

INTRODUCTION

Large-bodied mammals continue to experience rapid declines in Peninsular Malaysia due to illegal hunting for local and international wildlife trade (Kawanishi and Sunquist, 2004; Clements *et al.*, 2010; Shepherd and Shepherd, 2010). All large terrestrial mammals (over 25 kg, n=15) native to Peninsular Malaysia are threatened, with the exception of the Red Muntjac *Muntiacus muntjak*, Eurasian Wild Pig *Sus scrofa* and Leopard *Panthera pardus* (IUCN, 2013). At least two large mammals have already been extirpated from Peninsular Malaysia in recent times: the Javan Rhinoceros *Rhinoceros sondaicus* (van Strien *et al.*, 2008) and Banteng *Bos javanicus* (Timmins *et al.*, 2008). The Sumatran Rhinoceros *Dicerorhinus sumatrensis* is near extirpation, and many others are increasingly rare, including the Tiger *Panthera tigris*, Gaur *Bos gaurus*, Sambar *Rusa unicolor* and the little-known Sumatran Serow *Capricornis sumatraensis*, the subject of this paper. Demand for meat for consumption, and parts used in traditional medicines and for purported magical purposes, is the main driver behind the decline of these species in Peninsular Malaysia. Large ungulates across South-east Asia, and in particular in Malaysia, are in rapid decline due to over-exploitation (Steinmetz *et al.*, 2010; Vongkhamheng *et al.*, 2013) and effective conservation efforts are hindered by the absence of reliable data on the abundance and distribution of ungulates (Vongkhamheng *et al.*, 2013).



Sumatran Serow *Capricornis sumatraensis*

MAZIKAB

Observations of Illegal Trade in Sumatran Serows in Malaysia

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The Sumatran Serow is currently categorized as Vulnerable by the IUCN Red List of Threatened Species (Duckworth *et al.*, 2008), with primary threats being habitat destruction caused by limestone quarrying, unsustainable logging and habitat fragmentation by roads, plantations and other human-altered landscapes, and poaching for illegal commercial trade. In Malaysia, serows are killed for their meat and for their body parts, the latter used for traditional medicinal and purported magical purposes (Rahman, 1997). Local communities adjacent to serow habitat have noted population declines due to hunting and limestone quarrying (Duckworth *et al.*, 2008). Unfortunately, few people know what serows are or are even aware of their existence, and therefore this remarkable animal receives little attention from conservationists, researchers or enforcement agencies.

BACKGROUND

Of the six species of serow, *Capricornis sumatraensis* is the only serow found on Sumatra (Indonesia), Peninsular Malaysia and in southern Thailand (Duckworth *et al.*, 2008; Shepherd and Shepherd, 2012), and the only wild member of the Caprinae family in Malaysia, where its preferred habitat is steep forested mountains, and limestone and

quartz ridge areas. In 1936, the quartz ridge of Klang Gates, in the State of Selangor, was established as the Klang Gates Wildlife Sanctuary for the purposes of serow conservation (Wong *et al.*, 2010). While the species is found throughout Peninsular Malaysia, recorded from more than 50 localities, it appears to be concentrated largely in the north, especially in the States of Kelantan, Perlis and Perak, with many of the populations being small and isolated (Rahman, 1997). While it is estimated that populations of the Sumatran Serow in Malaysia are threatened and in decline, there are no current or reliable population estimates.

Locally known as *Kambing Gurun*, serows have been hunted out from parts of their former range in Peninsular Malaysia, largely from easily accessible areas, such as Batu Caves and Klang Gates, in the State of Selangor. In July 1988, members of the Malaysian Nature Society reported hearing gunshots from the Klang Gates ridge and saw an adult and juvenile serow flee; they reported the incident to the Department of Wildlife and National Parks Peninsular Malaysia (DWNP) whose prompt action resulted in the arrest of 11 individuals who were later fined; the amount of the fine is unknown (Low, 1988). Despite these actions, it is reported that serows have since been heavily hunted in the Klang Gates, and in many parts of the peninsula as well as numerous other localities not

far from the nation's capital, Kuala Lumpur, including Bukit Takun, Genting and more remote places, such as the Belum-Temengor Forest Complex in the northern State of Perak. It is most likely that the serow is a targeted species wherever poachers have access to its rugged habitats. Furthermore, it is likely that the serow is threatened by the widespread setting of snares in Malaysia, which indiscriminately kill a wide range of species (Krishnasamy and Or, 2014). Already in 1992, it was reported that the serow population in Malaysia had been found to be unable to meet the demands of the users of its parts and derivatives (Department of Wildlife and National Parks, 1992), and the overall population is thought to be in decline.

Despite robust legal protection, widespread poaching and illegal trade continues. TRAFFIC has carried out research into the trade in serows in Malaysia to improve understanding of the hunting and trade dynamics and to be able to provide useful and actionable information to the relevant enforcement agencies in the country, as well as to raise the profile of the threats to the species and its conservation needs, and ultimately reduce consumer demand.

LEGISLATION

The Sumatran Serow is afforded full legal protection (Totally Protected) in Peninsular Malaysia, under the *Wildlife Conservation Act 2010*, which means that hunting this species is prohibited unless a Special Permit has been issued by the Minister of Natural Resources and Environment (a practice that has never taken place). Anyone found guilty of hunting, taking or keeping serow parts or derivatives is liable to a minimum fine of MYR100 000 (USD33 300) and a maximum fine of MYR500 000 (USD166 670), and faces a gaol term of up to five years. The hunting of, taking or keeping female serows can lead to a fine of between MYR200 000 and MYR500 000, and a gaol term of up to five years. In addition, anyone convicted of illegally hunting, taking or keeping a juvenile serow is liable to be fined between MYR150 000 and MYR500 000 and gaoled for up to five years.

This species is also listed in Appendix I of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), which prohibits international commercial trade of the species, its parts and derivatives. Under the Malaysian CITES-implementing law, the *International Trade in Endangered Species Act 2008*, anyone caught importing or exporting serow parts is liable, on conviction, to a minimum fine of MYR200 000 and a maximum fine of MYR1million, or a gaol term not exceeding seven years, or both.

METHODS

Information on the illegal hunting and trade of serows in Malaysia, especially in the form of seizure reports, was collected and compiled over a 10-year period (2003 to 2012). The principal sources were published literature, including DWNP annual reports, from the *IUCN Red List of Threatened Species*, as well as media articles. Information was also gathered from direct field observations by TRAFFIC during 2012, including from the Belum-Temengor Forest Complex in Perak, where TRAFFIC's work has a strong focus. A survey of the availability of wild meat in Malaysia was also conducted in 2012.

Johor	Pahang	Perak	Melaka	Selangor
6	5	3	3	1

Table 1. Number of restaurants in Peninsular Malaysia, per State, offering serow meat for sale, 2012.

Observations of serow trade in Peninsular Malaysia

Serow meat is prized amongst consumers of wild meat in Malaysia. In 2012, TRAFFIC carried out a study on the wild meat trade in restaurants across Malaysia, including the Bornean States of Sabah and Sarawak, where the serow does not occur. In Peninsular Malaysia, serow was the most commonly observed Totally Protected species in restaurants, being sold for up to MYR30 (USD10) per serving (Caillabet *et al.*, in prep). Of the 165 restaurants that served wild meat in Peninsular Malaysia, 18 restaurants in five States offered them for sale (Table 1).

One restaurant in the Bornean State of Sabah claimed to sell serow meat; given that this species is not found on Borneo, it was likely sourced from Peninsular Malaysia or Sumatra, Indonesia (Caillabet *et al.*, in prep).

Surveys in and around the Belum-Temengor Forest Complex, an important habitat for Tigers, found that at least 10 serows had been hunted from the area between 2009 and June 2013 (Or and Krishnasamy, in prep.). Serow hunting is known to be both targeted and opportunistic. In April 2012, TRAFFIC staff and other conservation NGOs encountered a serow head soaking in oil at a rest stop along the East-West Highway, some 15 km from the Belum-Temengor Forest Complex, and witnessed police officers asking the vendor about the use and benefits of serow parts. None of the police officers appeared to be aware that this incident violated a national law; no action was taken against the vendor. This information was later conveyed to the DWNP by another conservation organization.

In May 2012, an online forum frequently used by army personnel revealed serow hunting in the Temengor Forest Reserve in Perak (Wong, 2012). A forum user explained in detail how serows are hunted, including how to track these elusive mammals, the weapons used and hunting hotspots. The user boasted that he hunted serows and other mammals, despite knowing it was illegal to do so.

Seizures of serow in Peninsular Malaysia

Despite poaching being a serious threat to serows, over the period of 10 years between January 2003 and January 2012, DWNP recorded only 10 confiscations of serow parts (Table 2). Of these, only five cases resulted in convictions.

In March 2007, in a case involving a *bomoh* (a Malay shaman or faith healer) couple (Table 2), authorities found skeletal remains of six serows in their possession. The skulls were intact, while the bone fragments and fur were mixed together and kept in a cooking container (Chooi, 2007). However, for reasons unknown, the *bomoh* couple was not prosecuted.

Information on Confiscation	Date	Location, State	Items (quantity)	Prosecution	Source
DWNP confiscated serow meat and other wildlife species.	January 2003	Segamat, Johor	Meat (24 kg)	Unknown	DWNP Annual Report, TRAFFIC Bulletin
DWNP arrested a RELA (People's Volunteer Corps) personnel for hunting a serow.	March 2005	Dabong, Kelantan	Whole animal (1)	Seizure, fine of MYR2500 (USD833)	Bernama, (national news agency)
DWNP arrested an individual for illegal possession of serow meat.	2006	Selangor	Unknown	Seizure, fine of MYR900 (USD 300)	DWNP Annual Report, 2006
DWNP seized remains of six serows from containers of cooking oil from a bomoh couple that had reportedly been using serow parts in healing rituals for over 35 years.	March 2007	Lenggong, Perak	Six skulls, bones	Unknown	The Star (national newspaper)
DWNP arrested four men and seized the head and meat of a serow, among other protected wildlife.	January 2008	Gua Musang, Kelantan	Meat (24 kg); head (1)	Unknown	Utusan Malaysia (national newspaper)
DWNP confiscated serow parts and other protected wildlife.	October 2008	Kuala Lumpur	Meat (unknown)	Seizure, fine of MYR2000 (USD667) for each species seized	DWNP Annual Report
DWNP seized serow parts, among other protected wildlife in a raid.	October 2009	Kuala Lumpur	Parts (unspecified)	MYR2000 (USD667) each charge (per wildlife seized), with a total fine of MYR16 000 (USD5330) or two months' gaol for failure to pay fine	DWNP Annual Report
DWNP confiscated two serow horns, amongst 15 live animals and other animal parts in two separate raids	March 2010	Johor	One pair of horns	Unknown	mStar Online (Malay language news portal under The Star Media Group)
DWNP confiscated a serow head and skin near Taman Negara.	May 2010	Nr Taman Negara, Pahang	Head and skin (unknown)	Fined MYR 1000 (USD330)	DWNP Annual Report
DWNP and the Anti Smuggling Unit arrested a woman and her nephew for being in possession of totally protected species and their parts, including two serow horns.	January 2012	Baling, Kedah	One pair of horns		Harian Metro (national newspaper)

Table 2. Confiscations involving serows in Peninsular Malaysia between 2003 and 2012.



Serow recorded by a camera trap (left); serow head soaking in oil. Belum Temengor Forest Complex, 2012.

DISCUSSION AND CONCLUSIONS

Clearly, serows are being hunted and traded in Peninsular Malaysia in violation of strong national wildlife laws. Declines in serow populations in Peninsular Malaysia have been corroborated by local people, many of whom have stated that over-hunting is the primary reason. Furthermore, despite the species being fully protected by law, serow meat is being served in restaurants, and parts, especially heads, are being used by *bomohs* in the Malay traditional medicine and faith healing system.

All first-hand information on the illegal trade of serows collected by TRAFFIC has been reported to the DWNP for action. Unfortunately, the outcomes of these reports are not often known or made publicly available, and therefore cannot be reported here. TRAFFIC calls upon the DWNP to intensify its monitoring of restaurants selling wild meat and of traditional medicine shops and faith healers, and to take action against anyone found violating the law. TRAFFIC also calls on the judiciary to issue the maximum penalties to offenders, to serve as a deterrent. Meanwhile, closer work with traditional medicine practitioners to encourage support for alternative products should be considered.

There is a need for citizens to become more involved in conservation efforts. The national wildlife crime hotline managed by the Malaysian Conservation Alliance for Tigers, a coalition of NGOs, including TRAFFIC, should be widely broadcast so any incidents of hunting or trade of serows may be reported to the authorities.

More research on the impact of hunting and trade of serows in Malaysia and throughout South-east Asia is urgently needed. Any information gathered should be published and brought to the attention of relevant enforcement agencies, conservation organizations and the public in an effort to raise the profile of threats facing the Sumatran Serow and for increased efforts to ensure that this species is not pushed further towards the brink of extinction.

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