

Mount Kenya National Park

CHALLENGES IN PROTECTION AND MANAGEMENT

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Mount Kenya has given its name to the country in which it stands. Rising on the equator to a height of 5,199 m (17,058 ft), it is Africa's second-highest mountain, after Kilimanjaro in the neighbouring United Republic of Tanzania.

It was formed some 3 million years ago by volcanic activity and is a circular mountain with a base diameter of 60 km. The original crater has long since eroded away, and the plug now forms dramatic glaciated peaks with deeply incised U-shaped valleys radiating outwards from the core. The twin summits of Mount Kenya are named Batian (5,199 m) and Nelion (5,188 m). Several other sheer peaks surround them. The third-highest peak is Point Lenana (4,985 m), which is the only trekking peak on the mountain. All the others require technical rock-climbing skills and experience.



The altitude and gradient of the mountain contributes to a diverse range of flora. Plants belonging to the Afro-Alpine zone are rare and only occur on a limited number of high-altitude areas in East and Central Africa. Below the moorlands is a belt of giant heath that gives way to parkland. Extensive stands of East African bamboo merge into several major forest types, including mixed closed canopy forest. Some 882 plant species, subspecies and varieties belonging to 479 genera of 146 families have been identified in the Mount Kenya forest. 81 plant species are endemic.

Mount Kenya has a wide variety of wildlife that dwells mostly within the natural forest. Important mammals of international conservation interest are elephant, which are widespread and numerous throughout the forest with an estimated population of 2,000. Black rhinoceros are a few remaining solitary individuals and leopard are low in density and targeted by poachers. Other species are the giant forest hog that was first described to science from Mount Kenya in 1904, the mountain bongo with a negligible population that is highly threatened, and the black-fronted duiker, which is a subspecies of restricted range.

Ungulates are otherwise represented by twelve species such as the cape buffalo, the bushbuck and the defassa waterbuck, all of which are generally abundant. Other species are the mountain reedbuck and the suni, one of Africa's smallest antelope. Plains game occurs on the dry northern moorlands where a gap in the forest – before settlement – used

to allow access from the lower savannah. Eland and common zebra range up to altitudes of 4,000 m, only a short distance from the base of the main peaks themselves.

There are five species of primate including the black and white colobus and the Sykes monkey, both of which are widespread throughout the forest. The olive baboon is common in the forest peripheries where it habitually raids crops in adjacent farms.

In addition to the leopard, the only other significant predator is the spotted hyena which ranges to elevations as high as 4,500 m. Lion are uncommon and seasonal visitors to the northern moorlands. The cheetah is an extremely rare visitor through the northern forest gap, as is the Cape hunting dog.

This abundance of species inhabits a highly diverse ecosystem and natural protected area of some 2,800 sq. km that ends abruptly against a hard-edged boundary and one of the most densely populated regions in the country.



In 1932 Mount Kenya was gazetted as a Forest Reserve with the National Park subsequently being created within the Forest Reserve in 1949, to include all the Afro-Alpine moorlands and the peak areas. Until recently, this ecosystem was managed by two separate administrations – Kenya Wildlife Service being responsible for the National Park and the Forest Department for the Forest Reserve, which included plantation and indigenous forests. In 1978 the park was internationally recognized as a Biosphere Reserve by UNESCO's Man and the Biosphere (MAB) programme.

It was in 1997 that Mount Kenya National Park and some of the surrounding natural forests in the then Forest Reserve were inscribed as a World Natural Heritage site. The World Heritage Committee at its 21st session (December 1997, Naples, Italy), recognized Mount Kenya as 'one of the most impressive landscapes of Eastern Africa with its rugged glacier-clad summits, Afro-Alpine moorlands and diverse forests which illustrate outstanding ecological processes'.

A holy mountain

The local communities who live around the mountain are the Kikuyu, Embu and Meru tribes who regard this holy mountain as the spiritual dwelling place of their traditional god Ngai. The mountain is seen by these tribes as the destination of their ancestors. It produces eternal water, provides fertile soil and good rainfall. The mountain is the local people's past and future. Prayers and rituals are carried out in many sacred areas in the forest, in particular among sacred trees such as the Mugumo (*Ficus* spp.), to bring rain and bless the community.

Of the many holy men who routinely visit the mountain for sacred purposes, the most striking is the case of Ephraim M' Ikiara, who used to scale the main peaks of Mount Kenya to carry out interdenominational prayers. He rock-climbed the mountain without the use of any technical climbing equipment or protective clothing and is known to have achieved the summits of Mount Kenya four times. In January 1996 the author of this article found the holy man unconscious in a bivouac on the summit of Nelion (5,188 m). It transpired that it had taken him a week to walk from his home near Meru to the base of the peaks, where his food had run out. It had then taken him three days to climb the peaks where he had been stranded for ten days and had been unable to descend due to a blizzard. Using ice and snow for water and scraps of dehydrated food that he found in the bivouac, he had managed to survive until he fell into the unconscious state in which he was found. He was revived and cared for overnight and the next day was cliff-rescued off the peak and slowly brought down the mountain. The holy man, who was aged 65 at the time, recovered remarkably quickly and was sent back to his home. He has not climbed the main peaks again.

Of a more practical nature, almost one-third of Kenya's population depends on this mountain as a water catchment reservoir. Kenya is a country with only 1.7% forest cover, mainly spread over five mountain 'water towers', Mount Kenya being the biggest of these. Mount Kenya provides water to the country's largest river, the Tana, as well as to the Ewaso Nyiro River. The Tana supports hydro power stations that provide 55% of the country's electricity. Major irrigation and settlement schemes are also dependent on these two rivers. Due to unregulated use of water, tribes from arid areas are experiencing seasonal droughts from rivers that used to flow permanently. Research has shown that the dry season abstraction rate in the upper Ewaso basin is between 60% and 95%, with 90% being illegal. Future management of water resources in Kenya will require strong regulation and the formation of organized water users' associations involving all stakeholders along the entire course of all main catchments.

The Shamba System

In addition to its watershed values, the forest provides a wide range of domestic benefits. Uses authorized by the Forest Department include firewood collection and livestock grazing – activities allowed as a management tool to suppress weeds in forest plantations and reduce biomass that could pose a fire hazard in the dry season. Other uses include beekeeping, fodder collection, water source, crop cultivation and provision of building

materials and softwood for wood-based industries. Commercial forestry plantations were established using the practice known as the 'Taungya System', initially developed in Burma in the nineteenth century and adopted in Kenya in colonial times as the 'Shamba System' or Non-Resident Cultivation. This involved farmers cultivating agricultural crops in areas intended for softwood plantations and inter-cropping with tree seedlings until the tree canopy outshaded the growth of the crops. Thus the Forest Department was able to benefit from the use of free labour in establishing their plantations while the farmers would contribute to national food production from the sale of their crops. However, poor enforcement and inadequate supervision, among other abuses, resulted in the virtual failure of plantation establishment.

Various other factors have contributed to the severe environmental degradation of Kenya's forests, leading to public scrutiny and outcry on forest destruction. Several institutions, conservationists and communities subsequently requested that Kenya Wildlife Service assess the environmental state of the Mount Kenya ecosystem.

Kenya Wildlife Service therefore undertook a systematic aerial survey to determine the threats to the forest. The survey involved 53 intensive flight-hours at low level over the canopy. The results were published in August 1999 and established that all Mount Kenya's forests were being affected by illegal activities leading to massive destruction, particularly in the mixed broadleaf forest, and an overall decrease in forest area. A total of 14,662 trees have been destroyed, including 6,720 camphor trees, in addition to 8,279 ha of forest having been extensively damaged. Charcoal kilns numbered 2,465, livestock was 4,258 head, 143 fields of marijuana covered almost 200 ha, 21 sites were affected by fire; and 120 landslides were found, mostly coinciding with heavily logged areas. Of the land under Shamba System cultivation, 76% was not planted with any tree seedlings and many natural areas had been encroached by settlement. The situation clearly indicated that the Forest Department lacked the capacity to manage and protect the Forest Reserve, with disastrous consequences for biodiversity, water catchment, soil and industrial forestry. Although legislation concerning forests is fairly comprehensive and spread over several legal acts, they were administered without co-ordination by persons unaware of the conservation significance of their powers. Furthermore, the penalties in most of this legislation are very low in comparison to the potential gains from illegal activities and are consequently not an effective deterrent.

This well-catalogued and publicized devastation led to a groundswell of public criticism and was the catalyst for the Government of Kenya to take major policy decisions. The most significant was the gazetting of Mount Kenya National Reserve in place of the Forest Reserve, excluding plantations, on 24 July 2000, and a transfer of management authority from the Forest Department to Kenya Wildlife Service. This new status afforded enhanced protection over the indigenous forests and Kenya Wildlife Service immediately mounted special operations to round up illegal material and bring to justice those who were apprehended. Some 1,300 arrests have been made and forest produce impounded, including over 4,000 pieces of indigenous hardwood. Marijuana fields occur deep within the forest and are now routinely accessed by helicopter with ranger units uprooting and burning the narcotic.

Wardens and rangers

Although far from optimum, Kenya Wildlife Service capacity is substantial and consists of an aircraft based at Mount Kenya that allows monitoring and rapid reaction to the adverse situations already outlined; as well as fire-fighting, anti-poaching and mountain rescue incidents and routine surveillance. The aircraft is an essential management tool for such a large and complex protected area. Kenya Wildlife Service is a uniformed and armed unit whose wardens and rangers receive formal paramilitary training. The rangers are deployed as fully equipped mobile units to many locations in Mount Kenya and to date they continue to operate in the protection of wildlife and forests. Meanwhile the Forest Department remains at Mount Kenya specifically to continue managing the commercial plantations, but modalities regarding the jurisdiction and management of these areas still need to be formalized.

In 2002, Kenya Wildlife Service, in partnership with the United Nations Environment Programme (UNEP), the Durrell Institute of Conservation and Ecology of the University of Kent (UK) and the Kenya Forests Working Group, undertook a comparative assessment of changes in the forests since the critical situation of 1999 and the management shift of 2000. One methodology used was a sampling of aerial surveys of randomly selected areas, using the 1999 results as a baseline for comparison. Other methodologies applied were time-series analysis of satellite imagery and ground surveys.

The results showed an overall improvement in the forests since the change of management in 2000. Both aerial and ground surveys showed that logging in the indigenous forest has decreased by over 90% and that clear felling of extensive stands of forest is no longer occurring. Areas under marijuana cultivation have also reduced, with only small-scale fields recurring. Enforcement of Shamba System regulations and a replanting programme by the Forest Department and some community groups was instrumental in achieving a significant reverse in plantation backlogs as recorded in 1999.

The change in management has only been in place for three years and the major decrease in threats to the forest is due primarily to the efforts of Kenya Wildlife Service in protecting an area that had hitherto seen unrestricted and uncontrolled exploitation. Further strengthening of this capacity remains a high priority, particularly with regard to charcoal production and protection of wildlife from the bush-meat trade.

Commenting on the results of the survey, Dr Klaus Toepfer, Executive Director of UNEP, said: 'UNEP has been delighted to have been associated with this important report. It shows that where there is a will to address environment and development issues, there is a way. We are now hoping that the Global Environment Facility (GEF), the multi-billion dollar fund that backs developing world projects, will assist further in better managing the land and rehabilitating the rivers in the Mount Kenya area.'

Considerable local and international support is forthcoming for Kenya Wildlife Service, the Forest Department and particularly the communities that live in the vicinity of Mount Kenya. The UNESCO World Heritage Centre, with funding from the United Nations

Foundation (UNF), has awarded a grant of US\$25,000 for the development of a comprehensive Management Plan for the Mount Kenya ecosystem.

An additional US\$15,000 to facilitate community participation in the planning process has come from the United Nations Development Programme (UNDP), the Global Environment Facility Small Grants Programme (GEFSGP) through the Community Management of Protected Areas Conservation (COMPACT) initiative. They have also financed many other community projects around the mountain. The European Union Biodiversity Conservation Programme (BCP) has funded a Kenya Wildlife Service initiative of various community enterprises and income-generating projects that depend on the well-being of the forest to succeed. Other impending assistance is anticipated from the US Agency for International Development (USAID) and a major project from the International Fund for Agricultural Development (IFAD), UNEP and GEF. Numerous smaller NGOs and individuals have also provided support.

Management Plan and community-based projects

The Management Plan is still in draft form and requires further input from the stakeholders. Clear policies and guidelines for the management of the area, particularly with regard to the overlap of jurisdiction between Kenya Wildlife Service and the Forest Department, need to be formulated to hasten the completion of the plan. The traditional rights of local communities to use the forests are inadequately covered and they experience great hardship from the depredations of wildlife, such as herbivores and primates raiding crops and carnivores killing livestock. Injuries and fatalities are occasionally inflicted upon people, particularly by elephant and buffalo, and compensation is usually delayed and always paltry.

Community-based projects are hampered by this situation and resolving the human/wildlife conflict is the highest priority of affected communities. Barriers in the form of electric fencing can be problematic for several reasons, including failure through lack of maintenance and restriction of wildlife movement. Donors are often reluctant to fund such projects but, assuming that these potential issues are addressed, electric fences are the most effective means of alleviating human/wildlife conflict. On Mount Kenya, a simplified two-strand fence set 2 m above the ground that specifically restricts elephants has proved successful and relatively inexpensive to install as well as easy to maintain. The Mount Kenya ecosystem is practically cut off by human settlement but ancient wildlife migration routes are still used, particularly by elephant. Plans are under way to open a corridor linking the mountain to a conservation and dispersal area to the north to allow the free migration of elephants, which we hope will lead to the opening of other routes.

Mount Kenya's great potential for tourism remains largely untapped, particularly in the lower forests. However, the nature of the terrain means that little road infrastructure is in place for vehicle-based tourism. Hiking in the forest can be dangerous as many large mammals can pose a threat. Armed and experienced rangers would be required both for guiding and protection.

Tourists entering national parks in Kenya pay fees and there are presently four official entrance gates into Mount Kenya, one of which provides access to a wildlife-viewing lodge in a forest clearing overlooking a salt lick and waterhole. The other three gates are at the base of the trekking routes that lead to the alpine zone and the high mountain. The main peaks are an international focal point for people with high-altitude mountaineering experience and require considerable technical expertise to climb. The third-highest peak, Point Lenana (4,985 m), is a popular destination for hikers and not a technical climb. Generally, the high mountain is sufficiently developed and utilized by visitors, and it employs the services of the several hundred guides and porters drawn from the surrounding communities. Between 20,000 and 25,000 visitors per year visit Mount Kenya, half of these being foreign tourists. Management, particularly at high altitude, is a challenge and mountain rescue incidents and control of visitors are full-time activities.

In January 2003 a joint World Heritage monitoring mission between UNESCO and the World Conservation Union (IUCN), visited Mount Kenya to evaluate the state of conservation of the site, make specific proposals for future developments and recommendations on issues that need to be addressed. The park management was encouraged to regularly monitor changes and the level of threats and to harmonize the issues of jurisdiction between Kenya Wildlife Service and the Forest Department. The mission also supported a proposal to extend the World Heritage boundary to the lower slopes without touching areas of encroachment or commercial forestry plantations. Kenya Wildlife Service were urged to further involve communities and other stakeholders, including UNESCO and IUCN, in finalizing the Management Plan and to develop effective communication and community participation in its implementation.

The Mission was briefed on several other proposals and key issues, including plans to reintroduce the bongo antelope to Mount Kenya from a captive breeding programme to be launched with zoo animals brought in from Europe and North America. The establishment of a Research Station is also due to take place this year.

The positive developments on Mount Kenya are balanced by the consequences of countrywide environmental degradation that is already apparent in the day-to-day existence of communities struggling with poverty. Greater efforts are needed at all levels to practically engage those whose livelihoods and cultural identity depend on the integrity of Mount Kenya in the conservation of this great mountain for the future.

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