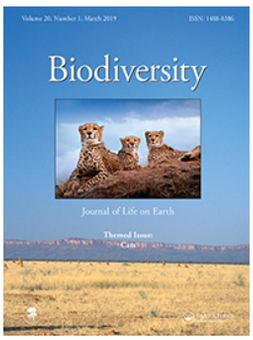

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ON THE GROUND

# Illegal wildlife trade – surveying open animal markets and online platforms to understand the poaching of wild cats

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The illegal wildlife trade is a major driver behind the global loss of wildlife and is pushing many species towards extinction. A large number of wild cat species are heavily traded: live animals are kept as pets, held in zoos or wildlife collections, their meat is eaten as luxury food, their skins and skulls are used for decoration, their teeth and claws are used for jewellery and their bones and other parts are used in traditional medicine or witchcraft. As researchers and conservationists, there is a need to assess this illicit demand to support the development of policies aimed at reducing the threat that illegal trade poses to wild cats. To do this, we have been monitoring open wildlife markets for over two decades, and more recently, we have included the online marketplace. We have been surveying the trade in Leopards, Servals and Lions in Morocco and Algeria (DB, SA), Tigers, Leopards, Mainland Clouded Leopards, Asiatic Golden Cats, Jungle Cats and Mainland Leopard Cats in Myanmar and Thailand (CRS, PS, VN), Tigers, Leopards, Mainland and Sunda Clouded Leopards, Mainland and Sunda Leopard Cats in Malaysia and Indonesia (VN, CRS, JHS, DB, KAIN) and Jaguars, Pumas and Ocelots in Brazil and Peru (TM) (Figure 1).

Based on numerous visits to wildlife markets in these countries, we have been able to draw conclusions about how these market surveys should be conducted. Consistent market surveys over several years have shown that the market is dynamic, and that trade shifts between areas and over time, based on fluctuations in supply and demand, increased levels of public awareness and/or increased levels of enforcement. The characteristics of the various countries also influence the dynamics of trade, such as levels of corruption, average income and Internet penetration (Table 1). Here, we illustrate how particularities of each area must be considered in order to reliably assess the impacts of wildlife markets.

In Morocco, and to a lesser degree Algeria, the trade in Leopard, Lion and Serval skins has been occurring predominantly in open markets, and very few individuals have been recorded online. Comparing our observations from the last five years, we can see a consistent presence of Leopard skins in markets all across Morocco, despite new laws brought in in 2015 that clarified the illegality of this trade (Bergin and Nijman 2016). Leopard skins are traded for decoration and because they are considered by some to be a cure for rheumatism. We have also seen Lion and Serval skins for sale as decoration, though less frequently. Although Morocco has 60% Internet access and Algeria just 19%, the majority of wild animals we have seen for sale online have been in Algeria, though this does not include wild cat species which seem to be almost exclusively sold in physical markets.

Similarly, in Kyaiktiyo, Myanmar, we have recorded Tiger, Leopard, Mainland Clouded Leopard and Mainland Leopard Cat parts openly offered for sale to visiting pilgrims since the 1990s (Shepherd 2001; Nijman and Indenbaum 2017); while online trade is not yet of concern, given the lack of records and the low proportion of local population accessing the Internet (around 2%). In the 1990s and 2000s the Myanmar border town of Tachilek and its Thai neighbour, Mae Sai, were important hubs for the trade in Tigers, Leopards, Mainland Clouded Leopards, Asiatic Golden Cat and Mainland Leopard Cat skins. A significant proportion of this trade was to meet the demand of customers from Thailand. Over time, Thai authorities stepped up their enforcement efforts in both towns and consistently fewer skins were offered for sale (Nijman and Shepherd 2015). However, at the same time, China's economic importance in this region increased and traders and middlemen shifted towards the Chinese border regions. Thus, in the Myanmar–China border

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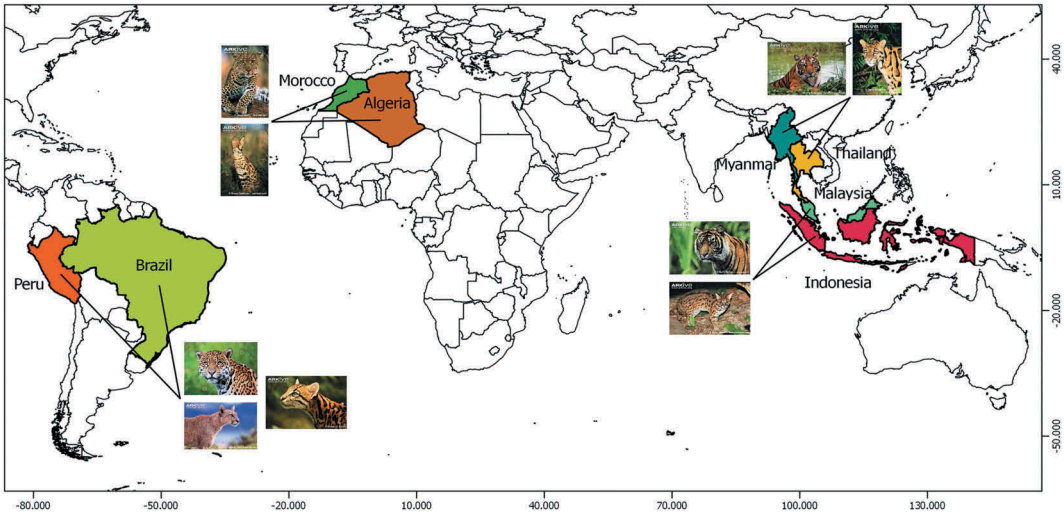


Figure 1. Wild cats are traded globally; here are highlighted eight countries where we have worked to monitor the illegal trade in wild cats, both in wildlife markets and online.

Table 1. Overview of relevant country-wide statistics for countries where the legal and illegal wild cat trade was studied, providing a summary of opportunities and limitations for the monitoring of the wild cat trade.

| Country | Internet penetration rate (2016)[a] | Corruption Index (out of 180)[b] | GDP per capita (US$)[c] | Comments on cat trade and opportunities for monitoring |
|---|---|---|---|---|
| Algeria | 19.7 | 112 | 15,275 | Limited open trade in markets; limited internet trade |
| Morocco | 57.6 | 81 | 8,218 | Openly traded in markets; limited internet trade |
| Myanmar | 2.5 | 130 | 6,139 | Openly traded in markets; low levels of internet trade |
| Thailand | 42.7 | 96 | 17,871 | Limited open trade in markets; high levels of internet trade |
| Indonesia | 20.4 | 96 | 12,284 | Openly traded in markets; high levels of internet trade |
| Malaysia | 68.6 | 62 | 29,432 | Limited open trade; intermediate levels of internet trade |
| Peru | 41.0 | 96 | 13,434 | Limited open market trade; limited internet trade |
| Brazil | 66.4 | 96 | 15,484 | Limited open market trade; intermediate internet trade |

[a] Internet Live Stats (http://www.internetlivestats.com/internet-users-by-country/)
[b] Transparency (https://www.transparency.org/news/feature/corruption_perceptions_index_2017#table)
[c] WorldBank data from 2017

town of Mong La, we noted a clear increase in Tiger, Leopard, Mainland Clouded Leopard and Mainland Leopard Cat parts, sold as decorations and for traditional Asian medicine (Shepherd and Nijman 2007; Nijman and Shepherd 2015). The online trade in Thailand not only offers native species for sale, but also for instance Caracals and Servals. Internet penetration rates are very low in Myanmar and as of yet the online trade in wild cats in Myanmar, if present, seems to be minimal. Our work in Myanmar and Thailand demonstrated that an increase in law enforcement and surveillance may contribute to reducing the availability of wild cat parts in open markets, but shifts to other markets, including online markets, may dilute these effects.

As in Morocco, Algeria, Myanmar and Thailand, trade in wild cats in Indonesia occurs openly as well, in blatant disregard for national legislation. Tiger parts were, in the 1990s and early 2000s, frequently observed openly for sale in shops throughout Sumatra (Shepherd and Magnus 2004). Over the years, due to increased awareness of the public and an increased presence of NGOs assisting enforcement agencies, this trade has declined and shifted largely to online platforms.

We monitored the trade in live Sunda Leopard Cats in several towns in Java and Bali, Indonesia, over a period of more than 25 years (Nijman et al. 2019). Despite it being a legally protected species, the large number of people desiring to keep them as pets and the level of corruption allow illegal trade to continue. In the 1990s and 2000s, the Pramuka wildlife market, in Indonesia's capital of Jakarta, invariably had live Sunda Leopard Cats on display. In recent years leopard cats are rarely offered for sale in this market. This change is unlikely linked to an increase in enforcement efforts as a large number of other protected species are still available. Instead it seems that a shift has occurred whereby certain species, including Sunda Leopard Cats, are now offered for sale at the nearby Jatinegara

market. In the 1990s it was still possible to see Leopards and even Tigers offered for sale in Pramuka, but this trade has now shifted online. On Sumatra, in the city of Medan, wildlife markets were monitored from 1997 to 2001 and, like Jakarta, Sunda Leopard Cats were frequently observed openly for sale (Shepherd, Sukumaran, and Wich 2004). Anecdotal information suggests this trade has now largely gone online as well. On Indonesian specialised wildlife trade buyer and seller groups, Sunda Leopard Cats, Leopards and occasionally Tigers are offered for sale.

Different from Indonesia, wild cats are not openly offered for sale in Malaysia as there are no open wildlife markets. Illicit wildlife is sold through organised crime networks, including Tiger parts (Kawanishi et al. 2010; Shepherd, Khan, and Krishnasamy 2013). There is an active online trade in small cat species, including Sunda Leopard Cats (Krishnasamy and Stoner 2016).

Very different from the African or Asian countries we have examined, wild cat individuals or parts are rarely openly displayed in Brazilian and Peruvian markets, which led to the belief that the trade in wild cats is minimal in these countries. However, many Ocelots have been traded as pets and an increase in the trade in Jaguar teeth in South America linked to an increase in demand in Asia has been documented. Markets for wild cats in Peru and Brazil are hidden, and avoid direct contact between buyers and sellers. The Internet facilitates this trade, especially in urban centres.

Higher levels of corruption, lax law enforcement, low levels of public concern and a laissez-faire attitude towards wild cat conservation allow the trade in these species to continue. We have seen these trends reversed where these variables are also reversed. The development and especially the enforcement of policies at both national and international level are essential to tackle this trade, as is public support for these polices. High levels of corruption, economic prosperity and GDP per capita appear to be interlinked. Limited economic opportunities may encourage people to exploit wild cats, whereas higher spending power opens up new markets and fuels demand. Based on our experience, some markets show distinct similarities in how wild cats are sold, despite being in different continents and some show noticeable differences, as described above. This influences how surveys should be conducted to assess the impacts of trade in these species' populations. Long-term monitoring is required to understand the drivers of the trade, to detect temporal and spatial shifts and to assess the impacts of policy changes and enforcement, when implemented. This is essential to the planning of interventions in countries where trade in wild cats and other wildlife is rampant, and threatening the survival of wild species. In cases where illegal wildlife trade remains completely or partially hidden to the general public, researchers may have to resort to the use of informants embedded in the trade or use undercover techniques to collect useful data or use/develop methodologies to deal with imperfect detection. In addition, for countries with evidence of online trade, monitoring e-commerce websites and social media may be a feasible alternative to assess the intensity of poaching and to influence enforcement and/or policy interventions.

In some of the countries we have worked in, most notably Myanmar and Algeria, the online trade in wild cats has not yet become a significant platform of wildlife trade. Current Internet penetration rates are too low for the Internet to replace physical markets. But it is only a matter of time before access to the Internet improves, connecting more people and allowing the online markets to thrive. More studies on wildlife trade that monitor open wildlife markets and online commerce are still strongly required, to provide more information on the level of the trade and economic flows. The absence of an open market does not mean the absence of trade and, at the same time, the popularity of the online trade worldwide does not necessarily replace the need to survey physical markets.

## Notes on contributors

This On the Ground piece was co-written and advised by eight authors. ***Vincent Nijman, Thais Morcatty, Jaima H. Smith, Penthai Siriwat, Anne-Isola Nekaris*** and ***Daniel Bergin*** are part of the Oxford Wildlife Trade Research Group, Oxford Brookes University, Oxford, UK. ***Sadek Atoussi*** works at the Laboratoir de recherche biologie eau et environnement département d'Ecologie, Université 8 mai 1945 Guelma, Guelma, Algeria and ***Chris R. Shepherd*** works at the Monitor Conservation Research Society, Big Lake Ranch, BC, V0L 1G0, Canada.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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