Albertine Rift endemics (UNEP-WCMC, 2012; Ugandan Wildlife Authority, 2014). There eight species of avifauna included in the IUCN Red List of Threatened species, including: Grauer's Swamp Warbler (*Bradypterus graueri*, EN), Turner's Eremomela (*Eremomela turneri*, EN), African Green Broadbill (*Pseudocalyptomena graueri*, VU), Chapin's Flycatcher (*Fraseria lendu*, VU), Shelley's Crimsonwing (*Cryptospiza shelleyi*, VU), Lagden's Bush Shrike (*Malaconotus lagdeni*, NT), Dwarf Honeyguide (*Indicator pumilio*, NT) and Forest Ground-thrush (*Geokichla oberlaenderi*, NT) (IBA Factsheet 2012; IUCN Red List)

► **Occurrence of Albertine Rift endemic species**

Criterion:(x)

Although knowledge of the site's biodiversity is far from complete, most groups of flora and fauna exhibit high levels of endemism. Eleven (41%) of the 27 known amphibians are endemic to the Albertine Rift (UNEP-WCMC, 2012), as well as 8 of the known 202 species of butterfly (Davenport et al., 1996), 3 species of which are of restricted range (Ugandan Wildlife Authority, 2014), and nine (64%) of the 14 recorded species of snakes (UNEP-WCMC, 2012)

► **Diversity of co-evolving habitats**

Criterion:(x)

There is an exceptional diversity of habitats on account of the range of altitude (1,190 to 2,560m), equatorial location and high rainfall. These cover the complete transition from lowland to montane forest, with some notable swamps and a small grove of bamboo at the highest elevations.

Assessment information

Threats

Current Threats

Low Threat

The park's rugged terrain, long history of protection and low potential for commercial forestry result in generally localized threats. The continued growth of gorilla-based tourism has created a strong economic incentive for enhanced protection and efforts to alleviate the poverty drivers of biodiversity loss, and the park has attracted strong donor support for an array of interventions to mitigate development pressures, engage local communities and strengthen management thus reducing threat levels. Collection of some non-timber forest products (honey, medicinal plants and basketry materials) continues under management agreements with local communities. However, there remain significant conflicts between park authorities and local communities over access to forest resources, fair and equitable distribution of benefits from the national park, as well as crop damage by wildlife. There is a limited amount of illegal hunting of bushmeat. Gorilla-based tourism is increasing and there are some associated risks including the growing possibility of human disease transmission and increased scope for illegal killing of gorillas, particularly if numbers of habituated gorillas are allowed to increase. In the long-term, climate change may cause far-reaching ecological changes with direct impacts of the forest ecosystems and well as more indirect human-mediated impacts as a result of changing livelihood scenarios surrounding the site caused by climate change.

► Crops

Very Low Threat

(Agricultural encroachment)

Outside site

Although the park boundary is clearly demarcated, there have always been periodic instances of encroachment by neighbouring cultivators. 22 MoUs were signed with communities to harvest eucalyptus boundary markers and replant them. This reduces boundary conflict as communities are aware of the boundary and the live boundary markers reduce pressure on park resources for domestic needs (IUCN Consultation, 2020).

► Other

Low Threat

(Ecological isolation and small size)

Inside site, throughout(>50%)

The property is an 'ecological island' of forest in one of the most densely populated (and intensively cultivated) parts of Africa. Local population densities around the forest edge are typically 160-320 people per km² (UNEP-WCMC, 2012), and the forest has been progressively isolated from other protected forests along the Albertine Rift through the clearing of forest remnants in the agricultural areas. The small size of the forest (321 km²) means that maintaining viable populations of larger species – such as elephants, gorillas, chimpanzees, birds of prey – may not be possible without sustained intervention.

► Logging/ Wood Harvesting

Low Threat

(Tree cutting and pole cutting)

Inside site, scattered(5-15%)
Outside site

The forests of the site are not generally suitable for commercial exploitation and are well regulated and enforced. However, a small number of illegal tree cutting (pitsawing) incidences are reported annually, usually for local demand for building materials and fuel (IUCN Consultation, 2020).

► Hunting and trapping

Low Threat

(Poaching)

Inside site, scattered(5-15%)

Low-level subsistence hunting has been a way of life for the local Bakiga people and (especially) the former forest-dwelling pygmy Batwa community for centuries. Its impact has been limited due to the extremely rugged terrain, park law enforcements, relationships between local communities and park management, provisions of other park benefits such as local tourism development and other means of

livelihoods for the local people. Hunting is illegal, but there is still hunting pressure, generally using wire snares to trap animals and hunting dogs (EoH, 2007; IUCN Consultation, 2014). Bushmeat has historically been the most desired forest resource and the most widely consumed by local people, and is mostly concentrated in remote areas and the frontline zone of the national park, and driven by the poverty associated with a lack of money to buy meat or livestock (Baker et al., 2014). There was emerging threat of illegal wildlife trade targeting elephants around 2014. These were contained by law enforcement operations and did not significantly impact on the elephant population (IUCN Consultation, 2020). In June 2020 during the closure of the Park due to COVID-19, it was reported that a male silverback (Rafiki) from a habituated group of gorillas was killed by a poacher who was entering the park illegally to hunt for duiker and bushpig. The number of snares being retrieved by the site management increased substantially during the lockdown to contain the COVID-19 pandemic, with 151 collected in May 2020 compared to 9 removed in the same month in 2019 (IUCN Consultation, 2020). Sources indicate that poaching has increased since the pandemic due to loss of livelihoods associated with closing of the park to tourism, however this is considered to be now under more control with a reduced to 33 snares collected in October 2020. The extent of impact on the OUV, and particularly on long-term impacts remain to be examined.

► **Roads/ Railroads**

Low Threat

(Rural access road through the park)

Inside site, localised(<5%)

An unsurfaced rural access road cuts through the highest reaches of the park, along its boundary and through the narrow 'neck' that connects the two parts of the forest. This seems to serve as a barrier to gorilla dispersal and use of habitat, and may also affect other species. It is frequented by local people on foot, bicycle and car, and used as a main through route for lorries transporting goods from the regional capital at Kabale to villages lying to the north of the forest. There are proposals to upgrade this road to bitumen which would increase vehicular traffic. There is another proposal to create a connecting road on western part of the park connecting districts of Kanungu and Kisoro which would cut off part of the park to the west towards the DRC border, which make it difficult to control (IUCN Consultation, 2020). As such, although the current road infrastructure remains a low threat to the site's values, this threat would be greatly increased should these road infrastructure projects go ahead.

► **Collection of non-timber forest products (NTFPs)**

Low Threat

(Harvest and use of non-timber forest produce)

Inside site, localised(<5%)

Non-timber forest produce, notably honey, medicinal plants and basketry materials, make an important contribution to local livelihoods and these products may now be taken from designated zones under the terms of community-use Memoranda of Understanding (MoUs). Off-take is monitored by park rangers (IUCN Consultation, 2014). The demand for these non-timber forest products by the local people is still high despite the MoUs allowing a section of the local people (resources users) to access these resources at given offtake quotas. Not all the local people are registered under the MoU to access these resources, therefore the pressure for these resources is still there and therefore some local people access them illegally. The illegal access of these resources is a potential threat to the site (Bitariho, 2013; Bitariho et al 2016)

► **Fire/ Fire Suppression**

Low Threat

(Fire)

Inside site, localised(<5%)

Fire can cause localized habitat destruction when conditions are exceptionally dry, especially along the forest edge where fires can spread from neighbouring agricultural lands (EoH, 2007). However, the wet closed canopy forest is generally resilient to outbreaks of fire. In 2016, only one incidence of fire was recorded (IUCN consultation, 2017). The last fire occurred in May 2019, impacting an area of 25 km² (IUCN Consultation, 2020).

► **Other**

High Threat

(Habituation of mountain gorillas)

Inside site, scattered(5-15%)

Whilst habituation of mountain gorillas for tourism brings enormous economic benefits, it also puts them at risk of disease transmission from human visitors (Hanes et al., 2018), and exposes them to the threat

of being killed easily (for example, by those who may not benefit directly from gorilla tourism and resent the sacrifices being made by local people denied access to other forest resources; or by 'dealers' wanting to sell gorilla babies or body parts on international markets). Gorillas may also suffer disturbance from the activities of local people taking forest produce in the designated 'integrated resource use zones' around the edge of the forest, and tend to avoid using such areas, thus reducing the area of suitable habitat available to them (EoH, 2007). Many claim that habituating gorillas is increasing gorilla crop raiding. There is no empirical evidence on this. However, crop raiding gorillas face additional risks of contracting diseases from local people (IUCN Consultation, 2014). However, there are efforts by HUGO (human - gorilla conflict resolution teams) to mitigate these conflicts (IUCN Consultation, 2020). Overall, there are 215 individuals habituated viable to be tracked out of the 459 individuals known to exist in the site (Hickey et al., 2019; IUCN Consultation, 2020). Although the risk to mountain gorillas of disease transmission from humans is growing with increasing tourism, efforts are being made to cap habituated gorillas at 50% as a precaution to avoid dangers of loss of gorilla population to epidemics.

► **Other Activities**

(Human-wildlife conflict)

High Threat

Inside site, widespread(15-50%)

Crop damage around the forest edge remains a source of conflict between park authorities and local farmers, with crop raiding by elephants, gorillas, chimps, baboons and other primates, as well as bushpigs, antelope and birds (EoH, 2007; Akampurila et al 2015). This conflict is exacerbated by the long boundary (relative to area protected), and high population pressure all along it. Crop raiding influences the attitudes of communities negatively towards conservation, reduces the ability of families to feed themselves and leads to poaching and snaring (EoH, 2007). Resentment by local people over the lack of support for crop raiding drove illegal activities. This has important implications for conservation, as local feelings of injustice about conservation is a primary driver of illegal activities (in addition to the poverty drivers) (Baker et al., 2014). Crop raiding is the biggest threat to the already improved people/park relationship at the site (UWA 2013; Akampurila et al 2015). Several methods to mitigate the problem of crop raiding have been proposed but the problem still persists due to gaps in the implementing the mitigation ostensibly caused by the park management prioritising the measures and lacking the funds to implement the measures. Despite the problem, only a few areas have implemented the crop raiding mitigation measures around the park. However, these interventions are being strengthened to reduce the conflicts. The HUGO teams numbering 119 individuals are in all frontline parishes. 4.1 km of the park which is a hot spot for crop raiding by elephants is targeted for bee fences (IUCN Consultation, 2020).

► **Tourism/ visitors/ recreation**

(Impacts of tourism)

High Threat

Inside site, scattered(5-15%)

Although the tourism numbers are relatively low compared to other national parks such those in the savannah, since 1993, Bwindi tourist numbers have been increasing as a result of increased numbers of gorillas available for tourism. The tourists numbers since 1993 has increased from 1300 per annum in 1993 to 36,341 in 2019 (UWA, 2016; IUCN Consultation, 2020). Visitors are generally taken into the forest in groups of 8 to track and locate a known group of gorillas and spend an hour with them. Controls on tourist visits to gorillas are tight, with each group visited once daily, and at US \$700 fees are substantial. There is strong pressure from tourism operators to increase the number of gorilla groups that are habituated, which currently stands at 19 gorillas, with a further three under the process of habituation (IUCN Consultation, 2020). Habituation of gorillas means that they become fearless of encounters with people - making them potentially vulnerable to those who might want to kill them and susceptible to transmission of human disease (Hanes et al., 2018). The impacts of the COVID-19 outbreak are yet to play out, however, may have serious consequences to the gorilla populations who may be vulnerable to such human-borne transmission of the virus. In this respect, UWA reported closing the park in March 2020 to prevent infection and transmission, however it was subsequently re-opened largely to promote domestic tourism (IUCN Consultation, 2020). Another implication of the pandemic is on park management, whose activities are largely funded by income provided by tourism which will likely fall sharply given the clear need for caution in visiting gorillas.

► **Invasive Non-Native/ Alien Species**

(Invasive alien species)

Low Threat

Inside site, localised(<5%)

The occurrence of alien exotic vegetation is generally limited to areas around the edge of the forest and affects no more than 2% of the property (EoH, 2007). Alien species in the site include *Lantana camara*, tea and eucalyptus.

► **Habitat Shifting/ Alteration, Temperature extremes, Storms/Flooding**

(Climate change)

Data Deficient

Inside site, extent of threat not known

Outside site

Rising temperatures due to climate change is expected to cause a general shift of vegetation zones to higher elevations. This will increase the area of the forest suitable for lowland forest species and reduce its suitability for higher-elevation montane species (which tend to be the rarer ones). The small grove of bamboo which currently exists at the highest point may no longer survive under warmer conditions. Changing climate may also lead to expansion of gorilla home ranges, and facilitate the spread of invasive alien species. Whilst there is an overall lack of data and understanding of local climate change scenarios, ongoing phenological studies into the effects of climate change in the area seek to address this issue (IUCN Consultation, 2020). The impacts of climate change to local communities surrounding the site is also poorly understood. Addressing this knowledge gap is key to understanding the indirect effects of climate change on the management of human-mediated threats to the sites values.

Potential Threats

Low Threat

The possibility of civil unrest and insurgency cannot be ignored, since the park lies in a region of central Africa that has a long history of instability and there is presently unrest across the border in the Democratic Republic of Congo. Other potential threats arise from the possibility of upgrading roads through the park.

► **War, Civil Unrest/ Military Exercises**

(Insurgency, civil strife and security issues)

High Threat

Inside site, scattered(5-15%)

The park is located in a volatile part of central Africa, with insurgency activity erupting from time to time and currently (2012) causing severe disruption just across the border in eastern DRC. A particularly nasty incident occurred in 1999 when Rwandan Hutu rebels killed 8 westerners and a park ranger (UNEP-WCMC, 2012). Although the park is now secure and tourism and management activities are progressing normally, the possibility of renewed violence is very real. However to combat these threats, security force detachments secure the park along the border and a contingent of the national army work with UWA in the park to ensure safety in and around the park. The international border has also been recently marked under the initiative of Greater Virunga Transboundary Collaboration in order to curb incursions from DRC (IUCN Consultation, 2020).

► **Roads/ Railroads**

(New road construction)

High Threat

Inside site, scattered(5-15%)

There are currently a number of proposals for road construction which have the potential to threaten many of the forest ecosystem values of the site, including key gorilla habitat. An old road used to run through the western edge of the park, close to the DRC border where gorilla tourism is now centred, south of Buhoma. There is strong interest in re-establishing this road, but doing so would be highly disruptive to gorilla movements and tourism in the area, and create an ecological barrier across a critical part of the forest (which links to Sarambwe, a small contiguous protected forest on the Congolese side of the border). There is also plans by the Uganda Government of upgrading an old road that has existed since the 1950s to a tarmac road for improved tourism roads and infrastructure (Barr et al 2015). The improvement of the road will affect about 3.5% of the park's area, with secondary effects likely to span outside the immediate area of construction. If the mitigation measures are not well thought out, there is a high potential threat to the gorilla habitat and wider forest ecosystem. There is another proposal to create a connecting road on western part of the park connecting districts of

Kanungu and Kisoro which would cut off part of the park to the west towards the DRC border, which will make it difficult to control, in addition to impacts on biodiversity in that section (IUCN Consultation, 2020)

Overall assessment of threats

Low Threat

Overall, the threats to the site are moderate and localized. The continued increase in the gorilla population from the 2011 census is a positive indication that law enforcement efforts have protected the gorilla population. However, reducing threats through law enforcement is not sustainable over the long-term, and the major threat is the poverty of the people living in the surroundings and their feelings of injustice about conservation. The continued growth of gorilla-based tourism has created a strong economic incentive for enhanced protection and efforts to alleviate the poverty drivers of biodiversity loss, and the park has attracted strong donor support for an array of interventions to mitigate development pressures, engage local communities and strengthen management thus reducing threat levels. There remain significant conflicts between park authorities and local communities over access to forest resources, fair and equitable distribution of benefits from the national park, as well as crop damage by wildlife. Gorilla-based tourism brings the risk of transmission of human diseases to the gorillas, and habituation makes them more vulnerable to being killed. Collection of some minor forest products (honey, medicinal plants and basketry materials) continues under management agreements with local communities, affecting 18% of exterior areas of the park. The park is relatively small and has become ecologically isolated, threatening the viability of some of the larger species in the long term. Climate change will alter vegetation communities and may threaten some of the unusual Afromontane forest species. The possibility of civil unrest and insurgency cannot be ignored, since the park lies in a region of central Africa that has a long history of instability and there is presently unrest across the border in the Democratic Republic of Congo. Other potential threats arise from the possibility of upgrading roads through the park. A novel and potential serious threat is that of the COVID-19 virus, which may increase the likelihood of virus transmission from humans especially if visitation persists. The impact of the outbreak on tourism levels is also likely to negatively effect revenue from this important source, the impacts of which are yet to be seen.

Protection and management

Assessing Protection and Management

► Management system

Mostly Effective

The park has been under planned management for more than half a century, the first management plans being produced by the Uganda Forestry Department. Park management is structured around actions dealing with (1) resource conservation and management, (2) tourism development, (3) community conservation, (4) park operations, (5) monitoring and research, and (6) regional collaboration, (7) climate change (GMP, 2014). Management is implemented by UWA, with support for community-level interventions outside the park provided by the Bwindi and Mgahinga Conservation Trust (<http://www.bwinditrust.ug/>), and research and monitoring led by Mbarara University's Institute of Tropical Forest Conservation (<http://www.itfc.org/>). The park has a General Management Plan (2014-2024) and an Annual Operating Plan in place, supported by a strategic plan (2015-2020) (IUCN Consultation, 2017).

► Effectiveness of management system

Mostly Effective

Management has been strongly supported by donors since the area became a national park. This has helped Bwindi become a regional 'model of best practice' in park management, developing a well-balanced strategy that includes strong initiatives for sustainable finance, community integration, park protection and management-orientated research and monitoring. Currently a total of currently 285 staff are involved in the management of the park, which greatly exceed the management capacity minimum

requirements (IUCN Consultation, 2020). A 2019 management effectiveness assessment carried out rated the National Park as 72% effective overall based on a number indicators such as legal framework, management objectives, park integrity, management plans, resource inventory, management systems, research, human and logistical capacity, benefits to communities, tourism among others. This will be revised to take into consideration impacts of COVID 19 global pandemic mainly on tourism (IUCN Consultation, 2020).

► **Boundaries**

Mostly Effective

The park is an 'ecological island' of forest habitat in an intensively cultivated landscape. Its boundaries are well marked with concrete beacons and lines of planted trees, creating a 'hard' boundary, the intact forest of the park contrasting with the adjacent cleared agricultural land. There are no significant boundary incursions. There is no formally-recognised buffer zone, but forest-edge communities have been supported to plant trees and encouraged to grow crops that are not susceptible to damage by wildlife.

The World Heritage site comprises two tracts of forest linked by a narrow 'neck' (which has a public road running through it), with a correspondingly high boundary:area ratio. This means that most of the forest is within easy walking distance (an hour or two) of the forest boundary and at risk from 'edge effects'. The narrow neck seems to have (so far) prevented mountain gorillas from using the smaller tract of forest, which appears to offer suitable habitat.

► **Integration into regional and national planning systems**

Mostly Effective

The park is managed alongside Mgahinga Gorilla National Park as the Bwindi Mgahinga Conservation Area within UWA's regional management structure. Its management is in accordance with national wildlife policies and planning procedures. Coordination of management for all the parks that support mountain gorillas (in Uganda, Rwanda and DRC) is achieved through the International Gorilla Conservation Programme (IGCP, <http://www.igcp.org>)

► **Relationships with local people**

Some Concern

Prior to the change of status from forest reserve to national park in 1991, local people had unrestricted access to 'non-timber forest produce' for their own personal domestic use, and many people were employed in 'sustainable timber harvesting' using traditional pit-sawing methods under Forestry Department supervision. The granting of national park status was accompanied by an initial ban on all consumptive use of resources, followed by a gradual relaxation of this ban to restore access rights for specialist resource users within the local community to three non-timber forest resources (honey, medicinal plants and basketry materials) within designated zones under the terms of agreements that are formally negotiated with the specific forest-edge communities. Community relations have improved in recent years, but there are still significant challenges. Factors identified as contributing to resentment of the protected area management include lack of support to address crop raiding; inequity in the distribution of benefits from revenue sharing that went to people far from the national park, not those suffering from crop raiding; employment by the national park goes to outsiders (Baker et al., 2014). Considerable efforts have been made in recent years to foster better community relations, including provision of financial support to community projects (20% of gate entry fees are used on community projects (\$1,181,323 in 2018/19 (IUCN Consultation, 2020)) as well as income from the Bwindi & Mgahinga Conservation Trust. However, these community benefits from tourism could be further increased, with recent research suggesting that projects that also improve human and social capital in equitable approaches can bring additional benefits and improve the engagement of local communities in conservation (Franks and Twinamatsiko, 2017; Tolbert et al., 2019). There is also the need to strengthen incentive mechanism to reward those who report illegal activities. Overall, although the benefits sharing scheme has brought tangible benefits towards community relations and conservation goals for Bwindi, there are improvements that could be made.

► **Legal framework**

Mostly Effective

The legal framework is strong. Originally protected as a Forest Reserve in 1932, Bwindi became a National Park under Statutory Instrument No. 26 of 1991. No cultivation or settlement is permitted

within the park. The park is managed by the semi-autonomous Uganda Wildlife Authority (UWA), established under the Uganda Wildlife Statute 1996 and the Wildlife Act 2019, with its own Board of Trustees. Enforcement is generally strong. Financial sustainability is based on retention of all park revenues by UWA, enabling cross-subsidy within the Uganda parks system.

► **Law enforcement**

Mostly Effective

The law enforcement was and is currently the most highly funded park program of the Bwindi. Sixty two percent (62%) of the Bwindi Impenetrable National Park work force has been assigned to law enforcement in comparison to only 4% and 1% for community conservation and research respectively (UWA, 2020). The Bwindi park management spends about US\$163.500 annually in allowances, rations and equipment (excluding salaries) for patrolling the entire Bwindi Park (UWA, 2013). By 2020, there are 76 law enforcement rangers, and the total number of the ranger force is 190 to patrol the entire 321Km² area of the park. Presently, the Bwindi Impenetrable National Park ranger force stands at 140 personnel and is augmented in numbers by military and police personnel to patrol the forest (IUCN Consultation, 2020). As such, the law enforcement remains the greatest focus of the park management strategy and is mostly effective accordingly, despite a few shortcomings.

► **Implementation of Committee decisions and recommendations**

Mostly Effective

At its 23rd session (1999) the Committee expressed concern about the deteriorating security situation at the property (after 8 visitors and a ranger were killed by Rwandan rebels) and requested information on measures taken to improve it (Committee Decision, 1999). This request was addressed promptly by the State Party and there have been no significant security incidents in subsequent years.

► **Sustainable use**

Mostly Effective

There are currently 8 Memoranda of Understanding through which communities adjacent to the park can harvest medicinal plants, basketry materials and place beehives in designated zones (which collectively account for 18% of the park's total area). Recent focus is now geared towards supporting a large community project from Revenue Sharing Funds to provide local livelihood support (IUCN Consultation, 2020). Resource availability and off-take are monitored by park rangers and community members to ensure sustainable use. A wealth of past research has shown that the plant harvesting in Bwindi is sustainable and not detrimental to the site conservation (Bitariho et al 2006; Ndangalasi et al 2007; Stas et al 2016; Bitariho et al 2016) and there is no evidence to suggest this has changed.

► **Sustainable finance**

Highly Effective

The park benefits from two main sources of sustainable finance – an endowment fund, and the proceeds of gorilla-based tourism. The Bwindi Mgahinga Conservation Trust (BMCT, <http://www.bwinditrust.org/>) was established with approximately US\$ 8 million of donor investment from the GEF, Netherlands and USAID in the 1990s (UNEP-WCMC, 2012). It provides support to local communities around the parks, as well as some research and monitoring activities. Gorilla-based tourism has grown rapidly in recent decades and has grown from generating US\$ 1.2 million in park 'gorilla tracking' fees in 2007 (EoH, 2007) to the most recent figure of US\$ 32.2 million in 2018/19, with higher fees and new groups of gorillas habituated. Revenues generated at Bwindi are used to cross-subsidize UWA operations across the Uganda national parks system, and were contributing 52% of UWA's gross income as of 2018/19 (UWA Financial Budget, 2018/19). Based on this, the sustainable finance of the site is assessed as highly effective, however the impacts of travel restrictions imposed due to the COVID-19 outbreak in 2020 have severely curtailed this important source of income and is of some concern. However, at the time of this assessment, the full impacts are not yet fully known.

► **Staff capacity, training, and development**

Some Concern

Staff training of park management has been more focused on law enforcement department to the detriment of other departments such as research and monitoring and community conservation. However, currently Bwindi park management has adopted the Spatial Management and Reporting Tool (SMART) with technical training and financial support from Wildlife Conservation Society (WCS), which

has allowed more complex and useful analyses to be made to the data collected by the rangers. Park management are currently exploring SMART Connect to ease data transmission, analyses and dissemination of results (IUCN Consultation, 2020).

► **Education and interpretation programs**

Some Concern

A community education and development plan aimed at strengthening awareness of park values amongst local communities is described in the GMP (UWA, 2013). This builds on earlier community education work involving video recording and local drama group productions, supported by CARE's Development Through Conservation (DTC) project during the 90s (GMP, 2001). However, the remote location of the park and difficulty of access means that education programmes tend to be limited to the immediate vicinity of the park and target a relatively small number of beneficiaries. Due to the historical lack of funding to the community conservation department by UWA, there have been very little efforts put in place by park management in community education and making of conservation interpretative materials. However, UWA has developed an education and awareness strategy to guide sensitisation and education programmes in PAs. It is understood that BINP will use this strategy which is value based and optimize several dissemination channels, including the new visitor interpretation centre, which was constructed in 2019 (IUCN Consultation, 2020).

► **Tourism and visitation management**

Mostly Effective

Bwindi attracts relatively low numbers of 'high-value' visitors, prepared to pay the substantial amounts charged for gorilla tracking (US\$ 700 per person as of July 2020). Although it is hoped to diversify the range of activities on offer at Bwindi, most visitors come to make the one-day trek to spend an hour with a habituated group of mountain gorillas. The number of visitors has grown consistently year on year since the park was designated as a National Park with subsequent World Heritage status, reaching 36,341 in 2019 (IUCN Consultation, 2020). A new visitor information centre was constructed in 2019, with an interpretive centre and briefing area, equipped with audio/visual facilities and a restaurant. In addition, tourist guides are trained to inform visitors about wildlife, aspects of park ecology and human use of forest products. Outside of the park boundaries in neighboring areas, tourism infrastructures are increasing. Given the isolation of the site, these developments outside of the property could become a concern if not managed in a sustainable manner. In recent years, conservation partners have raised concerns about mountain gorilla visitation management at the site, with evidence presented to management on multiple occasions related to over-capacity trekking (number of visitations per gorilla group per day, as well as number of people per visitation) suggesting that the issue was widespread and required management intervention. Further, an emerging issue in tourism and visitation management is the approach towards tourism in the context of the COVID-19 virus outbreak. The impacts of COVID-19 are as of yet uncertain, however there is a clear need for caution in managing visitation in such a way that the potential for human-gorilla transmission of the virus is not realised as this may have dire consequences for the Bwindi population.

► **Monitoring**

Some Concern

Bwindi operates a Ranger-Based Monitoring (RBM) programme, through which rangers collect relevant data as part of their daily routine, which is used to detect broad trends within the ecosystem and inform management decision-making. The SMART system is now adopted and being used in coordination and with support from WCS and other partners like WWF and the International Gorilla Conservation Programme. To strengthen this programme, there is a need to standardize data collections tools, identify and incorporate robust parameters, develop electronic data transmission mechanisms and train staff to maximize uptake and wide application in UWA operations. The park management are exploring SMART Connect (SMART, 2020) to achieve these goals.

► **Research**

Some Concern

Mbarara University's Institute of Tropical Forest Conservation (ITFC) is an internationally-supported research institute located within the park at Ruhija. It serves a lead role in providing management-orientated research services to the park, co-ordinating gorilla censuses, training university students, carrying out biodiversity inventories and hosting international scientific studies (see

<http://www.itfc.org/>). Despite the existence of ITFC, however, not all the the research results from the various studies carried form the basis for management decisions (GMP, 2001), and there is scope to strengthen the working relationships between UWA and ITFC. At a joint workshop during the preparation of the GMP (UWA 2013), priority research topics are identified, as well as other additional needs for management-orientated research. UWA still does not prioritise it research and monitoring department like it does for other departments such as law enforcement.

Overall assessment of protection and management

Mostly Effective

Protection and management of the area has been considerably strengthened since it became a national park in 1991 from the perspective of conserving the intact ecosystems contained within the park, including the gorilla population. About half of the park is now maintained as a wilderness zone, largely free of human activity, with a quarter designated for gorilla-based tourism and 20% managed for sustainable use of non-timber forest products by local communities. Despite the challenges of its situation as an ecological island in one of the poorest, most densely populated parts of the continent, the park has developed a strong integrated management programme, which has been strengthened in recent years through SMART monitoring. The site has experienced ever-increasing revenue from gorilla tourism over the past decade. The impacts of COVID-19 on this important revenue stream are as of yet uncertain, however are likely to be significantly reduced for the foreseeable future, especially given the clear need for caution given the potential for human-gorilla transmission of the virus. Although the impacts are still largely unknown, this may be felt particularly acutely in the case of Bwindi as many of the advances made in community-relations have been achieved through benefit sharing of such tourism revenues. Therefore this poses a threat to the significant achievements that have been made in improving park-community relations to date, especially since significant challenges in the equity of benefits sharing still existed even prior to this point.

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

Some Concern

The site has a relatively long boundary and is surrounded by some of the poorest, most densely-populated agricultural land in Africa, so human-wildlife conflicts around the forest edge are widespread, and there is lingering resentment over the loss of resource access rights that accompanied the area's designation as a national park. The challenge at Bwindi is to better link conservation and poverty alleviation- this requires understanding the role of poverty reduction activities in reducing biodiversity loss and the contribution that national park conservation can make towards this goal. Whilst schemes which aim towards these ends have brought tangible benefits, concerns remain over their efficiency and equity, particularly in dealing with complex issues such as human wildlife conflict.

► Best practice examples

The site has often been used as an example and pilot of new park management best practices. Most parks in Uganda learn from the Bwindi park. For example park management practices such as integrated resource use, revenue sharing, community protected area institutions, tourism development etc were first piloted in Bwindi and because of their success were adopted by other national parks in Uganda.

State and trend of values

Assessing the current state and trend of values

World Heritage values

► **Mountain Gorillas and other threatened mammals**

Good
Trend:Improving

Census data for mountain gorillas over the past 20 years indicate continued increase in population at Bwindi, with 400 individuals in 2011 (Robbins et al., 2009; IGCP, 2012) now having increased to 459 in the most recent survey (Hickey et al., 2019). The 2018 survey also collected data on selected mammal species in the greater the Bwindi-Sarambwe ecosystem and indicated almost unanimous increases in detection rate of eleven species, as well as detection of sitatunga and jackal, which were not previously identified in the 2011 survey (Hickey et al., 2019). Therefore, the available data suggests that this value is in good condition and improving.

► **Rich montane flora and fauna.**

Good
Trend:Stable

There are no data on trends in overall species richness, but the property is well protected and the general state of conservation is good (EoH, 2007). The 2018 Bwindi-Sarambwe surveys indicated modest increases in detection of selected mammal species in the greater the Bwindi-Sarambwe including newly detected species to the site, such as the Central African oyan (*Poiana richardsonii*) (Hickey et al., 2019). Therefore, despite not representing the entire suite of montane flora and fauna occurring in the site, the available data suggests that this value is in good condition and stable.

► **Rare and endemic birds**

Good
Trend:Stable

There are no comprehensive data on trends in rare and endemic bird populations, but the property is well protected and the general state of conservation is good (EoH, 2007), so the status of the park's birds is expected to be stable. Ornithological surveys carried out in collaboration with the US-based Wildlife Conservation Society (WCS) added several new records previously, as well as increased our understanding of the basic distribution and habitat requirements of the little-known Albertine Rift endemic bird species (EoH, 2007; see also www.albertinerift.org)

► **Occurrence of Albertine Rift endemic species**

Good
Trend:Stable

There are no data on trends in the occurrence of endemic species, but the property is well protected and the general state of conservation is good (EoH, 2007), so this is expected to be stable

► **Diversity of co-evolving habitats**

Good
Trend:Improving

Given that the property is well protected and the general state of conservation is now better than it was prior to the establishment of the national park in 1991 (EoH, 2007), habitats have been recovering from previous cutting of timber and returning to a more pristine condition. Periodic measurements of trees in permanent sampling plots by scientists at ITFC indicate a general accumulation of woody biomass. Furthermore, studies such as the Bwindi-Sarambwe 2018 Surveys (Hickey et al., 2019) which show increasing trends for a range of indicator species would suggest that the site as a co-evolving habitat for endemic and endangered species typical of a range of ecosystems in the Albertine Rift is in good condition and improving.

Summary of the Values

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

Good
Trend: Stable

Since the change in management status in 1991 (from forest reserve to national park), timber harvesting and other forms of consumptive resource use have reduced in most areas, and protection has resulted in recovery of more natural pristine habitats. Although there are few supporting data of wider ecological status and trends other than information derived from key

indicator species, it appears that these values of the property are at least stable, and may be improving in some respects. Mountain gorilla census data from 1997 to 2018 indicate an increasing population of these highly endangered primates with 459 individuals in 2018 (Hickey et al., 2019), an increase of 59 from 400 individuals identified in 2011 (Robbins et al., 2009; IGCP, 2012). The same study also showed increasing detection rate of other selected mammal species, including endangered and vulnerable species such as chimpanzee and L'Hoest's monkey to suggest that wider ecological health is also improving in general.

Additional information

Benefits

Understanding Benefits

► Collection of wild plants and mushrooms

There is an available Memorandum of Understanding (MoU) between park management and the former forest dwellers (Batwa) that allows a selected Batwa group to collect wild yams from Bwindi. The wild yams harvest and collection by the Batwa are however limited to twice a year and of given limited offtake quotas. The batwa are also not allowed to go to the forest alone. They are escorted by park rangers and this is resented by the Batwa (Bitariho et al 2006)

Factors negatively affecting provision of this benefit :

- Overexploitation : Impact level - Moderate, Trend - Continuing

The park management are worried that the harvest and collection of yams by the Batwa (root tubers) could lead to the wild yams overexploitation if not controlled. Therefore park management controls on how the wild yams will be collected and at specific times. Currently there is no data available showing evidence of wild yams overexploitation.

► Access to drinking water

The site has many rivers and other water sources that the local community use. Three gravity flow schemes have been constructed to supply domestic use water to over 40,000 people. These include that of Rubuguri (south of the site), Banyara (central of site) and Buhoma (west). Some of these schemes are actually supplying water to neighbouring towns like those of Butogota and Rubugiri. Ruhija water scheme has now also been developed by the park to supply tourism and park facilities. This will also be provided to the nearby communities (IUCN Consultation, 2020).

Factors negatively affecting provision of this benefit :

- Pollution : Impact level - Moderate, Trend - Increasing
- Overexploitation : Impact level - Moderate, Trend - Increasing

Some of the water sources are getting polluted from agricultural practises and tourism activities within and around the site. It has been noted that the river Banyara and other water sources are getting acidic (Kasangaki et al 2006). Soil erosion as a result of poor agricultural practises has resulted in the siltation and poor water quality of some of the rivers used for supply of water to the local people (Kasangaki et al 2006). With increased demand for water by the ever increasing human populations and urbanisation, there is a likely over exploitation of the water sources by the increased demand.

► Sustainable extraction of materials (e.g. coral, shells, resin, rubber, grass, rattan, etc)

There an established program for local communities to collect plant resources used for basketry and medicinal purposes and placement of beehives at the park boundary for honey collection. This program has been established through a Memorandum of Understanding (MoU) and has been on going for over two decades. Despite the program being in existence for a long time, it has been viewed by the local people as being too restrictive (Bitariho et al 2016).The plant resources that are most preferred by local

people are those prohibited by park management. Local people get little income from use of these plant resources and therefore find the program not offering them tangible benefits (Bitariho et al 2016).

Factors negatively affecting provision of this benefit :

- Overexploitation : Impact level - Low, Trend - Continuing
- Habitat change : Impact level - Low, Trend - Continuing

All the recent studies carried in Bwindi have indicated that plant resource extraction in Bwindi is not overexploited (Bitariho et al 2006; Ndangalasi et al 2007; Bitariho et al 2016; Stas et al 2016). The current offtake quota of 1% is negligible and has been recommended to be increased to at least 3% to allow more local people involvement in the program.

► **Direct employment,
Tourism-related income,
Provision of jobs**

The site has offered employment opportunities to the rural local people. Park rangers, guides and porters have been recruited from the local population. Other organisations such as research institutions and development organisations have also employed the local people. There is however a complaint from the local people that the senior jobs employment opportunities (wardens, senior wardens, research officers etc) are normally occupied by those from "outside" since those senior jobs require higher education level (masters and Phds) that very few local people have. Tourism related incomes also do not directly benefit the poorest people close to the park. Thus the local people still have a negative attitudes towards the park. This is driven by the fact that most tourism benefits go to a few elite people and others who come from far away from Bwindi since they have the skills and funds to tap from the tourism industry. The local poorest people make very poor qualities of handicrafts that don't attract sales from tourists.

Factors negatively affecting provision of this benefit :

- Overexploitation : Impact level - Moderate, Trend - Increasing

The local people who live near Bwindi forest and that suffer significant costs from crop raiding and other human-wildlife conflicts receive little benefits from tourism. They don't have the skills and funds to tap from the tourism industry. The local people do not realize tangible benefits from gorilla tourism than was projected when the tourism program was introduced and will therefore continue to rely on the forest for livelihood resources. Some of these resources are extracted illegally from the forest and include poles, firewood, timber, fish etc and might potentially lead to their over-exploitation. the Buhoma Mukono community Development Association model is now being rolled to other areas, for example Mpungu. In 2019, the park allocated approximately \$160,000 from the revenue share to Mpungu community to develop a community camp (IUCN Consultation, 2020)

Summary of benefits

There is a potential for the site to provide more benefits to the local people and others than is currently provided. Park resources, employments, tourism related benefits etc. are not being realised by the minority groups such as women and Batwa and the poorest local people adjacent to the forest. There is a dire need for programs to focus on these vulnerable groups of local people that are the immediate adjacent to the park and are affected by the crop raiding animals.

Projects

Compilation of active conservation projects

№	Organization	Project Brief description of Active Projects duration
1	Bwindi Mgahinga Conservation Trust	Range of community-support projects with funding stream from large capital endowment

No	Organization	Project duration	Brief description of Active Projects
2	International Gorilla Conservation Programme (WWF, FFI & AWF)		Interventions to support conservation of both populations of mountain gorillas (i.e. the trans-boundary population in the Uganda/Rwanda/DRC Virungas volcanoes, and the Bwindi population), Nkuringo buffer zone management, Gorilla Friendly™ tourism, SMART support, Social Assessment of Protected and Conserved Areas support
3	Wildlife Conservation Society (WCS) Albertine Rift Conservation Programme		Biodiversity inventories and conservation planning on regional basis along the Albertine (western) Rift Valley
4	Conservation Through Public Health		Disease surveillance
5	Mountain Gorilla Veterinary Project		.
6	Max Planck Institute for Biological Anthropology		Gorilla research and census
7	Dian Fossey Gorilla Fund International		In-kind support for gorilla census
8	Institute of Tropical Forest Conservation		Comprehensive research programme at Bwindi
9	Greater Virunga Transboundary Collaboration		Transboundary collaboration efforts across the BINP/Uganda and Sarambwe Reserve/DRC frontier
10	Gorilla Organisation		Human - wildlife conflict mitigation

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