

Institution: University of Sussex		
Unit of Assessment: 5 – Biological Sciences		
Title of case study: Banning international trade in pangolins to prevent extinction		
Period when the underpinning research was undertaken: 2012 – 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Prof Jörn Scharlemann	Role(s) (e.g. job title): Professor of Conservation Science	Period(s) employed by submitting HEI: Nov 2012 – ongoing
Period when the claimed impact occurred: 2016 – 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact Sussex-led research provided strong empirical evidence that the hunting of African pangolins – to meet the large and increasing demand in Asia for their meat and scales – has reached critical levels. This research directly contributed to the decision by the member states of the Convention on International Trade of Endangered Species of Fauna and Flora (CITES), at its 17th Conference of Parties in 2016, to ban the international trade of all pangolin species globally. The consequent new legal protections, that have come into force around the world, have meant better law enforcement (with punishments for poachers and traders including large fines and/or imprisonment), and are thus aiding pangolin conservation across Africa.		
2. Underpinning research Direct exploitation (the harvesting of wild organisms) is considered the second most harmful cause of change in terrestrial and freshwater ecosystems globally (Díaz <i>et al.</i> 2019 <i>Science</i> 366, 1327). However, information on the exploitation of terrestrial species across large areas is lacking (Joppa <i>et al.</i> 2016 <i>Science</i> 352, 416–418). Sussex researchers – Prof Jörn Scharlemann and Honorary Research Fellow Dr Lauren Coad – have led a collaborative research effort to better understand human exploitation of terrestrial wildlife by gathering quantitative data on the amount of African vertebrates hunted and offered for sale at markets [R2], and developed methods to assess temporal change in direct exploitation [R1]. Research efforts on the dynamics of bushmeat trade and consumption have previously been site specific and, without synthesis across such case studies, broad characteristics of bushmeat trade and consumption may remain largely speculative, impeding efforts to inform national and regional policy on bushmeat trade. In this Sussex-led work, quantitative data was combined regarding bushmeat sales, consumption and offtake for 177 species from 275 sites across 11 countries in two regions, spanning three decades of research [R2]. Thus, it was possible to look at exploitation trends across large regions making it possible to assess the exploitation impact across the entire habitat range of a target species [R3]. Globally, there is more illegal trafficking of pangolins than any other group of mammals [S1]. Over a million wild pangolins have been killed in the last decade to meet the large and increasing demand in Asia for their meat and scales, a supposed medicine. Because pangolins reproduce slowly and are easy to catch – they simply roll up when threatened – these unique mammals are heading for extinction. While the plight of the four Asian pangolin species was well studied, little was known about the four pangolin species found in Africa. In 2015, we were contacted by the Central Africa Program at the Wildlife Conservation Society, about the possibility of using our database to quantify the direct exploitation of pangolins in Africa. Research funded by Sussex quantified for the first time the number of pangolins hunted in Central African forests. This work showed that the absolute number is large (0.5-2.7M animals		

per year) and has increased dramatically over the past four decades (estimated increases of between 138% and 447% from before 2000 compared to post 2000) [R3, R4]. The analyses were based on data derived from 161 studies that included more than 348,000 individual animals hunted, or offered for sale, across Central Africa. The work involved a team of 20 international experts from academia and non-governmental organisations [R3, R4].

3. References to the research

- R1. Ingram DJ, **Coad LM**, Collen B, Kumpel NF, Breuer T, Fa J, Gill D, Maisels F, Schleicher J, Stokes EJ, Taylor G & **Scharlemann JPW** (2015) Indicators for wild animal offtake: methods and case study for African mammals and birds. *Ecology & Society* 20(3): 40. <https://doi.org/10.5751/ES-07823-200340> 31 citations
- R2. Taylor GL, **Scharlemann JPW**, Rowcliffe M, Kumpel N, Harfoot M, Fa J, Melisch R, Milner-Gulland EJ, Bhagwat S, Abernethy K, Ajonina AS, Albrechtsen L, Allebone-Webb S, Brown E, Brugiere D, Clark C, Colell M, Cowlishaw G, Crookes D, De Merode E, Dupain J, East T, Edderai D, Elkan P, Gill D, Greengrass E, Hodgkinson C, Ilambu O, Jeanmart P, Juste J, Linder J, MacDonald D, Noss A, Okorie PU, Okouyi V, Pailler S, Poulsen J, Riddell M, Schulte-Herbruggen B, Starkey M, Schleicher J, van Vliet N, Whitham C, Willcox A, Wilkie DS, Wright JH & **Coad LM** (2015) Synthesising bushmeat research effort in West and Central Africa: a new regional database. *Biological Conservation* 181: 199-205. <https://doi.org/10.1016/j.biocon.2014.11.001>. 58 citations
- R3. Ingram DJ, **Coad L** & **Scharlemann JPW** (2016) Hunting and sale of pangolins across Sub-Saharan Africa: A preliminary analysis. OFFTAKE Working Paper No. 1. <https://doi.org/10.5281/zenodo.44527>
- R4. Ingram DJ, **Coad L**, Abernethy KA, Maisels F, Stokes EJ, Bobo KS, Breuer T, Gandiwa E, Ghiurghi A, Greengrass E, Holmern T, Kamgaing TOW, Ndong Obiang A-M, Poulsen JR, Schleicher J, Nielsen MR, Solly H, Vath CL, Waltert M, Whitham CEL, Wilkie DS, **Scharlemann JPW** (2018) Assessing Africa-wide pangolin exploitation by scaling local data. *Conservation Letters* 11: e12389. <https://doi.org/10.1111/conl.12389>. 41 citations

Citation data from Google Scholar.

4. Details of the impact

The Convention on International Trade of Endangered Species of Fauna and Flora (CITES), one of the largest and oldest conservation and sustainable use agreements administered by the United Nations Environment Program, ensures that international trade in wild animals and plants does not threaten their survival. The most protection that CITES confers comes to species listed in CITES Appendix I.

In 2016, pangolins were moved to Appendix I, meaning that international trade of all pangolin species is now banned globally. Sussex research on exploitation of African pangolins [R1-R4] directly contributed to this change in the protection available for African pangolins, which are considered to be facing a high risk of extinction by the International Union for the Conservation of Nature (<https://www.iucnredlist.org>).

Sussex research and analysis (Figure 2 in [R3]) was used as evidence by 13 countries in their proposal to CITES (Figure 2 in [S1]) to transfer African pangolins from CITES Appendix II to Appendix I. Sussex provided the only quantitative, non-anecdotal evidence that was used in this proposal. After discussions at the Conference of Parties in Johannesburg in 2016, 183 member states agreed a ban on international trade of all Asian and African pangolins, i.e. the upgrading to Appendix I [S3].

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The CITES resolution and decision document confirms that this:

“scientific analysis was key to convince the 183 member states of the Convention on International Trade of Endangered Species of Fauna and Flora (CITES) at its 17th Conference of Parties (CoP) in 2016 of the validity of the overexploitation and trade

patterns and helped cement the case for uplisting of all pangolin species to CITES Appendix I.” [S3]

The Head of the Species Programme at the UN Environment Programme World Conservation Monitoring Centre, and participant of the CITES CoP17, writes:

“In cases where species are being proposed for a change in listing, it is important to have clear, quantitative data to provide evidence-based support for policy changes. Therefore, the research from the Sussex-led team was key in delivering impact on the conservation status of pangolins.” [S4]

Upgrading pangolins to Appendix I “provides the highest level of protection and CITES listing is the key international legal mechanism for protecting species from overharvesting for international trade” [S3]. The CITES decision will compel affected countries to improve law enforcement and increase fines for illegal traders. Ginette Hemley, Head of the World Wide Fund for Nature delegation to CITES said:

“This is a huge win and rare piece of good news for some of the world’s most trafficked and endangered animals. This eliminates any question about legality of trade, making it harder for criminals to traffic them and increasing the consequences for those who do.” [S5]

[text removed for publication]

The CITES decision to ban all international trade of pangolins is resulting in revised national wildlife legislation, which will result in improving law enforcement and increasing prosecution of poachers and traders, ultimately influencing the conservation of natural populations of pangolins across Africa.

[text removed for publication]

The listing of all pangolins on Appendix I by CITES may already be having a positive impact on pangolin populations; [text removed for publication]

The upgrading of the protection given to African pangolins by CITES, resulting in an absolute and legally-binding ban on trade globally, can be directly traced to Sussex research. This will positively affect millions of pangolins annually and directly improve the conservation prospects of these imperilled species.

5. Sources to corroborate the impact

S1. Angola, Botswana, Chad, Côte d'Ivoire, Gabon, Guinea, Kenya, Liberia, Nigeria, Senegal, South Africa, Togo and the United States of America (2016) Transfer of *Manis tetradactyla*, *M. tricuspis*, *M. gigantea* and *M. temminckii* from CITES Appendix II to Appendix I. Consideration of Proposals for Amendment of Appendices I and II. Seventeenth meeting of the Conference of the Parties Johannesburg (South Africa), 24 September - 5 October 2016, CITES CoP17 Proposal 12, p. 26.

<https://cites.org/sites/default/files/eng/cop/17/prop/060216/E-CoP17-Prop-12.pdf>

This is the CITES document citing the research described in this case study. [PDF]

S2. [text removed for publication]

S3. CITES (2016) Draft resolution and decisions on pangolins (*Manis* spp). Seventeenth meeting of the Conference of the Parties Johannesburg (South Africa), 24 September - 5 October 2016, CoP17 Com. II. 19, p. 3.

https://cites.org/sites/default/files/eng/cop/17/Com_II/E-CoP17-Com-II-19.pdf

This is the CITES resolution and decision [PDF]

S4. Letter from Kelly Malsch the Head of the Species Programme, UN Environment Programme World Conservation Monitoring Centre, and participant of the CITES CoP17. 18 November 2020 [PDF]

S5. Damian Carrington, ‘Pangolins thrown a lifeline at global wildlife summit with total trade ban’. The Guardian (28 September 2020)

<https://www.theguardian.com/environment/2016/sep/28/pangolins-thrown-a-lifeline-at-global-wildlife-summit-with-total-trade-ban> [PDF]

S6. [text removed for publication]