

Rhinoceros horns in trade on the Myanmar–China border

CHRIS R. SHEPHERD, THOMAS N.E. GRAY and VINCENT NIJMAN

Abstract The illegal trade in rhinoceros horn, driven largely by the demand from East and South-east Asia, is a major impediment to the conservation of rhinoceroses globally. We surveyed the town of Mong La, in eastern Myanmar on the border with China, for the presence of rhinoceros horn. No rhinoceros horn was observed in 2006 or 2009, and other African wildlife was rare or absent. During visits in 2014 and 2015 we observed two horns, presumed to be of the white rhinoceros *Ceratotherium simum*, and one horn tip, small discs from the horn core, horn powder and horn bangles. Shops selling rhinoceros horn all specialized in high-end and high-value wildlife, mostly for decorative purposes, including whole elephant tusks, carved elephant ivory, carved hippopotamus *Hippopotamus amphibius* canines, and tiger *Panthera tigris* skins. Organized criminal syndicates are involved in the wildlife trade between Myanmar and Africa, possibly via China. Mong La's geographical position on the border with China, limited control by the central Myanmar Government, and the presence of the Chinese entertainment industry provide ideal conditions for a global wildlife trade hub catering for the Chinese market. Solutions require more intense collaboration between the Myanmar and Chinese authorities to curb the trade in African rhinoceros horn in this part of Asia.

Keywords *Ceratotherium simum*, CITES, conservation, horn, illegal wildlife trade, Mong La, white rhinoceros

The dramatic acceleration in levels of poaching of elephants *Loxodonta africana* and rhinoceroses in southern and eastern Africa has been identified as one of the most important challenges facing biodiversity conservation (Wasser et al., 2010; Milliken & Shaw, 2012; Underwood et al., 2013). Rates of poaching of the white rhinoceros *Ceratotherium simum*, and to a lesser extent the black rhinoceros *Diceros bicornis*, in South Africa have increased

from a mean of 15 per year during 1990–2007 to 1,175 in 2015 (Anonymous, 2016). This has affected the viability of populations and undermined decades of concerted, and successful, conservation action that had led to population recovery of both black and white rhinoceroses since the mid 20th century (Milliken, 2014; Van Noorden, 2016).

Rhinoceros poaching in Africa is a direct result of increasing demand in South-east and East Asian countries where cultural, historical, medicinal and more modern beliefs render rhinoceros horn a luxury good, an investment opportunity and a status symbol (Milliken & Shaw, 2012; Gao et al., 2016). Three decades of unprecedented social, political and economic transformation have generated important opportunities for improvements in quality of life and increased purchasing power across the majority of Asian economies. However, this has also given rise to trends such as the conspicuous consumption and individual ownership of unique, precious and rare wildlife products, and created unsustainable demand for illegal wildlife products.

We provide data on the availability and price of rhinoceros horn in Mong La, an open wildlife market in Myanmar, on the border with China, based on surveys conducted during 2006–2015, showing an increase in the availability of rhinoceros horn and demonstrating demand, and high prices, predominantly from Chinese consumers.

We visited Mong La on five occasions (February 2006, February 2009, January 2014, and February and March 2015), during which we conducted surveys of the town's open wildlife market and its wildlife shops. Apart from the survey in March 2015, when time constraints prevented us from visiting all wildlife shops, all outlets selling wildlife were surveyed and any rhinoceros horn on display was noted; the trade in wildlife in Mong La is open and few, if any, of the products are hidden from view, and this openness has not changed in the 10 years we have visited this market.

The open market offers a variety of mostly local species for sale, including the Bengal slow loris *Nycticebus bengalensis*, the red muntjac *Muntiacus muntjak*, the Eurasian wild pig *Sus scrofa* and many more, whereas the shops specialize in luxury items such as trophies, carnivore skins and elephant ivory. Although the trade is open, especially in the high-end shops, with a variety of protected species on display, traders were wary when dealing with luxury wares and it was challenging to obtain detailed information on aspects of the rhinoceros horn trade other than the presence or absence of horns.

CHRIS R. SHEPHERD (Corresponding author) TRAFFIC–Southeast Asia, Petaling Jaya, Malaysia. E-mail chris.shepherd@traffic.org

THOMAS N.E. GRAY* WWF–Greater Mekong Programme, Phnom Penh, Cambodia

VINCENT NIJMAN Oxford Wildlife Trade Research Group, Oxford Brookes University, Oxford, UK

*Currently at: Wildlife Alliance, Phnom Penh, Cambodia

Received 13 July 2016. Revision requested 7 September 2016.

Accepted 1 December 2016. First published online 28 March 2017.

During the first two visits few, if any, wildlife parts and derivatives from Africa were observed (Shepherd & Nijman, 2007). During the third survey large volumes of ivory, purportedly including African ivory (Nijman & Shepherd, 2014), and a single rhinoceros horn were observed. Based on the approximately square-shaped base of the large horn, we identified it as that of a white rhinoceros. In February 2015 we observed rhinoceros products displayed openly in three shops. Rhinoceros horn was available in four forms: as raw horn tip (one observed, priced at CNY 280,000 (USD 45,550), tentatively identified as that of a white rhinoceros), in small c. 30 g discs originating from the horn core (15–20 observed, priced at CNY 1,400 or USD 224 per g), as powder claimed to be rhinoceros horn (species undetermined; 1 small container), and in the form of bangles of c. 10 cm diameter (5–10 observed). In March 2015 a fourth shop displayed a single horn of a white rhinoceros openly on the counter.

The shops where the rhinoceros horn products were observed all specialized in high-end and high-value wildlife, mostly for decorative purposes. Items on offer included whole elephant tusks, carved elephant ivory, carved common hippopotamus *Hippopotamus amphibius* canines, Tibetan antelope *Pantholops hodgsonii* heads, tiger *Panthera tigris* and leopard *Panthera pardus* skins, and helmeted hornbill *Rhinoplax vigil* casques.

Mong La's geographical location on the border with China, limited control by the central Myanmar Government, and the presence of the Chinese entertainment industry provide ideal conditions for the town to have developed as a global wildlife trade hub catering for the Chinese market (Nijman & Shepherd, 2015; Nijman et al., 2016). All clientele in the markets were Chinese, the currency used was the Yuan Renminbi (CNY), and the language of daily use in Mong La is Chinese. It is reasonable to assume the products for sale in Mong La are intended primarily to meet the demand in China. There is an increasing focus on Vietnam as a major destination for rhinoceros horn (Milliken & Shaw, 2012); however, our findings indicate demand from Chinese consumers. The species on offer, including high-value species not native to Myanmar and several African species, suggest that organized criminal syndicates are involved in the wildlife trade between Myanmar and Africa, sometimes via China (traders mentioned the African products were coming in via China, presumably as it would be riskier to sell these openly in China itself). Increasingly it becomes clear from field observations, market surveys and analysis of seizure data and prosecutions that poaching operations involving rhinoceros horn, and the subsequent smuggling of rhinoceros horn, have become more sophisticated, better planned and professionally executed (Warchol, 2004; Milledge, 2007; Wright, 2011; Ayling, 2013; Wyatt, 2013).

The observed increase in availability of rhinoceros horn in Mong La on the Myanmar–China border during

2006–2015 follows, but with an apparent slight delay, the increase in availability of ivory and elephant parts in Mong La, the former probably originating mainly from Africa (Nijman & Shepherd, 2014). Although it is difficult to obtain evidence from market observations alone, the availability of the parts of several high-value species (rhinoceros, hippopotamus, elephant) in the same shops, all originating from the same region (i.e. sub-Saharan Africa), suggests these parts have been brought in along the same routes and possibly by the same syndicates.

It is likely that the volume of rhinoceros horn currently available in Mong La is significantly higher than we observed during the 2015 surveys. The observation of rhinoceros horn jewellery, in the form of bangles, may indicate speculative demand, with rhinoceros horn products being regarded as a high-yielding investment product, as has been suggested for ivory (Gao & Clark, 2014). Crookes & Blignaut (2015) reported the 2013 wholesale price of rhinoceros horn in South Africa was USD 32,500 per kg. Our quoted prices are equivalent to USD 224,360 per kg, when traded in small quantities, and the displayed price for the raw horn tip was > USD 45,000. Given the open nature of the trade, and that this information was obtained by our local guide through conversations with vendors, we do not believe these prices are significantly inflated, but are indicative of the increasingly large amounts some people in Asia are willing to pay for rhinoceros horn.

Both China and Myanmar are signatories to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), making any cross-border trade in rhinoceros horn illegal, as all five extant rhinoceros species are listed in Appendix I of CITES (2017). The open display of the horns in Mong La illustrates the lack of concern for national laws prohibiting the trade. With no Myanmar Government presence currently in Mong La, in our view it is imperative that the Government of China intensifies its scrutiny and enforcement efforts at the Mong La–Daluo border crossing, making it a non-viable option for smugglers. In recent years two of the organizations we work for, TRAFFIC and WWF, have engaged with both the Myanmar and Chinese governments regarding the trade in wildlife on the Mong La–Dalou border, as well as with the CITES Secretariat. TRAFFIC continues to monitor trade in key areas, such as Mong La, to influence and inform other conservation organizations, media and governments to take appropriate actions. TRAFFIC's information is also used to guide capacity building and training efforts for enforcement agencies, and to support enforcement actions. WWF–Greater Mekong opened an office in Myanmar in 2014 and has engaged with the central government regarding the seriousness of wildlife trafficking in Mong La and its links with international criminal syndicates. As Myanmar's Special Regions become more integrated with Union government as part of the ongoing peace process, we anticipate opportunities for increasing law enforcement effectiveness in Myanmar.

Acknowledgements

We thank Adam Oswell, Ola Jennersten, Tom Svensson and Mingxia Zhang for accompanying us on some of our Mong La visits, and two anonymous reviewers for constructive comments. We also thank Yannick Kuehl, Xu Ling, Guo Yanyan and Steven Broad of TRAFFIC for useful comments. VN thanks the Chinese Academy of Sciences for facilitating his 2015 trip to Yunnan and Shan State.

Author contributions

All authors jointly conceived and initiated the study, collected and analysed the data, and wrote the article.

References

ANONYMOUS (2016) Rhino poaching statistics. <http://www.poachingfacts.com/poaching-statistics/rhino-poaching-statistics/> [accessed 26 January 2017].

AYLING, J. (2013) What sustains wildlife crime? Rhino horn trading and the resilience of criminal networks. *Journal of International Wildlife Law & Policy*, 16, 57–80.

CITES (2017) *The CITES Appendices*. <http://www.cites.org/eng/app/index.shtml> [accessed 21 January 2017].

CROOKES, D.J. & BLIGNAUT, J.N. (2015) Debunking the myth that a legal trade will solve the rhino horn crisis: a system dynamics model for market demand. *Journal for Nature Conservation*, 28, 11–18.

GAO, Y. & CLARK, S.G. (2014) Elephant ivory trade in China: trends and drivers. *Biological Conservation*, 180, 23–30.

GAO, Y., STONER, K.J., LEE, A.T. & CLARK, S.G. (2016) Rhino horn trade in China: an analysis of the art and antiques market. *Biological Conservation*, 201, 343–347.

MILLEDGE, S.A. (2007) Illegal killing of African rhinos and horn trade, 2000–2005: the era of resurgent markets and emerging organized crime. *Pachyderm*, 43, 96–107.

MILLIKEN, T. (2014) *Illegal Trade in Ivory and Rhino Horn: An Assessment Report to Improve Law Enforcement Under the Wildlife TRAPS Project*. TRAFFIC, Cambridge, UK.

MILLIKEN, T. & SHAW, J. (2012) *The South Africa–Viet Nam Rhino Horn Trade Nexus: A Deadly Combination of Institutional Lapses,*

Corrupt Wildlife Industry Professionals and Asian Crime Syndicates. TRAFFIC, Johannesburg, South Africa.

NIJMAN, V. & SHEPHERD, C.R. (2014) Emergence of Mong La on the Myanmar–China border as a global hub for the international trade in ivory and elephant parts. *Biological Conservation*, 179, 17–22.

NIJMAN, V. & SHEPHERD, C.R. (2015) Trade in tigers and other wild cats in Mong La and Tachilek, Myanmar—a tale of two border towns. *Biological Conservation*, 182, 1–7.

NIJMAN, V., ZHANG, M.Z. & SHEPHERD, C.R. (2016) Pangolin trade in the Mong La wildlife market and the role of Myanmar in the smuggling of pangolins into China. *Global Ecology and Conservation*, 5, 118–126.

SHEPHERD, C.R. & NIJMAN, V. (2007) An assessment of wildlife trade at Mong La market on the Myanmar–China border. *TRAFFIC Bulletin*, 21, 85–88.

UNDERWOOD, F.M., BURN, R.W. & MILLIKEN, T. (2013) Dissecting the illegal ivory trade: an analysis of ivory seizures data. *PLoS ONE*, 8 (10), e76539.

VAN NOORDEN, R. (2016) Worst year ever for rhino poaching in Africa. *Nature*, <http://dx.doi.org/10.1038/nature.2016.19225>.

WARCHOL, G.L. (2004) The transnational illegal wildlife trade. *Criminal Justice Studies*, 17, 57–73.

WASSER, S., POOLE, J., LEE, P., LINDSAY, K., DOBSON, A., HART, J. et al. (2010) Elephants, ivory, and trade. *Science*, 327, 1331–1332.

WRIGHT, G. (2011) Conceptualising and combating transnational environmental crime. *Trends in Organized Crime*, 14, 332–346.

WYATT, T. (2013) The security implications of the illegal wildlife trade. *The Journal of Social Criminology*, Autumn/Winter, 130–158.

Biographical sketches

CHRIS SHEPHERD has committed himself to tackling the issues related to illegal and unsustainable wildlife trade in Asia, and currently heads TRAFFIC’s South-east Asia office in Malaysia. He has worked on Myanmar-related conservation issues since 1999. THOMAS GRAY is based in Cambodia, from where he works on biodiversity conservation in South-east Asia. He has been active in the region since 2005. Trained as a biologist, VINCENT NIJMAN holds a professorial chair in anthropology and a large part of his research focuses on various aspects of the international wildlife trade. He first visited Myanmar in 2006.