

Africa's Environment in Crisis

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Africa is the oldest continent on Earth, having remained in place since the breakup of Pangaea 200 million years ago. The array of ecosystems and organisms contained within its forests, rivers, deserts, wetlands, mountains, and savannas, is unequalled in the world. Those ecosystems and the organisms they host are under siege.

The human species evolved at the margins of the equatorial forests of Africa, and people have substantially influenced African ecosystems for hundreds of thousands of years. Early hunter-gatherers used fire to turn dry woodland areas into savanna grassland, for example. But the frantic colonial exploitation of resources that characterized the slave, rubber, and ivory trades and the introduction of the exotic crop species that made rain forest agriculture possible (such as bananas, maize, cassava, taro, and batata) threw African environmental change into a new gear. The escalating pace of that change now threatens the ecological integrity of the entire continent. The poverty prevalent in so much of Africa combines with exploding population growth and a lack of enforced environmental regulation to produce the ecological degradation, that, along with the cry of great human suffering, dominates Africa's landscapes today.

Deforestation

There has probably been more African forest destruction in the past 60 years than in the preceding 10,000. While timber harvesting in virgin forests is often limited to a few commercially valuable tree species--only about one tree per hectare is removed by most loggers--and does not itself destroy a forest, the logging roads left behind by the timber industry enable other, more harmful incursions. The roads provide deep forest access to hunters seeking bush meat. They are also avenues of invasion for exotic species, some of which may out-compete already beleaguered endangered organisms. Logging towns may act as magnets to other Africans seeking protection from civil war (as in the northern Congo) or seeking an income base. As the forests are cut into smaller islands of habitat, they become still more vulnerable to hunters entering from their edges and the fragmentation cycle accelerates.

Drought and civil wars also contribute significantly to forest degradation as they drive refugees away from their traditional lands and livings into new, forested areas where the only living to be made is from slash-and-burn agriculture and hunting for bush meat. Increases in urbanization and industrialization have also raised the demand for wood products, especially firewood and charcoal. Consumption of forest products nearly doubled in Africa during the period from 1970 to 1994. Africa lost 39 million hectares of tropical forest during the 1980s and another 10 million hectares by 1995. Unless energy alternatives to firewood can be found, as well as alternative sources of income for people whose lives depend on forest consumption, deforestation will continue to accelerate.

Desertification

As Africa's forests shrink, its deserts grow. A report by the International Institute for Environment and Development estimates that desertification threatens more than one-third of Africa's land area. It is especially bad south of the Sahara Desert, where the desert is said to be growing in parts by many miles each year. But in Northern Africa, too, more than 432 million hectares (57 per cent of the total land area) are threatened by desertification. Deforestation and overgrazing are two contributors to desertification, and increasingly frequent droughts exacerbate the problem, but the causes and mechanisms of desertification are still hotly debated among scientists. Some evidence suggests that the ebb and flow of the deserts occurs in a natural cycle, while others argue that even if there are such cycles, human activity has sped the process up significantly.

Wildlife Under Siege

As forests shrink and deserts grow, wildlife populations are forced into islands of habitat. Increasingly large and undernourished human population's desperate for arable land to cultivate surround these islands with short-lived farms and penetrate them in search of wild animals to eat or sell. Environmental degradation in Africa is exponential; the worse things get, the faster they get still worse.

Thousands of tons of wild animals are hunted every year, both by commercial poachers and by subsistence hunters. Elephants are taken for their ivory, rhinos for their horns, and gorillas for their hands and feet. But the bushmeat trade, hunting for food, has an even greater impact on wildlife populations, many of which are already balanced on the brink of extinction. According to the Convention on International Trade in Endangered Species (CITES) list, hunting of wildlife for food is a major problem for 30 endangered African species including forest antelopes, monkeys, elephants, chimpanzees, and gorillas.

The mass movement of refugees fleeing wars leaves areas denuded of wildlife. The Rwandan refugee crisis in mid-1994, for example, led to the influx of more than 600,000 people into the Ngara District of northwest Tanzania. Considerable environmental damage was caused by desperate people harvesting firewood and building poles, and poaching in the Burigi and Biharamulo Game Reserves. Cheap refugee labor was also employed in both legal and illicit charcoal and timber operations. Refugees also put about 15,000 hectares of former forest under cultivation in Ngara alone.

In 1930, between five and ten million elephants roamed Africa's forest savanna and semi-desert. By 1989, that number had dropped to 600,000. In the decade between 1979 and 1989 the African elephant population was cut in half. For the most part, elephants are hunted for their ivory. As the big bulls with the largest tusks are wiped out, poachers resort to killing cows and sub-adults. To collect the same amount of ivory in 1988 as they did in 1979, poachers needed to shoot twice as many elephants. The widespread killing of females broke down the species' reproductive capacity and its matriarchal social order.

In 1990, CITES moved African elephants to Appendix 2 on its endangered species list, prohibiting any commercial trade and making international trade in ivory much more difficult. Many African elephant populations are now in recovery. However, the habitat loss resulting from human

overpopulation, and the increased contact and conflict, will continue to threaten the elephant's existence.

Boston College wildlife biologist David Wilkie studies the Congo Basin, home to what are probably Africa's least damaged forests. He estimates that in the Congo Basin alone wild animal consumption is in excess of one million metric tons a year. That is equivalent to four million cows. Wilkie estimates that as much as 80 percent of animals trapped by wire snares die and spoil before hunters even bring them in. So, many more animals are killed than are actually eaten.

Mainland Africa is home to 58 primate species. More are still occasionally discovered. The Congo Basin hosts at least 30 species, perhaps 32. (The exact number depends on unresolved taxonomic interpretations.) Africa has three of the world's four great ape species: bonobos, gorillas, and chimpanzees. The Congo has all three. The majority of primates are restricted to the high-rainfall forested tropics with a few species inhabiting woodland savannas and montane regions. Most of the endangered and vulnerable species occur in tropical lowland forests.

The destruction of forest and woodland habitat and the increased activity of poachers pose the biggest threats to the survival of Africa's primates. Areas of greatest crisis are the Guinean forest block of West Africa and the coastal forests that extend down the eastern shores of the Gulf of Guinea. The animals are forced into ever-shrinking "islands" of habitat where they are increasingly vulnerable to hunting, disease, and environmental change.

Mountain gorillas (*Gorilla gorilla beringei*) are the most threatened of the three gorilla subspecies. Only about 600 individuals survive. That number reached its nadir, 250, in 1981. Habitat loss due to clearing of forest for cultivation is the main cause of decline. But the poaching of these gorillas for food and for parts sold as souvenirs is also a big problem. Gorillas are also bycatch; they are inadvertently trapped in snares set for the more abundant duikers. Civil wars in Rwanda and Congo have caused hundreds of thousands of refugees to pass through the montane forests that host mountain gorillas, causing further pressures.

Africa's most abundant gorilla is the western lowland gorilla, (*Gorilla gorilla gorilla*), which lives in the forests with population estimates ranging from 35,000 to 100,000. Most of these are in Gabon and the Republic of Congo, which are 85 percent forested and have Africa's lowest human populations. Although western lowland gorillas are far more numerous than the other subspecies, they are frequently killed for food and medicine. Gorillas are also susceptible to ebola. Their survival is hardly secure.

While an estimated two million chimpanzees inhabited the forests of Africa in 1900, only about 150,000 survive in the wild today. All three subspecies of chimpanzee are in decline, but the western chimp (*Pan troglodytes verus*) is under the greatest threat. There are probably fewer than 17,000, and only a small number are protected in conservation areas. The central chimp (*Pan troglodytes troglodytes*) is better off, with a population of about 80,000 individuals, most of those in Gabon. There are approximately 96,000 remaining Eastern Chimpanzees (*Pan troglodytes schweinfurthii*), which occupy the savannas and rainforests of Burundi, Central African Republic, Rwanda, Sudan, Tanzania, Uganda, and Zaire. Habitat loss and poaching are big problems for all three sub-species, and young chimps are also caught for the pet and medical trade.

A second species of chimpanzee, the bonobo (*Pan paniscus*), humanity's closest genetic relative, lives only in one block of tropical forest south of Congo River in the Democratic Republic of Congo. It is also in decline, subject to the same pressures as its cousins. It has a total population of between 10,000 and 25,000 individuals.

In the fall of 2000, John Oates, a primatologist at Hunter College of the City University of New York, reported that Miss Waldron's red colobus (*Procolobus badius waldroni*), a monkey that had survived only in isolated chunks of forest in Ghana and the Ivory Coast, had gone the way of the quagga (*Equus quagga*) and the blue buck antelope (*Hippotragus leucophaeus*), all now extinct. Miss Waldron's is the first primate known to have become extinct since the 1700s. But the killing of primates is escalating so quickly, warns primate biologist Jane Goodall, that Africa could lose all of its apes and many of its monkeys within a decade and a half. The Maryland-based Bushmeat Crisis Task Force predicts it could be even sooner.

In addition to Africa's primates, elephants, and other charismatic megafauna, many other less-famous species are in dire jeopardy as well. For example, the Ethiopian wolf (*Canis simensis*), once common, now numbers only 500 individuals. The northern white rhinoceros (*Ceratotherium simum cottoni*) has become one of the rarest mammal species on Earth; only about 30 remain in the wild.

There were 100 million people in Africa in 1900, today the number exceeds 800 million, and it may hit 1.6 billion in 25 years. The continent has the fastest mean annual population growth rate on Earth: 2.9 percent. Such quick growth amplifies all other environmental problems. Unless it slows, scientists hold little hope for Africa's ecosystems. Natural resources there simply cannot bear the burden.

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