

The marketplace management of illegal elixirs: illicit consumption of rhino horn

V. Dao Truong^{a,b,c}, Madelon Willemsen^d, Nam V.H. Dang^{c,d}, Trinh Nguyen^d and C. Michael Hall^{e,f,g,h}

^aTourism Research in Economic Environs & Society (TREES), North-West University, Potchefstroom, South Africa; ^bDepartment of Tourism and Hospitality, National Economics University, Hanoi, Vietnam; ^cSocial Marketing Initiatives, Hanoi, Vietnam; ^dTRAFFIC International in Vietnam, Hanoi, Vietnam; ^eDepartment of Management, Marketing and Entrepreneurship, University of Canterbury, Christchurch, New Zealand; ^fDepartment of Geography, University of Oulu, Oulu, Finland; ^gLinnaeus University School of Business and Economics, Kalmar, Sweden; ^hFaculty of Management, University of Johannesburg, Johannesburg, South Africa

ABSTRACT

This article examines the consumption of illegally traded rhino horn. We conducted a survey on 608 males in Vietnam, a country that is identified as among the world's largest recipients of illicit rhino horn. We find that supposed health benefits, such as body detoxification and hangover treatment, were the most common reasons for rhino horn usage. Consumers also used rhino horn to display economic wealth, acquire social status, and initiate business and political relationships. We illuminate the shift in the perceived place of rhino horn from functional to symbolic: rhino horn is not only supposed to possess curative properties but through its circulation within social and professional networks is also considered part of the consumers' search for a sense of "self," a sense of "us," and the delineation of the "other." We discuss implications for strategies that serve to reduce or prevent further loss of the rhinoceros.

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Introduction

Illicit trade has become an important item on the agenda of national governments and international development organizations (Haken 2011). It covers a wide variety of illegal trading activities, including but not limited to human trafficking, illegal trade in natural resources, different types of intellectual property infringements, and trade in certain substances that are harmful to health and the environment, as well as smuggling of excisable goods (Haken 2011; WEF 2012). Although the global retail value of illicit trade is hard to measure precisely (WEF 2012), it has recently been estimated at about US\$650 billion (Haken 2011). This figure reaches approximately US\$2.1 trillion if illicit financial flows are taken into account (Haken 2011; WEF 2012). Illicit trade is widely recognized as being detrimental not only economically (e.g. reductions in government revenue) and environmentally (e.g. loss of wild animals and plants) but also socially (e.g. increase in transnational organized crime) (Haken 2011; Biggs et al. 2013; Bennett 2015).

Increasing media and policy attention is being given to the illicit trade in high-conservation-value wild fauna and flora, including the tiger, pangolin, elephant, and rhinoceros (Challender and MacMillan 2014; Challender, Harrop, and MacMillan 2015), which is primarily fueled by demand in Asian markets (Drury 2009, 2011; Arvidsson and Niessen 2015). Poaching and illicit trade in

wildlife, which is worth around US\$5–20 billion per annum, is considered the single most serious immediate threat to many species, even greater than habitat loss, climate change, and environmental degradation (Shepherd and Magnus 2004; Milliken 2014). In China and its border regions, pangolin populations have fallen by over 94% since the 1960s (Challender and MacMillan 2014). In central Africa, forest elephant populations have declined by 63% between 2002 and 2011 (Maisels et al. 2013). Tanzania's elephant numbers have reduced from more than 100,000 in the mid-1970s to over 70,000 in 2007. By the end of 2013, there were only 13,000 individuals in the wild (Milliken 2014). Therefore, trade regulations and bans, along with associated education and protection measures, have been strongly supported by the international community, governments, and conservation non-governmental organizations (NGOs). Primary among these is the implementation of the Convention on International Trade in Endangered Species (CITES) signed by 180 member countries as of July 2015. However, CITES regulations and national conservation policies appear insufficient to curb the international illicit trade in endangered species (Challender and MacMillan 2014; Challender et al. 2014; Milliken 2014; Bennett 2015).

The market for rhinoceros horn and the threat of extinction

Substantial media attention is being given to the plight of the rhinoceros (Figure 1), especially the fate of the world's last male northern white rhino that receives round-the-clock military protection in Sudan (Jones 2015). During the past century, all rhinoceros populations have decreased, with some critically endangered, and some becoming extinct. The number of rhinos in Africa and Asia has collapsed from about 500,000 in the early twentieth century to 70,000 in 1970 and only 29,000 in the wild today (SRI 2015). Three rhinoceros subspecies, the western black rhinoceros in Cameroon (*Diceros bicornis longipes*), the Javan rhinoceros in Vietnam (*Rhinoceros sondaicus annamiticus*), and the Indian Javan rhinoceros (*Rhinoceros sondaicus inermis*), have become extinct in recent decades. In South Africa, a country that is home to the world's largest rhino populations (Biggs et al. 2013) and where CITES entered into force in 1975, rhino poaching has risen by



Figure 1. Two white rhinos in Namibia. https://en.wikipedia.org/wiki/Rhinoceros#/media/File:Waterberg_Nashorn2.jpg.

5000% since 2008 (SRI 2015). Between 1990 and 2007, only 14 rhinos were killed on average annually (Milliken and Shaw 2012). However, this number increased to over 1200 in 2014 (South African Department of Environmental Affairs 2015). By the end of April 2015, the number of rhinos lost to poachers was 393 for the whole country, of which 290 were poached in the Kruger National Park (The Guardian 2015).

Milliken (2014) reports a 30-time increase in the illegal supply of rhino horns out of Africa to Asian markets from 2000 to 2013. This is largely due to the tremendous growth in the retail price of rhino horns, from around US\$4700 per kilogram in 1993 to about US\$65,000 per kilogram in 2012, making them more valuable per unit weight than gold or cocaine (Biggs et al. 2013). Another important reason is the boom of consumption culture and the rise of the “newly rich” across Asia that is fueled by rapid economic growth and increased disposable income (Guilford 2013; Arvidsson and Niessen 2015).

All international commercial trade in rhino horns and their derivatives is prohibited under CITES. As a result, demand for rhino horns can only be met through the illegal market. Historically there were two main markets for trade in rhino horns. The first is the Yemeni market where rhino horns were used to produce traditional dagger handles but which is no longer regarded as a significant consumer market (Ayling 2013). The second market is East Asia where rhino horns have long been considered to possess curative properties and are used to treat hangover, fever, rheumatism, gout, and strokes (Rabinowitz 1995; Ayling 2013).

Vietnam, a country where the indigenous Javan rhinoceros (*R. s. annamiticus*) was declared extinct in 2011, has since 2003 been recognized as among the world’s largest markets for illicit trade in African rhino horns (Guilford 2013; Brook et al. 2014). The extinction of the Vietnamese rhinoceros population did not stop local demand for rhino horn. Indeed, Asian-sourced rhino horn has been substituted with African rhino horn, particularly since trade routes were established (Brook et al. 2014). In the first five months of 2015 alone, at least 100 kilograms of illegally imported rhino horns have been seized by Vietnamese authorities (Ha An and Nam Anh 2015; Khanh Hoan 2015).

The use of rhino horn for health purposes in Vietnam can be traced back to as early as the thirteenth century (Milliken and Shaw 2012). The curative properties of many species of wild animals and plants are integral to Vietnamese ethnopharmacology (Do and Nguyen 1991). Since 2002, at least five Vietnamese language pharmacopoeias of plant and animal substances used in traditional medicine have been published that include specific sections on rhino horn (Milliken and Shaw 2012). Culturally, perhaps no business deal is complete in Vietnam without a dinner of exotic meats and expensive alcohol (Donovan 2004; Drury 2009, 2011), and rhino horn powder is used to create a mixture that is believed to “detoxify” the body (Milliken and Shaw 2012; Guilford 2013; this will be discussed further in the Results section).

Vietnam has been a signatory to CITES since 1994. The Government of Vietnam (GOV) has developed numerous policies with respect to conservation and trade to respond to the illegal trade in rhino horn and promulgated a variety of laws and decrees to govern the export, import, and re-export of wild fauna and flora (GOV 2002, 2006a, 2006b, 2008). In 2013, through the enactment of Decree 160/2013/ND-CP the GOV (2013) reaffirmed the prohibition of export, import, purchasing, and selling of wild animals and plants listed in CITES’ Annexes which covers both white (*Ceratotherium simum*) and black rhinos (*Diceros bicornis*) and their products. Violations of these laws and regulations are subject to two main types of penalties, depending on their severity. If a violation is considered serious in nature or constitutes a criminal offence, the revised copy of the Penal Code will be applied (GOV 2009). Penalties include fines of Vietnamese Dong (VND) 50 million (US \$2300) to VND500 million (US\$23,000), non-custodial (re)education for up to three years, or imprisonment for up to three years. In case a violation is regarded as an administrative infringement, which is less serious in nature and whose consequence is less severe than a criminal offence, the maximum fine is VND500 million. A number of campaigns have been undertaken by the GOV in collaboration with international NGOs to raise public awareness of wildlife conservation laws

and regulations (Truong and Hall 2013). These have largely been ignored because “with a single horn fetching as much as \$300,000, the risk of being caught probably seems to many poachers to be one worth running” (Guilford 2013).

The rhino horn trade nexus between South Africa and Vietnam is considered the most serious challenge to the conservation of South African rhinos (Milliken and Shaw 2012). However, little empirical data exist on the Vietnamese consumers who drive demand, with usage described by Milliken and Shaw (2012, 8) as largely remaining “an undocumented mystery” primarily based on “observational and anecdotal accounts.” Based on interviews and the literature review, Milliken and Shaw (2012) identified four main groups of rhino horn consumers: terminally or seriously ill patients; affluent habitual users who believe that it improves their health; an emerging group of middle- to upper-income mothers, who keep rhino horn at home to treat high fever in their children; and those who use rhino horn as an expensive gift to gain socio-economic and political advantage (Milliken and Shaw 2012).

Purchase and use of rhinoceros horn appears highly gendered. IPSOS (2013), a Vietnamese marketing research company working as a consultant for international conservation NGOs TRAFFIC and WWF, suggests that while purchasers include female, middle-aged, wealthy and educated (i.e. get formal schooling) entrepreneurs, end-users are predominantly wealthy, older males. IPSOS (2013) indicates that income is the main barrier to rhino horn purchase and suggests that local consumers use rhino horn for purposes ranging from treating hangover and fever to detoxifying the body, treating cancer, and enhancing sexual potency. Others purchase rhino horn to demonstrate personal wealth and/or social status as well as strengthen relationships in professional networks (IPSOS 2013). In 2013, TRAFFIC surveyed 720 people in Hanoi and Ho Chi Minh City (HCMC) and reported that the main buyers of rhino horn tend to be women in their 50s while the end-users are primarily men aged over 40 years who are educated, successful, and influential within local society (TRAFFIC 2013).

The analysis of the illegal trafficking of wildlife, including rhino horn, has received considerable interest from criminology and law, especially with respect to the role of corruption, organized crime, and international environmental and wildlife law (Warchol, Zupan, and Clack 2003; Warchol and Johnson 2009; Herbig and Warchol 2011; Lavorgna 2014). Yet while such studies of the governance and regulatory dimensions of international wildlife trafficking are significant, especially with respect to issues of implementation, they often fail to give adequate attention to the behavioral dimensions of poaching and end consumption in the wildlife poaching and trafficking system (Kahler and Gore 2012; Wyatt 2013; Challender et al. 2014; von Essen et al. 2014). Regulatory and legal approaches undertaken in isolation limit both the range and the level of success of any behavioral intervention that may seek to alter poaching and consumer behavior. Therefore, in recent years there has been greater focus on community-based interventions that seek to reduce poaching and reframe the economic and social values of wild species, often by emphasizing their value as a tourism resource (Truong and Hall 2013; Steinmetz et al. 2014). However, the territorial focus of behavioral interventions has tended to be in the target species’ environment rather than in the locations of demand, even though there is a growing recognition of the importance of such research (Gratwicke et al. 2008; St John, Edwards-Jones, and Jones 2011; Challender et al. 2014; Ngwakwe and Mokgalong 2014; St John et al. 2014). As Litchfield (2013, 1168) noted with respect to rhino poaching, “Psychological principles of persuasion, attitude, and behavior change have been used effectively for many decades, but they have been largely ignored or underutilized within biodiversity conservation.” To achieve desired behavioral change, therefore, requires exploration of the “dark side” of rhino horn consumption.

Research methods

Although studies of public attitudes toward the consumption of illegal wildlife products are not particularly problematic (Liu et al. 2015), the illegality of the rhinoceros horn trade creates significant

challenges for undertaking end-consumer research. This situation is similar to some of the problems of studying the behaviors of consumers of illegal drugs (Johnson and Golub 2007) or other illegal wildlife products (Gratwicke et al. 2008). Therefore, a systematic stratified sampling approach focusing on male end-users was employed (Kish 1987; St John et al. 2014).

Hanoi and HCMC were chosen as the study sites, given that previous research had identified them as the two main rhino horn import destinations in Vietnam (Milliken and Shaw 2012). Following previous research on end-users of rhino horn (IPSOS 2013; TRAFFIC 2013) and related products (Drury 2009, 2011) in Vietnam, respondents were required to be male residents of the study locations for at least six months prior to the survey. Given the high retail price of rhino horn, respondents were also required to earn a monthly income of VND30 million (US\$1400) or higher, which was the estimated monthly income of Vietnam's middle and affluent consumers in 2013 (Bharadwaj et al. 2013).

Potential respondents were identified via a combination of spatial, demographic, and random sampling measures (Hesse-Biber 2010). Given the unavailability of spatially referenced earnings data, a list of high-end residential communities in Hanoi and HCMC was identified based on General Statistics Office of Vietnam data (2010, 2012, 2014). Interviews with 10 representatives of real estate firms in each city indicated other areas not included on the initial list. This resulted in the identification of 33 areas in Hanoi and 57 areas in HCMC. A total of 6161 households (3270 in Hanoi and 2891 in HCMC) in these areas were randomly selected, with 3260 households meeting the criteria of having a male member aged 30 or above and earning a monthly income of VND30 million or higher (1728 in Hanoi and 1532 in HCMC). The male members of these households were then screened for compliance with the length of residence inclusion criterion. Of these, 608 men satisfied all the criteria and were thus included in this study.

A questionnaire was designed in Vietnamese and translated into English, with input from international conservation NGOs and research companies (TRAFFIC Vietnam, WWF Vietnam, Population Services International Vietnam, and IPSOS). It was first piloted on 60 of the identified 608 men in Hanoi and HCMC, who were approached face-to-face by the survey team (i.e. home visits). Given that rhino horn consumption is illegal, some of these men were not comfortable participating in the survey. They were, however, more willing to complete the questionnaire after the survey team had assured that the survey would be used for research purposes only and that their personal information would be kept strictly confidential. Some minor revisions were made based on their feedback. Then the survey was delivered face-to-face to the identified 608 men (307 in Hanoi and 301 in HCMC), with their written informed consent being obtained. Respondents were assured of the confidentiality of their identity as well as their responses. Assistance was provided by the survey team to ensure that every respondent completed the questionnaire properly, although the team refrained from interfering into the respondent's choice of answers. Respondents reserved the right to choose their preferred location where they wanted to meet the survey team (e.g. at home, workplace, or coffee shops). The number of survey respondents was slightly greater in Hanoi than that in HCMC because more households in the former met the age and income inclusion criterion than those in the latter, as noted above. The survey was undertaken from September to November 2014. The main results are presented in the next section and are supplemented with primary and secondary evidence where necessary.

Results

Profiles of rhino horn consumers

Of the 608 respondents, 287 (47.2%) reported having consumed rhino horn prior to the survey and 321 (52.8%) having never used rhino horn in their lives. Of those having used rhino horn, 142 (49.48%) resided in Hanoi and 145 (50.52%) lived in HCMC. The mean age of those in Hanoi was 43 years and those in HCMC 45 (Table 1). A large majority of consumers (88.5%) reported

Table 1. Profiles of rhino horn end-consumers.

	Hanoi (<i>n</i> = 142)		HCMC (<i>n</i> = 145)		Total (<i>n</i> = 287)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Mean age	43	–	45	–	–	–
Education						
Secondary and high school graduate	1	0.7	2	1.38	3	1.05
University graduate and higher	141	99.3	143	98.62	284	98.95
Marital status						
Single	12	8.45	21	14.48	33	11.5
Married	130	91.55	124	85.52	254	88.5
Occupation						
Self-employed (without employees)	44	30.98	42	28.96	86	29.97
Business owner (with employees)	18	12.68	26	17.93	44	15.33
Government official and worker	49	34.51	34	23.45	83	28.92
Other	31	21.83	43	29.66	74	25.78
Average monthly income (million VND)						
Household	64	–	57	–	–	–
Individual	41	–	35	–	–	–

being married, with 98.95% being university graduates and higher. About 74% of them were self-employed, business owners, or government officials. Slight differences were found between Hanoi and HCMC with respect to the self-employed and business owner groups, although a greater proportion of respondents in Hanoi (34.51%) work in the government sector than those in HCMC (23.45%). One reason is that Hanoi is the capital city of Vietnam and is therefore home to a larger number of government offices. In terms of income, the 287 consumers reported high levels of disposable income, with an average monthly household income of VND60.5 million (US\$2700) and average monthly individual income (of the male respondent) of VND38 million (US\$1700). These incomes were relatively higher than those of the non-user group (VND53 million and VND33 million per month, respectively). This is despite there being no significant statistical differences in terms of age and occupation between the user and non-user groups.

Rhino horn consumption: motivations and knowledge

Health-related motivations were reported by 87.8% as a reason for using rhino horn. Reducing hang-over accounted for nearly half (47.39%) of respondent use, followed by those using rhino horn to detoxify their body (30.66%). This use of rhino horn has its root in the Chinese traditional medical practices where practitioners characterize rhino horn as having bitter, acidic, and salty properties. These attributes of rhino horn are believed to be effective in reducing temperature and cleansing the body of toxins (Ayling 2013). It is common nowadays that rhino horns are ground to become a fine powder, which is then mixed with water to generate a milky liquid. The high demand for rhino horn has led to the introduction of specially made grinding bowls in the local marketplace (see Milliken and Shaw 2012).

The use of rhino horn to treat life-threatening diseases, particularly cancer, was reported by 7.67% of respondents. An estimated 130,000–160,000 new cases of cancer are reportedly identified in Vietnam annually, a number that continues to rise (Thanh Lan 2015). Given the limited availability of radiotherapy in local hospitals, patients may turn to rhino horn as a cure for cancer although its efficacy has never been confirmed in the extant peer-reviewed medical literature. To the contrary, rhino horn is made up of keratin that is similar to human fingernails (SRI 2015). Rhino horn consumption for cancer treatment appears to have been driven by local dealers targeting desperate cancer patients (Milliken and Shaw 2012; Ayling 2013). To convince cancer patients, these dealers even make up stories about high-ranked political leaders having saved their family members' and relatives' lives by consuming rhino horn (Milliken and Shaw 2012; Guilford 2013). Demand for rhino horn has been fueled further by government officials, for example Doctor Tran Van Ban, Vice Director of

Table 2. Knowledge about rhino horn consumption.

	Mean	Std. deviation	Std. error mean
Rhino horn can enhance sexual potency	2.33	1.030	0.061
Rhino horn brings me peace of mind, helping me treat major illnesses if needed	2.77	1.118	0.066
Rhino horn can reduce hangover	3.31	1.205	0.071
It is acceptable for people in my network to use rhino horn	2.97	1.120	0.066
Rhino horn is a symbol of power/strength	2.37	1.138	0.067
Other available products bring the same health benefits as rhino horn (e.g. aspirin for fever, other detoxification agents)	3.57	1.052	0.062
Rhino horn helps me gain respect/admiration from others	2.30	1.000	0.059
Rhino horn makes me feel I belong to the upper class	2.78	1.187	0.070
Displaying rhino horn at home can bring good fortune/luck	1.93	0.839	0.050
Gifts of rhino horn can strengthen my business relationships	3.37	1.154	0.068
Rhino horn can help detoxify the body	3.29	1.196	0.071
I am worried about fake rhino horn and how to find authentic one	3.90	1.029	0.061
Possessing rhino horn is trendy among the wealthy community	2.96	1.188	0.070
Rhino horn can reduce fever	2.79	1.083	0.064
Rhino horn is a symbol of wealth	2.64	1.136	0.067
I wonder whether it is wise to spend so much money on rhino horn given limited evidence of effectiveness	3.59	1.002	0.059

Note: $N = 287$; 1 = strongly disagree; 3 = neutral; 5 = strongly agree. Cronbach's alpha: 0.817.

Vietnam's Oriental Traditional Medicine Association, at a 2010 meeting with South African officials tried to defend the idea that rhino horn could play a useful role in destroying cancer cells (see Milliken and Shaw 2012). Only a small number of respondents (4.88%) reported purchasing rhino horn for home decoration or as a gift. Similarly, despite several previous studies suggesting that rhinoceros is being promoted as conducive to sexual stamina and potency (Milliken and Shaw 2012; IPSOS 2013; TRAFFIC 2013), few respondents (2.09%) reported using rhino horn for this purpose.

The male consumers' knowledge of, and attitudes toward, rhino horn consumption was also examined (Table 2). Although Vietnam has been identified as one of the world's largest recipients of illicit rhino horn, it is also recognized that a substantial proportion of rhino horn products available in Vietnam are fake. This comes as a result of the high demand for authentic rhino horns and of the high profits that dealers can earn from selling the fake ones. Fake rhino horns are reportedly made from buffalo or cow horns or even compressed hair and plastic (see, e.g. Milliken and Shaw 2012). Therefore, many respondents were worried over fake rhino horn and finding authentic horn (highest mean value: 3.9). In addition, many of the respondents were wondering if it was wise to spend a huge amount of money on it (mean value: 3.59). This is in part because they were aware that many legitimate medical products available in the local market might offer similar health benefits (mean value: 3.57). On the other hand, this evidence suggests the complexities, conflicts, and contradictions in the respondents' attitudes toward the wisdom or otherwise of the consumption of rhino horn that are referred to as "consumer cynicism" (toward the market as well as local dealers who target cancer patients) in the consumer research literature (Bertilsson 2015).

Relatively high mean values were found in the statements involving the efficacy of rhino horn in strengthening business ties, treating hangover, and detoxifying the body (3.37, 3.31, and 3.29, respectively). This finding helps reinforce the suggestion that the identified consumers tend to believe in the efficacy of rhino horn in hangover treatment and body detoxification. Meanwhile, other supposed social and medicinal values of rhino horn received relatively negative or neutral responses. For example, many of the respondents did not believe that rhino horn could bring good luck or fortune (mean value: 1.93).

Rhino horn consumption: frequency and acquisition sources

Respondents were asked to indicate how often they used rhino horn in the previous 12 months prior to the survey (Table 3). Nearly 80% of them reported using rhino horn "less than once" and "at least

Table 3. Rhino horn consumption: frequency and main acquisition sources.

	Hanoi (n = 142)		HCMC (n = 145)		Total (n = 287)	
	N	%	N	%	N	%
Frequency of consumption in last 12 months ^a						
At least once a week	16	11.27	11	7.59	27	9.41
At least once a month	20	14.08	14	9.66	34	11.85
At least once a year	71	50	92	63.45	163	56.79
Less than once a year	35	24.65	28	19.31	63	21.95
Who was with you when you used rhino horn? ^b						
Nobody	27	19.01	23	15.86	50	17.42
My family members/relatives	21	14.79	13	8.97	34	11.85
My friends	79	55.63	86	59.31	165	57.49
Business colleagues	14	9.86	19	13.10	33	11.50
Other	1	0.70	4	2.76	5	1.74
Main acquisition sources						
I bought it	34	23.94	30	20.69	64	22.30
Others gave me	37	26.06	49	33.79	86	29.97
My family member bought it	12	8.45	15	10.34	27	9.41
Did not own, just used it with others	59	41.55	51	35.17	110	38.33

^aIn the last 12 months prior to the survey.

^bThe last time prior to the survey.

once.” Those using rhino horn at least once per week and per month accounted for about 20% (61), of which about 95% (58) reported using rhino horn for body detoxification (20) and hangover treatment (38). This finding suggests that although rhino horn is highly desired by the identified consumers, it appears not to be consumed frequently. This is possibly because it is supposed to have some curative properties and hence is used on particular occasions only. Another reason is that it tends to be highly priced as noted above.

The identification of the possible social network(s) within which rhino horn was consumed was also of interest. Respondents were asked to recall who was with them when they last used rhino horn prior to the survey. Over half (57.49%) indicated that they were with their friends, while no difference was found between those being with their family members/relatives and those with their business colleagues (11.85% and 11.5%, respectively). Those consuming rhino horn without the attendance of family, friends, or colleagues accounted for 17.42%. This finding can be explained by the fact that a number of rhino horn user clubs or associations exist in different parts of Vietnam, whose members seek to demonstrate their social status, share rhino horn derivatives, and establish and maintain contacts with people in important social and political positions via networks of exchange and reciprocity. These members are often familiar with each other and are trusted within their circle because rhino horn consumption is illegal (Milliken and Shaw 2012; TRAFFIC 2013). This finding is relatively consistent with that of studies on consumption and cultures which suggest that material products may play an important role in the construction of social identities and relationships (Debenedetti, Oppewal, and Arsel 2014; Kuruoğlu and Ger 2015). By consuming and sharing rhino horn products within social clubs and networks, consumers create, and enjoy, a sense of “self” (individual identities), a sense of “us” (the feeling of belonging to a (status) “community”), as well as the delineation of the “other” (who do not belong to this “community”). Members of such social clubs and networks share ideological beliefs in the emotional benefits of rhino horn (a means of communicating social status) in addition to its supposedly medicinal properties (Kuruoğlu and Ger 2015). However, it is also within these social clubs and networks that lies a paradox. Instead of delineating the individual members from the social groups, this display of wealth and status is enforced through the desire to fit in with the groups. Put another way, if group members prescribe rhino horn products and their consumption as socially appropriate, then a good member must conform to such display of wealth and status in order to fit in (Wong and Ahuvia 1998).

Nearly 70% of male end-consumers did not purchase rhino horn themselves. Instead, they were given (29.97%) or shared (38.33%) it and this might include friends or partners in their social and professional networks as discussed above. Because a large number of survey respondents are business people and government officials (Table 1), rhino horn is considered a valuable gift to gain business and/or political advantages given its rarity and economic values (Milliken and Shaw 2012; Guilford 2013). Culturally, Vietnamese people respect authority and have a high regard for political leaders (Drury 2011) to whom offering gifts is attached particular importance (Wong and Ahuvia 1998; Milliken and Shaw 2012). The value of a gift to some extent reflects the weight of the relationship and a change in the value may reflect the changing nature of the relationship (Sherry 1983). The giving of rhino horn as a gift has multiple dimensions. The social dimension is about building and maintaining meaningful relationships with business and/or political elites. The economic domain involves exchange where the giver confers material (high price) and emotional (social status) benefits on the recipient who in return may entitle the giver to some commercial and/or political benefits. In the personal domain, the act of gift giving rhino horn reflects the perceptions of the giver and the recipient regarding the identity of “self” and “other” (Debenedetti, Oppewal, and Arsel 2014).

More than 20% of respondents reported purchasing rhino horn themselves, while a significantly smaller proportion (9.41%) indicated that family members purchased it for them. This finding suggests that men are also an important direct participant in the purchase of rhino horn. One possible reason is that rhino horn is highly priced and in Vietnamese culture “big” (i.e. high-value) deals are often left to the hands of men (Donovan 2004).

Rhino horn consumption: use of communication channels

The identification of communication channels through which the identified consumers obtain information regarding the efficacy of rhino horn and/or where to buy it is important because it may help inform future behavioral change interventions. A total of 490 responses were collected, given that more than one communication channel could be reported by respondents.

Findings suggest that television (TV) and radio (34.08%) and the Internet (25.71%) are the two most popular channels through which the identified consumers get rhino horn information. An estimated 98% of Vietnamese households own a TV (Broadcasting Board of Governors 2013) and 43.9% have home access to the Internet (World Bank 2014). It is illegal to advertise rhino horn on TV and radio although not to discuss its medical efficacy, such programs may also be uploaded onto social media (e.g. Vietnews Television 2011). The supposed curative properties of rhino horn have also been disseminated through online newspapers and magazines which, for example, claim that “rhino horn with wine is the alcoholic drink of millionaires” and that “rhino horn is a miracle medicine” (see Smith 2015). Other channels, such as family members and relatives, are reported by few respondents only.

Attitude toward future consumption of rhino horn

In order to examine male consumers’ intention of and attitudes toward future rhino horn consumption, responses were sought to a series of statements using a Likert scale (Table 4). Table 4 indicates that the respondents would most likely use rhino horn in the future to reduce hangover, detoxify the body, and treat cancer or other serious diseases. They would also more likely consume rhino horn that is offered as part of a business deal. This finding again suggests that there appears a shift in the perceived place of rhino horn among the identified male end consumers from functional (i.e. supposed medicinal benefits) toward symbolic (i.e. a means of gaining business and political advantages and/or communicating social leverage). It is, however, notable that these statements have the highest standard deviations, which suggest that the respondents were divided about using rhino horn for these purposes.

Table 4. Attitude toward future rhino horn consumption.

	Mean	Std. deviation	Std. error mean
If a friend/colleague recommends rhino horn, telling you it will help reduce your hangover, would you use it?	3.71	1.514	0.089
If a friend or health professional recommends rhino horn to cure cancer or another serious illness, would you use it?	3.29	1.556	0.092
If a friend/colleague recommends rhino horn for body detoxification, would you use it?	3.13	1.557	0.092
If a friend/colleague offers you rhino horn as part of a partnership/deal, would you accept it?	3.65	1.467	0.087
If a spiritual leader recommends displaying rhino horn as a spiritual object at home, would you do it?	1.60	1.023	0.060
If a friend/colleague recommends you to use rhino horn for peace of mind, would you use it?	1.86	1.244	0.073
If a friend/colleague recommends rhino horn to enhance your sexual potency, would you use it?	1.98	1.321	0.078

Note: $N = 287$; 1 = least likely; 3 = neutral; 5 = most likely. Cronbach's alpha: 0.720.

Discussion

If illicit poaching and trade continue to accelerate, it is predicted that Africa's remaining rhino populations may become extinct within the next 20 years (Biggs et al. 2013). The growth in global illicit wildlife poaching and trade suggests that the implementation of current regulatory and education interventions by the international community (most notably CITES), governments, and conservation NGOs has not been sufficient (Biggs et al. 2013; Challender and MacMillan 2014; Bennett 2015). Although enforcing a trade ban may cause a reduction in supply, it does very little to address the forces that drive consumer demand, including the role of rarity value in increasing status as a luxury good (Donovan 2004; Courchamp et al. 2006). Studies of consumption and cultures suggest that demand is complicated, multi-faceted, and is driven by a range of factors (Drury 2009, 2011; Fabinyi 2011; Kuruoğlu and Ger 2015). As such, conservation efforts that reduce the social, cultural, and economic complexity of illicit wildlife trade into a simple law enforcement problem (alongside associated educational and aware raising measures) will likely fail to address the underlying drivers of poaching and trade (Challender and MacMillan 2014). It is, therefore, necessary to gain a greater understanding of consumer demand if interventions and policies are to become more effective (Drury 2011; St John, Edwards-Jones, and Jones 2011).

This paper has sought to fill in this gap in knowledge by identifying the characteristics of rhino horn end-consumers in Vietnam, a developing country that has been identified as one of the world's largest recipients of illicit rhino horn (Milliken and Shaw 2012; Ayling 2013; Milliken 2014), but where only until recently have local consumers become the target of research (Drury 2011). Consumer-targeted campaigns have, therefore, been based on very limited knowledge of consumer behavior, which significantly affects the design of any measures to reduce demand (Drury 2009, 2011; Truong and Hall 2013). The results of the survey on which this research is based show that the end-consumers of rhino horn are generally educated, high earning, and influential within local society. Nearly 90% of respondents reported using rhino horn for health-related purposes, including hangover treatment and body detoxification. This is despite these medicinal properties of rhino horn having never been confirmed in the extant medical and related literature.

There is thus a need for government agencies and conservation NGOs, as well as relevant stakeholders to establish and maintain meaningful relationships with the press and collaborate with traditional medical practitioners to convince the public that health problems do not require rhino horn derivatives; in fact, many legitimate medical products available in the local market (1) may provide curative efficacy and (2) will not contribute to the possible extinction of an endangered species, that is, the rhinoceros (see also Milliken and Shaw 2012; Lee et al. 2014). This is a potentially effective means to debunk the myths that surround the medicinal efficacy of rhino horn, given that a considerable number of survey respondents appeared aware that their health could be improved with readily available legitimate medicines, as discussed earlier.

In addition, an Endangered Species Certification Scheme may be developed, like the Chinese Traditional Medicine Endangered Species Certification Scheme (Lee et al. 2014), to engage traditional

medical practitioners as well as dealers in the fight against rhino horn consumption and to provide a mechanism for them to publicly promote that they do not use or support the use of traditional medical products that contain illegally traded rhino horn ingredients. Furthermore, it is necessary to remove rhino horn information from pharmacopoeias and related medical texts (which was done by the Chinese government in the 1990s; Guilford 2013) as well as social media (e.g. online newspapers and magazines) and this requires changes in national conservation policies and relevant regulations.

This research has also shown that the symbolic function of rhino horn as a medium to communicate status and prestige and obtain social leverage appears to be gaining greater prominence as disposable income grows and this makes the reduction of demand extremely challenging. This finding is relatively consistent with studies of consumption and cultures which indicate that through the conspicuous consumption of luxury goods consumers obtain real and symbolic benefits that allow them to express a desired social image, further their identity, and extend social alliances and relationships in a status-conscious society (Schroeder and Zwick 2004; Perez, Castaño, and Quintanilla 2010; Drury 2011; Zayer et al. 2012). It is significant that the profile and rationale of rhino horn users is extremely similar to consumers of bushmeat in Vietnam (Drury 2011) and other Asian countries such as China (Li, Hua, and Sun 2008) with the two often being part of the same social event (see also Donovan 2004). The end-consumption of both products is highly gendered and male dominated and associated with wealth and status.

Given that rhino horn consumption is an illegal activity, social and professional clubs and networks are formed through which members exchange information about rhino horns, their medicinal properties, and where to buy them. These clubs and networks also serve as a platform for members to demonstrate their economic wealth and social status, as well as to establish business and political relationships, as discussed above. On the one hand, the establishment of such clubs and networks may be considered as a form of consumers' reactions toward legal regulations on illicit rhino horn trade and consumption. On the other, they serve as a social space in which members can collectively move beyond the "mundane" (i.e. medicinal) function of rhino horns and into their value as a means of acquiring social leverage and economic/political benefits.

As such, the consumption of rhino horns within social networks is not merely driven by health-related motivations but also can be considered part of a search for pleasures among wealthy males. The pleasures of consuming rhino horns appear to be intensified when the experience is shared with other like-minded people, an emotional state that was referred to by Durkheim (1995) as "collective effervescence" and which was categorized by Tiger (2000) as "sociopleasure," that is the pleasure of sociality, of being with others. This social structure to which rhino horn consumers are affiliated may become more solid over time as pleasures intensify and the ties between members strengthen (see also Kuruoğlu and Ger 2015). It is significant that this form of pleasure seeking also appears popular among (ab)users of other illicit products, such as drugs (see, e.g. Rose, Bearden, and Teel 1992; Rose, Bearden, and Manning 2001; Goulding et al. 2009). As Kaplan, Martin, and Robbins (1985, 208) argued:

the individual's disposition to use illicit drugs is generally felt to be congruent with the values shared by members of the person's membership/reference group. In situations where the illicit use of drugs is compatible with group values, the person will be disposed toward the use of these drugs, particularly under conditions where experiences in the group are characterized by conformity to and acceptance by group members. (see also Rose, Bearden, and Teel 1992)

It is thus plausible to argue that the emotional benefits associated with the consumption of (illicit) material objects contribute to "sticking" individuals, binding them together in networks, at the same time differentiating them from others.

Drury (2009) found that in the case of bear bile, the most common wild animal-derived medicinal product used by Hanoians, its capacity to communicate prestige has been reduced due to increasing bear bile farms making it more accessible to consumers. However, this option is not available with rhino horn and its high price and rarity value has only reinforced its luxury good status (Courchamp

et al. 2006). Drury (2011, 247) observes that, “Influencing consumer behavior over the long term requires social marketing expertise and has to be informed by an in-depth understanding, achieved using appropriate methods, of the social drivers of consumer demand for wild animal products.” Yet the role of rhino horn as a luxury good in status-conscious society, such as Vietnam, makes behavioral interventions extremely difficult. Drury (2011, 255) also suggests that “it is likely that only strengthened regulation and enforcement will prevent demand being met by consumers prepared to pay the rising costs of finding the last individuals of a species.” Unfortunately, in the case of the Javanese Rhinoceros in Vietnam such enforcement was not met.

Although the target end-user audience is clear, social norm approaches to social marketing interventions with respect to wildlife and the environment (Challender et al. 2014; Hall 2014; St John et al. 2014; Truong 2014; see also Truong et al. 2015) face considerable challenges. While individuals may be willing to change consumption behaviors in home environments, collective interests and the symbolic place of rhino horn in social networks means that refusal to consume or serve rhino horn may be interpreted as putting personal interests ahead of those of the group (Drury 2011; Fabinyi 2011).

Therefore, the success of any campaign is likely to be affected by the extent to which the most high-status individuals and officials in the country adopt behaviors that place higher value on refusing rhino horn than receiving it. Consumer-targeted campaigns that associate members of high-status groups and networks with the rejection of gift giving and receiving rhino horn and/or encourage them to adopt new forms of gift giving may be appropriate methods of achieving conservation goals (Fabinyi 2011). By reducing the social attraction of rhino horn through its disassociation with high-status members of society, such interventions may produce long-term demand reduction effectiveness. As these high-status members begin to stop their conspicuous consumption, the effects may cascade down to people in less affluent groups, who may feel the need to conform to perceived new high-status norms (Wong and Ahuvia 1998). Such actions together with interventions that reduce symbolic and efficacy values together with associated regulatory acts potentially provide a basis for gradually reducing the symbolic value of rhino horn.

The results of this research, alongside those of some previous studies (IPSOS 2013; TRAFFIC 2013), have contributed to informing TRAFFIC, an international conservation NGO (which was also the sponsor of the survey on which this study is based), in the formulation and implementation of measures against rhino horn consumption in Vietnam. In June 2014, TRAFFIC launched the Chi campaign that adopts a social marketing approach to reduce demand for rhino horn derivatives. While the campaign also aims to raise public awareness of rhinoceros conservation, it primarily targets high-earning, successful businesspersons and government officials residing in urban areas of Vietnam (TRAFFIC 2015). A range of activities have been undertaken. Billboards and posters have been placed in government offices in different parts of the country. Collaboration has been established with Vietnam Airlines who disseminates campaign messages to business passengers on board its flights. These messages are integrated in the airlines’ ticket envelopes/holders and are featured in its in-flight Heritage magazine. Other communication channels include TV, radio, as well as print and online business newspapers and magazines (e.g. *Vietnam Investment Review*, *Vietnam Business Forum*). Campaign materials have also been delivered to business people’s social and professional networks such as golf clubs (TRAFFIC 2015).

Furthermore, the campaign has been collaborating with government agencies as well as other conservation NGOs to produce public service announcements (PSA) that feature successful business people, high-profile government officials, political leaders, leaders of the Youth Union, and influential medical experts (see, e.g. Dang 2015). Given their personal reputation and influence within local society, these figures contribute to debunking the myths that surround the medicinal properties of rhino horn. In its second year of operation, the campaign is working further with government officials not only to engage them in PSAs against rhino horn consumption but also to review national policy and legislation on rhino horn trade in order to identify and close legal gaps and loopholes (TRAFFIC 2015).

Previous social marketing campaigns, which are aimed at preventing/reducing consumption of other illicit products such as drugs, may offer important lessons for conservation NGOs attempting to protect the rhinoceros. Drawing upon the knowledge that the perceptions of peer group attractiveness have significant impact on young people's choice of conformity to or decline of offers of illicit substances, the US Centre for Disease Control created radio advertisements that were aimed at undermining the attractiveness of smokers by describing them as mentally unwise and physically unappealing with yellowed teeth and bad breath (Rose, Bearden, and Manning 2001).

Similarly, the US Office of National Drug Control Policy implemented the National Youth Anti-Drug Media Campaign where incentives were offered to cinema and TV program producers to present substance abuse in a negative light and abstinence in a positive light. PSAs were also produced where the negative consequences of drugs on youth were highlighted, including reduced performance in school and even loss of direction in their lives (see, e.g. Orwin et al. 2006). Given that the end-consumers of rhino horn tend to be successful, high-earning, and influential males, campaign messages that describe them as “mentally unwise” and/or “physically unappealing” may contribute to discouraging them from being associated with rhino horn consumption. This is a potential viable measure given that a number of respondents were skeptical about the wisdom or otherwise of spending a huge amount of money on rhino horn while its medical efficacy has not been verified, as discussed earlier. Communication strategies have already been planned by conservation NGOs, such as TRAFFIC, to disseminate this message to their target audience (TRAFFIC 2015).

Since consumption is driven by a range of social, economic, and cultural factors (Fabinyi 2011; Kuruoğlu and Ger 2015), conservation efforts should also take into account the cultural environment that enables behavioral change to occur (Donovan 2004). About 75–80% of Vietnamese are Buddhists, who believe in the law of cause and effect (Fight for Rhinos 2015). Buddhism followers believe that if they make a “cause” (Sanskrit: *Karma*; Vietnamese: *Nghiệp*, literally meaning “action” or “doing”), the anticipated effect of that cause will be stored deep in their lives and will be experienced when the right circumstances arise. They also believe that violence toward animals, human beings, and the nature runs counter to the spirit of Buddhism and should thus be avoided. As such, conservation campaigns may become more successful in preventing further consumption of rhinoceros horn by convincing the public that their consumption practice may make a cause, whose consequences will be experienced by themselves or even by their children.

Building upon this knowledge of Buddhism, the US-based conservation NGO Fight for Rhinos recently collaborates with the International Buddhist Confederation to launch an outreach campaign that uses Buddha's teachings of wisdom and compassion as a means to encourage consumers to stop consuming rhino horn. It disseminates the message that killing animals is against the principles of Buddhism and is therefore unacceptable for any Buddhist followers (see Fight for Rhinos 2015). This measure may be effective and appropriate in multiple countries and contexts, given that Buddhism is widely practiced particularly in East Asia that has been identified as among the world's largest markets for illicit trade in rhino horn, as noted earlier.

However, the difficulties with any consumer-targeted intervention campaigns should not be under-estimated. Given that demand reduction is a time-consuming process that involves changes in values and consumption choices any campaign that attempts to encourage thousands of consumers to stop consuming rhino horn will likely need to be a long-term project and thus require sustained funding as well as strong commitments and meaningful collaboration of a wide range of agencies such as governments, non-profit entities, the private sector, and international development organizations. Furthermore, although it is important to focus on the consumption end of the commodity chain, continuing efforts are required in some source countries, particularly South Africa, to curb the illicit poaching and trade in rhino horn (Fabinyi 2011).

This study is one of the first to systematically survey rhino horn end-consumers. Its limitations need to be noted and the reader are recommended to take these limitations into account when evaluating the design of this research and interpreting its results. First, although Hanoi and HCMC are identified as the two main illicit rhino horn import destinations in Vietnam (Milliken and Shaw

2012; IPSOS 2013), it is necessary that further studies examine end-consumers of rhino horn in other cities and urban areas. Second, this research only focused on the male rhino horn end-users and therefore it is essential that future research investigate women who in many cases are the main purchasers as well as include measures of socially desirable responses. Third, although a questionnaire survey is capable of covering a large number of respondents, it generally does not provide in-depth knowledge of consumers' perceptions, attitudes, and behaviors (Hesse-Biber 2010). Future studies may, therefore, use qualitative methods (e.g. in-depth interviews, focus groups) to gain deeper insights into rhino horn end-consumers. These avenues may also potentially provide further opportunities for behavioral intervention. In spite of these limitations, the findings of this study should assist governments, civil society, and the international community in developing appropriate policies and strategies that serve to prevent further loss of the rhinoceros as well as to curb the illicit trade in other wild animals of high conservation value.

Conclusion

This study has examined the results of a survey of high-earning male rhino horn end-consumers in Vietnam, a country that is identified as one of the world's largest recipients of illicit rhino horn. Similar to previous research, this study has also found that the supposed health benefits of rhino horn are widely perceived by the identified consumers, especially to reduce hangover and detoxify the body.

We have found that rhino horn, through its circulation within social clubs and networks, is a means of displaying economic wealth, acquiring social leverage, and initiating business and political contacts among wealthy males. Rhino horn thus plays an important role in wealthy consumers' search for a sense of "self" (who can afford to consume rhino horn products), a sense of "us" (who belong to a status community), and the delineation of the "other" (who do not belong to that status community). The pleasures of consuming rhino horn are intensified as the experience is shared with other like-minded people who share the ideological beliefs in the medicinal and emotional benefits of rhino horn.

As such, rhino horn is similar to some other material objects (Goulding et al. 2009; Kuruoğlu and Ger 2015) in the sense that it contributes to "binding" individuals in social networks that become more solid over time, as pleasures are intensified and the relationships between network members are strengthened. It is significant that to not participate in such networks may make business and political relationships more difficult in such a status-conscious society. Essential to the success of any intervention will be the public and private actions by high-status individuals, business people, and officials, that rhino horn should not be highly valued in social relationships and that refusing to purchase or consume it should accrue greater social and cultural capital than those that do. Finally, through our study of rhino horn consumption, we suggest that by gaining a greater understanding of consumers, markets, and consumption cultures we can identify meaningful consumer-targeted behavior change interventions that are more likely to succeed.

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