

Observations of small carnivores in Jakarta wildlife markets, Indonesia, with notes on trade in Javan Ferret Badger *Melogale orientalis* and on the increasing demand for Common Palm Civet *Paradoxurus hermaphroditus* for civet coffee production

Chris R. SHEPHERD

Abstract

Six species of small carnivores were recorded during spot checks carried out in wildlife markets in Jakarta, Java, Indonesia, in 2010 and 2012, including Javan Ferret Badger *Melogale orientalis*, a little-known species rarely observed in trade. Most numerous was Common Palm Civet *Paradoxurus hermaphroditus*, which is increasingly being taken from the wild for the production of *kopi luwak* ('civet coffee'). This trade, and the trade in small carnivores overall in Indonesia, should be carefully monitored. Laws in place to protect these species must be enforced. More research is required to determine the status of these species and the impacts of trade on their conservation.

Keywords: kopi luwak, Leopard Cat, *Prionailurus bengalensis*, wildlife trade

Pemantauan kelompok karnivora kecil di beberapa pasar satwa Jakarta, Indonesia, dengan penekanan pada perdagangan biul *Melogale orientalis*, serta peningkatan permintaan pada luwak *Paradoxurus hermaphroditus* untuk produksi kopi luwak

Abstrak

Enam jenis kelompok karnivora kecil tercatat saat dilakukan pemantauan pada beberapa pasar satwa di wilayah Jakarta, Indonesia, pada tahun 2010 dan 2012. Salah satunya adalah biul *Melogale orientalis*, sebagai jenis yang jarang dijumpai dalam perdagangan. Jenis yang paling banyak adalah luwak *Paradoxurus hermaphroditus*, dimana semakin meningkat penangkapannya dari alam untuk kepentingan produksi kopi luwak. Perdagangan ini, serta perdagangan lainnya pada kelompok karnivora kecil di Indonesia, perlu dipantau dengan seksama. Penerapan perlindungan pada satwa-satwa tersebut perlu ditegakkan. Penelitian lebih lanjut sangat dibutuhkan guna menetapkan status dari jenis tersebut serta akibat dari adanya perdagangan terhadap konservasinya.

Introduction

Wildlife trade is a severe threat to vast numbers of species in Indonesia, yet few resources are dedicated to understanding and addressing it (Shepherd 2010, Nijman *et al.* 2012). Further monitoring and researching of the trade is needed to gauge the conservation status of affected species better, and ultimately to inform authorities so that effective conservation measures are implemented and enforced.

Indonesia's wildlife markets are well known for offering a wide variety of species for sale, many of which are sold in violation of national laws and policies (Shepherd *et al.* 2004, Shepherd 2010). Small carnivores are amongst the vast number of species in these markets (Shepherd 2008), sold as novelty pets, for food and for use in production of civet coffee. However, little concerted effort has been put into protecting and researching these species in Indonesia and the conservation impacts of hunting and trade are largely unknown.

'Small carnivores' are taken here to include not only Herpestidae, Mephitidae, Mustelidae, Prionodontidae and Viverridae, but also cats (Felidae). Few species of small carnivores are protected by Indonesian law (Shepherd 2008). All Felidae species in Indonesia are protected, but within the other five families included here, only eight of the 24 species are (Table 1).

The intentions behind this paper are to raise awareness of and interest in small carnivore conservation, to provide cur-

rent data of the trade and legal status, and to encourage the Indonesian authorities and conservationists alike to take further steps to protect Indonesia's small carnivores.

Methods

Three visits were made to each of the four largest wildlife markets in Jakarta, the capital city of Indonesia: Pramuka, Barito, Kartini and Jatinegara (21 July 2010; 10 December 2010; 15–16 June 2012). Birds make up most of the species in these markets, so they are generally known as 'bird markets', with the exception of Kartini which sells mostly aquarium fish and reptiles. The Jatinegara market is known for having more mammals than any of the other three. In addition to the markets, a flora and fauna exhibition (known locally as *Flora*) in Jakarta was also surveyed, on 16 June 2012, because many wildlife dealers set up stalls at this exhibition and sell wildlife, mostly reptiles. Markets for this study were thoroughly surveyed by the author, with all openly displayed wildlife in each market observed and all target species counted and recorded.

Observations

Four markets were surveyed three times, and an exhibition once, and small carnivores were observed in all locations

Table 1. Status of small carnivores (families Herpestidae, Mephitidae, Mustelidae, Prionodontidae and Viverridae) in Indonesia.

English name	Species name	Protected	IUCN Red List
Herpestidae			
Short-tailed Mongoose	<i>Herpestes brachyurus</i>		LC
Small Asian Mongoose	<i>Herpestes javanicus</i>		LC
Collared Mongoose	<i>Herpestes semitorquatus</i>		DD
Mustelidae			
Oriental Small-clawed Otter	<i>Aonyx cinereus</i>		VU
Hog Badger	<i>Arctonyx collaris</i>	X	NT
Eurasian Otter	<i>Lutra lutra</i>	X	NT
Hairy-nosed Otter	<i>Lutra sumatrana</i>	X	EN
Smooth Otter	<i>Lutrogale perspicillata</i>		VU
Yellow-throated Marten	<i>Martes flavigula</i>		LC
Javan Ferret Badger	<i>Melogale orientalis</i>		DD
Indonesian Mountain Weasel	<i>Mustela lutreolina</i>		DD
Malay Weasel	<i>Mustela nudipes</i>		LC
Mephitidae			
Sunda Stink-badger	<i>Mydaus javanensis</i>	X	LC
Prionodontidae			
Banded Linsang	<i>Prionodon linsang</i>	X	LC
Viverridae			
Binturong	<i>Arctictis binturong</i>	X	VU
Small-toothed Palm Civet	<i>Arctogalidia trivirgata</i>		LC
Otter Civet	<i>Cynogale bennettii</i>	X	EN
Hose's Civet	<i>Diplogale hosei</i>		VU
Banded Civet	<i>Hemigalus derbyanus</i>		VU
Sulawesi Civet	<i>Macrogalidia musschenbroekii</i>	X	VU
Masked Palm Civet	<i>Paguma larvata</i>		LC
Common Palm Civet	<i>Paradoxurus hermaphroditus</i>		LC
Malay Civet	<i>Viverra zibetha</i>		LC
Small Indian Civet	<i>Viverricula indica</i>		LC

LC: Least Concern, NT: Near Threatened, VU: Vulnerable, EN: Endangered, DD: Data Deficient

Table 2. Species of small carnivores observed in Jakarta's wildlife markets during spot-checks (2010, 2012).

Market	Date	Species					
		Javan Ferret Badger <i>Melogale orientalis</i>	Small Indian Civet <i>Viverricula indica</i>	Common Palm Civet <i>Paradoxurus hermaphroditus</i>	Small-toothed Palm Civet <i>Arctogalidia trivirgata</i>	Small Asian Mongoose <i>Herpestes javanicus</i>	Leopard Cat <i>Prionailurus bengalensis</i>
Pramuka	21 Jul 2010						
	10 Dec 2010			1		1	
	15–16 Jun 2012						
Jatinegara	21 Jul 2010		1			1	4
	10 Dec 2010		3	8	1		2
	15–16 Jun 2012	5		12			
Barito	21 Jul 2010						
	10 Dec 2010						
	15–16 Jun 2012						1
Kartini	21 Jul 2010						
	10 Dec 2010					3	
	15–16 Jun 2012						
Flona Fair	15–16 Jun 2012			4			
Totals		5	4	25	1	5	7

(Table 2). During these visits, 47 small carnivores representing six species were observed, 37 of which were in Jatinegara. Of the 47 small carnivores observed, Common Palm Civet *Paradoxurus hermaphroditus* was the most numerous (25 animals;

Fig. 1.), followed by Leopard Cat *Prionailurus bengalensis* (seven), Javan Ferret Badger *Melogale orientalis* (five), Small Asian Mongoose *Herpestes javanicus* (five), Small Indian Civet *Viverricula indica* (four) and Small-toothed Palm Civet *Arctogalidia*



Fig. 1. Common Palm Civets *Paradoxurus hermaphroditus* in markets for sale for the production of civet coffee (Photo: Chris R. Shepherd/TRAFFIC Southeast Asia).

trivirgata (one; not of the endemic Javan race, *A. t. trilineata*). All small carnivores observed in trade were live, with no dead animals observed for sale in these markets.

Other mammals, all native to Indonesia, were observed during these visits, including Common Treeshrew *Tupaia glis*, squirrels (Sciuridae), Sugar Glider *Petaurus breviceps*, Long-tailed Macaque *Macaca fascicularis*, Javan Langur *Trachypithecus auratus*, Sunda Slow Loris *Nycticebus coucang*, Javan Slow Loris *Nycticebus javanicus*, Large Flying-fox *Pteropus vampyrus* and a smaller unidentified bat species.

Discussion

Of these six species observed, only Leopard Cat is protected under Indonesian law. However, according to Indonesian law, species that are not protected may only be traded domestically or internationally following a harvest and export quota system. Of the five non-protected species, only Common Palm Civet has a quota for capture and trade, of 270 individuals per year. This quota specifies that these Common Palm Civets are to be sold live as pets. All the species observed in this study are listed as Least Concern by *The IUCN Red List of Threatened Species* (IUCN 2012), with the exception of Javan Ferret Badger, which is listed as Data Deficient.

Javan Ferret Badger

Javan Ferret Badger is endemic to the Indonesian islands of Java and Bali; very little is known about it, and it seems to have never been studied in depth in the wild (Duckworth *et al.* 2008). The first observation of this species in trade, to the author's knowledge, was of a single animal observed in the Jatinegara market in Jakarta on 16 July 2011 (Kim 2012). Kim also reported advertisements of this species for sale on the internet in Java during 2010–2011, and mentioned hearing of occasional trade in the markets of Jakarta and Surabaya. While Kim was able to photograph this animal, the dealers did not permit photographs during the visit in June 2012. According to the dealers, these 2012 animals were captured locally in Java (exact locations not given). Identification of ferret badgers to species is extremely difficult, but it is very unlikely that any species of non-native ferret badger are being traded: no imports have ever been recorded, local demand seems minimal, and the dealers claimed these specimens were locally caught. The two dealers with this species in June 2012 were asking IDR 500,000 (USD 53) each. It is impossible to determine volumes or trends based on these few records, but because hunting for trade may be a significant threat, further monitoring and investigation of the trade in Java is necessary. Given the restricted range of this species, and the potential threats of both habitat loss and trade in this heavily human-populated region, Indonesian authorities should consider providing this national endemic with full legal protection.

Common Palm Civet

Hunting and trade are listed in the *IUCN Red List* as a threat to the Common Palm Civet (IUCN 2012). Throughout this species's range it is killed as a pest or for consumption (Shepherd & Shepherd 2010) and captured for trade as pets (Schreiber *et al.* 1989, Shepherd 2008). While there is a quota in place in Indonesia, it is largely ignored by hunters and traders and is not enforced by authorities (Shepherd 2008).

During this same period (on 12 June 2012), researchers visited the wildlife market in Denpasar, Bali, and observed approximately 25 Common Palm Civets for sale. The dealer in the wildlife market in Denpasar told the buyers, evidently in an attempt to make a sale, that the Common Palm Civets were used to make *kopi luwak*, 'civet coffee' (E. V. Goode *in litt.* 17 June 2012). Kopi luwak is made from coffee beans that have passed through the gut of a civet and are later picked from the faeces, and is considered to be the rarest and most expensive coffee in the world (Marcone 2004; Fig. 2.). This coffee has become increasingly trendy and as a result civets are being increasingly captured from the wild and fed coffee beans to mass-produce this blend. The impact of the demand for this fashionable coffee on wild civet populations is yet unknown but may constitute a significant threat, and appears to be in violation of the quota set for pets.

Conclusions and recommendations

Generally, wildlife markets in Jakarta are in effect unregulated. Despite laws in Indonesia protecting many species, and controlling trade of others, these laws are largely ignored and traders in the wildlife markets openly sell a wide variety of species, regardless of their legal status. It is essential that the



Fig. 2. Civet coffee for sale in a market in Sabah, Borneo (Photo: Divya Mudappa).

trade in these markets be monitored, with information used to detect and analyse trends, and to identify conservation concerns. Information should be regularly provided to the authorities who should be urged to enforce Indonesia's laws and take action to shut the illegal trade down, and to prosecute people found violating the laws. Legal issues and conservation impacts of the growing civet coffee industry should be carefully examined and monitored. Efforts should also be made to raise public support for conservation in Indonesia, and ultimately to reduce significantly the demand for these species.

The list of protected small carnivores in Indonesia should be reviewed and revised to reflect better the conservation status of the species so that adequate legal protection is in place. Again, efforts need to be made to ensure legislation is enforced.

Acknowledgements

Thank you to Betsy Yaap, Gono Semiadi and Loretta Ann Shepherd for valuable comments on an earlier draft of this note, and to Gono Semiadi for the Indonesian translation. Eric Goode and Maximilian

S. Maurer are thanked for providing information regarding the trade in civets from Bali and for accompanying the author during some of the surveys.

References

- Duckworth, J. W., Robertson, S. I. & Brickley, N. W. 2008. Further notes on Javan Ferret Badger *Melogale orientalis* at Gunung Gede Pangrango National Park, Java. *Small Carnivore Conservation* 39: 39–40.
- IUCN 2012. *IUCN Red List of Threatened Species*. Version 2012.1. <www.iucnredlist.org>. Downloaded on 27 July 2012.
- Kim, M. 2012. Notes on live ferret badger *Melogale* trade in Java. *Small Carnivore Conservation* 46: 30–32.
- Marcone, M. F. 2004. Composition and properties of Indonesian palm civet coffee (kopi luwak) and Ethiopian civet coffee. *Food Research International* 37: 901–912.
- Nijman, V., Shepherd, C. R., Mumpuni & Sanders, K. L. 2012. Over-exploitation and illegal trade of reptiles in Indonesia. *Herpetological Journal* 22: 83–89.
- Schreiber, A., Wirth, R., Riffel, M. & Van Rompaey, H. 1989. *Weasels, civets, mongooses and their relatives. An action plan for the conservation of mustelids and viverrids*. IUCN, Gland, Switzerland.
- Shepherd, C. R. 2008. Civets in trade in Medan, North Sumatra, Indonesia (1997–2001) with notes on legal protection. *Small Carnivore Conservation* 38: 34–36.
- Shepherd, C. R. 2010. Illegal primate trade in Indonesia exemplified by surveys carried out over a decade in North Sumatra. *Endangered Species Research* 11: 201–205.
- Shepherd, C. R. & Shepherd, L. A. 2010. The trade in Viverridae and Prionodontidae in Peninsular Malaysia with notes on conservation and legislation. *Small Carnivore Conservation* 42: 27–29.
- Shepherd, C. R., Sukumaran, J. & Wich, S. A. 2004. *Open season: an analysis of the pet trade in Medan, Sumatra 1997–2001*. TRAFFIC Southeast Asia, Petaling Jaya, Malaysia.

**TRAFFIC Southeast Asia, Unit 3-2, 1st Floor, Jalan
SS23/11, Taman SEA, 47400 Petaling Jaya,
Selangor, Malaysia.
Email: chris.shepherd@traffic.org**

ANNOUNCEMENT

Extension of deadline for the submission of abstracts for the International Badger Symposium (1-4 October 2013)

The organization of the **International Badger Symposium** (<http://www.alphawildlife.ca/2013badgersymposium>) is going well and we have received submissions from many researchers from all continents. However, we were told that some researchers were in the field these last months and were unaware of our deadline for the submission of abstracts (originally, 15 September 2012). Others forgot about it!

In order to accommodate these researchers, we have

postponed the deadline for the submission of abstracts to January 31, 2013. Therefore, you are not too late to submit your abstracts. Please consult the badger website for details about the submission of papers.

We look forward to receiving your contributions.

Gilbert Proulx, PhD, Chair
Emmanuel Do Linh San, PhD, Co-Chair