



Monitoring and Evaluating Online Wildlife Trade and Demand Reduction Campaigns

July 2022



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Combating Wildlife Trafficking
COLLABORATIVE LEARNING GROUP

CONTRACT INFORMATION

This program is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of its requisition number REQ-EGEE-18-000127 (Measuring Impact II) implemented by prime recipient Environmental Incentives, LLC in partnership with Foundations of Success, and ICF Macro, Inc. Measuring Impact II has been issued under contract number GS-00F- 193DA Order No. 7200AA18M00013 and supports the same program objectives as described in RFQ number 7200AA18Q00020. Measuring Impact II is funded and managed by USAID Bureau for Development, Democracy, and Innovation (DDI) Biodiversity Division.

SUGGESTED CITATION

Katie Anderson, Tiffany Gibert, and Megan Hill. “Monitoring and Evaluating Online Wildlife Trade and Demand Reduction Campaigns” Biodiversity Links, 2022.

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Acronyms

CITES	Convention on International Trade in Endangered
CPC	Cost-per-click
CTR	Click-through rate
IFAW	International Fund for Animal Welfare
SBCC	Social and behavior change communication
UCT	Unmatched count technique
USAID	United States Agency for International Development



Photo by Louis Mornaud on Unsplash.

In September 2021, the United States Agency for International Development's (USAID) Combating Wildlife Trafficking Learning Group hosted a peer-to-peer learning exchange on wildlife demand reduction programs, featuring participants from around the world and speakers from Thailand, the Democratic Republic of the Congo, and Kenya. This brief summarizes lessons from the webinar, USAID and partner programming, and peer-reviewed literature about monitoring and evaluating efforts to reduce the online wildlife trade.

The Illegal Wildlife Trade Online

The illegal wildlife trade—which involves hunting, transporting, selling, and consuming protected species—threatens animals, the global environment, and human well-being. From 1999–2018, about 6,000 illegally traded species and their parts were seized by law enforcement, with nearly every country in the world implicated over this period (UNODC, 2020). Illegal trade in wildlife products has been linked to financing militant groups and catalyzing social conflict, particularly in developing and weak states with poor governance and rich resources (Douglas and Alie, 2014). Additionally, zoonotic disease spillover, which can occur along wildlife supply chains, also threatens public health and prosperity globally. The COVID-19 pandemic is a strong reminder of the connection between animals, humans, and the environment and the effect an emerging pathogen spilling over into humans can have on health and economic stability.

Like many other markets, the illegal wildlife trade is increasingly moving online as dealers and buyers take advantage of the internet's anonymity and flexibility. From October 2015 to April 2016, a market survey in Vietnam revealed 2,490 advertisements and 26,498 wildlife products for sale on Facebook, with 3,051 comments made by consumers and potential consumers (Nguyen, 2016). Another study in seven African countries found 9,481 specimens of protected animals offered for sale in 990 advertisements across 33 online marketplaces and three social media platforms, valued at more than

\$5 million (IFAW, 2017). More recently, 4,297 advertisements for 35 different species were detected from August 2020 to December 2020 on several Chinese e-commerce platforms, of which about 15 percent were protected species under the Chinese Wildlife Protection Law (Wildlife Justice Commission, 2021).

In 2016, the Convention on International Trade in Endangered Species of Flora and Fauna (CITES) recognized that “wildlife trafficking via e-commerce is a growing and significant threat that calls for new approaches to reduce demand for illegally traded wildlife” (CITES, 2016). To combat this issue, the [Coalition to End Wildlife Trafficking Online](#) promotes a collective action approach, with 47 influential members—such as Alibaba, eBay, Meta (the parent company of Facebook, WhatsApp, and Instagram), Google, Microsoft, Rakuten, Tencent and WeChat, and TikTok—committed to reducing the illegal wildlife trade online. As of September 2021, the Coalition’s members blocked or removed at least 11.6 million posts featuring illegal wildlife products, highlighting the large scale of the online trade (Coalition to End Wildlife Trafficking Online, 2021).

There is a need for a collaborative approach to combat the illegal wildlife trade online, with commitments from conservation practitioners, donors, governments, and the private sector. Strategic approaches to improve digital enforcement, engage communities to combat poaching and trafficking, and reduce consumer demand, provide opportunities to dismantle this trade that threatens human and environmental health globally.

The Role of Demand Reduction and Monitoring Challenges

Reducing consumer demand for wildlife and derivative products is a key opportunity to disrupt supply chains and create long-term changes in the illegal wildlife trade. [USAID’s Combating Wildlife Trafficking Learning Group](#) highlights demand reduction as a focal strategic approach in its generalized theory of change and “reduced purchases of target illegal wildlife products” as an intermediate result of this approach (Figure 1).

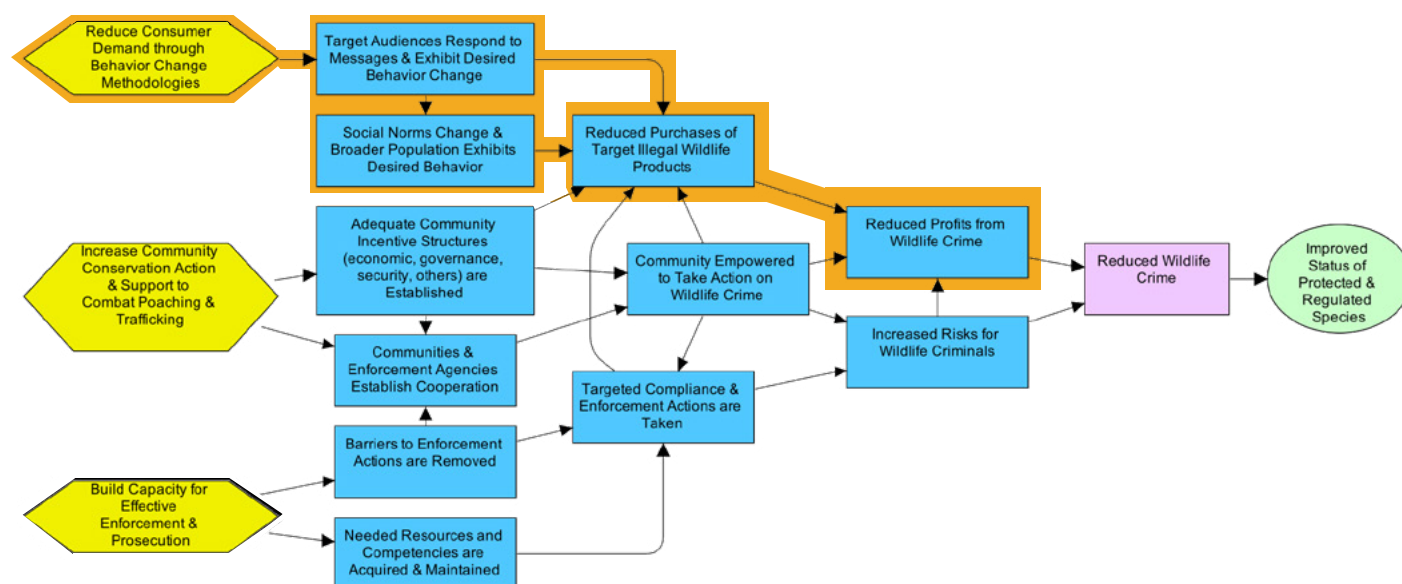


Figure 1: The Combating Wildlife Trafficking theory of change, with the demand reduction strategic approach and intermediate results highlighted.

However, monitoring “reduced purchases” is a challenging and moving target, which can be further obfuscated by cryptic and spam postings, unclear legality of advertised items, private groups on social media networks, shifting keywords, and sellers’ ability to quickly remove and repost advertisements in different spaces (Xiao and Wang, 2015; TRAFFIC, 2018).

The study also noted the majority of demand reduction campaigns focused on self-reported indicators such as knowledge or attitudes, which may not appropriately measure the changes the campaigns are trying to achieve (Veríssimo and Wan, 2019). Similarly, the nongovernmental organization TRAFFIC surveyed demand reduction campaigns implemented in Thailand from 2013–2020 and found none quantified the online illegal wildlife trade and potential reductions in trade associated with the campaign (Narang and Watson, 2021). Instead, the monitoring primarily focused on online engagement (such as video views or “likes” on social media) and changes in perception about wildlife products or intention to buy wildlife products (Narang and Watson, 2021).

In 2019, a meta-analysis of 236 demand reduction campaigns found that 37 percent reported on campaign outcomes (i.e., changes in the target audience) and only 9 percent on campaign impacts (i.e., biological changes or threat reduction) (Verissimo and Wan, 2019).

There are significant opportunities to learn from and use innovative methodologies to improve the monitoring and evaluation of demand reduction campaigns, particularly those targeting the online wildlife trade. Based on findings from USAID and partner programming and peer-reviewed literature, this brief highlights opportunities to:

1. **Quantify** online trade through market surveys
2. **Estimate** wildlife consumption through innovative survey methodologies, such as unmatched count techniques
3. **Identify** consumer habits through social listening and sentiment analysis tools
4. **Target** potential buyers through digital deterrence campaigns

These methods can be used in tandem with common types of consumer marketing evaluations, such as questionnaires and focus groups, to triangulate outcomes and improve monitoring and evaluation of targeted demand reduction campaigns for online trade (TRAFFIC, 2019a).

Quantifying Online Trade: Market Surveys

Monitoring and evaluation of demand reduction campaigns have relied heavily on self-reported behavioral indicators, such as consumer preferences and intention to buy wildlife products. Other research on the scale of online trade often uses market survey techniques to create baselines of wildlife and wildlife products for sale in online markets. Such research documents and analyzes the number of online advertisements as an indicator of supply to contextualize consumer demand (TRAFFIC, 2019b). For example, in 2017, the International Fund for Animal Welfare (IFAW) conducted one of the most comprehensive surveys of the online wildlife trade across multiple countries—France, Germany, Russia, and the United Kingdom. The research focused on three key indicators: number of advertisements, number of wildlife individuals or parts, and U.S. dollar value of advertised wildlife products (IFAW, 2018). Over six weeks, the researchers recorded 11,772 endangered and threatened wildlife specimens offered for sale and worth almost \$4 million (IFAW, 2018).

To more robustly quantify the online trade and establish baselines for demand reduction campaign monitoring, the wildlife trade experts at TRAFFIC recommend juxtaposing qualitative and quantitative data from, for example, consumer research *and* market surveys (TRAFFIC, 2018). This combination of data should be considered the “gold standard” for researchers and practitioners and also aligns with

USAID’s findings from a survey of indicators for combating wildlife trafficking projects. In this survey, USAID compiled existing indicators used by various global organizations and cross-referenced these against its combating wildlife trafficking strategic approaches, including demand reduction (USAID, 2015). The compiled indicators for reducing consumer demand through behavior change methodologies include self-reported behavioral metrics and market data :

- Percent change in consumption of illegal wildlife products
- Number of visits (or percent increase in visits) to relevant websites
- Price of wildlife products
- Changes in price levels
- Retailer or consumer prices
- Advertised value of all online ads by country
- Number of online ads
- Value of final online sales recorded (USAID 2015)

As the understanding of internet use to sell illegal wildlife goods grows, more researchers are outlining protocols to follow when harvesting online data. A recent briefing paper from TRAFFIC details key questions to consider when beginning market research for wildlife trade (appropriate in physical and online retail conditions):

1. What questions will the research process aim to answer?
2. Which physical and online locations will serve as “indicator” markets?
3. What will the scope of the research be (e.g., how many shops, commodities, or taxa)?
4. How often or how frequently will research be conducted to track trends over time?
5. How will data be stored, used, and shared with others? (TRAFFIC, 2021)



Figure 2: Flowchart of guide to using the internet to monitor and quantify the wildlife trade (Stringham et al., 2020).

In 2020, Stringham et al. published *A Guide to Using the Internet to Monitor and Quantify the Wildlife Trade*, which provides a repeatable method for searching relevant websites and harvesting wildlife trade data (Figure 2). This process builds on the scoping questions outlined by TRAFFIC. For the critical fourth step, collecting data, the study notes this can be *manual or automated* (Stringham et al., 2020). Manual data collection involves visiting each target website and documenting wildlife products for sale; automated data collection uses web scrapers to extract the data. Web scraping may be a more efficient option for longer monitoring involving many websites. However, it involves more time and expertise up-front to build and appropriately code the web scrapers (Stringham et al., 2020).

There are few examples of demand reduction campaigns incorporating online market data into planning, implementation, monitoring, and evaluation, but other studies provide example processes that can be incorporated into demand reduction campaigns and combined with other methodologies.

CASE STUDY

Monitoring the Trade of Legally Protected Wildlife on Facebook and Instagram Illustrated by the Advertising and Sale of Apes in Indonesia (Nijman et al., 2021)

Method: This 2021 study used the advertising and sale of apes in Indonesia as a case study for monitoring the online wildlife trade. Beginning in April 2018, the researchers searched Facebook and Instagram pages and accounts selling gibbons, orangutans, and other apes. During the first search, they documented all relevant advertisements from January 2017 to April 2018. Then, to allow for comparison over time, they revisited the same pages and accounts in April 2021 and compiled new advertisements back to January 2020. When pages or accounts were no longer active, the researchers searched for similarly named pages, noting traders often switch pages or platforms (e.g., from Facebook to Instagram) and frequently use slight variations on the same name. Note, because the surveyed advertisements were written in combinations of Bahasa Indonesia, regional languages, or slang, the researchers relied on their linguistic fluency to translate ads before analysis.

Analysis: The researchers used χ^2 -tests of homogeneity to analyze possible seasonal or temporal patterns in the sale of all ape species. They expected the number of individuals offered for sale would be equal for all months. They also used a paired t-test to compare the number of individuals for each species offered on Facebook and Instagram during the study period. Prices—adjusted for inflation to April 2021 equivalences—were also compared with a t-test.

Findings: During the first survey period, the researchers found five Facebook pages and 19 Instagram accounts offering gibbons for sale. Five of the Instagram accounts also sold orangutans and one sold chimpanzees. In 2021, only two of the Facebook pages were still active, but none listed gibbons or orangutans for sale. Six of the Instagram accounts were still active in 2021, with three shops selling gibbons, orangutans, or both. The three remaining active accounts were selling other protected wildlife but not apes. The researchers concluded that none of the shops appeared to specialize in trading apes, in particular, and many vendors either closed or switched accounts between 2018 and 2021. In total, they found 34 gibbons for sale on Facebook and 72 on Instagram; seven orangutans on Facebook and ten on Instagram; and four chimpanzees on Facebook. There were no clear temporal patterns in the advertisements. Because there are no commercial breeding facilities for gibbons or orangutans in Indonesia, the researchers expressed confidence that the individuals for sale were poached from the wild. They did not find any information on the origin of the chimpanzees, which are not indigenous to Indonesia.

Ethics: The researchers did not interact with sellers or prospective buyers or access personal profile pages. All collected information was publicly displayed. Data were anonymized after cross-checking for duplicate postings.

Search Keywords: Challenges and Findings

Vendors of illegal wildlife and products may hide behind cryptic and changing code words, obstructing efforts to identify illegal products (Kitade and Naruse, 2018; Sharma et al., 2018; Burgess and Broad, 2020; Wildlife Justice Commission, 2021). Research has found:

- Vendors may use “mammoth ivory” as a substitute for “elephant ivory” in listings (Nishino and Kitade, 2020). However, it is nearly impossible to tell one ivory from the other based on photographs (Wildlife Justice Commission, 2021).
- A 2018 study found vendors were using a misleading name to hide the illegal sale of the monitor lizard’s hemi penis online and in physical markets. It is commonly sold as a plant product under the name “Hatha Jodi,” but testing samples identified the origin as from monitor lizards (Sharma et al., 2018).
- Small shifts in keywords can yield very different results. A TRAFFIC survey of ivory sales in China used 本象牙/hon-zouge (meaning “genuine ivory”), 象牙/zouge (“ivory”), and 象牙風/zouge-hu (“ivory-like”) to better refine search results (Kitade and Naruse, 2018).
- Keywords that focus on products’ uses may also yield results. For example, the Wildlife Justice Commission incorporated the phrase 摸金符, defined as “a superstitious type of pendant to exorcise evil spirits,” into a survey of wildlife trade on e-commerce sites in China (2021).

Estimating Consumption: Unmatched Count Techniques

To further understand wildlife demand and consumption patterns, the unmatched count technique (UCT) can be useful and employed at different stages of demand reduction campaigns. Interest in using UCT has grown in conservation, with researchers studying the prevalence of illegal or sensitive behaviors, such as the illegal wildlife trade (Hinsley et al., 2019).

Broadly, the UCT process follows four steps:

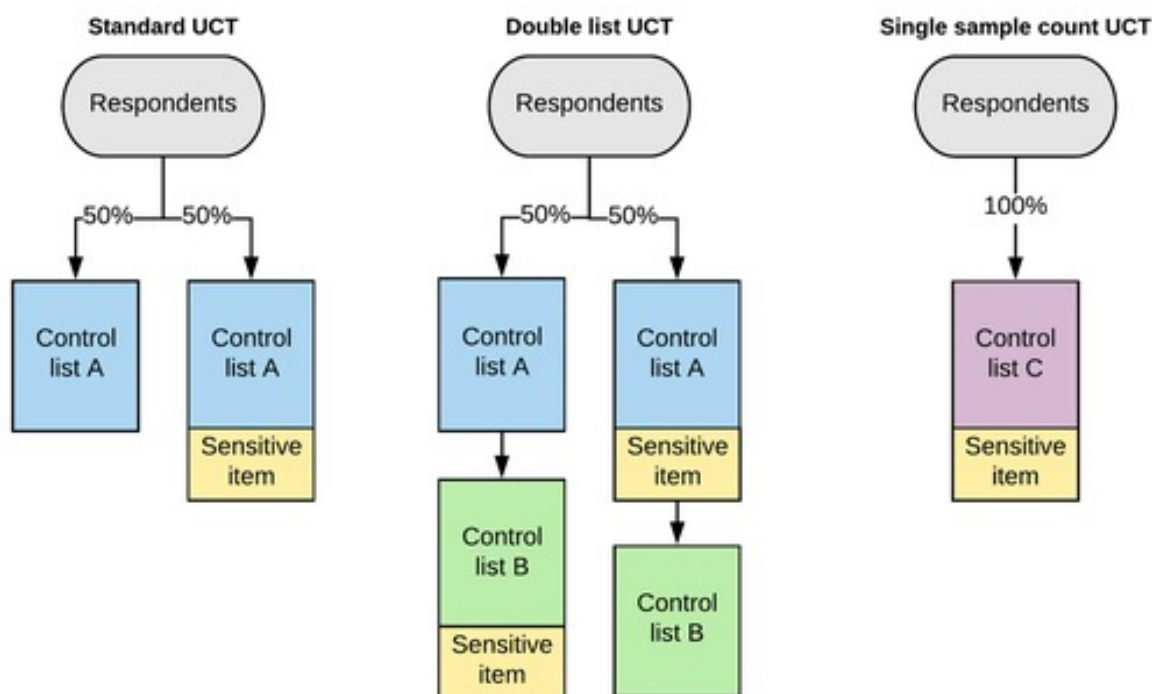
1. Survey participants are randomly assigned to control and treatment groups.
2. The control group receives a list of non-sensitive statements or items. The treatment group receives the same list of innocuous items along with a sensitive item, such as an illegal wildlife product.
3. Individuals in both groups are asked to indicate *how many* but not *which* statements or items are true for them (see Figure 3), which is meant to reduce participants' wariness about admitting to illegal or immoral behavior.
4. Prevalence of behaviors is then estimated by calculating the difference in mean affirmations between the two groups, as in $p = \text{mean (treatment group)} - \text{mean (control group)}$, where p is the proportion of participants engaged in sensitive behavior. (Hinsley et al., 2019; TRAFFIC, 2019b)

Recent studies provide valuable case examples of using specialized questioning techniques, such as UCT, to understand the prevalence of illegal wildlife consumption.

Please read the following statements and tell us how many are true for you. You do not need to tell us which statements are true for you, just the total number

Control group	Treatment group
I have never bought orchids at an orchid show	I have never bought orchids at an orchid show
I am a member of a Facebook orchid group	I am a member of a Facebook orchid group
I have a species [orchid] collection	I have personally sent or carried an orchid across an international border without obtaining the required CITES paperwork
I have been a member of an orchid society for more than a year	I have a species [orchid] collection
	I have been a member of an orchid society for more than a year

Figure 3: Example of UCT lists used online to estimate the prevalence of orchid-related CITES infractions (Hinsley et al., 2016).



Control list A: non-sensitive items e.g. *I have been a member of an orchid society for more than a year*
Control list B: different non-sensitive items to Control list A e.g. *I grow orchids from seed*
Control list C: innocuous characteristics e.g. *The last digit of my telephone number is an even number*

Figure 4: Structure of the standard UCT experiment, the double list variation, and the single sample count variation. Replicated from Hinsley et al., 2019.

CASE STUDY

Understanding the Prevalence of Bear Part Consumption in Cambodia: A Comparison of Specialized Questioning Techniques (Oneita Davis et al., 2019)

Method: This study is the first known use of specialized questioning techniques in Cambodia. The study aimed to establish a quantitative measure of bear part use in Cambodia and the levels of deceit Cambodians use in discussing this illegal behavior. The study was conducted in three distinct areas of the country and used a questionnaire featuring four specialized questioning techniques: UCT, nominative technique, false consensus bias, and randomized response technique.

In the UCT portion, each respondent was shown cards representing different activities and asked, “How many of these activities have you done?” The control group received cards with four non-sensitive activities, and the treatment group received those same four cards and one showing an additional sensitive activity, such as the use of bear bile.

Analysis: As described above, the prevalence of sensitive activity was calculated as the difference in mean affirmations between the treatment and control groups. All data were analyzed using the software program R, with 95 percent confidence intervals for every estimate.

Findings: Of the questioning types, UCT yielded the highest prevalence of sensitive activities in Phnom Penh (the most educated and urban study area), followed by Stung Treng and the Cardamom Mountains (the most rural study area). The average prevalence estimates across studies were 7.3 percent for the direct estimate, 2.3 percent for the RRT estimate, 15.2 percent for the UCT estimate, and 27.8 percent

for the NT estimate. Additionally, the false consensus bias questioning found self-identified bear part users were more likely to believe more of their social group had used bear parts than did non-bear part users. The researchers concluded UCT was a trustworthy method in two of the three survey sites (Stung Treng and Phnom Penh), but the high number of “0” responses in the Cardamom Mountains may indicate significant distrust of the method. The research suggests this method may be less effective in more rural areas or in areas subject to frequent surveying, where community members may be wary of researchers and resource restrictions resulting from such research.

Ethics: Potential interviewees were informed the survey was confidential and anonymous, and they could refuse to answer any question or stop the interview at any time. Participants gave verbal consent. There was not a request for written consent due to time and literacy concerns.

Is UCT Right for You?

This decision tree can help researchers choose when to use UCT and when other methods may be more suitable.

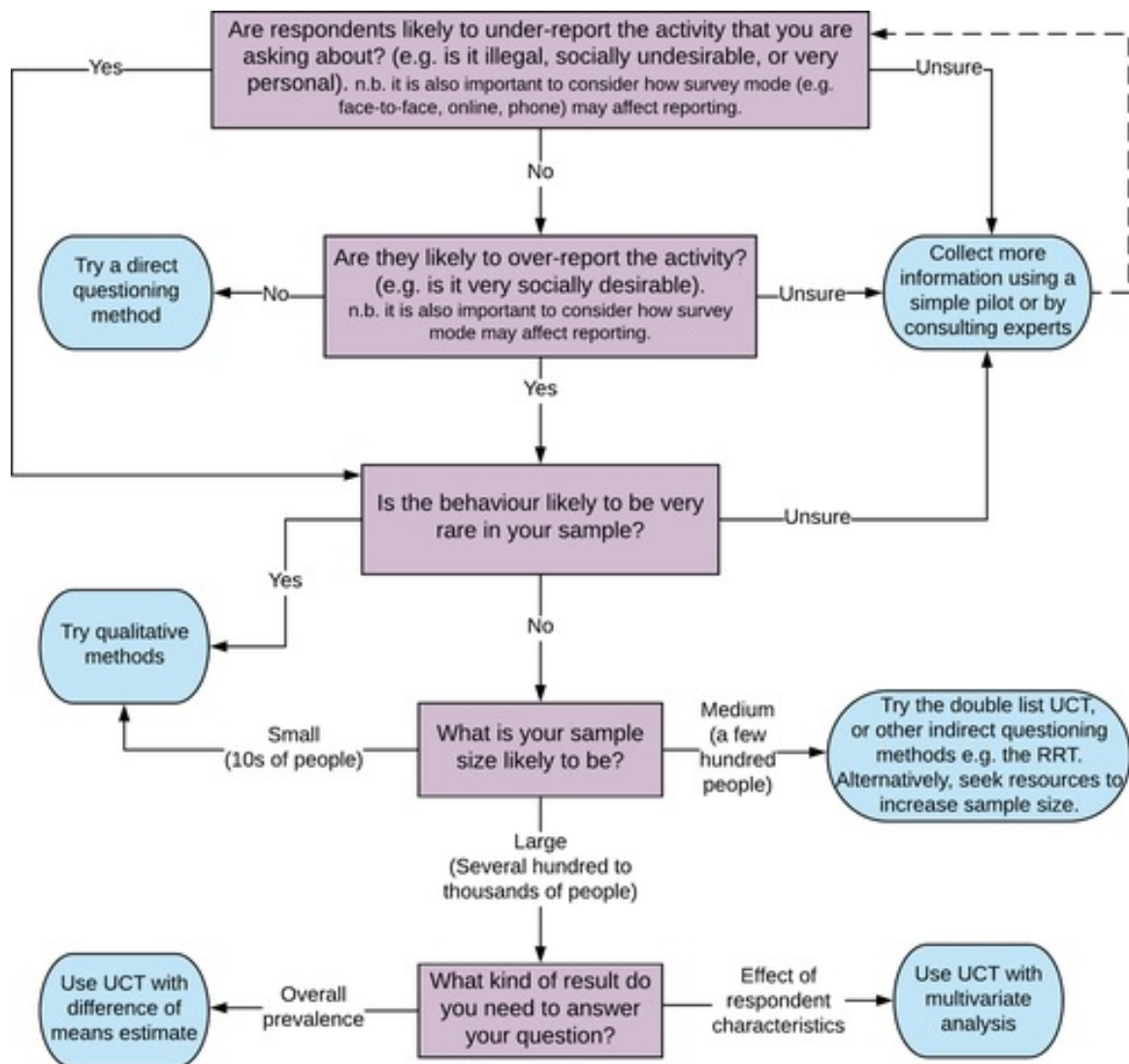


Figure 5: Decision tree to assess when UCT is suitable to use. Replicated from Hinsley et al., 2018.



Photo by Jeremy Hynes on Unsplash.

Identifying Consumer Habits: Social Listening and Sentiment Analysis

Social listening is “a big data analytical tool looking at the trends with social media hashtags, search strings, keywords, and other reference points in online conversations and exchanges” (CITES, 2021). This tool examines narratives of online wildlife queries to identify triggers, motivations, and inhibitors of wildlife consumers (TRAFFIC, 2019b). Additionally, social listening can determine the types and quality of the wildlife products consumers seek as well as their purchasing experience (TRAFFIC, 2019b). More broadly, social listening can collect data on fads, styles, and market trends to improve understanding of the demand for wildlife and wildlife products (TRAFFIC, 2019b).

As audience research, social listening can assess consumers’ sentiment toward a product by analyzing their data and conversations from online retail platforms (TRAFFIC, 2019b). A 2019 TRAFFIC report lays out the following steps to conduct social listening research:

1. Monitor social media mentions about the product,
2. Analyze insights by going beyond the data to assess the style and mood of the mentions, and
3. Use social listening tools—such as NetBase—to track conversations online about the product and apply natural language processing to get “true” consumer sentiment (TRAFFIC, 2019b).

In step three, researchers use **sentiment analysis** to assess attitudes and values in the mined data. “Sentiment” refers to the “overall attitude expressed in a text” and is generally positive, neutral, or negative (Fink, Hausmann, and Di Minin, 2020). In addition to NetBase, more specialized tools such as [VADER for Python](#) and [sentimentr for R](#) are available for practitioners and researchers exploring this methodology (Fink, Hausmann, and Di Minin, 2020; Wright, Lennox, and Veríssimo, 2020).

Two publications provide the following case studies of using social listening and sentiment analysis in conservation.

CASE STUDY

Online Sentiment Towards Iconic Species (Fink, Hausmann, and Di Minin, 2020)

This study used social listening to examine the public's online reaction to the conservation of iconic species. In 2018, the study analyzed spatio-temporal variation in volume and sentiment of text content about rhinoceros species on Twitter and online news sources. For social media posts and online news data, the researchers categorized the text as positive, neutral, or negative, based on the overall attitude expressed to calculate daily sums and mean sentiment. The study found sentiment over the entire time series slightly positive, meaning the public viewed the conservation of rhinoceros species positively. Specific negative events, e.g., the death of the last male northern white rhinoceros, appeared to cause significant public reaction and trigger increases in volume and mean sentiments. In contrast, positive events, e.g., the translocation of rhinos to Tsavo National Park in Kenya, were followed by undramatic public response.

CASE STUDY

Is YouTube Promoting the Exotic Pet Trade? Analysis of the Global Public Perception of Popular YouTube Videos Featuring Threatened Exotic Animals (Moloney et al., 2021)

An exemplary study from 2021 used social listening to explore the public perception of exotic wild cat and primate species in “free handling” situations featured in popular YouTube videos. The study investigated variations in perception associated with time, conservation status, and interaction with other species through sentiment analysis techniques, which overcame the limitations of traditional manual qualitative techniques and enabled a more efficient analysis of a large dataset. The comments on 346 videos were compiled and analyzed in the R program, revealing a predominantly positive global public perception in response to the exploitation of exotic wild cats and primates, highlighting the urgency for YouTube policy changes promoting conservation awareness and discouraging the exotic pet trade.

Benefits and Disadvantages of Social Listening

While these examples offer insight into the public's attitudes toward iconic species, online social listening can focus on consumers' attitudes toward illegal wildlife products, which may, in turn, reflect product demand (TRAFFIC, 2019b). For example, Wright, Lennox, and Veríssimo (2020) describe and deploy a system to monitor attitudes toward wildlife of seven taxa frequently illegally traded. Using articles from the Global Database of Events, Language, and Tone, the researchers analyzed the resulting text for sentiment and media saliency (the number of times a subject is referred to in the media) to identify hotspots for positivity and areas where campaigns may improve science and natural history literacy (Wright, Lennox, and Veríssimo, 2020). More advanced uses of social listening for the illegal wildlife trade, such as tracking online retail channels for illegal wildlife products, will require a nuanced understanding of the products, knowledge of markets in which the product is sold, and access to retailers' sales channels on various platforms (TRAFFIC, 2019b).

As opposed to other forms of social media analysis, the advantage of social listening is it allows for a detailed understanding of the specific nature of customers' demands (TRAFFIC, 2019b). Social listening could help determine the mood of consumers or changes in sentiment over time as laws, prices, and other parameters change for wildlife products (TRAFFIC, 2019b). The two primary disadvantages of such an approach are that researchers may encounter issues with access to personal data ownership and may be challenged to link sentiment changes to reduced demand (TRAFFIC, 2019b).

Targeting Potential Buyers: Digital Deterrence Campaigns

A subset of demand reduction campaigns, digital deterrence efforts target online consumers by raising awareness and concerns about the illegal wildlife products they are potentially interested in purchasing and consuming (De Guzman et al., 2021). These campaigns often focus on increasing the consumers' perceived risks of purchasing illegal wildlife products and decreasing their sense of anonymity (USAID Wildlife Asia, 2021); therefore, the messaging used must be developed through intensive background research and testing on specific target audiences (De Guzman et al., 2021). The next section highlights the experiences of two campaigns using digital deterrence or similar platforms to reduce the demand for illegal wildlife products online. It also shares the campaigns' monitoring and evaluation techniques to measure the effectiveness of these approaches.

CASE STUDY

Applying a Social and Behavior Change Communication Strategy to Deter Online Purchase of Illegal Wildlife Products in Thailand (De Guzman et al., 2021)

USAID Wildlife Asia's Digital Deterrence campaign was conducted in Thailand from 2018–2020. The campaign partnered with Google to display advertisements on the platform when users searched for specific words associated with the illegal wildlife trade. The campaign leads designed it using an evidence-based social and behavior change communication (SBCC) strategy, and the messaging of the ads addressed consumption drivers (luck) and concerns (legality). Google users were identified as potential buyers when they used keywords denoting interest in buying wildlife products online, and they were served ads to deter them from continuing their searches. If the users clicked the link accompanying the Google advertisement, they were sent to a landing page sponsored by Thailand's Department of National Parks, Wildlife, and Plant Conservation. This landing page warned that authorities were monitoring illegal wildlife trade online and Thai laws prohibited the trading and purchasing of illegal wildlife and products (Figure 6). Visitors were invited to message the Department of National Parks or call its hotline for further questions or reports. The primary metrics used to monitor the campaign's effectiveness include the number of ads served, the number of



Figure 6: The landing page searchers would see as part of the Thai digital deterrence campaign (De Guzman et al., 2021).



Photo by Adobe Stock.

clicks to the landing page, and the cost per single ad. The first phase of the campaign took place from August 2018 to March 2019. Ads were served in response to 560,470 searches and received 17,410 clicks (3.11 percent) on the link to the landing page. Among those who visited the landing page, 384 clicked through to the Department of National Parks website, 118 sent a message to the department, and 21 called the department hotline. The second phase of the campaign occurred from November 2019 to June 2020 and expanded onto social media platforms, targeting users with similar socio-demographic characteristics as potential online buyers. These ads drew more than 8 million views in the second phase.

CASE STUDY

Evaluating a Large-Scale Online Behavior Change Intervention Aimed at Wildlife Product Consumers in Singapore (Doughty et al., 2021)

The University of Oxford's "[Oxford Martin Programme on the Illegal Wildlife Trade](#)" engages in research and efforts to understand and reduce saiga horn usage in traditional Chinese medicine. While the campaign in this case study did not target online consumers, it was conducted online and aimed to deter potential buyers in Singapore. The campaign ran from February to April 2019 and used messaging that discussed the saiga antelope as a "critically endangered" species while implying saiga horn usage was no longer socially endorsed. The messages were published as advertisements on news sources and spread via online platforms (e.g., Facebook, Google, Outbrain). The ads encouraged viewers to re-share the ads, socially reinforcing the messaging. In addition, trustworthy and accurate information about saiga horn was readily available to target audience members actively seeking more information.

The program used the following metrics provided by each platform to compare the performance of ads between platforms (note, a detailed list of metrics can be seen in [the source article](#)):

- Number of times ads were shown (impressions)
- Number of times ads were clicked on (clicks)
- Rate at which an advert was clicked on (click-through rate [CTR], i.e., number of clicks-per-impression)
- Cost incurred for each click (cost-per-click [CPC])

The researchers also measured the highest and lowest CTRs and the least and most expensive CPCs.

These metrics determined the effectiveness of advertising platforms at inducing message engagements and further analyzed how individuals engaged with, responded to, and spread the message. Overall, the messages were shown to consumers almost 5 million times and reached 479,258 people from the target audience.

Key Takeaways

1. **There is significant online trade in illegal wildlife and wildlife products**, which requires collaborative action from conservation practitioners, governments, and the private sector. As of September 2021, the 47 members of the Coalition to End Wildlife Trafficking Online had blocked or removed at least 11.6 million posts featuring illegal wildlife products (Coalition to End Wildlife Trafficking Online, 2021).
2. Reducing consumer demand is an important strategic approach to disrupting the illegal wildlife trade, which USAID emphasizes in its generalized Combating Wildlife Trafficking theory of change. **But the impact of demand reduction campaigns is challenging to monitor and evaluate.** A meta-analysis of 236 demand reduction campaigns found only 9 percent of campaigns reported on impacts (Veríssimo and Wan, 2019).
3. **There are opportunities to learn from and use innovative methodologies** to improve the monitoring and evaluation of demand reduction campaigns, particularly those targeting the online wildlife trade.
4. **Market surveys** can help practitioners and researchers quantify the scale of the online wildlife trade. These surveys typically document and analyze the number of online advertisements as an indicator of supply and to contextualize consumer demand (TRAFFIC, 2019b). While there are few, if any, examples of demand reduction campaigns using online market data, other research (such as Nijman et al., 2021) provide example processes that can be incorporated into demand reduction campaigns and combined with other methodologies.
5. To further understand wildlife demand and consumption patterns, **UCT** can be useful and employed at different stages of demand reduction campaigns. This survey method and its variations—double-list UCT and single sample count—can help researchers studying the prevalence of *illegal* or *sensitive* behaviors, such as the illegal wildlife trade.
6. **Social listening and sentiment analysis** are novel techniques that help identify consumer habits, preferences, and trends. A TRAFFIC report lays out three steps to conduct social listening research: (1) monitor social media mentions about the product, (2) analyze insights by going beyond the data to assess the style and mood of the mentions, and (3) use a variety of social listening tools to track online conversations about the product and apply natural language processing to get “true” consumer sentiment about the product (TRAFFIC, 2019b).
7. As a subset of demand reduction, **digital deterrence campaigns** target online consumers by raising awareness about the illegal wildlife products the consumers are potentially interested in purchasing (De Guzman et al., 2021). These campaigns increase the consumers’ perceived risks and decrease their sense of anonymity online. They also allow for more robust monitoring by using digital metrics such as the number of ads served, number of clicks to a landing page, and cost per ad (De Guzman et al., 2021).

Further Reading

The following resources provide more in-depth insights about quantifying online wildlife trade, measuring wildlife consumption, and monitoring and evaluating demand reduction campaigns:

USAID

- USAID (2015) [Summary of Indicators for Combating Wildlife Trafficking](#)
- USAID (2017) [Measuring Efforts to Combat Wildlife Crime: A Toolkit for Improving Action and Accountability](#)
- USAID (2020) [Combating Wildlife Trafficking Learning Exchange: Meeting Report](#)
- USAID (2020) [Combating Wildlife Trafficking Learning Exchange: Demand Reduction Posters](#)
- USAID Wildlife Asia (2021) [Demand Reduction Campaigns—At a Glance](#)

Scholarly Articles

- Davis E.O. et al. (2019) [Understanding the Prevalence of Bear Part Consumption in Cambodia: a Comparison of Specialised Questioning Techniques](#)
- Doughty, H. et al. (2021) [Evaluating a Large-Scale Online Behavior Change Intervention Aimed at Wildlife Product Consumers in Singapore](#)
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