



Differentiating criminal networks in the illegal wildlife trade: organized, corporate and disorganized crime

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Abstract

Historically, the poaching of wildlife was portrayed as a small-scale local activity in which only small numbers of wildlife would be smuggled illegally by collectors or opportunists. Nowadays, this image has changed: criminal networks are believed to be highly involved in wildlife trafficking, which has become a significant area of illicit activity. Even though wildlife trafficking has become accepted as a major area of crime and an important topic and criminologists have examined a variety of illegal wildlife markets, research that specifically focusses on the involvement of different criminal networks and their specific nature is lacking. The concept of a ‘criminal network’ or ‘serious organized crime’ is amorphous – getting used interchangeably and describes all crime that is structured rather than solely reflecting crime that fits within normative definitions of ‘organized’ crime. In reality, criminal networks are diverse. As such, we propose categories of criminal networks that are evidenced in the literature and within our own fieldwork: (1) organized crime groups (2) corporate crime groups and (3) disorganized criminal networks. Whereas there are instances when these groups act alone, this article will (also) discuss the overlap and interaction that occurs between our proposed categories and discuss the complicated nature of the involved criminal networks as well as predictions as to the future of these networks.

Keywords Green criminology · Illegal wildlife trade · Wildlife trafficking · Organised crime · Corporate crime

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Introduction

The loss of biodiversity is one of the many environmental crises our planet is facing. One aspect of biodiversity loss is the poaching and trafficking of wildlife.¹ In the past, the poaching of wildlife was portrayed as a small-scale local activity in which only small numbers of wildlife would be smuggled illegally by collectors or opportunists (e.g. Roe et al. 2002). The perception was that lone individuals poached, usually for subsistence reasons. Nowadays, this image has changed: criminal networks are believed to be highly involved in wildlife trafficking, which has become a significant area of illicit activity (Nellemann et al. 2016; Interpol 2019). Even though wildlife trafficking is now recognised as a major area of crime and has become an important topic for some criminologists (e.g. Pires and Moreto 2011; Wyatt 2013; Nurse 2015; Sollund and Maher 2015; van Uhm 2016a; Wong 2019; Zimmerman 2003 amongst numerous others), research that specifically focusses on the involvement of different criminal networks and their specific nature is lacking. This paper provides original insight into the differences of the criminal networks active in wildlife trafficking. The concept of a ‘criminal network’ or ‘serious organized crime’ is amorphous – getting used interchangeably and describes all crime that is structured rather than solely reflecting crime that fits within normative definitions of ‘organized’ crime. As Titeca (2019: 25) notes for his research into the organisation of the illegal ivory trade “dominant statements on ‘ballooning criminal networks’, ‘crime syndicates’ and ‘gangs’ remain only that: statements, without an explanation or empirical analysis on what these look like or how this trade is organized”. As we evidence in this paper, in reality, the criminal networks engaging in wildlife trafficking are diverse. The varied structures and perpetration tactics of these differing criminal networks mean that different prevention and disruption strategies need to be employed in order to save wildlife. Drawing on the existing literature and data collected from our own fieldwork, we propose three categories of criminal networks: (1) organized crime groups (2) corporate crime groups and (3) disorganized criminal networks. For each of the categories, we first define the parameters of the actors. We do so by explaining the structure and uniqueness of each of these categories. Then, in each categories’ section, we provide examples of the structure. We then discuss the overlap and interaction that occurs between our proposed categories. We conclude with a discussion regarding the complicated nature of the involved criminal networks as well as predictions as to the future of these networks and thoughts on why further understanding of criminal network structures can help tackle wildlife trafficking.²

¹ We acknowledge that the terms ‘poaching’ and ‘wildlife’ are contentious to some scholars and that the term ‘poaching’ has a legal connotation in respect of game laws as opposed to wildlife protection and conservation law. However, as our article is on the networks facilitating trafficking, it is beyond the scope to wade into these definitional debates, though we do so in other publications (Nurse and Wyatt, 2020).

² While it is beyond the scope of this article to examine in detail motivations for engagement in wildlife crime, we note that previous research identifies varied motivations from pursuit of profit, offending caused by and reinforcing masculinities, and offending motivated by opportunity and allied to diversification from other revenue streams (Nurse 2013; South and Wyatt, 2011; Wyatt 2011).

Wildlife crime groups

That wildlife trafficking is or has likely become more structured and is not made up solely of individual actors breaking rules seems to have taken place in the context of a globalising market place focused on the ‘war’ on drugs and terrorism. Attracted by low law enforcement priority, low sentences, the affordability of fines, and the small chance of getting caught and receiving punishment, criminal networks, have evolved within or stepped into wildlife markets (Schaedla 2017; Wellsmith 2011), bringing with them organization and sophistication and a range of motivations and operating practices (Nurse 2013; South and Wyatt 2011; Wyatt 2011). In this section, we will show that these criminal networks or groups are not homogenous and organized crime groups, corporate crime groups, and disorganized crime networks utilize different approaches and become involved in different wildlife markets.

Organized crime groups

In one sense, trafficking is a consequence of supply and demand such that poaching of wildlife makes sound economic sense for established criminals and opportunistic rule breakers.³ White and Heckenberg (2014: 286) identify that ‘in recent years, greater attention has been given internationally to the role of organized crime networks in regard to environmental crime’ and to wildlife trafficking in particular. Yet organized crime group’s involvement in wildlife trafficking is not a new phenomenon (Søyland 2000; ECOSOC 2002, 2003; Zimmerman 2003; Wyler and Sheikh 2008). Cook et al. (2002: 4) noted almost 20 years ago ‘organised crime elements are becoming increasingly involved in the most lucrative parts of the illegal trade and they are prepared to use intimidation and violence’, but what though is meant by organized crime?

As Paoli (2001) and Paoli and Van der Beken (2014) (among others) have proposed there is no unanimous or agreed upon definition of organized crime or organized crime groups. It is unclear what is organized (the Italian mafia, the Chinese triads) or disorganized (groups of pickpockets), how many members have to be involved in order to be considered as organized crime and why certain activities are seen as organized (human or drug trafficking) while others are not (cybercrime) (Paoli 2001; Siegel 2008). Passas (1995) highlights that an indication of organized crime could be the degree of organization and structure.⁴ The group supplies illegal goods and/or services, and the activities have an element of continuity and rationality (Hagan 1983). Since organized crime operates outside the law, there are no legal contracts to guarantee the delivery of the illegally traded product. Organized crime groups use their own internal system to solve conflicts or disputes in illegal activities (Siegel 2008; Gambetta 2009). Fijnaut et al. (1996) and Arlacchi (1998) add, that in general the groups are all

³ We note above the definitional problems with the term ‘poaching’ and in the context of this article’s discussion of wildlife trafficking it refers to unlawful taking of wildlife without any connotation of accepting wildlife as property, something we discuss in forthcoming publications (Nurse and Wyatt forthcoming 2020)..

⁴ Traditionally, organized crime has been portrayed as pyramidal structured organizations with a strict hierarchy and clear divisions of tasks and internal rules and sanction systems (c.f. Block and Chambliss 1981). The current perspective on organized crime has changed into more fluid and flexible organized networks anticipating opportunities for illegal markets (e.g. Paoli 2001; Fijnaut and Paoli 2004; Morselli 2009).

supported by violence and corruption to facilitate their criminal activities. However, Passas (1995: xvi) underlines that “[v]iolence, corruption and control of the market are more prominent features (...) but they should not be exaggerated.”

We suggest (and outline below) organized crime groups are highly-organized, disciplined, rational, and may use violence or corruption to control illegal goods and/or services for profit. In addition, the group has existed for a significant length of time. This definition does not fit the use of criminal networks or organized crime that seems to be utilized in the media or popular coverage of wildlife trafficking. Take, for instance, the BBC News coverage that wildlife crime involves ‘huge, organised criminal networks’ (Surgue 2019), but then provides no evidence of structure, longevity and so forth. Likewise, as Reid et al. (2018) state one of the key themes of the ‘London Conference on Illegal Wildlife Trade’ in 2018 was to treat illegal wildlife trade as an international, organised crime. No nuance in terms of the diversity of illicit wildlife markets was mentioned and no definition of what organised crime is was given.

Our definition also differs from the definition agreed to in the United Nations Convention Against Transnational Organized Crime (UNTOC) and its accompanying protocols. In Annex 1, Article 2 (a) of UNTOC organized crime is defined as a “structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences established in accordance with this Convention, in order to obtain, directly or indirectly, a financial or other material benefit” (United Nations Office on Drugs and Crime (UNODC) 2004: 5).

Clearly, UNTOC’s conceptualization of organized crime includes organization, longevity and profit as a motive. It does not, however, include ‘highly-organized’ or ‘violence’ and with only three people needed to constitute a group, such a definition seems to include most crime that is organized or structured. Pires and Moreto (2011: 104) astutely noted that organized “can simply mean anything from three individuals who are loosely organized together to a vast criminal enterprise that comprises all stages of the wildlife trade (i.e. vertically integrated organizations)”. In addition, UNTOC requires the crime committed to be ‘serious’. This is defined in Article 2b as, “conduct constituting an offence punishable by a maximum deprivation of liberty of at least four years or a more serious penalty” (United Nations Office on Drugs and Crime (UNODC) 2004: 5). Thus, the definition of what is serious is linked to the severity of punishment - imprisonment of more than four years – rather than specific crimes or the nature of harm caused to wildlife or ecosystems (White and Heckenberg 2014; Hall 2015). Therefore, organized crime is likely interpreted differently in different countries. It may well include a great deal of crimes, since it is a broad definition and as the above example demonstrates, but it also may well exclude crimes that are not deemed ‘serious’.⁵

As mentioned, the UNTOC definition gives no indication of the types of crimes that are serious, but does include that crimes are committed in order to directly or indirectly

⁵ A green criminological perspective on ecological justice would argue that the harm caused is what determines the importance or seriousness of a crime or action rather than its classification according to criminal law sanctions (Benton 1998; Hall 2015; Nurse 2015)

gain financially or materially. This leaves room for interpretation that departs from views of organized crime as, as Paoli (2001) proposed, hierarchical groups operating in the ‘underworld’. Instead, organized crime groups, as Paoli (2001) found in Russia, may engage in ‘underworld’ or ‘upperworld’ activities involving institutions of the former Communist Party and the state industries. In addition, organized crime thrives well in economically weak states and regions in which the government fails to effectively use the monopoly of violence (Bovenkerk et al. 2003). The infrastructure and market knowledge of organized crime groups is readily adaptable to moving a wide range of commodities whether they be drugs, weapons, or wildlife. For example, the distant fishing areas for caviar with high levels of unemployment, weapon and drug trafficking in Dagestan (in the Caucasus) provide perfect conditions for poaching sturgeons, while the remote parts of the Golden Triangle in Southeast Asia are known to be one of the most undeveloped places in the region with significant trade in rhino horns, tiger bone wine and ivory (van Uhm and Wong 2019). Although these regions are known for drug and/or arms trafficking,⁶ they have also become breeding grounds for wildlife crime groups and the overlap is not surprising (van Uhm 2016a; van Uhm and Nijman 2020). We will return to this later when we explore the overlaps between organized crime groups, corporate crime groups and disorganized crime networks, but it indicates that even within the category of organized crime groups there are variations.⁷

Now that the definition of organised crime groups as conceptualised in this article has been drawn out from the literature, we provide examples from the literature and our fieldwork to support the existence of this category. As mentioned, organized crime groups have a high degree of organisation and continuity. We suggest that the use of violence and corruption are likely indicators of the level of criminal organization and distinguish them as an organized crime group rather than a disorganized crime network. Such aspects are clearly observable in the illegal caviar trade, in which organized crime groups dominate police and maintain their power by violence to control the transfer of caviar from the poaching areas (e.g. Dagestan) to the destination countries in Europe. There are several examples where military attacks, bombings, kidnappings and counterstrategies reflect the high degree of organization (van Uhm and Siegel 2016). The emergence of organized crime groups in rhino horn trafficking that were previously involved in other serious forms of crime illustrate the attractiveness of wildlife crimes to organized crime. Such organized crime groups were involved in other illegalities (drugs, tobacco trafficking) and are now active in rhino horn trafficking or could be considered as multifaceted organized crime groups, involved in several illegal trades simultaneously (van Uhm 2019, van Uhm and Nijman 2020).

One of the strongest examples of organized crime groups in wildlife trafficking comes from ivory. At least part of ivory smuggling (see disorganised crime networks and overlap sections below) is regularly perpetrated by organized crime groups, which are attracted by

⁶ The Caucasus is an important region for weapons, drugs and human trafficking (e.g. Arasli 2007) and the Golden Triangle is notorious for the blooming opium and amphetamine trade (e.g. Zhang et al. 2008).

⁷ While profit is a dominant driver, the large-scale cartel-style groups are not the only organized crime actors operating within wildlife trafficking. Supply of wildlife for trafficking is predominantly economically-motivated activity driven by anthropocentric views towards animals as commodities to be traded and exploited. Organized crime’s involvement is that of procurer of goods for customers in a demand-led market (Schneider 2008). Because of the organization and infrastructure, organized crime groups are able to secure the wildlife and get the wildlife to a manufacturer or a seller.

the high profits and low risks (Naylor 2004). Furthermore, organized crime is also capable of successfully navigating the complex smuggling operations that need to take place in order to smuggle a fully illegal product over long distances. Organized crime then can and does form part of the ivory network seemingly because of their level of sophistication (Naylor 2004). Another example is of the Mexican fish - the *totoaba*. These fish have swim bladders that are prized in traditional Chinese medicine and are currently targeted by organized criminal groups, which orchestrate the fishing of the *totoaba* as well as the complicated smuggling from Baja, Mexico through the United States to the Chinese market (Alvarado Martínez and Regina Martínez 2018). Research by Arroyo-Quiroz and Wyatt (2019) found that experts believe former drug cartels are smuggling the *totoaba* because it is much more profitable and less risky than drug trafficking. The presence or absence of a legal trade and the amount of profit to be had from the species of wildlife seem to be relevant to which type of criminal group or network becomes involved. Whereas caviar, a legal market, draws in organized crime groups, so do ivory and *totoaba*, internationally illegal markets. What may be more prevalent in wildlife markets that are legal is the involvement of corporate crime groups.

Corporate crime groups

To begin this section, first, we define what we mean by corporation, corporate crime and corporate crime group. As in the previous section, we then move on to provide examples of this category. A corporation is any business or company that is registered with their own or another countries' territory (Wyatt and Davies Forthcoming 2020). This includes small family-owned businesses to multi-national corporations. Corporate crime can be defined as:

“illegal acts or omissions, punishable by the State under administrative, civil or criminal law, which are the result of deliberate decision making or culpable negligence within a legitimate formal organisation. These acts or omissions are based in legitimate, formal, business organisations, made in accordance with the normative goals, standard operating procedures, and/or cultural norms of the organisation, and are intended to benefit the corporation itself” (Pearce and Tombs 1998: 107–10).

Similarly, Box (1983: 20) proposes corporate crimes are acts of “omission or commission by an individual or group of individuals in a legitimate formal organization – which have serious physical or economic impacts on employees, consumers or the general public”. Key to these definitions is that the person or group are acting as part of a recognized legitimate organization. These definitions of corporate crime do not indicate anything about the corporations' relationships with other actors or perpetrators. We suggest that corporations, like organized crime groups, form networks that enable the perpetration of crimes (see also Ruggiero 1996). A corporate crime group then would consist of one or more corporations using their legitimate formal organization and acting in conjunction with other individuals or outside groups to commit illegal activities to benefit the corporation.⁸ Such intertwined relationships between the upperworld and the underworld activities characterize much wildlife trafficking.

⁸ In addition to the definition of legitimate corporate actors engaged in illegal activity, illegitimate corporations set up for the purposes of engaging in wildlife trafficking represent another form of organised corporate activity.

For instance, the illegal transport of wildlife may be perpetrated by corporate crime groups. Based on analyses of the occupations of illegal wildlife traders within the EU, a large proportion of the recorded offenders in Europe (> 30%) appear to also act legally in relation to wildlife (van Uhm 2016c). Such perpetrators consist of legally registered animal traders, zoos, circuses, antique shops, fashion trading companies or breeding companies of exotic animals and could provide a perfect cover for *wildlife laundering*. During wildlife laundering, the illegal origin of wildlife or wildlife products are concealed; the wildlife is declared as being a legally obtained product to get documents that prove the legality or fraudulent permits are obtained through corrupt means saying that it is a legal captive-bred individual (Wyatt 2013). In other words, a wildlife trader or breeder orders illegal wildlife from a poacher and then declares the wildlife as captive-bred to ship to its final destination by using their legal infrastructure (e.g. Lyons and Natusch 2011). For example, Nijman and Shepherd (2009) and Lyons and Natusch (2011) describe substantial discrepancies between the annual exported number of reptiles from Indonesia and the number of reptiles capable of being produced by Indonesian breeding farms. Comparably, Shepherd et al. (2012) discovered large numbers of wild-caught birds, such as hornbills, parrots and birds-of-paradise that were laundered into the global wildlife trade through the Solomon Islands by alleged breeders; again, they declared wild-caught animals as being captive-bred. Another example is the possibility to launder illegally sourced caviar through aquaculture operations of sturgeons. Wild-caught sturgeons for breeding purposes are not released or caviar from wild sturgeons will be shipped as having been produced in fish farms (Jahrl 2013; van Uhm and Siegel 2016). The latter example reflects the overlap between corporate crime and organized crime as some of the official directors of the current sturgeon farms in Russia were the ‘big fishes’ in the illegal trade in caviar in the post-Soviet period (van Uhm and Siegel 2016). These examples illustrate that corporations can play important roles in the transit and transformation of illegal into legal wildlife. They also demonstrate that corporations are not acting in isolation; they are core offenders in a network that also includes individuals and other groups, who may supply illegal wildlife or receive laundered wildlife.⁹

Thus, corporations and businesses potentially launder wildlife, in order to increase profits by blending illegal trade into their licit activities. Christy (2008) documents this for a pet shop in Florida, USA where the owners ran a parallel black-market trade in

⁹ Often a separate area of research from wildlife trafficking, illegal, unreported and unregulated fishing (IUU) provides numerous examples of corporate crime groups. A recent C4ADS (2019) study found that onshore corporations are integral to IUU fishing. Many of the red flag indicators of IUU fishing activity are linked to an individual employee or a corporation. These red flag indicators are: manipulation or dismantling of a ships’ automated identification system, “the use of flags of convenience, repeatedly reflagging to another flag state, flying multiple flags, or flying no flag at all”, using specific private or public ports because of weak regulatory oversight, at sea transfers of catch and supplies, and repeatedly changing vessel identifiers like name, callsign, and outward appearance. The actions likely have to be ordered, authorized, or at least known about by individuals within the corporation. IUU fishing is deeply entrenched in the legal seafood supply with up to 30% being linked to IUU practices in the US (Pramod et al. 2014).

reptiles in addition to their public legitimate pet store. In these cases of what Wyatt (2013, 2016) categorizes as ‘collectors’ items’ (rare wildlife in demand for a person’s or organisation’s collection), the profits are quite high. Corporations or businesses are also integral to the trafficking of low value processed commodities, those wildlife that are less rare and need to be altered into a final product (Wyatt 2013). Taxidermy of wildlife is a clear example of this, where a business undertaking the preservation of the wildlife specimen is likely to know that it is illegal to possess that species of wildlife. The level of profit and scale of this portion of processed commodities though is low level, which presumably is why organized crime groups are not entrenched within this particular black market (Wyatt 2013). There are instances though where networks exist, but neither corporations nor organized crime are involved.

Disorganised crime networks

In addition to organized and corporate crime groups, we draw upon Reuter’s (1986) proposed concept of *disorganized crime*. In his conceptualization of disorganized, the criminal group is less structured, does not employ violence as a tool and are often not territorial, highly-organized or monopolistic. Therefore, the UNTOC’s definition of organized crime discussed in 2.1 fits more of Reuter’s (1986) definition of disorganized crime. We expand upon this to propose disorganized crime networks. We use the term network, since in many cases of wildlife trafficking the structure of disorganized crime encompasses several countries and occurs transnationally. Furthermore, the smuggling apparatus are characterized by swift and sometimes temporary and fluid relationships between actors that react to socio-economic, political and ecological changes by looking for opportunities for illegal activities (Bauman 2000; Morselli 2009). Thus, these networks are more fleeting and less stable than a group. These networks of opportunistic individuals, such as truck drivers, corrupt border officials, intermediaries, express couriers and so forth, establish temporary and fluid relationships to each other and sometimes to established organized and/or corporate crime groups to smuggle wildlife across the borders. There are numerous examples of illegal entrepreneurs transferring illegal wildlife to a middleman or final buyer, without being part of an organized crime group, but linked to a disorganized crime network (e.g. Pires and Moreto 2011; Leberatto 2016). As Hübschle (2016: 195) found, the illegal wildlife trade is a ‘business enterprise facilitated by a multitude of diverse actors with close, limited or no links to “organized”’.

For example, research has shown portions of the illegal ivory trade are disorganised crime networks. Law enforcement in Uganda have reported that the illegal trade there is not linked to organised crime (Runhovde 2017), though the ivory from Uganda does end up being smuggled to Asia. At the local level, the ivory traders in Uganda seem to be a disorganised network, feeding into an amalgamated illegal container shipment that is moved by organised crime groups (Titeca 2019). Other research has also shown elements of ivory trafficking to be carried out by organised crime groups (Wasser et al. 2015), but the groups of local elephant poachers are often linked to disorganized crime groups, embedded in local communities surrounding the nature reserves where the wild elephants are living. Such groups are familiar with the terrain and skilled in animal tracking and sell their wildlife products via a middleman (e.g., Moreto et al. 2017).

Across Asia similar disorganized poaching networks are active that poach on a daily or ad hoc basis, sometimes based on requests from Chinese middlemen in Myanmar and Laos, but regularly to sell low-valued wildlife species on local wildlife markets to local traders (e.g. Nooren and Claridge 2001; Pantel and Chin 2009). Similarly, opportunistic disorganized groups of poachers in Bolivia and Peru are responsible for parrot poaching, which sell the birds at the illegal pet markets (Pires et al. 2016). Thus, depending on the stage in trafficking one category of group may or may not be involved.

Another example of disorganised crime networks is of a Dutch illegal entrepreneur, who smuggled ten hummingbirds and two sunbirds in his underpants on a flight from Suriname to the Netherlands; he had a structured plan to sell the birds to acquaintances, and was already convicted for the same activity before, but he did not have connections to organized crime (van Uhm 2016c). Another case in which an opportunistic entrepreneur purchased a monkey along the road during his holiday in the seaside resort of Saïdia in Morocco, shows how these operations can also be based on ad hoc coalitions as the entrepreneur bought the monkey on behalf of his friend who sold wildlife to clients in Europe (van Uhm 2016a). In relation to caviar trafficking, many ‘opportunists’, such as truck drivers or former residents, sell several kilos of caviar in the country of destination to make some profit or to compensate for the fuel used. For example, Iranian greengrocers in Europe smuggling several kilos of wild caviar from Iran each year to supply their personal network could be seen as a disorganized crime network; they sell their caviar bought in markets to Russian shops, restaurants or acquaintances and friends on a small scale (van Uhm and Siegel 2016). Pires and Clarke (2011) also identified that traders take advantage of opportunistic poaching of parrots by peasants, arguably taking advantage of a disorganized network of ground actors who view parrots as a commodity that can be sold onto others who handle distribution and sale (Pires and Moretto, 2011). This illustrates how the relatively low level of organization, and the high degree of opportunism in these disorganized criminal networks can enable the smuggling of wildlife from the initial capture further down the chain.

Wildlife that is less valuable and where trade of the species may be legal or at least limited appear not to be trafficked by organized crime or businesses. This is the case in the black market of bush meat, which appears to be orchestrated by individuals in loosely connected networks. Individuals travelling from source countries to London, for instance, smuggle cane rats or other bush meat species in order to sell them at markets in diaspora neighbourhoods (Lynn 2012). Similar patterns have been observed for the illegal fur trade (Wyatt 2009) and portions of the smuggling of falcons (Wyatt 2011) and timber (Wyatt 2014). Whereas there is a level of organization to this, it is not facilitated by organized crime groups or by a corporation.

The overlaps

The illegal wildlife trade is a chain of events or stages, and we like Titeca (2019) acknowledge that at each of the links of the chain, there is the possibility that a number of different actors may be involved. Also, depending on the region and the species, the actors are likely to be different (Pires and Moretto 2011). Wildlife trafficking begins with the capture, collection, or killing of wildlife. Wildlife are then smuggled either alive, which requires more skills and sophistication, or dead or as a part, which means

the wildlife will need to be hidden (Nurse 2013). The wildlife then will be sold at a market or to the consumer. This may be undertaken by a middleman or distributor, but usually not the person, who originally captured or killed the wildlife. Organised crime groups may become more involved further along the chain (Pires and Moreto 2011). At these various links in the chain of trafficking, our three proposed categories of groups and networks have varying levels of involvement. Importantly, they also have varying levels of interaction with one another.

The embeddedness of organized crime in legal sectors of the economy and the connection between organized crime and corporate crime was largely discussed in the 1990s and 2000s (e.g. Van Duyne 1995; Ruggiero 1996; Passas 2002), but never in the context of wildlife markets. It turned out that the line between legal and criminal is regularly blurred, especially when legal and illegal actors interact with each other, such as the traditional connection between the mafia and waste corporations (e.g. Block and Scarpitt 1985). Evidence has emerged that there are several high-value trafficked wildlife commodities that are a joint organized-corporate crime ventures too. In these instances, processed commodities (Wyatt 2013) such as ivory, pangolins, caviar and timber are trafficked by organized crime and the processing part takes place through corporations. In the case of ivory, the carving of ivory has traditionally been legal for a domestic market (Bennett 2014). For instance, trafficked ivory then could blend into the domestic carving industry, but presumably, the businesses involved in carving were and are aware that some of the ivory that they are processing and selling is sourced illegally by organized crime groups. Similarly, timber processors and furniture manufacturers are legitimate businesses that seemingly play a role in the laundering of illegal wildlife into the legal market where high consumer demand for timber arguably encourages if not facilitates the illegal trade (Kishor and Lescuyer 2012). The level of this involvement is worthy of further research to determine if it is purposeful or whether it is due to lack of effective oversight of their supply chains.

Traditional medicines are similarly trafficked through a combination of organized crime and corporate crime activities. For instance, Chinese organized crime groups in Hong Kong supply traditional Chinese medicine with illegal animal parts to several companies across China and even to the EU (van Uhm 2019; van Uhm and Wong 2019). Traditional medicines must be made though this is probably not to the scale of a processed commodity in terms of infrastructure needed or potentially the scale required. The difference in processing as well as traditional medicines' long history of use and a strong cultural element to their continued demand are why traditional medicines are a separate wildlife market (Wyatt 2013). Traditional medicine businesses and doctors or pharmacists that are selling and making traditional medicines know on some level that there are, at times, illegal ingredients within the products. The companies making the packaging for traditional medicines that falsely label products by leaving out endangered species from the ingredients may well be aware of the true ingredients. There are also medicine businesses in China that illegally buy rhino horn from organized crime groups to supply it to their regular customers (see e.g., van Uhm 2019; van Uhm and Wong 2019). Thus, these are organized-corporate crime collaborations facilitating wildlife trafficking.

In addition, there are many links between disorganized crime networks and organized or corporate crime groups. In contradiction to professional groups of poachers with highly sophisticated equipment, such as heavy artillery and even helicopters to detect the non-human animals, wildlife poaching groups regularly consist of

disorganized groups of local people that traditionally are hunting for their living. Such groups of poachers in Southeast Asia have been described as inhabitants of villages, people who live near the forests or habitats, where the wildlife are hunted. As the endangered animals are often located in economically deprived regions, there seems to be a strong link between poaching and limited access to alternative livelihood options, a lack of environmental education and poverty among local communities (e.g. Nooren and Claridge 2001; Pantel and Anak 2010).¹⁰ However, some of those communities supply their wildlife to organized crime groups, while others sell wildlife to corporations illegally. Sometimes the disorganized networks of poachers even obtain loans from organized crime groups or from companies to cover their daily basic expenses illustrated by different reports (e.g. Pantel and Chin 2009; Moyle 2009). Furthermore, pangolin trafficking is perpetrated by disorganized crime networks, but there is a link to corporate crime as well. Courier companies have been found to have cargo ships full of frozen illegal pangolin meat (Carrington 2013).

Thus, the distinction between organized crime, corporate crime and disorganized crime is rather fluid. They also may be evident in discreet stages of trafficking rather than present throughout the entirety of one individual wildlife being captured or killed, smuggled, and finally sold. According to Ruggiero (1996) it would be a matter of degree to what extent offenders are involved in both legal and illegal spheres of the economy. Because many wildlife are not illegal by themselves, there are legal and illegal pangolins, caviar tins and parts of ivory on the market. Consequently, the organized, corporate and disorganized crime groups and networks are not solely active in the underworld, but rather embedded in upperworld activities. From laundering wildlife to collaborating with upperworld figures, the groups are interacting with their environment to transfer the wildlife into the (legitimate) supply market. Therefore, the symbiotic relation between corporate crime and organized or disorganized crime is evident in wildlife trafficking as corporations can shadow illegal activities of organized or disorganized crime groups or organized and disorganized crime groups can launder their wildlife through a company to get it into the legitimate market.

Discussion and conclusion

With globalization and expanding markets, a range of criminal networks have become involved in different stages of the illegal wildlife trade. We have proposed that these are organized crime groups, corporate crime groups, and disorganized crime networks as well as collaborations between such groups (in addition to unattached individuals that also function in this market). Table 1 outlines our suggested characteristics of these three proposed categories based on our empirical research and analysis of the existing literature. Arguably each are distinctive in terms of: levels of organization, degree to which they act opportunistically, have links to other crimes, and employ corruption. Corruption is often a key facilitator and integral part of these laundering processes. In wildlife trafficking, corruption is manifested in different forms: accepting bribes during

¹⁰ For instance, poachers of pangolins in usually poor local communities make 10–50% of their income from the trade (Pantel and Anak 2010). Ideal candidates to recruit as poachers for tigers come from indigenous communities with strong hunting cultures, such as the Indian Bawariya and Behliya tribes (Moyle 2009).

border crossings, the making of false claims of captive breeding and the involvement of government officials in the smuggling process are well-known examples (see also van Uhm and Moreto 2018 and Wyatt and Cao 2015). Organized crime groups are highly organized, sometimes act opportunistically, often if not always have links to other crimes (particularly other illicit markets), and rely on corruption as a tool to perpetrate their illegal activities.¹¹ In contrast, corporate crime groups, are also highly organized and sometimes act opportunistically, but they are less likely to be linked to other crimes and are less reliant on public corruption to facilitate their activities though they themselves can be considered corrupt. The disorganized crime networks are the least organized, are the most likely to act opportunistically, can sometimes be linked to other crimes, but not necessarily and have the lowest use of corruption as a tool of perpetration.

These distinctions arise for a number of reasons. During the first stage of poaching, organised crime groups and disorganized crime networks seem to be involved in the procurement of wildlife (in addition to subsistence and opportunistic poaching). Even though all three criminal groups/networks primarily focus on wildlife as a profit-driven offence, the more organized poaching groups arguably exist within communities, with their own social norms accepting their deviant activities and anthropocentric world-views (Nurse 2013). The criminal groups involved in smuggling wildlife from the source country to the destination country can be differentiated between organized crime groups, corporate crime groups and disorganized crime networks each with interconnecting characteristics. While there are numerous examples of criminal networks with a high degree of opportunism and low level of organization, well-organized forms of corporate and organized crime involved in wildlife trafficking do actively and structurally commit wildlife crimes. The latter category correlates with a high degree of corruption as well as links with other serious crimes such as drug trafficking (South and Wyatt 2011; Wyatt 2011; van Uhm 2019; van Uhm and Nijman 2020). The trafficking of live protected non-human animals is regularly connected to legal enterprises as part of corporate crime groups because skills and knowledge of those specific species are required to keep them alive during the illegal activities, while banned processed items (e.g. ivory) or raw materials (e.g. timber, rhino horn) may rather be in the hands of sophisticated organized crime groups (Wyatt 2013). Here it is specifically relevant if the products are available on legitimate markets so that laundering can take place (Lyons and Natusch 2011; Nijman and Shepherd 2009) and joint organized-corporate crime ventures emerge.

In particular, high-value wildlife attracts organized and corporate crime. In general, this seems to be coupled with the wildlife market being (largely) illegal (i.e. ivory, whale) and/or the legal market having a parallel black market (i.e. caviar), where the smuggling of the wildlife requires a complex sophisticated network of actors. The complexity and sophistication present may be because the smuggling distances are long, thus, the need to hide the wildlife, or the need to have the funds to bribe numerous agents along the way. Furthermore, complexity and sophistication may stem from the

¹¹ In a recent investigation, ‘Operation Cactus’, three Dutch wildlife traders were convicted for smuggling exotic animals, and involvement in a criminal organization. However, it is interesting to note that actors involved in such wildlife networks, like the main defendant in this specific case, do not consider themselves explicitly as an organized crime or mafia organization, but rather a network of entrepreneurs (van Uhm 2016b; van Uhm and Siegel 2016).

Table 1 - The characteristics of the three categories of crime groups and networks

Type of wildlife smuggling network*	Level of organization	Degree of opportunism	Links with other crimes	Level of corruption
Organized crime group	+/+	+/-	+/+	+/+
Corporate crime group	+/+	+/-	-/-	-/+
Disorganized crime network	-/-	+/+	+/-	+/-

*These types are theoretically distinct, but do overlap in reality. From low to high: -/-, +/-, -/+, +/+

infrastructure required to process the wildlife (i.e. ivory or timber). The high value of the wildlife is seen not only because of the high final selling price of the wildlife, such as with ivory and rhino horn, but also if the quantity is significant enough to make the value of the wildlife high as in the case of pangolins. Corporations can be part of organized crimes' complex sophisticated network of actors for the trafficking of some wildlife. This seems to be the case when the wildlife needs to be processed before it is sold and when illegal wildlife needs to be laundered into the legal market. Corporations are not only able to collaborate with organized crime groups. They also traffic wildlife. As mentioned, this is an aspect of the perpetration of wildlife trafficking that is greatly overlooked since there is little empirical evidence to document the intent and knowledge of corporations and businesses in industries where it is known that illegal wildlife is blended in with and laundered into the legal markets (i.e. timber and pets).

As we indicate in Table 1, the level of corruption engaged with by different actors (groups) is variable and context specific. For instance, in Vietnam, a transit and destination country in wildlife trafficking, wildlife smugglers invest tens of thousands of dollars to bribe border officials. Not only are the geographic setting and socio-economic context of Vietnam of great importance, also Vietnam's 'culture of envelope' reflect the ordinary practices of 'speed money'; 'public servants are given small amounts of money in envelopes to complete their duties' (Wyatt and Cao 2015: 23). In Europe, corruption facilitates the illegal wildlife trade particularly through corrupt officials in the border states. Wild birds and caviar enter the EU through corrupt customs officers in Southeast European states, while some border officials in Spain could be bribed for €20–50 (van Uhm 2016a). These bribes include money and gifts, but also wildlife products. Other forms of corruption involve government officials that abuse their position to smuggle wildlife under a diplomatic cover. There are several examples where embassy employees in South Africa facilitate wildlife trafficking (e.g. Lemieux and Clarke 2009). While in many disorganized crime networks corruption exists, in the more organized crime groups, the corruption element is well-organized in which the risk of getting caught is calculated and corrupt practices are embedded in the organization.

Thus, the criminal networks involved in wildlife trafficking are far from being one homogenized group. A range of offending types exist, the level of organization varies considerably, and the groups dominate different 'niche' markets. Even though each wildlife market has its own criminogenic features, we have identified four overarching similarities that make the illegal wildlife market particularly vulnerable to organized crime groups in particular. First, several authors underline consistently that illegal wildlife trade is especially attractive for organized crime due to the low sentences and low risk of being caught. Second, the poaching of wildlife usually takes place in economically weak states and regions in

which the government fails to effectively use the monopoly of violence. It is well-known that organized crime groups thrive well in such areas. Third, the symbiotic relationship between the underworld and upperworld provides a breeding ground for organized crime groups. Not only do legitimate infrastructures provide opportunities to launder illegal wildlife in all stages of the wildlife trade, in particular corruption regularly plays a significant role in facilitating wildlife crimes in source, transit or destination countries by disorganized crime networks, and corporate or organized crime groups. Fourth, the rising global scarcity of wildlife and high prices on the black market increasingly attracts transnational criminal organizations. Several examples highlight that organized crime groups shift from ‘traditional’ criminal activities, such as drug or human trafficking, to the illegal trade in wildlife (van Uhm and Nijman 2020). With that in mind, we predict further blurring of these lines with organized crime groups working more closely with corporate crime groups in order to get their wildlife ‘products’ on the market. Disorganized crime networks will continue to adapt to the emergence of new wildlife markets and geographies as well as to the efforts to dismantle wildlife trafficking put forward by law enforcement.

Wildlife trafficking is undertaken by a sophisticated diverse range of perpetrators and is far more structured and intertwined with the legal sphere than current rhetoric suggests. The distinctions between actors involved in wildlife trafficking are important. Knowing if a particular wildlife market has elements of organised and/or corporate crime groups, and/or disorganised crime networks should underpin prevention and disruption strategies of law enforcement. In particular, and as we have suggested – the much overlooked – element of corporate crime groups integrated within the wildlife economies needs to be addressed. Corporate crime is not a traditional sphere for law enforcement, and is sometimes addressed through regulatory structures, which indicates the need for much greater collaboration with other regulatory agencies like financial crime and fraud units as well as insurance companies and banks. To save many species from overexploitation and extinction, a more nuanced and complete view of the actors and their varied structures is crucial.

Compliance with ethical standards

Conflict of interest The Authors declare that we have no conflicts of interest.

Human or animal subject No human or animal subjects were involved in this research.

Ethical approval We have received ethical approval from our institutions, which included informed consent where appropriate.

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