

REVIEW AND SYNTHESIS

Deeper sociological insight needed for behaviour change: A systematic review of Chinese ivory consumption

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Handling Editor: Takahiro Kubo**Abstract**

1. Chinese consumer demand for ivory threatens vulnerable African elephant populations, despite long-standing efforts to combat the illegal wildlife trade. Behavioural science approaches have been proposed to address these systemic behaviours. However, their robust use remains uncommon in demand management interventions. A culturally nuanced, psychological and sociological understanding of the behaviours driving ivory consumption is essential for effective behaviour change.
2. We conducted a qualitative systematic literature review in English and Chinese to understand the drivers and barriers of Chinese ivory consumption. We sought to understand ivory acquisition, possession and disposal behaviours through purchase, gifting and inheritance practices. Our final review included 13 articles from the academic and grey literature. After inductive thematic analysis, we deductively applied UNICEF's Behavioural Drivers Model to support practitioner applications. Building on the limitations highlighted, we additionally deductively explored ivory consumption through a Consumer Culture Theory lens to assess ivory subcultures and market identities.
3. Ivory consumption is driven by a mix of social, cultural and economic factors, and the degree to which each influences consumption behaviour is not well understood. Better understanding of Chinese social norms that affect individual and collective gifting behaviours could lead to more effective strategies to change behaviour. Most research focuses on purchase and does not address the underlying motivations for gifting and personal collecting to an extent that establishes actionable insight for behavioural interventions. Moreover, inheritance and bequeathing of ivory are not explored in the literature. This limits our understanding of the importance of familial and sentimental values and evolving generational values of ivory for consumers.
4. Effecting demand for wildlife products requires diverse interventions aimed at different consumer groups to target different underlying motivations that shape consumer behaviour. If behaviour change interventions do not integrate evidence-based behavioural insights into their design, it is unlikely they will successfully

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achieve their aims. Understanding social and cultural determinants of different consumer groups' behaviour is a critical component of designing effective behaviour change interventions for conservation outcomes.

KEYWORDS

behaviour change, consumer culture theory, consumer demand, illegal wildlife trade, ivory

1 | INTRODUCTION

To meet global biodiversity conservation goals, we must pursue transformational change in the way humanity interacts with nature (Krcan, 2024). Systemic change across all levels of society is needed to fundamentally shift our ecologically exploitative behaviours to become more sustainable and contribute positively to nature (Balmford et al., 2021). A diverse range of behaviour change techniques is used to persuade individuals to voluntarily transition to more sustainable behaviours, from affecting behavioural decision-making using choice architecture and nudging methods (Mertens et al., 2022), through taxes and social incentives that reinforce pro-environmental behaviours (Carmenta et al., 2021; Costello et al., 2008), to encouraging the copying, contagion and imitation of peers or respected figures who model desirable behaviour (Banerjee, 1992). However, as the environmental field increasingly uses behavioural science approaches to influence human behaviours, it is critical to ensure that these techniques are carefully applied to specific behaviours of segmented audience groups for effective, measurable behaviour change and to avoid unintended consequences (Thomas-Walters, Veríssimo, et al., 2020).

Behavioural science is increasingly being integrated into biodiversity conservation interventions (Nielsen et al., 2021; Veríssimo et al., 2024). However, this is still relatively novel (Öckerman et al., 2024; Thomas-Walters, Veríssimo, et al., 2020), despite being well established in disciplines such as health and international development (Truong, 2014; Truong & Dang, 2017). The novelty of using behavioural science in conservation explains why Öckerman et al. (2024) could not systematically evaluate the effectiveness of wildlife trade interventions on consumer behaviour due to limited evidence. Interventions tackling unsustainable and illegal wildlife trade have started to use robust study designs such as counterfactuals (Veríssimo, Bianchessi, et al., 2018; Veríssimo, Schmid, et al., 2018), experimental designs (Doughty et al., 2021) and randomised control trials (Dunn et al., 2021). Therefore, the focus on African elephants (*Loxodonta africana* and *L. cyclotis*) and ivory in wildlife demand management literature (Veríssimo & Wan, 2019), suggests that behavioural insights should be well developed for key consumer markets and applied in behaviour change interventions.

African elephants and their ivory are the subject of intense global public, scientific and political interest. As charismatic megafauna, keystone species and symbols of African environmental and cultural heritage – ivory trafficking remains high on the agenda of

illegal wildlife trade concerns (Anagnostou & Doberstein, 2021). China has long been a key destination market for trafficked ivory (Stiles & Martin, 2003). Since China's 2017 domestic ivory ban (China State Council, 2016), illicit ivory trade has reduced, coinciding with a global decline in elephant poaching, which some attribute to China's policy reform (Baruch-Mordo et al., 2022; Chen et al., 2023; Liu & Zhang, 2022). However, the observation that the third-largest year of total ivory seizures reported to the Elephant Trade Information System (51,161 kg) based on total weight since monitoring began in 1989 (Baruch-Mordo et al., 2022) was only in 2019 suggests demand for ivory is still common. 2019 records included two exceptionally large seizures destined for Chinese markets, totalling 16,277 kg (Baruch-Mordo et al., 2022). Therefore, despite China's efforts to tackle ivory trafficking via policy reform, and continued dedication to dismantling criminal syndicates domestically and abroad (Wildlife Justice Commission, 2022), China remains a primary destination for illegal ivory. A comprehensive understanding of the behaviours driving ivory consumption in Chinese markets is essential for designing effective behaviour change interventions to support global elephant conservation efforts (Hauenstein et al., 2019; Miao et al., 2022).

To examine this phenomenon, we conducted a systematic literature review to investigate the drivers and barriers to ivory consumption for Chinese consumers. Using a qualitative narrative synthesis, we assess behaviour throughout the ivory consumption cycle from acquisition, through possession to disposition. We use qualitative inductive thematic analysis supported by insights from a deductive conceptual application of the Behavioural Drivers Model (BDM) (Petit, 2019) and Consumer Culture Theory (CCT) (Arnould & Thompson, 2005, 2015).

UNICEF designed the BDM to bridge the theory–practice gap in the design of social and behaviour change interventions through an integrated systems-based model (Petit, 2019). In public health, the BDM has guided interventions for family planning (Skinner et al., 2021) and vaccine uptake (Castle et al., 2023). In the environmental field, it has been used by behaviour change practitioners to explore community-based climate change adaptation approaches for riverbank rehabilitation in Fiji (Dekens et al., 2024). Castro et al. (2025) recently used the BDM to understand how to increase voluntary participation to mitigate bird window strikes in Filipino urban settings. The BDM was also used as a systems approach to understand the behavioural barriers faced by the public in engaging with biodiversity conservation (Gregg et al., 2025). To the best of our knowledge, our study is the first to use the BDM to understand wildlife consumption behaviour.

We investigate the BDM's applicability to guide insights on ivory consumption as a starting point for practitioners to increase the sophistication of behaviour change interventions. However, in applying the BDM, we found the many subdimensions and relatively vague supporting definitions made it challenging to generate a clear behavioural understanding of our phenomena within the confines of our phenomena's limited evidence base. Therefore, we highlight how the BDM enabled a deeper understanding of ivory consumption behaviour but did little to resolve the theory–practice gap, as intended. Motivated by the limitations of the BDM, we use CCT to explore the confounding sociocultural influences that could generate practical ideas for ivory behaviour change interventions (Patsiaouras, 2022). CCT conceptualises culture as the very fabric of experience, meaning and action, and addresses the dynamic relationships between consumer actions, the marketplace and cultural meanings (Geertz, 1973, 1983). Overall, we aim to render an informed, culturally nuanced understanding of Chinese ivory consumer behaviour with far-reaching applications for other wildlife products.

2 | METHODS

2.1 | Protocol

Our systematic literature review followed the Reporting Standards for Systematic Evidence Syntheses in Environmental Research (ROSES) framework (Haddaway et al., 2018). For transparency and reporting, the review protocol was published on the Collaboration for Environmental Evidence's PROCEED database in November 2023 (Brown et al., 2023).

2.2 | Search strategy

This study consisted of a search for peer-reviewed, published and grey literature in three bibliographic databases and four specialist organisational websites. We did not restrict our search to a particular period. We chose the bibliographic databases of the (1) Web of Science, (2) Scopus, due to their multidisciplinary coverage of scientific research and (3) the China National Knowledge Infrastructure database, as the primary database available for all research conducted and published in China. The websites searched for additional relevant grey literature were (1) TRAFFIC International (www.traffic.org), (2) Change Wildlife Consumers (CWC) (www.changewildlifecconsumers.org), (3) USAID Reducing Demand for Wildlife Resources on Consumer Demand Reduction Materials (www.usaidrdw.org) and (4) World Wide Fund for Nature's Wildlife Conservation publications (www.worldwildlife.org). These websites were chosen based on the author team's expert knowledge of the organisations and networks working in China on tackling consumer demand for ivory.

We built our search strategy using the SPIDER tool (Sample, Phenomenon of Interest, Study Design, Evaluation, Research Type), which offers a systematic approach for searching for qualitative and

mixed-methods research studies (Cooke et al., 2012). It is based on the same principles as the PICO tool (Population, Intervention, Comparison, and Outcomes), commonly used for systematic reviews of quantitative literature, and endorsed by the Cochrane Library (Methley et al., 2014). Here, our sample extracted from the literature was based on any empirical study of a sample of Chinese consumers, or Chinese consumers travelling abroad, for example, in Southeast Asia where ivory can be found in legal and illegal retail markets (Doak, 2014; TRAFFIC, 2020). Our Phenomenon of Interest was the behavioural drivers and barriers of ivory consumption. The Study Design was not restricted, and we expected the use of interviews, surveys, workshops, focus groups, experimental and quasi-experimental designs, and randomised control trials. We sought data on the Evaluation of behaviours, motivations, values, beliefs, perceptions, experiences and attitudes of consumers. Research Type was not restricted and could be qualitative, quantitative or mixed methods.

Our search strategy on the bibliographic databases included three search strings in English, simplified Chinese and traditional Chinese available in the protocol (see Supporting Information S1; Brown et al., 2023). The organisational website searches consisted of using the keywords: 'China', '中国'/'中國', '我国'/'我國', 'Chinese', '华人'/'華人', '中华'/'中華' and 'ivory', '象牙'. The CWC website required a different search strategy, and all records available under the most relevant branches of 'Behaviour-Consumers' and 'Wildlife-Elephants' were extracted to ensure a comprehensive appraisal of all possible studies related to our topic.

2.3 | Data extraction

We used the software platform Covidence for all screening and data extraction (Covidence Systematic Review Software, 2024). Covidence is a web-based collaborative software platform that streamlines the production of systematic literature reviews. Citations progress through a multiphase review process for each reviewer, where citations receive votes, which are blinded to minimise bias, and then disputes are handled after completion of each stage. Two of the authors screened all texts at each level. Disputes were resolved by referring to the predefined inclusion criteria described in Brown et al. (2023). At the screening level, reviewers had excellent inter-rater reliability with 90% agreement, which increased to 95% at the full text level. The criterion included: (1) Population—include only studies that took place in China, or which were about Chinese consumers; (2) Study Characteristics (a) include only studies that specifically address consumption of ivory products, (b) include only studies that assess consumer behaviours, values, beliefs, perceptions, experiences, attitudes or similar.

To guide data extraction, a codebook was developed and agreed upon by all authors to record data on the variables that drive and deter ivory consumption (see Supporting Information S2). Factors included behaviours, knowledge, values, beliefs, experiences and attitudes among others. Socio-demographic data associated with

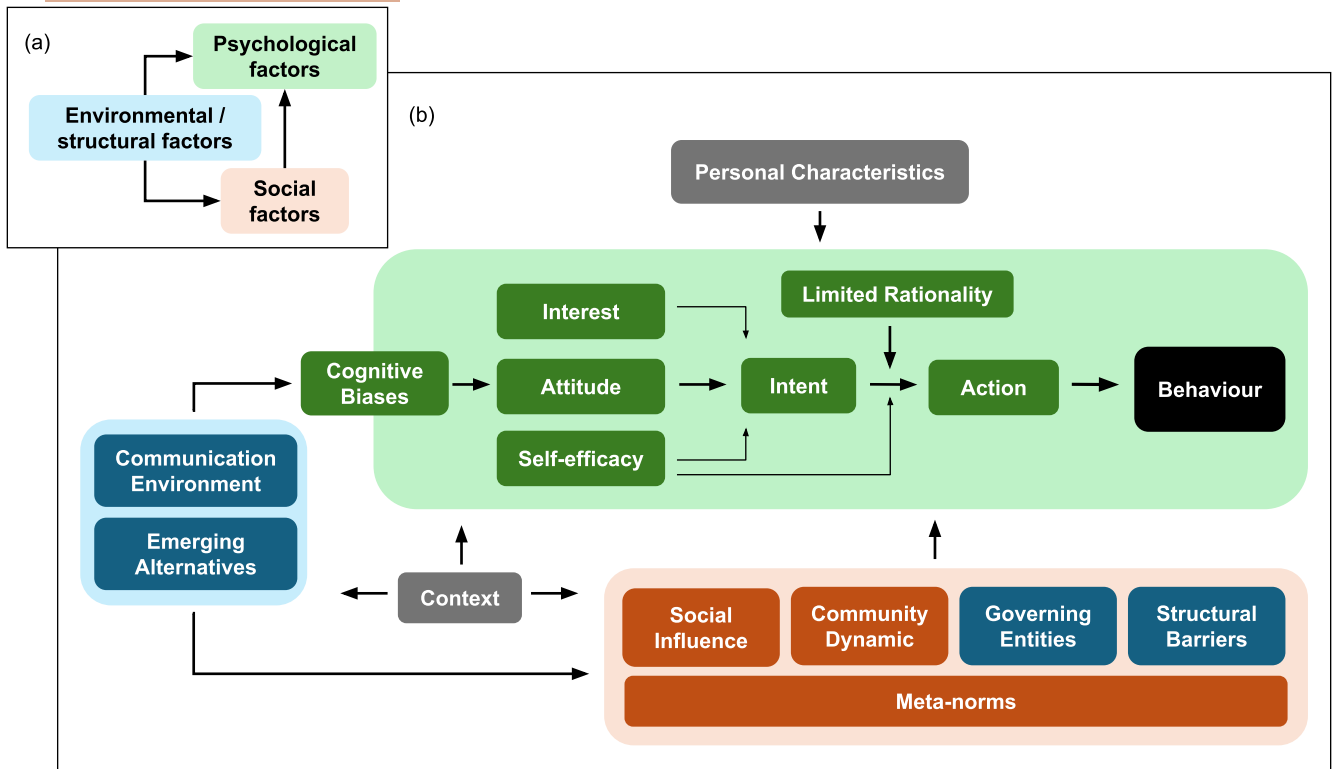


FIGURE 1 Adapted visualisation of the UNICEF Behavioural Drivers Model (BDM) from Petit (2019). Black arrows illustrate the unweighted directional drivers of a behavioural factor. (a) The BDM conceptualises all behaviours as driven by psychological (green), social (orange) and environmental/ structural (blue) factors. (b) The main drivers within are illustrated in (b) with the additional influences of context and personal characteristics (grey).

profiling consumers was also included such as gender, age, education, income, location, occupation, religion, travel habits and audience segmentation. We also recorded key conclusions and recommendations that were related to the behavioural evidence. To critically appraise each study, we used the Critical Appraisal Skills Programme's checklists (Critical Appraisal Skills Programme (CASP), 2022). To understand the rigour of each study, we also recorded any evidence of reflexivity and attention paid to ethical considerations.

2.4 | Data analysis

We used both inductive (emic) (Elo & Kyngäs, 2008) and deductive (etic) approaches for analysis (Arnould & Thompson, 2005, 2015; Petit, 2019). First, we used conventional content analysis to allow our thematic analysis to inductively flow from the data (Hsieh & Shannon, 2005). We started with line-by-line coding of the extracted studies, from which all emergent categories were created as descriptive themes. These themes were then developed, combining subcategories and identifying their relationships to one another to generate analytical themes. All thematic coding was conducted in the software NVivo version R1 (release 1.7.1) (Lumivero, 2022).

Next, we took a directed, deductive approach using two conceptual frameworks, the BDM (Petit, 2019) and CCT (Arnould & Thompson, 2005). The BDM was used to systematically categorise

the identified drivers and barriers of ivory consumption generated from our thematic analysis. The BDM is a synthesis of 25 behavioural models and frameworks, which aims to not become a 'new model' but rather bring coexisting perspectives together to enrich understanding of behaviour (Petit, 2019). A comprehensive list of the perspectives integrated in the BDM is found in Petit (2019), which includes, for example, the theories of Reasoned Action and Planned Behaviour (Ajzen, 2002; Fishbein & Ajzen, 1975), the Health Belief Model (Stretcher & Rosenstock, 1997), complex systems theory (Ladyman et al., 2013), social marketing (Andreasen, 1994) and community-based social marketing (McKenzie-Mohr, 2011).

The BDM conceptualises behaviour broadly as the outcome of a system of psychological, social and environmental/structural factors (Figure 1a). It operates at two levels of granularity: main drivers (Figure 1b) and their subdimensions. Once all dimensions of the BDM are unpacked, it is made up of around 130 possible drivers of behaviour. On the one hand, the systems approach helps to understand behaviours holistically, which can help to triangulate relevant behavioural variables in the design of an intervention needing to operationalise within the constraints of a specific setting. On the other hand, the systems approach can limit the depth of understanding of specific behavioural elements and enable biased selection and weighting of determinants. The model does not prioritise or weight behavioural constructs, and instead calls explicitly for empirical, local research to provide this contextual information.

Finally, we use CCT to theoretically develop our understanding of ivory consumption culture and subcultures (Hungara & Nobre, 2021; Sherry, 2019). We chose the CCT approach based on limitations raised regarding the BDM and uncovered during our analysis. CCT frames consumers' horizons of conceivable action, feeling and thought. It makes certain patterns of behaviour and sense-making interpretations more likely than others. Different cultural settings enable consumers to draw on shared symbols, stories, and the environment to create common meanings that guide their actions (Arnould & Thompson, 2005). By focusing on the contextual, symbolic and experiential aspects of the consumption cycle, we explore legal (e.g. gifting and inheritance) and illegal (e.g. purchase) behaviours, which perpetuate ivory's value in different subculture markets. Within CCT, consumers shape their identities by expressing their independence through unconventional and creative non-conformist acts of

consumption (Holt, 2002). Therefore, through a CCT lens, we seek a culturally nuanced perspective on the unique behaviours that may influence ivory subcultures such as collector communities building in gaps highlighted through our BDM analysis.

3 | RESULTS

From the 901 studies returned from our search strategy, 13 studies from 2014 to 2023 matched our detailed inclusion criteria (Figure 2). These included two peer-reviewed articles, and 11 grey literature reports (see Supporting Information S3). The literature widely assessed drivers and barriers of ivory consumption based on self-reported purchase behaviour (see methodological details in Supporting Information S4).

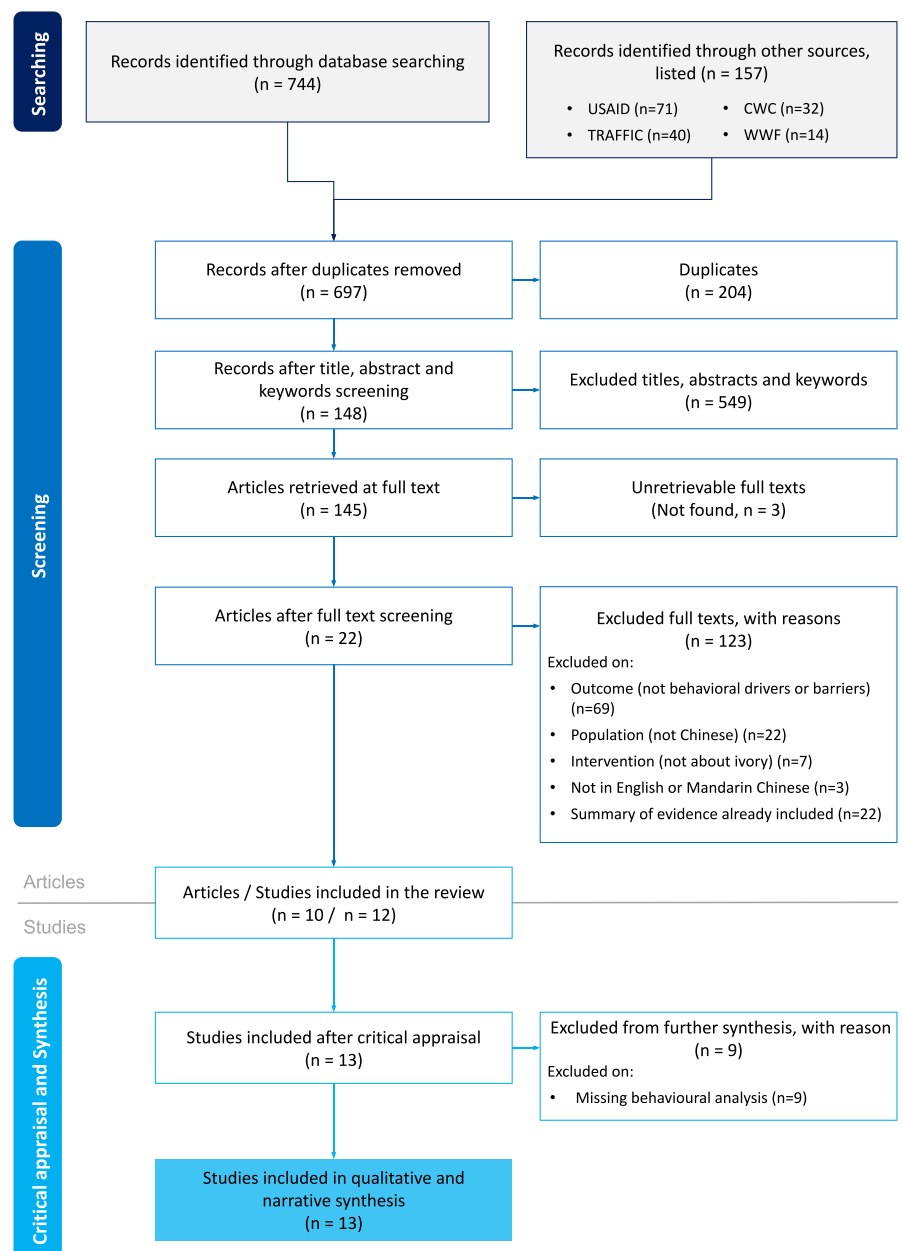


FIGURE 2 ROSES flow diagram.

In summary, the reason to purchase ivory was dominated by gift giving (10 studies) and personal consumption (seven studies), including investment (Gao & Clark, 2014; Zhu, 2020), decoration (including home décor and jewellery, such as figurines, pendants and necklaces) (Gao & Clark, 2014; USAID Wildlife Asia Activity, 2017) and personal collecting (Gao & Clark, 2014; Meijer, 2017, 2018, 2021; National Geographic, 2015; The Nature Conservancy, 2015). Older male consumers with more education and higher than average income gave more gifts of ivory (Meijer, 2017; The Nature Conservancy, 2015; USAID Wildlife Asia Activity, 2017). Wealthier, millennial, female consumers reported stronger artistic and aesthetic values for ivory (Meijer, 2017; USAID Wildlife Asia Activity, 2017). Ivory was the most socially acceptable illegal wildlife product to own among younger and millennial consumers (18–30 years old), who used the greatest number of channels to purchase it (USAID Reducing Demand for Wildlife, 2022). Generally, there were no important effects across different geographical locations. Regular overseas travellers (more likely to be male) and collectors (for personal use) were the key groups identified maintaining a persistent ivory purchasing behaviour (Meijer, 2017, 2018, 2019, 2020, 2021).

The studies by Meijer et al. (2017, 2018, 2019, 2020, 2021) provided clarity on the effects of China's domestic ivory ban on consumers who were segmented into three groups: ivory rejectors (least likely to purchase ivory, and agree with the ivory ban), ban-influenced citizens (strongly affected by the ivory ban in their decision-making), and diehard buyers (least likely to be swayed by the ivory ban). Following the recommendations of the review studies, we consider how to target the most persistent buyers through our BDM and CCT analysis.

3.1 | Thematic analysis

We identified six key behavioural themes influencing Chinese ivory consumption. The three themes of unique beauty, investment potential and gifting culture were found to drive the purchase of ivory. In contrast, we found consumer environmental attitudes and legal concerns deterred consumption. Authenticity, the composite consumer judgement of contextual accuracy and legitimacy, also affected ivory consumer behaviour (Nunes et al., 2021). It is important to note the interrelated nature of these themes, which often create feedback loops stimulating one another's significance for different consumers.

3.1.1 | Theme 1: Unique beauty

We found the foremost driver of consumption to be consumers' aesthetic and artistic value of ivory (Gao & Clark, 2014; Meijer, 2017, 2021; USAID Wildlife Asia Activity, 2017). Contributing to the aesthetic appeal of ivory are consumer beliefs that ivory represents purity, auspiciousness, good luck and prosperity, which embed cultural

significance into ivory for some consumers (Gao & Clark, 2014; Meijer, 2020). This was supported by the increasing consensus that there is no appropriate alternative to ivory and it is an irreplaceable material (Meijer, 2020, 2021).

3.1.2 | Theme 2: Investment potential

There is consistent evidence that Chinese consumers purchase ivory due to the belief that ivory is a likely profitable financial investment (Gao & Clark, 2014; Meijer, 2018, 2020, 2021; The Nature Conservancy, 2015; USAID Wildlife Asia Activity, 2018; Zhu, 2020). This belief persists despite it being illegal to purchase ivory. This is depicted clearly in Meijer (2021), where 16% of those surveyed who intended to purchase ivory in the future (knowing it is illegal), did so based on the belief that the resale value of ivory will increase. Therefore, some investors still pursue ivory for its potential long-term value. However, there is a noticeable increase in purchases driven by personal, speculative and social motives. As will be seen below through CCT, we explore how these personal and social motives feature in the submarkets interested in Chinese cultural heritage.

3.1.3 | Theme 3: Gifting culture

Ivory is most frequently purchased as a gift for a friend, relative or business contact (Meijer, 2021; National Geographic, 2015; USAID Reducing Demand for Wildlife, 2022). Gifting ivory is perceived to help establish the self-efficacy of consumers (Ajzen, 2002), particularly by improving the self-image of their perceived good taste and style (National Geographic, 2015; USAID Wildlife Asia Activity, 2017). However, despite the known relevance of gifting practices for ivory, we found minimal evidence assessing the psychological or sociological influences determining ivory gifting behaviours, which are inherently based in functions of interpersonal relationships. We examine this further below using CCT to explore the connection between gifting ivory in China and Chinese social norms, supported by a robust body of literature on Chinese gifting practices (Shi et al., 2025; Zhu et al., 2021).

3.1.4 | Theme 4: Perception of legal consequences

Knowledge of the domestic ivory ban ensures moral-based compliance for some consumer groups. For others, it is the increased perceived risk of law enforcement and severity of punishment that influences compliant behaviour. These perceived legal risks can also have wider associated social risks. We found no evidence about which social norms are most relevant to target to increase behavioural compliance with the law, despite its clear importance in generating a behavioural barrier to consumption. It is worth noting that for some consumers, the perceived risk of legal sanction is too low

to deter purchasing, particularly for small quantities and personal use (Meijer, 2021).

3.1.5 | Theme 5: Environmental attitudes

Consumers are deterred from purchasing ivory based on their environmental concerns about the consequences of the ivory trade on elephants. This finding is supported by research suggesting that pro-environmental attitudes are an antecedent to intentions and behaviours (Axelrod & Lehman, 1993; Wang, 2017). We found two key value-based positions underpinning these concerns, including elephant extinction (i.e. conservation values), and animal cruelty (i.e. animal welfare values). We found no evidence on the effect of consumers' environmental emotional or practical responses in ivory gifting or inheritance contexts. This leaves a gap in understanding how strongly held these environmental-based values are, and if they can affect strong social norms of reciprocity (*rénqíng*, 人情) and *face* (*miànzǐ*, 面子), when in a decision-making position to accept or deny ivory gifts. Contrastingly, some consumers believe purchasing ivory contributes positively to elephant conservation efforts (Meijer, 2021).

3.1.6 | Theme 6: Authenticity

We found ivory consumer behaviour was affected by attitudes towards authenticity. This follows research on the authenticity of intangible cultural heritage related goods, which finds that the more authentic the related good is perceived to be, the greater the increase in its market value (Maags, 2021; You & Hardwick, 2020). For ivory to be considered 'authentic', consumers need to be certain that the ivory they purchase is real, natural, from elephants and not artificial, or substituted from another species. Some consumers are confident in their skill to accurately identify authentic ivory enabling purchase and gifting behaviours. This need for authenticity ties directly to the driver of ivory's unique beauty. We also found evidence to suggest that uncertainty about authenticity can deter consumption. This is based on beliefs that authentic ivory is too difficult to buy in the pervasive fake (or faux) ivory market. However, there is limited exploration of the social or psychological effects of uncertainty in ivory purchasing behaviour, which could provide deeper insights for inhibiting purchase for gifting due to social expectations and social mobility. Below, using CCT, we explore more deeply the role of authenticity in Chinese ivory consumption given its limited behavioural analyses in the recent literature.

3.2 | Thematic overlap

Our qualitative thematic review highlights the lack of depth available within the literature to understand modern ivory consumption,

particularly from a sociological and cultural perspective. Ivory is perceived to show one's appreciation of Chinese cultural heritage because ivory was once symbolic in China's elite circles (USAID Wildlife Asia Activity, 2017). Yet, we found no empirical understanding of the components of cultural heritage or tradition that drive consumption for different consumer subgroups, such as for tourism in heritage locations in China or abroad, or for cultural collectors. We use the BDM and CCT below to help fill the current gap in assessing what tradition, cultural heritage and authenticity mean for consumer subgroups and how to use sociocultural insights within behavioural interventions.

3.3 | Behavioural drivers model analysis

3.3.1 | Main drivers

By mapping our thematic analysis onto the BDM as discussed below, we found the literature supported the understanding of the psychological and environmental/structural drivers of ivory consumer behaviour more so than sociological factors, such as social influence, community dynamics and meta-norms (Figure 1). Psychologically, ivory consumers are guided largely by their interest, attitude and self-efficacy. Environmentally, the deterrent effects of governance and legal measures, such as the ivory ban, affect the general population. However, behavioural evidence suggests that for those not swayed by the law (diehard buyers), the environmental/structural factors do not deter ivory consumption. We focus our analysis on the psychological factors of the BDM, due to the wider literature already available on the environmental/structural factors (Chen et al., 2023). Moreover, due to finding limited evidence on the influence of sociological factors, we use CCT below to improve our understanding of the sociological influences on ivory consumer behaviour.

3.3.2 | Psychological subdimensions

The BDM's factor of interest heavily influenced ivory consumer purchase and gifting behaviour. We found the subdimensions of *enjoyment*, *appeal*, *perceived risks* and *desire* were most relevant to consumer interest in ivory. Consumers gain pleasure from ivory purchase, ownership and gifting. This contributes to and perpetuates interest. Using ivory for gifting purposes and personal consumption, for example, wearing jewellery or decorating one's home with ivory décor, gave consumers a sense of pride. The emotional appeal of ivory was correlated with its beauty, uniqueness and rarity. For consumers who gift ivory, the BDM subdimensions of *efforts needed*, *perceived risks*, *affordability*, *attention*, *aspirations* and *feasibility* also generated a high allocation of social capital expectation for both the gifting party and recipient. The gifting of ivory forms a social capital exchange, whereby the ability to access ivory (illegally), and the capacity to afford the ivory item, coalesce to bring mutual social

capital gains. These sociological considerations are clearly vital to understanding the relationships involved in gifting practices yet are not explored in depth in the literature.

We found consumer attitudes to be widely attributed to ivory purchasing and gifting. Ivory purchasing is a hedonistic experience that stimulates pleasure for consumers by making themselves and others feel happy and proud. The subdimensions of *values, beliefs, emotions and past experiences* all contribute to developing positive attitudes towards ivory. Moreover, the attitudes of diehard buyers were shown to be associated with maintaining a reverence for ivory artistically, aesthetically and culturally. Aesthetic appreciation in this context was influenced by behavioural subdimensions of *values, awareness and knowledge, beliefs, past experiences and mindset*, which embedded virtue onto ivory as an authentic representation of Chinese cultural heritage.

We found minimal evidence to critically analyse how other psychological determinants, such as cognitive biases, limited rationality, or intent, could contribute to ivory consumer behaviour. Therefore, using the BDM highlights how limited our psychological appraisal of ivory consumers currently is, and indicates new areas for consumer psychological research.

3.4 | Consumer culture theory analysis

Our BDM analysis highlighted the need for the ivory demand literature to deepen in terms of understanding social and cultural determinants and multifaceted cultural influences on ivory consumer behaviour. Therefore, we apply CCT to assess sociological and cultural dimensions of ivory consumption not robustly explored in the literature. We use the consumer subgroup of collectors to highlight how CCT analysis can support sociocultural behavioural insights for designing behaviour change interventions.

Based on Bourdieu's concept of cultural capital (Bourdieu, 1986), CCT research positions consumer culture as a network of fragmented, though often interlinked, subsystems, and these networks can result in consumers diversifying their identity through many subsystems (Arnould & Thompson, 2005, 2015). Diversification of identity enables consumers to draw on potentially conflicting desires in their consumption habits. Desire for ivory converges along gaining social, economic and cultural capital, which can, for example, transform economic capital into social prestige while acting as a tangible signal of legitimate cultural heritage (Bitektine, 2011). These capital exchanges happen across many domains and are exemplified in China through the development of male-to-female gift giving choices over time, evolving from sewing machines in the 1970s, to televisions in the 1990s, to luxury cars and property today (Zhang, 2017). The Chinese 'consumer revolution' in the post-Mao reform era led to social and cultural identities blending different values (Davis, 2005), of modern consumption, cultural heritage, tradition, with environmental and legal attitudes (Zhu & Zhu, 2024). By recognising the sociocultural values and conversion processes of the capital functions for ivory, we can better disentangle the subcultures

and communities that perpetuate its illegal and unsustainable consumption.

3.4.1 | Subcultural identity

The literature shows collecting behaviour drives personal ivory consumption. However, the social and cultural components of collecting beyond the point of purchase (i.e. assessing the product choice) are not deeply explored and so were not able to be mapped onto the BDM robustly. We suggest that subcultures are likely to exist within hobbyist and collector communities for ivory, which are not addressed in the literature for the unique identities associated with these groups that perpetuate the social acceptability of ivory. For example, in the traditional Chinese collecting hobby (*wénwán*, 文玩), collectors of cultural relics will be familiar with a taboo phrase 'one red, two black, three white' (*yīhóngèrhēisānbái*, 一红二黑三白) (Lam, 2018). This refers to the collecting of one helmeted hornbill (*Rhinoplax vigil*) (red), two rhino horns (black), and three ivory products (white). These products are often sought after for collectible value, where the value in collecting the products also extends to showcasing the expertise of the collector (Hatten et al., 2024). Through a CCT lens, where consumers are conceived of as identity seekers and makers, collectors of ivory may be influenced more heavily by the social value of ivory, despite the original purchase rationale being for personal consumption. Some will redevelop virtues of knowledge, confidence and hope through ivory consumption, potentially transcending social barriers of contemporary urban life (Holt, 2002). Furthermore, the belief that ivory products are important in Chinese cultural heritage will for some consumers give them reason to gift ivory as an authentic representation of Chinese culture in cultural and cross-cultural gifting exchanges (Shi et al., 2025). Moreover, the transition from viewing ivory as a financial asset to a collectible item reflects a broader change in how ivory is consumed in China. This shift indicates a growing emphasis on short-term value creation, as individuals seek to gain personal distinction, social prestige and cultural significance from ivory ownership. The literature does not explore these nuances, which are directly tied to social and cultural values.

3.4.2 | Anti-mainstream consumerism

We suggest CCT as a useful approach to untangle the concept of ivory consumption as driven by status competition in modern Chinese society where increasing pro-environmental attitudes can affect social norms (Wan & Deng, 2022). CCT explores the concept that symbolic boundaries of consumer subcultures may be entrenched for buyers by going against mainstream consumer culture and sensibilities (Kates, 2002; Kozinets, 2001). Thus, generating localised cultural capital within a subculture, may be reliant on anarchist approaches to consumer culture. This resonates with the finding that authenticity drives consumers' appreciation of ivory,

which may go against the collectivist social norms in China for following the law and increasing environmental awareness. Behaviour change interventions should consider the potential adverse effects and unintended consequences of raising awareness on ivory subcultures. Awareness initiatives centred on the social unacceptability of ivory, may promote a deeper connection for subcultures ostracised in their belief systems by such messaging and lead to an entrenching of their values and social positioning.

3.4.3 | Social relationships

CCT recognises that consumers sometimes form social connections through creating common interest groups from distinctive, fragmentary and self-selected communities (Arnould & Thompson, 2005). The social acceptability of ivory can be influenced by injunctive and descriptive norms in these groups. The former prescribes social expectations of behaviour based on group expectations, and the latter influences behaviour by reflecting what others in the group are doing. These norms could support the acceptability of ivory, for example, as a collector's item or as a gift. Gift giving is a tangible expression of social bonds enabled by reciprocal social exchange, which is a key element of Chinese social networks (Bian, 2002). The importance of these norms directly informs the social identities of ivory gift givers and recipients. These are fundamentally guided by the entrenched and uniquely Chinese social norms of interpersonal relationships and network building based on reciprocity (*guānxi*, 关系) (Davies et al., 1995), and *face*, be that having, giving, losing, or saving face (Hwang, 1987; Shou et al., 2011). Therefore, interpersonal social and cultural norms are critical to understanding the sociological constraints of ivory consumers (Aung et al., 2017).

4 | DISCUSSION

To effectively manage Chinese demand for ivory, a diverse range of interventions is required to affect different consumer segments at different scales (Veríssimo et al., 2024). Based on the limited evidence available, it will be challenging to design and implement evidence-based interventions, such as social marketing interventions for diehard buyers without deeper sociological and psychological exploration of their behaviours (de Lange et al., 2021). However, the behavioural insights available are useful for broader interventions to target consumer groups who are more receptive to pro-environmental messaging and legal and governance framing (WWF, 2022).

We found that gift giving is not meaningfully addressed in the literature despite being a key purchase rationale. Similarly, we found no evidence that supports the analysis of ivory possession or disposal behaviours. Understanding how people live with, display, wear, use, discard and hide ivory, is all determined by diverse social and cultural values that could be targeted by

interventions, if better understood (Thomas-Walters et al., 2024). For example, in Việt Nam, social groups, relationships and peer expectations critically shape motivations to consume rhino horn (Chaudhry, 2020; Dang Vu et al., 2020; Dang Vu & Nielsen, 2022; Nguyen et al., 2021; Olmedo et al., 2018), and bear bile (Davis et al., 2025). Recent evidence suggests that emotional fulfilment drives consumers to gift rhino horn to relatives and friends because it conveys an ultimate form of duty, empathy, and compassion (Nguyen et al., 2021). Moreover, Dang Vu and Nielsen (2018) found tangible utilitarian values (e.g. medicinal) and intangible hedonic values (e.g. rarity conferring status) that drive rhino horn consumption but are not adequately targeted in demand management interventions. Drawing on these wider insights and our finding that there is little understanding of the behavioural determinants of ivory gifting, we suggest future research address understanding of the network-building behaviours enabled through ivory gift giving in different social and professional connections (Shi et al., 2025; USAID Reducing Demand for Wildlife, 2022). This could help target specific subcultural groups' gifting behaviours (e.g. cultural heritage tourists) to strengthen the design of future behaviour change interventions (Thomas-Walters, Cheung, et al., 2020).

We found a lack of investigation into many psychological components of the BDM that could affect ivory consumer behaviour. Factors such as self-efficacy and its subdimensions of *confidence*, *self-image*, *agency*, *decision autonomy* and *social mobility* are highly relevant and underexplored in their effects on ivory consumer conceptualisation of social status (Yang, 1986). From a CCT perspective, consumers negotiate their identity, status and social power through consumption practices, especially within culturally embedded contexts, such as heritage tourism, where ivory is marketed to Chinese tourists (GI-TOC, 2025; Nguyen & Frechette, 2017; Vigne, 2013). The widespread commodification of illegal wildlife products through cultural framing is used by wildlife traffickers to enable consumption (Lappe-Osthege & Duffy, 2024). This is increasingly seen in Laos, where ivory, rhino horn and other status-conferring wildlife products are portrayed as appropriate gifts and souvenirs as part of cultural heritage activities (GI-TOC, 2025). Applying Urry's (1990) concept of the 'tourist gaze' here to understand the difference between the individual tourist's preferences and the romanticised collective tourists' gaze, there are diverse motivating values and beliefs enabling unsustainable behaviours of tourists to be understood and targeted with behaviour change interventions (Husa, 2015; You & Hardwick, 2020).

Developing an understanding of consumers' limited rationality via *inconsistent commitment*, *habit and status quo*, *will power*, and *present bias* could be pertinent for exploring what affects behaviour under social pressure and expectations, such as during gift exchanges. The effects of cognitive biases including *information avoidance* and *cognitive dissonance* could also be explored. These biases are likely present for ivory consumers who simultaneously know of the ivory ban and uphold pro-environmental attitudes

yet buy small quantities of ivory. Mirroring challenges found in affecting the behaviour of consumers buying counterfeit luxuries, the characteristic of collectivist cultures of upholding social face could play a critical role in intensifying cognitive dissonance for consumers of illegal wildlife products (Li et al., 2020). Strategies to reduce the risk perception by counterfeit consumers involve intentionally selecting when, where and in front of whom to use counterfeits (Amaral & Loken, 2016). Consumers will mix the use of real and counterfeit products to disarm suspicion and base their use on the opportunity to gain social mobility and build social identity via different event opportunities, such as a wedding. Therefore, bias-based inquiries grounded in CCT's recognition of consumption as a socially and culturally embedded process, offer potential for informing interventions that go beyond designs centred on structural access and governance measures to tap into deconstructing accepted forms of social identity through the use of illegal wildlife products (Chen et al., 2023).

The BDM provided a structured way to understand ivory consumption behaviour. Conceptually, it is best understood as a high-level behavioural systems mapping exercise, rather than a prescriptive tool to design behaviour change interventions. Using the CCT was a necessary step to gain a deeper understanding of the behavioural constructs mapped through the BDM process. Experienced practitioners such as Dekens et al. (2024) have successfully used the BDM to identify gaps in understanding for community-based conservation interventions where robust qualitative data were collected. However, novice practitioners may be challenged practically by the large number of potential constructs involved, which could inhibit well-targeted and evidence-based interventions (Truong & Dang, 2017). In such cases, exploration of other high-level conceptual frameworks, such as the capability, opportunity and motivation-behaviour (i.e. the COM-B model) (Michie et al., 2011), may provide a simpler route for developing theory-based systems approaches for pro-conservation behaviour change. However, the behavioural insights of the synthesised BDM, supported by further theoretical grounding via CCT, enabled a deep understanding of wildlife consumption behaviours that could have been missed through using a higher level classification system. For example, drawing from Social Norms Theory (synthesised in the BDM) (Cialdini et al., 1990), the social 'opportunity' that could be identified using COM-B, such as a gifting exchange at a wedding, would not enable better understanding of descriptive norms (what others do), injunctive norms (what others approve or disapprove of) or cultural identity alignments the social opportunity generates. The reality for practitioners operating in the conservation field is a need to design effective behaviour change interventions with few resources and potentially low-quality and sparse behavioural evidence available (Veríssimo et al., 2024). To create comprehensive systems-based strategies that are effective in influencing sustainable behaviour change, we recommend the BDM is carefully used in combination with robust qualitative and quantitative behavioural evidence. Where possible, practitioners should address the most relevant behavioural theories underlying their BDM analysis to support deeper behavioural understanding.

This review highlights the need to deepen our sociological understanding of behavioural determinants for conservation behaviour change (Hinsley & 't Sas-Rolfes, 2020). Future research would be strengthened by diversifying our sociological understanding of wildlife-based material cultures, consumption and subcultures (Hebdige, 2013; Miller, 1995, 2013). Future research should aim to develop an understanding of the convertible nature of social, economic, symbolic and cultural capital for different wildlife products, identifying the importance of capital transformations for different consumer subgroups (Pret et al., 2016). Generating robust behavioural insights for social marketing interventions would help to tackle the social behaviours, such as gifting and collecting, which sustain social norms of unsustainable and illegal wildlife consumption (Nielsen et al., 2021; St John et al., 2010; Veríssimo, Bianchessi, et al., 2018).

AUTHOR CONTRIBUTIONS

Molly R.C. Brown, Colin M. Beale and Victoria K. Wells conceived of the study idea. Molly R. C. Brown designed the methodology, which all authors reviewed. Molly R. C. Brown and Shuo Gao collected the data and contributed equally to the screening of inputs. Molly R. C. Brown analysed the data and led the writing of the manuscript. Colin M. Beale and Victoria K. Wells supervised the study. All authors contributed critically to drafts and gave final approval for publication.

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CONFLICT OF INTEREST STATEMENT

The authors report that there are no conflict of interest.

DATA AVAILABILITY STATEMENT

There are no data associated with this paper.

STATEMENT ON INCLUSION

Our study was a systematic review based on secondary data rather than primary data. As such, there was no local data collection. However, lead author Molly Brown and co-author Shuo Gao's native and secondary spoken languages represent the regions of interest in the review, ensuring the appropriate interpretation of data and results.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Supporting Information S1. Search strings.

Supporting Information S2. Table of Systematic Review Codebook (ivory consumption behaviour-related variables).

Supporting Information S3. Table of systematic review records ($n=13$).

Supporting Information S4. Descriptive results—Review studies methodologies.

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