Curbing the Illegal Killing, Capture and Trade in Apes: Responses at Source

Introduction

Trafficking in apes and other endangered animals has stimulated numerous policy and strategic discussions among source and demand countries, donors and conservation organizations, as evidenced by the declarations of recent international conferences on the illegal wildlife trade (Hanoi Conference on the Illegal Wildlife Trade, 2016; Kasane Conference on The Illegal Wildlife Trade, 2015; London Conference on the Illegal Wildlife Trade, 2014, 2018). The deliberations have generated consensus on four key strategies for tackling the trade:

- reducing demand for illegal products;
- developing effective legal frameworks;
- strengthening law enforcement; and
- promoting community engagement.

The latter three approaches are particularly relevant to enhancing ape protection and curbing illegal hunting and trade at its source—at the start of the supply chain, in the specific locations where illegal activities are happening. Strengthening law enforcement and supporting sustainable livelihoods and economic development are *in situ* approaches; strengthening legal frameworks happens *ex situ* but still has an impact on the source.

These strategies for controlling the illegal wildlife trade dovetail with criminology theory and practice. In particular, they are strongly aligned with the approach of situational crime prevention, which holds that, given the opportunity, any individual is capable of committing an offense at any time. When it comes to the illegal trade in apes, local people are typically active at the start of a supply chain which can involve complex trade networks of hunters, dealers and traffickers. As predicted by situational crime prevention theory, their involvement is often opportunistic rather than organized. Approaches that recognize and respond to that dynamic are thus critical to curbing the trade at source. Situational crime prevention is based on five strategies to limit opportunism. Specifically, it aims to increase the effort required to commit a crime; increase the risks of being detected or apprehended; reduce the rewards generated by the crime; reduce the factors that provoke criminal activity; and remove excuses that potential offenders may cite for committing crimes (Clarke, 2009).

This chapter provides an overview of three of the above-mentioned approaches—developing effective legal frameworks, strengthening law enforcement and promoting community engagement—and discusses how they have been applied in the context of ape conservation. It does not seek to provide an evaluation of their effectiveness, which is beyond the scope of this chapter.

> **❝** Where formal law contradicts customary law, even the strongest legal frameworks may not be effective if local communities do not consider them legitimate. **❞**

Indeed, since few evaluations have been conducted, evidence remains limited on the relative effectiveness of different strategies—and that knowledge gap represents a major constraint to policy-making (Booker and Roe, 2017). As Chapter 6 provides a detailed analysis of the legislative and policy frameworks for ape conservation and protection, this chapter offers only a brief overview of legal issues and devotes more space to site-based law enforcement and community engagement.

The key findings include::

- A number of countries—including ape range states such as Gabon, Indonesia and Viet Nam—have revised their legislation to increase the severity of penalties for wildlife crimes, but weak judicial awareness of the issue and high levels of corruption hamper implementation.

- Where formal law contradicts customary law, even the strongest legal frameworks may not be effective if local communities do not consider them legitimate.

- Site-based law enforcement is key to the prevention of illegal wildlife hunting, yet flawed approaches can have deleterious social and ecological consequences, including unjust persecution of local people, human rights abuses and increased poaching pressure.

- Members of local communities are critical partners for law enforcement efforts. While their proximity to wildlife can make them more likely to engage in illegal hunting and trade, it can also enable them to help curb such activities, particularly by serving as protected area rangers.

- For wildlife conservation to prevail over wildlife crime, the expected net benefits (benefits minus costs) flowing to individuals in local communities as

a result of conservation must be greater than those associated with unsustainable or illegal hunting and trade.

- To be effective, all responses to wildlife crime at the source need to reflect an understanding of the motivations of people who are involved in hunting and trading in apes.

Developing Effective Legal Frameworks

The establishment of robust legal frameworks requires a wide range of measures, including passing effective legislation; strengthening the judiciary and improving prosecutions; ensuring adequate deterrent penalties are in place; cooperating with relevant local and external authorities; and tackling corruption, money laundering and other crimes that are linked to wildlife crime (Roe and Booker, 2019; see Box 5.1).

In some cases, simply raising awareness about the law can serve as a key intervention—not just among local people, but also among government officials. A study found that in the Garamba-Bili-Chinko landscape in Central Africa, for example, there was little awareness about the protected status of chimpanzees, even among local officials, and that the killing of adults for meat and subsequent trafficking of orphaned infants was rife (Ondoua Ondoua *et al.*, 2017). Raising awareness about laws does not necessarily lead people to respect them, but it is a useful starting point and, at the very least, a strategy for removing excuses for illegal activities—one of the key principles of situational crime prevention (Clarke, 2009).

As noted above, effective legal frameworks depend in part on adequate deterrents and penalties for wildlife crime. A recent study by the United Nations Office on Drugs and Crime found that, prior to 2015, only about one-quarter of the 131 parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) for which data were available had regulations specifying more than four years' imprisonment for involvement in the illegal wildlife trade (UNODC, 2016). Subsequently, in 2015, the UN General Assembly passed a resolution calling on member states to consider wildlife crime "serious," as per the UN Convention against Transnational Organized Crime, which stipulates that "serious crime" warrants a minimum penalty of four years' imprisonment (UNGA, 2015; UNODC, 2004). A number of countries—including ape range states such as Gabon, Indonesia, and Viet Nam—have since revised their legislation to increase the severity of penalties for wildlife crimes (Roe and Booker, 2019).

Without proper implementation, even the most comprehensive wildlife protection legislation will fall short of its desired conservation goals, especially if corruption is endemic in the judicial system. Such is the case in Indonesia, where orangutans are commonly held as pets and the first prosecutions of their owners took place as recently as 2010 in Borneo and 2012 in Sumatra—even though these apes have been strictly protected under the law since 1924 (WCS, 2012). To increase the priority given to tackling corruption, member states of the European Union and Senegal submitted a proposed resolution on wildlife trafficking and corruption at the 17th Conference of the Parties to CITES in 2016, during which it was adopted by consensus (CITES, 2016). Nevertheless, implementation remains a challenge (see Box 5.1).

Overall, the lack of effective legal frameworks is a key reason why illegal trade in apes is a lucrative and low-risk business, particularly for those operating at the middle and upper levels of the trade chain (Clough and May, 2018). Moreover, if formal law contradicts customary law, even

> **"** For wildlife conservation to prevail over wildlife crime, the benefits flowing to local individuals as a result of conservation must be greater than those associated with illegal hunting and trade. **"**

BOX 5.1

Tackling Corruption and Improving the Judicial Process in Cameroon and Beyond

In Cameroon, trafficking in live apes, skulls and meat is big business. The Last Great Ape Organization (LAGA) is a non-governmental organization that is trying to help tackle this trade, particularly by addressing the corruption that fuels it (LAGA, n.d.). In 1994, Cameroon passed a law that prohibits trade and trafficking in wildlife parts, yet no related prosecutions took place in the nine years following the law's enactment (National Assembly of Cameroon, 1994). In 2003, however, LAGA helped bring Cameroon's first wildlife crime conviction (Bale, 2016).

As one of the founding members of the Eco Activists for Governance and Law Enforcement (EAGLE) network, LAGA works with the government on arrests, legal follow-up and raising media awareness to ensure the law is properly applied (EAGLE, n.d.). In collaboration with the government, LAGA carries out undercover investigations, plans and supervises arrest operations, and follows up on court cases on behalf of the state. LAGA staff members keep a close eye on wildlife crime cases and make sure that the law is not undermined through bribery or other forms of corruption; they act as bodyguards during the entire judicial process, including during jail visits, to ensure prisoners are not released illegally. They collaborate with in-country influencers and international organizations to bring pressure to bear—such as through meetings, emails and phone calls—if judicial standards are not upheld. LAGA is credited with driving Cameroon's shift from inaction to sustained action on wildlife crime, as demonstrated by regular arrests and prosecutions of major wildlife dealers in the country.

Through the EAGLE network, LAGA's success in Cameroon has been extended to other countries in Africa—including critical great ape range states such as the Republic of Congo and Gabon (LAGA, n.d.). Like LAGA, EAGLE helps to strengthen legal frameworks for wildlife conservation by focusing on effective prosecutions of major players and by tackling corruption. The network has shown that corruption reaches into the highest levels of wildlife administration; in 2015, for instance, it helped to bring about the arrest and prosecution of the former head of the CITES Management Authority of Guinea for his role in the illegal export of chimpanzees and gorillas (PEGAS, 2015).

While increased prosecutions and arrests do not necessarily translate directly into a measurable reduction in poaching pressure on the ground, they can be effective in removing key players from complex trade chains and sending strong deterrent signals to would-be criminals.

the strongest legal frameworks may not be effective unless local populations consider them legitimate. While subsistence use and extraction of endangered wildlife is technically illegal, people may justify these activities on the basis of long-standing tradition, customary law or livelihood needs. The widespread criminalization of customary wildlife use by colonial and post-colonial administrations has, in many cases, resulted in the disenfranchisement of local communities from their land and natural resources and consequently fostered resentment of conservation efforts and authorities (Sifuna, 2012; Walters *et al.*, 2015; WIPO, 2013). In this context, recent research conducted in Central Africa and the Democratic Republic of Congo (DRC) shows that:

> Local communities are expected to respect legislation (e.g. determining which species can or cannot be hunted, when and how) that is sometimes contradictory and of which they have only superficial knowledge. Many people admit that they do not respect these laws, and that they find this legislation constraining as they rely heavily on exploiting wildlife for food and as a source of income. With high unemployment in the region, village hunters admit to poaching in the [protected areas] (Ondoua Ondoua *et al.*, 2017, p. 36).

Chapter 6 in this volume provides a wider assessment of the current status of legislative and policy frameworks with respect to ape conservation and protection. The remainder of this chapter focuses on local protection efforts: law enforcement activities, as led by government or private-sector agents, and community-based approaches.

Strengthening Law Enforcement

Management of any resource—be it timber, wildlife, water or land—requires resource users to adhere to international, national and local use rules or norms (Keane *et al.*, 2008). Successful resource management thus entails the monitoring of compliance with these rules, as well as their enforcement wherever compliance is lacking. Such enforcement involves a range of institutions and bodies, from governments to rural communities; it may be imposed on a locality by an external entity or it may have evolved locally.

The hunting, killing and commercial trade in apes—whether live or dead—is illegal in all countries. International trade is regulated by CITES, and domestic use and trade are regulated by national legislation, such as wildlife management acts and forest laws (CITES, n.d.; see Chapter 6). The dominant approach to countering illegal use and trade in apes has been focused on enforcing these regulations (Challender and MacMillan, 2014; Stiles *et al.*, 2013). Law enforcement efforts are required all along the wildlife trade chain, from source to destination, implying a need for cooperation among multiple agencies within a source country—such as park rangers, police and customs—as well as between countries. In the run-up to the international illegal wildlife trade conference in Hanoi in 2016, for example, the Ugandan government reported that it had established joint border patrols with neighboring countries, including the DRC, Kenya and Rwanda (Roe and Booker, 2019). In addition to cross-border patrols, regional wildlife enforcement networks have been established in many regions of the world. The following are of relevance to apes:

- the **Lusaka Agreement Task Force** in Kenya, Lesotho, Liberia, the Republic of Congo, Tanzania, Uganda and Zambia;
- the **Horn of Africa Wildlife Enforcement Network** in Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda; and

Photo: Without proper implementation, even the most comprehensive wildlife protection legislation will fall short of its desired conservation goals. Gorilla parts confiscated during a collaborative government and LAGA operation, Yaounde, Cameroon. © LAGA and The EAGLE Network

- the **Association of South East Asian Nations (ASEAN) Wildlife Enforcement Network** in Brunei, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam (EIA, 2016).

Site-based Law Enforcement: The Pros and Cons

While national and international enforcement efforts are critical, "the single most effective form of law enforcement in countering wildlife trafficking and poaching is enforcement *within areas where the species occur* to prevent animals from being killed or removed from the wild in the first place" (Felbab-Brown, 2018, emphasis added). Government and private rangers are charged with the bulk of site-level law enforcement, such as preventing the perpetration of crime, investigating crimes that have occurred and apprehending offenders. They undertake patrols, locate and remove snares, gather intelligence, conduct crime scene investigations, and pursue and arrest offenders.

Site-based law enforcement can help to curb the hunting and trade in apes but,

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BOX 5.2

Militarized Conservation: A Solution or Part of the Problem?

It is claimed that greater levels of law enforcement are needed to protect wildlife and the environment, including protected areas (Moore *et al.*, 2018). To ensure that interventions are properly tailored to local settings and contexts, however, it is useful to consider the potential utility and implications of such measures in detail.

The exploitation of natural resources—be it legal or illegal—often clashes with the interests of conservationists, environmentalists, governments and local or indigenous communities that are dependent on those resources. In response to such conflicts, governments are increasingly engaging in militarized forms of conservation, including greater use of force, counter-insurgency techniques, use of military surveillance technologies and contracting of private security services to train rangers and even to conduct patrols.[1] Many conservation organizations working with governments in state-owned protected areas have developed or support highly militarized ranger forces to protect the biodiversity and land from exploitation. As more than 1,000 rangers are known to have lost their lives over the period 2008–18, protected area authorities also consider militarization an important strategy to reduce risks to park staff (Draper, 2016; IRF, 2019).

Militarized approaches pit rangers against a variety of actors, however. In some cases, those actors are private businesses intent on industrial development or the extraction of resources; in others, they may be foreign poachers who hunt species for their parts, such as ivory, rhino horn, pangolin scales, or extract valuable timber (Global Witness, 2019). Time and again, rangers also find themselves operating in opposition to local people who depend on natural resources for water, food, shelter and other basic needs; under these circumstances, confrontations can lead to human rights abuses (Ayari and Counsell, 2017).

While militarized approaches may have led to an increased number of arrests, it is not clear whether they always lead to a decrease in

depending on how it is carried out, it can also generate problems for conservationists and local communities. From a conservation perspective, the effectiveness of law enforcement patrols has been praised as well as questioned. The utility of patrols is highlighted in a study conducted in Nyungwe National Park, Rwanda, which indicates that wildlife authorities could reduce poaching threats by adding ranger posts in areas where they do not already exist, and by increasing the number of patrols to sites where the probability of poaching activities is high (Moore *et al.*, 2018). Similarly, a study of site-based law enforcement across a range of protected areas in Africa suggests that the presence of patrols is the best predictor of great ape conservation (Tranquilli *et al.*, 2012).

Nevertheless, patrolling effectiveness is contingent on the rangers' level of training, their numbers relative to the size of the area being patrolled, and the availability of resources, equipment and salaries (Tranquilli *et al.*, 2012). As these requirements are rarely met in protected areas, patrolling effectiveness is often limited (Felbab-Brown, 2017, pp. 110–11). Another study points out that since apes are hunted and captured in diverse and dispersed ways, patrols—which tend to follow set routes and typically cannot cover

Photo: In Virunga National Park, park managers see militarization of conservation efforts as a way to improve protection and the security of local communities, but some argue that rangers also find themselves operating in opposition to local people who depend on natural resources for water, food, shelter and other basic needs; under these circumstances, confrontations can lead to human rights abuses. The Virunga volcanoes range.
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poaching (Carlson, Wright and Dönges, 2015). The presence of a militarized and sometimes extremely aggressive ranger force can lead to the following negative impacts, particularly for local communities living near protected areas:

- insecurity among local people, who fear getting caught in the crossfire between poachers and anti-poaching patrols;

- decreased access to land and resources, such as water, honey, meat and other non-timber forest products;

- the proliferation of firearms, especially in countries with poor arms control;

- human rights violations, including killing, rape and torture, when militarized groups lose control or state enforcement agents abuse their powers; and

- the erosion of community confidence in the government and in anti-poaching activities (Carlson, Wright and Dönges, 2015; Cooney *et al*., 2017).

Extreme and violent behavior by park rangers against local communities in different parts of the Congo Basin, South America and parts of Southeast Asia has been well documented by academic researchers and the media alike. Factors such as contempt, insufficient training, ethnic divisions, poor rule of law, and inadequate support and supervision of rangers have led to many serious abuses (Brooks and Hopkins, 2016; Warren, Baker and Engert, 2019).

In the Democratic Republic of Congo's Virunga National Park (see Figure 5.3), park managers see militarization of conservation efforts as a way to improve protection and the security of local communities that may be vulnerable to victimization by armed militias (Draper, 2016). This is demonstrated by allowing deployment, in certain contexts, of ranger forces to communities in insecure areas close to the park (Virunga Alliance, n.d.). Broader conflict and security concerns in the region are important considerations for the conservation sector, as the use of military tactics by both rangers and armed groups could cause violence to spiral out of control (Carlson, Wright and Dönges, 2015; Marijnen and Verweijen, 2016).

more than a limited proportion of any area —are unlikely to encounter poachers (Stiles *et al.*, 2013). More worryingly, some commentators have noted that effective law enforcement can actually have the unintended effect of incentivizing poachers to step up their activities to maintain the same level of supply in the face of anticipated confiscations or arrests (Felbab-Brown, 2017, pp. 107–9).

Site-based law enforcement has also been associated with adverse social consequences, including numerous cases of heavy-handed ranger patrols, followed by persecution, harassment and human rights abuses by authorities (Corry, 2015; Warren and Baker, 2019). Of growing concern is "militarized conservation"—the use of military staff, tactics and equipment by ranger patrols (see Box 5.2). The problem is not just a one-sided issue of poorly trained rangers meting out unjust punishments on vulnerable communities; indeed, it is not uncommon for poachers and other criminals to target the rangers themselves. On average, an estimated 100 protected area rangers are killed every year (TTGLF, n.d.).

Partnerships for Law Enforcement

Local and international non-governmental organizations (NGOs) are often involved as key partners of government agencies in the management of protected areas and enforcement of conservation regulations. Organizations such as the Wildlife Conservation Society (WCS), the World Wide Fund for Nature (WWF) and the Zoological Society of London (ZSL) support a number of governments of ape range states in training and equipping rangers, for example. NGOs have also been vital in the development of new technology to support law enforcement efforts (see Box 5.3). Perhaps most prominent among the technology that is used to

support law enforcement against the illegal wildlife trade is SMART—the Spatial Monitoring and Reporting Tool (see Box 5.4). SMART was developed and is maintained by a coalition of NGO partners that comprises WCS, WWF and ZSL, as well as the Frankfurt Zoological Society, Global Wildlife

BOX 5.3

Technology for Site-based Law Enforcement against Wildlife Crime

Site-based law enforcement is making increasing use of technology to curb the illegal hunting of and trade in apes and other species. In addition to the well-known SMART software, described in Box 5.4, use of the following tools is growing:

Radio frequency identification (RFID) tags are microchips that enable the tracking of individual animals, thus greatly enhancing rapid response effectiveness. RFID tags have largely been used to protect rhinos but have also served to monitor orangutans (Hance, 2009).

Camera traps have been used as biological monitoring tools for many years; more recently, they have been adapted for anti-poaching purposes, equipped with video feeds, heat sensors, vibration detectors and acoustics (Buxton *et al*., 2018; see Box 5.4).

Mobile phone apps—such as the award-winning apeAPP, developed by the Great Apes Survival Partnership (GRASP) (UNESCO, n.d.)—allow the general public to post sightings and report illegal activities. GRASP partners use apeAPP to post updates on confiscations and other activities, such as snare removals. Similarly, Freeland's WildScan is intended to help report illegal wildlife use (Freeland, 2018).

Online databases can be used to store information collected through mobile apps and other sources. GRASP's Apes Seizure Database is one such example.

Drones equipped with cameras and heat-sensitive infrared optics are increasingly being used to both monitor wildlife populations and to track suspected poachers (Corrigan, 2019).

BOX 5.4

Using SMART and Other Tools to Improve Law Enforcement

Since protected areas were first established, wildlife rangers have been employed to enforce the law. In undertaking patrolling, they build up deep knowledge of their site, not only with respect to the flora and fauna, but also regarding illegal activities. As this knowledge is generally underutilized and poorly shared, technology developers have sought to enhance rangers' ability to capture what they encounter in the field. These efforts have led to the development of the Spatial Monitoring and Reporting Tool (SMART), which builds on previous initiatives, such as the Management Information System (MIST), which was developed in Uganda, and CyberTracker, a South African tool (CyberTracker, n.d.; ESS, n.d.; SMART, n.d.-a).

Rangers can record data on key species and illegal activities using hand-held Global Positioning System (GPS) units or smartphones with built-in GPS capabilities. By uploading the data into SMART, they help to provide both temporal and spatial mapping of key wildlife sightings and threats. They also contribute to maps that show what areas are covered by ranger patrols, and where and when there are gaps in patrol coverage.

One of the key assumptions underlying the deployment of ranger patrols is that they act as a deterrent to hunters, yet this premise has rarely been tested. Assessments of tools such as MIST and SMART indicate that they have greatly improved patrol coverage and have been widely used to track catch per unit effort (CPUE), such as the number of snares discovered per kilometer of patrol (Critchlow *et al*., 2015). Analysis of CPUE methods can be vulnerable to bias, however, as the detectability of wildlife and threats can differ across observers and habitats, as well as over time (Keane, Jones and Milner-Gulland, 2011). New methods have been developed to better analyze data from SMART and MIST that incorporate measures to deal with variations in detectability (Critchlow *et al*., 2015; Moore *et al*., 2018). A recent analysis of modeled CPUE scores indicates that plotting the changes in CPUE over time against changes in patrolling efforts—that is, in the number and duration of patrols—can be used to detect where patrols provide effective deterrence against illegal activities (Dobson *et al*., 2019). Other tools, such as camera traps, are also starting to be incorporated in law enforcement monitoring to support rangers (see Box 5.3). With time, the growing number of SMART databases and the increasing quality of data within them will allow for enhanced analysis of the effectiveness of patrolling as a deterrence method.

In many sites that protect apes, SMART is used not only to monitor threats to their welfare and survival, but also to detect trends in their distribution and abundance. Researchers have used SMART data on sightings of signs of Grauer's gorilla (*Gorilla beringei graueri*) to assess the probability of occupancy across the ape's range in the eastern Democratic Republic of Congo, for example (Plumptre *et al*., 2016). Similarly, SMART and MIST data are being used to monitor Cross River gorilla (*Gorilla gorilla diehli*) occupancy.[2] SMART data are particularly useful in ranges where species are rarely encountered; over time, sufficient data can be compiled from regular patrolling to allow occupancy monitoring—an impossibility in one-off surveys.

Conservation, the North Carolina Zoo, Panthera, Peace Parks Foundation, Wildlife Protection Solutions and associates such as the CITES program Monitoring the Illegal Killing of Elephants (MIKE) (SMART, n.d.-b).

Private-sector organizations can also be key partners in law enforcement efforts, particularly those associated with natural resource sectors, such as logging, mining and industrial agriculture, including oil palm plantations. As discussed in the first two volumes of *State of the Apes*, the correlation between the hunting of wildlife and the influx of such industries is strong (Lanjouw, 2015; White and Fa, 2014). The link reflects not only that logging and mining operations open up forests with roads, allowing hunters to penetrate into previously inaccessible forest areas, but also that these industries bring with them large workforces that require food and thus represent a ready market for wild meat hunters.

Engaging private companies in tackling illegal hunting and the trade in apes is critical to the conservation of apes, particularly since a significant portion of their habitat lies outside of formal protected areas. Such is the case in the Congo Basin, where almost 40% of forest land has been awarded to timber enterprises, while only 12% is gazetted as protected areas (ZSL, 2014).

The International Union for Conservation of Nature (IUCN) suggests that certification through organizations such as the Forest Stewardship Council (FSC) is a potential mechanism for engaging private

Photo: There is a correlation between the hunting of wildlife and the influx of industries, such as logging, mining and industrial agriculture. The link reflects not only that logging and mining operations open up forests with roads, allowing hunters to penetrate into previously inaccessible forest areas, but also that these industries bring large workforces that require food and thus represent a ready market for wild meat hunters. Illegal wild meat poster to raise awareness, eastern DRC. © Jabruson (www.jabruson. photoshelter.com)

companies in law enforcement efforts to protect apes from being killed (Morgan *et al.*, 2013). FSC Principle 6, for example, states that a certified organization "shall maintain, conserve and/or restore ecosystem services and environmental values of the Management Unit, and shall avoid, repair or mitigate negative environmental impacts" (FSC, 2015, p. 14). Criterion 6.6 under this principle requires that companies demonstrate that effective measures are in place to control hunting. The IUCN's FSC guidance specifically addresses companies that operate in countries that suffer from weak law enforcement capacity, emphasizing that meeting this criterion may require the companies themselves to support or finance

the protection of wildlife from illegal hunting and trafficking, and to establish strict regulations to ensure their own staff members do not become complicit in any illegal activities, such as selling or buying wild meat (Morgan *et al.*, 2013).

In Cameroon, the ZSL's Wildlife Wood Project encourages private logging companies to adopt low-impact logging practices and engage in wildlife protection. Since 2007, the project has worked with timber producers Pallisco and Rougier, which together manage more than 6,200 km² (620,000 ha) of forest. Policing illegal hunting is just one of the measures by which the companies are to mitigate the negative impact of timber concessions on wildlife (ZSL, n.d.). Similarly,

schemes such as the Roundtable on Sustainable Palm Oil provide an opening for private companies to introduce strict regulations to prohibit the killing and capture of apes, but company commitment is required to translate this potential into routine practice (Ancrenaz *et al.*, 2016).

Like NGOs and private companies, local communities are critical partners for law enforcement efforts. Community buy-in can be key to making law enforcement efforts sustainable over the long term (Felbab-Brown, 2017). While their proximity to wildlife may tempt local people to engage in illegal hunting and trade, it also makes them more likely to be recruited as protected area rangers, as has been the case in Virunga National Park (Burke, 2018). Similarly, in the Lower Kinabatangan Wildlife Sanctuary in Malaysian Borneo, the Sabah Wildlife Department has recruited 24 "honorary wildlife wardens" from the local community and tasked them with conducting research, managing sanctuary resources and making arrests for illegal activities (Ancrenaz, 2019). In addition to serving as park rangers, wardens or game guards, local people can support law enforcement efforts by acting as informants and providing intelligence on planned, ongoing or completed illegal activities (Wilkie, Painter and Jacob, 2016).

The potential benefits of engaging local residents in law enforcement may seem compelling, as such a move promises to expand local authority and capacity, empower local communities, and reinforce their claims to land and resources. By participating in law enforcement efforts, however, community members may be exposed to serious risks. Specifically, individuals who are confronted by armed poachers face an immediate threat to their personal security, especially if they are not carrying weapons themselves. Further, if some community members are employed as game guards while others remain involved in poaching, the

former may be perceived as aligned with external law enforcement agents rather than the community, which can cause a breakdown in social cohesion (Wilkie, Painter and Jacob, 2016). In the absence of adequate training, local guards may also undermine judicial procedures; in particular, their "arrests may not be validated by the court if they fail to follow due process or established standards for evidence collection and curation" (Wilkie, Painter and Jacob, 2016, p. 9). The potential advantages and risks inherent in involving local communities as law enforcement partners thus merit careful consideration.

Promoting Community Engagement

As discussed in the previous section, communities can bolster local law enforcement efforts to tackle illegal hunting and trade in wildlife—even if these measures on their own are not sufficient to put an end to such illegal activities. To target the root of the problem—and not just the symptoms—community members can also contribute to the development of appropriate governance and incentive structures that encourage local residents to protect rather than to poach wildlife. Such structures can take the form of income generation schemes or land and resource tenure rights, for example.

These types of measure could usefully be applied as a way to control snaring, one of the most common ways of trapping wild animals. Snaring is impossible to prevent, no matter how great the effort to identify and remove snares. These traps are easy and cheap to make, difficult to detect and indiscriminate in terms of the animals they catch. Although apes may not necessarily be the intended targets, they often get caught in snares (Wild Earth Allies, 2018; see Chapter 1). Between 2010 and 2015 almost 200,000

snares were removed from just five protected areas in Southeast Asia; during every year in that period, tens of thousands were removed from just two parks—Southern Cardamom National Park in Cambodia, and Hue and Quang Nam Saola Reserves in Viet Nam (Gray *et al.*, 2018). Snare removal and other law enforcement strategies are unlikely to be effective over the long term unless they are coupled with additional approaches, such as efforts to strengthen legal frameworks—including through provisions that criminalize the possession of snares in or near protected areas—and increased incentives for local people not to hunt.

The same factors that render local people likely to engage in poaching—their proximity to protected species and knowledge of their environment—also make them ideal candidates for participation in wildlife stewardship and conservation. Their involvement can range from being open to consulting to accepting full-on devolution of power and authority regarding conservation initiatives (Felbab-Brown, 2017, chapter 7). Regardless of the approach, the fundamental determinants of whether communities will engage in conservation—that is, whether they will
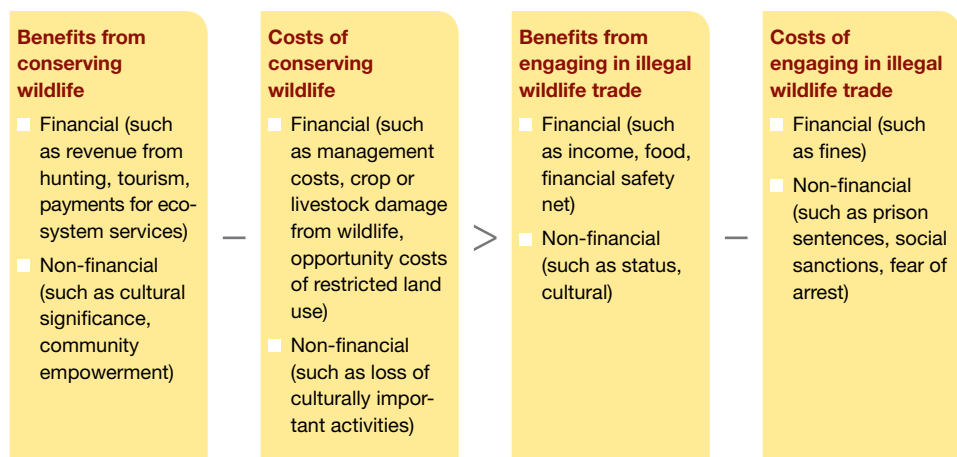
protect rather than poach wildlife—are their culture, norms, beliefs, values, lifestyles and cognitive factors, as well as related financial and non-financial incentives (Milner-Gulland and Rowcliffe, 2007; Vining and Ebreo, 2002).

To be compelling, an incentive for wildlife conservation must arguably be associated with greater net benefits (benefits minus costs) to a local community than the alternative—engaging in unsustainable or illegal hunting and trade. Both benefits and costs can be tangible and intangible; they may include cash, strengthened rights, fear of arrest and other factors. The key to determining whether local people are likely to poach wildlife or to protect it is the relative significance of each of the elements in the equation depicted in Figure 5.1. Changes to any of these elements will affect the overall balance and tip the scales in favor of either poaching or protecting.

Costs and benefits vary across individuals and over time. Tipping the balance towards protection and away from poaching requires mechanisms to 1) increase or maintain the benefits from conservation while reducing—or at least not increasing—the

FIGURE 5.1

To Poach or to Protect? A Simple Equation for a Complex Issue

Source: Cooney *et al.* (2017, p. 369)

costs, and 2) decrease the benefits and increase the costs of poaching. Different approaches to tackling illegal hunting and trade in wildlife can change the distribution of costs and benefits in unexpected ways (see Figure 5.2).
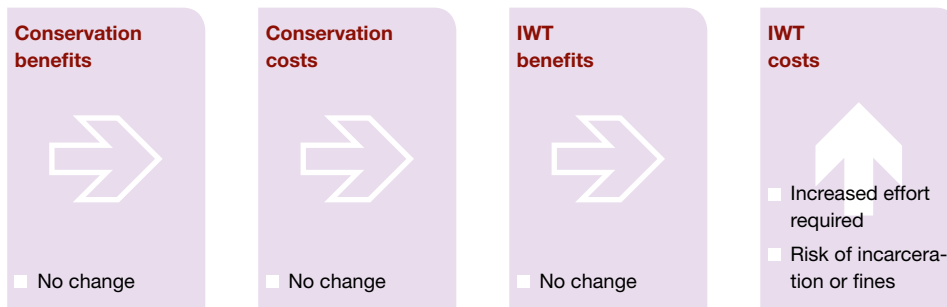
Increasing Community Benefits from Conserving Apes

Various approaches can be used to ensure that local people receive both financial and non-financial conservation benefits, either
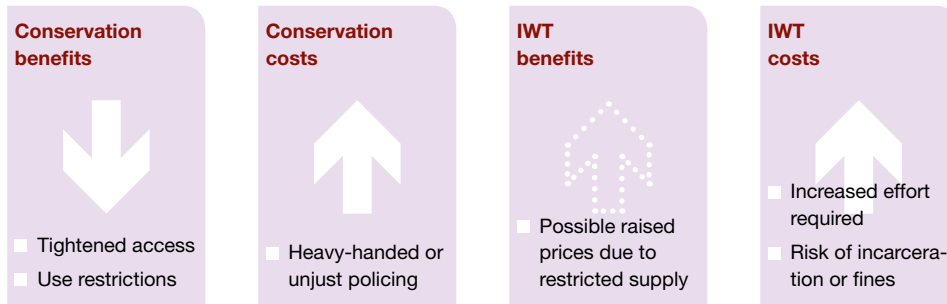
FIGURE 5.2

Influences of Different Interventions to Combat the Illegal Wildlife Trade on Incentives for Engaging in Conservation vs. Poaching
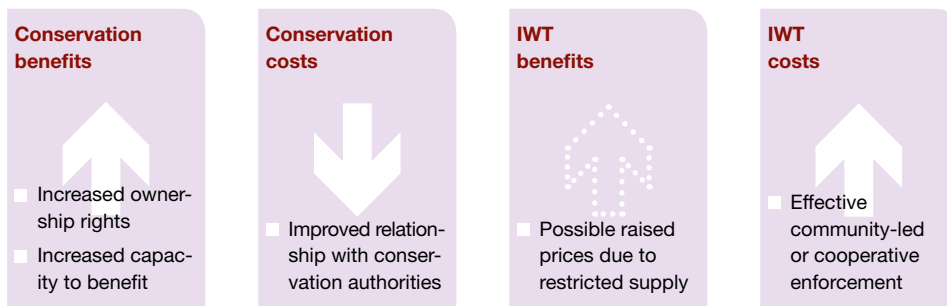
A: How enforcement interventions seek to change incentives to conserve wildlife and engage in the illegal wildlife trade (IWT):

Conservation benefits	Conservation costs	IWT benefits	IWT costs
➡️	➡️	➡️	⬆️
◻ No change	◻ No change	◻ No change	◻ Increased effort required ◻ Risk of incarceration or fines

B: How enforcement interventions may inadvertently change incentives to conserve wildlife and engage in IWT:

Conservation benefits	Conservation costs	IWT benefits	IWT costs
⬇️	⬆️	⬆️ (dotted)	⬆️
◻ Tightened access ◻ Use restrictions	◻ Heavy-handed or unjust policing	◻ Possible raised prices due to restricted supply	◻ Increased effort required ◻ Risk of incarceration or fines

C: How approaches that empower and engage communities may change incentives to conserve wildlife and engage in IWT:

Conservation benefits	Conservation costs	IWT benefits	IWT costs
⬆️	⬇️	⬆️ (dotted)	⬆️
◻ Increased ownership rights ◻ Increased capacity to benefit	◻ Improved relationship with conservation authorities	◻ Possible raised prices due to restricted supply	◻ Effective community-led or cooperative enforcement

Notes: Solid arrows indicate change (increase or decrease); outlined arrows represent no change; and dotted arrows indicate possible change (increase).

Source: Cooney *et al*. (2017, p. 371)

of which may be derived directly or indirectly. As discussed below, the most direct method is to strengthen community land tenure and wildlife ownership rights; doing so enhances a community's capacity to use, manage and benefit from wildlife directly, such as through subsistence hunting or community-based tourism. As communities around the world have been able to secure significant benefits from wildlife use, their desire to maintain access to those benefits has provided a major incentive for them to remain engaged in conservation (Cooney *et al.*, 2018). In Namibia, for example, returns for sustainable wildlife management—in the form of tourism, hunting and legal trade—are great enough to incentivize local communities to keep their land under conservation. Communal conservancies in the country now account for a greater land area than formal protected areas (Naidoo *et al.*, 2016).

Given that apes are strictly protected, opportunities for direct conservation benefits are relatively limited. While the hunting of apes is prohibited, hunting of other species in ape habitat can provide an important incentive for habitat conservation and, hence, ape conservation. Ape-based tourism is another mechanism for generating conservation incentives and, in some cases, significant benefits for local people. In Rwanda, for example, the high-end Sabyinyo Silverback Lodge was developed as a joint venture between the local Kinigi and Nyange communities, as represented by the Sabyinyo Community Livelihoods Association; the private entity Governors Camps Ltd.; the NGOs International Gorilla Conservation Programme and African Wildlife Foundation; and the government department Rwanda Development Board. The lodge attracts high-end tourists who have come to track mountain gorillas in Volcanoes National Park. The local communities benefit from the joint venture in a number of different ways: equity in the business; employment;

> **As communities have been able to secure significant benefits from wildlife use, their desire to maintain access to those benefits has provided a major incentive for them to remain engaged in conservation.**

income for goods such as agricultural produce and services such as dancing displays; and dividends from profits (Nielsen and Spenceley, 2011).

The management of ape tourism is a delicate business, however, as apes need to be habituated and health risks properly monitored. In the case of gorilla tourism, for example, tourist groups are strictly regulated in terms of numbers, the length of time they can spend watching the gorillas and the distance they have to keep from them (Macfie and Williamson, 2010). Gorilla tourism is usually managed by government wildlife authorities rather than by communities—even when apes stray onto communal land. Community-based tourism initiatives typically focus on local culture as a complement to the main attraction of the apes; indeed, community members are not authorized to take tourists to visit apes. In Rwanda, for instance, the non-profit organization Gorilla Guardians invites tourists who are predominantly interested in gorillas to visit a traditional village on the outskirts of Volcanoes National Park, where they can speak with former poachers and learn about local crafts (Gorilla Guardians, n.d.). The HUTAN Kinabatangan Orang-utan Conservation Programme in Borneo provides a more direct link to apes, including by supporting a homestay experience and a village-run tour company, Red Ape Encounters, which escorts tourists onto an orangutan research site (HUTAN-KOCP, n.d.).

Even though local people generally do not manage ape tourism themselves, they can benefit from it indirectly, such as through protected area revenue sharing schemes. In Rwanda, for example, 5% of annual income from protected area tourism is allocated to local communities (Munanura *et al.*, 2016). In Uganda, where tourists pay US$600 to track gorillas, US$10 of every gorilla permit sold and 20% of park entry fees are similarly allocated to the wildlife authority's revenue-

TABLE 5.1

Integrated Conservation and Development Project Approaches from 1985 To Date

Years	Approach
1985–95	**Substitution and/or compensation:** To generate support for conservation, buffer-zone communities are offered investment in infrastructure and livelihood alternatives to reduce pressure on natural resources.
1995–2000	**Benefit sharing:** Mechanisms such as tourism revenues are introduced as a means to add value to natural resources and give communities a "stake" in conservation.
2000–present	**Power sharing:** Local communities are empowered to have greater control and authority over natural resource management and the sharing of costs and benefits from conservation.

Source: Blomley *et al.* (2010)

sharing program and used to fund projects such as schools, clinics and small livestock schemes among park-adjacent villages (Franks and Twinamatsiko, 2017; UWA, n.d.; see Case Study 5.1). Additional benefits to local people include jobs in tourist lodges and small-enterprise development (such as arts and crafts/handicrafts) in and near tourist areas. Whether these benefits provide sufficient incentive for conservation over illegal use of wildlife remains debatable, however (Sabuhoro *et al.*, 2017).

Another mechanism for generating conservation incentives is through indirect benefits from ape and habitat conservation, such as alternative livelihood or, more broadly, integrated conservation and development projects (ICDPs) (see Case Study 5.1). The late 1980s and early 1990s saw the first generation of ICDPs, which were largely based on the assumption that if communities adjacent to protected areas were provided with access to alternative types of resources and income sources—in other words, if local livelihoods were "decoupled" from park resources—they would be less likely to engage in unsustainable or illegal harvesting and use of protected resources, including trees, grass and wildlife. Investing in agricultural improvements is a good example of a decoupled approach. Starting in the mid-1990s, a number of ICDPs included measures to increase benefits from

protected areas to local communities; these projects deliberately linked local livelihoods to park resources, on the assumption that people would be more willing to support conservation if they felt a direct benefit from doing so. Nature-based tourism is a good example of a linked or coupled approach. More recently, ICDPs have evolved to focus on increasing community decision-making authority over natural resources management, for example by involving them in park management committees (Blomley *et al.*, 2010). Table 5.1 summarizes this evolution in approach and Case Study 5.1 provides some insights into how ICDPs have evolved in Uganda.

Alternative livelihood initiatives, which represent a particular type of ICDP, aim to reduce threats to biodiversity by promoting:

- alternative resources, such as domestically produced cane rats or farmed fish as a source of protein to replace wild meat (Wicander and Coad, 2014);
- alternative occupations, such as tourism instead of hunting and trade, or butterfly farming instead of agricultural expansion; or
- alternative, lower-impact methods of exploiting a resource, such as the use of fuel-efficient stoves to reduce the demand for firewood (Roe *et al.*, 2015).

Using an Integrated Conservation and Development Approach to Generate Incentives for Gorilla Conservation in Uganda

Uganda was a pioneer of the integrated conservation and development (ICD) approach. In 1988, CARE International and the World Wide Fund for Nature initiated the Development through Conservation project in the country's two gorilla parks—Bwindi Impenetrable Forest Reserve and Mgahinga Forest Reserve—both of which would be gazetted as national parks three years later (see Figure 5.3). The goal of the project was to contribute to the conservation of both forests and to improve natural resource-based economic security of neighboring farming households. Prior to gazettement, local people were not allowed to live in the forests, but they had legal access to forest resources that were not commercially valuable, such as firewood, medicinal plants and wild meat. This period saw widespread illegal timber harvesting and mining, which led to concern about the future of the country's remaining population of mountain gorillas. As a result, forest authorities progressively restricted access to resources for local people, who eventually responded through acts of protest, such as arson and snaring (Blomley *et al*., 2010).

ICD initiatives started with an education and woodlot project in 1987 and expanded two years later with agroforestry and agriculture projects, both of which aim to replace people's dependence on forest resources with alternative sources of resources and income. In other words, the goal was to decouple livelihoods from the forest (Blomley *et al*., 2010).

During the 1990s, Bwindi spearheaded the expansion of ICDPs. In 1993 substitution projects aimed at decoupling were broadened into multiple-use programs, which allowed regulated harvesting of certain amounts of non-timber forest products. Then, in 1996, the government, supported by the International Gorilla Conservation Programme, introduced a revenue-sharing scheme whereby local communities could benefit from the income generated from tourism at Bwindi. Both of these "coupling interventions" were designed to provide local people with benefits from the park in order to increase their willingness to support the conservation of the gorillas (Blomley *et al*., 2010). The revenue-sharing program has been refined over time with successive wildlife legislation including the Wildlife Acts of 2000 and 2019 (Parliament of Uganda, 1996, 2019).

While many of Uganda's ICD initiatives have improved park–community relations, it remains unclear whether they have achieved conservation objectives, namely to reduce illegal activities (Blomley *et al*., 2010; Twinamatsiko *et al*., 2014). This lack of clarity on ICDP effectiveness reflects fundamentally flawed assumptions regarding how both coupling and decoupling interventions can generate sufficient behavior change to bring about conservation impacts; one such expectation is that people who receive benefits from conservation-linked tourism and other activities will no longer engage in illegal activities in the park (Blomley *et al*., 2010). Moreover, recent research points to a lack of equity in benefit sharing at Bwindi as a key motivator for continued illegal activities (Franks and Twinamatsiko, 2017; Twinamatsiko *et al*., 2014).

Such interventions all too often adopt the simplistic assumption that substituting one type of activity or resource for another will bring about long-term behavior change that will, in turn, bring about conservation impact (Blomley *et al.*, 2010; Roe *et al.*, 2015; Wright *et al.*, 2016).

As noted above, the most effective approaches to increasing incentives for conservation are underpinned by efforts to secure land and resource rights for communities. Without such rights, local people have no long-term stake in conservation and, as a consequence, short-term, opportunistic resource exploitation is likely to prevail. Recent research suggests that a lack of formal land tenure can represent a major constraint to incentivizing people to conserve their land; in western Uganda, for instance, the absence of such rights prevented small farmers from protecting their plots as a critical element of a chimpanzee corridor between two protected areas (Lamprey, 2017).

Decreasing Conservation Costs to Communities

Efforts to promote wildlife protection are more likely to succeed if they take account of the costs associated with conserving wildlife. Potential costs to local communities include reduced access to resources in protected areas; restricted land use options

FIGURE 5.3

Bwindi Impenetrable National Park and Mgahinga Gorilla National Park, Uganda

Sources: Protected areas – UNEP-WCMC (2019a, 2019b, 2019c); country boundaries – GADM (n.d.); other base map detail – OpenStreetMap (n.d., © OpenStreetMap contributors, published under Creative Commons Attribution License CC BY; for more information see http://creativecommons.org)

and potential forced resettlement; human–wildlife conflict resulting in personal injury and damage to livestock, crops and property; and disease transmission from wildlife to livestock and humans. Ape conservation can result in any combination of these costs.

In western Uganda, for example, the gazettement of Bwindi Impenetrable National Park and Mgahinga Gorilla National Park resulted in the eviction of the indigenous Batwa communities (Blomley *et al.*, 2010). Similarly, other communities have been forced to leave their homes once the areas where they live become protected (Brockington and Igoe, 2006). In and around great ape habitats, a major problem is human–wildlife conflict, and particularly incidents that involve aggressive chimpanzees attacking and killing people, especially children (Hockings and Humle, 2009). Less extreme—yet still significant—impacts include crop raiding, particularly in areas with high densities of subsistence farmers. At Gishwati Forest in Rwanda, for instance, local farmers estimated that 10–20% of household income could be lost due to crop raiding by chimpanzees and monkeys in just one agricultural season (McGuinness and Taylor, 2014). These negative impacts can be especially significant among poor communities and can cause high levels of fear, anger and resentment, which sometimes lead to retaliation against wildlife, a park or a park authority (Twinamatsiko *et al.*, 2014). Indeed, research in Kalimantan,

Indonesia, found that there was a highly significant association between reported conflict and the killing of orangutans, as 23% of the people who reported conflict also declared that they had killed an orangutan (Meijaard *et al.*, 2011).

The IUCN and other organizations have produced guidance on how to reduce and mitigate ape-related conflict (Hockings and Humle, 2009). Interventions can include the construction of physical barriers, such as fences to keep wildlife away from crops and livestock; problem animal control or removal; planting of unpalatable crops, such as tea, in park buffer zones; and insurance or compensation schemes to compensate individuals for crops damaged by wildlife (Bowen-Jones, 2012). Examples include the Human–Gorilla (HuGo) Conflict Resolution teams in Uganda's Bwindi Impenetrable Forest, which were established by the International Gorilla Conservation Programme in collaboration with the Uganda Wildlife Authority in 1998 (Meder, 2012). HuGo volunteers are trained to chase gorillas back into the park if they appear in adjacent fields (Hockings and Humle, 2009).

Reducing the costs of and increasing the benefits from conservation are both critical to tipping the balance in favor of protection and against poaching. These interventions are unlikely to be sufficient unless simultaneous efforts are made to reduce the benefits and increase the costs of involvement in illegal hunting and trade, particularly in the context of escalating prices for illicitly sourced wildlife products (Challender and MacMillan, 2014).

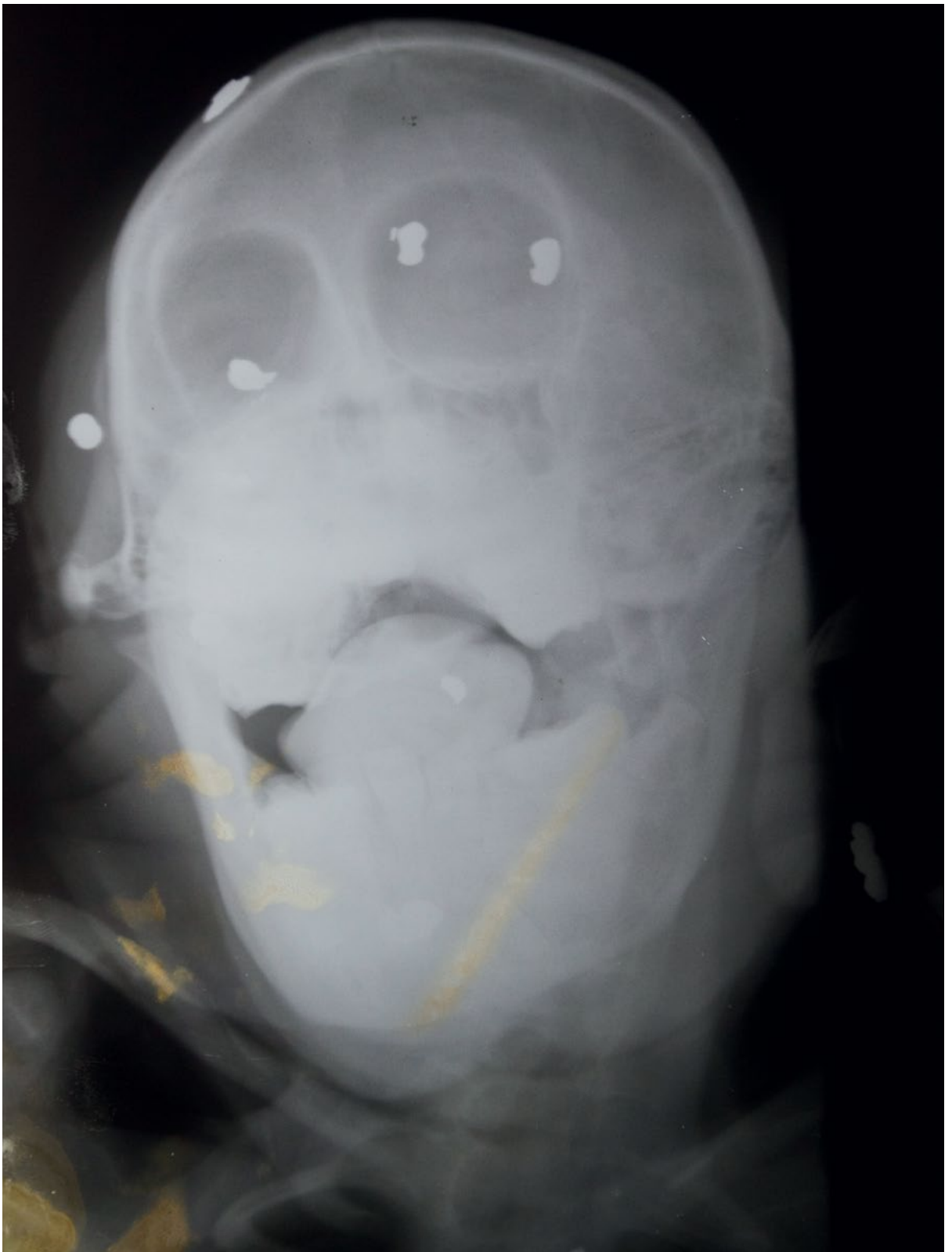## Reducing the Benefits of Engaging in Illegal Activities

Efforts to render illegal activities less attractive typically rely on law enforcement interventions and initiatives to reduce demand for ape products. These include measures to reduce the likelihood of hunting success, such as through the intensification of snare detection, and education and awareness campaigns to reduce demand for (and hence the price of) live animals, animal parts and wild meat (Linkie *et al.*, 2015). The Jane Goodall Institute, for one, invests heavily in education, since many local people do not realize that it is illegal to kill and consume endangered species, including chimpanzees and other apes (Cohen-Brown, 2015). While these interventions may likewise be important in reducing the profitability and attractiveness of the illegal wildlife trade, they are not likely to be effective unless implemented in conjunction with other strategies.

Increasing the Costs of Engaging in Illegal Activities

Most responses to the illegal wildlife trade focus on increasing the costs associated with engaging in it. These measures are typically state-led (and sometimes private) law enforcement efforts, which, as noted above, can be significantly strengthened when carried out in partnership with local communities. Evidence from within and beyond the conservation sector amply shows that law enforcement and crime prevention are most effective when local residents and the police carry them out jointly (Hawdon and Ryan, 2011).

In addition, communities can apply their own cultural norms, taboos and social sanctions to increase the disincentives for engaging in illegal hunting and trade, as discussed in Chapter 2. Cultural responses vary significantly across communities. In Borneo, some Dayak subgroups see orangutans as reincarnations of respected community members and therefore will not contemplate killing or eating them. In contrast, other Dayak communities teach men not to return from the forest empty-handed lest they suffer a loss of status; to avoid such

a fate, Dayak hunters may deem it acceptable to kill an orangutan. Meanwhile, religion prohibits the Malay people from eating "fanged" animals, including orangutans, but the ban on consumption does not prevent them from shooting at or killing apes that may be raiding their crops or posing a threat to their families (Yuliani *et al.*, 2018). Among the Bakweri people of Mount Cameroon, the killing and eating of chimpanzees and Cross River gorillas (*Gorilla gorilla diehli*) is culturally forbidden (Abugiche, Egute and Cybelle, 2017; Etiendem, Hens and Pereboom, 2011). Recognizing, raising awareness of and reinvigorating these cultural taboos can be an effective complement to formal law enforcement, especially where the latter is weak.
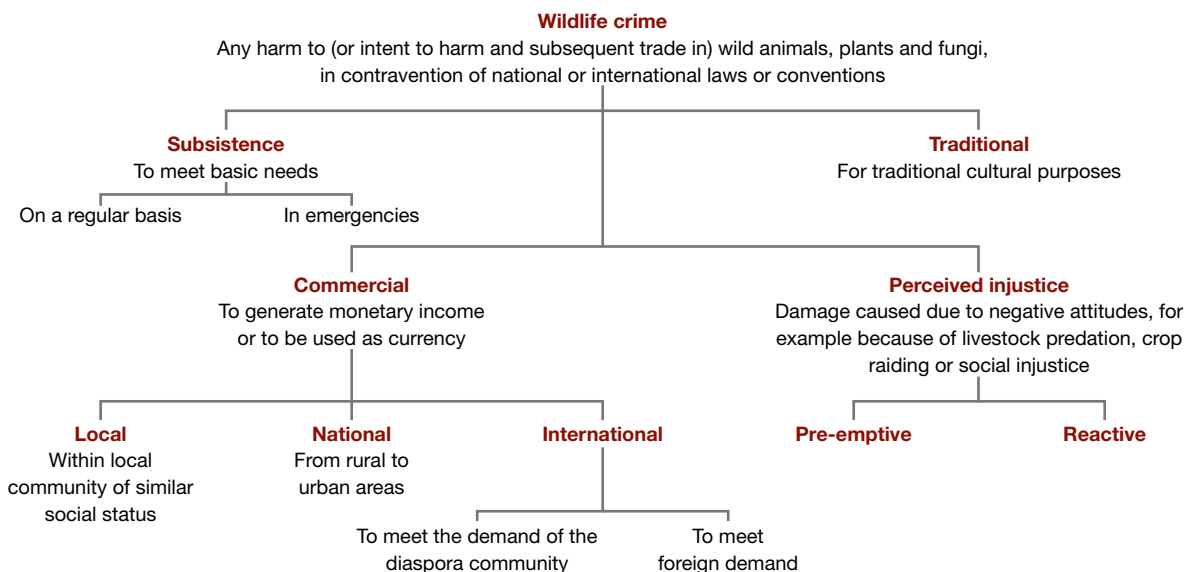
Conclusion

Tackling illegal hunting and the trade in apes at the source requires a combination of approaches. The dominant strategy to date has been to focus on site-based, top-down law enforcement. This method is unlikely to be effective on its own, however, and it can have undesirable social and ecological outcomes, including human rights abuses and local resentment of conservation agencies. Whether an individual or a community engages in the illegal wildlife trade depends on the net costs and benefits associated with conservation and illegal use, as well as prevailing norms and cultural factors. This chapter outlines selected strategies that can influence the balance of costs and benefits so as to encourage local people to be protectors rather than poachers of apes and other wildlife. Research is needed to evaluate the effectiveness of different interventions, as rigorous studies in this area are few and far between.

What is clear is that responses at the source will only be effective if they take account of the drivers and motivations of those involved in hunting and trading in

FIGURE 5.4

Drivers of Wildlife Crime in Uganda

Wildlife crime
Any harm to (or intent to harm and subsequent trade in) wild animals, plants and fungi, in contravention of national or international laws or conventions

Subsistence
To meet basic needs

On a regular basis — In emergencies

Traditional
For traditional cultural purposes

Commercial
To generate monetary income or to be used as currency

Perceived injustice
Damage caused due to negative attitudes, for example because of livestock predation, crop raiding or social injustice

Local
Within local community of similar social status

National
From rural to urban areas

International

To meet the demand of the diaspora community — To meet foreign demand

Pre-emptive — **Reactive**

Notes: The drivers in this diagram are not mutually exclusive; they often overlap.
Source: Harrison *et al.* (2015, p. 20)

apes. Poverty is often cited as a key driver of the illegal trade in wildlife, but the reality may be far more complex (Duffy *et al.*, 2015). Incentives may also be cultural, economic, linked to resentment over conservation regulations or human–wildlife conflict, or reflective of a lack of meaningful deterrents (Milner-Gulland and Leader-Williams, 1992; Twinamatsiko *et al.*, 2014; see Chapters 2–4). A recent review of wildlife crime in Uganda, for example, indicates that people are driven by four key goals that are often interlinked:

- meeting basic subsistence needs;
- generating income;
- retaliating against perceived conservation injustices; and
- satisfying traditional cultural practices (Harrison *et al.*, 2015; see Figure 5.4).

Some of these drivers are linked to poverty, but together they illustrate that poverty is not the only motivation.

Drivers of illegal hunting and trade differ across settings, communities and individuals. Efforts to tackle wildlife crime are thus most likely to be effective if they are informed by context-specific assessments of the drivers; such assessments allow for the development of an appropriate mix of targeted responses. It would be futile, for example, to implement a project designed to replace the use of wild meat if the drivers of wildlife crime are not a desire to eat or sell meat, but rather to pursue cultural traditions. If the main motivation for illegal activities is the perception that conservation is a source of injustice, then there would similarly be no point in continuing to enforce the rules that are creating the conflict in the first place. Responses also need to factor in who in particular is undertaking illegal activities so that these individuals may be targeted effectively. For example, an intervention is not likely to bear fruit if it is aimed at local people who live near ape habitat although the biggest perpetrators of wildlife crime are transient workers attached to logging companies.

Responses that aim to tackle hunting and the trade in apes have a high chance of producing the desired impact if they are grounded in an understanding of the social, historical and political conditions that have shaped the local context. Ideally, such interventions deploy a mix of sensitive and appropriate law enforcement with community engagement strategies that not only increase the disincentives for engaging in wildlife crime, but also increase incentives for conservation, including by enhancing local perceptions of the fairness of conservation regulations. Such an approach entails maximizing local benefits from conservation, while recognizing and addressing its very real costs.

" Efforts to tackle wildlife crime are most likely to be effective if they are informed by context-specific assessments of the drivers. **"**

Acknowledgments

Endnotes

1   Annecke and Masubelele (2016); Barbora (2017); Buscher (2018); Duffy *et al.* (2015, 2019); Massé and Lunstrum (2016); Ramutsindela (2016); Verweijen and Marijnen (2018).

2   Plumptre, A.J., Eaton, M.J., Imong, I., *et al.* (In prep.). Trends in Cross River Gorillas across their range: using patrol data to monitor species and their threats.

3   International Institute for Environment and Development (www.iied.org).

4   The EAGLE Network (Eco Activists for Governance and Law Enforcement – www.eagle-enforcement.org).

5   KBA Secretariat (Key Biodiversity Areas – www.keybiodiversityareas.org/kba-partnership/kba-secretariat).