

With 95–99% of the (value of) wildlife trade being legal, it is imprudent to focus on the illegal part of it alone when trying to lessen the risk of the introduction of zoonotic pathogens. This is true even when taking into account that only a proportion of the illegal trade will be intercepted and acknowledging that, in some cases, the (unknown) health status of illegally imported animals may pose a higher risk for public health than legally imported animals. By emphasising the illegal wildlife trade as a gateway to zoonotic infectious diseases one runs the risk of creating a misplaced feeling of safety when considering the legal trade, and this may lead to lapses in surveillance and attention.

#### Acknowledgments

I thank Cleveland Metroparks Zoo and Zoo Society for supporting my research on wildlife trade; Thais Q. Morcatty helped with extracting trade data.

#### Declaration of Interests

There are no interests to declare.

#### Resources

<sup>i</sup> [www.fao.org/documents/card/en/c/ca9229en](http://www.fao.org/documents/card/en/c/ca9229en)

<sup>ii</sup> [www.fao.org/forestry/statistics/80938/en/](http://www.fao.org/forestry/statistics/80938/en/)

<sup>iii</sup> [www.fws.gov/le/pdf/LE-at-a-Glance.pdf](http://www.fws.gov/le/pdf/LE-at-a-Glance.pdf)

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<https://doi.org/10.1016/j.pt.2021.02.001>

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## Letter

# Legal versus Illegal Wildlife Trade: Zoonotic Disease Risks

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A forum article aiming to stimulate discussions on the risks of introduction and spreading of infectious diseases through the illegal wildlife trade (IWT) has been recently published [1]. A letter by Nijman [2] argued that the majority of the concerns raised in that article (e.g., illegal trade in wet markets, illegal transport of wildlife or their derivatives, illegal importation of exotic pets) apply also to the legal wildlife trade. Though we recognize that it may be risky to emphasize the IWT only, the legal trade, by definition, should be under regulatory laws to reduce the risk of pathogen spread and disease introduction.

The legal wildlife trade is much larger than the IWT, and all the points addressed by Nijman [2] have to be carefully considered. Although it is correct that 'parasites do not read legal documents' [2], by focusing on the IWT, Bezerra-Santos *et al.* [1] examined the scant data available on the topic. Data on the IWT are considered an underestimation of the real extent of the problem [3] and further studies on this topic are required. Furthermore, the risks associated with the legal wildlife trade have previously been addressed in other papers [4,5], all of them concluding that the importation and translocation of wildlife is a global risk for the spread and introduction of infectious agents. For example, Chomel *et al.* [4] associated the wildlife trade with the spread of zoonotic pathogens such as Ebola virus (i.e., outbreaks in western Africa were linked with the consumption of bushmeat), avian influenza caused by influenza A virus subtype H5N1 (i.e., the transmission was directly related to infected birds traded in open markets), and severe acute respiratory syndrome coronavirus 1 (SARS-COV-1) (i.e., outbreak in China in 2003 associated with the trade in wild carnivores such as civets). Similarly, the introduction of rabies in some US regions (mid-Atlantic states) in the 1970s was associated with the translocation of racoons from rabies endemic zones into the southern USA [4].

An important point that should be stressed is that the legal wildlife trade generates taxes that allow authorities to invest in the monitoring of the health status and sanitary control of traded wild fauna and

#### Box 1. Wildlife Trade: Legal versus Illegal

The wildlife trade is a worldwide activity worth billions of US\$ through the commerce of several wildlife species and their derivatives. This activity, when legally performed, is controlled by a set of rules and regulations determined by the Convention on International Trade in Endangered Species (CITES) to ensure that it is not detrimental to populations, and a main characteristic in this regard is that wildlife and their products can be traced, which consequently facilitates monitoring for infectious agents. Conversely, the IWT cannot be traced and numbers presented about this activity rely on estimations that do not always show the real extent of the problem. Indeed, the IWT is a global challenge which is extremely difficult to quantify [10] and may have harmful consequences from a conservational and public health point of view.

their products. In this sense, the budget obtained with the legal trade could be used for several purposes such as investment in the conservation of endangered species, education of people directly and indirectly involved with trading of wildlife, and strict measures of control and prevention of infectious disease transmission. Indeed, the legal trade should be monitored and under the control of the sanitary authorities, which should also promote measures to enhance the benefits of a sustainable wildlife trade. Such measures should mostly be focused on the maintenance of healthy ecosystems and populations of target species<sup>1</sup>. However, the increase in awareness for a responsible trade from all the individuals involved in this activity (from poachers to government authorities) will also enhance the better control of the spread of infectious agents through legally traded wildlife.

Finally, the danger of IWT starts from the lower level (e.g., poachers, local market sellers, local consumers) usually involving people from underdeveloped countries due to factors such as low income, poverty, and illiteracy, which, in turn, are also the main drivers that induce participation in this activity [6]. This trend has been observed in a study on the illegal trade of pangolins in Nepal, where the authors suggested that the low socioeconomic status of the local people associated with the growing demand for this animal and its derivatives, particularly in China, facilitated the trade of pangolins in central Nepal, directly impacting on the conservation of this species [6]. Similarly, low socioeconomic status has been linked with the illegal trade of birds in Brazil, suggesting that higher capture and illicit commerce of these animals are expected in poorer areas with lower education and income [7–9]. By supplying these examples, our intention is to demonstrate that it is worthwhile to focus on the IWT topic and separate it from the legal trade due to the peculiarities

between these two activities (Box 1), in which for the former, pathogens can silently spread due to lack of monitoring, but for the second it is advocated to impose strict sanitary control rules to avoid the spread and introduction of diseases.

#### Declaration of Interests

There are no interests to declare.

#### Resources

<sup>i</sup> [www.traffic.org/about-us/legal-wildlife-trade/](http://www.traffic.org/about-us/legal-wildlife-trade/)

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<https://doi.org/10.1016/j.pt.2021.02.003>

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## Science & Society

# Centering the Voices of Black Parasitologists During America's Racial Awakening

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During the fall of 2020, several panel discussions were held to highlight the perspectives of Black parasitologists. Here, I summarize the themes from three such discussions, held at the Molecular Parasitology Meeting, Black in Microbiology Week, and the Annual Meeting of the American Society of Tropical Medicine & Hygiene, respectively.

## The Year 2020 and America's 'Racial Awakening'

'Not everything that is faced can be changed, but nothing can be changed until it is faced' – James Baldwin

The killing of George Floyd against the backdrop of a coronavirus pandemic that has disproportionately harmed and killed Black and brown Americans prompted what has been referred to as a 'racial awakening' in America. Perhaps an unintended consequence of being stuck at home during the pandemic was that a large number of people in the USA and around the world watched a cell phone video of the police killing of an unarmed Black man, had conversations with family members and co-workers, participated in protests, and reflected on where we are as a country in terms of race relations and equality.

While many scientists in the fields of microbiology and parasitology may feel that their