

Conservation in a Region of Political Instability: Bwindi Impenetrable Forest, Uganda

A. HAMILTON,* A. CUNNINGHAM,† D. BYARUGABA,‡ AND F. KAYANJA‡

*World Wide Fund for Nature, Panda House, Godalming GU7 1XR, United Kingdom,
email ahamilton@wwfnet.org

†84 Watkins Street, White Gum Valley, Fremantle 6162, Australia

‡Mbarara University of Science and Technology, P.O. Box 1410, Mbarara, Uganda

Abstract: *Bwindi Impenetrable is the most important forest in Uganda for conservation of biodiversity. It contains over half the world's mountain gorillas. It is surrounded by densely populated agricultural land and lies within a region of political instability. Gazetted as a forest reserve in 1932, little forest now remains outside its boundaries. Transformation of nearby communal swampland to farmland, much owned by a few individuals, shows the probable fate of Bwindi if it had not been declared a protected area. Widespread illegal logging and other activities were among reasons why the status of the forest was raised to national park in 1991. This resulted in local resentment, fed by inadequate consultation and concern about the local people's loss of access to resources. Fires were set in the forest and threats made against the gorillas. Three schemes to provide benefits from the existence of the forest to communities and involve them in park management were then instituted: agreements allowing controlled harvesting of resources in the park, receipt of some revenue from tourism, and establishment of a trust fund partly for community development. Tension between people and park has been reduced. This case demonstrates the importance of protected areas and community involvement in such circumstances. Community support is especially critical, as here, when resources available to park managers are limited and political instability endemic.*

Conservación en una Región de Inestabilidad Política: El Bosque Impenetrable Bwindi en Uganda.

Resumen: *El impenetrable bosque Bwindi es el bosque más importante para la conservación de la biodiversidad en Uganda. Este bosque contiene más de la mitad de los gorilas de montaña, está rodeado por tierras agrícolas densamente pobladas y se ubica dentro de una región con inestabilidad política. Nombrada reserva forestal en 1932, fuera de sus límites permanece muy poco del bosque. La transformación de tierras pantanosas comunales a tierras de cultivo, mayormente propiedad de pocos individuos, muestra el probable destino de Bwindi si no se hubiera declarado como área protegida. La amplia tala ilegal y otras actividades contribuyeron a que en 1991 el bosque fuera declarado Parque Nacional. Esto resultó en un resentimiento local alimentado por un inadecuado asesoramiento y la preocupación sobre la pérdida de acceso a los recursos. Se provocaron incendios en el bosque y se hicieron amenazas contra los gorilas. A partir de ello se establecieron tres esquemas para proveer beneficios a partir de la existencia del bosque a las comunidades y se les involucró en el manejo del parque, particularmente se establecieron acuerdos para la cosecha controlada de recursos del parque, la entrega de algunos ingresos provenientes del turismo y el establecimiento de un fondo de crédito en parte, para el desarrollo de la comunidad. Esto redujo la tensión entre los pobladores y el parque. Este caso demuestra la importancia de las áreas protegidas y del involucramiento de la comunidad en ciertas circunstancias. El apoyo comunitario es especialmente crítico, como en este caso, donde la disponibilidad de recursos para los manejadores del parque es limitada y la inestabilidad política es endémica.*

Paper submitted September 27, 1999; revised manuscript accepted June 21, 2000.

Bwindi Impenetrable Forest

Bwindi has been identified as the most important forest in Uganda for conservation of biodiversity (Howard 1991). It contains about half the world total of 620 mountain gorillas (*Gorilla gorilla beringei*) and many other rare or near-endemic species. Forest history during the Upper Pleistocene and Holocene is known in greater detail for the Bwindi area than for any comparable region of Africa (Morrison & Hamilton 1974; Jolly et al. 1997). Agriculture and iron working have been present since the early first millennium B.C. (Ehret 1998). By 1300 B.P. there was major forest clearance and severe soil erosion at a site only 8 km from Bwindi; the landscape was virtually treeless by 900 B.P. (Hamilton et al. 1989). Palynological evidence indicates, however, that the forest at Bwindi has never been extensively cleared (Marchant et al. 1997).

Several factors may have contributed to survival of the forest at Bwindi, even as it disappeared nearby. Parts of the forest are relatively high in elevation, have steep slopes, or have highly acidic soils. The forest may have received some protection because of the religious beliefs of the people (Sembajjwe 1995). Tribal tensions may also have played a role in preserving the forest, as they have in promoting the existence of forest elsewhere in Uganda (e.g., in the border area between the Baganda and the Banyoro; Dunbar 1960; Langdale-Brown et al. 1964). There have been tribal conflicts around Bwindi. Many Bakiga, the most numerous ethnic group in the area, migrated to areas near the forest around the turn of the nineteenth century to escape pressure from Batwa and Batutsi and later a repressive Belgian regime (Turyagyenda 1964).

Bwindi lies within a region of endemic political instability. Struggles to control the central assets of the state or assert self-esteem frequently have resulted in forceful repression or rebellion. Conflict claimed 600,000 lives in Uganda between 1971 and 1986 (Doornbos 1988). In neighboring Rwanda, an estimated 800,000 people were murdered with government involvement in 1994. On 1 March 1999, a community ranger, Paul Wagaba, and eight tourists were brutally killed at Bwindi, allegedly by rebels fighting the Rwandese Government, who were seeking publicity. There are currently three armed rebellions in Uganda, apart from the spill-over violence from neighboring countries recently seen at Bwindi. The artificial nature of Uganda's borders is a fundamental cause of its instability and is unlikely to be addressed adequately in the near future. Conservation at the site level must be pursued within this context.

Importance of Protected Area Status

The government of Uganda designated Bwindi a forest reserve in 1932 and an animal sanctuary in 1964. When

the forest reserve was established at Bwindi, much forest still remained outside its boundaries. The forest area so excluded declined by 29% between 1954 and 1991 (Scott 1992). Today, virtually no forest remains outside the protected area. The same is true of Uganda generally (Hamilton 1984). Thus, whatever the means by which larger blocks of forest were conserved historically, protected areas are required today.

Bwindi, like many other protected areas in Uganda (Hamilton 1984), has been established long enough to have gained a significant degree of acceptance. During meetings in 1990 to solicit views about establishment of the proposed park, which were attended by thousands of villagers, not a single voice called for transfer of the forest to agricultural land (Hamilton et al. 1990). There was relatively little encroachment into forest reserves in Uganda during the 1970s and 1980s, despite weak governments and civil wars. Where it did occur, it was often because politicians or other influential people circumvented the laws, not because ordinary people took action on their own (Hamilton 1984). A small tract at Bwindi was lost in this way (Wild & Mutebi 1996). Perhaps forest reserves have received some protection because they are seen as symbols of stability in an otherwise highly unpredictable and frequently dangerous world.

There is an example of recent agricultural expansion into some of the few remaining areas of unprivatized land near Bwindi, which could well mirror the fate of Bwindi if legal protection is withdrawn. The flat valleys around Bwindi commonly carry swamps. Many swamps remained undrained until recently and were used for grazing and the collection of natural commodities on a communal basis (Turyagyenda 1964). Dried papyrus stems served as one of the most reliable sources of fuel for the landless (Turyagyenda 1964). The realization that swamps could be reclaimed for agriculture became widespread only around 1980, and swamp land was then rapidly drained. Sixty-four percent of the swamp surface in Kabale District to the south of Bwindi was under cultivation by 1989–1995 (Forest Department 1995). A few influential people acquired large tracts. Most people gained nothing but rather lost access to once-communal resources. They also suffered from a deterioration in the agricultural climate, which has become warmer and drier. Climatic change is blamed locally on swamp clearance.

Local People as Beneficiaries of and Participants in Management

The 1970s and 1980s were lawless years in Uganda. Although the boundaries of the Bwindi Forest Reserve remained largely unviolated, there was massive illegal exploitation of the forest for timber, game, and gold (Butynski 1984). A survey in the late 1980s revealed that an estimated 61% of the reserve had been heavily exploited

for timber, the best hardwoods had been removed from an additional 29%, and only 10% remained intact (Howard 1991). The Game Department took actions to address these problems in the late 1980s; the status of the forest was raised to national park in 1991.

At first there was little local support for the new park because of the manner in which it was established (with insufficient consultation) and because of concerns about loss of access to resources and increased crop-raiding by forest animals (Hamilton et al. 1990). Sentiments expressed included the following (Wild & Mutebi 1996): "When you mention the national park we want to vomit." "Gorillas should be put in cages and taken to zoos." Sixteen fires, at least some deliberately set or left to burn, raged in the park during the dry season that followed its gazettement. Five percent of the forest burned. Threats were often made against the gorillas (Wild & Mutebi 1996). Under the new status of Bwindi, the local people enjoyed no rights in the park. For instance, people were not allowed to collect bark from the medicinal tree *nyakibazi* (*Rytigynia*), which grows only in the park and without which, according to many, "they would die" (Cunningham 1996). Nyakibazi is used to treat internal parasites: 89% of people around Bwindi are infested with whipworm and 34% with *Ascaris* (Ashford et al. 1990). Yet to be caught collecting nyakibazi could result in a fine or imprisonment.

The park management agency (Uganda National Parks [UNP], later Uganda Wildlife Authority [UWA]) has been faced with shortages of funds, equipment, and trained staff and has been institutionally unstable—typical features of conservation agencies in many less-developed countries. There have been five chief wardens at Bwindi in eight years. Staff numbers have been cut recently at Bwindi for financial reasons (partly to increase salaries to more realistic levels for those remaining). It became clear that the agency could not save the forest without a reasonable level of local cooperation.

Three schemes to provide benefits to communities and raise their sense of responsibility for the forest have been initiated at Bwindi as a response to these tensions. First, Memoranda of Understanding were reached in 1994 between UNP and newly created forest societies in three pilot parishes to allow villagers to collect specified quantities of resources from multiple-use zones in the park. Levels of permitted collection for plant species were based on assessments of their vulnerability to collection, life-form, growth rate, part used, degree of endemicity, habitat specificity, and commercial trade status (Cunningham 1996). Negotiations between UNP and communities were facilitated by staff of the Development Through Conservation Project of CARE International (Wild & Mutebi 1996). The beneficiaries of this scheme live near the forest and are closely linked to the forest ecosystem through resource use and crop raiding. Related to these agreements, 500 people belonging to

four bee-keeping societies in four parishes registered to keep an estimated 3000 hives within the park. Where the collection of plant resources from the park is regarded as unsustainable, as in the case of poles for building, then efforts have been made by CARE to encourage out-of-forest alternatives. Over 125 tree nurseries have been developed.

The forest societies are well established institutionally within the communities. They were developed from pre-existing local institutions and through consultation with knowledgeable resource users, such as herbalists and beekeepers. Those belonging to the societies are the people most critical to the management system because they use the forest. The pre-existing institutions are the *abataka* and the *ebibina bya engozi*—stretcher-bearer societies (Cunningham 1996; Wild & Mutebi 1996)—both community-formed groups rather than official elements of local government. The *abataka* are composed of responsible adults within a geographical area, such as a ridge or hill. The *ebibina bya engozi* were formed in the 1980s to provide transport for the sick to often distant clinics; membership is compulsory, there is a monthly fee, and punishment for noncompliance is severe.

Second, since 1994 UWA has given a proportion of income from tourism at Bwindi to community development. This scheme is open to all parishes abutting the park, about 170,000 inhabitants.

Third, in 1996 the Global Environment Facility established the first trust fund for forest conservation in Africa (the Mgahinga Bwindi Impenetrable Forest Conservation Trust) for Bwindi and some nearby forests (Echuya, Mgahinga). Income from investment is currently being used to train park staff, to develop management systems in multiple-use zones, and for community projects. This scheme covers a two-parish-wide band around the park, many inhabitants of which have no direct contact with the forest.

There are indications that the innovative measures introduced at Bwindi are being positively received. Surveys of community attitudes conducted by CARE show a steadily increasing proportion of the people in favor of the park (Wild & Mutebi 1996). There have been no recent cases of deliberate burning. Some local people have asked to view gorillas, unthinkable in the past (Wild & Mutebi 1996). In 1997, visiting scientists organized the collection of about 3000 specimens of vertebrates in Bwindi and neighboring reserves. Although authorized by permit, this level of collection shocked local people, who lodged a complaint with UWA. This type of scientific collecting contrasted markedly with the generally low levels of collection of specific forest resources allowed to the communities under their Memoranda of Understanding, painstakingly negotiated with the park. The deaths of the ranger and eight tourists at Bwindi Impenetrable National Park in March 1999 did not result in destabilization of the park, as had been predicted by some journalists (Millar & Woodward 1999).

It is perhaps invidious to judge the relative contributions of the three types of community-benefit schemes to achievement of greater stability for conservation at Bwindi. Nevertheless, there is value in maintaining direct contacts between people and the forest through use. Collection of honey and medicinal plants are permitted on a regulated basis and have exceptional cultural significance to the people at Bwindi. Their values extend beyond the purely economic (Cunningham 1996). Their inclusion in collecting agreements fosters the aspects of local culture that favor conservation.

Conclusions

An analysis of conservation models in the context of the recent violence in the Democratic Republic of Congo and Rwanda supports the conclusion that the presence of local people with an international vision of conservation working, for instance, as park guards, is fundamental to conservation success (Hart et al. 1997). International conservation agencies are urged to help augment such arrangements. Our analysis has highlighted two additional factors in conservation success. One is the importance of protected areas, despite weaknesses in governmental authority. The other is the necessity of involving local communities in forest conservation. At Bwindi this has been attempted through three schemes that provide material benefits to communities and include them in the management system of the protected area. There is evidence that these schemes have increased the level of local support for forest conservation. Bwindi is an exceptional site in terms of the innovative steps that have been taken for its conservation. The further development of conservation systems at Bwindi should continue to produce valuable lessons for many other sites of high conservation value elsewhere in regions of political instability.

Acknowledgments

We thank two anonymous referees for useful comments and information.

Literature Cited

- Ashford, R. W., G. D. F. Reid, and T. M. Butynski. 1990. The intestinal faunas of man and mountain gorilla in a shared habitat. *Annals of Tropical Medicine and Parasitology* **84**:337–340.
- Butynski, T. M. 1984. Ecological survey of the Impenetrable (Bwindi) forest, Uganda, and recommendations for its conservation and management. Report. New York Zoological Society, New York.
- Cunningham, A. B. 1996. People, park and plant use. Volume 4. Division of Ecological Sciences, United Nations Educational, Scientific, and Cultural Organization, Paris.
- Doornbos, M. 1988. The Uganda crisis and the national question. Pages 254–266 in H. B. Hansen and M. Twaddle, editors. *Uganda now*. Heinemann, Nairobi, Kenya.
- Dunbar, A. R. 1960. The British and Bunyoro-Kitara. *Uganda Journal* **60**:229–241.
- Ehret, C. 1998. *African Classical Age: eastern and southern Africa in world history: 1000 BC to 400 AD*. James Currey, Oxford, United Kingdom.
- Forest Department. 1995. National biomass study. Ministry of Natural Resources, Kampala, Uganda.
- Hamilton, A. C. 1984. Deforestation in Uganda. Oxford University Press, Nairobi, Kenya.
- Hamilton, A. C., D. Taylor, and J. C. Vogel. 1989. Neolithic forest clearance at Ahakagyazi, western Uganda. Pages 455–463 in W. C. Mahaney, editor. *Quaternary and environmental research on East African mountains*. Balkema, Rotterdam.
- Hamilton, A. C., J. Baranga, and J. Tindigarukayo. 1990. Proposed Bwindi (Impenetrable) National Park: results of a public inquiry and recommendations for its establishment. Uganda National Parks, Kampala.
- Hart, T., J. Hart, C. Fimbel, and R. Fimbel. 1997. Conservation and civil strife: two perspectives from central Africa. *Conservation Biology* **11**:308–314.
- Howard, P. C. 1991. Nature conservation in Uganda's tropical forest reserves. World Conservation Union, Gland, Switzerland.
- Jolly, D., D. Taylor, R. Marchant, A. Hamilton, R. Bonnefille, G. Buchet, and G. Rioulet. 1997. Vegetation dynamics in central Africa since 18,000 BP: records from the interlacustrine highlands of Burundi, Rwanda and western Uganda. *Journal of Biogeography* **24**:495–512.
- Langdale-Brown, I., H. A. Osmaston, and J. G. Wilson. 1964. The vegetation of Uganda (excluding Karamoja) and its bearing on land use. Uganda Government Printer, Entebbe.
- Marchant, R., D. Taylor, and A. C. Hamilton. 1997. Late Pleistocene and Holocene history at Mubwindi Swamp, southwest Uganda. *Quaternary Research* **47**:316–328.
- Millar, S., and W. Woodward. 1999. Future for gorillas and tourist industry shrouded in mist. *The Guardian* (London), 3 March:3.
- Morrison, M. E. S., and A. C. Hamilton. 1974. Vegetation and climate in the uplands of south-western Uganda during the later Pleistocene period. 2. Forest clearance and other vegetational changes in the Rukiga Highlands during the past 8000 years. *Journal of Ecology* **62**:1–31.
- Scott, P. J. 1992. Fringe benefits: minor forest product collection within buffer zones as a potential for conflict resolution in Bwindi Impenetrable National Park. M.S. thesis. Agricultural University of Norway, Ås.
- Sembajjwe, W. S. G. 1995. Sacred forests in Ganda society. *Uganda Journal* **42**:32–44.
- Turyagyenda, J. D. 1964. Overpopulation and its effects in the Gombolola of Buhara, Kigezi. *Uganda Journal* **28**:127–133.
- Wild, R. G., and J. Mutebi. 1996. Conservation through community use of plant resources. Volume 5. Division of Ecological Sciences, United Nations Educational, Scientific, and Cultural Organization, Paris.

