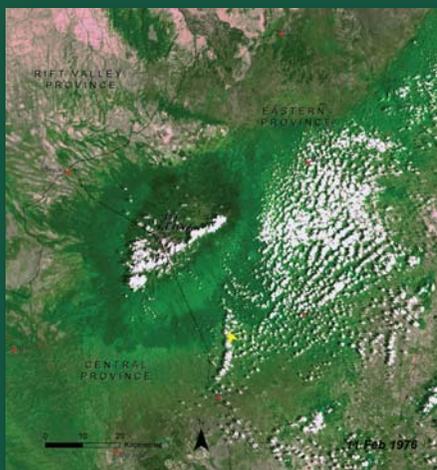




The Five Water Towers of Kenya



Mount Kenya: Disappearing Glaciers

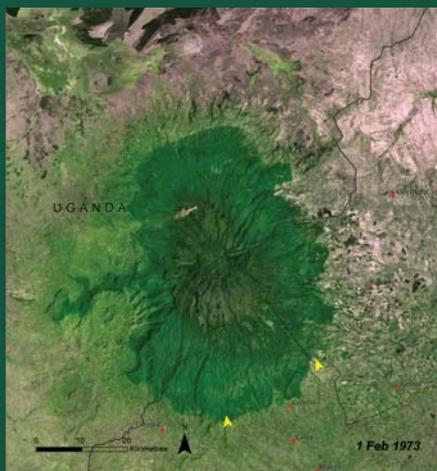
Mount Kenya lies directly on the equator, 180 km north of Nairobi. Its scenic snow-capped, rising above the surrounding savanna, can be seen for hundreds of kilometres. It is an iconic symbol of Kenya known around the world. In addition to its beauty, Mt. Kenya's slopes are valuable for timber, farmland, and tourism and as a critical water catchment for much of the country. From the forest belt growing between 3 000 and 4 000 m to the glacial summit at 5 199 m, Mt. Kenya receives over 2 000 mm of precipitation annually. This water feeds the Ewaso Nyiro River and the Tana—Kenya's largest rivers.

Only 11 of the 18 glaciers that covered Mount Kenya's summit a century ago remain, leaving less than one third of the previous ice



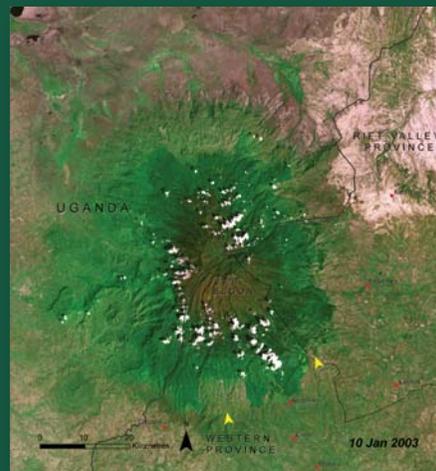
cover. The ice on Mount Kenya has also become thinner. While this trend dates to the late 1800s, emerging evidence suggests that it has accelerated since the 1970s.

Intense population growth around Mount Kenya between the 1960s and 1990s, along with unsustainable exploitation of forest resources, further threatened its integrity. Large areas of indigenous forest have been cleared for tree plantations, extensive illegal logging of valuable species, and small-scale illegal activities such as charcoal production, marijuana growing, and unauthorized farming. These activities have degraded many areas of natural forest, new management policies and practices, and improved enforcement put in place since 2000 have significantly reduced these threats.

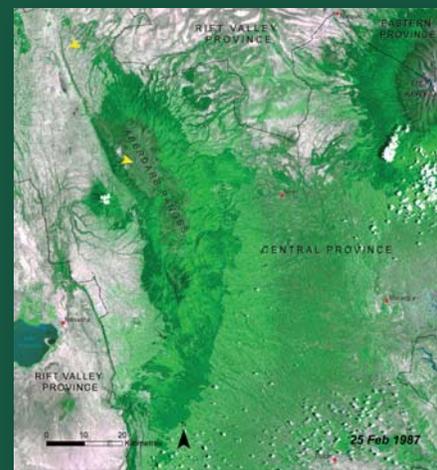


Mount Elgon: Legal Logging

Mt. Elgon lies north of Lake Victoria on the Kenya-Uganda border. Its Kenyan side is protected by Mt. Elgon National Park, Chepkitala National Reserve, and Mt. Elgon Forest Reserve; the latter covers 73 706 ha. Mt. Elgon forms the upper catchment area for two major rivers, the Nzoia and Turkwel. The forest contains globally threatened species, including some endemic to the Afro-montane region and others endemic to Mt. Elgon alone, making the area a priority for species conservation and a major attraction for tourists. A rapidly growing population of around two million people in the area around the mountain puts very high pressure on this unique ecosystem. Authorized logging has been



practiced in Mt. Elgon since at least the 1930s. In the 1970s, land was excised from the Mt. Elgon Forest around Chebyuk where 600 families were settled to make way for a national game reserve. While a 1986 Presidential Decree banned all logging in Kenya's natural forests, it excluded Mt. Elgon where legal logging continues. Agricultural encroachment and charcoal production are degrading the forest in many areas as well. In many cases forest has been cleared for crops on slopes that are not suitable, making them susceptible to erosion and landslides. Continued degradation and forest loss on Mt. Elgon threatens to undermine the area's crucial role as a water catchment for the surrounding region and will reduce the viability of the ecosystem itself.



The Aberdare Range: Forest Devastation

The Aberdare Range spans the equator west of Nairobi rising over 4 000 m at its highest peak, Oldonyo Lesatima. Its western escarpments drop dramatically toward the Rift Valley. To the east its slopes gradually, carrying water into the Tana River and to the Seven Forks hydropower plants where over half of Kenya's electricity is generated. On their way into the Tana, the Chania River flows into Sasumua Dam and the Thika River into Ndakaini Dam, from which Nairobi's more than three million people obtain most of their water. The Aberdares also form part of the upper catchments of the Athi, Ewaso Nyiro, and Malewa Rivers.

Reserves protect the forest belt of the Aberdare Range, including Aberdare, Kikuyu Escarpment, Kijabe Hill, Kipipiri, and Nyamweru and



760 km² of the forest falls under the protection of Aberdare National Park. The forests cover over 250 000 ha. The Range is characterized by a high diversity of forest types due to the wide altitudinal range (1 800 to 3 600 metres) and climatic differences between slopes.

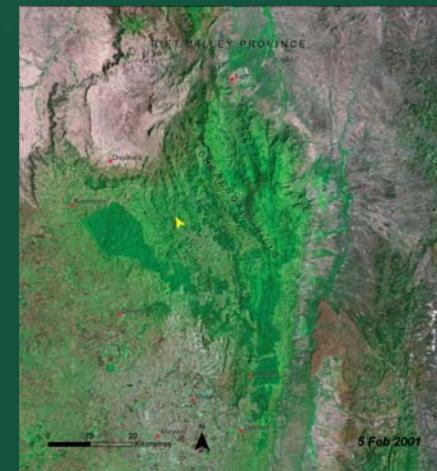
The forests are being devastated by large-scale, uncontrolled, irregular, or illegal human activities, in particular charcoal production, logging, encroachment and settlements, cultivation of marijuana and other crops, and livestock grazing. The assault on these forests poses a grave threat to Kenya's water security, biodiversity conservation, and economic development.



The Cherangani Hills: Indigenous Forests

The Cherangani Hills, an ancient fault-block formation of non-volcanic origin, are a series of gently rolling hills that form an undulating upland plateau on the western edge of Kenya's Rift Valley. They lie between the Elgeyo Escarpment to the east and Mt. Elgon to the west, rising to 3 365 m above sea level at Cheptoket Peak in the north-central section. Located on the Cherangani escarpment, the hills are largely covered by a series of gazetted indigenous Forest Reserves. River Nzoia has its source in these Hills. Over the last 20 years, local inhabitants have encroached on the forest land converting it to farmlands.

Because the Cherangani Hills are one of the five most important water catchment areas in Kenya, a joint project of UNEP and the



Department of Resource Survey and Remote Sensing monitored the change in forested area between 2000 and 2003. It found that the Cherangani Hills were the least affected of the five forested water towers, with 174.3 ha deforested. Since this forest cover is indigenous, however, it was recommended that the area be closely watched to prevent further destruction.

The forests of the Cherangani Hills bear scenic features suitable for ecotourism and are home to the rare De Brazza's Monkey. The Hills are also classified as an Important Bird Area (IBA) with over 73 forest-dependent species recorded of which four species are regionally threatened.

The Mau Forest Complex: Degrading Forests

In spite of its national importance, many areas of the Mau Forest Complex have been deforested or degraded; much of this damage taking place in the past few decades. Degazettement of forest reserves and continuous widespread encroachment have led to the destruction of over 100 000 ha of forest since 2000, representing roughly one-quarter of the Mau Complex's area (yellow arrows). This series of satellite images documents 35 years of incremental destruction of forest area, punctuated by dramatic excisions.

In 2001, 61 023 ha of forest in the Mau Complex were excised including over half of Eastern Mau Forest Reserve. Eastern Mau Forest is the headwaters for the Njoro River which drains its eastern slopes into Lake Nakuru, one of Kenya's prime tourist attractions. One quarter of South West Mau Forest Reserve was excised. The Southwest Mau Forest is the primary source of the Sondu River, site of the future Sondu-Miru hydro-power plant. All of Molo Forest Reserve was excised.

Between 1973 and 2005, Maasai Mau Forest lost over 8 214 ha of forest within its official boundaries, which were established to protect the forest. Almost 43 per cent of that loss occurred in just two years from 2003 to 2005. Just outside the gazetted

boundaries of Maasai Mau Forest nearly 32 000 ha were lost during the same time period. The eastern slopes of the Maasai Mau are a crucial catchment for the Ewaso Nyiro River, as the western slopes are for the Mara River. Forest loss in critical catchment areas for the Sondu, Mara, Molo, Naishi, Makalia Nderit, and Njoro Rivers will result in ecological and hydrological changes, which threaten the sustainable future of areas downstream.

In addition, people have encroached into some 43 700 ha in the Mau Complex's remaining protected forests. The desirability of many of these areas for agriculture attracts a rapidly growing population and has led to rapid conversion of large areas of forest to farmland. Extreme land cover changes such as these can have serious consequences both within the forest and downstream in the form of water shortages, health risks, desertification, habitat destruction, sedimentation, erosion and even alteration of the micro-climate.

Loss of forest at this rate is unsustainable and threatens the security and future development of Kenya. Realizing the goals of Vision 2030 will depend in a very significant way upon the sustainable management of Kenya's natural assets. Kenya's five "water towers" are key among those assets.

