CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Seventeenth meeting of the Conference of the Parties
Johannesburg (South Africa), 24 September – 5 October 2016

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Proponent proposes the transfer of *Manis javanica* (Sunda pangolin) and *M. pentadactyla* (Chinese pangolin) from CITES Appendix II to CITES Appendix I in accordance with Article II, paragraph 1, of the Convention because they are threatened with extinction and are detrimentally affected by international trade. Both species meet the biological criteria found in Resolution Conf. 9.24 (Rev. CoP16), Annex 1:

Paragraph C) i): A marked decline in the population size in the wild, which has been observed as ongoing.

Paragraph C) ii): A marked decline in the population size in the wild, which has been inferred or projected on the basis of levels or patterns of exploitation, a high vulnerability to intrinsic (i.e. low reproductive output) and extrinsic factors (i.e. habitat loss and degradation), and decrease in area or quality of habitat.

B. Proponent

The United States of America and Viet Nam[*]:

C. Supporting statement

1. Taxonomy

1.1 Class: Mammalia

1.2 Order: Pholidota (Weber, 1904)

1.3 Family: Manidae (Gray, 1821)

1.4 Genus, species or subspecies, including author and year: *Manis pentadactyla* (Linnaeus, 1758)
Manis javanica (Desmarest, 1822)

1.5 Scientific synonyms: None

1.6 Common names:

Manis pentadactyla
English: Pangolin, Chinese Pangolin, Scaly Anteater
French: Pangolin de Chine, Pangolin a Queue Courte
Spanish: Pangolín Chino

Manis javanica
English: Sunda Pangolin, Malayan Pangolin

[*] *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

French: Pangolin Javanais, Pangolin Malais
Spanish: Pangolín Mallayo

1.7 Code numbers: *Manis pentadactyla*: A-108.001.001.005
Manis javanica: A-108.001.001.003

2. Overview

Manis pentadactyla (Chinese pangolin) and *M. javanica* (Sunda pangolin) are two of four pangolin species found in Asia. Pangolins are evolutionarily distinct in that they are the only mammals covered in an armor of keratinous scales. They are primarily nocturnal, solitary, and are highly specialized to feed on ants and termites. They are particularly vulnerable to overexploitation due to their very low reproductive output, giving birth to one, and rarely two, offspring annually, and have a generation length of between seven and nine years, depending on the species.

Manis javanica is native to Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, and Viet Nam (Challender et al. 2014a). The population trend is decreasing and the species is listed as Critically Endangered by IUCN due to a suspected decline of up to 80% over the past 21 years (generation length estimated at seven years), and projected continuing declines of up to 80% over the next 21 years (Challender et al. 2014a). There have been "massive declines" in the northern part of its range, such as Lao PDR, where it is considered "extremely rare" (Challender et al. 2014a). The species has been extirpated from much of the lowland areas of Myanmar and Thailand; is increasingly rare in Thailand; has severely reduced populations in Lao PDR (to as little as 1% of the population in the 1960s according to villagers); has "declined severely" and "massively" since about 1990 according to hunters in Viet Nam where it is now considered "extremely rare" (Newton et al. 2008); occurs in low numbers now in Cambodia where populations are declining even in reserves and where the species is now absent in some reserves; is decreasing in Peninsular Malaysia, including on palm oil plantations; and has populations that "are or could be in severe decline" in Indonesia (Challender et al. 2014a). *Manis javanica* is primarily threatened by hunting and poaching for international trade, driven by export to Asian markets of live animals, meat, and scales; local use is also a threat but poached animals go into international trade due to high monetary value (Challender et al. 2014a). The hunting threat is increasing in Cambodia, Lao PDR, Myanmar and in other parts of the species' range it is also threatened by habitat loss caused by economic land concessions, dam projects, infrastructure, and habitat clearing (Challender et al. 2014a).

Manis pentadactyla is native to Bhutan, China, India, Lao PDR, Myanmar, Nepal, Thailand, and Viet Nam (Challender et al. 2014b). The population trend is decreasing and the species is listed as Critically Endangered by IUCN due to ongoing and predicted future decline of up to 90% over the next 21 years (three generations) (Challender et al. 2014b). The species has been extirpated from parts of its range due to high levels of past exploitation (Challender et al. 2014b). The species became "commercially extinct" in China in about 1995 and the population there declined by about 89-94% from the 1960s to 2004 (Challender et al. 2014b). Extensive field research conducted from 1997-2013 determined that *M. pentadactyla pusillia*, which occurs on Hainan Island, is commercially extinct (Challender et al. 2014b). In Taiwan, the population of *M. pentadactyla pentadactyla* is decreasing and "greatly reduced" (Challender et al. 2014c). In Nepal, the species has dramatically declined (Challender et al. 2014b). In Viet Nam, hunters have reported that populations have dramatically declined and they are extinct in most forests (Challender et al. 2014b, Newton et al. 2008). *Manis pentadactyla* is primarily threatened by poaching for national and international trade, which is driven primarily by market demand in China (Challender et al. 2014b). In Viet Nam, habitat loss, illegal poaching and hunting for meat consumption and traditional medicine are the main threats; hunters reported that *M. pentadactyla* is easy to hunt using hunting dogs or following signs or burrows (Newton et al. 2008).

The IUCN Pangolin Specialist Group identified hunting and poaching for illegal international trade in live animals, meat and scales primarily destined for Asia, mainly Asian market, as the primary threat to pangolins (Challender et al. 2014c). In the decade preceding 2014, an estimated one million pangolins were taken from the wild for illegal international trade, making pangolins the "most heavily trafficked wild mammal in the world" (Challender et al. 2014c).

Manis pentadactyla and *M. javanica* have experienced marked population declines due to high levels of poaching for their meat and scales. Although local consumption and utilisation take place across the species' range, poaching and trade in pangolins is primarily driven by consumer demand in China and Viet Nam where pangolin meat is consumed as a luxury food and scales are prescribed in traditional medicines. Reports of international, illegal trade, confiscations and seizures are summarized in Annex 1. As a result, both species have been extirpated from parts of their range and populations are in steep

decline. *M. pentadactyla* and *M. javanica* became commercially extinct in China c. 1995 at which point Chinese demand for pangolins shifted to imports from Southeast and South Asia and now increasingly from Africa (SATCM 1996, CITES 2000, Newton *et al*. 2008, Challender, 2011; Challender and Hywood 2012, Challender *et al*. 2015; Mohapatra *et al*. 2015). Illegal poaching and illicit trade involving an estimated tens of thousands of *M. pentadactyla* and *M.javanica* specimens in the last decade have been confirmed through numerous trade confiscations (Challender *et al*. 2014a,b). Both species occur along similar trade routes.

Both species are now rarely observed due to increasing rarity. Current rates of harvest as documented through confiscations of illegally traded Asian pangolins, are impossible to sustain given the species' life history traits. Pangolins have very low reproductive rates (1 young per year) and therefore are extremely vulnerable to excessive mortality and rapid population declines.

Pangolins have been a species of concern for CITES and *M. pentadactyla* and *M.javanica* have been listed in CITES Appendix II since 1975. On the basis that trade levels were potentially unsustainable in the 1980s, both species were included in a Review of Significant Trade (RST) in 1988 (preliminary phase), 1992 (phase I) and 1999 (phase IV), and were also candidate species for the RST in 2004 (post-CoP13 Phase) as trade levels were deemed detrimental to species' survival in the wild (Reeve, 2002). These reviews documented high volumes of illegal, international trade in Asian pangolins and reported illegal hunting-driven population declines in many areas of the species' range. In response, a series of recommendations were made to a number of Parties predominantly focusing on strengthening trade controls (Anon 1999a, b). Notwithstanding implementation of these recommendations (see CITES, 1999), high volumes of international trade continued to occur throughout the CITES trade data indicate that between 1977 and 2012 an estimated 576,303 Asian pangolins (primarily *M. pentadactyla and M. javanica*) were in international trade (Challender *et al*. 2015). Evidence from the RST process indicates that much trade that occurred up to 2000 was not reported to CITES, and that these CITES figures do not reflect supply of pangolins products to international markets. Since 2000, little trade has been reported to CITES, however seizure data and records of trade indicate that a substantial illegal trade has taken place since (Refer to 6.2).

The RST also concluded that the increasing price of pangolin meat and scales was incentivizing poaching of all species and that the Illegal trade, much of which was destined for China, dwarfed that reported to CITES (Anon. 1999a, b). An estimated 264,736 pangolins were illegally traded from July 2000-2015 alone (Challender *et al*. 2015). Seizures in China, Viet Nam and Nepal involved an estimated 3,719 individuals of *M. pentadactyla*. Seizures in Cambodia, China, Hong Kong, Indonesia, Lao PR, Malaysia, Myanmar, Singapore, Thailand and Viet Nam involved an estimated 152,920 individuals of *M. javanica*. Seizures in China, Lao PDR, Myanmar, Thailand and Viet Nam involved an estimated 58,507 individuals of *M. pentadactyla* and *M.javanica*.

In 2000, the Parties agreed to establish zero export quotas for all 4 pangolin species (CITES 2000). Despite these measures, and the species being listed as protected in all but two range States today (Bhutan and Brunei Darussalam), some of which have implemented strong regulatory measures, most notably China, Asian pangolins are currently subject to on-going illicit international trade (Wu and Ma, 2007; Challender *et al*. 2015; Nijman, 2015; Nijman *et al*. 2016).

In 2015, the first meeting of pangolin range States was held in Da Nang, Viet Nam. The meeting was attended by 56 representatives from 29 of the 48 pangolin range states. It was agreed by these range countries that all Asian species, including *M. javanica* and *M. pentadactyla*, qualify for listing on on CITES Appendix I in accordance with CITES Resolution Conf. 9.24 (Rev. CoP16) Annex 1 C) i) due to a marked decline in the population size in the wild in the past or projected into the future equalling or exceeding 50 percent or more in ten years or three generations. Viet Nam also contends that both species qualify under Annex 1 C) ii) due to levels or patterns of exploitation associated with illegal and shifting trade, and a high vulnerability to intrinsic and extrinsic factors related to the low reproductive rate of these species.

Even with zero export quotes curbing legal trade continued illegal trade is pushing both species to towards irreversible population decline. Further, Illegal logging and rampant economic development are driving rapid loss and deterioration of forests in Vietnam and surrounding range countries.[1]

Therefore, Viet Nam strongly supports the maximum protection for these species available through CITES. A transfer from Appendix II to Appendix I would help facilitate conservation efforts in that: (a) Penalties

[1] *http://e360.yale.edu/feature/a_plague_of_deforestation_sweeps_across_southeast_asia/2652/*

under national laws of range state for illegal trade in Appendix I species are usually more severe than those for Appendix II species; (b) Listing in Appendix I offers dual protection, as international trade requires both an import and export permit; (c) loose scales cannot be visually distinguished to the species level, thus a listing of all *Manis* species in Appendix I would improve the efficiency of enforcement and avert ambiguity caused by split-listing species within the genus on different Appendices.

3. Species characteristics

3.1 Distribution

Manis javanica is native to Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, and Viet Nam (Challender et al. 2014a). *M. javanica* is widely distributed geographically, occurring across mainland and island Southeast East Asia, from southern China and Myanmar through lowland Lao PDR, much of Thailand, central and southern Viet Nam, Cambodia, to Peninsular Malaysia, to Sumatra, Java and adjacent islands (Indonesia) and to Borneo (Malaysia, Indonesia, Brunei) though the northern and western limits of its range are poorly known (Schlitter 2005, Wu *et al*. 2005). The species has been eradicated widely from lowland areas due to human agricultural expansion and illegal hunting from Myanmar and Thailand (Lekagul and McNeely 1977; Bain and Humphrey 1982; WCMC *et al*. 1999). Recent research suggests the species is present but rare in central and southern Viet Nam (MacMillan and Nguyen 2013; Nuwer and Bell 2013). Though historically widespread in Lao PDR and Cambodia, reports indicate that populations in both countries have been severely reduced as a result of illegal hunting for consumption and trade (Nooren and Claridge 2001). Reports based on hunter interviews and personal communications indicate a decline in populations from illegal hunting from trade in Peninsular Malaysia (Azhar *et al*. 2013), Sabah (Pantel and Anak 2010).

Manis pentadactyla is native to Bhutan, China, India, Lao PDR, Myanmar, Nepal, Thailand, and Viet Nam (Challender et al. 2014b). *M. pentadactyla* occurs in the Himalayan foothills of Nepal, southern Bhutan and north and northeastern India, northeastern Bangladesh, northern and western Myanmar, to northern and Annamite regions of Lao PDR and northern Viet Nam, northwest Thailand, and through southern China (south of the Chiangjiang - the Yangtze River) to Hainan, Taiwan (P.R. China) and Hong Kong SAR. Its latitudinal range is thought to overlap considerably with that of *M. javanica*, with *M. pentadactyla* tending to occur in hills and mountains and the former more generally found at lower altitudes (Duckworth *et al*. 1999). Recent interviews with hunters in Viet Nam suggest that the two species can be found in the same areas of forest, and that the differences between them are ecological, relating to diet and habitat use, rather than altitude (Challender *et al*. 2014b). Both *M. javanica* and *M. pentadactyla* share distribution ranges in Vietnam, Lao People's Democratic Republic; Myanmar, Thailand.

3.2 Habitat

Both species are found in a wide range of habitats, including primary and secondary tropical forests, limestone forests, bamboo forests, broad-leaf and coniferous forests, grasslands and agricultural fields (*M. pentadactyla*, Chao Jung-Tai 1989, Gurung 1996), as well as cultivated areas including gardens and oil palm and rubber plantations, and near human settlements (Azhar *et al.* 2013, Nowak 1999; Katuwal *et al*. 2016). Hunters interviewed in Viet Nam reported that areas with primary forest support more pangolins, probably because they contain a larger number of old, large trees (>50 cm DBH) with hollows suitable for sleeping and for use as den sites and support lower levels of human activity. Moreover, further research is required to better understand habitat use and the ability of both species to persist outside primary forest. Based on reports from hunters in Viet Nam, it seems likely that *M. pentadactyla* is more terrestrial than the more arboreal *M. javanica* (Newton *et al*. 2008). Although *M. javanica* has been reported to occur in secondary forest, evidence suggests that the availability of big tree hollows, which are more abundant in undisturbed forest, is extremely important for this species (Challender *et al*. 2014b). Hollows of large trees were associated with three dens utilized in a radio-tracking study of range and habitat use of a single adult female *M. javanica* and her young in Singapore (Lim and Ng 2007).

3.3 Biological characteristics

Pangolins are particularly vulnerable to overexploitation due to their low reproductive output: Recent records from captive or rescued pangolins show that they produce only one offspring per year (Nguyen et al. 2014; Hua et al, 2015). Gestation period of M. javanica is over six months (Nguyen et al. 2014), while the pregnancy period of M. pentadactyla is about 101–169 days (Wu 1998b; Yang et

al. 2007), but by monitoring the concentration of the serum progesterone, Chin et al. 2012 believed that the gestation period of the Chinese Pangolin was 318 to 372 days (Chin et al. 2012), which needs further research. Pangolins are primarily nocturnal and generally solitary. M. pentadactyla is predominantly terrestrial, while M. javanica is predominantly arboreal (Challender et al. 2014a, Challender et al. 2014b).

Pangolins have adapted to a highly specialized diet of ants and termites (Lekagul and McNeely, 1988). *M. javanica* are adept climbers, with prehensile tails and often climb to access ant nests in trees. The adaptations include a conical-shaped head that does not have teeth, a long, sticky tongue to lick up the ants or termites, and powerful long claws on its limb for digging and breaking apart ant nests or termite mounds (Payne and Francis, 1998). Their scales, which are composed of keratin, offer excellent protection not only against potential predators, but also from the bites and stings of ant and termite prey (Payne and Francis, 1998). They sleep in hollows either in, or at the base of, trees, but have also been known to dig burrows in soil. When threatened, pangolins curl up in a ball and this behaviour facilitates easy capture by hunters who often use dogs to track them to their burrows. *M. pentadactyla* has conspicuous soil burrows that are more easily accessed than the tree hollows favoured by *M. javanica*.

3.4 Morphological characteristics

For *M. javanica*, head and body length range up to approx. 650mm (males), and individuals weigh between 4kg and 8kg (estimated). This species has a streamlined elongate body and tail covered with large (approx. 2-5 cm), rounded scales. Scales range in colour from light yellow-brown to black and cover everywhere except ventral head, neck and trunk, and the inner surface of the limbs and foot pads. These animals roll into a ball in defense to protect these areas of the body. They have a small pointed head and a narrow mouth. The fore feet and hind feet are equipped with sharp claws. *M. pentadactyla* has relatively longer front claws, larger ears, and fewer rows of scales on the tail (14 to 17 instead of about 30) (Wu *et al*. 2004).

3.5 Role of the species in its ecosystem

Pangolins perform an important ecological role of regulating social insect populations. It has been estimated that an adult can consume more than 70 million insects annually. Up to 200,000 ants may be eaten in one meal (Francis 2008). A radio-tracking study of 22 pangolins (*M. javanica*) in Singapore, indicated that they spent an average of 67% of their foraging time feeding on ants and 33% on termites (Lim 2008). Their constant burrowing habit also aids in the decomposition cycle and vegetation growth and their burrows are also occupied by many other species.

4. Status and trends

4.1 Habitat trends

Reports indicate significantly high rates of loss and degradation of primary and secondary forests across the pangolin range States in Asia. For example, between 2000 and 2012, Indonesian primary forest loss totaled over 6.02 million ha and increased on average by 47,600 ha per year (Margono *et al.* 2014). Almost all clearing of primary forests occurred through logging that preceded conversion processes. Similarly, in Cambodia, by the end of 2013, 2.6 million hectares of land (14% of the country) have been allocated to Economic Land Concessions and other types of land concessions resulting in massive deforestation and land conversions (Forest Trends 2015). High resolution forest maps have revealed that, between 2000 and 2012, the highest percentages of forest loss globally have occurred in Malaysia (14.4%), Indonesia (8.4%), Cambodia (7.1%), and Laos (5.3%) (Hansen *et al*. 2013). Habitat loss is also considered a significant problem for pangolin within Vietnam (Song, 2008; Newton et al, 2008). In 1943, Vietnam was covered in 14.3 million hectares of forest (43% forest cover) however, by the year 1990 only 9.18 million hectares remained (27.2% forest cover) (Vietnamese government, 2007). Although pangolins have been recorded to occur in rubber and oil palm plantations, there is insufficient research on their ability to survive and reproduce in degraded habitats. A radio-tracking study of *M. javanica* (Lim 2007) indicated that they preferred secondary forest habitats over plantations and urban areas. Further, there is evidence to suggest that both species prefer tree hollows in primary forests (Challender *et al*. 2014ab, Lim and Ng, 2007, Section 3.2). In Nepal, *M. pentadactyla* habitat lies outside protected areas (Jnawali *et al*. 2011). They are found in forest patches and agricultural land near human dominated landscapes. Furthermore, habitat degradation including conversion to rubber and oil palm plantations is associated with increased vulnerability of pangolins to illegal hunting, especially in Indonesia and Malaysia. The longevity of

palm oil cycles, *i.e*., the removal of old palms and replanting of new (*c.* every 12 years), suggests that where pangolins do exist in these habitats, long-term viability is uncertain, and further research is needed. Overall, trends in forest loss imply reduced availability of habitat that is increasingly degraded and fragmented for pangolins.

4.2 Population size

Wu *et al.*'s (2002) survey in Dawuling Natural Reserve, Maoming, Guangdong Province, China, showed an average pangolin population density (*Manis pentadactyla*) of 1.85 – 4.43 individuals/ km^2 in this Reserve. They estimated the population of *M. pentadactyla* in China to be 50,000-100,000 individuals . Surveys conducted in the Royal Nagarjuna Forest in Kathmandu, Nepal, in the early 1990s determined that there was a healthy population there based on burrow counts; however, the study did not provide population size estimates and indicated that the general trend of dramatic declines elsewhere in Nepal , due to increased access to hunting areas (Gurung 1996).

4.3 Population structure

Seizure records are indicative of high levels of indiscriminate offtake. However, due to the long life-expectancy of both species, a consequent lack of recruitment may not manifest as a population reduction for several years, masking the impact of offtake.

4.4 Population trends

There is strong evidence that both species are dramatically declining throughout their range. In 2014, both species were categorised to be **Critically Endangered on the IUCN Red List** (Challender *et al*. 2014a, b). The IUCN categorization is based on an inferred population size reduction of over 90% (*M. pentadactyla*) and 80%(*M. javanica*) over the last 21 years and predicted continuing declines of more than 90% (*M. pentadactyla*) and 80% (*M. javanica*) projected within the next 21 years (3 generations) based on actual levels of exploitation. In 2004, Wu *et al*. estimated pangolin populations generally within and close to China have declined by 88.88 - 94.12% from levels in the 1960s. Later estimates from Challender et al. in 2015 suggest that *M. pentadactyla* may have already been driven to extinction across much or all of mainland China. According to interviews with local people, small populations of *M. pentadactyla* on Hainan island (China) have declined and are now perceived to be of very low abundance (Nash et al. 2016). The study reports that pangolin populations on Hainan island will likely be extirpated due to illegal hunting across the region. In Taiwan (Province of China) reports from the late 1980s and early 1990s suggest that populations of the subspecies *M. pentadactyla* were decreasing, largely due to illegal hunting, and although little is known about the status of the species, populations are suspected to be greatly reduced today and this subspecies is considered rare (Chao Jung-Tai, 1989, Chao *et al*., 2005). Hunters in Viet Nam reported increasing rarity and dramatic declines in populations of *M. pentadactyla* (Newton 2008). The rarity of the species was highlighted in more recent research in U Minh Thuong National Park (Nuwer and Bell 2013) and Quang Nam Province (MacMillan and Nguyen 2013). Duckworth *et al*. (1999) noted that, in three separate areas within the range of *M. javanica* in Lao PDR (Xe Pian, Dong Phou Veng and Khammouan Limestone NBCA), villagers reported that pangolin populations have declined, in some areas to as little as one percent of the level 30 years ago. Duckworth *et al*. (1999) further noted that illegal hunting in Lao PDR in general has significantly reduced pangolin populations and stated that villager estimates of remaining pangolins in Lao PDR are of the order of 1-5% of levels 20 years previously. Evidence from seizures involving *M. javanica* confirms its presence in Indonesia (Sumatra, Java and Kalimantan); however, the magnitude of international trade originating from Indonesia in the last decade suggests populations here are, or could be, in severe decline (Nijman 2015). Thapa *et al*. (2014) recorded pangolin burrow densities in Eastern Nepal and reported human exploitation driven population declines through interview surveys. Katuwal *et al*. (2015) further reported trade-driven population declines in Eastern Nepal. The status of *M. pentadactyla* in Bangladesh, Bhutan, Myanmar and Thailand is unknown.

Population presence and trends by range State

Range State	Summary
Bangladesh	*M. pentadactyla*: The species is presumably present in Sylhat Area (Northeast Bangladesh) *M. javanica:* The species is presumably present in the Chittagong hill tracts.

Range State	Summary
Brunei Darussalam	*M.javanica:* The species is presumably present in Brunei, which was reported by Medway (1977), and which is supported by the 'rescue' of a small number of individuals here in 2013.
Bhutan	*M. pentadactyla:* The species is presumably present in the Royal Manas National Park, Phibsoo Wildlife Sanctuary, Jomotshangkha Wildlife Sanctuary (Southern Bhutan)
Cambodia	*M. javanica*: In a number of reserves in the Cardamom Mountains, Cambodia (the Elephant mountains, Central Cambodian Lowland Forests (Prey Long), Eastern Plains Landscape, Northern Plains and Northeast Cambodia) this species is present but populations are declining. Interviews with hunters suggest the species is absent in some of these areas, which is attributed to illegal hunting (A. Olsson pers. comm. 2013).
China	*M. pentadactyla*: Reports in China suggest pangolins here (*M. pentadactyla* in addition to *M. javanica* and *M. crassicaudata* which are still or were once present; Heath 1992; Wu *et al*. 2005) were commercially extinct by c.1995, with Chinese demand for pangolin products subsequently being met through imports, largely from Southeast Asia (SATCM 1996, CITES 2000, Newton *et al*. 2008, Challender *et al*. 2015). Although, Wu et al. (2002) estimated populations of *M. pentadactyla* China to be 50,000-100,000, in 2004 Wu et al. estimated pangolin populations generally within and close to China have declined by 88.88 - 94.12% from levels in the 1960s. Interviews as part of ongoing research in China indicates this species is present but very rare in the border areas of Guangxi and Yunnan provinces. In Hong Kong SAR, on-going research indicates that *M. pentadactyla* is present, having been recorded within and outside the Country Park network, but is considered rare (Shek *et al*. 2000). In Taiwan (Province of China reports from the late 1980s and early 1990s suggest that populations of the subspecies M. p. pentadactyla (Formosan Pangolin) were decreasing, largely due to illegal hunting, and although little is known about the status of the species, populations are suspected to be greatly reduced today and this subspecies is considered rare (Chao Jung-Tai 1989, Chao *et al*. 2005)
India	*M. pentadactyla*: This species was reported in the 1980s as common in the undisturbed hill forests of Arunachal Pradesh, however, little is known about the total population in India (Tikader 1983, Zoological Survey of India 1994). Yet, trade figures suggest this species is under severe illegal hunting pressure in Northeast India (Misra and Hanfee 2000, Mohapatra *et al*. 2015).
Indonesia	*M. javanica*: Evidence from seizures involving this species attest it is present in some number in Indonesia (Sumatra, Java and Kalimantan). However, the magnitude of international trade originating from Indonesia in the last decade suggests populations here are or could be in severe decline. The abundance of this species is understood to be low in the peat-swamp forests of east and central Kalimantan (Indonesian Borneo).
Lao PDR	*M. javanica*: In three separate areas within its range in Lao PDR (Xe Pian, Dong Phou Veng and Khammouan Limestone NBCA), villagers reported in the late 1990's that pangolin populations had declined due to illegal hunting, in some areas to as little as one percent of the level 30 years ago, i.e. since the 1960's (Duckworth *et al.* 1999; Nooren & Claridge 2001). *M. pentadactyla*: The species has been so heavily hunted in Lao PDR that field sightings are exceptionally rare, and the only recent field sightings (during 1994-1995) were of an individual in Nam Theun Extension PNBCA (Proposed National Biodiversity Conservation Area) and one seen in a village in Nakai-Nam Theun NBCA during the same period (Duckworth *et al*. 1999).
Malaysia	*M. javanica*: This species is present in Peninsular Malaysia, where it has previously been described as common in some areas, at least up until 1999 (Ickes and Thomas 2003). Azhar *et al.* (2013) report its presence in oil palm plantations in Selangor and Negri Sembilan though it is subject to very heavy illegal hunting pressure here. According to Numata *et al.* (2005) the species is present in Pasoh Forest Reserve. Based on recent camera trap data, the species is also present in the Kenyir Wildlife Corridor. However, interviews with hunters and villagers in 2007 and 2011 indicate populations in Peninsular Malaysia are decreasing as a result of illegal hunting pressure for trade (Challender *et al*. 2014ab).

Range State	Summary
	In Sabah, *Manis javanica* has previously been considered relatively common, and though there is little recent data on the species' status here, populations are under pressure from collection for both local use and international trade, which seems to have intensified in recent years based on available evidence, and which could well be having a detrimental impact on population levels. For example, Pantel and Anak (2010) report that >22,000 pangolins were collected for trade in an 18-month period here between 2007 and 2009.
Myanmar	*M. javanica*: There is no recent data on the status of this species in Myanmar though seizures involving the *M. javanica* in China in recent years infer that trade originated in Myanmar suggesting populations of this species there are under threat (Challender *et al.*2015).
Nepal	*M. pentadactyla*: Surveys conducted in the Royal Nagarjung Forest in Kathmandu, Nepal, in the early 1990s determined that there was a healthy population there; however, the general trend elsewhere in Nepal was dramatic declines, due to increased access to hunting areas (Gurung 1996). Illegal hunting of pangolins for contemporary international trade also suggests populations continue to be subject to exploitative pressure in Nepal (Thapa *et al*. 2014). Increased exploitation for trade across the Chinese border is reported in Eastern Nepal with trade driven population declines over a five-year period (Katuwal *et al*. 2015).
Singapore	*M. javanica* is still found in the wild in Singapore and adjacent islands, including Pulau Tekong, and potentially Pulau Ubin (CITES 2000, Lim and Ng 2007); however, there is no information on population size.
Thailand	*M. javanica* is considered threatened and becoming increasingly rare in Thailand (Bain and Humphry 1982).
Viet Nam	*M. javanica and M. pentadactyla*: In three areas of Viet Nam where interviews were conducted (Khe Net Protected Area, Ke Go Nature Reserve and Song Thanh National Park), hunters believed pangolins populations have declined severely over the past two decades which is a consequence of illegal hunting pressure (Newton *et al.* 2008). Hunters reported that populations had massively declined in the last few decades, but particularly since about 1990, when the commercial trade in pangolins began to escalate (Newton 2007). In all three areas, the species were described as being extremely rare. The rarity of the species was highlighted in more recent research in U Minh Thuong National Park (Nuwer and Bell 2013) and Quang Nam Province (MacMillan and Nguyen 2013).

4.5 Geographic trends

Both species of pangolins were considered commercially extinct in China by c.1995 (Section 4.4). For *M. javanica*, the species is considered extremely rare in the northern parts of its range where there have been massive population declines with the intensity of illegal hunting having moved into the southern parts of the species' range. Massive declines have been recorded in Lao PDR and Cambodia (Nooren and Claridge 2001). For *M. pentadactlya*, poaching pressure has now shifted to the south and west of this species' range (Challender *et al.* 2014a,b). For *M. pentadactyla*, evidence indicates that poaching has now shifted to the south and west of this species' range.

5. Threats

The primary threat to both species is illegal hunting and poaching for international trade, both targeted and untargeted, and which is largely driven by export trade to asian markets, involving live animals, their meat and scales (Challender *et al*. 2015, Pantel and Chin 2009). While local use also comprises a threat, evidence suggests this is now largely forgone in favour of international trade, given the high monetary value of this species (MacMillan and Nguyen 2013, Newton *et al.* 2008). The largely illegal trade is fuelled by wealth-driven demand which is reflected in the increasing price of scales and meat (Challender *et al.* 2015 Challender and MacMillan 2014, Wu and Ma 2007). A secondary threat to both species is the rapid loss and fragmentation of primary lowland tropical forests across the range due to conversion to commercial tree plantations (Refer to section 4.1).

6. Utilization and trade

6.1 National utilization

Both species have been exploited across their geographic range historically. This has primarily comprised illegal hunting for local, subsistence level consumption, as a source of protein, and for international trade in skins, scales and meat (CITES 2000). Skins have been used to manufacture boots, shoes and other leather items, while the scales have been used, either in whole or powdered form, in the preparation of traditional medicines amongst other uses. Increasing monetary value of the species has replaced subsistence use of the species with commercial trade, both in urban centres nationally as well as international trade (Newton *et al*. 2008). In Indonesia, this species continues to be hunted for local, subsistence use in central and eastern Kalimantan. Every hunter interviewed in Viet Nam (n = 84) reported that they now sell all pangolins that they catch. Prices are so high that local, subsistence use of pangolins for either meat or their scales has completely halted in favour of selling to the national/international trade. Although dated, Martin and Phipps (1996) noted *M. javanica* meat, scales and blood for sale in a restaurant in Cambodia. Despite national protection, the animals continue to be consumed as luxury wild meat in urban restaurants in Viet Nam and their scales used in traditional medicines. Animals seized in international trade are also frequently auctioned off by provincial authorities, as is legal under Viet Namese law. Mohapatra *et al*. 2015 documents the utilization of *M. pentadacyla* scales, meat, skin and nails by ethnic minorities in Arunachal Pradesh, Northeastern India. Domestic use for medicinal purposes is reported in Eastern Nepal (Katuwal *et al. 2015*). In Viet Nam, whole pangolin bodies are submerged in rice wine for drinking (Save Vietnam's Wildlife, personal communication).

6.2 Legal trade

CITES trade data indicate that between 1977 and 2012 an estimated 576,303 Asian pangolins were in international trade. This mainly involved skins (90%), most of which were traded for commercial purposes (93%), and virtually all of which (99%) occurred prior to, or in, the year 2000. Overall, trade reported to CITES up to 2000 involved an estimated 23,418 ± 18,736 animals (mean ± SD) annually, and peaked twice, most notably in 2000. However, evidence from the RST process indicates that much trade occurred in this period that was not reported to CITES, and that these figures do not accurately reflect the supply of pangolins products to international markets. For instance, at a minimum, tens of thousands of pangolins were illegally imported to China in the early 1990's, largely from Southeast Asia (also see Wu and Ma, 2007; Li and Li, 1998). Similarly, up to 10 tonnes of scales were imported to Taiwan (Province of China) annually between 1980 and 1985 and up to 13 tonnes of scales were imported to South Korea annually throughout the 1980s, in addition to 55 tonnes in 1993. China also imported a minimum of 95 tonnes of scales between 1990 and 1995 from Southeast Asia (Broad *et al*., 1988; Anon., 1992; Anon. 1999a, b), and trade in skins went unrecorded (also see Nooren and Claridge, 2001).

Since 2000, all Asian pangolin species have been subject to a zero export quota for wild-sourced specimens for commercial purposes that was established by the CITES Parties. A summary of legal trade data since 2000 derived from the CITES trade database is presented below:

Manis javanica

Range State	Quotas	Summary
Brunei Darussalam	0 since 2000	No reported exports.
Cambodia	0 since 2000	Between 2008 and 2012, 19 specimens exported to US and GB under purpose code "S".
China	0 since 2000	In 2004, 2045g of scales exported to US for commercial purposes (source I: confiscated).
Indonesia	0 since 2000	In 2003, 41 specimens exported to Japan under purpose code "S". Between 2012 and 2014, US reported imports of pre-convention specimens for personal or commercial purposes.
Lao PDR	0 since 2000	No permitted exports since 2000, although 6026 skins and 49 leather products were exported to US and Mexico for commercial purposes between 2000 and 2003 (source: "W"). In 2000 US reported imports of

Range State	Quotas	Summary
		4109 leather products and shoes for commercial purposes (source: W).
Malaysia	0 since 2000	50 live specimens and 21,720 skins were exported to China, US and Singapore for commercial purpose (source: W) in 2000. Singapore and Japan re-exported 48,596 skins (originally from Malaysia) between 2000 and 2012 for commercial purposes (source: W).
Myanmar	0 since 2000	No reported exports.
Singapore	0 since 2000	No permitted exports since 2000, although 34,070 skins and 3150kg of scales originally from Malaysia were exported for commercial purposes (source: W) between 2000 and 2012.
Thailand	0 since 2000	Negligible: between 2001 and 2007, only 2 skins exported for personal purposes. In 2012 China also reported imports of 16 specimens (originally from Thailand) under purpose code “S”.
Viet Nam	0 since 2000	Between 2007 and 2009, around 2900 specimens were exported. None for commercial purposes. (unreliable data: unit “ml”)

Manis pentadactyla

Range State	Quotas	Summary
Bangladesh	0 since 2000	No reported exports.
Bhutan	0 since 2000	No reported exports.
China	0 since 2000	Between 2000 and 2014, low level of exports for commercial purposes and under purpose codes “Z”, “P”, “E” (zoo, personal, educational). None from source W.
Hong Kong, SAR	0 since 2000	Negligible: only 10 specimens for scientific purposes exported to Singapore in 2004.
India	0 since 2000	Negligible. None for commercial purposes.
LAO PDR	0 since 2000	Between 2009 and 2011, 1000 skins were exported to Mexico for commercial purposes (source: “R”) and 520 derivatives under purpose code “P.”
Myanmar	0 since 2000	No reported exports.
Nepal	0 since 2000	No reported exports.
Thailand	0 since 2000	No reported exports.
Viet Nam	0 since 2000	From 2000 to 2014, US reported imports of 500 skins for commercial purposes (source: W), 24,144 derivatives (kg/g ? undetermined) (only 10 under purpose code “T,” commercial), 1717 (g?) of medicinal items.

6.3 Parts and derivatives in trade

Manis pentadactyla: Meat, scales, live animals (for meat and scales) (Challender et al. 2014a), claws, derivatives, medicine, and skins (CITES Trade Database).

Manis javanica: Meat, scales, live animals (for meat and scales), leather goods, garments (Challender *et al.* 2014b), garments, derivatives, and specimens.

6.4 Illegal trade

Since 2000, little legal trade has been reported to CITES, however seizure data and records of illegal trade indicate that a substantial illegal trade has taken place since. Between July 2000 and 2015 there were at least 153,434 seizures and trade records involving *M. pentadactyla* and *M. javanica* in Asia (Challender *et al*. 2015). Using data until 2013, Challender *et al.* (2015) reported that illegal trade comprised mainly scales (41% of trade; or an estimated 94,279 animals) as well as live and dead animals (31%) and pangolin meat (26%). These data further show that this trade occurred across

Asia and involved all four species of Asian pangolin as well as derivatives of African pangolins. Moreover, they arguably represent only a proportion of total/actual trade volumes as this trade is clandestine, and characteristically, it is suspected much of it goes undetected.

Challender *et al*. (2015) provided analyses of the total number of pangolins in illegal trade in Asia by species as reported, inferred, and possibly in trade between July 2000 and 2015 to be 264,736 individual animals. [Here, species in illegal trade is presented as *reported in illegal trade*, as *inferred in illegal trade* based on reported countries of origin, species' distribution and seizure location, and as *possibly in illegal trade* where it was not possible determine illegal trade to species level]. Data collection efforts focused mainly on Asia (methods as per Challender *et al*. 2015) but included seizures taking place within and/or from Africa, as well as Oceania and Europe, following similar methods.

Seizures in China, Viet Nam and Nepal involved an estimated 3719 individuals of *M. pentadactyla*. Seizures in Cambodia, China Hong Kong, Indonesia, Lao PR, Malaysia, Myanmar, Singapore, Thailand and Vietnam involved an estimated 152,920 individuals of *M. javanica*. Seizures in China, Lao PDR, Myanmar, Thailand and Vietnam involved an estimated 58,507 individuals of *M. pentadactyla/M.javanica.* Zhou et al. (2014) found that, since 2010, 2.59 tonnes of scales (representing 4,870 pangolins) and 259 intact pangolins (220 living, 39 dead) had been seized in a single Chinese province. These authors also found pangolin scales to be worth USD $600 per kilogram – twice what they were in 2008 (Zhou et al. 2014) – demonstrating increased demand.

There is recent data and seizure information for Indonesia and Hong Kong. In Indonesia, between 2012 and July of 2015, Nijman *et al*. (2015) reported a total of 45 seizures (12 in 2012, 10 in 2013 and 17 in 2014) (originating in Asia) in Indonesia. An additional seizure of 200 kg of scales made at Soekarno-Hatta airport in Jakarta on 26 January 2015 was excluded as it originated from Cameroon). Seizures included the confiscation of a container with over 8500 kg of dead pangolins and close to 350 kg of pangolin scales in Jakarta in November 2012, and 300 kg of scales seized in southern Sumatra, in November 2014. A large seizure in Medan, North Sumatra was estimated to contain 2000 frozen pangolins and 96 live pangolins. The destination was only noted for eight of these shipments. A total of 2677 pangolins were destined for mainland China, Hong Kong or Taiwan, 3798 pangolins were headed for Viet Nam (for 2096 of these, Viet Nam was intended as a transit country, with China being the final destination), and 228 for Malaysia. When all seizure reports were converted to individuals, a total of 11,575 individuals were involved (Nijman 2015).

Hong Kong: Recent seizures in Hong Kong include 1000kg of scales in May 2014 originating from South Africa, a large haul of three tonnes of scales in June 2014 originating in Kenya and 2000kg of scales in March 2015 originating from Nigeria.

More recently, Myanmar has emerged as an important transit country for the smuggling of pangolins to China. Data from 29 seizures from Myanmar and 23 from neighbouring countries (Thailand, India, China) implicating Myanmar as a source of pangolins or as a transit point for pangolins sourced in other countries, in the period 2010–2014, illustrate the magnitude of this trade. Combined these seizures amount to 4339 kg of scales and 518 whole pangolins, with a retail value in Myanmar of US$3.09 million (Nijman *et al*. 2016).

6.5 Actual or potential trade impacts

Asian pangolins have been included in Appendix II since 1975. On the basis that trade levels were potentially unsustainable in the 1980s, each species (excluding the Philippine pangolin) was included in the Review of Significant Trade (RST) process in 1988 (preliminary phase) (Broad *et al.* 1988), 1992 (phase I) (Reeve 2002) and 1999 (phase IV), and *M. pentadactyla* and *M. javanica* were also candidate species for the RST_2 in 2004 (post-CoP13 phase). These reviews documented high volumes of illegal, international trade in Asian pangolins and reported illegal hunting-driven population declines in many areas of the species' range. In response, a series of recommendations were made to a number of Parties, which predominantly focused on strengthening trade controls. Notwithstanding implementation of these recommendations (see CITES, 1999), high volumes of international trade, mainly in skins, continued to occur throughout the 1990s and Asian pangolins were subsequently included in phase IV of the RST process in 1999 (see Anon 1999a, b). These reviews again concluded that the species were subject to extremely heavy illegal hunting pressure, in particular *M. javanica* and *M. pentadactyla*, which resulted in major populations declines, and that illegal trade, much of which was destined for China, dwarfed trade reported to CITES (see Section 4.1; Anon. 1999a, b).

All Asian pangolins, with the exception of the Philippine species, which was recently described as distinct from the *M. javanica* (see Gaubert and Antunes, 2005) and listed in Appendix II in 2007, were also subject to a proposed transfer from Appendix II to Appendix I at the 11th meeting of the Conference of the Parties (CITES 2000). However, the Parties instead opted to establish zero export quotas for all wild-caught Asian pangolins traded commercially – in effect a proxy trade ban (CITES, 2000). *M. pentadactyla* and *M. javanica* are listed as protected in all but two range States today (Bhutan and Brunei Darussalam), some of which have implemented strong regulatory measures, most notably China. Despite all these measures, Asian pangolins are currently subject to on-going illicit international trade (Wu and Ma, 2007; Challender *et al*., 2014a, 2014b).

The negative impacts of trade on populations have been recognized by IUCN in its justification for the reclassification under the IUCN Red List of Threatened Species of *both species* to Critically Endangered, and are further described in Sections 4.4, 6.2, 6.4 of this document. Collection pressure has been implicated in declines of both species across their ranges.

Local declines and extinctions driven by trade have occurred in the presence of suitable habitat; populations have gone extinct in China (*M. pentadactyla*) and have declined as per hunter accounts in Viet Nam, Cambodia, Laos, Malaysia and Indonesia (See other sections). Given the low reproductive rate of pangolins combined with their inability to reproduce successfully in captivity, the large volume of seizures have had negative repercussions for populations with noticeable declines, further range reductions and ultimately, extinction.

The large volume of illegal trade (Section 6.4), poor enforcement, the lack of effective national management plans, and the lack of compliance warrant transfer of the species to Appendix I. Zero export quotas established in 2000 have failed to curb illegal trade in pangolins with insatiable demand triggering high prices and translating to intense collection pressure across the range. Given the estimated generation length of seven years, the indiscriminate nature of poaching and the magnitude of seized trade, the impacts of trade on natural pangolin populations are potentially very significant.

7. Legal instruments

7.1 National

Principal national legislation affording protection to pangolins in Asia and legislation implementing CITES in Asian pangolin range States are listed in Challender (2015). The document outlines allowances, prohibitions and penalties imbedded in National Legislation in pangolin range States.

Summary of national protection status by range State

Range State	Summary
Bangladesh	*Manis pentadactyla*: The species is protected by the Wildlife (Conservation & Security) Act 2012, Schedule I. All trade and domestic use is prohibited.
Brunei	*Manis javanica*: Receives broad protection under the Forestry Act (2002) and Wildlife Protection Act (1981) as well as the Wild Fauna and Flora Order (2007) which implements CITES. Under Section 47 of the Order, it prohibits trade in species listed in the CITES Appendix into or from Brunei Darussalam except pursuant to the appropriate permit or certificate granted.
Bhutan	*Manis pentadactyla:* Received broad protection under the Forest and Nature Conservation Act of 1995. Under the Forest and Nature Conservation Rules (2006).
Cambodia	*Manis javanica*: In Cambodia this species is listed as rare in the Ministry of Agriculture, Forestry and Fisheries (MAFF) Declaration 020 and receives protection under the Forestry Law (2002) and Sub-Decree No. 53 on international trade in endangered species of wild fauna and flora (2006).
China	*M. pentadactyla, M. javanica*: State Category II protected species under the Protection of Wildlife Act (1989). It is also afforded protection under the Regulations on the Implementation of Protection of Terrestrial Wild Animals (1992) and the Regulations on Management of Import and Export of Endangered Species of Wild Fauna and Flora 2006, which implements CITES. Pangolins in China also received further protection in the year 2000, following the promulgation of two judicial interpretations, which defined criteria for punishing crimes

Range State	Summary
	involving pangolins specifically. Similarly, a notification issued by national Chinese agencies in 2007 strengthened regulation for species used in traditional medicines, including pangolins, meaning illegal hunting licenses for pangolins are not to be issued and existing stockpiles of pangolin scales are to be subject to verification, certification and subject to trade only through designated outlets such as hospitals. In Hong Kong SAR, *M. pentadactyla* is protected under the Wild Animals Protection Ordinance 1976 (amended 1980, 1996) and the Protection of Endangered Species of Animals and Plants 2006. In Taiwan (Province of China), all *Manis* spp. have been protected since August 1990 under the 1989 Wildlife Conservation Law (amended 1994).
India	*M. pentadactyla* is completely protected being listed in Schedule I of the Wildlife Protection Act 1972 (amended 2003, 2006).
Indonesia	*M. javanica* has been protected in Indonesia since 1931, under Wildlife Protection Ordinance No. 266 of 1931 (promulgated by the Dutch administration), as well as under Act. No. 5 of 1990, regarding Conservation of Natural Resources and Their Ecosystems; Decree of the Minister of Forestry No. 301/kpts-II/1991 and Decree of the Minister of Forestry No. 822/kpts-II/1992. It also receives protection under the Government Regulation on Conservation on Flora & Fauna No. 7 (1999).
Laos	In Lao PDR both species are listed in the 'Prohibition' category of its Wildlife and Aquatic Law (2007) as a rare, near extinct, high value or species of special importance in the development of socio-economic, environmental, educational and scientific research.
Malaysia	*M. javanica* is a totally protected species in Peninsular Malaysia under the Wildlife Conservation Act (2010) and receives protection under the International Trade in Endangered Species Act (2008). In Sabah it is listed as protected in the Wildlife Conservation Enactment (1997) while it is also listed as protected in Sarawak under Sarawak's Wildlife Protection Ordinance (1998).
Myanmar	*M. javanica*, *M. pentadactyla*: Listed as Completely Protected Animals in accordance with the Wildlife and Protected Areas Law (1994).
Nepal	*M. pentadactyla*. The species is listed as a Protected Animal in Schedule I of the National Parks and Wildlife Protection Act (1973, as amended 1993). There is no legal provision for hunting, trade or domestic use.
Singapore	*M. javanica* is protected under the Wild Animals and Birds Act (1965, amended 2000) and the Wild Animals and Birds (Composition of Offences) Order 2005. It also receives protection here under the Endangered Species Act (Import/Export) Act (2006, amended 2008).
Thailand	In Thailand, all *Manis* spp. are classified as Protected Wild Animals under the 1992 Wild Animals Reservation and Protection Act B.E. 2535.
Viet Nam	In Viet Nam both species are listed as legally protected in Group IIB of Decree 32 on the Management of Endangered, Precious, and Rare Species of wild Plants and Animals (2006). However, Section 9 of this law enables pangolins seized from illicit trade to be legally sold back into trade. Lack of an appropriate solution for confiscated pangolins continues to be a major problem for enforcement agencies in Viet Nam. Since 2014, *M. Javanica and Pentadactyla are* listed as legally protected as a rare and priority species for conservation under Decree 160 which is the country's highest protection level and which states that live animals seized from the trade must be transferred to a rescue center or released if strong enough (effective January 1, 2014); the Decree does not regulate dead pangolins or derivatives and auctioning of these confiscated items is allowed (Viet Nam 2013). The confiscated live pangolins that are used as evidence of illegal trade are required to be held in captivity until the case closes, which can often take a long time and affect the success of rescue and rehabilitation of those animals.

7.2 International

Both species are listed in CITES Appendix II and zero export quotas were established for wild-caught specimens traded for primarily commercial purposes in 2000 (CoP11).

8. Species management

8.1 Management measures

Programs to manage wild populations of any of the eight species of pangolins do not exist in any range State. Neither species management plans nor regulatory mechanisms governing capture, holding, transport and export exist in the majority of range States.

8.2 Population monitoring

None of the range States have population monitoring programmes focusing on any species. The secretive and solitary nature of pangolins makes monitoring wild populations difficult (but all the more imperative).

8.3 Control measures

8.3.1 International

All Asian pangolins have been included in Appendix II since 1975; they were included in the Review of Significant Trade (RST) process in 1988 (preliminary phase), 1992 (phase I) and 1999 (phase IV), and *M. javanica* and *M. pentadactyla* were also candidate species for the RST in 2004 but excluded from the post CoP 13 phase of the RST due to negligible reported trade levels. All Asian pangolins, with the exception of *M. culionensis*, which was described as distinct from *M. javanica* (see Gaubert and Antunes, 2005) and listed in Appendix II in 2007, were also subject to a proposed transfer from Appendix II to Appendix I at the 11th meeting of the Conference of the Parties in Kenya (CITES 2000). However, the Parties instead opted to establish zero export quotas for all wild-caught Asian pangolins traded commercially – in effect a proxy trade ban (CITES, 2000). In 2010, the CITES Secretariat issued a "CITES Alert" to law enforcement agencies on fraudulent and illegal trade in pangolins and in 2013, the CITES Secretariat raised concern about illegal trade in pangolins in an agenda item on enforcement matters at CoP16, and Decisions 16.41 and 16.42 were taken requesting range States to submit information on illegal trade to SC65 (July 2014). Given that few parties provided information under Decisions 16.41 and 16.42, SC65 established an inter-sessional working group with a mandate to work with the CITES Secretariat to gather further information on the trade and conservation of African and Asian pangolins.

A number of countries have regulations or standard operating procedures for the management, storing and disposing of confiscated specimens in place. A majority of range States have engaged in some form of international cooperation in combatting poaching or illegal trade in pangolins, using mostly international enforcement networks such as the Lusaka Task Force, ASEAN WEN or Interpol.

Operation COBRA is a multi-regional wildlife law enforcement operation initiated by regional wildlife enforcement agencies/networks comprising Lusaka Agreement Task Force (LATF), ASEAN-WEN, South Asian Wildlife Enforcement Network (SA-WEN) as well as the USA, China and South Africa. The operation was inspired by the need to put into action commitments made by governments and the international community to address wildlife crime. Operation COBRA bridges source, transit and destination countries of wildlife contraband jointly to fight transnational organized wildlife crime. To date, three COBRA operations have been carried out, in 2013, 2014 and 2015.

8.3.2 Domestic

In Brunei Cambodia, China, Indonesia, Laos, Malaysia, Myanmar, Thailand and Viet Nam, there are generic law enforcement measures being implemented by government agencies that are directed towards addressing wildlife crime and endangered species in general rather than being specifically focused on pangolins. Education and awareness programs

implemented by NGOs and focused on pangolins exist in a smaller number of the range States. Trade monitoring is being undertaken in Viet Nam, Indonesia and China. The following countries indicated that they had not implemented any enforcement actions aimed at combating poaching, illegal trade and other illegal activities concerning pangolins (Bangladesh, Bhutan, Brunei, Indonesia, Malaysia (FDS, SWD), Myanmar, Singapore, Thailand.

The following is information on domestic control measures taken in range countries:

China: A chronological summary of law enforcement measures enacted by China is described below.

- 2006: China introduced Regulations on Management of Import and Export of Endangered Species of Wild Fauna and Flora to implement CITES.

- 2007: China introduces notification on species used in traditional medicines including pangolins, and penalties for pangolin-related offences specifically are introduced. Notification also stipulates illegal hunting licenses are not to be issued for pangolins, stockpiles of derivatives should be verified, trade is to be subject to certification and restricted to between Chinese medicine manufacturers and designated hospitals and be for sale to the public only through designated 711 hospitals.

- 2014: China deemed consumption of pangolins illegal under new criminal law.

Malaysia (DWNP): In Malaysia (DWNP), a number of enforcement actions aimed at combating poaching, illegal trade and other illegal activities concerning wildlife including pangolin implemented at various level. These actions include the establishment of Wildlife Crime Unit, intelligence sharing among enforcement agencies, collaboration in wildlife monitoring and enforcement through National Blue Ocean Strategy (NBOS).

Nepal: Joint operations have been conducted in close coordination by law enforcing agencies (Department of National Parks and Wildlife Conservation, Central investigation bureau, Nepal Police, Nepal army, Department of Forest) as required by Operation COBRA I, Operation COBRA II, in addition to other normal regular patrolling, search operations.

Pakistan: Provincial wildlife authorities ensure strict enforcement through watch and ward in and around protected areas. Field staff have been sensitized to check any illegal activity regarding pangolins. Provincial Wildlife Departments have launched an active campaign in Potohar Region and other potential areas for conservation of pangolins.

Viet Nam**:** Tackling pangolin trafficking is a priority of the VN Wildlife Enforcement Network, and a stated priority in Prime Ministers Directive No. 3 2014. The Environmental police, customs officers, forest rangers have carried out a number of enforcement actions targeting pangolin networks in recent years including a seizure of more than 20,000kg of frozen pangolin origin from Indonesia transit in Hai Phong sea ports 5 years ago.

8.4 Captive breeding and artificial propagation

While pangolins have been kept in captive conditions (notably *M. javanica* in the Singapore Zoo and *M. pentadactyla* in the Taipei Zoo), in general, pangolins do not survive well in captivity and can suffer 71% mortality in the first year of captivity (Wilson 1994). Reports indicate that over the past 150 years, more than 100 zoos or organizations have attempted to maintain pangolins. Most captive pangolins died within six months and some have been kept alive for two to three years. Zoo records for pangolins in captivity from 1877 to 2001 had been reviewed by Yang (Yang *et al*. 2007). More recently, Hua *et al*. (2015) provided a review of pangolins in captivity and indicated that poor adaptability to captive environments, highly specialized natural diet, poor understanding of pangolin's reproductive biology, and weak immune systems are some of the challenges underlying poor survival and breeding in captivity.

Many organizations have tried to establish commercial farms to breed the pangolins but none of them have been successful. For example: Guangdong Provincial Wildlife Rescue Centre in China kept 33 *M. javanica* and 2 *M. pentadactyla* to try to breed but all pangolins died, only 5 pangolins survived

over 1 year (only 2 lived for over 600 days) (Hua *et al*. 2015). Due to the fact that pangolins have rarely been successfully bred in captivity, the IUCN Pangolin Specialist Group gave "conservation breeding" the lowest priority rating possible (four out of a scale from one to four) in their July 2014 Conservation Action Plan (Challender et al. 2014c).

8.5 Habitat conservation

Both species are found in primary and secondary forests, including lowland dipterocarp forest and cultivated areas including gardens and oil palm and rubber plantations, including near human settlements (Azhar *et al.* 2013, Nowak 1999). There is some indication of a preference for big hollows typically found in large trees in undisturbed forest (Lim and Ng 2007). While hunter interviews in Viet Nam (Newton *et al*. 2008) suggested that primary forest supported more pangolins due to the presence of older trees and less human disturbance, further research is required to better understand pangolin habitat use and the ability of this species to persist outside primary forest. Thapa *et al*.'s study (2014) in Eastern Nepal indicated fire, fodder collection and road-building as factors responsible for degradation of pangolin habitat in addition to deforestation. Deforestation both inside and outside protected areas across the range of the species needs to be reduced as habitat loss is linked with increased vulnerability to illegal hunting for pangolins. Further, pangolin habitat in Eastern Nepal occurs outside protected areas occurring in forest and agricultural habitat in a human-dominated landscape (Katuwal *et al*. 2015).

Pangolins occur both within the protected area network as well as outside the network in each range state. Annex 1 in the report of the First Pangolin Range States Meeting (USFWS 2015) provides detailed information on pangolin strongholds and challenges facing pangolin conservation. Almost all enforcement measures are targeted at protected areas with negligible law enforcement outside protected areas. Nonetheless, even protected areas across the range states are under severe pressures from poaching, agricultural encroachment, biomass extraction and deforestation driven by poverty and weak law enforcement. Lack of capacity is a significant factor associated with weak law enforcement.

8.6 Safeguards

Other than the legal instruments previously described, no safeguards are in place for this species.

9. Information on similar species

All four species of Asian pangolins are morphologically similar with differences in the number and size of scales, size of foreclaws and ears and the ratio of head and body to tail length (Wu *et al*. 2004 , Gaubert and Antunes 2005). *M. pentadactyla* has relatively longer front claws, larger ears, and fewer rows of scales on the tail (14 to 17 instead of about 30) than *M. javanica* (Wu *et al*. 2004). Although similar morphologically to *M. javanica* and *M. pentadactyla*, the scales of *M. crassicaudata* are relatively larger than those of the *M. pentadactyla* and have 11–13 rows of scales across the back compared to 15–18 rows in the *M. pentadactyla* and up to 30 rows of scales in *M. javanica*. A terminal scale is also present on the ventral side of the tail of *M. crassicaudata*, but absent in M. pentadactyla (Pocock, 1924; Heath, 1995; Prater, 2005). Interscale bristles are unique to Asian pangolins (Heath 1992). Expert knowledge is required to distinguish between the recently described Philippine pangolin species (*M. culionensis*) from *Manis javanica*. In 2005, Gaubert et al published a paper describing the use of morphometric data to distinguish between the Philippine pangolin and Sunda pangolin (see Table 2.2 below).

Table 2.2: *Diagnostic characteristics of the Philippine pangolin and Sunda pangolin taken from Gaubert et.al. (2005).*

Species-diagnostic characters	***Manis culionensis***	***Manis javanica***
Total no of lateral scale rows	19-21	15-18
Size of scales in nuchal, scapular, and postscapular regions	Small	Large
Ratio of head-body : tail length (Mean ± SD)	1.11±0.03 (n = 5)	1.25±0.13 (n = 20)

However, analysis of measurements of 32 individuals of *M. javanica* carried out by the Save Vietnam's Wildlife showed that ratio of head-body and tail length is 1.09 ± 0.14 (Mean ± Standard Deviation) which differs from the results published by Gawbert et.al., 2005. This result suggested that there is no significant

difference between the ratio of head-body : tail length of *Manis culionensis* and *Manis javanica* (Nguyen *et al,* 2014).

Scales are the most common derivatives found in trade and it is difficult to confirm species identity from isolated scales of the four species of Asian pangolins. DNA forensic studies have been applied to species identification from pangolin scales (Hsieh *et al*. 2011) and Zhang *et al.* (2015) have recently shown that molecular tracing of confiscated pangolin scales is feasible.

10. Consultations

All range States of *M. pentadactyla* and *M. javanica* were sent consultation letters to their CITES Management Authorities. We received responses from the following range States that they are supportive of this proposal: Bhutan, India, Myanmar, and Singapore. At the time of submission, no response has been received from the remaining range states except China who do not support this proposal. The information received from these range States has been incorporated into this document in the appropriate sections.

11. Additional remarks

From 24 to 26 June 2015, the First Pangolin Range States Meeting, which was co-hosted by the governments of Viet Nam and the United States of America and organized and facilitated by Humane Society International, took place in Viet Nam. The meeting brought together delegates from 29 African and Asian pangolin range States, the Secretariat, one non-range State, pangolin experts and non-governmental organizations. The CITES Secretary General delivered a video statement to the workshop, and the Secretariat presented a brief summary of the questionnaire responses submitted in response to Notification to the Parties No. 2014/059, on behalf of the Chair of the Working Group on pangolins. This range States meeting gave pangolin range States an opportunity to develop a unified action plan to protect the eight pangolin species against over-exploitation as a result of international trade. Participants agreed on a suite of recommendations addressing enforcement, conservation, implementation, and data collection challenges concerning pangolin over-exploitation as a result of illegal and unsustainable legal trade. The recommendations agreed upon at the workshop were shared with the Working Group on Pangolins by the workshop organizers. Participants of the meeting − including Asian range State representatives present − evaluated each Asian pangolin species and agreed that each Asian pangolin species qualifies for inclusion in CITES Appendix I in accordance with CITES Res. Conf. 9.24 (Rev. CoP16). Details of the assessment can be found in the report of the First Pangolin Range States Meeting, which was provided to the twenty-eighth meeting of the CITES Animals Committee (AC28; Tel Aviv 2015) as information document AC28 Inf. 23 and to the sixty-sixth meeting of the CITES Standing Committee (SC66; Geneva 2016) as SC66 Inf. 6. An abbreviated report of the meeting consisting of the recommendations in the three official languages of CITES was submitted for discussion at SC66 (SC66 Doc. 50.2). A link to the report can also be found at: http://www.fws.gov/international/pdf/first-pangolin-range-states-meeting-report-8-3-2015.pdf. In addition, a link to an archive of the presentations given at the First Pangolin Range States Meeting can be found at: http://www.fws.gov/international/publications-and-media/archive.html#pangolins.

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Reports of Illegal Trade, Confiscations, and Seizures Related to International Trade

Date of Seizure (Month, Year)	Location	*Manis* Species	Details of Incident	Source
March, 2003	Indonesia	Unidentified	149 live pangolins were seized, destined for Hong Kong.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
February, 2005	Indonesia	Unidentified	15 live pangolins and 22 kg of scales were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
December 2005	Indonesia	Unidentified	784 dead pangolins were seized, along with 20 kg of carcass derivatives and 972 kg of scales, were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
January, 2006	Indonesia	Unidentified	33 live pangolins were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
September, 2006	Indonesia	Unidentified	100 live pangolins, 500 dead pangolins, and 86 kg of scales were seized, destined for Hong Kong.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
November, 2006	Indonesia	Unidentified	200 live pangolins were seized, destined for China.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
November, 2006	Indonesia	Unidentified	200 dead pangolins were seized, destined for China.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
2006	Thailand	Unidentified	180 live pangolins were seized, destined for Thailand via Malaysia.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
May, 2007	Indonesia	Unidentified	40 live pangolins were seized, destined for Malaysia.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
May, 2007	Chine	Unidentified	31 pangolins were seized from a deserted boat drifting near the coast of China.	The Guardian, 25 May, 2007, http://www.theguardian.com/environment/2007/may/26/china.conservation
2007	Malaysia	Unidentified	168 live pangolins were seized, destined for China.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
January, 2008	Indonesia	Unidentified	Live pangolins were seized from three collectors, who were trafficking about 2,250 pangolins per month.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
February, 2008	Indonesia	Unidentified	256 live pangolins were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
March, 2008	Indonesia	Unidentified	41 pangolin carcasses were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
March, 2008	Indonesia	Unidentified	10 live pangolins and 20 carcasses were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf
April, 2008	Indonesia	Unidentified	9 live pangolins and 9 dead pangolins were seized, destination unknown.	TRAFFIC, 2008, http://www.trafficj.org/publication/09_proceedings_pangolin.pdf

Date of Seizure (Month, Year)	Location	*Manis* Species	Details of Incident	Source
2008	Viet Nam	Unidentified	23 tonnes of frozen carcasses were seized by Customs, destined for China.	TRAFFIC, 2008, http://www.traffic.org/home/2010/10/28/seized-notebooks-give-unique-insight-into-scale-of-illicit-p.html
June, 2010	China	Unidentified	2,090 frozen pangolin and 92 cases of scales (nearly 8 tonnes of pangolins and pangolin scales) were seized from a fishing vessel in Guangdong.	The Guardian, 13 July, 2010, http://www.theguardian.com/environment/2010/jul/13/china-customs-pangolin
July, 2012	Uganda	Unidentified	115 kg of pangolin scales were seized, headed to China.	TRAFFIC, Challender & Hywood, 2012
April, 2013	Philippines	Unidentified	A Chinese vessel caught in the Philippines contained 400 boxes of frozen pangolin meat (over 10,000 kg).	The Guardian, 15 April, 2013, http://www.theguardian.com/environment/2013/apr/15/chinese-vessel-philippine-reef-illegal-pangolin-meat
August, 2013	Nepal	*Manis pentadactyla*	Police arrested a man with Chinese pangolin scales from a pangolin he had killed and stashed in his backyard. 300 grams of scales were confiscated.	The Himalayan Times, 8 August 2013, http://www.thehimalayantimes.com/fullNews.php?headline=Lamatar+local+held+with+pangolin+scales&NewsID=387314
August, 2013	India	Unidentified	A pangolin scale export racket was busted, and 25 kilograms of pangolin scales were seized.	Deccan Herald, 12 August, 2013, http://www.deccanherald.com/content/350755/pangolin-shell-export-racket-busted.html
August, 2013	Viet Nam	Unidentified	6.2 tonnes of pangolins were seized by Customs officials from a 40-foot cargo container arriving from Indonesia	Annamiticus, 13 August, 2013, http://annamiticus.com/2013/08/13/over-6-tons-of-pangolins-seized-in-vietnam-port/
August, 2013	India	Unidentified	A suspect was arrested with an undisclosed amount of pangolin scales.	Annamiticus, 2 September, 2013, http://annamiticus.com/2013/09/02/102-live-pangolins-confiscated-in-thailand-pangolin-scales-seized-in-india/
September, 2013	Thailand	Unidentified	200 live pangolins were seized by the Thai police in two pick-up trucks in the province of Udon Thani. The animals were destined for China and Vietnam, via Laos. They were thought to have been captured in a nearby Thai national park.	Asia One, 17 September 2013, http://news.asiaone.com/news/asia/thai-police-seize-nearly-200-pangolins
October, 2013	Uganda	Unidentified	Two Chinese nationals were caught at Entebbe International Airport with one and a half cups of pangolin scales stuffed in their socks. The two men were headed for China.	New Vision, 1 October, 2013, http://www.newvision.co.ug/news/647817-police-holds-suspected-chinese-traffickers.html
October, 2013	Zimbabwe	Unidentified	A pangolin was seized from a Zimbabwean man, who was trying to take the pangolin to President Mugabe. The animal was wounded and suspected to have been abused.	Nehanda Radio, 7 October, 2013, http://nehandaradio.com/2013/10/07/i-want-my-pangolin-back-man-tells-cops/
2013	Viet Nam	Unidentified	2,364 pangolins were seized in	Annamiticus, 24 October, 2013,

Date of Seizure (Month, Year)	Location	*Manis* Species	Details of Incident	Source
			Viet Nam during the months of August through October of 2013.	http://annamiticus.com/2013/10/24/pangolin-trafficking-2011-to-october-2013-infographic/
January, 2014	Nepal	Unidentified	Police arrested a woman trying to smuggle 14 kg of pangolin scales across the border to Tibet. The woman claimed to have obtained the scales in Dhankuta, and that this was not her first time.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
January, 2014	India	Unidentified	Two kilograms of pangolin scales were seized in the town of Dandeli, and two suspects were arrested.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
January, 2014	China	Unidentified	39 live pangolins were seized by police from a car, and one suspect was taken into custody.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
March, 2014	India	Unidentified	Two individuals were arrested by Assam Rifles at Tengnoupal after a vehicle inspection revealed they were transported pangolin skins.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
March, 2014	Indonesia	Unidentified	73 kg of scales were seized by the Central Kalimantan Conservation and Natural Resources Authority (BKSDA) being mailed to a fake address in Jakarta from an unknown sender.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
March, 2014	India	Unidentified	18.3 kg of pangolin scales were seized and two smugglers were apprehended by Assam Rifles.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
March, 2014	Viet Nam	Unidentified	52 live pangolins were seized by Provincial Police from the back of a pickup truck on March 28, 2014.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
March, 2014	Pakistan	Unidentified	145 kg of pangolin scales were seized by Pakistan customs officials at Benazir Bhutto International Airport in Islamabad, from two Chinese nationals.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
April, 2014	Viet Nam	Unidentified	One pangolin was seized by Environmental Police during the inspection of a cage on the back of a motorbike.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	Indonesia	Unidentified	Police in Medan arrested two men smuggling four pangolins.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	China	Unidentified	Border police in Zhuhai seized a shipment of 956 frozen pangolin bodies in 189 boxes,	China Daily, 8 May, 2014, http://usa.chinadaily.com.cn/opinion/2014-

Date of Seizure (Month, Year)	Location	*Manis* Species	Details of Incident	Source
			weighing a total of 4 tonnes.	10/08/content_18703183.htm
May, 2014	Thailand	Unidentified	Thai police seized 130 live pangolins on May 16, 2014 from a warehouse in the Lat Lum Kaeo district of Pathum Thani Province. Three suspects were arrested. The suspects claimed they had done this several times.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	Viet Nam	Unidentified	Police in Mong Cai seized 21 pangolins. Most of the animals were still alive.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	Hong Kong	Unidentified	Customs authorities seized over one tonne of pangolin scales from a shipping container arriving from Kenya on May 28.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	Indonesia	Unidentified	35 pangolins were seized and two suspects arrested at a roadblock in Riau. The suspects were headed to Medan.	Suara Alam, 20 June, 2014, http://www.suara-alam.com/en/international/2014/06/20/pangolin-trafficking-watch-first-half-2014#.VLWOZsaRPzI
May, 2014	Hong Kong	Unidentified	14 bags containing one tonne of scales were seized from a shipment in Hong Kong, arriving from Uganda via Kenya and Malaysia.	SCMP, 16 June 2014, http://www.scmp.com/news/hong-kong/article/1534140/pangolin-scales-worth-hk17m-found-hidden-shipments-africa
June, 2014	Hong Kong	Unidentified	2.34 tonnes of scales in 115 bags were seized from a timber shipment, arriving from Cameroon, that was selected for inspection.	SCMP, 16 June 2014, http://www.scmp.com/news/hong-kong/article/1534140/pangolin-scales-worth-hk17m-found-hidden-shipments-africa
July, 2014	Viet Nam	Unidentified	1.4 tonnes of pangolin scales were seized from cargo ship arriving from Sierra Leone.	Thanhnien News, 25 July, 2014, http://www.thanhniennews.com/society/big-haul-of-pangolin-scales-seized-in-vietnams-port-29089.html
July, 2014	Viet Nam	Unidentified	Police in Viet Nam seized 350 kg live pangolins destined for China.	http://www.thanhniennews.com/society/vietnam-police-seize-350-kilo-of-pangolins-bound-for-china-27935.html
September, 2014	China	Unidentified	457 dead pangolins were found in 4 refrigerators by Guangdong police.	Asia One, 13 September, 2014, http://news.asiaone.com/news/asia/457-dead-pangolins-found-4-fridges-china
December, 2014	Malaysia	Unidentified	100 kg of pangolin scales and parts were seized by Customs officers at their checkpoint at Pending Postal Centre. The 11 boxes of pangolin derivatives were destined for Peninsular Malaysia and Sabah. The consignments were declared as tropical fruits.	The Borneo Post, 14 December, 2014, http://www.theborneopost.com/2014/12/24/rm50000-in-pangolin-scales-parts-destroyed/
January, 2015	India	*Manis crassicaudata*	4 kg of pangolin meat was seized from a house by a forest team of Rajaji National	Times of India, 4 January, 2015, http://timesofindia.indiatimes.co

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			Park on 3 January, 2015.	m/city/dehradun/Rampant-poaching-of-Pangolins-in-RNP-goes-unchecked/articleshow/45752889.cms
January, 2015	India	*Manis crassicaudata*	7.5 kg of scales were seized from a poacher by the Special Task Force, police, and forest staff. The scales were destined for an animal parts dealer in Nepal.	Times of India, 4 January, 2015, http://timesofindia.indiatimes.com/city/dehradun/Rampant-poaching-of-Pangolins-in-RNP-goes-unchecked/articleshow/45752889.cms
January, 2015	Uganda	Unidentified	2 tonnes of skins/scales, found at Entebbe airport, Uganda, destined for the Netherlands, were seized.	http://www.therakyatpost.com/world/2015/01/26/700kg-ivory-2-tonnes-pangolin-skins-seized-ugandas-airport/
March, 2015	Hong Kong	Unidentified	2 tonnes of scales seized by Customs from a shipping container from Nigeria.	http://www.news24.com/Green/News/Two-tons-of-rare-pangolin-scales-seized-in-Hong-Kong-bust-20150320
April, 2015	Indonesia	Unidentified	3,000-4,000frozen pangolins (5 tonnes), 77kg scales, and 96 live animals were seized from a warehouse in Medan, the largest city on the island of Sumatra	http://www.theguardian.com/environment/picture/2015/apr/30/thousands-of-frozen-pangolins-lie-in-a-pit-in-indonesia
May, 2015	China	Unidentified	249 kg scales were seized from suitcases at Pudong International Airport. The person arrested said they were helping a colleague transport and deliver the scales from Nigeria to China. Another 25 kg were seized 10 days later from another person said to be helping the same person.	http://www.shanghaidaily.com/metro/society/Customs-seize-249kg-scales-of-pangolin/shdaily.shtml
July, 2015	Indonesia	Unidentified	1.3 tonnes of frozen pangolins bound for Singapore were seized.	http://jakarta.coconuts.co/2015/07/09/police-surabaya-seize-13-tons-frozen-pangolins-headed-singapore-photos
July, 2015	India	Unidentified	1 kg of scales was seized by the Wildlife Crime Control Bureau.	http://zeenews.india.com/news/eco-news/pangolin-scales-seized-one-held-in-odisha_1629855.html
August, 2015	Viet Nam	Unidentified	4 tonnes of pangolin scales that arrived from Malaysia were seized by Customs in Da Nang.	http://maritime-executive.com/article/da-nang-is-new-conduit-for-ivory-trafficking
September, 2015	Malaysia	Unidentified	97 live pangolins were seized, believed to be en route to Thailand.	http://www.thestar.com.my/News/Nation/2015/09/11/Dept-rescues-97-pangolins-Animals-found-packed-into-bags/
September, 2015	India	Unidentified	Forest officials seized one kilogram of pangolin scales.	http://www.bangaloremirror.com/bangalore/crime/Man-arrested-one-kg-pangolin-scales-seized/articleshow/49081585.cms