

Human Dimensions Research Needs in Uganda's Kibale National Park

Introduction

Kibale National Park covers 766 sq km of mid-altitude tropical rainforest in western Uganda (Figure 1). Since the 1930s, the Kibale National Park region has been recognized for its exceptional diversity of flora and fauna. In 1993, the area received national park status and is managed by the Uganda Wildlife Authority (UWA, formerly Uganda National Parks).

Makerere University Biological Field Station, located within Kibale National Park, began operation in 1970 as a small primate research facility. Today, the field station is a world-class research facility that can accommodate 65 researchers year-round. The station is located within a specially designated research zone of the park, and has excellent access to the greater park region. Scientists at the field station are affiliated with research and educational institutions from around the world, and investigate a wide range of research topics. In doing so, they serve a critical role in supplying scientific knowledge to Kibale National Park for improved park management.

The relationship between the field station and the park is evolving as each institution recognizes the important role they play in ensuring the region's overall sustainability. This paper describes the challenges facing the Kibale National Park re-

gion, and addresses the human dimensions research that is needed for the park to fulfill its conservation mission.

Conservation Objectives of Kibale National Park

The conservation objectives of Kibale are to: (1) conserve biodiversity; (2) safeguard the integrity of ecological systems and processes; and (3) promote the sustainable use of park resources, while defending the cultural heritage and welfare of local communities.

The *Kibale National Park Management Plan 1997-2001* seeks to achieve these goals by: (1) reviewing existing park by-laws and public access policy; (2) maintaining the current boundaries and trail systems of the park; (3) rehabilitating and restoring degraded park environments; (4) protecting the park through law enforcement activities; (5) assessing environmental impacts of park-related activities; and (6) as

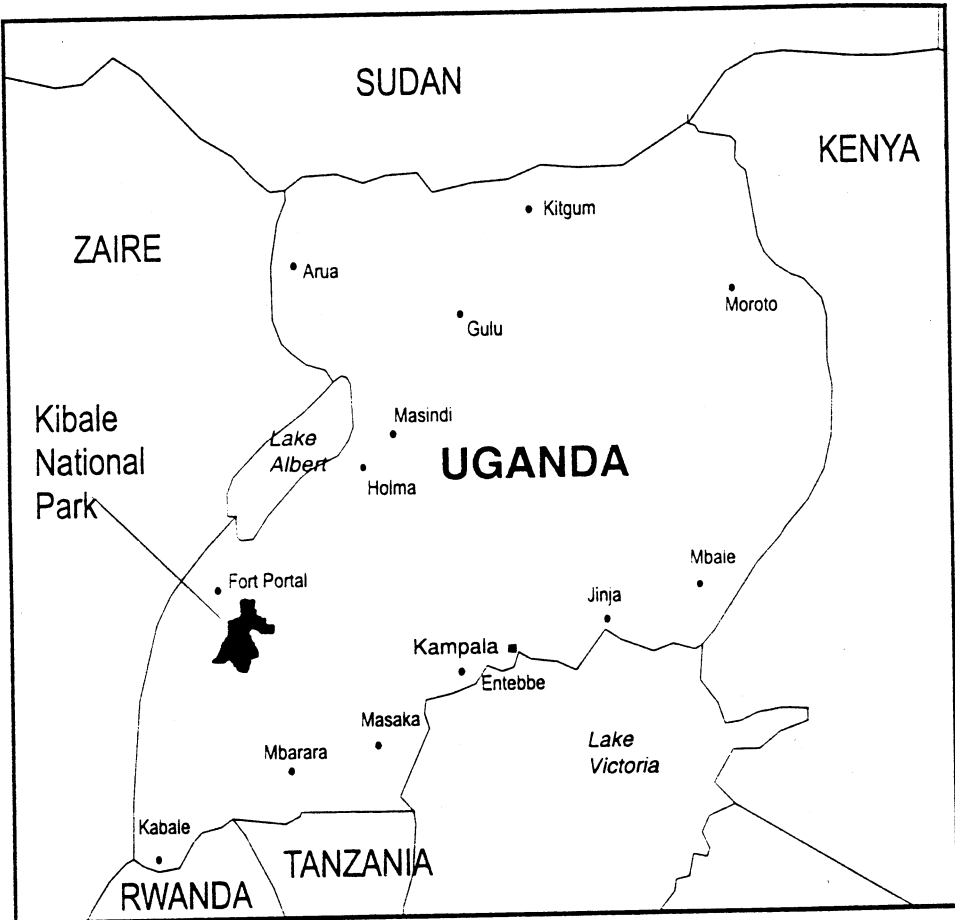


Figure 1. General location of Kibale National Park

surings that park resources are sustainably used in ways compatible with park objectives.

Research at the Field Station

Kibale National Park is best known for its exceptional diversity of primates—11 species, including chimpanzees (*Pan troglodytes*), black-and-white colobus monkeys (*Colobus guereza*) and red colobus monkeys (*C. badius*). As a result, primatological studies have been

conducted in the park for over 25 years by world-renowned researchers from institutions like Harvard, Duke, Yale, Purdue, the University of Michigan, the University of Florida, and others.

The park includes diverse ecosystems (e.g., rainforest, savanna, wetlands, rivers, crater lakes, and agricultural land). Given its physical setting, diverse biota, and varied management history, the Park is a valuable

setting for research on: primatology, plant and animal taxonomy, forest regeneration and restoration, tropical forest ecology, and aquatic ecology. Since most of these topics have been studied over many years, long-term data are available to assist future re-

search and to guide park management policies.

Park Management Zones

Kibale has adopted several management zones (Figure 2) to guide park use and management.

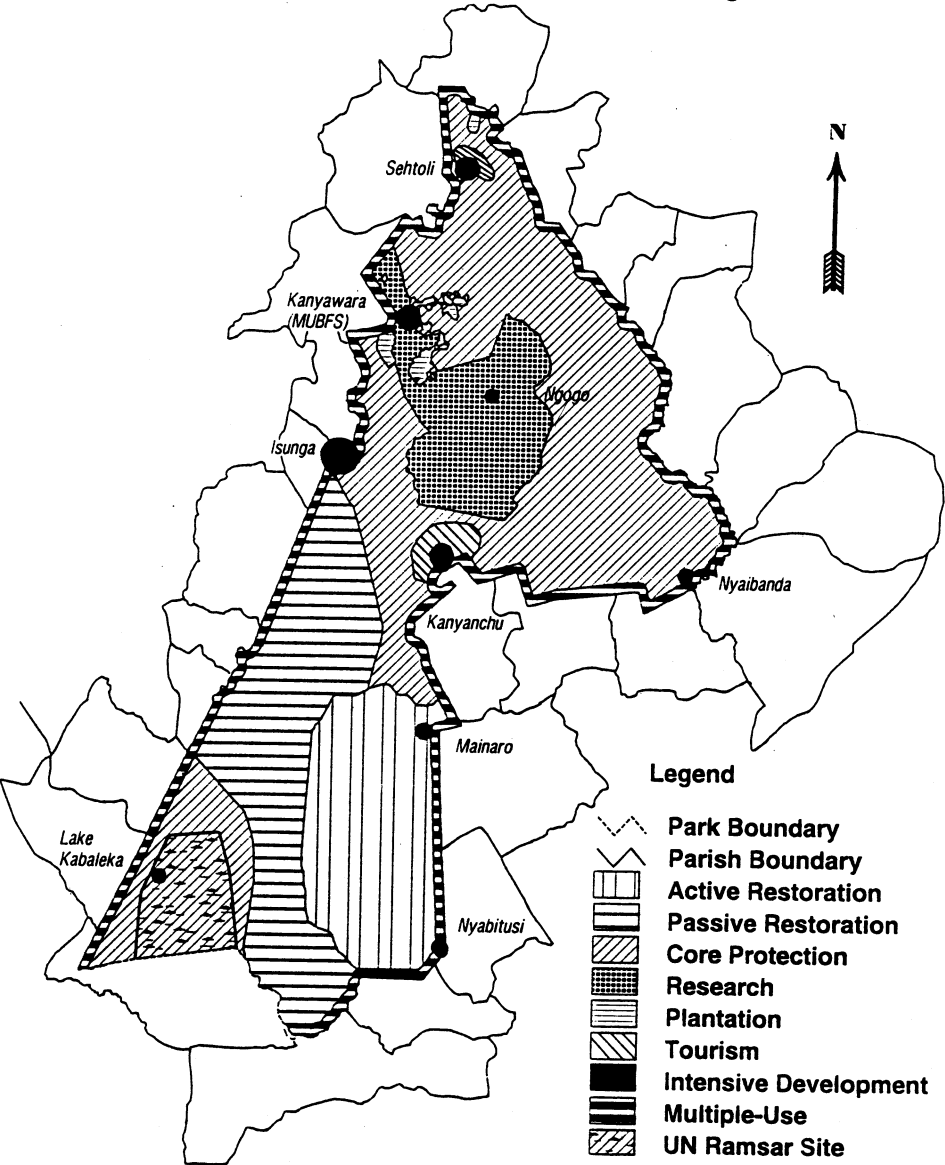


Figure 2. Management Zones of Kibale National Park.

Foremost is a large research zone that includes many ecotypes and over 200 km of forest trails. The main field station facility is at Kanyanchu, near the park's headquarters; a primitive research facility is a 4-hour hike away. The park also includes a large core protection area, degraded areas zoned for restoration, and a U.N.-designated Ramsar wetland. Kibale has two ecotourist centers: Isungu and Kanyanchu. Each includes several kilometers of forest trails for tourists. Finally, a multiple-use buffer encircles the park. This zone allows access to local communities for the sustainable harvest of flora and fauna.

Human Dimensions Research Needs

The human dimensions of national park status. The area around Kibale National Park is densely populated by indigenous Batoro and Bakiga peoples. Human pressures are increasing due to high birth rates and migration from the Kabale and Rukungiri Districts to the south. Most people in the region practice subsistence agriculture and rely on bananas, ground nuts, sweet potatoes, and sugar cane. Crops are occasionally sold for income.

Human pressure on the land is greatest in the north (where tea estates average two acres per family) and least in the east and south. A fallow system of one-to-two years is used to maintain soil fertility, mainly in the agricultural north. Small timber and fuelwood plantations of exotic tree species, especially eucalyptus, are

scattered across the area. Other activities include brewing of local beer, working in tea plantations, fishing, and limited livestock production in the southern portion of the park.

Local communities have historically relied on the forest for a wide range of products and services, including logging, hunting, cultivation of crops, collection of medicinal plants, firewood, poles, crafts materials, and the harvesting of wild coffee for income. The region's rapidly growing population, coupled with poor agricultural practices and political instability during the 1970s and early 1980s, led to illegal settlement in the park, especially within the former Kibale Game Reserve Corridor joining adjacent Queen Elizabeth National Park (Figure 3).

Given this background, human dimensions research on conflict management and the integration of people and protected areas is needed. Fortunately, the new management plan recognizes the significant challenge that surrounding human settlement pose to the park's long-term viability, as well as the research potential at the field station. Research is needed that merges park and human interests by expanding opportunities for local people to benefit directly from the park. Some examples of research areas needing attention are described below.

Crop raiding. Crop predation by wild animals is an ongoing and pervasive problem in the 27 parishes surrounding Kibale National Park. Park fauna often cross park boundaries to

plunder the crops of subsistence farmers. Elephants, wild pigs, bush pigs, baboons, red colobus monkeys, and chimpanzees pose the greatest threat. Until recently, very little has been done to solve this problem.

Current animal control methods include the use of scarecrows, drums, and bells to deter animals; guarding crops and chasing away animals; and planting live fences, preferably thorny species, in conjunction with ditches around gardens. Unfortunately, these measures have been largely unsuccessful, and Kibale authorities recognize the need for new strategies.

As the taking of wildlife is prohibited by law, and compensation for crop damage is against UWA policy, Kibale National Park has encouraged farmers to use environmentally friendly control methods. In addition, the park tracks information on crop raiding, and has conducted research on the extent of crop damage, raiding animal species by location, and the identification of additional control measures. Rangers are deployed to scare larger animals back into the park, and organize crop raiding workshops.

Exotic species and degraded areas management. At the time of designation, almost 15% of Kibale National Park was under illegal settlement by subsistence farmers. These areas included plantations of exotic species like tea, cyprus, pine, eucalyptus, and various fruits and vegetables. The Uganda Forest Department, which managed the area prior to national park designation,

was production-oriented and established exotic plantations for timber and fuel to meet local needs and reduce pressure on the natural forest. Under UWA authority, these exotics have no conservation value, and UWA policy is to rehabilitate these areas and return them to their natural state.

In 1994, Kibale began a reforestation project to restore of these sites. The project will: (1) survey plantations and mark areas for clearfelling and selective felling, as well as identify areas to be left for research purposes; (2) establish permanent plots for research and monitoring; (3) monitor logging methods to ensure they meet regulations designed to enhance regeneration; (4) conduct environmental assessments for degraded lands; and (5) destroy perennial crops and encourage natural regeneration.

Elephants and other species which uproot and consume the seedlings represent a challenge to site rehabilitation. Moreover, cattle, sheep, and goats in the northern part of the park have overgrazed and degraded the ecosystem. In addition, as plantations are replaced by natural vegetation, local needs for fuel and wood will increase, placing additional pressures on non-protected forest outside the park. These are all important areas of research to ensure the sustainability of the greater park region.

Community participation in park management. Local communities were excluded from park management prior to February 1995. This

resulted in local resentment toward the Park and UWA officials, and led to a program in the new management plan that is designed to encourage community participation in park conservation. Community conservation and development programs are designed to create environmental awareness and involve local communities in park management and the sharing of sustainable resources.

Kibale's strategy hopes to address local needs without compromising the ecological integrity of the park. To do this, 27 Park Parish Conservation Committees (PPCC) will be established, along with a Park Management Advisory Committee (PMAC). PPCCs will be composed of democratically elected stakeholders (e.g., local governments, women's and children's groups, local conservation-related nongovernmental organizations, etc.). The PPCCs are intended to act as a link between park personnel and the local communities. PPCCs also act as contacts for revenue-sharing programs, advise PMAC representatives of parish conservation concerns, and educate local people about conservation and park policies.

The PMAC comprises one democratically elected representative from each of the 27 PPCCs, plus representatives from district administration (ex officio), the district commission, senior park staff (ex officio), and the Kibale-Semliki Conservation and Development Project (ex officio). The PMAC links local communities with park personnel, passing along

the interests of communities and monitoring park activities, especially those related to the revenue-sharing program. Finally, the PMAC facilitates information flows between Kibale, nongovernmental organizations, and local communities.

Sustainable ecotourism. Kibale is located in Uganda's primary tourism zone. Its proximity to Queen Elizabeth National Park, Bwindi Impenetrable Forest National Park, the Ruwenzori mountains, and other attractions makes the park's ecotourism potential extremely high. In addition, habituated primates—as well as civil unrest in surrounding nations—add to the region's ecotourism appeal.

Revenues generated from sustainable ecotourism can potentially provide a significant source of resources to the Ugandan government, UWA, Kibale National Park, and the field station. Carefully managed ecotourism can also provide funds to local communities to enhance health and educational systems and infrastructure. The goal of Kibale's tourist development program is promote activities in suitable areas of the park that contribute to the its welfare and that of the community, with due consideration to the overall conservation and management objective of the park.

To meet this objective, Kibale plans to enlist local support to: (1) develop and implement a sustainable tourism development plan; (2) diversify ecotourist attractions and broaden the income-generating base for local people; (3) develop tourist

markets, facilities, services, and infrastructure; (4) assess the environmental, cultural, and socioeconomic impacts of tourism; (5) provide ecotourists and local communities with information on the effects of tourism; and (6) institute revenue-sharing mechanisms to distribute ecotourism-generated funds. Ecotourism has the potential to play a vital role in the economic development of the region, and promises to be a significant source of foreign exchange.

Conclusions

Kibale National Park's new management plan puts in place a broad-

ranging program designed to integrate local communities into park management. The approach is necessary since, ultimately, the sustainability of the region's human and biophysical systems are inextricably linked. Human dimensions research on crop raiding, exotic species and degraded area management, national park and human interactions, and ecotourism are essential to realizing the vision in Kibale's plan. The field station provides a critical support institution for conducting this research, but its activities must be broadened to more fully embrace sociocultural research.

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