

# PANGOLINS IN PERIL

# A VANISHING SPECIES







**P**angolins, the scaly anteaters of Asia and Africa, are facing extinction. They are the most illegally traded mammal in the world, with a staggering one million pangolins believed to have been taken from the wild over the past decade.<sup>1</sup> Pangolins are disappearing at a rate that worries experts and could spell the end for one of nature's most distinctive and unique animals.

All eight pangolin species are currently listed on Appendix II of the Convention on International Trade in Endangered Species (CITES); this provides some control on international trade—particularly for the Asian species, which have a zero commercial export quota for specimens removed from the wild. Despite this measure, the pangolin trade remains rampant and is threatening their future. It is critical to the survival of these animals that all eight species be transferred to Appendix I of CITES, the highest international protection available, which would effectively ban international commercial trade.



# WHAT ARE PANGOLINS?



Pangolins are primarily solitary and nocturnal mammals, spending the daytime hours sleeping in burrows or in tree hollows.<sup>2</sup> Pangolins prey exclusively on ants and termites, employing their strong foreclaws to break up nest structures and their long, sticky tongues to lap up insects and larvae.<sup>3,4</sup>

Pangolins are known for the keratinous scales that cover their bodies from head to tail. When threatened, pangolins roll into a ball, exposing their scales' razor-sharp edges.<sup>5</sup> Unfortunately, this strategy is no match for human poachers, who can simply pick up the frightened animals and bundle them into sacks.<sup>6</sup> Pangolins also have low reproductive output. They produce only one offspring at a time and have a generation length estimated at seven to nine years, depending on the species.<sup>7</sup>

## RANGE AND HABITAT

There are four species of pangolin in Asia, and four in Africa. Pangolins are found throughout much of southeastern and eastern Asia and the Indian subcontinent, and across sub-Saharan Africa.<sup>8</sup> They occupy a diverse array of habitats including tropical forests, grasslands, savannas, and deciduous forests.<sup>9</sup>

## POPULATION STATUS

Experts agree that all eight pangolin species are declining rapidly. The International Union for the Conservation of Nature (IUCN) conducted assessments in 2014 for each pangolin species and found that all eight are "Threatened with Extinction" to varying degrees (Critically Endangered, Endangered, or Vulnerable), due primarily to unmitigated poaching and international trade driven by demand for their meat and scales.<sup>10</sup>



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# DEMAND FUELS ILLEGAL INTERNATIONAL TRADE

Pangolins are prized in China and Vietnam for their meat and scales. In traditional Asian medicine, powdered pangolin scales have a variety of uses, from dispersing congealed blood to promoting lactation. Additionally, pangolin meat is considered a delicacy and a status symbol, selling for up to \$200 per kilogram.<sup>11</sup>

Demand for pangolin meat and scales in China and Vietnam is increasing rapidly.<sup>12</sup> Evidence suggests pangolin populations in China have been commercially extinct since 1995, so poachers must look elsewhere to satisfy the burgeoning demand.<sup>13</sup> For years they have targeted pangolins in neighboring Southeast Asian countries, taking the animals from the wild and shipping the meat and scales to China and Vietnam by the ton, leading to massive declines.<sup>14</sup> Alarming, this trend has spread to Africa as authorities now regularly seize vast shipments of pangolin scales from African countries on their way to Asian markets.<sup>15</sup>

The number of pangolins poached from the wild in order to satisfy demand is staggering. It has been estimated that well over one million pangolins were killed to fuel this trade in the past decade, not including local consumption.<sup>16</sup> And because pangolins fail to thrive in captivity, captive breeding as a “safeguard” is not an option.<sup>17</sup> Without immediate action, entire populations of pangolins will soon be wiped out, and species-level extinction will become inevitable.

TABLE 1: SELECTED LARGE SEIZURES OF PANGOLINS AND THEIR PARTS SINCE 2010

YEAR	LOCATION OF SEIZURE	COMMODITY	APPROXIMATE WEIGHT (KG)
2010	Vietnam	Scales	2,000
2010	China	Frozen Pangolins and scales	9,432
2011	Indonesia	Frozen Pangolins and scales	6,690
2011	Indonesia	Frozen Pangolins + Scales	7,500
2012	China	Scales	1,540* *Seizure also included several thousand kilograms of frozen pangolins
2012	Indonesia	Frozen Pangolins	5,000
2013	Phillipines	Frozen Pangolins	10,000
2013	Kenya	Scales	534
2014	Cameroon	Scales	1,500
2014	Hong Kong	Scales	3,340* *Two separate seizures
2015	Uganda	Scales	2,000
2015	Vietnam	Scales	4,000
2015	Indonesia	Frozen Pangolins and scales	5,100
2015	India	Scales	10,000
2015	China	Frozen Pangolins	11,500

Source: Media Reports



# THE CASE FOR AN APPENDIX I LISTING UNDER CITES

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Securing stronger regulations at the international level is one crucial step that could help stem the trade in pangolins. At the 17th meeting of the Conference of Parties to CITES (CoP17), in fall 2016, all eight pangolin species should be uplisted to Appendix I, the highest protection available. Pangolins clearly meet the criteria for this listing because all eight species are both “threatened with extinction” and “affected by trade,” as defined by CITES criteria in Res. Conf. 9.24 (Rev. CoP16).

## AFFECTED BY TRADE

A species is “affected by trade,” according to Res. Conf. 9.24, if it is “in trade” and that trade “has or may have a detrimental impact” on the species. As the most heavily trafficked wild mammal in the world, pangolins are certainly “in trade.”<sup>18</sup> Increasing demand for their parts has led to escalating poaching and seizures (Figures 1 and 2). Pangolin scales and carcasses are regularly seized by authorities in shipping containers, trucks, and airplane cargo holds from Southeast Asia, India, and Africa (Table 1). Rising demand has also led to surging prices. In Vietnam, prices per kilogram have increased rapidly since 1990.<sup>19</sup> Meanwhile, in China, the value of one kilogram of pangolin scales has increased by 250 percent over the past five years.<sup>20</sup> Similar trends are seen in Africa. For example, the monetary value for *Manis temminckii* has increased in Zimbabwe from \$5,000 to \$7,000 per specimen in just two years.<sup>21</sup> And in Nigeria, the price of pangolins has increased tenfold over the past five years.<sup>22</sup>

Trade is also having a “detrimental impact” on the status of the species. The IUCN Pangolin Specialist Group has identified hunting and poaching for illegal international trade in live animals, meat, scales, and other body parts, destined primarily for Asia, as the main threat to pangolins and the primary reason for precipitous declines.<sup>23</sup>

Further, pangolin scales are difficult to distinguish at the species level, particularly when traded in powdered form.<sup>24</sup> Thus, listing all species on Appendix I would avoid the enforcement problem that would arise if some species were listed in different appendices—a problem we already see with a zero export quota being applied to the four Asian species but not the African ones.

## THREATENED WITH EXTINCTION

A species is “threatened with extinction” if it meets one of several criteria in Res. Conf. 9.24. All eight pangolin species meet the last criteria: A “marked decline in the population size in the wild” is “ongoing,” “inferred or projected” based on “levels or patterns of exploitation.”

The best available science indicates that all eight species are experiencing a decreasing population trend (Table 2). The decline in Asian pangolin populations has already shifted poaching pressure to African pangolin species, with legal and illicit trade numbers climbing dramatically in recent years. It is expected that this trend will continue or increase as all Asian species rapidly decline,<sup>25</sup> and the “apparently rapid growth in demand from Asia” has led researchers to suggest that the current IUCN Vulnerable assessments for African pangolins may “need to be revised.”<sup>26</sup>

In addition to exploitation, pangolins are “threatened with extinction” due to decrease in size and quality of habitat and a high vulnerability to intrinsic factors (low reproductive output, low density, specialized niche requirements) and extrinsic factors (habitat loss, reduction in recruitment due to indiscriminate offtake).<sup>35</sup>

As the most heavily trafficked wild mammal in the world, and in light of the IUCN’s alarming projections, all eight pangolin species qualify as “affected by trade” and “threatened with extinction.” Therefore, pangolins meet the CITES criteria for an Appendix I listing and need the protection such a listing provides.

TABLE 2: IUCN STATUS OF PANGOLIN SPECIES	
SPECIES	IUCN ASSESSMENT (2014)
<i>Manis javanica</i>	Critically Endangered. Suspected declines of <80% over the last 21 years (generation length estimated at 7 years), and projected continuing declines of >80% over the next 21 years. <sup>27</sup>
<i>Manis pentadactyla</i>	Critically Endangered. Predicted continuing declines of <90% over the next 21 years (three generations). <sup>28</sup>
<i>Manis culionensis</i>	Endangered. Suspected populations declines of >50% over a period of 21 years (three generations; generation length estimated at 7 years). <sup>29</sup>
<i>Manis crassicaudata</i>	Endangered. Suspected population declines of at least 50% in the next 21 years (generation length estimated at 7 years). <sup>30</sup>
<i>Manis gigantea</i>	Vulnerable. Will continue to decline by at least 40% over a 27-year period (9 years past, 18 years future). <sup>31</sup>
<i>Manis temminckii</i>	Vulnerable. Inferred past/ongoing and projected future population reduction of 30–40% over a 27-year period (9 years past, 18 years future; generation length estimated at 9 years). <sup>32</sup>
<i>Manis tricuspis</i>	Vulnerable. Will continue to decline by at least 40% over a 21-year period (7 years past, 14 years future). <sup>33</sup>
<i>Manis tetradactyla</i>	Vulnerable. Projected to undergo a population decline of at least 30–40% over a 21-year period (7 years past, 14 years future; generation length estimated at 7 years). <sup>34</sup>



FIGURE 1: THE NUMBER OF SEIZURES OF PANGOLINS AND THEIR PARTS FOUND IN MEDIA REPORTS SINCE 2003

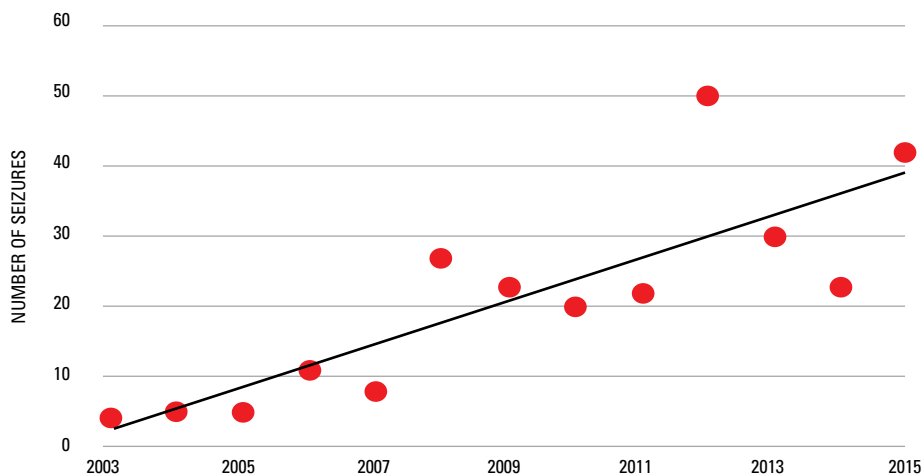
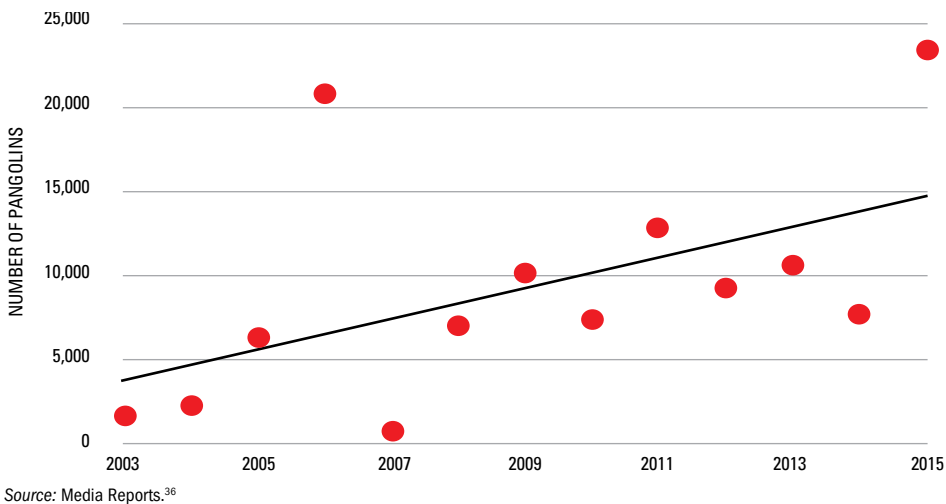


FIGURE 2: THE ESTIMATED NUMBER OF PANGOLINS SEIZED PER YEAR SINCE 2003





ENDNOTES

- 1 Challenger, D. et al., "Scaling Up Pangolin Conservation: IUCN SSC Pangolin Specialist Group Conservation Action Plan," Zoological Society of London, 2014.
- 2 Ibid.; Kingdon, J. and M. Hoffman, "Order Pholidota: Pangolins," in *Mammals of Africa: Carnivores, Pangolins, Equids and Rhinoceros* (London: Bloomsbury Publishing, 2013); Mahmood, T. et al., "Plant Species Association, Burrow Characteristics and the Diet of the Indian Pangolin, *Manis crassicaudata*, in the Potohar Plateau, Pakistan," *Pakistan Journal of Zoology* 45, no. 6 (December 2013): 1533-1539; Akpona, H., C. Djagoun, and B. Sinsin, "Ecology and Ethnozoology of the Three-Cusped Pangolin *Manis tricuspis* (Mammalia, Pholidota) in the Lama Forest Reserve, Benin," *Mammalia* 72, (2008): 198-202; Brautigam, A. et al., "Recent Information on the Status and Utilization of African Pangolins," *TRAFFIC Bulletin* 15 (1994): 15-22.
- 3 Gaubert, P., "Family *Manidae* (Pangolins)," in Wilson, D.E. and R.A. Mittermeier (eds.), *Handbook of Mammals of the World, vol. 2, Hoofed Mammals* (Barcelona: Lynx Edicions, 2011).
- 4 Challenger, D. et al., "Scaling Up Pangolin Conservation."
- 5 Zhou, Z. et al., "Scaling Up Pangolin Protection in China," *Frontiers in Ecology and the Environment* 12, no. 2 (March 2014): 97-98.
- 6 Ibid.
- 7 Ibid.; Baillie, J. et al., "*Manis crassicaudata*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/12761/0http://www.iucnredlist.org/details/12761/0; Challenger, D. et al., "*Manis pentadactyla*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/full/12764/0; Challenger, D. et al., "*Manis javanica*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/12763/0; Lagrada, L., S. Schoppe, and D. Challenger, "*Manis culionensis*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/136497/0; Pietersen, D. et al., "*Manis temminckii*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/12765/0; Waterman, C. et al., "*Manis gigantea*," IUCN Red List of Threatened Species, version 2104.3, 2014, www.iucnredlist.org/details/12762/0; Waterman, C. et al., "*Manis tricuspis*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/12767/0; Waterman, C., et al., "*Manis tetradactyla*," IUCN Red List of Threatened Species, version 2014.3, 2014, www.iucnredlist.org/details/1276/0.
- 8 Challenger, D. et al., "Scaling Up Pangolin Conservation."
- 9 Ibid.
- 10 Ibid.
- 11 Zhou, Z. et al., "Scaling Up Pangolin Protection in China."
- 12 Challenger, D., "Asian Pangolins: Increasing Affluence Driving Hunting Pressure," *TRAFFIC Bulletin* 23, no. 3 (September 2011): 92-93.
- 13 Challenger, D. et al., "Scaling Up Pangolin Conservation."
- 14 Challenger, D., "Asian Pangolins: Increasing Affluence Driving Hunting Pressure."
- 15 Challenger, D. and L. Hywood. "African Pangolins Under Increased Pressure from Poaching and Intercontinental Trade," *TRAFFIC Bulletin* 24, no. 2 (2012): 53-55.
- 16 Challenger, D. et al., "Scaling Up Pangolin Conservation."
- 17 Yang, C. et al., "History and Dietary Husbandry of Pangolins in Captivity," *Zoo Biology* 26, no. 3 (May 2007): 223-230.
- 18 Zhou, Z. et al., "Scaling Up Pangolin Protection in China."
- 19 Challenger, D. et al., "*Manis pentadactyla*."
- 20 Lin, J., "Pangolins in Peril: What Conservation Has to Do With Global Security," *Georgetown Journal of International Affairs*, August 21, 2014, journal.georgetown.edu/pangolins-in-peril-what-conservation-has-to-do-with-global-security/.
- 21 Pietersen, D. et al., "*Manis temminckii*."
- 22 Central African Republic, Chad, Côte d'Ivoire, Gabon, Guinea, Kenya, Ivory Coast, Liberia, Nigeria, Senegal, South Africa, Togo, and United States, Proposal for Transfer of *Manis tetradactyla*, *M. tricuspis*, *M. gigantea* and *M. temminckii*, from CITES Appendix II to Appendix I (citing E. Ehi-Ebewele, deputy director, Federal Dept. of Forestry, Nigeria, pers. comm., February 2016).
- 23 Challenger, D. et al., "Scaling Up Pangolin Conservation"; Baillie, J. et al., "*Manis crassicaudata*"; Challenger, D. et al., "*Manis pentadactyla*"; Challenger, D. et al., "*Manis javanica*"; Lagrada, L., S. Schoppe, and D. Challenger, "*Manis culionensis*"; Pietersen, D. et al., "*Manis temminckii*"; Waterman, C., et al., "*Manis gigantea*"; Waterman, C. et al., "*Manis tricuspis*"; Waterman, C., et al., "*Manis tetradactyla*."
- 24 Challenger, D., "Asian Pangolins: Increasing Affluence Driving Hunting Pressure"; Hsieh et al., "Establishing the Pangolin Mitochondrial D-Loop Sequences from the Confiscated Scales," *Forensic Science International: Genetics* 5, no. 4 (August 2011): 303-307.
- 25 Challenger, D., "Asian Pangolins: Increasing Affluence Driving Hunting Pressure."
- 26 Shepherd, C.R., et al., "Taking a Stand Against Illegal Wildlife Trade: The Zimbabwean Approach to Pangolin Conservation," *Oryx* (April 27, 2016): 1-6.
- 27 Challenger, D., et al., "*Manis javanica*."
- 28 Challenger, et al., "*Manis pentadactyla*."
- 29 Lagrada, L., S. Schoppe, and D. Challenger, "*Manis culionensis*."
- 30 Baillie, J. et al., "*Manis crassicaudata*."
- 31 Waterman, C. et al., "*Manis gigantea*."
- 32 Pietersen, D. et al., "*Manis temminckii*."
- 33 Waterman, C. et al., "*Manis tricuspis*."
- 34 Waterman, C. et al., "*Manis tetradactyla*."
- 35 Additionally, *Manis culionensis* meets the criteria for listing in Appendix I under the Criteria Resolution Annex I, paragraph B (iv), because it is endemic to the Palawan faunal region of the Philippines and has a "restricted area of distribution" (about 5,500 mi<sup>2</sup>) combined with past and ongoing population declines. Lagrada, L., S. Schoppe, and D. Challenger, "*Manis culionensis*"; Schoppe, S. and R. Cruz, "The Palawan Pangolin *Manis culionensis*," in Pantel, S. and S. Chin. (eds.), *Proceedings of the Workshop on Trade and Conservation of Pangolins Native to South and Southeast Asia*, June 30 to July 2, 2008, Singapore. TRAFFIC Southeast Asia, Petaling Jaya, Selangor, Malaysia: 171-183.
- 36 Data were compiled using media reports of the number of individual pangolins, weight of pangolin scales, and weight of meat seized. Weight of scales and meat were converted to numbers of pangolins using conversion factors based on the average weight of pangolins. An average total body weight is estimated at 6.29 kg. The calculation was arrived at by averaging the weights of the eight pangolin species based on the following information: Average body weight of *Manis javanica* is estimated at 8 kg. Hogg, S. "Where Are the Pangolins?" *Malayan Naturalist* 56 (2003): 38-41. Average body weight of *Manis pentadactyla* is estimated at 4.85 kg. Heath, M.E., "*Manis pentadactyla*," *Mammalian Species* 414 (December 1992): 1-6. Average body weight of *Manis crassicaudata* is estimated at 9.5 kg. Irshad, N., T. Mahmood, and M. S. Nadeem, (2015). "Morpho-Anatomical Characteristics of Indian pangolin (*Manis crassicaudata*) from Potohar Plateau, Pakistan," *Mammalia*, ahead of print 02/2015, DOI: 10.1515/mammalia-2014-0179. Average weight of *Manis culionensis* is estimated at 2.1 kg. Gaubert, P., and A. Antunes, "Assessing the Taxonomic Status of the Palawan Pangolin *Manis culionensis* (Pholidota) Using Discrete Morphological Characters," *Journal of Mammalogy* 86, no. 6 (December 2005): 1068-1074. Average body weight of *Manis gigantea* is estimated at 12 kg. Tikki Hywood Trust, email message to author, February 6, 2015. Average body weight of *Manis tricuspis* is estimated at 2 kg. Ibid. Average body weight of *Manis tetradactyla* is estimated at 2.2 kg. Ibid. Average body weight of *Manis temminckii* is estimated at 9.7 kg. Ibid.

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