

Chapter One

Wildlife Trafficking: Causes, Characteristics, and Consequences

ANDREAS SCHLOENHARDT

This chapter examines the causes and characteristics of wildlife trafficking, the demand and supply that fuel this trade, and the various activities that define it, ranging from poaching to consumption. The purpose of this chapter is to outline the causes, characteristics, and criminology of wildlife trafficking. The chapter provides a general understanding of the patterns and dimensions of this crime type and the difficulties of separating legal and illegal trade.¹

Table of Contents

I. Introduction	2
II. Implications of wildlife trafficking	3
1. Endangering species	3
2. Ecological costs	4
3. Animal welfare	4
4. Threats to other species	5
5. Biosecurity risks	6
6. Threats and violence	6
7. Economics and governance	7
III. Data	7
1. The difficulty with data	7
2. Seizures	8
3. Dark figures	10
IV. Demand and supply	11
1. Consumption and demand	11
1.1. Medicinal use and healthcare	11
1.2. Food consumption	12
1.3. Curios and collections	13
1.4. Clothing and accessories	13

¹ This chapter has been adapted from UNODC's Education for Justice (E4J) 'Illicit Markets for Wildlife, Forest & Fisheries Products' learning module, written by the same author in 2019 in support of the course from which the chapters in this book derive.

1.5. Cosmetics and fragrance	14
1.6. Construction and furniture	14
1.7. Pets and zoos	15
1.8. Ornamental plants and gardens	16
2. The supply-demand cycle	16
3. Impact on pricing	17
V. Perpetrators and their networks	19
1. Typology of offenders	19
2. Organised criminal groups	21
3. Corporate sector	23
4. Corruption and government involvement	23
VI. Locations and activities relating to wildlife trafficking	25
1. Concentrations of wildlife trafficking	25
2. Collecting, poaching, harvesting	27
3. Smuggling	27
3.1. Concealment of contraband	28
3.2. Fraudulent documents	29
3.3. Smuggling routes	30
4. Selling	30
VII. Observations	31
Bibliography	32

I. Introduction

Wildlife trafficking includes the taking, trading, importing, exporting, processing, possessing, obtaining, and purchasing of wild animals, animal parts, and plants in contravention of international or national law. Wildlife trafficking threatens the existence of many animal and plant species. The more endangered a species becomes, the greater is the value of the remaining specimen, thereby increasing the incentive for further illegal activities. As a result, lucrative illicit markets for wildlife products span across the world. The fact that some trade in fauna and flora is regulated while some trade is prohibited provides ample opportunities for circumventing relevant laws and regulations. The loss of income from the legal trade in fauna and flora erodes the revenue of governments. When it is linked to organised crime, bribery, coercion, violence, or armed conflict, wildlife trafficking can corrupt national authorities and threaten the rule of law.

This chapter provides an introduction into the effects and drivers of wildlife trafficking, the patterns of illicit markets, and outlines the perpetrators and

their activities. Part II of this chapter outlines the implications of wildlife trafficking. Part III examines the difficulty with data documenting the scale of wildlife trafficking. Demand for and supply of trafficked wildlife are the subject of part IV. Next, part V looks at the perpetrators and networks involved in wildlife trafficking, before general observations about locations and activities relating to wildlife trafficking are made in part VI. The concluding part VII summarises the main observations of this analysis and paves the way for the following chapters of this volume.

II. Implications of wildlife trafficking

Threats to wildlife and plant species come from multiple sources, such as pollution, deforestation, destruction of natural habitats and climate change. Wildlife trafficking contributes significantly to these problems through poaching, harvesting, or depleting significant quantities of already endangered species. Wildlife Trafficking has far-reaching implications, not only for the animal and plant species involved, but also for human livelihoods, biodiversity, and governance.

1. Endangering species

Wildlife trafficking can diminish species populations and cause extirpations. When endangered species are involved, any poaching or harvesting of that species risks the species becoming extinct. Further worsening the problem is the fact that the demand for larger and more ornate specimens means that hunters and collectors often aim for the fittest individuals from the breeding population, with serious consequences for subsequent generations.²

² Gail E Rosen and Katherine F Smith, 'Summarizing the evidence on the international trade in illegal wildlife' (2010) 7 *EcoHealth* 24, 25.

2. Ecological costs

Wildlife trafficking contributes to biodiversity loss and can threaten ecosystem functions.³ Overexploitation can cause long term ecological problems such as creating sex-ratio imbalances and slowing the reproduction rate of vulnerable species. For example, elephant poaching of bull elephants (ie males with large tusks) has left a severe gender imbalance amongst African elephants. As a result, population recovery has been slowed because it has affected reproduction rates.⁴

Population decline is further problematic if keystone species are affected by illicit trade. Keystone species have ‘a significant direct and indirect effect on their surrounding ecosystem and other species within that ecosystem’.⁵ Sharks, for example, have a central role in oceanic systems by preying upon smaller fish. As a result of shark finning that has decimated shark populations globally, populations of smaller fish have significantly increased leading to a decline in shellfish.⁶ With regard to destructive fishing practices, cyanide and dynamite are used at times to capture fish by stunning them, but can also kill many other nearby fish and destroy coral reefs that provide a habitat for many aquatic species.⁷

3. Animal welfare

Many endangered species are fragile and require expert and delicate handling. Yet, the methods used by poachers to kill or capture animals and the way animals are handled are often extremely cruel and fail to comply with animal welfare standards. Many transportation and

3 Steven Broad, Teresa Mulliken and Dilys Roe, ‘The Nature and Extent of Legal and Illegal Trade in Wildlife’, in Sara Oldfield (ed), *Trade in Wildlife: Regulation for Conservation* (2012) 3, 3.

4 Joseph Saragusty et al, ‘Skewed birth sex ratio and premature mortality in elephants’ (2009) 115(1) *Animal Reproduction Science* 247, 251.

5 William D Moreto and Stephen F Pires, *Wildlife Crime: An Environmental Criminology and Crime Science Perspective* (2018) 19.

6 Francesco Ferretti et al, ‘Patterns and ecosystem consequences of shark declines in the ocean’ (2010) 13(8) *Ecology Letters* 1055, 1062 – 1063.

7 Kate McClellan, ‘Coral degradation through destructive fishing practices’, *The Encyclopedia of Earth* (Web page, 24 August 2008).

concealment methods are harmful to animals.⁸ The ways in which some animals and plants are caught, transported, and kept frequently cause injury, death, or attrition, resulting in further losses especially when living animals or plants are trafficked.⁹ Indiscriminate methods used to catch animals, such as cyanide fishing, can also harm and kill non-target species, deplete fishing populations, and damage ecosystems.¹⁰

4. Threats to other species

Beyond the direct negative biological impact on specific species, the illegal wildlife trade can have indirect impacts from a conservation perspective. The two most obvious examples are detrimental by-catch of non-target species and the introduction of harmful alien species into a habitat. Examples of detrimental by-catch are particularly well known from the fisheries sector: Nets, lines, and other fishing gear used to catch the desired fish of catch everything else in their path, including turtles, dolphins, and juvenile fish. For example, the vaquita porpoise which can be found in Gulf of California frequently gets caught in nets used to catch another endangered species, the totoaba macdonali fish. Totoaba is a delicacy in Asia and it is smuggled from Mexico through the United States to China and other destinations.¹¹ Terrestrial examples include impacts on non-target species from activities such as logging and waterfowl hunting.¹²

8 Rosen and Smith (n 2) 25, 27.

9 UN ECOSOC, Commission on Crime Prevention and Criminal Justice, *Illicit trafficking in protected species of wild flora and fauna and illicit access to genetic resources, Report of the Secretary-General*, UN Doc E/CN.15/2003/8 (4 March 2003) 9 [26]; See further Sandra E Baker, 'Rough Trade: Animal Welfare in the Global Wildlife Trade' (2013) 63(12) *BioScience* 928 – 938.

10 See further Laura E Dee, 'Conservation and management of ornamental coral reef wildlife' (2014) 169 *Biological Conservation* 225 – 237.

11 Caterina D'Agrosa et al, 'Vaquita Bycatch in Mexico's Artisanal Gillnet Fisheries: Driving a Small Population to Extinction' (2000) 14(4) *Conservation Biology* 1110 – 1119; Armando Jaramillo-Legoretta et al, 'Saving the Vaquita: Immediate Action, Not More Data' (2007) 21(6) *Conservation Biology* 1653 – 1655.

12 Broad, Mulliken and Roe (n 3) 4.

5. Biosecurity risks

Wildlife trafficking may introduce viruses, bacteria, or species to places where native populations are not adequately resistant.¹³ Exotic species that are smuggled can pose a biosecurity risk because they can potentially establish themselves in the wild and become pests. They can also carry seeds, parasites, and viruses which, if released to the environment, would have negative impacts on native wildlife, and on the agriculture, horticulture, and aquaculture industries.¹⁴ Negative impacts of alien species introductions caused by wildlife trafficking are not well documented; some of the more problematic examples have been linked to deliberate movements of ornamental plants and game fish species outside their natural ranges.¹⁵

6. Threats and violence

Poachers and hunters are frequently armed with guns or other weapons that are used to kill, capture, or collect wildlife, or are employed against officials or local people who protect or live in close proximity to endangered animals or plants. Over the last decade, some 1000 rangers have died in the line of duty in Africa alone.¹⁶ Threats and violence rise and often escalate—along with the scale of depletion—if criminal organisations become involved in wildlife trafficking. This also heightens the risk of corruption at many stages of the illegal wildlife trade.¹⁷ Moreover, increased militarisation of anti-poaching efforts can sometimes lead to ‘shoot first’ policies that can ultimately lead to more deaths of potential offenders and escalate violence between those on the frontline and locals.¹⁸

13 Rosen and Smith (n 2) 25.

14 Erika Alacs and Arthur Georges, ‘Wildlife across our borders: a review of the illegal trade in Australia’ (2008) 40 (2) *Australian Journal of Forensic Sciences* 147, 147.

15 Broad, Mulliken and Roe (n 3) 4–5.

16 Nuwer, 2016.

17 Rosen and Smith (n 2) 25.

18 Moreto and Pires (n 5) 22.

7. Economics and governance

Wildlife trafficking undermines and threatens the ability and efforts by States to manage their natural resources. It can result in severe economic losses, which particularly affect developing countries that rely on revenue generated by legal trade.¹⁹ Wildlife trafficking can threaten rural livelihoods where people's subsistence and income rely on wildlife, including those based on ecotourism.

Wildlife trafficking can undermine administrative systems and, in some cases, threaten national stability. The United Nations (UN) Security Council, for instance, has repeatedly expressed concern that the internal armed conflict and widespread breakdown of law and order in the Central African Republic was fuelled by armed groups and criminal networks that benefited from illicit exploitation of natural resources, including wildlife and wildlife products, in that country.²⁰ Several reports also document the impact of land clearance for mining operations and infrastructure projects on local animal species and humans in the Democratic Republic of Congo. Many of the affected areas are home to endangered mountain gorillas that are displaced, lose their food supply, or that are poached for use as bush meat that is then sold to miners and armed groups.²¹

III. Data

1. The difficulty with data

Reliable data is essential to properly understand the scale and characteristics of wildlife trafficking and for the development of effective countermeasures.

19 Rosen and Smith (n 2) 25.

20 UN Security Council, *Report of the Secretary-General on the situation in the Central African Republic*, UN Doc S/2013/261 (3 May 2013) 6 [29]; UN Security Council, *Report of the Secretary-General on the situation in the Central African Republic, 15 June–15 October 2018*, UN Doc S/2018/922 (15 October 2018) 4 [15].

21 Nigel South and Avi Brisman, 'Critical Green Criminology, Environmental Rights and Crimes of Exploitation', in Simon Winlow and Roland Atkinson (eds), *New Directions in Crime and Deviance* (2013) 99, 105; Christian Nellemann et al, *The Last Stand of the Gorilla: Environmental Crime and Conflict in the Congo Basin* (2010) 63.

In most places, data and other information about the levels and patterns of wildlife trafficking are, however, at best fragmented. ‘For a wide variety of reasons,’ note Steven Broad, Teresa Mulliken and Dilys Roe, ‘it is not easy to quantify the world’s wildlife trade. Local use of wild plants and animals may account for the majority of global wildlife trade in terms of trade volume and perhaps even value’ but much of this trade is carried out through informal trade networks and not recorded in available statistics.²² ‘Even the more structured aspects of domestic trade in wildlife commodities, between regions within a country and to supply urban markets, is seldom closely monitored and even where it is, statistical records of trade volumes and values are dispersed and difficult to compile.’²³

A report presented to the United Nations Commission on Crime Prevention and Criminal Justice (CCPCJ) noted that:

In spite of the widespread tendency to attempt to estimate the size of such illegal markets, many of which are described as second only to drugs or, in some cases, to drugs and arms, there are few reliable statistics. Efforts to estimate the size of the illicit market in fauna and flora encounter enormous problems. There are several layers of uncertainty, which, in many respects, are irreducible: the number of animals or plants in the wild, the number that are illegally but successfully trafficked to customers, the percentage of those trafficked that are intercepted and the prices that are paid. Moreover, there are multiple sectors and multiple products and the dynamics of the market differ from sector to sector. Those uncertainties are compounded by inadequate reporting, the paucity of controlled deliveries and other undercover operations that are critical to the process of knowledge discovery in illegal markets and the over-reliance on anecdotal or specific cases without adequate consideration of their wider applicability, broader relevance or adequacy as a typical sample. The fact that the size of the illegal trade in endangered species cannot be precisely established does not, however, mean that the market is insignificant: it is a large and vibrant market with considerable demand and sufficient profit to attract both organized and other crime.²⁴

2. Seizures

While not flawless, the most reliable statistics are those of annual seizures made by national authorities. Seizures are reliant on two factors:

²² Broad, Mulliken and Roe (n 3) 6.

²³ Ibid.

²⁴ UN ECOSOC, Commission on Crime Prevention and Criminal Justice (n 9) 9 [27].

[1] The presence of contraband in the jurisdiction of the seizing authority; and [2] the proactive effort to detect and interdict that contraband. Thus, the quantity of seizures indicates both the presence of a problem and the initiative of the relevant authorities in addressing it. High levels of seizures are not necessarily an indicator of gaps and weaknesses of domestic systems; they are often precisely the opposite.²⁵

Consequently, States that dedicate the most effort to fighting trafficking may have higher seizure totals than similarly situated counterparts. For this reason, jurisdictions with the highest seizures are often transit countries and not the source nor the destination. UNODC's 2016 *World Wildlife Crime Report* notes:

[T]o avoid detection, traffickers favour those countries with limited interdiction capacity. Even countries with a good law enforcement capacity do not inspect their exports the way that they inspect their imports, so contraband sourced in countries with weak capacities is highly unlikely to be seized at the point of origin. Furthermore, corruption is essential to many contraband flows, and seizures are not made where the relevant officials are complicit.²⁶

Each seizure incident can provide multiple pieces of information on the nature of an illicit market. Whether transported by sea freight, air freight, personal courier, or mail, it is sometimes possible to determine where the contraband originated, transited, and was destined. [...] In addition, a seizure allows a great deal of information to be obtained about the identity and methods of the traffickers, when the confiscating authorities take the initiative to record these details. Aside from routes, the preferred methods of conveyance and concealment can be documented. [In some cases, t]he age, gender, and nationalities of those associated with the shipment can be recorded, as well as the laws used to charge them.²⁷

Several databases have been established to record information relating to seizures and to facilitate the study of wildlife trafficking patterns. UNODC maintains a global database of seizure incidents called World WISE, the World Wildlife Seizure database. The World Customs Organisation (WCO) gathers some wildlife seizure data through its CEN database. WCO-CEN data are also a large component of the seizure database of the European Commission Enforcement Working Group, known as EU-TWIX (European Union Trade in Wildlife Information Exchange).²⁸ In the United States, the US Fish and Wildlife Service (USFWS) records details of seizures in the

25 UNODC, *World Wildlife Crime Report: Trafficking in protected species* (2016) 28.

26 Ibid.

27 Ibid.

28 Ibid.

Law Enforcement Management Information System (LEMIS).²⁹ Furthermore, States Parties to *CITES*, the *Convention on International Trade in Endangered Species*,³⁰ are required to submit annual reports of international trade, including seizures of listed species, which are made available on the United Nations Environment Program World Conservation Monitoring Centre (UNEP-WCMC) CITES trade database.³¹

3. Dark figures

One of the difficulties in collecting statistics is the fact that in the context of wildlife trafficking, complainants will only contact the authorities to report a crime in rare and exceptional circumstances, usually when they experience personal loss or harm. Even where they exist, crime statistics alone do not necessarily provide a good indication of the prevalence of crime and victimisation in a given country because they are greatly influenced by the willingness of victims to report the crime to the police. The reporting rate, as it is usually referred to, may be affected by a number of factors such as access to law enforcement agencies and confidence in the police. Victims and witnesses of crime are unlikely to report it to the authorities when they do not have much trust in them or cannot reasonably expect much help from them.³² Crime statistics therefore provide a flawed estimate of the level of wildlife trafficking.

The difference between how much crime actually occurs and how much crime is reported to or discovered by the authorities is referred to as the 'dark figure'. Further compounding the problem of reporting and documenting wildlife crime is that the victims—in this case, wildlife—cannot report crime to the police. This 'silent victim' problem only adds to the difficulty of measuring this crime type.

29 See further Gohar A Petrossian et al, 'An overview of seized illegal wildlife entering the United States' (2016) 17(2) *Global Crime* 181–201.

30 *Convention on International Trade in Endangered Species of Wild Flora and Fauna*, opened for signature 3 March 1973, 993 UNTS 243 (entered into force 1 July 1975).

31 Neil d'Cruze and David W Macdonald, 'A review of global trends in CITES live wildlife confiscations' (2016) 15 *Nature Conservation* 47, 49–48.

32 UNODC, *Criminal Justice Assessment Toolkit* (2006) Criminal Justice Information, 1.

IV. Demand and supply

1. Consumption and demand

The widespread demand for fauna and flora for commercial or personal use is the main driver for wildlife trafficking. Wildlife trafficking often involves luxury goods such that consumption is driven by choice rather than necessity. Some consumers prefer to buy wild-sourced products even if captive-bred or plantation alternatives are readily available, because material sourced from the wild is often seen as authentic, superior, and, depending on the type of use, more efficient.

1.1. Medicinal use and healthcare

The use of animal parts, plants, or compounds extracted from them for medicinal or remedial purposes is often linked to wildlife trafficking. Medicinal and remedial use of fauna and flora dates back centuries and remains popular today, with about 80 percent of the world population relying on it for primary healthcare.³³ Trafficked flora and fauna feature in products used as pharmaceuticals to treat specific illnesses and ailments or as tonics and supplements.

Animals and animal parts used for medicinal purposes range from leeches (used to increase blood circulation and break up blood clots) to the gall bladders of pythons (the bile of which is used to treat ailments such as whooping cough, rheumatic pain, high fever, infantile convulsion, hemiplegia, haemorrhoids, gum bleeding, and skin infections).³⁴ The horn of rhinoceros is traditionally used in Asia to reduce fevers, rheumatism, gout, and infections. More recently, the use of rhino horn to treat ailments such as hangovers to cancer and to enhance sexual performance has led to rising demand.³⁵ Tiger bone is used to treat rheumatism and a variety

33 Broad, Mulliken and Roe (n 3) 3.

34 Ibid 6.

35 Julie Ayling, *A regulatory approach to demand reduction in the illegal wildlife market*, RegNet Research Papers No 82 (2015) 5; Andrea Crosta, Kimberley Sutherland and Chiara Talerica, *Grinding Rhino: An Undercover Investigation on Rhino Horn Trafficking in China and Vietnam* (2017) 16, 18.

of other ailments of the muscles and bones and is also marketed as both a tonic and a virility product.³⁶ Consumption of such products is often based on the belief that they can confer some qualities of the animal or plant from which they come.³⁷

1.2. Food consumption

Many people around the world rely on wild-sourced animals and plants for food. This covers many species ranging from primates to insects, wild herbivores and cats, and reptiles, such as snakes, crocodiles and tortoises. Because of their presumed healing effect, the same animal species used in the production of medicine, tonics, and supplements are also often consumed for food.³⁸ For some people, wild-sourced animals form part of a staple diet, particularly where alternative sources of protein are unaffordable or unavailable. For example, poaching has halved the Republic of Congo's gorilla population in the last 20 years for this reason.³⁹

In other markets, wild-sourced animals are consumed as luxury items or feature as novelty foods on restaurant menus.⁴⁰ The use of tiger meat, for instance, is less common today, but reports of tiger meat in the restaurant trade in East and Southeast Asia surface occasionally. The primary reason for consumption appears to be prestige, with full knowledge of both the illegality of and conservation impact.⁴¹ Food consumption is also a main driver for the use of illegal fishing methods, fishing in protected areas, and over-fishing.⁴²

36 Steven Broad and Richard Damania, *Competing demands: Understanding and addressing the socio-economic forces that work for and against tiger conservation*, Global Tiger Initiative Thematic & Working Paper Series (April 2010) 6.

37 UNODC (n 25) 65.

38 Ibid.

39 Sarah Gluszek et al, *Urban Bushmeat Trade in Kinshasa and Brazzaville*, report prepared for the Wildlife Conservation Society (April 2018) 13 – 15.

40 UNODC (n 25) 65 – 66; Clive C J Phillips, *The Animal Trade* (2015) 143.

41 Broad and Damania (n 36) 7.

42 Teale N Phelps Bondaroff et al, *The Illegal Fishing and Organized Crime Nexus: Illegal Fishing as Transnational Organized Crime* (2015) 17, 22.

1.3. Curios and collections

Exotic animals, animal parts, and plants are frequently sold as collectables and curios. This involves whole animals that are stuffed or encased in plastic to put on display. Many animal parts such as ivory, turtle and mollusc shells, reptile skins, bird feathers, and coral are carved or otherwise altered for decorative purposes. For example, the distinctive head ‘casque’ of the helmeted hornbill, a bird found in Southeast Asia, is used for carvings in China where the casques are valued by the same consumers and markets as those involved in trading elephant ivory.⁴³ The skin of many Asian big cats, including tigers, leopards, and Asiatic lions are used to make throws, rugs, or other decorative pieces. Tourists frequently purchase souvenirs that are made from local wildlife and may thus, wittingly or unwittingly, acquire objects made from endangered species or from illegally sourced animals or plants.⁴⁴

1.4. Clothing and accessories

Animal products, including furs, feathers, and fibres, have been used to make or decorate clothing for centuries, and their use continues today in the fashion industry. This mostly involves mammal, reptile, bird, and fish products that are used in the production of coats, pants, footwear, bags, belts, purses, and other accessories.⁴⁵ While many companies have substituted wild-sourced material for captive-sourced or synthetic alternatives, some expensive, high fashion items continue to be produced from wild-sourced animals. This usually happens when captive breeding is not feasible or cost effective and/or if consumers willing to pay high prices specifically demand genuine, wild-sourced material.⁴⁶

43 EIA, *High profit/low risk: Reversing the wildlife crime equation*, A briefing for the Kasane Conference on Illegal Wildlife Trade (25 March 2015) 2.

44 Broad, Mulliken and Roe (n 3) 11; UNODC (n 25) 51.

45 Broad, Mulliken and Roe (n 3) 11.

46 Ibid.

1.5. Cosmetics and fragrance

Derivatives from wild animals and plants sometimes form the basis of cosmetics and fragrances. Musk, a greasy, glandular secretion from animals, and ambergris, a waxy substance produced in the digestive system of sperm whales, for instance, were once used for perfumes but have since been replaced by synthetic alternatives. Today, wild-sourced plants are still used in the cosmetics and fragrance industry. Increases in demand can lead to rapid overharvesting and when the species in question is slow to recover, as is the case with many tree species, the impact can be severe.⁴⁷ For example, the overharvesting of the aquilaria tree found in South and Southeast Asia is attributed to the exploitation of a product referred to as 'oud'. The complex scent of this unusual resin has been used in fragrances and incense across a wide range of cultures and has also been ascribed medicinal and cosmetic benefits used in both Chinese and Ayurvedic therapies.⁴⁸

1.6. Construction and furniture

Plants and plant material are widely used in the furniture, building, and construction industries. This includes timber as well as rattan (made from climbing palms), bamboo, and plant products such as oils, gums, dyes, and latex.⁴⁹ Tropical hardwood is particularly valued even though it may involve endangered tree species or come from tropical rainforests or other areas that are protected and have fragile ecosystems. Illegal and excessive logging poses a challenge to many source countries especially those with large remote forest areas where logging activities are difficult to control, where forest-loss is difficult to monitor, and where it is difficult to stop illegal activities.⁵⁰

For example, the popularity of rosewood to make furniture and artwork has a long history in Asia. Much of the timber is supplied from Cambodia, Lao PDR, Myanmar, and Thailand, but also from African countries including

47 UNODC (n 25) 60.

48 Ibid.

49 Broad, Mulliken and Roe (n 3) 11.

50 UNODC (n 25) 33 – 34.

Guinea Bissau, Mozambique, and Madagascar. The supply can have devastating effects on the rainforests of these source countries. While the trade in several rosewood species is restricted under international law, illegal, logging and trade continue on a significant scale.⁵¹

1.7. Pets and zoos

Living animals are often trafficked to use them as pets or to add them to private collections or zoos. The international trade of living wild-sourced animals for use as pets is dominated by reptiles, birds, especially parrots, and ornamental fish.⁵² It also includes invertebrate species such as scorpions and spiders, albeit less commonly.⁵³ The trade of living animals for use in zoos tends to involve a lower number of larger animals, often selected precisely because they are have become rare in the wild.⁵⁴ Trafficking in living animals also extends to the collection, transportation, and sale of eggs.⁵⁵

One of the most commonly trafficked type of exotic pets are parrots. Wildlife trade is thought to contribute to the fact that nearly 30 percent of the 355 known species of parrots are currently threatened with extinction. The parrot species most commonly kept as pets include budgerigars, African grey parrots, macaws, and cockatoos. These birds are particularly valued for their vocalisations, cognitive abilities, and colourful appearance, and cockatoos for their erectile crest.⁵⁶

51 Ayling (n 35) 4.

52 UNODC (n 25) 75; CITES Secretariat, 'Tortoises and freshwater turtles (testudines spp.)' (Conference Paper, Meeting of the Conference of the Parties, 24 September–5 October 2016) CoP17 Doc. 73 7.

53 Broad, Mulliken and Roe (n 3) 11; UNODC (n 25) 74.

54 UNODC (n 25) 75.

55 Phillips (n 40) 144.

56 Ibid; José J Tella and Fernando Hiralod, 'Illegal and Legal Parrot Trade Shows a Long-Term, Cross-Cultural Preference for the Most Attractive Species Increasing Their Risk of Extinction' (2014) 9(9) *PLoS ONE* [s.p.].

1.8. Ornamental plants and gardens

Just as people purchase animals for use as pets, many plants are traded for use in gardens, parks, and private homes.⁵⁷ The ornamental orchid trade, for instance, involves thousands of species that are traded between vendors and buyers all over the world. Whereas some specialists may be more likely to seek out wild plants deliberately, it is also possible that casual growers may purchase wild plants, often without realising the implications. Although all international movement of orchid species is regulated by *CITES*, traffickers take advantage of the lack of monitoring of online sales, and social-media to advertise wild-collected plants.⁵⁸

2. The supply-demand cycle

The diverse demand for wild animals, animal parts and products, plants, and plant material is met by supply from areas where species that cannot be found in other place are endemic or where species exist that are extinct elsewhere. Trafficking in ivory and rhino horn from Africa, where most the elephants and rhinoceros are poached, to Asia, where most of the demand exists, illustrates the complexity of intercontinental trafficking particularly well. Trafficking in tiger parts, by contrast, mostly occurs between countries in Asia.⁵⁹

Traditionally, much of the literature has described the trafficking of wildlife and plants as a north-south flow, noting that developing nations in ‘the global south’ tend to be suppliers while the demand for wildlife, wildlife products, and plants stems from developed nations in ‘the global north’. Wildlife has been described as a significant resource of many developing countries in Africa, Asia, and Latin America where they play a major and often very critical role in people’s livelihoods.⁶⁰ On the supply side,

57 Patrick D Shirey and Gary A Lamberti, ‘Comment: Regulate trade in rare plants’ (2011) 469 *Nature* 465, 465; Broad, Mulliken and Roe (n 3) 11.

58 Amy Hinsley, *The role of online platforms in the illegal orchid trade from South East Asia* (September 2018) 4, 14.

59 See the illustrations in Nikkita G Patel et al, ‘Quantitative methods of identifying the key nodes in the illegal wildlife trade network’ (2015) 112(26) *Proceedings of the National Academy of Sciences of the United States* 7948, 7949.

60 Broad, Mulliken and Roe (n 3) 5.

widespread poverty can drive people to engage in or support behaviour that degrade the environment upon which they depend so much so that sustainable livelihoods cannot be maintained. On the demand side, wealth often fuels consumption patterns that undervalue and drive the over-exploitation and depletion of natural resources in source countries.⁶¹ Supply and demand thus seem to be caught in a cycle where demand fuels supply and supply creates demand, much to the detriment of the wildlife, environments, and people in some of the least developed countries.

A closer look at the supply and consumption patterns, and the characteristics of the wildlife trafficking, however, challenges this narrative. A 2018 study, for instance, shows that high volumes of wildlife products come from and are destined for developed nations. The study also found that some commodities are trafficked within and among developing nations. Furthermore, several emerging economies have among the highest consumption of illegal wildlife products.⁶²

The connections between source and destination countries and between supply and demand are complex and do not fit in simple dichotomies. The web that connects points of origin for wildlife to consumer countries is indicative of the multistage journeys that many of these goods take before reaching their intended destination.⁶³ Moreover, the dividing line between subsistence use of wildlife and commercial wildlife trafficking for profit is often blurred.⁶⁴

3. Impact on pricing

Statements about the value of wildlife trafficking vary greatly and are highly speculative. Many analyses support the view that the rarer and more endangered a species is, the higher its price on the illicit market. An increasingly scarce supply of many protected species, combined with strong demand, is said to cause prices of wildlife, their parts, and derivatives to rise markedly, a phenomenon known as the ‘anthropogenic

61 Ibid 3.

62 William S Symes et al, ‘The gravity of the wildlife trade’ (2018) 218 *Biological Conservation* 268, 274.

63 Ibid.

64 Broad, Mulliken and Roe (n 3) 6.

allee effect'.⁶⁵ This creates a significant financial incentives to become involved in illicit wildlife markets.⁶⁶

Consumers may prefer rare species and pay disproportionately high prices for them, leading to increased poaching. The more endangered a species becomes, the greater is the commercial value that is put on the remaining specimens, thereby increasing the price and the incentive for trafficking.⁶⁷ This results in a positive feedback loop: paying disproportionately high prices for rare species makes it worthwhile for poachers to dedicate more time and effort to find the animal and for traffickers to go to great length to conceal their contraband, which in turn makes the species rarer and more expensive.⁶⁸ For these reasons, the listing and classification of species according to their level of vulnerability to extinction (ie vulnerable, endangered, or critically endangered) in the *CITES* appendices or other 'red lists' has been criticised by some experts because it may promote, rather than curb, wildlife trafficking by inadvertently advertising their rarity.⁶⁹ The provisions and operation of *CITES*, especially in the context of wildlife trafficking, are further discussed in Chapter Six of this volume.

A 2016 publication stresses that '[s]upply-side economists point out that the cost of items traded on the illicit wildlife market are extremely high and that, despite the fact that international trade in those items is illegal, demand appears insatiable.'⁷⁰ To reduce the scale and value of the illicit market, some sources argue that the illicit wildlife market should be legalised; supply can then be increased and prices will go down. Once the price

65 See further Franck Courchamp et al, 'Rarity Value and Species Extinction: The Anthropogenic Allee Effect' (2006) 4 (12) *PlosOne* [s.p.]; M H Holden and E McDonald-Madden, 'High prices for rare species can drive large populations extinct: the anthropogenic Allee effect revisited' (2017) *Journal of Theoretical Biology* 170 – 180.

66 Anita Sundari and Crawford Allan, *Dismantling Wildlife Crime*, Executive Summary (November 2012) 2.

67 UN ECOSOC, Commission on Crime Prevention and Criminal Justice (n 9) 9 [26].

68 Yik-Hei Sung and Jonathan Fong, 'Assessing consumer trends and illegal activity by monitoring the online wildlife trade' (2018) 227 *Biological Conservation* 227, 228.

69 Alacs and Georges (n 14) 153 – 154.

70 Annecoos Wiersema, 'Incomplete Bans and Uncertain Markets in Wildlife Trade' (2016) 12 *University of Pennsylvania Asian Law Review* 65, 78.

goes down, the incentives for poachers will be removed and poachers and those involved in wildlife trafficking will move out of the market.⁷¹

Others are sceptical about the supply-side model, noting that wildlife trafficking does not take place in a perfectly competitive market. They argue that markets for endangered species are more appropriately considered to be run as oligopolies where small numbers of large traders compete. In these markets, it is not clear that creating a legal supply will result in traders leaving the market. Instead, traders may increase their activity to try to compensate for the lower per-unit profit made for each specimen due to the newly flooded market,⁷² which in turn will place even greater strain on species already threatened by extinction.

V. Perpetrators and their networks

1. Typology of offenders

Wildlife trafficking involves a range of actors involved in poaching, trapping, harvesting, supplying, trading, selling, possessing, and consuming wild animals, animal products, and plants. These actors differ not only in the role they play along trafficking chain, but also in their socioeconomic background and motivations, in the scale and intensity of their operations, the levels of technology and investment, their source of funding, and their skill and knowledge, including that of relevant laws and regulations. Actors can occupy multiple roles in wildlife trafficking and some target their activities at specific species, while others operate more broadly.⁷³

A study published in 2016 separates the roles and activities involved in wildlife trafficking into three categories: harvesters, intermediaries, and consumers (Figure 1 below). These categories are not meant to be

71 Ibid; Erwin H Bulte and Richard Damania, 'An Economic Assessment of Wildlife Farming and Conservation' (2005) 19 *Conservation Biology* 1222, 1227.

72 Wiersema (n 70) 79.

73 Jacob Phelps et al, 'Tools and terms for understanding illegal wildlife trade' (2016) 14(9) *Frontiers in Ecology and the Environment* 479, 480; see also the findings of Greg Warchol, 'The Transnational Illegal Wildlife Trade' (2004) 17(1) *Criminal Justice Studies* 57, 40.

exhaustive or mutually exclusive; they are intended to capture and illustrate the wide spectrum of actors involved in wildlife trafficking.

Figure 1: Typology of key actor roles along illegal wildlife trade market chains⁷⁴

Harvesters	Subsistence	Non-commercial harvest for household or local use (eg food, cultural,), usually comparatively small scale
	Specialist commercial	Harvest with an explicit commercial orientation that often involves specialist skills or technologies. Includes different harvest intensities and levels of technological investment, and is led by both self-employed and hired harvesters, as well as by local residents and non-residents
	Opportunist	Harvest based on chance encounters and circumstances, but not as a primary objective or livelihood strategy
	Local guide	Local residents hired to guide non-resident harvesters
	Rule abuser	Knowing abuse of harvest rules, such as quotas (eg under or mis-reporting), boundaries (eg protected area), or restrictions on technology (eg certain traps, nets)
	Bycatch	Unintentional harvest of non-target species
	Recreational	Harvest for enjoyment
	Reactionary	Harvest associated with discontent or protest (eg in reaction to conservation policies or conflict with wildlife)
Intermediaries	Logistician	Involved in ordering, aggregation, and transport, as well as financing and planning trade. May be directly involved in handling trade or involved at a distance.
	Specialist smuggler	Transport that requires specialized actions to evade detection or negotiate access, usually across borders (eg transboundary smuggling, specialist networks)
	Government colluder	Involved in using an official government position (eg park ranger, police officer, judge, prosecutor) to facilitate trade, whether for financial (corruption), social, or personal gain
	Third party	External services hired to support trade, but potentially unknowingly (eg bus or air transport)
	Processor	Involved in product transformation (eg skinning, medicine preparation)
	Launderer	Involved in laundering illegal wildlife into legal markets chains (eg via captive breeding or processing operations)
	Vendor	Involved in direct sale to consumers or to other intermediaries (eg market, online platform)

74 Phelps et al (n 73) 481.

	Medicinal	Use associated with medicinal practices, usually traditional but some novel
	Ornamental	Use associated with ornaments and pets (eg ivory, shell, live parrots, aquarium fish)
	Cultural	Use associated with long-standing traditional practices (eg feathers, pelts, ritual harvest)
	Gift	Use as a gift, often to gain/demonstrate social standing or show respect
Consumers	Investment	Use as an investment, usually of high-value taxa
	Recreational	Use associated with the act of recreational harvest (eg game hunting, sport fishing)
	Animal food	Use as food for other animals (eg fodder, bait, small animals)
	Construction materials	Use for construction materials (eg timber, rattan)
	Fuel	Use for burning for heat or cooking
	Food	Use for direct consumption, ranging from luxury consumption to basic nutritional need

2. Organised criminal groups

The range and number of individuals involved in wildlife trafficking depends on several factors, including the expected end market and consumers, the characteristics of the trafficked item, and the capabilities and limitations of actors already involved in the trade.⁷⁵ Many activities require little skill and planning, especially if source and destination, supplier and consumer are in close proximity.

After the initial acts of poaching or collecting, subsequent stages often involve more organisation and the involvement of middlemen.⁷⁶ If intermediaries are required to transfer goods, if sophisticated methods are needed to conceal or disguise contraband, and if international borders need to be crossed, it may become necessary for perpetrators to partner

75 Stephen F Pires and William D Moreto, *The Illegal Wildlife Trade*, Oxford Handbooks Online (2016) 12.

76 Stephen F Pires and William D Moreto, 'Preventing Wildlife Crimes: Solutions That Can Overcome the "Tragedy of the Commons"' (2011) 17 *European Journal of Criminology and Policy Research* 101, 104.

with other individuals and entities.⁷⁷ In such circumstances, organised crime networks may emerge in which multiple offenders collaborate and sometimes set up complex schemes to acquire, move, and sell goods illegally, to hide their activities, and to launder the proceeds of their crimes.⁷⁸

Wildlife trafficking is a crime that can be highly organised, but myths about hierarchical, mafia-style criminal syndicates involved in every stage of wildlife trafficking are often not supported by evidence. The perception that wildlife trafficking is driven by organised crime 'is fueled by the high profits associated with specific wildlife products (eg, ivory, rhino horn) and the ability to utilise established criminal networks and personnel, smuggling routes, and resources to entice corrupt officials.'⁷⁹ While some studies point to activities of organised criminal groups in particular stages or for specific species, others have found little or no evidence for organised crime involvement in wildlife trafficking.⁸⁰ In some instances, established organised criminal groups have become involved in wildlife trafficking to diversify their income.⁸¹

A study published in 2016 identified seven common structures in which perpetrators involved in wildlife trafficking associate. These structures, range from simple relationships, such as the subsistence and local use relationship, or a structure that links harvesters directly to consumers, to configurations that involve multiple intermediaries.⁸² The study further found that more complex structures are likely to arise if access to the market is restricted, whether to the resource itself, to transport routes, or to consumers, including to distant urban or international markets willing to pay higher prices.⁸³ Several other reports set out various indicators, such as organised structure, sophisticated financing, the use of corruption,

77 Kristof Titeca, 'Illegal Ivory as Transnational Organized Crime? An Empirical Study into Ivory Traders in Uganda' (2019) 59 *British Journal of Criminology* 24, 28–29.

78 Pires and Moreto (n 75) 15.

79 Ibid.

80 Ibid.

81 European Parliament, Directorate-General for Internal Policies, *Wildlife Crime* (March 2016) 67; Daan van Uhm, 'Illegal Wildlife Trade to the EU and Harms to the World', in Toine Spapens et al, *Environmental Crime in Transnational Context: Global Issues in Green Enforcement and Criminology* (2016) 43, 56.

82 Phelps et al (n 73) 483.

83 Ibid.

fraudulent documents, and violence, that, when present, may demonstrate the probability that organised crime is involved.⁸⁴

3. Corporate sector

In source countries, instances of corporations involved in illegal activities associated with wildlife trafficking often involve logging companies and fishing vessels. Logging companies may, for instance, operate without logging permits or illegally encroach on protected areas, harvest protected species, exceed their logging quotas, or bribe officials to unduly issue logging concessions.⁸⁵ Similarly, fishing companies or individual fishing vessels may venture unlawfully into protected areas, catch protected species, exceed set quotas, or using prohibited fishing methods.

Corporate sector involvement may occur at the transit stage if transportation companies carry, import, export, or launder contraband, forge documents, or fail to comply with documentation, certification, and reporting requirements. It may also involve collusion by airline staff and crews of cargo or cruise ships. At the destination, corporations may play a vital part in wildlife trafficking if they deliberately or negligently source or supply timber, plants, live animals or animal products that come from protected areas, involve protected species, et cetera.⁸⁶

4. Corruption and government involvement

Fauna and flora are high value natural resources. If these are placed under government control or regulation, they offer a potential source of power

84 UN ECOSOC, Commission on Crime Prevention and Criminal Justice (n 9) 10 [29]; EIA, *In Cold Blood: Combating organised wildlife crime* (2014) 4.

85 See, for example, Tim Boekhut van Solinge, 'Organized Forest Crime: A Criminological Analysis with Suggestion from Timber', in Daniela Kleinschmitt et al (eds), *Illegal Logging and Related Timber Trade – Dimensions, Drivers, Impact and Responses*, IUFRO World Series vol 35 (2016) 81, 84, 91.

86 See further, Daan van Uhm, 'Wildlife and Laundering: Interaction between the under and upper world', in Toine Spapens et al (eds), *Green Crime and Dirty Money* (2018) 197, 198 – 199.

and a correspondingly high risk of abuse of that power.⁸⁷ As a consequence, corruption in the allocation of hunting and logging concessions and in the issuing of permits to process, import and/or export fauna and flora is not uncommon. Corruption operates either to allow wildlife trafficking to occur in the first place, or to proceed unchecked or unbalanced.⁸⁸

Corruption can involve low-ranking game wards and forest officials who accept bribes and then ‘turn a blind eye’ to illegal activities.⁸⁹ It can also reach the top levels of government that are involved in policy decisions and law-making in the wildlife, forestry, and fisheries sectors. High-level or ‘grand’ corruption is the most damaging one as it causes significant financial losses and also encourages petty corruption at the lower levels of government.⁹⁰ In some cases, corruption is an intrinsic part of the patronage systems that sustain the power of a country’s ruling elite.⁹¹ Political manipulation often facilitates persistent illegal activities in the wildlife and forestry sectors. This can lead to a breakdown of law and order and hamper investment in these sectors.⁹²

In the context of wildlife trafficking, there are numerous ways in which bribes can be offered and paid, not only to government officials, but also to commercial enterprises and individuals who exercise control over certain areas, industries, materials, et cetera.⁹³ The topic of corruption in the context of wildlife trafficking is further discussed in Chapter Three of this volume.

While most, if not all countries, have laws that criminalise corruption and bribery, these offences frequently do not constitute an adequate deterrent because they are rarely enforced, because prosecutions rarely succeed, or

87 Cf FAO and ITTO, *Best Practices for Improving Law Compliance in the Forestry Sector* (2005) 11.

88 Debra J Callister, *Corrupt and Illegal Activities in the Forest Sector* (1999) 8.

89 See further Nalin Kishor and Richard Damania, ‘Crime and Justice in the Garden of Eden: Improving Governance and Reducing Corruption in the Forestry Sector’, in J Edgardo Campos & Sanjay Pradhan (eds), *The Many Faces of Corruption* (2007) 89, 98–99.

90 See further Debra J Callister, *Corrupt and Illegal Activities in the Forest Sector: Current understandings, and implications for the World Bank Forest Policy*, Draft for Discussion (May 1999) 9–10; Kishor and Damania (n 89) 95–97.

91 FAO and ITTO (n 87) 12.

92 UNODC (n 25) 54.

93 FAO and ITTO (n 87) 11; Kishor and Damania (n 89) 95–97.

because penalties are low. Elsewhere, domestic offences do not capture the bribery of foreign officials. As long as the risk of being caught and sanctioned is low, those working in official or private capacities in the wildlife, forestry, and fisheries sectors have little to lose from corruption. The challenges associated with criminalising wildlife trafficking and with enforcing relevant offences are further discussed in Chapter Nine of this volume.

VI. Locations and activities relating to wildlife trafficking

1. Concentrations of wildlife trafficking

Like other crimes, wildlife trafficking is concentrated around places, time, routes, and products. Case studies on different species point to underlying opportunistic factors for why wildlife trafficking is concentrated in various ways.

Not every wildlife species is equally in demand, or even accessible, and for this reason poaching is unevenly distributed among species. So-called 'hot product' analysis examines whether certain species are poached and/or trafficked more often than others. For example, wildlife seizures made at entry points in Asia, the European Union, and the United States show that certain taxonomic groups of wildlife are disproportionately trafficked into major demand markets while others are rarely seized.⁹⁴

The 'CRAVED model' (concealable, removable, available, valuable, enjoyable, and disposable) has been used to explain why certain products, such as parrots,⁹⁵ fish and crustaceans,⁹⁶ are more frequently taken from the wild

94 See, for example, Justin Kurland and Stephen F Pires, 'Assessing U.S. Wildlife Trafficking Patterns: How Criminology and Conservation Science Can Guide Strategies to Reduce the Illegal Wildlife Trade' (2017) 38(4) *Deviant Behaviour* 375 – 391.

95 Stephen F Pires and Ronald V Clarke, 'Are Parrots CRAVED? An Analysis of Parrot Poaching in Mexico' (2012) 49(1) *Journal of Research in Crime and Delinquency* 122 – 146.

96 Gohar A Petrossian and Robald V Clarke, 'Explaining and Controlling Illegal Commercial Fishing: An Application of the CRAVED Theft Model' (2014) 57 *British Journal of Crimi-*

and subsequently trafficked. This line of research has found that a mix of opportunity- and demand-side variables explain why certain species are at higher risk of being taken illegally. For example, parrot species that are the most abundant and accessible are the most frequently poached in Peru and Bolivia.⁹⁷

Several studies have found spatio-temporal concentrations of poaching. DNA assessments of seized ivory, for instance, has revealed that poaching of elephants is geographically concentrated in several hotspots in Africa.⁹⁸ Corroborating these findings, other studies reveal that elephant poaching has been found to be particularly problematic in only a few countries over a 20-year period.⁹⁹ At the local level, 'hot spots' for elephant poaching have been found within a Kenyan national park and such incidents were concentrated during the dry season. Within this same park, elephant poaching was significantly related to where higher elephant densities, water, and roads were found.¹⁰⁰ Other research on poaching of deer, rhinoceros, American ginseng, and redwood burl similarly reveal spatial concentrations and a link to accessibility (ie roads) and availability of targets.¹⁰¹

Several studies show that crime is often concentrated among 'hot routes'¹⁰² and 'risky facilities'.¹⁰³ This type of research suggests that 'hot routes' are

nology 73 – 90; Gohar A Petrossian et al, 'Factors affecting crab and lobster species subject to IUU Fishing' (2015) 106 *Ocean & Coastal Management* 29 – 34.

- 97 Stephen F Pires and Gohar A Petrossian, 'Understanding parrot trafficking between illicit markets in Bolivia: an application of the CRAVED model' (2016) 40(1) *International Journal of Comparative and Applied Criminal Justice* 63 – 77; Stephen F Pires, 'The Heterogeneity of Illicit Parrot Markets: An Analysis of Seven Neo-Tropical Open-Air Markets' (2015) 21 *European Journal on Criminal Policy and Research* 151 – 166.
- 98 S K Wasser et al, 'Genetic assignment of large seizures of elephant ivory reveals Africa's major poaching hotspots' (2015) 349(6423) *Science* 84 – 88.
- 99 Andrew M Lemieux and Ronald V Clarke, 'The International Ban on Ivory Sales and its Effects on Elephant Poaching in Africa' (2009) *British Journal of Criminology* 451 – 471.
- 100 John K Maingi et al, 'Spatiotemporal patterns of elephant poaching in south-eastern Kenya' (2012) 39(3) *Wildlife Research* 234 – 249.
- 101 Justin Kurland et al, 'Wildlife crime: a conceptual integration, literature review, and methodical critique' (2017) 6(4) *Crime Science* 1 – 15.
- 102 Lisa Tompson et al, 'Hot Routes: Developing a New Technique for the Spatial Analysis of Crime' (2009) 1(1) *Crime Mapping: A Journal of Research and Practice* 77 – 96.
- 103 John E Eck et al, 'Risky Facilities: Crime Concentration in Homogenous Sets of Establishments and Facilities' (2007) 21 *Crime Prevention Studies* 225 – 264.

being used from particular countries to particular ports. Using information retrieved from the USFWS LEMIS database, a study published in 2017, for instance, found that only a small number of export countries account for the majority of wildlife seizures entering the United States and that a small number of entry points seize a disproportionate amount of wildlife contraband.¹⁰⁴ ‘Risky facilities’ research has shown, for example, that fishing ports that were visited more often by problematic fishing vessels (ie vessels involved in illegal, unreported or unregulated fishing) were those ports that were larger, experienced more vessel traffic, and located in countries experiencing higher levels of corruption and with less effective fishery inspections.¹⁰⁵

2. Collecting, poaching, harvesting

The initial step in wildlife trafficking is the collection, poaching, or harvesting of the animal or plant—be it alive or killed in order to be further processed into a product or derivative of some sort. Wildlife trafficking is different from the trafficking of other forms of contraband. In most criminal markets, the damage only accrues when the contraband reaches its final consumer. In contrast, the main harm caused by wildlife trafficking occurs when the contraband is sourced. Once wildlife has been illegally sourced, the damage has been done, regardless of what happens later in the market.¹⁰⁶

3. Smuggling

Following the initial collection, the animal, animal part or plant needs to be brought to the buyer. Depending on the products and use, it may first undergo processing, modification, or manufacturing to alter it for the intended use. The methods used to bring the contraband from source to destination depends on a myriad of factors including locations, distance, border controls and other inspections, documentation, but also on specific

¹⁰⁴ Justin Kurland and Stephen F Pires, ‘Assessing U.S. Wildlife Trafficking Patterns: How Criminology and Conservation Science Can Guide Strategies to Reduce the Illegal Wildlife Trade’ (2017) 38(4) *Deviant Behaviour* 375 – 391.

¹⁰⁵ Petrossian et al (n 96) 29 – 34.

¹⁰⁶ UNODC, *Wildlife Crime Status Update 2017*, Research Brief (2017) 15.

requirements of the transported goods (whether they are fragile or solid, small or large, living or inanimate). Further impacting on the methods, means, and routes chosen are the legal frameworks relating to the protection of endangered species, animal welfare, customs et cetera, and the level of their enforcement.

Smuggling may involve hiding the wildlife contraband, forging permits, misusing real permits, or bribing customs and border officials. For some wildlife species, parallel markets and legal industries exist through which illegally obtained products may be laundered.¹⁰⁷

The relatively small size of most consignments seized means that traffickers use the services of various licit transport providers such as regular mail, commercial passenger and cargo airlines, shipping, trucking, container-leasing and warehousing companies. In most cases, these companies are unaware of the contraband they carry because it has not been disclosed to them or it has been declared falsely or fraudulently.¹⁰⁸ In some cases, however, carriers have been complicit in wildlife trafficking, as have been corrupt officials in customs, border control, and other inspection and loading points. Smuggling may also be carried out by ignorant tourists who purchase wildlife products and pets and take them home in their luggage or ship them by mail or courier.

3.1. Concealment of contraband

Much like any other high-value contraband, wildlife smugglers go to significant length to hide illicit products from law enforcement and customs inspections. The methods used to conceal illicit shipments of ivory, for instance, range from traffickers filling containers with pungent cover materials like fish maws or anchovies to disguise the smell of ivory from inspection dogs, to modifying containers themselves to create false backs and compartments to hide the ivory.¹⁰⁹

¹⁰⁷ EIA (n 43) 10–11.

¹⁰⁸ Jackson Miller, Varun Vira and Mary Utermohlen, *Species of Crime: Typologies & Risk Metrics for Wildlife Trafficking* (May 2015) 12.

¹⁰⁹ *Ibid* 13.

A seemingly endless range of methods are used to hide or disguise animals, animal parts, and plants, especially when contraband crosses international borders. Individual travellers sometimes hide living animals, animal products, plants, and plant material in their luggage. Ivory is sometimes painted to disguise it as wood or plastic. A smuggler based in West Africa, for instance, was found boiling ivory and soaking it in resin to stain it and make it appear more antiquated before exporting the contraband to the United States, thereby exploiting a *CITES* loophole that may permit trade in antique ivory. In 2013, customs authorities in Macau SAR intercepted two South African nationals attempting to smuggle 34 kilogrammes of ivory disguised as chocolate bars in their hand luggage. The ivory had been cut up into smaller pieces, individually wrapped in fake packaging, and covered in a brown substance to create the impression of chocolate bars.¹¹⁰

Some smugglers hide eggs, animals, or other contraband in their clothing, sometimes in specially designed compartments. In one instance, a man used a compartment in his prosthetic leg to smuggle three iguanas from Fiji to the United States.¹¹¹ In the case of falcons, sedated live birds may be wrapped in cloth and placed into tubes which are then carried in people's luggage or hidden in other products like fruit. It is not uncommon for wildlife to be smuggled on people themselves: rare bird eggs in pockets and snakes in trousers.¹¹²

In many locations, it is not necessary to conceal the contraband, especially if border controls are non-existent or ineffective. It has been reported, for instance, that in some countries, 'large quantities of wildlife are transported across borders by truck without any special effort at concealment'.¹¹³

3.2. Fraudulent documents

Once a part has been removed from an animal or the animal removed from its natural surroundings, it can become extremely difficult to establish or

¹¹⁰ Ibid 14.

¹¹¹ Rosen and Smith (n 2) 27.

¹¹² Miller et al (n 108) 14.

¹¹³ Rosen and Smith (n 2) 27.

distinguish the species, the location it has come from, or the method with which it has been obtained. If the species is the same, but one source (for example captive breeding) is legal, and another (poaching) is illegal, it can be difficult, if not impossible, to distinguish between the two sources. When it is hard or impossible to verify the source of a specimen, laundering becomes a significant problem.¹¹⁴ Customs officials and other law enforcement personnel are often not sufficiently expert to tell the difference between species (such as turtles), which makes it easy for false declarations and fraudulent documents to remain undetected. The role of customs in the context of wildlife trafficking is more broadly discussed in Chapter Thirteen of this volume.

3.3. Smuggling routes

Smuggling routes for trafficking in wildlife frequently do not follow direct lines between source and destination countries; they can be circuitous and involve multiple transit stages. Research published in 2018 also reveals that trafficking does not always conform with the traditional stereotype of smuggling wildlife, animal parts, or plants from developing to more developed countries.¹¹⁵ Complex smuggling routes sometimes serve to conceal the origin or destination of the shipment to take advantage of transit points with underdeveloped legal frameworks or poor law enforcement.

4. Selling

Trafficked wildlife, including living animals, animal products, and derivatives, as well as timber, plants, plant material and products, is offered for sale—overtly and covertly—in a wide variety of markets. The range of places where such contraband may be sold range from stores and physical markets to persons selling goods in the street, to advertisements for private or commercial sales, and to catalogues and restaurant menus. In some places, wildlife products, even if they come from an illicit source or

¹¹⁴ Wiersema (n 70) 81–82.

¹¹⁵ Symes et al (n 62) 274.

involve an endangered species, are on public display for sale. Elsewhere, they may only be shown if specifically asked for or after middlemen establish a connection between the seller and the buyer (to ensure illegal sales remain undetected by authorities). Depending on the commodity, it is also not uncommon for contraband to be co-mingled with licit products to disguise their origin. Some sellers specialise in offering wildlife contraband for sale; others sell them in addition to licit goods. Some only sell to trusted buyers to avoid detection and arrest; others sell to the general public, including buyers who are ignorant about the source of the product or the species they are purchasing.

The internet is an important platform for legal and illegal wildlife trade. It is a convenient medium for traffickers to advertise and sell anonymously and it enables direct sales to the buyer thereby eliminating the need for intermediaries. Despite increased awareness and vigilance by some online companies, the proliferation of illegal wildlife products on the Internet continues. Several reports also point to the use of social media and the 'dark web' for the sale of wildlife contraband.¹¹⁶

VII. Observations

This chapter sheds some light into the modalities and characteristics of wildlife trafficking. It quickly becomes evident, that wildlife trafficking is a complex, global phenomenon that defies single and simplistic solutions. It is difficult, and sometimes not possible, to make generalisations about what drives this illegal trade, how it operates, what motivates offenders, and about the measures best suited to prevent and combat wildlife trafficking.

Research on wildlife trafficking is only in its infancy and many causes and circumstances have yet to be thoroughly documented and explored. Much of the available literature focusses on some high profile species, such as elephants and rhinoceros, while trafficking in many other species, plants in particular, remains under-researched. The purpose of this chapter is

¹¹⁶ See, for example, Joseph R Harrison et al, 'Assessing the extent and nature of wildlife trade on the dark web' (2016) 30(4) *Conservation Biology* 900 – 904; IFAW, *Wanted – Dead or Alive: Exposing Online Wildlife Trade* (undated).

merely to canvass some of the main factors that explain and impact on wildlife trafficking and to contextualise and set the scene for other, more detailed studies that constitute the remaining parts of this book.

Bibliography

- Alacs, Erika and Arthur Georges, 'Wildlife across our borders: a review of the illegal trade in Australia' (2008) 40(2) *Australian Journal of Forensic Sciences* 147
- Ayling, Julie, *A regulatory approach to demand reduction in the illegal wildlife market*, RegNet Research Papers No 82, Canberra, ACT: Australian National University, School of Regulation and Global Governance (RegNet), 2015
- Baker, Sandra E, 'Rough Trade: Animal Welfare in the Global Wildlife Trade' (2013) 63(12) *BioScience* 928
- Boekhut van Solinge, Tim, 'Organized Forest Crime: A Criminological Analysis with Suggestion from Timber', in Daniela Kleinschmitt et al (eds), *Illegal Logging and Related Timber Trade – Dimensions, Drivers, Impact and Responses*, IUFRO World Series vol 35, Vienna: IUFRO, 2016, 81
- Broad, Steven and Richard Damania, *Competing demands: Understanding and addressing the socio-economic forces that work for and against tiger conservation*, Global Tiger Initiative Thematic & Working Paper Series, Washington, DC: Global Tiger Initiative, April 2010
- Broad, Steven, Teresa Mulliken and Dilys Roe, 'The Nature and Extent of Legal and Illegal Trade in Wildlife', in Sara Oldfield (ed), *Trade in Wildlife: Regulation for Conservation*, London: Routledge, 2012, 3
- Bulte, Erwin H and Richard Damania, 'An Economic Assessment of Wildlife Farming and Conservation' (2005) 19 *Conservation Biology* 1222
- Callister, Debra J, *Corrupt and Illegal Activities in the Forest Sector: Current understandings, and implications for the World Bank Forest Policy*, Draft for Discussion, Washington, DC: The World Bank, May 1999 <<http://intra.tesaf.unipd.it/pettenella/certificazione/convegno%206%20marzo/download/Corruption%20in%20forestry.pdf>>
- CITES Secretariat, 'Tortoises and freshwater turtles (testudines spp.)' (Conference Paper, Meeting of the Conference of the Parties, 24 September–5 October 2016) CoP17 Doc. 73 7

- Courchamp, Franck et al, 'Rarity Value and Species Extinction: The Anthropogenic Allee Effect' (2006) 4(12) *PlosOne* [s.p.]
- Crosta, Andrea, Kimberley Sutherland and Chiara Talerica, *Grinding Rhino: An Undercover Investigation on Rhino Horn Trafficking in China and Vietnam*, Los Angeles, CA: Elephant Action League, 2017
- D'Agrosa, Caterina et al, 'Vaquita Bycatch in Mexico's Artisanal Gillnet Fisheries: Driving a Small Population to Extinction' (2000) 14(4) *Conservation Biology* 1110
- D'Cruze, Neil and David W Macdonald, 'A review of global trends in CITES live wildlife confiscations' (2016) 15 *Nature Conservation* 47
- Dee, Laura E, 'Conservation and management of ornamental coral reef wildlife' (2014) 169 *Biological Conservation* 225
- Eck, John E et al, 'Risky Facilities: Crime Concentration in Homogenous Sets of Establishments and Facilities' (2007) 21 *Crime Prevention Studies* 225
- EIA, *High profit/low risk: Reversing the wildlife crime equation*, A briefing for the Kasane Conference on Illegal Wildlife Trade, London: EIA, 25 March 2015
- EIA, *In Cold Blood: Combating organised wildlife crime*, London: EIA, 2014
- European Parliament, Directorate-General for Internal Policies, *Wildlife Crime*, Study for the ENVI Committee, Brussels: European Union, March 2016
- FAO and ITTO, *Best Practices for Improving Law Compliance in the Forestry Sector*, Rome: FAO, 2005
- Ferretti, Francesco et al, 'Patterns and ecosystem consequences of shark declines in the ocean' (2010) 13(8) *Ecology Letters* 1055
- Gluszek, Sarah et al, *Urban Bushmeat Trade in Kinshasa and Brazzaville*, report prepared for the Wildlife Conservation Society, April 2018
- Harrison, Joseph R et al, 'Assessing the extent and nature of wildlife trade on the dark web' (2016) 30(4) *Conservation Biology* 900
- Hinsley, Amy, *The role of online platforms in the illegal orchid trade from South East Asia*, Geneva: The Global Initiative Against Transnational Organized Crime, September 2018
- Holden, M H and E McDonald-Madden, 'High prices for rare species can drive large populations extinct: the anthropogenic Allee effect revisited' (2017) *Journal of Theoretical Biology* 170
- IFAW, *Wanted – Dead or Alive: Exposing Online Wildlife Trade*, London: IFAW, undated

- Jaramillo-Legoretta, Armando et al, 'Saving the Vaquita: Immediate Action, Not More Data' (2007) 21(6) *Conservation Biology* 1653
- Kurland, Justin and Stephen F Pires, 'Assessing U.S. Wildlife Trafficking Patterns: How Criminology and Conservation Science Can Guide Strategies to Reduce the Illegal Wildlife Trade' (2017) 38(4) *Deviant Behaviour* 375
- Kurland, Justin et al, 'Wildlife crime: a conceptual integration, literature review, and methodical critique' (2017) 6(4) *Crime Science* 1
- Lemieux, Andrew M and Ronald V Clarke, 'The International Ban on Ivory Sales and its Effects on Elephant Poaching in Africa' (2009) *British Journal of Criminology* 451
- Maingi, John K et al, 'Spatiotemporal patterns of elephant poaching in south-eastern Kenya' (2012) 39(3) *Wildlife Research* 234
- McClellan, Kate, 'Coral degradation through destructive fishing practices', *The Encyclopedia of Earth* (Web page, 24 August 2008) <https://editors.eol.org/eoearth/wiki/Coral_degradation_through_destructive_fishing_practices>
- Miller, Jackson, Varun Vira and Mary Utermohlen, *Species of Crime: Typologies & Risk Metrics for Wildlife Trafficking*, Washington, DC: C4Ads, May 2015
- Moreto, William D and Stephen F Pires, *Wildlife Crime: An Environmental Criminology and Crime Science Perspective*, Durham, NC: Carolina Academic Press, 2018
- Nellemann, Christian et al, *The Last Stand of the Gorilla: Environmental Crime and Conflict in the Congo Basin* Arendal: UNEP and GRID-Arendal, 2010
- Patel, Nikkita G et al, 'Quantitative methods of identifying the key nodes in the illegal wildlife trade network' (2015) 112(26) *Proceedings of the National Academy of Sciences of the United States* 7948
- Petrossian Gohar A et al, 'Factors affecting crab and lobster species subject to IUU Fishing' (2015) 106 *Ocean & Coastal Management* 29
- Petrossian, Gohar A and Ronald V Clarke, 'Explaining and Controlling Illegal Commercial Fishing: An Application of the CRAVED Theft Model' (2014) 57 *British Journal of Criminology* 73
- Petrossian, Gohar A et al, 'An overview of seized illegal wildlife entering the United States' (2016) 17(2) *Global Crime* 181
- Phelps Bondaroff, Teale N, *The Illegal Fishing and Organized Crime Nexus: Illegal Fishing as Transnational Organized Crime*, Geneva: The Global Initiative Against Transnational Organized Crime and The Black Fish 2015

- Phelps, Jacob et al, 'Tools and terms for understanding illegal wildlife trade' (2016) 14(9) *Frontiers in Ecology and the Environment* 479
- Phillips, Clive C J, *The Animal Trade*, CABI, 2015
- Pires, Stephen F and Gohar A Petrossian, 'Understanding parrot trafficking between illicit markets in Bolivia: an application of the CRAVED model' (2016) 40(1) *International Journal of Comparative and Applied Criminal Justice* 63
- Pires, Stephen F and Ronald V Clarke, 'Are Parrots CRAVED? An Analysis of Parrot Poaching in Mexico' (2012) 49(1) *Journal of Research in Crime and Delinquency* 122
- Pires, Stephen F and William D Moreto, 'Preventing Wildlife Crimes: Solutions That Can Overcome the "Tragedy of the Commons"' (2011) 17 *European Journal of Criminology and Policy Research* 101
- Pires, Stephen F and William D Moreto, *The Illegal Wildlife Trade*, Oxford Handbooks Online, Oxford: Oxford University Press, 2016
- Pires, Stephen F, 'The Heterogeneity of Illicit Parrot Markets: An Analysis of Seven Neo-Tropical Open-Air Markets' (2015) 21 *European Journal on Criminal Policy and Research* 151
- Rosen, Gail E and Katherine F Smith, 'Summarizing the evidence on the international trade in illegal wildlife' (2010) 7 *EcoHealth* 24
- Saragusty, Joseph et al, 'Skewed birth sex ratio and premature mortality in elephants' (2009) 115(1) *Animal Reproduction Science* 247
- Shirey, Patrick D and Gary A Lamberti, 'Comment: Regulate trade in rare plants' (2011) 469 *Nature* 465
- South Nigel and Avi Brisman, 'Critical Green Criminology, Environmental Rights and Crimes of Exploitation', in Simon Winlow and Roland Atkinson (eds), *New Directions in Crime and Deviance*, London: Routledge, 2013, 99
- Sundari, Anita and Crawford Allan, *Dismantling Wildlife Crime*, Executive Summary, Washington, DC: TRAFFIC, November 2012
- Symes, William S et al, 'The gravity of the wildlife trade' (2018) 218 *Biological Conservation* 268
- Tella, José J and Fernando Hiralod, 'Illegal and Legal Parrot Trade Shows a Long-Term, Cross-Cultural Preference for the Most Attractive Species Increasing Their Risk of Extinction' (2014) 9(9) *PLoS ONE* [s.p.]
- Titeca, Kristof, 'Illegal Ivory as Transnational Organized Crime? An Empirical Study into Ivory Traders in Uganda' (2019) 59 *British Journal of Criminology* 24

- Tompson, Lisa et al, 'Hot Routes: Developing a New Technique for the Spatial Analysis of Crime' (2009) 1(1) *Crime Mapping: A Journal of Research and Practice* 77
- UN ECOSOC, Commission on Crime Prevention and Criminal Justice, Illicit trafficking in protected species of wild flora and fauna and illicit access to genetic resources, Report of the Secretary-General, UN Doc E/CN.15/2003/8 (4 March 2003)
- UN Security Council, *Report of the Secretary-General on the situation in the Central African Republic*, UN Doc S/2013/261 (3 May 2013)
- UN Security Council, *Report of the Secretary-General on the situation in the Central African Republic, 15 June–15 October 2018*, UN Doc S/2018/922 (15 October 2018)
- UNODC, *Criminal Justice Assessment Toolkit*, New York, NY: United Nations, 2006
- UNODC, *Wildlife Crime Status Update 2017*, Research Brief, Vienna: UNODC, 2017
- UNODC, *World Wildlife Crime Report: Trafficking in protected species*, New York, NY: United Nations, 2016
- Van Uhm, Daan, 'Illegal Wildlife Trade to the EU and Harms to the World', in Toine Spapens et al, *Environmental Crime in Transnational Context: Global Issues in Green Enforcement and Criminology*, London: Routledge, 2016 43
- Van Uhm, Daan 'Wildlife and Laundering: Interaction between the under and upper world', in Toine Spapens et al (eds), *Green Crime and Dirty Money*, London: Routledge, 2018, 197
- Warchol, Greg, 'The Transnational Illegal Wildlife Trade' (2004) 17(1) *Criminal Justice Studies* 57
- Wasser, S K et al, 'Genetic assignment of large seizures of elephant ivory reveals Africa's major poaching hotspots' (2015) 349(6423) *Science* 84
- Wiersema, Annecoos, 'Incomplete Bans and Uncertain Markets in Wildlife Trade' (2016) 12 *University of Pennsylvania Asian Law Review* 65
- Yik-Hei Sung and Jonathan Fong, 'Assessing consumer trends and illegal activity by monitoring the online wildlife trade' (2018) 227 *Biological Conservation* 227