CONSUMING WILDLIFE – MANAGING DEMAND FOR PRODUCTS IN THE WILDLIFE TRADE

Editorial

Influencing consumer demand is vital for tackling the illegal wildlife trade

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1 | INTRODUCTION

Consumer demand is an integral part of any market system, and the markets involving wildlife products are no exception ('t Sas-Rolfes et al., 2019). Tackling the illegal wildlife trade (IWT) for the benefit of biodiversity conservation requires understanding and influencing consumer demand (Veríssimo et al., 2020). While demand reduction activities are increasing (Veríssimo & Wan, 2019), they remain poorly funded, with only 6% of the funds committed globally to reduce IWT focused on consumer demand (World Bank Group, 2016). This lack of investment is also reflected in the knowledge base, with limited research focused on understanding the drivers of consumer demand for illegal wildlife products, and the existing knowledge focused largely on a few species of birds and mammals (Margulies et al., 2019). We hope the Consuming wildlife – managing demand for wildlife products special feature can showcase the different types of research needed to start filling this gap.

2 | WHAT IS DEMAND?

Demand reduction interventions have frequently been criticized for having nebulous goals, aggravated by uncertainty about what consumer demand actually is (Greenfield & Veríssimo, 2019; Olmedo et al., 2018). This uncertainty is somewhat justified as the definition of demand has varied across disciplines and with time. In classical economics, market demand is typically conceptualized in two dimensions, a consumer desire in the form of willingness and ability to pay for given quantities of particular goods or services across a range of potential prices, generating the well-known law of demand (Marshall, 2009).

However, this conceptualization treats demand simply as a series of discrete quantitative decision-making points expressed as a function of market prices, rather than as a complete decision-making process. This process has been formalized through marketing models such as the Purchase Funnel (Jansen & Schuster, 2011), which describes purchases as a series of multiple cognitive stages that consumers go through as they decide whether and what product or service they want to purchase. While there have been different formulations of this model, one that has been used in the context of wildlife trade divides the purchase process into four stages: Awareness, Research, Preference and Purchase (Veríssimo et al., 2019; Figure 1).

Furthermore, the classical economic view of demand potentially obscures the fact that there are constraints other than market price that may preclude consumers who are willing to make a purchase from executing that action. One way to think about these constraints is by detailing the different types of factors that shape consumer demand. Kotler and Armstrong (2010) describe the diverse constraints influencing consumers (Figure 2), which may come in many forms and be internal or external to the consumer her/himself.

To deal with such complexity in the understanding of consumer demand from a marketing perspective, the concept of latent demand was created. Kotler (1973) extended it to instances where a consumer would desire a product, the existence of which...
he or she is not yet aware, either due to lack of information or because the product must still be created. In order to integrate this unconscious dimension, we developed a conceptual map of demand (Figure 3) where we labelled it as ‘potential demand’ when unconstrained and ‘improbable demand’ when constrained, to distinguish it from the conscious component of demand. We chose this terminology in recognition that demand for future products is inherently hypothetical, and as such conceptually different. Indeed, the Purchase Funnel model (Figure 1) starts with awareness of the relevant product.

Conceptualizing demand in this more complex way, beyond actual purchases covered by the effective demand in the top left quadrant, is highly relevant for understanding and reducing IWT. By acknowledging the existence of latent demand, we recognize that not only changes in wealth, but also in cultural and social context, as well as information, can change the set of constraints facing a set of consumers, thereby increasing or reducing demand for a given product. As such, the quadrant in which a given consumer finds themselves may change repeatedly across time in response to, for example, changing awareness levels (i.e. consciousness) or social constraints (e.g. social norms). The concept of potential demand makes it clear that when consumers are unaware of a product, raising awareness of it can result in a growth of both latent and even effective demand with potential unintended negative consequences for wildlife. This possible backfire effect has already been noted by conservationists (Glenn et al., 2019), and is yet another reason why robustly evaluating the impact of attempted demand reduction interventions for IWT is so crucial (Thomas-Walters, Vieira, et al., 2020).

It is clear therefore that demand is determined not only by the attributes of the goods or services (e.g. price, availability, provenance) that a consumer may seek, but also by the consumers’ identity and economic constraints (e.g. ethnicity, religion, income) as well as the sociocultural context in which purchase and consumption takes place (Doughty et al., 2019; Thomas-Walters, Cheung, et al., 2020; Thomas-Walters, Hinsley, et al., 2020). The latter context also includes the marketing activities of suppliers and other market actors who effectively try to influence consumer demand.

In the context of IWT, behaviour change interventions are mostly framed as demand reduction, but there may be instances where the goal is stabilizing demand for a product when demand is soaring or even to promote demand for a sustainable substitute product. This is why recent literature increasingly refers to interventions targeting demand for wildlife products as demand management, a more inclusive term (Veríssimo et al., 2020).

3 | UNDERSTANDING DEMAND

Given all of the above, demand is a highly complex concept. These complexities come not only from the multiplicity of constraints that can impact consumers, but also from the fact that these constraints are highly fluid in time and space. We can divide the constraints into four categories, each of which encompasses a number of factors...
lead to soaring market prices, a potentially dangerous outcome for rare and threatened species (Hall et al., 2008). Products with known price-inelastic demand are thus inappropriate candidates for sudden supply restrictions (e.g. trade bans), which typically result in substantially more profitable illegal trade, providing strong incentives for intensified and organized illegal commercial activity facilitated by official corruption (Becker et al., 2006; Conrad, 2012).

Two other types of demand elasticities are also relevant. The first one, cross-price elasticity, measures the sensitivity of consumer demand in relation to changes in the price of other related products that may be substitutes or complements. It therefore provides a useful indication of the potential for substitutes to displace purchases of the target product (e.g. farmed products to replace wild products); alternatively, demand trends for known legal complement products may provide a means to monitor demand for an illegal product (e.g. data on rhino horn grinding bowl purchases as an indicator of rhino horn demand). The second one, income elasticity, indicates the effects of rising incomes on quantities purchased and signals the extent to which latent demand presents a potential threat. Unfortunately, while all such elasticities provide analytically powerful insights through economic theory, in practice they are typically challenging to measure.

In terms of latent, potential and improbable demand, much research effort has focused on the segmentation of consumer groups (Marshall et al., 2020; Shukhova & MacMillan, 2020), a critical advance in tailoring of interventions to particular user groups and ensuring that interventions move beyond the vagueness of attempting to target the entire population under the banner of ‘general public’ (Davis et al., 2020). In this respect, the use of techniques such as choice experiments can help explore how consumer preferences would react to different scenarios. This method can also potentially provide a range of insights into future consumer behaviour, but is affected by the inevitable hypothetical bias that impacts any research that focuses on future outcomes, particularly given that humans are often unreliable in predicting their future behaviour (Morwitz, 1997).

While effective demand may seem more amenable to measurement, in the context of IWT the typically clandestine nature of illegal transactions (due to the cost associated with rule breaking) makes this even more challenging. Conservationists have therefore turned to survey techniques designed for sensitive issues, such as the Unmatched Count Technique or Randomized Response Technique, to try and elicit robust information from consumers while safeguarding consumer anonymity. While these techniques represent an exciting methodological development, their implementation is still fraught with challenges, such as the need for large samples, and discrepancies among different methods and between these techniques and actual field observations (Cerri et al., 2020). More work is still needed to improve these techniques and their implementation.

Explicitly acknowledging different aspects of consumer demand (Figure 3) also helps to ensure that we can communicate clearly about what is being measured to increase comparability. In expanding economies, for example, it is likely that effective demand will most often be much smaller than latent demand, and that for some products potential demand may encompass the vast majority of a country’s consumer population.

Notwithstanding measurement challenges, the classical economic approach to demand (Marshall, 2009) is useful for determining the potential impacts of short-term supply-side policy interventions, by analysing the relationship between changing quantities of supply and market prices, the latter of which typically provide one of the most critical incentives for illegal activity (Draca & Machin, 2015). Changing (notably rising) prices produce powerful market signals that stimulate entrepreneurial action (Hayek, 1945).

Of particular policy relevance is the slope of the demand curve, which indicates the sensitivity of actual quantities purchased in relation to price. Steep or ‘inelastic’ demand curves indicate low consumer price sensitivity, suggesting that supply restrictions may lead to soaring market prices, a potentially dangerous outcome...
supports the perception that using a given product is unacceptable (Fischer, 2004), bans also push trade underground where it is harder to monitor, and in certain contexts may create a forbidden allure around products, rendering them more attractive to some consumer groups.

- It is unknown the extent to which wildlife traffickers generate or stimulate demand using their own marketing activities. If they do, understanding them is critical if conservationists are to design effective counter-marketing actions.
- There is an increasing amount of literature that points to the critical importance of trusted messengers when communicating with IWT consumer groups (Olimedo et al., 2020; Wang et al., 2020). Yet, we know very little about their comparative effectiveness and efficiency.
- We have limited information about the effectiveness and efficiency of interventions to manage demand for IWT products, both in terms of regulation and in terms of voluntary behaviour change (Bachmann et al., 2020; Dang Vu et al., 2020). This is crucial to understanding how different kinds of interventions may impact different groups across the supply chain.
- Beyond existing IWT, a number of currently legal wildlife products may be heading towards future unsustainable consumption. Consumer engagement and research prior to the imposition of legal restrictions allows for easier collection of data on relevant demand attributes (e.g. market prices) as well as improved opportunities to influence consumers openly and avert the use of coercive measures. There are fruitful opportunities for such pre-emptive research, potentially guided by prediction techniques such as horizon scanning (see Esmail et al., 2020).

The COVID-19 pandemic has given IWT an unprecedented level of salience. Many of the solutions to prevent future pandemics are linked to managing demand for IWT products (Petrovan et al., 2020). However, even beyond IWT, expanding economies are likely to further drive unsustainable harvesting and consumption of legal wildlife products, highlighting the value of pre-emptive consumer engagement before reactive demand management is required. It is key that we ensure that the demand side of the supply chain is proactively engaged and adequately addressed, as the status quo suggests that we will otherwise be unable to achieve the desired outcomes for both biodiversity conservation and human health.

CONFLICT OF INTERESTS

J.A.G. and D.V. were Guest Editors of the ‘Consuming wildlife – managing demand for products in the wildlife trade’ special feature, but were not involved in the peer review or decision-making process for this article or any of the manuscripts with authors from institutions they are affiliated with. The authors have no other conflict of interests to declare.

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REFERENCES

't Sas-Rolfes, M., Challender, D. W. S., Hinsley, A., Veríssimo, D., & Milner-Gulland, E. J. (2019). Illegal wildlife trade: Scale, processes, and governance. Annual Review of Environment and Resources, 44, 201–228. https://doi.org/10.1146/annurev-environ-101718-033253

Bachmann, M. E., Nielsen, M. R., Cohen, H., Haase, D., Kουassì, J. A. K., Mundry, R., & Kuehl, H. S. (2020). Saving rodents, losing primates—Why we need tailored bushmeat management strategies. People and Nature, 2(4), 889–902. https://doi.org/10.1002/pan3.10119

Becker, G. S., Murphy, K. M., & Grossman, M. (2006). The market for illegal goods: The case of drugs. Journal of Political Economy, 114(1), 38–60. https://doi.org/10.1086/498918

Cerri, J., Davis, E., Veríssimo, D., & Glikman, J. A. (2020). A fine balance: Specialized questioning techniques and their use in conservation. EcoEvolveXriv. https://doi.org/10.32942/osf.io/js32945e32989

Conrad, K. (2012). Trade bans: A perfect storm for poaching? Tropical Conservation Science, 5(3), 245–254. https://doi.org/10.1177/19408 891200500302

Dang Vu, H. N., Nielsen, M. R., & Jacobsen, J. B. (2020). Reference group influences and campaign exposure effects on rhino horn demand: Qualitative insights from Vietnam. People and Nature, 2(4), 923–939. https://doi.org/10.1002/pan3.10121

Davis, E. O., Veríssimo, D., Crudge, B., Lim, T., Roth, V., & 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), 950–963. https://doi.org/10.1002/pan3.10164

Doughty, H., Veríssimo, D., Tan, R. C. Q., Lee, J. S. H., Carrasco, L. R., Oliver, K., & Milner-Gulland, E. J. (2019). Saiga horn user characteristics, motivations, and purchasing behaviour in Singapore. PLoS ONE, 14(9), e0222038. https://doi.org/10.1371/journal.pone. 0222038

Draca, M., & Machin, S. (2015). Crime and economic incentives. Annual Review of Economics, 7(1), 389–408. https://doi.org/10.1146/annurev-economics-080614-115808

Esmail, N., Wintle, B. C., ’t Sas-Rolfes, M., Athanas, A., Beale, C. M., Bending, Z., Dai, R., Fabinyi, M., Gluszek, S., Haelenlï, C., Harrington, L. A., Hinsley, A., Kariuki, K., Lam, J., Markus, M., PauDEL, K., Shukhova, S., Sutherland, W. J., Veríssimo, D., ... Milner-Gulland, E. J. (2020). Emerging illegal wildlife trade issues: A global horizon scan. Conservation Letters, 13(4), e12715. https://doi.org/10.1111/conl.12715

Fischer, C. (2004). The complex interactions of markets for endangered species products. Journal of Environmental Economics and Management, 48(2), 926–953. https://doi.org/10.1016/j.jeem.2003.12.003

Glenn, I., Ferreira, S. M., & Pienaar, D. (2019). Communication on rhino poaching: Precautionary lessons about backfires and boomerangs. South African Journal of Science, 115(3–4), 1–4.

Greenfield, S., & Veríssimo, D. (2019). To what extent is social marketing used in demand reduction campaigns for illegal wildlife products? Insights from elephant ivory and rhino horn. Social Marketing Quarterly, 25(1), 40–54.

Hall, R. J., Milner-Gulland, E., & Courchamp, F. (2008). Endangering the endangered: The effects of perceived rarity on species exploitation. Conservation Letters, 1(2), 75–81.

Hayek, F. A. (1945). The use of knowledge in society. The American Economic Review, 35(4), 519–530.

Hinsley, A., & ’t Sas-Rolfes, M. (2020). Wild assumptions? Questioning simplistic narratives about consumer preferences for wildlife products. People and Nature, 2(4), 972–979. https://doi.org/10.1002/pan3.10099

Jansen, B. J., & Schuster, S. (2011). Bidding on the buying funnel for sponsored search and keyword advertising. Journal of Electronic Commerce Research, 12(1), 1.

Kotter, P. (1973). The major tasks of marketing management. Journal of Marketing, 37(4), 42–49.
