

## World Heritage Sites

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## BWINDI IMPENETRABLE NATIONAL PARK UGANDA

*Located in rugged uplands southwestern Uganda at the junction of the plains and mountain forests, Bwindi National Park covers 33,000 hectares and is known for its exceptional biodiversity. It has more than 200 species of trees, over 100 species of ferns, 348 species of birds and over 200 butterflies as well as many endangered species, including 40% of the population of the critically endangered mountain gorilla.*

### COUNTRY

Uganda

### NAME

Bwindi Impenetrable National Park

### NATURAL WORLD HERITAGE SITE

1994: Inscribed on the World Heritage List under Natural Criteria vii and x.

### STATEMENT OF OUTSTANDING UNIVERSAL VALUE

The UNESCO World Heritage Committee issued the following Statement of Outstanding Universal Value at the time of inscription

#### Brief Synthesis

Bwindi Impenetrable National Park, covering 32,092 ha, is one of the largest areas in East Africa which still has Afromontane lowland forest extending to well within the montane forest belt. Located on the eastern edge of the Albertine Rift Valley and believed to be a Pleistocene refugium, the property is a biodiversity hotspot with possibly the greatest number of tree species for its altitude in East Africa. It is also host to a rich fauna including a number of endemic butterflies and one of the richest mammalian assemblages in Africa. Home to almost half of the world's mountain gorilla population, the property represents a conservation frontline as an isolated forest of outstanding biological richness surrounded by an agricultural landscape supporting one of the highest rural population densities in tropical Africa. Community benefits arising from the mountain gorilla and other ecotourism may be the only hope for the future conservation of this unique site.

**Criterion (vii):** As a key site for biodiversity on the continent, the species richness occurring in this site, recognised also under criteria (x) below, can be considered as a superlative natural phenomenon.

**Criterion (x):** Due to its diverse habitats ranging from 1,160 to 2,706 m in altitude, location at the intersection of the Albertine, Congo Basin and Eastern Africa ecological zones, and probable role as a Pleistocene refugium, Bwindi is the most important area in Uganda for species due to an exceptional diversity that includes many Albertine Rift endemics. This forest is believed to be a mere remnant of a very large forest which once covered much of western Uganda, Rwanda, Burundi and eastern Democratic Republic of Congo (DRC). 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. The forest is very significant as a home to almost half of the population (about 340) of the critically endangered mountain gorilla. With over 347 species of forest birds recorded in the Park, at least 70 out of 78 montane forest bird species occurring in the Albertine Rift region are found in the forest, and 22 of the 36 endemics. Overall, Bwindi hosts numerous globally threatened species including high-profile mammals such as mountain gorilla, chimpanzee, l'Hoest's monkey and African elephant; birds such as African green broadbill, Grauer's swamp warbler, Turner's Eremomela, Chapin's flycatcher and Shelley's crimson-wing; and butterflies such as African giant swallowtail and Cream-banded swallowtail.

### **Integrity**

The property is an oasis of forest situated inside one of the most densely populated rural areas in the country with more than 350 people per square km. This means that there is no possibility for a buffer zone at the forest edge apart from a buffer of 4 km<sup>2</sup> which was donated by communities at the southern end of the Park to safeguard the site. It is recognized that the site is reduced in size and does not have an ideal boundary configuration, as the boundary area ratio is high and the area of park/people contact requires intensive management. There are several narrow corridors between sectors that will create difficulties for movement of wildlife. Due to human disturbance and clearing of vegetation there is little that can be done to expand the area around these constrictions.

The Park boundary is clearly delineated with planted trees and concrete pillars as markers along areas where rivers do not form the boundary. This clear boundary line has mostly stopped encroachment by the local communities, although with increasing population, agricultural encroachment will remain a potential threat. However, community participation programmes have enabled the neighbouring communities to derive various benefits from ecotourism and regulated plant resource use which significantly contributes to improving their livelihoods. There are no commercial activities inside the property other than ecotourism. Bwindi shares a common border with the small (c. 900 ha) protected Sarambwe forest in DRC, into which the gorillas and other species enter at times. This provides an opportunity for population dispersal and gene flow, and an avenue for international collaboration in conserving the region's endemic and endangered flora and fauna.

### **Protection and Management Requirements**

Managed by Uganda Wildlife Authority (UWA, UWA replaced Uganda National Parks (UNP) that was the management authority of the property at the time of designation), Bwindi is protected under the provisions of various national laws (The Constitution (1995), Uganda Wildlife Act Cap 200 of 2000, National Environment Act (2000), Local Government Act (1997), The Land Act (1998), the Forest and Tree Planting Act 2003 and the Uganda Wildlife Policy (1999). All these laws mentioned above were not in place by the time the property was inscribed as a World Heritage Site. However, the Uganda National Parks Act (1952), and the Game Act were already in place to support its creation) and international conventions (Convention of Biological Diversity 1992 (CBD), Convention on International Trade in Endangered Species (CITES), the Ramsar convention 1971 and the World Heritage Convention 1972). The site has an approved management plan and is highly respected and supported by local communities as a conservation site. The property attracts substantial support from a number of local and international NGOs. The Park has a permanent research institute located within the site which is engaged in research and continued monitoring of the site's integrity. These factors as well as strong political support provide an assurance for the property's long-term protection and conservation. The management of the site has developed ecotourism programmes that support community livelihoods, a major reason for community support. The Park is a model for integration of community sustainable resource management in the country and possibly in the East African Region. However, there are still strong long-term needs for greater primate protection given the new tendency of trafficking mountain gorilla babies and chimpanzees. As the mountain gorilla is so closely related to people, it is also threatened by transmission of human diseases as a result of tourism activities. UWA is closely monitoring these threats and working with stakeholders and NGOs to mitigate these threats. Continued enhancement of conservation is required in law enforcement and monitoring.

### **IUCN MANAGEMENT CATEGORY**

II National Park

### **BIOGEOGRAPHICAL PROVINCE**

East African Woodland / Savanna (3.05.04)

### **GEOGRAPHICAL LOCATION**

In the Kigezi (Rukigi) Highlands of southwestern Uganda on the east edge of the Western (Albertine) Rift Valley. The Park borders the Virunga National Park in the Democratic Republic of Congo on the west. The nearest main town is Kabale 29 km south-east. The location is 0° 53' to 1° 08'S by 29° 35' to 29° 50'E.

### **DATES AND HISTORY OF ESTABLISHMENT**

- 1932: The present northern and southern sectors of the forest were gazetted as Kasatoro and Kayonza Crown Forest Reserves respectively, covering an area of 20,700 ha;
- 1942: The two reserves were combined and extended into the Impenetrable Central Crown Forest Reserve covering 29,800 ha.
- 1948: Re-gazetted as the Impenetrable Central Crown Forest Reserve under the 1947 Forest Act;
- 1961: The entire Reserve was gazetted an Animal Sanctuary under the Game Preservation & Control Act of 1959, as amended 1964, to grant additional protection to the mountain gorillas;

- 1966: Two local forest reserves incorporated into the Reserve increasing the area to 32,080 ha;
- 1991: Bwindi gazetted a National Park by Statutory Instrument #3, under the 1952 National Parks Act, along with the Rwenzori Mountains and Mgahinga Gorilla National Parks;
- 1994: The Mbwa tract (1,000 ha) incorporated into the National Park;
- 1995: The Bwindi and Mgahinga Conservation Trust formed to manage the two parks.

## LAND TENURE

State, in the districts of Kabale, Kisoro and Rukungiri. It is owned through the Uganda Wildlife Authority (UWA), a parastatal government body. The Park and surrounding area is now managed jointly with Mgahinga Gorilla National Park by the Bwindi and Mgahinga Conservation Trust. Protection is total, but peripheral communities can access some resources from the Park through a multiple use program

## AREA

32,092 ha.

## ALTITUDE

1,190m to 2,560m (Rwamunyonyi Hill)

## PHYSICAL FEATURES

Bwindi is in extremely rugged highland country of steep hills and narrow valleys. The land slopes down from the highpoint of Rwamunyonyi hill on the eastern edge and the deeply dissected uplands in the south and southeast down to the northwesternmost point. 60% of the Park is over 2000 meters high. Together with some remnant lowland forest outside the boundary, it is an important water catchment area for the surrounding agricultural lands. Three major tributaries of the Ishasha River drain into Lake Rutanzige (L.Edward) to the north. The Ndego, Kanyamwabo and Shongi Rivers flow southwards towards Lake Mutanda. There are two 10ha swamps at Mubwindi and Ngoto in the centre south of the Park. The area is associated with the upwarping of the Western Rift Valley. Its underlying rocks are phyllites and shales, with some quartz, quartzite and granitic outcrops of the Karagwe-Ankolean system. The soils are mainly humic red loams, moderately to highly acidic and deficient in bases (Howard, 1991). Over 60% has been logged and owing to the steepness of slopes, the soils are very susceptible to erosion in areas where trees have been cleared.

## CLIMATE

The climate is tropical with two rainfall peaks from March to May and September to November. The annual precipitation lies in the range 1,130mm to 2,390mm (Howard, 1991). The annual mean temperature ranges from a minimum of 7° to 15°C to a maximum of 20° to 28°C.

## VEGETATION

Bwindi is one of the few large expanses of forest in East Africa where there is a continuum from lowland to montane forests. It has a wide altitudinal range and was also a Pleistocene refugium. The southern uplands are representative of the Afromontane Centre of Plant Endemism and the northern sector is rich in species of the Guineo-Congolian flora. These factors have resulted in an extremely high diversity of species. Bwindi is one of the most diverse forests in East Africa for trees, with over 200 species, 12 being known only from this forest, some 120 species of shrubs, more than 104 species of ferns and more than 1,000 flowering plants. In recognition of this wealth of species, Bwindi was selected by IUCN's Plant Programme as one of Africa's 29 most important forests for conserving plant diversity. The forest gets the name 'impenetrable' from the dense cover of herbs, vines and shrubs growing in the valley bottoms. The area is broadly classified as tropical low montane evergreen forest and high altitude forest (Langdale-Brown, 1964). However, it is now an ecological island surrounded by cultivation.

Approximately 40% of the forest is medium-rich to rich mixed forest, including key species such as red stinkwood *Prunus africana* (VU), nationally threatened *Newtonia buchanani*, *Symphonia globulifera*, *Chrysophyllum pruniforme*, *Podocarpus* spp. and *Strombosia scheffleri*. There are three presumed climax communities which tend to single-species dominance, the dominant depending on altitude. In low-lying areas around 1,500m, *Parinari exelsa* is dominant, covering about 10% of the Park; around 2,000m *Newtonia buchananii* covers about 11% of the Park; and at around 2,200m *Chrysophyllum gorungosanum* dominates about 8% of the Park. Almost 30% of the Park is occupied by low tree communities, classified as poor, hill and colonising types. There are also small areas of swamp and

grassland. Bamboo forest is restricted to less than 100 ha. The trees of Bwindi are not particularly well known, and the current record may be far from complete. Nevertheless, the list of 200 species (47% of the country's total) includes 12 species not found elsewhere: *Allanblackia kimbiliensis*, *Balthasaria schliebenii*, *Croton bukobensis*, *Grewia milbraedii*, *Guarea mayombensis* (VU), *Maesobotrya purseglovei*, *Memecylon* spp., *Strombosiopsis tetrandra* and *Xylopia staudtii* (Howard, 1991; Kakuru, 1990). There are two internationally threatened species, African walnut *Lovoa swynnertonii* (EN) and *Brazzeia longipedicellata* (EN) (Hilton-Taylor, 2002); and a further 16 species have a very limited distribution in south-west Uganda

## FAUNA

Bwindi is believed to have the richest faunal community in East Africa and is an important locality for the conservation of Afromontane fauna endemic to the mountains of the Western Rift Valley. The Park holds 120 species of mammals including 14 species of primate. Over a third of the world's population of the regionally endangered eastern mountain gorillas *Gorilla beringei beringei* (EN: 320) live in the Park (Caldecott & Miles, 2005). These numbered about 300 out of a world total of 674 in 2000 (WWF, 2000), living in some 23 family units (von Zeipel, 1996), and the 320 were seen in 2003 during a survey by most of the agencies closest concerned with mountain gorilla populations in Rwanda, the D.R.C. and Uganda (Fauna & Flora, 2004). This population may be a distinct subspecies, more closely related to the equally endangered *Gorilla gorilla graueri* (Conservation International, April, 2000). It has shorter hair, slightly longer limbs and lives at lower altitudes than the Virunga population. A related species is the eastern chimpanzee *Pan troglodytes schweinfurthii* (EN: ±213) in the only place where its range overlaps with the gorilla's (WHRC, 2005),

Other globally threatened species include African elephant *Loxodonta africana* (VU), estimated at 30 individuals by Said *et al.* in 1995, and L'Hoests monkey *Cercopithecus lhoesti* (VU). There are numerous bats, and the existence of 47 rodent and 20 shrew species has been confirmed (Kasangaki *et al.*, 2003). Among the primates are also red-tailed monkey *C. ascanius schmidtii*, blue monkey *C. mitis stuhlmanni*, western black-and-white colobus *Colobus guereza occidentalis*, green monkey *C. aethiops*, and olive baboon *Papio anubis* plus the small nocturnal prosimians potto *Perodicticus potto*, Demidoff's dwarf galago *Galagoides demidovi* and the spectacled lesser galago *Galago matschiei*. Other mammals include side-striped jackal *Canis adustus*, Congo clawless otter *Aonyx congicus*, honey badger *Mellivora capensis*, African civet *Civettictis civetta*, African golden cat *Caracal aurata*, bushpig *Potamochoerus larvatus*, forest hog *Hylochoerus meinertzhageni*, bushbuck *Tragelaphus scriptus*, yellowbacked and blackfronted duiker *Cephalophus silvicultor* and *C. nigrifrons*. Buffalo were poached to extinction in the late 1960s.

The Park is an Important Bird Area and lies within one of the world's Endemic Bird Areas (Stattersfield *et al.*, 1998). 348 species of birds have been recorded of which 75 are of restricted-range. Of the 78 montane forest bird species in the Albertine Rift, 53 are forest dependent, confined predominantly to highland forest. 23 of the 36 endemics are Albertine Rift endemics and 12 species occur only in Bwindi and in some cases in the neighbouring highland forests of south-west Kigezi within Uganda. Key species are the dwarf honeyguide *Indicator pumilio*, African green broadbill *Pseudocalyptomena graueri* (VU), Lagden's bushshrike *Malaconotus lagdeni*, Kivu ground thrush *Zoothera tangerjicae*, forest ground thrush *Z. oberlaenderi*, Grauer's swamp-warbler *Bradypterus graueri* (EN), Chapin's flycatcher *Muscicapa lendu* (VU) and Shelley's crimson-wing *Cryptospiza shelleyi* (VU) (Fishpool *et al.*, 2001). Other rare birds are Fraser's eagle-owl *Bubo poensis*, white-bellied robin-chat *Cossyphicula roberti*, Turner's eremomela *Eremomela turneri* (EN), Grauer's warbler *Graueria vittata*, short-tailed warbler *Hemistasia neumannii*, yellow-eyed black flycatcher *Melaenornis ardesiacus*, bronze sunbird *Nectarinia kilimensis* and dusky twin-spot *Euschistospiza cinereovinacea*. Hamerkop *Scopus umbretta*, long-crested eagle *Lophaetus occipitalis* and grey crowned-crane *Balearica regulorum* (VU) have also been seen.

Of 27 amphibian species eleven are endemic to the Albertine Rift including the Western Rift leaf-folding frog *Afraxalus orophilus* (VU) and Ahl's reed frog *Hyperolius castaneus* (VU). Of fourteen snakes, nine are endemic to Bwindi. There are also six species of chameleon and 14 species of lizard (MacCarthy *et al.*, 2010). The forest may also be the most important in Africa for the conservation of montane butterflies (Butynski, 1993). 220 species occur (84% of the country's total) with 8 Albertine Rift endemics. 2 butterflies occur only in Bwindi: the cream-banded swallowtail *Papilio leucotaenia* (VU) and a kite swallowtail *Graphium gudenusi*. It also has the threatened African giant swallowtail *Papilio antimachus* (Howard, 1991). The rare *Charaxes fourmiera* is also found nearby in Rwanda.

## **CONSERVATION VALUE**

Bwindi is an ecological island forest of international importance and is the richest conservation area in Uganda owing to the exceptional diversity of both its flora and fauna. Its faunal community is considered to be East Africa's richest due in part to its extensive lowland-montane forest continuum. This includes many Albertine Rift endemics and six globally threatened species including the habitat of more than a third of the world's population of mountain gorillas. The Park lies within a Conservation International-designated Conservation Hotspot and is designated one of WWF's Global 200 Freshwater Ecoregions

## **CULTURAL HERITAGE**

No archaeological sites are known inside the Park, although the wider Kigezi region may have been occupied from as early as 37,000 years ago (UNP, 1993; Cunningham, 1992). The earliest evidence of forest clearance dates back 4,800 years, most likely due to the presence of the Batwa pygmies, hunter-gatherers who were the original inhabitants of the forest and manipulated the vegetation with fire (Hamilton, 1986). This is the earliest evidence for cultivation anywhere in tropical Africa (Hamilton, 1986). It was not until approximately 2000 years ago that Bantu agriculturalists arrived in the region (Cunningham, 1992). The extensive knowledge of wild animals and plants possessed by the Batwa people is threatened with disappearance unless their way of life is restored, or their knowledge condensed onto paper.

## **LOCAL HUMAN POPULATION**

Bwindi lies in one of the country's most densely populated rural areas, with figures ranging between 160 and 320 people/sq.km at different points around the forest edge. Approximately 10,000 families belonging to three Bantu peoples, the Bakiga, Bafumbira and Barwanda, cultivate the land immediately surrounding the Park where no forest now remains. Also present are between 50 and 100 Batwa pygmy families who live as despised and landless labourers following their eviction from the forest in 1964. They lived nomadically within the forest, knowing it thoroughly and completely dependent on its resources, but received limited compensation for their loss. Initially there was therefore strong opposition from the local people to the loss of forest resources. Damage to crops and wildlife is not compensated, adding to the resentment. They were also excluded from decision-making about the forest. But after much effort by Park staff to improve controls and relations, most people now appear to respect the Park and show constraint in their use of its resources. However, large numbers do extract wood, bamboo, honey, bushmeat and gold and only about 10% of the forest remains free from human disturbance. According to Butynski in 1983, between 100 and 300 people were employed in pit-sawing over 61% of the Park and between 60 to 120 in hunting and collecting bushmeat. A further 100 to 200 people work in gold panning and mining, and also collecting building poles, fuelwood, bamboo, honey and medicinal plants. Livestock are raised over 10% of the area and footpaths exist over 67% of the Park, but commercial mechanised logging does not occur owing to the ruggedness of the land.

## **VISITORS AND VISITOR FACILITIES**

Following the preparation of a tourism development plan by the International Gorilla Conservation Programme (IGCP) in 1992, Bwindi opened for mountain gorilla tourism in April 1993. The Park became a major tourist destination following the collapse of gorilla tourism in Rwanda due to civil war, and the absence of law and order in the Democratic Republic of Congo. Between 1991 and 1997 some 3,600 tourists visited Bwindi each year, and the Park earned approximately US\$1 million per year (Johnstone, 1997). Visitor numbers are tightly controlled, and a permit is needed to enter Bwindi. They join a guided tour tracking groups of gorilla, of which one group has become habituated to man. Only 12 permits are issued per day, costing US\$275 for foreign non-residents, US\$210 for foreign residents, and 80,000 Ug.shillings (US\$55) for citizens (UWA *in litt.*, 2002). This success was set back by the murder in 1999 of 8 tourists by intruding Rwandan rebels, but numbers are now recovering.

There are various tourism facilities in Buhoma: safari companies and seven or eight tented camps. Another station, Ruhija 50 km away, offers facilities for birdwatchers (K. Mutaka Musana, *in litt.*, 1997). In August 1993, private concessions were awarded to tour operators allowing the development of accommodation at selected sites around the forest. The Kenyan company Abercrombie and Kent operates a luxury tented camp concession (Johnstone, 1997). The IGCP and Uganda Wildlife Authority built a visitor centre at Buhoma, produced educational material for visitors and trained guides in forest ecology (IGCP, 1997). In 1999 the centre was destroyed by Rwandan Hutu rebels who killed

8 westerners and a ranger, which for a while proved disastrous for the lucrative tourist trade. However, Uganda's President toured the Park in 2005 to show that security had been restored.

## **SCIENTIFIC RESEARCH AND FACILITIES**

A survey of the conservation status of the Park was carried out by Harcourt in 1979, and an ecological survey was later made by Butynski of the New York Zoological Society. In 1986, the Impenetrable Forest Conservation Project (IFCP) was set up at Ruhija, staffed by a full time expatriate, 5 graduate counterparts and 20 assistants. The site now contains a library and laboratory equipment, with accommodation and facilities for up to 60 people. Howard (1991) undertook a further survey of the forest in September 1986 as part of a large-scale Forest Department inventory. Further studies of the avifauna were conducted by Butynski and Kalina (1993). In 1991, the facilities of IFCP were developed into the Institute of Tropical Forest Conservation (ITFC) at Ruhija, to act as a field station for Mbarara University of Science and Technology. The main aims of the Institute are to systematically inventory the fauna and flora, initiate conservation programmes, and assess the population, distribution and particular requirements of the mountain gorillas. Working in close collaboration with ITFC is the Development Through Conservation (DTC) project of the Central African Regional Program for the Environment (CARE) which is researching the economic needs of the local community, training Ugandan students in inventory techniques and ethnobotany, and running extension programmes with local farmers. In 1996 the Bwindi Impenetrable Great Ape Project began a long-term study of local gorillas and in 1998 a research station was built at Camp Kashasha next to the Park, funded by the National Geographic Society and the University of Southern California. A new monitoring program working in conjunction with the Forest and Game Departments was started in 2009 by the Tropical Ecology Assessment and Monitoring Network (TEAM) to inventory Bwindi's biological resources, control illegal activities and develop capacities for the successful management and conservation of the forest (MacCarthy *et al.*, 2010).

## **CONSERVATION VALUE**

Bwindi is an ecological island forest of international importance and is the richest conservation area in Uganda owing to the exceptional diversity of both its flora and fauna. Its faunal community is considered to be East Africa's richest due in part to its extensive lowland-montane forest continuum. This includes many Albertine Rift endemics and six globally threatened species including the habitat of more than a third of the world's population of mountain gorillas. The Park lies within a Conservation International-designated Conservation Hotspot and is designated one of WWF's Global 200 Freshwater Ecoregions

## **MANAGEMENT**

In the past, after the collapse of Forest Department management structures in 1971 there was massive illegal exploitation of the forest for timber, bushmeat, gold, building materials, cultivation and livestock grazing. Stabilisation followed the establishment of the Impenetrable Forest Conservation Project in 1986 and other Forest Department and Wildlife Authority initiatives. Until 1994, the management plan for Bwindi emphasised simultaneous preservation of forest cover with maximum sustainable timber production (Leggat *et al.*, 1961). Now, in addition to law-enforcement, there have been major achievements in species inventory and monitoring, research, staff training, and the demarcation and securing of park boundaries. In combating the threat of agricultural encroachment, the Uganda Wildlife Authority is assisted by the CARE Development Through Conservation project (DTC) and the Mgahinga and Bwindi Impenetrable Forest Conservation Trust (MBIFCT), a project which has promoted good relations with the local communities through a large-scale tree-nursery program, promoting sustainable use of resources and sharing revenues from tourism with the communities.

In addition to its out-forest work, DTC has also studied in-forest resource use and zoning strategy. A tourism plan has been in use since 1993 (IGCP, 1992). The People and Plants initiative of WWF and UNESCO has trained 13 Ugandans to MSc level in ethnobotany and an overall management plan has been jointly prepared by the Uganda Wildlife Authority, the Institute of Tropical Forest Conservation, CARE-DTC and local communities (A. Atucunda, *in.litt.*, 2002). In 1995 there was still a need for more mobile, better trained and better equipped security for tourist facilities and for cooperation with local communities benefitting from tourism and with the national defence force, especially on the border with the D.R.C (UNESCO, 1999). Since 1995 the Bwindi and Mgahinga Conservation Area has received very adequate funding, to make it, despite the atrocity of 1999 and ongoing problems, into a model of conservation development.

## MANAGEMENT CONSTRAINTS

Although there is no evidence of gorilla hunting in the forest since 1995 when four gorillas from a habituated group were killed, poaching for antelope, pigs and other large mammals is common. It is reported that infant gorillas have been taken for sale to private collectors (von Zeipel, 1996; Johnstone, 1997) and in 1999 a marauding Rwandan gang killed several tourists and a ranger. Tourism is currently tightly controlled in the Park, but the demand for tracking the rare mountain gorillas is growing. Tourism poses a great threat to the gorilla population in two ways: through habituation and thus increased vulnerability to poachers, and through the transmission of diseases such as scabies through contact with domestic animals and man, even though only healthy tourists are allowed to enter the Park (Johnstone, 1997). Gorilla-tracking protocols of the kind proposed in the tourism development plan must be observed strictly if the gorillas are not to be put at risk. A lack of Ugandan wildlife veterinarians also limits the gorilla tourism project. The forest skills of the Batwa indigenes qualify them well to become guides and to monitor and control wildlife, but as they are illiterate, they are not employed as rangers by UWA

Relatively intensive logging also occurs in certain areas, as does the extraction of gold and charcoal. Consistent help from IFCP and DTC has enabled the Forest Department and UWA to reduce most illegal activity to sustainable levels. But the position of Bwindi as an isolated forest surrounded by a densely settled local population makes agricultural encroachment the major threat to the integrity of the forest. The lack of community participation in the Park's management, plus a low level of public awareness in conservation, exacerbate the human threat. Unless the measures proposed in the current general management plan are implemented quickly, and future conservation efforts closely involve local communities, encroachment is likely in future. Park authorities are currently working with the ITFC on plant resources research, to enable local people to harvest useful forest plants on a sustainable basis. A benefit-sharing program is being developed for the local community in which a percentage of the entrance fees is set aside for financing projects such as schools and health clinics in compensation for gorilla inroads into crops, winning local interest in gorilla conservation in place of hostility (von Zeipel, 1996; IGCP, 1997; UWA, 2000).

## STAFF

The Park is headed by a Chief Park Warden at Kabale assisted by five Wardens: two for tourism, research and monitoring, and one each for community conservation, law enforcement and security, and an accounts assistant. There were in 1997 42 rangers, 9 ranger-guides, 6 community conservation rangers, four trackers, five porters and six office staff (Mutaka Musana *in litt.*, 1997), working from stations at Ruhiszha and Rushaga.

## BUDGET

In the past Bwindi brought in 50% of the National Park system's revenue. 20% was used for management, 20% for research and 12% for community development, but owing to rebel incursions this income diminished. Funds until 1995 were short and staff numbers cut to permit realistic salaries to those who remained. IGCP was funded variously by the WWF, FFI, the African Wildlife Fund and USAID. Much of the funding went to pay the salaries of the rangers during the civil unrest. However, via the MBIFCT project from 1995 to 2000, the Bwindi-Mgahinga region received US\$ 4.3 million from GEF plus US\$2.7 million from the Netherlands government and US\$890,700 from USAID. Between 1999 and 2004 the region received US\$2,600,000 from WWF, UNESCO, CARE and MPI and between 2004-2008 it received US\$ 17,000,000 from USAID/Uganda, also a total of US\$9,688,500 from several agencies, NGOs and private donors: WWF, USAID, WCS, MF, FFI, USFWS, Nature Uganda, AWF, Bwindi Trust and IFTC (WWF, 2007),

## LOCAL ADDRESSES

The Director, Uganda Wildlife Authority, Plot 3 Kintu Road, Nakasero, P.O. Box 3530, Kampala, Uganda.

The Chief Warden, Bwindi Impenetrable National Park, P.O. Box 862, Kabale, Uganda.

## REFERENCES

The principal source for the above information was the original nomination for World Heritage status.

Anon (2004). Project updates. *Fauna and Flora*, April 6, pp. 12-13.

Butynski, T. (1984). *Ecological Survey of the Impenetrable (Bwindi) Forest, Uganda, and Recommendations for its Conservation and Management*. New York Zoological Society, New York.

- (1985). Primates and their conservation in the Impenetrable (Bwindi) Forest, Uganda. *Primate Conservation* 6: 68-72.
- Butynski, T. & Kalina, J. (1993). Three new mountain national parks for Uganda. *Oryx* 27:4, 214-224.
- Caldecott, J. & Miles, L. (eds) (2005). *World Atlas of Great Apes and their Conservation*. UNEP-WCMC, University of California Press, Berkeley, U.S.A.
- Conservation International, (2000). Once and future primate order. *Gorilla Conservation News No. 13*.
- Cunningham, A. (1992). *People, Park and Plant Use: Research and Recommendations for Multiple Use Zones and Development Alternatives Around Bwindi Impenetrable National Park, Uganda*. CARE International, Kampala, Uganda.
- Fishpool, L. & Evans, M. (eds) (2001). *Important Bird Areas for Africa and Associated Islands. Priority Sites for Conservation*. Pisces Publications & Birdlife International, Newbury & Cambridge, U.K. BLI Conservation Series No.11.
- Goldsmith, M. & Stanford, C. (1997). The Bwindi Impenetrable Great Ape Project, Uganda. *Gorilla Conservation News* No.11.
- Hamilton, A. (1969). The vegetation of South West Kigezi. *Uganda Journal* 33(2): 175-99.
- (1984). *Deforestation in Uganda*. Nairobi: Oxford University Press.
- Harcourt, A. (1979). *Conservation of the Bwindi Forest Reserve and its Gorillas, S.W. Uganda*. WWF/IUCN Project 1577 Report.
- Hamilton, A., Cunningham, T., Byarugaba, D. & Kayanja, F. (2003) Conservation and conflict in Uganda. *Common Ground*. University of Maine, U.S.A.
- Howard, P. (1991). *Nature Conservation in Uganda's Tropical Forest Reserves*, IUCN Conservation Library, IUCN, Gland, Switzerland / Cambridge, U.K..
- IGCP (1992). *Bwindi Impenetrable National Park Tourism Development Plan*. Prepared for Uganda National Parks by the International Gorilla Conservation Programme.
- (1997). Ecotourism in Bwindi National Park. *Mountain Gorilla Update* No.3. Flora and Fauna International.
- IUCN (2010). *The Red List of Threatened Species*. IUCN, Cambridge, U.K.
- Johnstone, R. (1997). Gorillas in our midst. *Swara* 20 (2): 22-23.
- Kakuru, W. (n.d.). *Tree List for Bwindi Impenetrable National Park*. MUIENR, Kampala, Uganda.
- (1990). *The Potential of the Impenetrable (Bwindi) Forest for Medicinal Plants*. BSc (Forestry) project, Makerere University, Kampala.
- Kalina, J. & Butynski, T. (1992). *Bird List for the Impenetrable (Bwindi) Forest National Park*. Unpubl. Report to CARE and WWF, Kampala.
- Kasangaki, A., Kityo, R. & Kerbis, J. (2003). Diversity of rodents and shrews along an elevation gradient in Bwindi Impenetrable National Park, south west Uganda. *African Journal of Ecology* 41(2): 115.
- Keith, S., Twomey, A., Friedmann, H. & Williams, J. (1969). The avifauna of the Impenetrable Forest, Uganda. *Amer. Mus. Novit.* No. 2389.

Keith, S. (1980). The Avifauna of the Impenetrable Forest, Kigezi, Uganda, with special reference to altitudinal distribution, in *Proceedings of the IVth Pan-African Ornithological Congress*. Pp. 159-167.

Langdale-Brown, I., Osmaston, H. & Wilson, J. (1964). *The Vegetation of Uganda and its Bearing on Land Use*. Entebbe: Government Printer.

Leggat, G. & Osmaston, H. (1961). *Working Plan for the Impenetrable Forest Reserve, Kigezi District, Western Province, Uganda. Period 1961-71*. Uganda Forest Department, Entebbe.

MacCarthy, J. *et al.* (2010.). *Bwindi Impenetrable Forest*. Tropical Ecology Assessment and Monitoring Network (TEAM).

Malpas, R. (1980). *Wildlife in Uganda 1980 - A Survey*. A Report to the Minister of Tourism and Wildlife, Uganda.

Prigogine, A. (1985). Conservation of the avifauna of the forests of the Albertine Rift. Pp. 277-295, in: *Conservation of Tropical Forest Birds*. Technical Publ'n No.4, BirdLife International, Cambridge, U.K.

Said, M., Chunge, R., Craig, G., Thouless, C., Barnes, R. & Dublin, H. (1995). *African Elephant Database 1995*. IUCN, Gland, Switzerland. 225 pp.

Stanford, C. (2000). The Bwindi Impenetrable Great Ape Project. *Gorilla Conservation News No13*.

Stattersfield, A. *et al.* (1998). *Endemic Bird Areas of the World: Priorities for their Conservation*. BirdLife International, Cambridge, U.K.

Stewart, K. (1999). Bwindi Impenetrable National Park, Uganda. UNP (1993). *Bwindi Impenetrable National Park Management Plan, 1993-1997*, *Gorilla Conservation News No. 11*.

UNESCO World Heritage Committee (1999). *Report on the 23rd Session of the Committee*, Paris.

von Zeipel, M. (1996). A decade of peace revives Uganda's wildlife and gorilla tourism. *WWF News* 4.96.

Woods Hole Research Center (WHRC) (2005). *Mapping and Monitoring the Forests of Central Africa*. Land Cover & Land Use Program, Woods Hole, Massachusetts, U.S.A.

WWF (2007). Uganda: *Bwindi Impenetrable National Park and Mgahinga Gorilla National Park Conservation Project*. Project Performance Assessment Report, Independent Evaluation Group, WWF, Kampala, Uganda / Washington, USA.

----- (2002). *WWF News*, Oct. 2002.

## DATE

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