

EDITORIAL

Wildlife Trade in 2021: Still start with the consumer

Elizabeth Oneita Davis^{1*}, Megan A. Owen¹, Jenny Anne Glikman^{1,2}

¹San Diego Zoo Wildlife Alliance, 15600 San Pasqual Valley Rd, Escondido, CA 92026, USA

²Instituto de Estudios Sociales Avanzados (IESA-CSIC), Plaza Campo Santo de los Mártires 7, 14004 Cordoba, Spain

*Editor, Asian Journal of Conservation Biology

The trade in and consumption of wildlife is indisputably a threat to both human health and global biodiversity (Can *et al.*, 2019 and 't Sas-Rolfes *et al.*, 2019). Consumer-focused demand reduction is one proposed family of strategies designed to mitigate trade and consumption through the application of robust wildlife consumer research, which is then used to design behavior change initiatives that (ideally) reduce consumer demand (e.g. Veríssimo, 't Sas-Rolfes, and Glikman, 2020). In 2012, Veríssimo *et al.* published a foundational editorial within this journal that was one of the first articles to explicitly call for consumer-focused demand reduction measures. Veríssimo *et al.* (2012) noted such positives as overcoming persistent failures in enforcement (e.g. Rasphone *et al.*, 2019), and promoting greater inclusivity by bringing diverse stakeholders, such as indigenous peoples, into these efforts. Since that article, consumer-focused demand reduction has received growing attention and broader application (e.g. Davis *et al.*, 2020, Veríssimo *et al.*, 2020). Although it has been heartening to see an increase in robust, applied consumer research to reduce demand, the COVID-19 pandemic—which almost certainly originated due to wildlife trade and consumption (Roe *et al.*, 2020)—underscores that there is still a long way to go, and meaningful, multipronged and collaborative steps must still be taken to address this threat to human health and global biodiversity (the “OneHealth” concept (El Zowalaty and Järhult, 2020). Measures that must be implemented include more well-defined laws in emerging infectious disease (EID) hotspots (Huang *et al.*, 2020) and decentralized disease surveillance at known source sites, such as wet markets (Watsa *et al.*, 2020). However, consumer-focused demand reduction efforts are arguably more powerful due to the nature of the wildlife trade chain. As the chain is marked by multiple entry-points for disease, from the initial poaching event to the final consumption of an infected animal (Watsa *et al.*, 2020), removing the end point of consumption through demand reduction causes the entire chain to collapse, consequently removing those multiple EID points.

Although reducing consumer demand has been recognized as an important strategy for nearly ten years (if not more, e.g. Salazar *et al.* (2018)), consumer-focused demand reduction strategies continue to be largely absent from wildlife-trade centered COVID-19 reflections (e.g. Borzeć *et al.*, 2020, Lindsey *et al.*, 2020, Petrikova *et al.*, 2020 and Roe and Lee, 2021). In light of the crippled world economy resulting from the COVID-19 pandemic (Financial Times, 2021) and imperative need to swiftly counteract the next pandemic (Evans *et al.*, 2020), consumer-focused demand reduction efforts should be at

the forefront of these conversations about wildlife trade and consumption. Such efforts are often cheaper than comparative enforcement programs (Holden *et al.*, 2019), with longer-lasting effects and proven impact (e.g. Thomas-Walters *et al.*, 2020 and Salazar *et al.*, 2018). Furthermore, efforts that focus on consumers inherently overcome challenges presented by the complex, interlinked system of illegal and legal wildlife trade, which can frustrate more well-known efforts such as regulations imposed by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Veríssimo, 2012).

In 2012, Veríssimo *et al.* (2012) urged to “start with the consumer” and that we must “[put] human behaviour at the heart of our [conservation] strategies”. In 2021, we still must start with the consumer, and those messages may be even more resonant now. The COVID-19 pandemic has impacted a large proportion of the global population and has similarly raised awareness of the role that harmful human behaviors, including illegal and poorly managed wildlife farming and wildlife consumption (Huang *et al.*, 2020), has played. Although COVID-19 has shown the value in understanding human behavior and addressing consumer demand in Asia, the next pandemic could easily arise anywhere else in the world. Understanding and addressing wildlife consumer behavior is therefore a global concern, which must be made a priority by governments and non-governmental organizations across the world.

REFERENCES

- Borzeć, A., McNeely, J., Magellan, K., Miller, J.R., Porter, L., Dutta, T., Kadinjappalli, K.P., Sharma, S., Shahabuddin, G., Aprilinayati, F. and Ryan, G.E., 2020. COVID-19 highlights the need for more effective wildlife trade legislation. *Trends in ecology & evolution*.
- Can, Ö.E., D'Cruze, N. and Macdonald, D.W., 2019. Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. *Global Ecology and conservation*, 17, p.e00515.
- Davis, E.O., Veríssimo, D., Crudge, B., Lim, T., Roth, V. and Glikman, J.A., 2020. Insights for reducing the consumption of wildlife: The use of bear bile and gallbladder in Cambodia. *People and Nature*, 2(4), pp.950-963.
- El Zowalaty, M.E. and Järhult, J.D., 2020. From SARS to COVID-19: A previously unknown SARS-related coronavirus (SARS-CoV-2) of pandemic

- potential infecting humans—Call for a One Health approach. *One Health*, 9, p.100124.
- Evans, K.L., Ewen, J.G., Guillera-Arroita, G., Johnson, J.A., Penteriani, V., Ryan, S.J., Sollmann, R. and Gordon, I.J., 2020. Conservation in the maelstrom of Covid-19—a call to action to solve the challenges, exploit opportunities and prepare for the next pandemic. *Animal Conservation*.
- Financial Times. 2021. “Pandemic crisis: Global economic impact tracker”. Accessed at <<https://www.ft.com/content/272354f2-f970-4ae4-a8ae-848c4baf8f4a>>
- Holden, M.H., Biggs, D., Brink, H., Bal, P., Rhodes, J. and McDonald-Madden, E., 2019. Increase anti-poaching law-enforcement or reduce demand for wildlife products? A framework to guide strategic conservation investments. *Conservation Letters*, 12 (3), p.e12618.
- Huang, Q., Wang, F., Yang, H., Valitutto, M. and Songer, M., 2020. Will the COVID-19 outbreak be a turning point for China’s wildlife protection: new developments and challenges of wildlife conservation in China. *Biological Conservation*, p.108937.
- Lindsey, P., Allan, J., Brehony, P., Dickman, A., Robson, A., Begg, C., Bhammar, H., Blanken, L., Breuer, T., Fitzgerald, K. and Flyman, M., 2020. Conserving Africa’s wildlife and wildlands through the COVID-19 crisis and beyond. *Nature ecology & evolution*, 4(10), pp.1300-1310.
- Petrikova, I., Cole, J. and Farlow, A., 2020. COVID-19, wet markets, and planetary health. *The Lancet Planetary Health*, 4(6), pp.e213-e214.
- Rasphone, A., Kéry, M., Kamler, J.F. and Macdonald, D.W., 2019. Documenting the demise of tiger and leopard, and the status of other carnivores and prey, in Lao PDR’s most prized protected area: Nam Et-Phou Louey. *Global Ecology and Conservation*, 20, p.e00766.
- Roe, D., Dickman, A., Kock, R., Milner-Gulland, E.J. and Rihoy, E., 2020. Beyond banning wildlife trade: COVID-19, conservation and development. *World Development*, 136, p.105121.
- Roe, D. and Lee, T.M., 2021. Possible negative consequences of a wildlife trade ban. *Nature Sustainability*, 4(1), pp.5-6.
- Salazar, G., Mills, M. and Verissimo, D., 2019. Qualitative impact evaluation of a social marketing campaign for conservation. *Conservation Biology*, 33(3), pp.634-644.
- ’t Sas-Rolfes, M., Challender, D.W., Hinsley, A., Verissimo, D. and Milner-Gulland, E.J., 2019. Illegal wildlife trade: scale, processes, and governance. *Annual Review of Environment and Resources*, 44, pp.201-228
- Thomas-Walters, L., Verissimo, D., Gadsby, E., Roberts, D. and Smith, R.J., 2020. Taking a more nuanced look at behavior change for demand reduction in the illegal wildlife trade. *Conservation Science and Practice*, 2(9), p.e248.
- Verissimo, D. and Wan, A.K., 2019. Characterizing efforts to reduce consumer demand for wildlife products. *Conservation Biology*, 33(3), pp.623-633.
- Verissimo, D., ’t Sas-Rolfes, M. and Glikman J.A., 2020. Influencing consumer demand is vital for tackling the illegal wildlife trade. *People and Nature*, 2(4), pp.872-876.
- Verissimo, D., Vieira, S., Monteiro, D., Hancock, J. and Nuno, A., 2020. Audience research as a cornerstone of demand management interventions for illegal wildlife products: Demarketing sea turtle meat and eggs. *Conservation Science and Practice*, 2(3), p.e164.
- Watsa, M. and Wildlife Disease Surveillance Focus Group (Erkenswick, G., Prost, S., Davis, E.O., Meredith, A., Phillips, J., Owen, M., Ogden, R., Ryder, O., Witte, C., Moore, C., Kubiski, S., Steiner, C). 2020. Viewpoint: COVID-19: Rigorous wildlife disease surveillance: a decentralized model could address global health risks associated with wildlife exploitation. *Science*, 369 (6500), 145- 147. DOI: 10.1126/science.abc0017
- Zhou, X., Wang, Q., Zhang, W., Jin, Y., Wang, Z., Chai, Z., Zhou, Z., Cui, X. and MacMillan, D.C., 2018. Elephant poaching and the ivory trade: The impact of demand reduction and enforcement efforts by China from 2005–2017. *Global Ecology and Conservation*, 16, p.e00486.

