

These action plans are essentially based on the Gorilla report outlined by the IRSNB for the CMS in 2005; The World Atlas of Great Apes and their Conservation (published in 2005), the existing National Action Plans (NGASP), various workshops reports (Brazzaville, 2005; Limbe Botanic Garden, 2003; Calabar,2006), and many other publications.

Action plan *Gorilla beringei beringei* July 2007 Version

The action plan for the mountain Gorilla, *Gorilla beringei beringei*, affects three countries:

- The Democratic Republic of Congo (DRC)**
- Rwanda**
- Uganda**

The mountain gorilla, *Gorilla beringei beringei*, occurs in two known populations within three countries, the Democratic Republic of Congo, Rwanda and Uganda. These two populations live almost entirely within national parks. One of them is spread around the extinct volcanoes of the Virunga Massif (375km²), which constitute a single contiguous area of mountain gorilla habitat over the three borders. These gorillas are protected officially within Virunga NP in DRC, in Volcanoes NP in Rwanda and Mgahinga Gorilla NP in Uganda. The second population is found mainly in southwest Uganda, in Bwindi Impenetrable NP (215km²), on the border with DRC (Butynski, T.M., 2001). The two areas are separated by 25 km of farmland (Sarmiento, E.E., Butynski, T.M., Kalina, J. 1996).

The three Virungas NP contain most of the surviving forests in the region. These rainforests range in elevation from 2000m to 4500m, covering a large spectrum of different natural habitats, including various montane rainforest types, bamboo stands, as well as areas with little tree cover and abundant herbaceous vegetation (McNeilage, A. 2001). The mountain gorilla in the Virungas occur at altitudes from 2000m to 3600m, with occasional excursions as high as 4100m, while those at Bwindi live between 1160m and 2600m (McNeilage, A.,2001; Butynski, T.M., 2001).

The population of mountain gorillas of the Virungas has been studied for more than 40 years, and monitored since the 1970s, making it one the best monitored of all great apes population. Fewer data are available on the Bwindi mountain gorilla's status and trends.

Data show a decline through the 70s and the 80s, with most reduction occurring in the DRC section (Weber, A.W., Vedder, A. 1983). A population estimate in 2000 suggested that the Virunga population of the mountain gorilla was between 359-395 (Kalpers, J. Williamson, E.A., Robbins, M.M. et al., 2003). The most recent census of the Virunga gorillas recorded 380 individuals (IGCP, ICCN, ORTPN, UWA, DFGFI, ITFC, WCS, DFGFE, BRD, MGVP, MPEVAN, 2004)

Between 12 and 17 Virunga mountain gorillas (5% of the population) were killed as a direct result of the military activity between 1992 and 2000 (Kalpers, J. Williamson, E.A., Robbins, M.M. et al., 2003). Even with the declared end of the hostilities, the forests of DRC are still used as hiding places for rebel forces, leading to continuing hunting. The lowlands of the park are still inaccessible to parks staff, and the status of the gorilla is unclear (Plumptre, A.J., McNeilage, A., Hall, J.S., Williamson, E.A., 2002). Two mountain gorillas were killed in January 2007 (December 2006???)

Mountain gorillas, independantly of threats originating from recent armed conflicts, are severely threatened by grazing and forest conversion to agriculture, a consequence of the explosive growth of human populations in the region over the last half century. However, despite the low numbers of gorillas and the severe threats they face overall population numbers would appear to be stable and possibly slowly increasing.

A. Democratic Republic of Congo

One of the three largest, and one of the two most forested countries in Africa, the Democratic Republic of Congo (DRC) has had to endure several decades of poor economic policies, bad governance, and wars. It appears that the right policies are now being put in place to pave the way for a restoration of economic growth (Akitoby, B., Cinyabuguma, M., 2004).

The mountain gorilla population is restricted to the southern section of the Virunga NP. It is part of the larger "Virunga population", which include the gorillas of Volcanoes NP in Rwanda, of the Mgahinga Gorilla NP in Uganda, and of the Virunga NP of DRC. In 2001, an estimated 183 mountain gorillas were resident in DRC, about half of the global Virunga mountain gorilla population (Caldecott and Miles, 2005).

The range of the distinctive Bwindi population of mountain gorillas, which is largely restricted to Uganda is Bwindi Impenetrable Forest NP, also includes part of DRC (Butynski, T.M., 2001).

1. Legislation

National

The Ministry of Environment, Nature Conservation and Tourism is the government body in charge of nature conservation. The Nature Conservation Act Ordinance-Law

69.041, 1969 defines national parks. Law 82.002, 1982, defines faunal and game reserves and lists species for which hunting and trapping are prohibited.

There are 4 main categories of PA in DRC:

- National parks (9)
- Game reserves (1)
- Forest reserves (7)
- Faunal reserves (2)

There are also areas set aside for hunting purposes, for scientific purposes. All these are managed by the Institut Congolais pour la Conservation de la Nature (ICCN). A Forest Code was established in 2003, under which the state owns all forests and defines legitimate uses for them. Legal mechanisms and zoning system are to follow. There is concern as to the fact that forest people's rights are recognised, and there has been little civil society involvement in the formulation of this code (Caldecott and Miles, 2005). Forest exploitation taxes are very low, 0.06 US\$/ha; WBank estimate that 600.000km² will be zoned as production forests. Timber extraction will be facilitated by more than 270 millions dollars promised donors funds, equivalent to more than 5000km unpaved roads, or more than 1000km paved roads.

International:

- CMS, 1990
- CBD, 1994
- WHC, 1974
- ACCNNR, 1976
- WHC, 1974

There are 5 World Heritage Sites, all five listed as WHS in Danger, due to human pressure: Virunga NP, Garamba NP, Kahuzi-Biega NP, Salonga NP, Okapi Faunal Reserve. DRC participates in UNESCO's MAB Programme.

2. Conservation action

- Protected Areas of importance to Mountain Gorilla conservation:

- The Virunga NP (7900k²), ranges in altitude from 800m to over 5100m, and therefore contain non-forested habitats at lower and higher elevations. The NP is administered in 4 sectors, and gorillas occur only in the southern sector. The park contains several types of forested and non-forested habitats, the most widespread being the *Hagenia abyssinica* forest and *Hypericum revolutum* woodland, with a dense herbaceous and sometime grassy understory (Watts, D.P. (1998).

- Current projects/activities with direct or potentials implications for Gorillas conservation:

A large number of international, national and local Non Governmental Organisations (NGOs), Inter Governmental Organisations (IGOs) as well as national authorities have been involved in various gorilla and ape action plans, conservation initiatives and programmes, which deal with a range of issues. Some of the main activities are described below but there are countless others.

- The International Gorilla Conservation Programme was formed in 1991, by three international conservation organisations and three protected area authorities: the African Wildlife Foundation (AWF), Fauna and Flora International (FFI) and the World Wide Fund for Nature (WWF); the Institut Congolais pour la Conservation de la Nature (ICCN), the Office Rwandais de Tourisme et des Parcs Nationaux (ORTPN) and the Uganda Wildlife Authority (UWA). Its goal is the sustainable conservation of mountain gorillas and their habitats. It aims to strengthen conservation of mountain gorillas in the Democratic Republic of the Congo, Uganda, and Rwanda, to develop a regional approach to mountain gorilla conservation, and to increase cooperation between the protected area authorities of the three mountain gorilla range states. This project has been successful in protecting mountain gorillas in the Virunga range, despite civil unrest and other setbacks. The IGCP has run a number of projects and is involved in population censuses. It works with national institutions and agencies to support conservation efforts, strengthen resources and build capacity. For example, it helps the Institut Zaïrois pour la Conservation de la Nature (IZCN) develop contacts with donor countries (Kemf and Wilson, 1997).

- The Great Apes Survival Project (GRASP) is an ambitious project of UNEP and UNESCO in collaboration with a whole range of partners which aims to lift the threat of imminent extinction faced by gorillas, chimpanzees, bonobos, *Pan paniscus*, and orangutans, *Pongo spp.* (GRASP, 2003). GRASP will develop Great Ape Survival Plans (GASPs), raise funds to implement plans and develop a global strategy to co-ordinate efforts. In addition, an Atlas of Great Apes is being produced to provide up-to-date information on the distribution status and conservation of the great apes, including the mountain gorilla.

- ‘Open Initiative’ has been established by UNESCO and all International Space agencies, to assist developing countries in the monitoring of world heritage sites through satellite images. A pilot project will use satellite images to provide a land cover change assessment during the last ten years – “Surveillance of Gorilla Habitat” project will focus on four existing or proposed World Heritage sites in the Albertine Rift covering border areas of DRC, Rwanda and Uganda - simple but accurate maps should be the main output of this project (UNEP, 2002).

- Other projects include that of a computer simulation of the Virungas Mountains as a virtual reserve, which is being developed for the Diane Fossey Gorilla Fund International. It aims to plot the gorillas’ movements through the virtual reserve, to show habitat preferences, to deduce the carrying capacity of the reserve and assist in the management of the national parks for the conservation of the mountain gorilla (Whitfield, 2002). It will also help keep track of human activities such as poaching and farming (Whitfield, 2002).

- In Virunga National Park, an ‘integral conservation policy’ has been in operation for over 50 years whereby savanna fires, which maintain the fire-climax vegetation, are

managed by the park authorities (UNEP-WCMC, 2003b). WWF is operating a Virunga Environmental Programme to raise awareness among communities of the value of conservation (WWF, 2002). Although its activities have been disrupted on several occasions due to civil unrest, more than a million tree seedlings were planted in 1996 with the help of the United Nations High Commission for refugees (UNEP-WCMC and WWF, 2001). The International Gorilla Conservation Programme in conjunction with the Congolese park authorities have undertaken a Ranger-based Monitoring Programme (RBM) which acts as a tool for the rangers to collect information, which in turn helps to inform park management decisions.

- Ecotourism, and mountain gorilla viewing has generated important revenues: 2800 tourists visited the Virunga NP between 1986 and 1990, who between them spent US\$ 250.000 (Wilkie, D.S., Carpenter, J.F.1999). However, for the last decade, wars have considerably slowed things down, and the slaughter of habituated gorilla group in the park is a major setback (Caldecott and Miles, 2005).

- Research

The mountain gorillas have been well studied, and research is ongoing, despite a number of setbacks due to armed conflict. A number of the programmes and initiatives described in the previous section have or will have research components as an integral part of conservation actions and efforts. However, a number of other research activities are also ongoing. In addition, studies such as research into gorilla taxonomy, which are ongoing, may have serious implications for gorilla conservation, particularly in the light that the Bwindi gorilla may be genetically distinct from the mountain gorilla of the Virungas, as suggested by Sarmiento *et al.*, (1996).

- Virunga National Park was set up primarily for scientific research during Belgian colonial rule and much detailed work was carried out on specific taxa, from insects to mammals, particularly in the 1930s and 1950s (UNEP-WCMC, 2003b). IUCN/WWF Project 1941 aims to carry out a survey of the status of the gorilla and provide necessary data for their improved preservation and protection of their habitat.

3. Needs and recommended priority actions:

Overwhelming and immediate priorities for gorillas conservation are:

Nationally:

From: GRASP 2002 Kinshasa workshop, and NGASP, Trilatéral RDC/Uganda/Rwanda Agreement (January 2004).

Policy and legislation

- The mountain gorilla is a protected species in all its Range States, and so enforcement of existing legislation and provision of adequate staff and resources is

essential, particularly in the face of lack of funds and inaccessibility. Enforcement of existing legislation needs to be strengthened.

- Improvement of the already existing legislation and of its enforcement.
- Tourism must be adequately regulated to ensure it is sustainable, and that disturbance and threats to the gorillas are minimal.
- Ensure that moneys generated from gorilla tourism are invested in local communities and in gorilla conservation.
- Policies to ensure the sustainable use of all natural resources should be developed which should minimise damage to gorilla habitat.
- Standards should be developed which minimise the opportunities for disease transmission from humans to gorillas, which could include a health education programme for local residents, good hygiene and waste disposal practice by researchers, tourists and officials in contact with gorillas.
- Complementary policy and legislation in range states should be developed and transboundary agreements made and implemented.
- All range States should be encouraged to participate in intergovernmental agreements such as the CBD, and with FAO.

Species and habitat protection

Even though almost all mountain gorillas live within protected areas, there are a number of areas that need consideration to ensure adequate protection of *Gorilla gorilla beringei* and its habitat. These include:

- Ensure that there is no further encroachment of agriculture into national parks.
- The effectiveness of protected areas should be strengthened and any ongoing illegal activities should be stopped.
- Rebuild and mitigate damage caused in gorilla habitat as a result of conflict and war.
- Species legislation in each country should be reviewed to ensure that adequate protection is provided to the mountain gorillas.
- Sufficient staff should be employed to ensure adequate protection from poaching and hunting, to regulate tourism and manage gorilla habitat.
- Gorilla Action Survival Plans should be developed by all national authorities.

Monitoring and research

There are a number of areas that need further research in order to ensure effective and appropriate conservation management. These include:

- The taxonomy of the mountain gorilla needs to be clarified to ensure effective conservation and management of the species and subspecies.
- The impact of selective logging, resource harvesting and agricultural encroachment in gorilla habitat should be assessed.
- Continued monitoring of the population numbers and status should be ensured.
- The impacts of tourism, including the risk of transfer of parasites and disease from humans to gorillas should be assessed.
- The setting up of a programme for the eradication of the invading species of plants in the natural habitat of the mountain gorillas.
- A continuous follow-up of the PNVA populations application of appropriate correcting measures.

Public awareness and training

- Community conservation projects and sustainable use projects in the management of gorilla habitat and gorilla tourism should be developed.
- Developed countries and aid agencies should be encouraged to support conservation initiatives for the mountain gorilla.

Communal development

- Contribution of the measures of mountain gorillas preservation in the economic development of the country by reducing riparian population's poverty near the sanctuaries and reserves in cooperation with the private sector and bilateral, multilateral partners. Communal development projects will be promoted, especially, the road plannings, schools expansion, health and waterworks centers, and the support to alternate activities generating money.
- Encourage the riparian communities in taking part in the management of the reserves and sanctuaries with the support of the private forester and mining sectors and of the internal and external development partners.
- Develop progressively a "Gorilla"-vision tourism respecting their own health security and tranquillity.
- Setting up a protection of the health and a warning-and-quick response system to counter the epidemic, mores specifically Ebola type.

- Analysis and promotion of the cultural customs and traditions beneficials for the the preservation of gorillas.
- Translate the lawful wordings for the preservation of gorillas into the local language (Swahili).

Long-term financing

- Consider and put a long-term financing system allowing to support the national and local NGOs involved in the preservation of the mountain gorillas and their habitats in place.

B. Rwanda

The mountain gorilla occurs in the Volcanoes NP, in the northwestern part of the country. It is part of the larger ‘Virunga population’, which include the gorillas of Volcanoes NP in Rwanda, of the Mgahinga Gorilla NP in Uganda, and of the Virunga NP of DRC.

1. Legislation

National

Gorillas are fully protected by law. The Ministry of Lands, Environment, Forestry, Water and Natural Resources (MINITERE), and in particular the Department of the Environment (DoE) is responsible for biodiversity conservation. Ordinance 18/6/73, modified by Law Decree 26/4/1973 and Law 34/2000, established the Office of tourism and National Parks (ORTPN), and governs the creation and management of PA. Forestry matters are governed by Law 47/1988.

International:

- CMS, 2005
- CBD, 1996
- WHC, 2000
- ACCNNR, 1979
- CITES, 1980

Rwanda participates in UNESCO’s MAB Programme, and has one Biosphere Reserve, the Volcanoes National Park.

2. Conservation action

- Protected Areas of importance to Gorillas conservation:

- Volcanoes NP (160km²) ranges in altitude from 2400m to 4507m. Of the total gorilla Virunga Massif population estimated at 380 in 2003, about a third are estimated to be resident in Rwanda.

- Current projects/activities with direct or potentials implications for Gorillas conservation:

In Rwanda also, a large number of international, national and local Non Governmental Organisations (NGOs), Inter Governmental Organisations (IGOs) as well as national authorities have been involved in various gorilla and ape action plans, conservation initiatives and programmes, which deal with a range of issues. Some of the main activities are described below but there are countless others.

- The Volcanoes National Park has a research zone, a tourism zone and a strict reserve zone but it does not have a buffer zone. A management plan for the park is being developed. The Mountain Gorilla Project has involved habituating four gorilla families to the presence of humans so that visitors can be guaranteed close-up views, and it is jointly financed by the African Wildlife Foundation (AWF), Flora and Fauna International (FFI), Peoples Trust for Endangered Species (PTEF) and WWF who have worked to improve tourism so as to achieve economic independence for the park (UNEP-WCMC, 2003c).
- IGCP, the International Gorilla Conservation Programme was formed in 1991, by three international conservation organisations and three protected area authorities: the African Wildlife Foundation (AWF), Fauna and Flora International (FFI) and the World Wide Fund for Nature (WWF); the Institut Congolais pour la Conservation de la Nature (ICCN), the Office Rwandais de Tourisme et des Parcs Nationaux (ORTPN) and the Uganda Wildlife Authority (UWA). Its goal is the sustainable conservation of mountain gorillas and their habitats. It aims to strengthen conservation of mountain gorillas in the Democratic Republic of the Congo, Uganda, and Rwanda, to develop a regional approach to mountain gorilla conservation, and to increase cooperation between the protected area authorities of the three mountain gorilla range states. This project has been successful in protecting mountain gorillas in the Virunga range, despite civil unrest and other setbacks. The IGCP has run a number of projects and is involved in population censuses. It works with national institutions and agencies to support conservation efforts, strengthen resources and build capacity. For example, it helps the Institut Zaïrois pour la Conservation de la Nature (IZCN) develop contacts with donor countries (Kemf and Wilson, 1997).
- The Great Apes Survival Project (GRASP) is an ambitious project of UNEP and UNESCO in collaboration with a whole range of partners which aims to lift the threat of imminent extinction faced by gorillas, chimpanzees, bonobos, Pan paniscus, and orangutans, Pongo spp. (GRASP, 2003). GRASP will develop Great Ape Survival

Plans (GASPs), raise funds to implement plans and develop a global strategy to co-ordinate efforts. In addition, an Atlas of Great Apes is being produced to provide up to-date information on the distribution status and conservation of the great apes, including the mountain gorilla.

- Gorilla based tourism has been very successful, and has generated very substantial revenues to the country. It is seen as a key tool in protecting forest conservation areas in Rwanda. Tourism in the Volcanoes NP provided Rwanda around US\$ 0.5-1.0 million in 1990. Tourism was disrupted as a result of the conflict in the area, but is now increasing again. Fees were increased in 2004 to US\$ 350 per tourist per hour contact time with gorillas. The income is spent on protecting the park, and in local development projects (Jonkman, J.,2004).

- Research

- The extensive work and research that has been conducted in and from Karisoke Research Centre has contributed vast amounts of knowledge to assist gorilla conservation. The Karisoke Research Centre has a resident director, research scientists, about 15 trackers, and camp staff. In addition, in 1978, a Veterinary Centre was established in the Virungas to monitor the health of the gorillas, in particular in response to habituation and increasing contact with humans. However, the work of both these institutions has been severely disrupted as a result of the conflict in the area. Intensive research on the mountain gorilla and its habitat has been carried out for the past 15 years, including a census in 1980 funded by WWF and New York Zoological Society. Populations have been monitored from the Karisoke Research Centre in the Virunga Volcano region of northwestern Rwanda and eastern DRC since 1967. This research has involved the collection of valuable population data and long and short term census studies (e.g. Robbins, 1995), studies on social structures (e.g. Robbins, 1996), group dynamics (e.g. Sicotte, 1995), feeding behaviour and habitat use (e.g. Byrne and Byrne, 1993; Watts, 1998) and reproduction (Robbins, 1999).

3. Needs and recommended priority actions:

Overwhelming and immediate priorities for gorillas conservation are:

Nationally:

From: GRASP 2002 Kinshasa workshop, NGASP, Trilatéral RDC/Uganda/Rwanda Agreement (January 2004).

Policy and legislation

The mountain gorilla is a protected species in all its three Range States, and so enforcement of existing legislation and provision of adequate staff and resources is essential, particularly in the face of lack of funds and inaccessibility.

- Enforcement of existing legislation needs to be strengthened.
- Improvement of the already existing legislation and of its enforcement.
- Tourism must be adequately regulated to ensure it is sustainable, and that disturbance and threats to the gorillas are minimal.
- Ensure that moneys generated from gorilla tourism are invested in local communities and in gorilla conservation.
- Policies to ensure the sustainable use of all natural resources should be developed which should minimise damage to gorilla habitat.
- Standards should be developed which minimise the opportunities for disease transmission from humans to gorillas, which could include a health education programme for local residents, good hygiene and waste disposal practice by researchers, tourists and officials in contact with gorillas.
- Complementary policy and legislation in range states should be developed and transboundary agreements made and implemented.
- Rwanda should be encouraged to become a Party to CMS and all range States should be encouraged to participate in intergovernmental agreements such as the CBD, and with FAO.

Species and habitat protection

Even though most mountain gorillas live within boundaries of protected areas, there are a number of areas that need consideration to ensure adequate protection of Gorilla gorilla beringei and its habitat. These include:

- Ensure that there is no further encroachment of agriculture into national parks.
- The effectiveness of protected areas should be strengthened and any ongoing illegal activities should be stopped.
- Rebuild and mitigate damage caused in gorilla habitat as a result of conflict and war.
- Species legislation in each country should be reviewed to ensure that adequate protection is provided to the mountain gorillas.
- Sufficient staff should be employed to ensure adequate protection from poaching and hunting, to regulate tourism and manage gorilla habitat.
- Gorilla Action Survival Plans should be developed by all national authorities.
- Improve transboundary collaboration.
- Create buffer zones around the Volcanoes National Park.

- Elaborate a viable financing plan for the Volcanoes National Park.
- Improve the effectiveness and the coordination of the anti-poaching patrols (International and regional level)
- Develop the Volcanoes NP plan of operations.

Monitoring and research

There are a number of areas that need further research in order to ensure effective and appropriate conservation management. These include:

- The taxonomy of the mountain gorilla needs to be clarified to ensure effective conservation and management of the species and subspecies.
- The impact of selective logging, resource harvesting and agricultural encroachment in gorilla habitat should be assessed.
- Continued monitoring of the population numbers and status should be ensured.
- The impacts of tourism, including the risk of transfer of parasites and disease from humans to gorillas should be assessed.
- Estimation of the gorilla's habitats carrying capacity, and the influence of climatic changes on it.

Public awareness and training

- Community conservation projects and sustainable use projects in the management of gorilla habitat and gorilla tourism should be developed.
- Developed countries and aid agencies should be encouraged to support conservation initiatives for the mountain gorilla.
- Environment education programs and public awareness should be improved.
- Make films/documentaries on the preservation.
- Organise meetings and debates in order to collaborate with the political and military authorities.
- Create tombola for social tourism promotion (allowing visiting gorillas at an affordable price)
- Create a promotional season for gorillas.

Communal development

- Contribution of the measures of mountain gorillas preservation in the economic development of the country by reducing riparian population's poverty near the sanctuaries and reserves in cooperation with the private sector and bilateral, multilateral partners. Communal development projects will be promoted, especially, the road plannings, schools expansion, health and waterworks centers, and the support to alternate activities generating money.
- Establish a micro-credit system allowing to promote in particular, efficient energy stoves, developing agroforestry, promoting local craftsmans work, promoting modern ways of beekeeping.
- Volcanoes National Park environmental economy survey.
- Encourage the riparian communities in taking part at reserves and sanctuaries management with the support of the private forest and mining sectors and of the partners of the internal and external development.
- Progressively develop a "Gorillas" vision tourism, respecting their own health and quietude.
- Put a sanitary protection system in place, and a quick response warning system to counter epidemics, and more especially the Ebola kind.
- Create a health insurance fund for the populations of the Volcanoes National Park surroundings.
- Veterinary care support for the farms around the VNP, intensive animal husbandry system support.
- Garbage collection inside the park.
- Analysis and promotions of cultural customs and traditions helping the gorilla's preservation.
- Translate the lawful wordings for the preservation of gorillas into the local language (Kinyarwanda).

Long-term financing

- Consider and put a long-term financing system allowing to support the national and local NGOs involved in the preservation of the mountain gorillas and their habitats in place.

C. Uganda

The Republic of Uganda lies on the Equator, between the Rift Valley and the northern and western shores of Lake Victoria. Mountain gorillas occur in two localities, in Mgahinga Gorilla National park, in the Virunga Massif, at the southeast extreme of the country, on the border with DRC and Rwanda, and in Bwindi Impenetrable NP, only about 25km further north.

1. Legislation

International:

- CMS, 2000
- CBD, 1993
- WHC, 1987
- ACCNNR, 1977
- CITES, 1991

Two World Heritage sites have been listed, Ruwenzori Mountains NP and Bwindi Impenetrable NP. Uganda participates in UNESCO's MAB Programme, and Queen Elizabeth NP has been designated as a Biosphere Reserve.

2. Conservation action

- Protected Areas of importance to Mountain Gorillas conservation:

- The Mgahinga Gorilla NP is Uganda smallest NP, with 33.7 km². It ranges in altitude from around 2400m to 4127m, and is located in the southwest of the country, on the border with DRC and Rwanda. The park was established specifically for the conservation of the mountain gorilla in 1991. Before that, it was a designated but unprotected reserve. The major threat facing the NP has been habitat loss due to human population growth. The open woodland, once a favoured gorilla habitat, has been completely settled prior to 1991. Settlers were evicted, and the habitats are regenerating.

- The Bwindi Impenetrable National Park, where the second mountain gorilla population occur, covers an area of 331 km², and is located in the Kigezi Highlands of southwest Uganda, on the edge of the Albertine Rift Valley, and bordering DRC to the west. Some of these gorillas occur across the border in DRC as well. The park ranges in altitude from 1160m to 2607m. Bwindi gorillas live at lower elevations and are more arboreal than gorillas of the Virungas. There is a greater density of fruit-bearing trees in the gorilla habitats of Bwindi NP than in the Virungas.

- Current projects/activities with direct or potential implications for Gorillas conservation:

Prominent gorilla conservation projects have been established in selected areas in an attempt to reverse the trend of declining population sizes. These programs have pioneered the development of ecotourism, in which tourists pay to visit areas with interesting natural and cultural features. Conservationists also work with local communities to educate people about the value of the wildlife in the area, to eliminate illegal hunting, and to assist communities in developing farming and logging methods that are habitat and gorilla friendly.

- According to the Uganda Wildlife Division (2002a), Uganda has undertaken the rationalisation of wildlife Protected Areas System Plan through the 1996 to 1998 Scientific Study, and administered special enforcement programmes in the Species Range Protected Areas (Mgahinga and Bwindi Impenetrable National Parks). In addition, Site Action Programmes have been undertaken by the Government, Regional Action Plans are being developed through the International Gorilla Conservation Programme, and a National Action Plan for conservation and monitoring of the population is being initiated through the Great Apes Survival Project, funded by UNDP.

- Hamilton et al., (2000) and Tamale (1996) described schemes that have been established in Bwindi-Impenetrable National Park to try to mitigate the loss and resentment felt by local people by the establishment of the Park and the concern at the loss of access to local resources. This includes agreements which allow controlled harvest of the park's resources, receipt of some of the tourism revenue and a trust fund to be used partially for community development (Hamilton et al., 2000). Bwindi-Impenetrable National Park opened for mountain gorilla tourism in 1993 (IUCN, 1996) and since 1991 about 3,600 tourists have been visiting the park per year generating approximately US \$1 million per year (UNEP-WCMC, 2003a). An overall management plan was prepared jointly by the Institute of Tropical Forest Conservation, CARE Development through Conservation (DTC), and Uganda National Parks although a tourism-specific plan has been in use since the beginning of 1993 (UNEP-WCMC, 2003a). A management plan for Bwindi National Park has been developed, and actions for tourism development, biological inventories etc are now in place (IUCN, 1996).

- A gorilla conservation project was started in Mgahinga in 1992, which included ecological surveys, training of rangers, cessation of illegal activities and the development of tourism (IUCN, 1996).

- Gorilla based tourism has been very successful, and there are programs to share tourism revenues with local communities. There are, however, been conflicts over revenue-sharing arrangements (Report to CBD, Gov. of Uganda, 1998).

- Research

- In 1986, the Impenetrable Forest Conservation Project (IFCP) was set up at Ruhija and the site now contains a library, laboratory equipment, and accommodation and facilities for up to 60 people. It has now have been developed into the Institute of Tropical Forest Conservation to act as a field station for the Mbarara University of

Science (UNEP-WCMC, 2003a). 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 (UNEP-WCMC, 2003a).

- Following the establishment of Impenetrable Forest Conservation Project in 1986, the main achievements to date are law-enforcement and also in the areas of inventory and monitoring, research, staff training, and demarcation and securing of park boundaries. In combating the threat of agricultural encroachment from the densely populated areas surrounding the Park, the Uganda Wildlife Authority is assisted by the CARE Development Through Conservation (DTC) and MBIFCT project, which is promoting good relations with the local community via a large-scale agro-forestry programme. In addition to its out-forest work, DTC has also studied in-forest resource use and zoning strategy (UNEP-WCMC, 2003a).
- The Bwindi-Impenetrable Great Ape Project was established in 1996 and aims to achieve a better understanding of the ecological relationship between the Mountain gorillas and chimpanzees (*Pan troglodytes schweinfurthii*) that both occur in the forest. It involves the study of the behaviour, ecology and habitat of both species. A research station, Camp Kashasha, was built in 1998 (Stanford, 1999).
- In collaboration with Uganda Wildlife Authority, Makerere University runs the Makerere University Biological Field Station in Kibale National Park and Mbarara University runs the Institute of Tropical Forest Conservation in Bwindi Impenetrable National Park (Uganda Wildlife Authority, 2002b).

3. Needs and recommended priority actions:

Overwhelming and immediate priorities for mountain gorilla conservation are:

Nationally:

From: GRASP 2002 Kinshasa workshop, Trilatéral RDC/Uganda/Rwanda Agreement (January 2004).

Policy and legislation

The mountain gorilla is a protected species in all its Range States, and so enforcement of existing legislation and provision of adequate staff and resources is essential, particularly in the face of lack of funds and inaccessibility.

- Enforcement of existing legislation needs to be strengthened.
- Strengthen the application of the already existing law.
- Tourism must be adequately regulated to ensure it is sustainable, and that disturbance and threats to the gorillas are minimal.

- Ensure that moneys generated from gorilla tourism are invested in local communities and in gorilla conservation.
- Policies to ensure the sustainable use of all natural resources should be developed which should minimise damage to gorilla habitat.
- Standards should be developed which minimise the opportunities for disease transmission from humans to gorillas, which could include a health education programme for local residents, good hygiene and waste disposal practice by researchers, tourists and officials in contact with gorillas.
- Complementary policy and legislation in range states should be developed and transboundary agreements made and implemented.
- Rwanda should be encouraged to become a Party to CMS and all range States should be encouraged to participate in intergovernment agreements such as the CBD, and with FAO.
- Continue to develop and apply transboundary agreements concerning the mountain gorillas preservation.

Species and habitat protection

Even though most mountain gorillas live within boundaries of protected areas, there are a number of areas that need consideration to ensure adequate protection of Gorilla gorilla beringei and its habitat. These include:

- Ensure that there is no further encroachment of agriculture into national parks.
- The effectiveness of protected areas should be strengthened and any ongoing illegal activities should be stopped.
- Rebuild and mitigate damage caused in gorilla habitat as a result of conflict and war.
- Species legislation in each country should be reviewed to ensure that adequate protection is provided to the mountain gorillas.
- Sufficient staff should be employed to ensure adequate protection from poaching and hunting, to regulate tourism and manage gorilla habitat.
- Gorilla Action Survival Plans should be developed by all national authorities.

Monitoring and research

There are a number of areas that need further research in order to ensure effective and appropriate conservation management. These include:

- The taxonomy of the mountain gorilla needs to be clarified to ensure effective conservation and management of the species and subspecies.
- The impact of selective logging, resource harvesting and agricultural encroachment in gorilla habitat should be assessed.
- Continued monitoring of the population numbers and status should be ensured.
- The impacts of tourism, including the risk of transfer of parasites and disease from humans to gorillas should be assessed.

Public awareness and training

- Community conservation projects and sustainable use projects in the management of gorilla habitat and gorilla tourism should be developed.
- Developed countries and aid agencies should be encouraged to support conservation initiatives for the mountain gorilla.

Communal development

- Contribution of the measures of mountain gorillas preservation in the economic development of the country by reducing riparian population's poverty near the sanctuaries and reserves in cooperation with the private sector and bilateral, multilateral partners. Communal development projects will be promoted, especially, the road plannings, schools expansion, health and waterworks centres, and the support to alternate activities generating money.
- Establish a micro-credit system allowing to promote in particular, efficient energy stoves, developing agroforestry, promoting local craftsmans work, promoting modern ways of beekeeping.
- National Park environmental economy survey.
- Encourage the riparian communities in taking part at reserves and sanctuaries management with the support of the private forest and mining sectors and of the partners of the internal and external development.
- Progressively develop a "Gorillas" vision tourism, respecting their own health and quietude.
- Put a sanitary protection system in place, and a quick response warning system to counter epidemics, and more especially the Ebola kind.
- Create a health insurance fund for the populations of the Maghina and Bwindi National Parks surroundings.

- Veterinary care support for the farms around the Maghina and Bwindi National Parks, intensive animal husbandry system support.
- Analysis and promotions of cultural customs and traditions helping the gorilla's preservation.
- Translate the lawful wordings for the preservation of gorillas into the local language (Swahili).

Long-term financing

- Consider and put a long-term financing system allowing to support the national and local NGOs involved in the preservation of the mountain gorillas and their habitats in place.