

Chapter 2 – [starting at page 13 in book]

CRIME, CONFLICTS AND ECOLOGY IN AFRICA

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ABSTRACT

This chapter addresses the relationships between conflicts and ecology in Africa, the world's most war-hit continent. It explores in particular the question of deforestation of some of Africa's conflict zones, through logging or mining, and its consequences for wildlife. Several African conflicts are funded by the exploitation of natural resources such as oil, diamonds, timber and minerals. This chapter shows how in Sierra Leone, diamonds were used to fund the civil conflict. In neighboring Liberia, the timber trade was used to fund and smuggle weapons to Sierra Leone. While today's emphasis in policy making is on preventing illegal logging, the example of 'legal' logging practices in Liberia shows that stricter criteria are actually needed. Logging practices in Africa are also linked to the growing supply of 'bushmeat' on markets, which includes endangered animals such as chimpanzees. Besides diamond and timber extraction, other types of resource exploitation are being discussed as well, such as the mining for cobalt and coltan, which threatens gorilla habitat in Eastern Congo. It shows that global industries are now directly linked to the survival, or threat, of animal species such as the great apes. As a consequence, the exploitation of natural resources in Africa, which often goes hand in hand with armed conflicts and threats to Africa's wildlife and biodiversity, cannot be stopped unless the demand for natural resources can be dwindled, better regulated, and preferably be based on criteria of conservation and sustainability.

INTRODUCTION

Many of the logging practices in the tropical forests are illegal. In some vulnerable regions such as the Amazon, Central Africa and South East Asia, it seems likely that at least half of all the logging activities are illegal (Brack 2002: 145). In some tropical source

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countries, this is even true for 50%-90% of the logging practices (Oldfield 2005: 124). This means that much of the tropical timber available on the European or North American markets (which is mostly uncertified), is of illegal origin. In most cases, illegal logging refers to illegal logging practices: logging without permits, such as outside concession boundaries or in protected forests such as national parks.

Illegal logging and tropical deforestation are getting increasing attention by NGO's, governments and international organisations and are being recognised as problematic. The dominant strategy chosen so far internationally is to develop plans to only allow legal timber imports. The EU for example, develops such a policy through its Forest Law Enforcement, Governance and Trade Plan: FLEGT. The idea of FLEGT, which could start within a few years, is to only allow timber that is proven legal. All illegal imports would consequently be banned. The emphasis on legality in current forest law enforcement, shields away attention from legal logging practices that are environmentally harmful and that are possibly related to other forms of crime. Legal logging practices may be respecting certain laws and regulations, this does not exclude the fact that they can be equally destructive and as harmful as illegal logging.

A type of timber trade much less known than illegal timber, is "conflict timber", timber trade being used to fund and facilitate armed conflicts. This chapter aims to fill this gap, and describes how the trade in Liberian conflict timber prolonged conflicts in West Africa. As this trade was legal, it is another and even more shattering example of the legal environmental harm, as discussed by Halsey and White (1998) with regard to clearfelling old-growth forests.

The first purpose of this chapter is therefore to address the issue of conflict timber. Unlike the so-called "blood diamonds" such as from Sierra Leone, conflict timber does not (yet) get much attention internationally, nor are many measures taken internationally to curb it. In the case of Liberia, a unique West African forest was halved in size in five years time. Despite NGO's calls for timber boycotts, the trade in Liberian conflict timber continued until 2003.

A second purpose of this chapter is to explore the consequences of tropical deforestation and resource exploitation, in particular to some of Africa's wildlife such as the great apes. Logging roads, legal or illegal, facilitate poaching. In Africa, this has led to much "bushmeat" being available on the market, which increasingly threatens many already endangered animals, including great apes such as chimpanzees. Another type of deforestation, mining, can also threaten ecosystems and wildlife. Some unexpected examples of harm to environment and wildlife will be presented, such as the potential threat of increased mobile phone use to gorilla habitats in Eastern Congo. The various types of resource exploitation discussed in this chapter mostly concern legal practices, but many are linked to illegal activities as well. It shows how the arms, diamond, timber, and electronics trades are related in today's global world. It also shows the extent to which legal and illegal economies are intertwined.

The order of this chapter is as follows. It will start by looking more closely at a much known example of resource exploitation being related to armed conflicts: blood diamonds from Sierra Leone. The following sections will analyse some relationships between the arms and timber trade, as well as explore the consequences of resource exploitation such as logging and mining for African wildlife and biodiversity. The two sections before the conclusion discuss the questions of social and ecological harm in relationship to deforestation in Africa and ecological justice, including a discussion on eco-crime and green criminology.

BLOOD DIAMONDS FROM SIERRA LEONE

Over the last few decades, most armed conflicts around the world have taken place in Africa. Moisés Naím (2007:55) wrote in *Illicit* that since the end of the Cold War, “separatist insurrection and small-to-medium-scale regional wars have become the norm. By and large, African conflicts lead the pack in number and duration”. The abundant availability of natural resources make many African conflicts continue. Angola for example, where civil war lasted for twenty-seven years since independence from Portugal in 1975, natural resources kept the conflict alive. While the government relied largely on oil for funding the conflict, rebel group Unita funded its struggle with diamonds. There is even evidence, especially for African countries, that an abundance of natural resources is by far the most single most important factor in determining whether a country experiences civil war (Collier and Hoeffler 1998, 2002).

Many conflicts endure because of the presence of natural resources such as gold, diamonds, minerals, timber and, in some cases, wild animals as well. That several conflicts in Africa are funded with the revenues of diamonds has become generally known, especially since the Hollywood film *Blood Diamond* (2006) with Leonardo DiCaprio. The term “blood diamonds” was first used by an UN Expert Panel on the conflict in the Congo — a largely forgotten war in which some four million people died, the largest human loss since WWII. Because nine African countries were involved in the conflict that lasted until 2003, it is sometimes referred to as the “African World War”. The abundant presence of natural resources in the Congo was the main reason for all these countries were involved; their exploitation kept the conflict alive.

The many armed conflicts on the African continent have become one of the greatest threats to development. In 2007, a report by NGO's showed that 23 African countries had been in conflict in the period 1990-2005. Over this fifteen year period, wars cost Africa around \$300 billion, which on average cost African economies \$18 billion a year. The costs of conflict were estimated to equal the amount of money received in aid during the same period. The report shows that an estimated 95% of the most commonly used conflict weapons come from outside the continent. “The most common weapon is the Kalashnikov assault rifle, the most well-known type being the AK-47, almost none of which are made in Africa”. For the ammunition, the same is true: most is imported from outside Africa. The report stated that “Many African governments feel let down by the international community. They know that the arms trade is globalised, and that national or regional regulations, although absolutely vital, are not enough” (IANSAs et al. 2007: 3- 4).

The preface of the report on the arms trade to Africa was written by President of Liberia Ellen Johnson-Sirleaf. In 2006, she became the first elected female head of State in Africa. The 66 year old Harvard-trained president was minister of justice before and she appointed women at several important executive positions, including the chief of police. In 2007, at the report's presentation, she told BBC that “the proliferation of weapons is a key driver in armed conflicts. We need to restrict the supply of guns to African conflict zones and an arms treaty is a vital way to do this”. President Johnson-Sirleaf knew what she talked about, as her country recovered from fifteen years of armed conflict. An important reason why the conflict in Liberia lasted, was that arms were being bought with the revenues of the natural resources

diamonds and timber. While most of the timber came from Liberia, many diamonds originated from Sierra Leone.

The Sierra Leone civil war (1991-2002) cost an estimated 50,000 people their life and many other thousands of civilians, mostly children and teenagers, a future without hands or feet. The rebels of the Revolutionary United Front (RUF) had developed a notorious reputation for mass rape and especially mutilations, with their trademark being to hack off the hands of their victims. Around 2000, after the peace agreement between government and rebels, the UN intervened with 17,000 troops at the time the largest UN peace keeping force to disarm tens of thousands of rebels and militia fighters. In the process, several UN forces were being abducted by rebels in Eastern Sierra Leone, near Liberia.

An important reason why it took so long before peace could be established in Sierra Leone, was that the RUF rebels continued being armed, despite UN disarmament efforts. As diamonds mines were found in rebel controlled areas, the RUF was able to buy weapons from the proceeds of diamonds. In order to stop the diamonds for weapons trade, the UN Security Council imposed a diamond embargo against Sierra Leone in July 2000. Diamond exports however seemed to continue, which undermined the Sierra Leone peace process. The UN Security Council therefore created an Expert Panel, which presented its report in December 2000.

The Sierra Leone Expert Panel found that diamonds had become the major source of income for the RUF rebels. They were being exported through neighbouring countries, mostly Liberia (UNSC 2000: 18-19). In its Report, the Sierra Leone Expert Panel made no doubt about the involvement of Liberian government officials. It described Liberian President Charles Taylor as being actively involved in fuelling the violence in Sierra Leone. Liberia had become a trans-shipment platform for arms to the RUF rebels, with the direct involvement of President Taylor:

“He and a small coterie of officials and private businessmen around him are in control of a covert sanctions-busting apparatus that includes international criminal activity and the arming of the RUF in Sierra Leone. (...) The sanctions-busting is fed by the smuggling of diamonds and natural resources in both Liberia and areas under rebel control in Sierra Leone” (UNSC 2000: 36).

The weapons were brought in from much further, mostly from Eastern Europe. The businessmen close to Taylor supplying the weaponry, the Report noted, operated on an international scale. One important arms supplier to Liberia was the known international arms trader Victor Bout — in law enforcement circles generally known as Victor B. because he uses at least five aliases and different versions of his last name (UNSC 2000: 39). “He overseas a complex network of over fifty planes and multiple cargo charter and freight-forwarding companies, many of which are involved in illicit cargo” (UNSC 2000: 11). The Sierra Leone Expert Panel only focused on a limited number of individuals, but stated that there were “many more examples of the significant presence of criminal organisations in the region” (UNSC 2000 37). The West African diamond trade was dominated by Lebanese businessmen, one of whom played a crucial role in the diamonds for weapons trade:

“A key individual is a wealthy individual named Talal El Ndine. El Ndine is the inner-circle’s paymaster. Liberians fighting in Sierra Leone alongside the RUF, and those bringing

diamonds out of Sierra Leone are paid by him personally. Arms shippers and brokers negotiate their payments in his office in Old Road, Monrovia. (...) The pilots and crew of the aircraft used for clandestine shipments into or out of Liberia are also paid by El-Ndine. They are mostly of Russian or Ukrainian nationality” (UNSC 2000: 37).

Many of the weapons were also coming from Eastern Europe. Some came from Ukraine through Burkina Faso or Niger and were flown into Liberia by a BAC-111, owned by Leonid Minin, an Israeli businessman of Ukrainian origin and known arms trafficker. The weapons are likely to have ended in up in the hands of the RUF rebels in Sierra Leone (UNSC 2000: 36-37). Leonid Minin was described as another key person.

“Minin was, and may remain, a confidant and business partner of Liberian President Charles Taylor. He is identified in the police records of several countries and has a history of involvement in criminal activities ranging from east European organized crime, trafficking in stolen works of art, illegal possession of arms, arms trafficking and money laundering. Minin uses several aliases. He has been refused entry in many countries, including Ukraine, and travels with many different passports. Minin offered the aircraft mentioned above for sale to Taylor, as a Presidential jet, and for a period between 1998 and 1999 it was used for this purpose. It was also used to transport arms” (UNSC 2000: 36).

Based on the recommendations of the Sierra Leone Export Panel Report, the UN Security Council imposed a diamond embargo on Liberia in 2001. The UN Security Council did not follow the Expert Panel’s recommendation to also install a timber embargo against Liberia.

LIBERIAN TAYLOR-MADE TIMBER

Liberia had been in two civil wars, from 1989-1996 and from 1999-2003. Charles Taylor, one of the prominent rebel leaders and war lords of the first conflict, was elected President in 1997. After the 2001 UN Security Council ban on Liberian diamond exports, timber exports became the country’s main source of income. In 2000, the law was changed in order to allow Taylor full use of Liberia’s natural resources. The Strategic Commodities Act gave Taylor official stranglehold “to execute, negotiate and conclude all commercial contracts or agreements (...) for the exploitation of the strategic commodities of the Republic of Liberia” (Global Witness 2001). The Sierra Leone Export Panel Report described relationships between the timber and arms trade: “The principals in Liberia's timber industry are involved in a variety of illicit activities, and large amounts of the proceeds are used to pay for extra-budgetary activities, including the acquisition of weapons” (UNSC 2000: 13).

Charles Taylor’s main business partner, the earlier mentioned arms trader Leonid Minin, was the owner of the Exotic Tropical Timber Enterprise (ETTE). In the UN Expert Panel Report, Minin is mentioned as one of the two individuals of Taylor's circle being particularly connected to the timber trade. The other mentioned individual is Guus Kouwenhoven, a Dutchman who started a hotel and gambling business in Liberia in the 1980s. “Minin and Kouwenhoven are the people who are linked to Liberia's timber industry, thus providing a large amount of unrecorded extrabudgetary income to President Taylor for unspecified purposes. Three companies are involved: Exotic Tropical Timber Enterprise (ETTE), Forum Liberia and the Indonesian-owned Oriental Timber Company” (OTC) (UNSC 2000: 37).

It was Kouwenhoven who had brought OTC from Asia to Liberia in the late 1990s and became its chairman. OTC became the largest logging company and largest single foreign investor in Liberia. Kouwenhoven also became managing director of the second largest logging company, the Royal Timber Corporation (RTC). Guus Kouwenhoven, locally known as Gus Van Kouwenhoven or “Mr Gus”, was attributed an important logistical role in the arms smuggling from Liberia into Sierra Leone in the report to the Security Council:

“Van Kouwenhoven is responsible for the logistical aspects of many of the arms deals. Through his interests in a Malaysian timber project in Liberia, he organises the transfer of weaponry from Monrovia to Sierra Leone. Roads built and maintained for timber contraction are also conveniently used for weapons movement within Liberia, and for the onward shipment of weapons to Sierra Leone” (UNSC 2000: 37).

Kouwenhoven was member of the Liberian Forestry Development Authority (FDA), the governmental agency responsible for monitoring the logging industry. Talal El-Ndine, the Lebanese businessman financing the diamond smuggling, was also member of the FDA. President Charles Taylor’s brother, D. Robert Taylor, was the FDA’s Managing Director (Beaumont 2001). The FDA ensured that the logging practices and timber exports were legal. Another member of Taylor’s inner-circle was Simon Rosenblum, an Israeli based in Ivory Coast and carrying a Liberian diplomatic passport. “He has logging and road construction interests in Liberia and his trucks have been used to carry weapons from Robertfield, Liberia to the border with Sierra Leone” (UNSC 2000: 37).

As the timber for arms trade was growing, NGO’s continued lobbying and protesting. In the spring of 2002, during the UN Convention on Biological Diversity (BCD) in The Hague, OTC timber from Liberia was targeted by environmental activists in several European countries. In some harbours, ships carrying OTC timber were entered by activists. However, as OTC’s timber was legally logged and exported, imports into Europe could no be stopped. Dutch timber trader Kouwenhoven made a fortune with the timber trade. In October 2002, multimillionaire Kouwenhoven showed up in the Dutch press. Although on an international travel ban, timber trader Kouwenhoven had entered the ranks of the 500 wealthiest Dutch, the so-called “Quote 500”.

A year before, in 2001, Greenpeace activists had put red paint on OTC timber in the Amsterdam timber harbour, representing the bleeding to death of ancient forests. In the same period, Greenpeace Spain published a report in which it stated Liberia’s rainforests were in the hands of war lords. It criticised Spanish businessmen for being involved in the timber and arms trade by doing business with Leonid Minin’s timber company ETTE, through Spanish-owned timber companies in Liberia (Greenpeace 2001). The Greenpeace report also makes mention of timber for arms trade dating back from the 1990s, when “France supplied arms to the NPFL (Charles Taylor’s armed faction) in exchange for timber” (Greenpeace 2001: 10). Greenpeace subsequently asked for a total boycott of Liberian timber.

In December 2000, the UN’s Expert Panel on Sierra Leone recommended to the Security Council “placing a temporary embargo on Liberian timber exports, until Liberia demonstrates convincingly that it is no longer involved in the trafficking of arms to, or diamonds from, Sierra Leone” (UNSC 2000: 13). In May 2001 however, the UN Security Council decided to only impose diamond sanctions against Liberia, not timber sanctions. France and China, both permanent members of the UN Security Council, as well as the main importers of Liberian

timber, opposed timber sanction, arguing there was not enough evidence to link it to regional conflicts.

The Security Council decision was reported by journalist Peter Beaumont (2000) of *The Observer*: “The trade in timber —to the exasperation of Britain and the United States— was exempted at the insistence of France, which imports up to a third of it”. “The new UN sanctions regime is utterly pointless,” complained a European diplomat to him, “while Taylor is still able to keep exporting timber and bringing in guns.” Beaumont also went to Liberia and learned that the Liberian timber trade was a “business run with military precision.” He was told that timber baron Kouwenhoven became Charles Taylor most important business ally. The port of Buchanan has actually been handed over to the Oriental Timber Company, to run as its private city. The 108-mile dirt road from Buchanan to Greenville was upgraded to a four-lane highway, allowing logging to continue every day of the year. A businessman familiar with Taylor's business told Beaumont: “Look, it is an open secret. Gus fronted Taylor up \$5 million for his logging concessions. They split the profits. Gus' ships take out the logs and they bring in the guns. It was the same deal with the diamonds” (Beaumont 2000).

NGO's did not stop lobbying. Two months after the UN Security Council decision to not install timber sanctions against Liberia, Global Witness director Patrick Alley declared having specific examples of logging ships arriving in Liberia, unloading arms, such as from China, and loading up with logs. “The logging industry clearly has to make a profit, but we think that a major part of that money goes into funding regional conflicts — you can buy a lot of guns with \$100 million” (Aloisi 2001). In the same year, 2001, the term “conflict timber” was first used by a UN Panel of Experts, investigating the illegal exploitation of natural resources in the Democratic Republic of Congo (DRC). In March 2002, Global Witness (2002) issued a report on conflict timber around the world, *Logs of War*, and asked again for an international boycott of Liberian timber.

It took more than another year, until July 2003, before the UN Security Council introduced timber sanctions against Liberia. The reasons for the sanctions were not ecological (the rapid disappearance of Liberia's rainforest), but political and military. One month after the timber sanctions, in August 2003, Charles Taylor resigned after international pressure. He fled the country and found asylum in Nigeria. Shortly after, a peace treaty was signed in Liberia, which ended fourteen years of conflicts in which 25,000 people had been killed. An international warrant was issued for Taylor's arrest, who was handed over to the UN Special Court for Sierra Leone (SCSL), created in 2002. Originally, the first person to be tried by the Special Court for Sierra Leone would be RUF leader Foday Sankoh, but he died from a stroke while awaiting his trial in 2003. Charles Taylor will therefore be the first prominent person to be tried by the SCSL, in 2008. He is charged with war crimes and crimes against humanity for having created and backed the RUF rebels during the Sierra Leon war.

Leonid Minin was arrested in Italy, in 2001, in a room of his own Hotel Europa near Milan, in the company of four prostitutes. Twenty grams of cocaine were found as well, and \$150,000 in cash and more than half a million in diamonds. There was also a cache of 1,500 documents detailing Minin's dealings in oil, timber, gems and guns. Minin was convicted to two years in prison for the drug offence (Traynor 2001). Italian prosecutors then accused him of dealing in conflict diamonds and timber, but the Italian court found it had no jurisdiction, since the illegal shipments did not pass through Italy. Minin was only fined (\$51,000) for illegally possessing the diamonds. Global Witness said it hoped to reopen the case against Minin with new documents (Max 2006).

Guus Kouwenhoven left Liberia, despite the international travel ban that was in place since 2001. In 2004, Greenpeace (2005) uncovered that he was in Congo-Brazzaville, involved with the logging company Afribois. In 2005, Kouwenhoven was arrested in his hometown Rotterdam while visiting his daughter. A year later he was convicted to eight years in prison by a Dutch court. It found that he had traded guns for timber rights and used his timber company to smuggle weapons used by militias to commit atrocities against civilians. He was acquitted of war crimes charges but was found guilty of being in breach of a United Nations arms embargo on Liberia. Kouwenhoven appealed his case and the Dutch authorities let him free while awaiting it.²

RESOURCE EXPLOITATION AND WILDLIFE

A problem particularly related to logging in Africa is that it further stimulates poaching and the trade in African “bushmeat”. A logging road means a major incursion to a forest, which is usually difficult to access. Logging roads enable hunters to go further into the forest, and makes it easier to reach distant markets as well. Caught animals can be taken to the city by road transport, or are directly sold along the road. Bushmeat is therefore increasingly featuring on the menu of Africa’s urban populations. Bushmeat is today commonly found in restaurants and markets in many African countries. It is also found in many European capitals, and is often brought in inside airline hand-luggage (Bowen-Jones 2005: 138)

In economic terms, the Central and West African country-level estimates vary from US\$ 24-205 million per annum. In biological terms, the overall estimates of the quantities of bushmeat harvested in the Congo Basin are between three and five tonnes per annum (Bowen-Jones 2005: 133). Conservationists say illegal commercial hunting of African wildlife for sale as bush meat has reached alarming levels and immediate action is needed before it's too late. The bush meat varies from deer, gorillas and chimpanzees to crocodiles and elephants (Frank 2001). Although it is true that rare and globally threatened animals make up a small percentage because they are encountered less often, this level of off-take is enough to be a problem. Great apes for example, generally make up less than one percent of the trade in West and Central Africa, but this is still unsustainable for these species (Bowen-Jones 2005: 133).

An article published in 1997 in *Natural History*, ‘Road Kill in Cameroon’, tells the story of Swiss photographer Karl Amman who specialised in the bush meat phenomenon in Cameroon and Central Africa. The article clearly shows the effects of logging on the supply of bushmeat. While in the remote forests the indigenous people used to hunt and trap sustainable for centuries, “market hunters are now snaring and shooting every creature that walks, crawls, or flies” (McRae and Ammann 1997).

A study published in *Conservation Biology* (Wilkie et al. 2000) shows that roads established and maintained by logging concessions in Northern Congo intensify bushmeat hunting. Roads are obviously logistically very important for logging companies. In northern Congo, logging companies are in fact “ostensibly road construction companies whose

² After the writing of this article, Kouwenhoven was found not guilty. In 2008, the Dutch Court found the evidence for his involvement in the weaponry smuggling too biased and not reliable.

employees are primarily engineers, few, if any, deem it necessary to retain trained engineers” (Wilkie et al. 2000). In the forest area under study, one logging company, Congolaise Industrielle des Bois (CIB), constructed more than 60 km primary road, 80 km of secondary roads, and cut more than 3000 km of primary and secondary transects with the forest (Wilkie et al. 2000). The effects of logging roads for hunters’ access to forests are enormous. In the forests that were studied, the road construction and access to transportation on logging vehicles cut the average distance that hunters had to walk from an access point to any section of forest from 9.2 km to 0.36 km. The study of Wilkie et al. (2000) led to several conclusions: (1) logging has created an extensive system of roads in once isolated forest blocks, (2) logging in northern Congo had increased local demand for bushmeat, (3) it has provided hunters with easier access to isolated forests and markets, and (4) has increased the export of bushmeat from the forests. The study shows that from a biodiversity perspective, roads not only increase access to previously isolated natural resources, they also fragment landscapes into small, disconnected patches (Wilkie et al. 2000: 1615).

Hunting wild animals is common practice in many parts of Africa, such as in West Africa. In cases of war, the practice of eating bushmeat only increases due to less stable food markets and armed men roaming the country. In Côte d’Ivoire, where 55% of the male population age 15 and above (approximately 1.4 million) consider themselves to be hunters, attitudes towards wildlife demonstrate the level of dependence on wildlife resources for livelihood. More than half of these hunters (52%) are between 20 and 40 years of age. Young hunters both in Côte d’Ivoire and Ghana especially view hunting as a supplementary source of income. It has also been estimated that about 90% of hunters in Côte d’Ivoire work in the agricultural sector (FAO 2004: 6). Generally speaking, many West Africans find it normal to eat bushmeat. In Ghana it is estimated that 70% to 90% of Ghanaians ate bushmeat. In Sierra Leone, 55% of all households in Sierra Leone regularly consume bushmeat. In Cote d’Ivoire, an estimated 86% and 77% of rural and urban populations, respectively, consumed bushmeat (FAO 2004: 12).

In Liberia, a survey carried by the Concerned Environmentalists for the Enhancement of Biodiversity (CEEB) just after Charles Taylor’s departure, showed that Liberian bushmeat is available in large supplies on the markets of Monrovia. CEEB’s survey (2004) gives interesting information about the volumes in the bushmeat trade, clear indications of protected (and endangered) animals that are openly sold on meat markets, as well as the total absence of any enforcement of the 2000 Liberian Forestry Law. During a ten months period (October 2003 – August 2004), the surveyors visited seventeen different markets in Monrovia. In a typical Monrovia market stall with meat, a woman would sell several bodies or a pile of crumbs of bushmeat. Of all different species of animals found on the bushmeat markets, 60% concerned protected species. CEEB found twelve endangered species. This varied from the Maxwell duiker, an antelope, which was always found, to the forest elephant, which was found the least. “A review of the Monrovia markets indicates that most of the bushmeat sold on the Monrovia markets are the carcasses of Liberia wildlife endangered species listed by the Forestry Development Authority” (CEEB 2004: 6). The bushmeat transport to Monrovia market is unhindered. “This means, there is smooth passage by traders” (CEEB 2004: 6). The meat is usually transported in ‘kin jars’, which contain between ten bodies and hundred sixty-six bodies. The supply comes from the different forested areas of Liberia:

“Bushmeat supply to Monrovia is a daily transaction. Many vehicles bring huge supplies in kin jars to the Monrovia markets from many regions in Liberia. Bushmeat sellers tell us that the volume of meat we see is not collection from one area. There are middlemen who move from one place to another in search of processed bushmeat. (...) Until the deployment of UNMIL throughout Liberia, much of the supplies came from western and the northern parts of Liberia. Since the south east became accessible, there has been an increase (CEEB 2000: 10).”

CEEB estimated the bushmeat trade they surveyed over the ten months period to value eight million \$US. They found some, but not much evidence of bushmeat being transhipped despite, it should be added, press reports from the U.K. and U.S. reporting about African bushmeat being available on their markets. The CEEB also included a (limited) household survey on the prevalence of bushmeat consumption. Their consumption data of Monrovia households suggested that bushmeat is actually not (very) regularly consumed, but merely occasional. The authors mention transit traders for whom Monrovia acts as a ‘transport hub for the bushmeat trade’. Considering the transport possibilities, they suggest Monrovia provides the linkages between the hunters in the Liberian forests to the markets across the Ivorian and Guinean borders, as well as to Sierra Leone.

War situations such as in Sierra Leone and Liberia only increase the demand for bushmeat. Not only is the normal trade being hampered as a result of them, war also leads people and armed forces to go into forested areas, which makes wild animals more prone for being caught. Twenty years ago, the number of chimpanzees in Sierra Leone was estimated around 20,000-30,000. In only two decades, mostly during the civil war, the Sierra Leone chimpanzee population was literally decimated. Today, only ten per cent of the original population is left. As such, the civil war has been more devastating to the chimpanzees than to the people of Sierra Leone. The forests had already decreased in size due to logging, but the war and the presence of armed groups only increased the already existing demand for the bushmeat.

The threatened situation of the chimpanzees in Sierra Leone is exemplary for the situation of all great apes around the world (except humans, who are also considered to be part of the family of great apes). They all have become seriously threatened and the United Nations Environmental Plan (UNEP) started a special campaign to save them. A UNEP director declared the clock is standing to midnight for the great apes. It is a matter of not more than one or a few decades in which it is possible that chimpanzees, bonobos, gorillas and orang-utans might get extinct in the wild. Three out of four wild ape species live in Africa: gorillas (western and eastern as subspecies), chimpanzees and bonobos. Only the orang-utan is not found in Africa, but in Asia on the islands of Sumatra and Borneo.

Some 400,000 great apes are currently estimated to be living in the wild. Of the eastern gorilla, 700 mountain gorillas and 3,000-5,000 lowland gorillas are left. Of the western gorilla, some 200 are left of the cross-river population and 94,000 of the eastern lowland gorilla. The number of the chimpanzees is estimated to be between 170,000-300,000. Their habitat stretches over 21 countries, from Senegal to Tanzania. Of the bonobos, only found in DR Congo, less than 10,000 and maybe even less than 5,000 remain. In the 1980s, the bonobos still numbered 100,000. Of the orang-utans, some 50,000 are estimated to live on Borneo, but of the Sumatran orang-utans only 3,500 have survived (Krief 2006: 14).

Important reasons for the great apes being threatened with extinction, are poaching and the destruction of their natural habitats. Logging obviously is an important contributor to

deforestation of the tropical forests. A second important reason for deforestation in Africa is mining. The continent is rich in oil, gold, diamonds, and many other precious stones and minerals. The soil in the Congo basin contains large quantities of copper and cobalt, which can also contain radioactive uranium. Much of the raw uranium used in the U.S. atomic bombs on the Japanese cities of Hiroshima and Nagasaki came from uranium mines in the Congo.

Less known than the many diamond and gold mines are the tin, cobalt and coltan mines, which are especially found in DR Congo. Tin oxide (or cassiterite) for example, is the most important source of tin, of which DR Congo has one-third of world's reserves. DR Congo is also the top producer of cobalt with 40% of world production and one-third of world reserves. Cobalt is much used in portable appliances, such as mobile phones, which each contains a few grams of cobalt in the battery. DR Congo also has 60-80% of the world's coltan reserves. Coltan is a black mineral and the metallic ore for tantalum, which is also used in consumer electronics products. As world demand for the latter increased, coltan became an increasingly interesting source of income. During the Congo war the coltan mines in the east of the DR Congo helped funding the conflict and much of the coltan was smuggled out of the country.

Coltan mining also destroyed the habitat of the mountain gorilla. As some gorillas live on "coltan land", increasing use of the numbers of mobile phones therefore seems to be destructive to gorilla habitats. Around 2000, a gorilla population was halved in one of DR Congo's national park where coltan was being mined. In 2007, a 200-strong Mai Mai rebel group took control of the Virunga Reserve national park in Eastern Congo. Founded in 1925, the Virunga is Africa's oldest national park and a World Heritage Site. During the Congo war, hutu rebels and Mai Mai fighters sought sanctuary in the park, with bushmeat being one of their sources of proteins and income. In 2007, the Mai Mai rebels killed a park rangers and gorillas, including two silverbacks and four members of a gorilla family, known as the Rugendo family, which was often visited by tourists. In the period 1996-2007, approximately one hundred park rangers have been killed in the Congo. The Mai Mai rebels threatened to kill more gorillas in the Reserve if they were not left alone. Of this subspecies of mountain gorilla, only 700 are left around the world, half of them living in the Virunga Reserve.

As part of the UNEP plan for getting attention for the extinction threat of apes, it has been suggested that by avoiding multiple purchases of mobile phones, people can make a contribution to safeguarding the survival of gorillas. Less mobile phones can help to limit the destruction of forests via the opening of the new coltan mines in areas inhabited by gorillas in the DR Congo (Krief 2006).

THE SOCIAL AND ECOLOGICAL HARM OF TROPICAL DEFORESTATION

Of the three tropical zones –America, Africa and Asia– the world's largest tropical forest is found in South America: the Amazon. Africa has the world's second largest rainforest: the Congo basin. In Latin America and South East Asia, more tropical deforestation is occurring due to land conversion (transforming forest into agricultural land) than logging for timber. In the Brazilian Amazon for example, much forest disappears for agricultural purposes (cattle ranging and soy production). In South East Asia, much deforestation occurs as forest land is

transformed into oil palm plantations. In Africa, however, the main reason for deforestation is logging for timber. Mining is another important reason for the decline in natural habitats in Africa.

The logging of the planet's tropical forests is increasingly becoming a serious and problematic matter for many of its inhabitants. Logging is currently taking place at such a fast rate that some tropical forests which were once vast, almost inaccessible and mysterious places, might disappear completely in only a few decades.

Tropical deforestation threatens the human rights of many humans who live in forests. A total of 300 million indigenous peoples live around the world, many in forests. An increasing number of these old societies are now threatened, as "global demand" for timber exploits the rainforests around them. In different forests around the world, indigenous people are fighting for their survival, which increasingly means fighting and competing with multinationals over natural resources.

While human forest communities have already disappeared from Côte d'Ivoire, a similar phenomenon is happening in other countries and places. In southern Kenya, the Ogiek (or Ogiek) people living in the Mau forests on the slopes of the Great Rift Valley have seen the forests in which their ancestors have lived for several thousands of years gradually disappearing. Most of these forests disappeared due to logging. Especially in the last twenty years the Kenyan Mau forest has been cut at great speed, by companies such as Timsales, Raiply Timber and Pan African Paper (Van Kesteren 2006: 57). Kenya is however also the country which carries a positive example. In 2004, Kenyan environmentalist and human rights campaigner professor Wangari Maathai won the Nobel Peace Prize. In the late 1970s, Mrs Maathai had started a campaign, the Green Belt Movement, to plant tens of millions of trees across Africa to slow deforestation and desertification. In Kenya it gave her the nickname "The Tree Woman".

Besides humans, many animal and plant species also find their home in the tropical rainforests. They contain so many different species, that their disappearing would mean a serious blow to the planet's biodiversity, the total variety of plants and animals. From a biodiversity perspective, the importance of the world's tropical rainforests cannot be doubted. In the words of the noted biologist Edward Wilson:

"The headquarters of global diversity are the tropical rainforests. Although they cover only about six percent of the land surface, their terrestrial and aquatic habitats contain more than half of the known species and organisms. They are also the leading abattoir of extinction, shattered into fragments that are then being severely adulterated or erased one by one. Of all ecosystems, they are rivalled in rate of decline only by the temperate rainforests and tropical dry forests" (Wilson 2002: 59).

From the perspective of biodiversity, today's rapid disappearing of the tropical rainforests is an ecological disaster. If tropical deforestation continues at the current speed, this will contribute to the extinction crisis the earth is already facing. A new wave of mass extinction, the so-called "sixth extinction", has now become a real possible scenario (Leakey and Lewin 1996). The current rates of extinction are actually unprecedented and go much faster than, for example, during the last, fifth extinction of some 65 million years ago, when the large dinosaurs got extinct. While the current planet's extinction crisis has different causes –

pollution, fragmentation of landscapes and global warming– the direct destruction of habitats is the primary one.

Biologists predict that with the current trends, several dozens of all species might get extinct during this century. The World Conservation Union (IUCN) which produces the red list of endangered species, noted that in 2007, one in four mammals is threatened with extinction. Of the birds, one in eight is threatened with extinction. Of the amphibians, even one in three species is now threatened with extinction. In Africa, many species are increasingly faced with extinction. The example of the famous lion may illustrate this. 10,000 years ago, the lion was the most widespread mammal across the planet besides man. Lions were found in the Americas, Africa, and Eurasia, from Europe to India, including the Middle East. Today, besides a critically endangered remnant population in Northwest India, the lion only survives in sub Sahara Africa, and their numbers go down rapidly. Twenty years ago, Africa still had 200,000 lions. Today there are only 20,000, a 90% decline (BBC 2003).

For large international logging companies, Africa is an underdeveloped continent. For example, in 2000, around 60% of the DR of Congo was still covered with forest. Africa now is the continent that internationally operating loggers have discovered and are rapidly seeking to exploit. African hardwood species are increasingly found on western markets and are used for infrastructural projects such as dams and lock gates, or is sold in flooring and do-it-yourself shops.

While West Africa has mostly been logged, more central African countries like Cameroon, the Democratic Republic of Congo and Congo-Brazzaville are currently popular source countries for timber. Just like the other tropical regions of the world, a substantial part of the logging in Africa concerns illegally logged timber. A common estimate is that approximately half of the tropical timber in western consumer markets is of illegal origin. The reported estimates for the share of illegal forest production vary from 34%-60% in Ghana, to 50 % in Cameroon, and 50%-70% in Gabon (Friends of the Earth 2001).

In the large Congo basin, logging started after World War II and by the late 1960s timber became the country's main export. Between 1947 and 1980 14.5 million m³ of timber were exploited, some 1.5-2 million trees. Much of the southern forests have been logged. European and Mediterranean companies have traditionally dominated the logging industry in Congo, but over the last years Asian companies have moved in as well, after being faced with dwindling domestic resources (Wilkie et al. 2000: 1616).

The ecological damage done by logging practices in a biologically vulnerable area such as in West African Liberia is clear. West Africa is one of the so-called world's biological hotspots. A hotspot is a region of the world that is rich in species found nowhere else and environmentally endangered (Wilson 2002: 215). Of the twenty-five hotspots on the land, fifteen are covered primarily by tropical rainforests. West Africa is one of these threatened ecosystems. Liberia is the only West African country (west of Cameroon) with a sizeable rainforest left. The Liberian rainforest covers almost half of the entire remaining – and two of the only three large intact blocks left – of the Upper Guinean Forest Ecosystem, a rainforest belt which once covered the whole of Liberia, and parts of Sierra Leone, Guinea, Côte d'Ivoire, Ghana and Togo. An increasing number of Liberians are conscious of their country's natural uniqueness. Former goal-keeper for the Liberian national football team, Alexander Peal (2000), founded the Society for the Renewal of Nature Conservation in Liberia (SRNCL): "Liberia alone is home to over 2,000 flowering plants (including about 240 timber species), approximately 125 mammals, 590 birds, 74 known reptiles and amphibians

and over 1,000 described insect species. It is home to the only remaining viable populations of the Pygmy hippopotamus, and is the last stronghold of forest elephants in West Africa” (Peal 2000).

In the earlier section on logging in Liberia, it was described that half of Liberia’s rainforests had disappeared in five years time. No-one has been convicted for the large-scale logging in Liberia. It shows that the ecological damage, the harms inflicted to the rainforest and its inhabitants – humans and animals – by the exploitation of natural resources, was not regarded, *de facto*, as a criminal offence. Although large-scale logging has decreased after the 2003 UN sanctions against Liberia, “many of the businessmen who gleefully raped Liberia’s forests in return for favours are still there, looking after their other interests and keeping an eye on logging opportunities” (Black 2006).

ECO-CRIME AND GREEN CRIMINOLOGY DISCUSSED

In the mid 1990s, Mark Allan Gray (1996) proposed the legal concept of the international delict “ecocide”, defined as “causing or permitting harm to the natural environment on a massive scale” which would “breach a duty of care owed to humanity in general”. Although the concept may seem radical, Gray argues ecocide is, in fact, derivable from principles of international law. Ecocide can be established on the basis of two fundamental human rights: the right to life and the right to health. Crucial to the concept of ecocide are the element of ecological damage and waste, which could elevate it from a mere international delict to an international crime (Gray 1996: 217-222). Before Gray, Lynn Berat (1993) argued for an international crime “geocide”, which she defined as a violation of a right to a healthy environment through intentional species destruction.

Despite the existence of these publications and the increasing attention raised about environmental degradation, ecological destruction and increasing numbers of animals being threatened with extinction, illegal or harmful ecological destruction such as tropical deforestation is not an established area of study among professionals, academics and law enforcers. There is, however, every reason to question the small amount of attention this type of trade is getting, considering its repercussions. The plundering of the earth’s natural resources has not been thought of as a crime until recently. The earth and its resources are being wasted and overexploited, a practice in which numerous crimes, violations, deviations and irregularities are perpetrated against the environment. Criminologist Nigel South therefore proposed to label them as “green crimes”, which he generally defines as crimes against the environment (cf. Carrabine et al. 2004)

An equivalent of green crime is eco-crime, or ecological crime, as Reece Walters (2005) wrote in the *Sage Dictionary of Criminology*. Walters’ definition of eco-crime encompasses “acts of environmental harm and ecological degradation”, which can either be illegal and/or harmful behaviour including threatening, damaging or destroying the natural environment. Walters emphasises however that a definite definition of the term does not exist (yet), which obviously is not uncommon in a new area of research. Some authors for example, consider legal acts that are environmentally harmful as part of eco-crime as well. Walters concludes that green criminology is a useful paradigm for analysing both sociological and legal

definitions of eco-crime and that it “provides an umbrella under which to theorise and critique the emerging terminology related to environmental harm” (Walters 2005: 147).

Piers Beirne and Nigel South have further developed the concept of green criminology in the two books they edited in 2006 and 2007. Green criminology does indeed seem to be an appropriate umbrella term for the various subject that are discussed in these books, that now form the basis of this new criminological research area. In their most recent book, *Issues in Green Criminology*, Beirne and South base the domain of green criminology on the principle of harm. The authors argue that green criminology “should be a harm-based discourse that addresses violations of what some have variously termed environmental morality, environmental ethics, and animal rights. It will try to uncover relevant sources and forms of power, including the state’s willingness or reluctance to construct certain forms of harm as crimes, as well as social inequalities and their ill effects” (Beirne and South 2007: xiv).

The question of harm is easily established in the examples discussed in this chapter on deforestation in Africa. The environmental and ecological harm and damage to unique ecosystems such as in Liberia and the Congo due to logging, mining and poaching, partly occurring in the trail of logging, cannot be denied. In West Africa, one of the world’s biological hotspots had been severely damaged by the deforestation of Liberia. In the Congo, gorillas and bonobos population are increasingly threatened due to deforestation and poaching. This type of destruction of rich bio diverse habitats is exemplary for what is happening around the world.

Today, species are disappearing at an unprecedented speed. The rapid disappearance of the tropical forests –at a speed of many football fields every minute– is of special concern because they house more than half of earth’s known species. Such rapid changes in the environment are only likely to have repercussions for humans as well (see Leakey and Lewin, 1996). In order to conserve much of the planet’s biodiversity, and to reach more “ecological justice” (White 2007), new perspectives are needed on the timber trade, as well as on timber use in industrialised countries.

On a philosophical and ethical level, this requires more ecological awareness. The noted biologist Edward Wilson, still an optimist, points at a new ethics that is needed in order to save the world’s fauna and flora. “What humanity is inflicting upon itself and Earth is, to use a modern metaphor, the result of a mistake in capital investment. Having appropriated the planet’s natural resources, we choose to annuitize them with a short-term maturity reached by progressive increasing payouts” (Wilson 2002: 149). One result of this annuitization of nature, as opposed to stewardship, is the “accelerating extinction of natural ecosystems and species. The damage already done cannot be repaired within any period of time that has meaning for the human mind. “(...) Why, our descendants will ask, by needlessly extinguishing the lives of other species, did we permanently impoverish our own?” (Wilson 2002: 150).

On a practical level, this would involve policies based on other principles, especially considering the predicted human population growth to nine billion. If eco-systems and their variety in biodiversity are to be preserved, policies based on sustainability logically seem to be a requirement. A concept such as the “ecological footprint” can be very helpful. The ecological footprint refers to the average amount of productive land and shallow sea that a human is using on the average around the world for food, water, housing, energy, transportation, commerce, and waste absorption. As some twelve billion hectares are now available in total, every human being could, in principle, use two hectares (based on the

current population of six billion). If everyone were to have a European lifestyle, this would require between two and three planets. A North American lifestyle for all would even require five planets (Wilson 2002:23). The ecological footprint concept shows that continuing with energy-consuming lifestyles by growing numbers of humans is not possible without having serious repercussions.

Another concept, *Cradle to Cradle*, developed by MacDonough and Braungart (2002), shows the possibility of using innovative concepts for making products and designing economies differently. They propose a new design paradigm, based on ecologically intelligent and nature-inspired design. By employing the intelligence of natural systems, they create products, industrial systems and buildings that are nature-based and nature-friendly. They also use the term “eco-effectiveness” as a way to better use natural materials and basically copy nature. “Instead of using nature as a mere tool for human purposes, we can strive to become tools of nature who serve its agenda too” (McDonough and Braungart 2002: 156). The principle of “Cradle to Cradle” is now increasingly used in housing and industrial projects in a growing number of countries.

Lawyers and criminologists can make their contribution too in addressing issues of eco-crime and in raising ecological awareness. This could be done by following the normal methods and definitions of law and criminology. In this chapter the harmful trade in African flora and fauna was discussed. Some of the trade was legal (the Liberian timber trade), other was clearly illegal (the bushmeat trade in endangered species). Even in the legal timber trade however, elements and mechanisms of corporate crime, international organized crime and state crime can clearly be established. Addressing the consequences of the illegal and harmful exploitation of natural resources, can help to raise awareness in societies and can ultimately contribute to reducing these harmful activities. Just the mere fact that, for example, criminologists point at the involvement of international organized crime in the tropical timber trade, contributes to more critical attitudes towards tropical timber products and their industry. Obviously, law cases against companies involved in these ‘classical’ illegal activities are probably needed as a deterrent as well.

Even if certain acts against the environment are criminalized, it is to be questioned whether criminal law can be a remedy. Helena du Réés (2001), for example, in a Swedish case study, showed the limitations of how to apply environmental criminal law. Halsey and White (1998) pointed more fundamentally at the shortcomings of environmental law, stressing that a different response is needed, such as an eco-centric perspective.

A way in order to attain more ecological justice (other than through judicial means), may be to increasingly expose the social and ecological harms of logging and mining practices to ecosystems and their inhabitants. As harmful activities are more quickly acknowledged as such when their victims are seen and heard, exposing the victims of the natural resource exploitation, as well as addressing possible links with the arms trade, can help in curbing the phenomena. Addressing violations of human rights to indigenous peoples, as well as the further endangered status of many animal species, the great apes in particular, both as a result of resource exploitation can raise people’s awareness. The fact that apes are close to humans to the extent that, for example, chimpanzees are genetically closer to humans than a mouse is to a rat, is an argument that could be used for that purpose. This should, however, not lead to an argumentation that the genetic ‘closeness’ to humans would give a right to life. The consequence would be that the more ‘different’ an animal is from humans, would justify its exploitation, an argument that is critically discussed in the chapter on speciesism by Sollund

in this book. Combined with discussing some of the relationships between consumers' behaviours and threatened ecosystems, consumers and policy makers could find other ways to preserve much of the planet's biodiversity.

ADDRESSING ECOLOGICAL HARM

To further address the loss of species and the harm inflicted to the planet's eco-system and thus the world's ecology (including humans themselves) as a result of illegal and irresponsible exploitation of eco-systems, it may be effective to use more precise language. Environmental crime and environmental law are terms that are more commonly known than green crime and eco-crime. Proposing the use of different terms may seem like a question of only semantics. It can, however, be argued that in order to address (certain) types of green or environmental crime, the term eco-crime is preferred. Eco-crime is not only a more catchy and sexy term, it is also an expression that many people can understand and relate to. For the issues under discussion in this chapter, eco-crime seems a more appropriate term than green or environmental crime.

The term environment refers to "everything that surrounds us: sky, sea, mountains, forests, rivers, birds, animals" (Kallenbach 1998: 46). Pollution of the environment will inevitably also affect human beings and others living in the environments. Protecting the air they breathe, the water they drink, the ozone layer that protects and to reduce climate change are therefore in the direct interest of humans and other beings. Environment, however, is also a merely generic term, making it somewhat vague at the same time.

The term ecology refers to the "study of relationships among organisms and between organisms and their surroundings" (Kallenbach 1998: 46). Ecology "lets us see the interconnections and processes that really make up 'the environment' and gives us a more fundamental reason to protect it" (Kallenbach 1998: 46). The science of ecology studies all interactions among living beings and their environment, whether we humans are involved or not. Originally, ecology referred primarily to studies of how populations of different species fluctuated. In more recent years, ecology has gradually come to include studies of how "humans and other living beings interrelate on the planet, or our increasing interference with ecological processes, and of how we might improve our relationships to the living world around us" (Callenbach 1998: 34-35).

The "ecosphere" or "biosphere" refers to "all living beings on Earth" (Callenbach 1998: 20). James Lovelock argued that the planet earth and its entire biosphere actually functions as if it were a kind of superorganism, which Lovelock (1995) called Gaia. Biologist Edward Wilson noted there is considerable merit in looking at life in this his grand holistic manner. "Alone among the solar planet's, Earth's physical environment is held by its organisms in a delicate equilibrium utterly different from what would be the case in their absence" (Wilson 2002: 11). The ecosphere is formed by the total of the earth's ecosystems, big and small. An example of a large ecosystem is a forest, whereas a creek or meadow can be considered a small ecosystem. Ecosystems behave in ways we cannot predict in merely knowing about their parts.

"In natural systems, parts and wholes interact with and influence each other continually. What we call parts are patterns in complex webs of relationships; they can never really be

separated. (...) In an ecological perspective, all species, including humans, have evolved together on the planet and each species has a claim to continue its life. The ecological value of a species lies in its exquisitely intricate relations with its environment and other species. Ecological opposition to extinction thus rests on deeper foundations than does, for example, the economic argument that we should not cause the extinction of rain-forest plants because they might prove of unimaginable medical value to humans. (Many modern medicines come from tropical plants or have been synthesised in imitation of them.) (Callenbach 1998: 40 and 52).”

Adapted to the situation of tropical rainforest, different animals play a role in keeping the diversity of trees in a forest. In the book *The Tree*, Colin Tudge (2006) explains how trees reproduce. In temperate forests the weather generally tends to be breezy, which allows pollen from the male flowers (or male parts of hermaphroditic plants) to travel by wind to female flowers (or female flower parts). As in temperate forests any one tree is liable to be surrounded by others of its own species, tree species thus reproduce. In a tropical forest however, the situation is very different; “any two trees of the same species may be a third of a mile apart, with thousands of trees of other species in between, it just will not do to scatter pollen literally to the four winds and hope for the best” (Tudge 2006: 323).

In tropical forests, with many more tree species than temperate forests, animals play a crucial role as go-betweens, transmitting the pollen from one tree to another. Sometimes butterflies do the work, in other cases beetles, bees and wasps, bats, birds, squirrels, monkeys and apes. Monkeys and apes for example, are responsible for spreading the seeds of many fruit tree species. They usually only eat the pulp of the fruit and then spit out the seeds. In case the seed passes through their guts, it is later deposited by animals with their own consignment of fertiliser (Tudge 2006: 343-344).

The ecological damage done by deforesting tropical forests is without any doubt large. Especially when large-scale, non-selective logging techniques are employed, this type of habitat destruction leads to the direct disappearance of wildlife, both flora and fauna, and as a consequence biodiversity. For humans and animals living in the forests, it may mean their survival in the forests cannot be guaranteed. This chapter has also shown that the trade in bushmeat, often occurring in the trail of logging, poses a threat to biodiversity as well. Nowhere is this more clear than in the case of the great apes in Africa: gorilla, chimpanzee and bonobo.

Eco-crime refers directly to harm and damage to ecology, the many life forms on the planet. The term seems more accurate for describing the damage and harmful activities imposed to eco-systems as compared to than the more generic and broader term “environmental crime”. Put differently, the term eco-crime points directly at what is at stake: the destruction of world’s ecology, in other words the world’s eco-systems that are formed by its flora and fauna. The current ecological status of the planet, in particular the role of the most dominant species, humans, has become a challenge. Never before in history have humans’ actions had such an effect on the planet’s ecosystems.

CONCLUSION

The world's rainforests represent 6% of the earth surface, but house more than 50% of the known animal and plant (including tree) species. So much tropical rainforest is today disappearing, that deforestation has become a serious threat to the planet's ecology and biodiversity. This chapter addressed the increasing number of animal species being threatened with extinction as a result of different types of resource exploitation in Africa, in particular logging and mining. Africa is the continent where most of the world's conflicts are currently occurring. The exploitation of resources is one of the ways in which conflicts are today funded, especially after the end of the Cold War. This also applies to logging and mining.

Liberia is the only country in West Africa (west of Cameroon) still having a significant portion of its original rainforest cover. Under the regime of Charles Taylor regime, Liberia lost half of its rainforest in five years time. Large quantities of Liberian timber and especially the valuable hard wood were exploited and exported. It soon became clear Liberia's timber industry was strongly related to arms trafficking.

The Liberian case is a good example of how legal and illegal activities can intertwine. It also shows the international dimension of the timber industry: an originally Asian company that started logging in Liberia under the leadership of a Dutch timber trader. Illegal entrepreneurs with prior involvement in the diamond or arms trade were also involved in the Liberian timber industry.

The trade in Liberian conflict timber could have been stopped if the UN Security Council had decided earlier to ban Liberian timber. But as described, China and France, the main importers of Liberian timber, opposed such sanctions. Only in 2003, when the war in Sierra Leone was over and the rebels had been disarmed, did the Security Council install a timber embargo against Liberia. One month after the timber embargo against Liberia, while President Charles Taylor had lost his final source of income as well as all international support, he fled the country. If the Security Council had acted sooner, much human and ecological harm had been prevented in Sierra Leone and Liberia. Despite actions and lobbying by NGO's, they did not have direct effects, as politicians, media and scholars did not pay much attention to the issue. Despite NGO's growing importance and influence in world politics, NGO's still have limited power compared to commercial interests. As a consequence, Liberian timber ended up in many places around the world, including Europe.

Logging plays a crucial role in the access to wild animals. Hunting has always taken place in forests, but logging roads drastically changes the access to forests and their inhabitants, as well as to meat markets. As a consequence of logging, animals are being hunted at a much faster rate today. The increased consumption of bushmeat has become the main cause of the rapid disappearance of some of the Africa's wild animals in Africa, including great apes. In DR Congo, gorillas are increasingly threatened as a result of wars and mining.

The rapid disappearing of many animal and plant species around the world and the tropics in particular, asks for innovative perspectives on humans and their environment. The EU's current policy emphasis on legal timber supplies is likely to be insufficient for conserving the rainforests. A timber trade policy based on sustainable forestry seems to be the only real long-term solution.

Many of the resource exploitation and deforestation practices described in this chapter not only produce different types of harm, they were related to crime and armed conflicts. This clearly shows they can be an important area of research for criminologists and lawyers. While green criminology is a good term for this new area of research, eco-crime seems a good term for addressing and attaining more ecological justice and awareness.

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