



**TRAFFIC**  
the wildlife trade monitoring network

AUGUST 2019

STATUS OF  
**PANGOLIN  
TRADE**

IN CAMEROON AND BETWEEN CAMEROON  
AND DESTINATION COUNTRIES

*Market Survey Report  
Godwill Ichu Ichu (MENTOR-POP)*

### **Photo credits**

Cover: Pangolin on sale in Ebolowa wild meat market

All photos © TRAFFIC / Ichu Ichu Godwill

### **Suggested citation**

Ichu, I.G. (2019). *Status of pangolin trade in Cameroon and between Cameroon and destination countries*. TRAFFIC. Yaoundé, Cameroon and Cambridge, UK.

### **About TRAFFIC**

TRAFFIC is a leading non-governmental organization working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

### **Disclaimer**

The designations of geographical entities in this publication, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. The views of the authors expressed in this publication are those of the writer and do not necessarily reflect those of TRAFFIC.

# TABLE OF CONTENT

- LIST OF FIGURES.....5
- LIST OF TABLES.....6
- ACKNOWLEDGEMENTS .....7
- LIST OF ACCRONYMS .....8
- EXECUTIVE SUMMARY (ENGLISH) .....9
- EXECUTIVE SUMMARY (FRENCH).....10
- 1. INTRODUCTION .....11
- 2. OVERVIEW OF PANGOLINS IN CAMEROON .....13
  - 2.1. Pangolin Trade and Derivative Products in Cameroon: Status and Trends .....13
    - 2.1.1 Trade in Pangolin meat in Cameroon .....13
    - 2.1.2. Trade in Pangolin Scales.....14
  - 2.2. Key Drivers of Pangolin Trade and Derivative Products in Cameroon .....15
  - 2.2.2. Pangolin Trade between Cameroon and China .....16
  - 2.3. Status of Pangolin Conservation in Cameroon .....17
  - 2.4. Pangolin Conservation Efforts in Cameroon .....18
  - 2.5. Some Recent Efforts to Conserve Pangolins Include: .....18
  - 2.6. Challenges Facing Pangolin Conservation in Cameroon .....20
    - 2.6.1. Lack of Data on Population and Ecology.....20
    - 2.6.2. Law Enforcement .....21
    - 2.6.3. Awareness Raising.....21
- 3. MATERIALS AND METHODS .....22
  - 3.1. Type of Survey .....22
  - 3.2. Sample .....22
  - 3.3. Interview method .....24
  - 3.3. Market Surveys .....24
- 4. RESULTS.....25
  - 4.1 Key Markets in Cameroon Where Pangolins and Their Products Are Found To Be On Offer...26
    - 4.1.1. Pangolin Observations .....26
    - 4.1.2. Respondents’ Opinions on the Most Important Pangolin Parts in Trade .....29
    - 4.1.3. Price of Pangolins .....30
  - 4.2 Key Pangolin Sellers, Traders, Buyers and Other Stakeholders in Cameroon.....31
    - 4.2.1. Buyers of Pangolin Meat.....31
    - 4.2.2. Buyers of Pangolin Scales .....32
    - 4.2.3. Principal Vendors of Pangolin Meat .....32
    - 4.2.4. Vendors of Pangolin Scales.....33

4.3 Trade Routes.....	33
4.3.1. Adamawa Region.....	33
4.3.2. South Region .....	34
4.3.3. East Region .....	35
4.4. Exit Points.....	36
4.5 Methods of Trade.....	36
4.5.1. Pangolin Meat .....	36
4.5.2. Pangolin Scales.....	38
5. CONCLUSIONS .....	42
6. RECOMMENDATIONS.....	43
6.1. Recommendations for MINFOF.....	43
6.1.1. Need to Improve Wildlife Law Enforcement .....	43
6.1.2. Data Sharing .....	43
6.1.3. Update list of all protected species .....	44
6.2. Recommendations for NGOs/Research Institutions.....	44
6.2.1. More Awareness Raising/Behaviour Change of Pangolin Meat Consumers .....	44
6.2.2. Work with Transport Agencies .....	44
6.2.3. Capacity building and awareness raising for Law Enforcement Officials, airline/shipping company staff and the judiciary/prosecution sector .....	45
6.2.4. The need for Long-Term Monitoring of IWT .....	45
7. REFERENCES.....	46
8. APPENDICES.....	50
8. 1. Appendix I: Questionnaire/Observation Checklist.....	50

**LIST OF FIGURES**

Figure 1: Localities surveyed ..... 23

Figure 2: Profession of respondents ..... 25

Figure 3: Localities where pangolins were observed in open markets/or restaurants ..... 27

Figure 4: Cooked pangolin meat on sale in a beer parlour in Meiganga ..... 28

Figure 5: Pangolins on display in the East Region..... 28

Figure 6: Pangolin meat and scales observed in the South Region ..... 29

Figure 7: Respondents’ opinions on the most important pangolin parts in trade..... 30

Figure 8: Flow diagram showing the primary trade chain for pangolin meat..... 37

Figure 9 : Scales removed from a pangolin in a restaurant in Kribi ..... 38

Figure 10: Flow diagram showing the primary trade chain for pangolin scales..... 39

Figure 11: Respondents’ opinions about major means of transporting pangolins to the market or markets or localities ..... 40

Figure 12: Wild meat loaded on a motorcycle in Ngoyla ready to be transported to Lomie..... 41

Figure 13: Respondents’ opinions about major means of transporting pangolins/pangolin products from the market or locality toward urban markets..... 42

Figure 14: List of protected species posted at Ngaoundal train station..... 42

**LIST OF TABLES**

Table 1: Examples of large-scale seizures including Cameroon..... 14

Table 3 : Localities surveyed in each region ..... 23

Table 4 : Summary quantity of pangolins observed per locality ..... 26

Table 5: Prize range of various species of pangolins from local to urban localities..... 30

Table 6: Age distribution of wild meat sellers in open markets and restaurants ..... 31

Table 7: Tribes of wild meat vendors ..... 31

Table 8: Respondents’ opinions on principal buyers of pangolin meat ..... 32

Table 9: Respondents’ opinions on principal buyers of pangolin scales ..... 32

Table 10: Respondents’ opinion on principal vendors of pangolin meat ..... 33

Table 11: Respondents’ opinions on vendors of pangolin scales..... 33

## **ACKNOWLEDGEMENTS**

We would like to acknowledge the generous support of the US Fish and Wildlife Service for providing funding for this research, the Cameroon Ministry of Forestry and Wildlife (MINFOF) for facilitating this study by providing research documents and also the staff of MINFOF who provided information and/or facilitated data collection in the field, the field staff of the Wildlife Conservation Society (WCS) and the World Wide Fund for Nature (WWF) for their guidance during fieldwork, the Zoological Society of London (ZSL) for providing similar pangolin survey reports. Many thanks to: Richard Thomas, Roland Melisch, Willow Outhwaite, Luc Evouna and Marcus Cornthwaite for report review, Esua Etogekwe, Hermann Beyene, Serge Aka'a, Franklin Simo and Ghislain Fopa for assistance, all field guides for the important role they played directing field teams during the survey, and Akenji Lesly for map production and data management support.

## LIST OF ACCRONYMS

<b>CAR</b>	Central African Republic
<b>CITES</b>	Convention on International Trade in Endangered Species of Wild Fauna and Flora
<b>CPWG</b>	Cameroon Pangolin Working Group
<b>DBR</b>	Dja Biosphere Reserve
<b>DDNP</b>	Deng Deng National Park
<b>DRC</b>	Democratic Republic of the Congo
<b>IUCN</b>	International Union for Conservation of Nature
<b>MENTOR-POP</b>	Mentoring for Environmental Training in Outreach and Resource Conservation-Progress on Pangolins
<b>MINFOF</b>	Ministry of Forestry and Wildlife
<b>NFR</b>	Ngoyla Faunal Reserve
<b>NNK</b>	Nki National park
<b>WCS</b>	Wildlife Conservation Society
<b>WWF</b>	World Wide Fund for Nature
<b>ZSL</b>	Zoological Society of London



## EXECUTIVE SUMMARY (ENGLISH)

Even though pangolins have been exploited in rural areas in Cameroon for decades, the emergence of commercial trade in pangolins to satisfy the increasing demand for wild meat from expanding urban centres in Cameroon and in Asian countries (especially China and Viet Nam) is placing significant pressure on all three species of pangolins native to Cameroon. Many large-scale seizures of pangolin scales from Cameroon destined for China and Viet Nam have recently been made. This report describes the importance of pangolins in the wild meat market, the principal actors in the pangolin trade chain as well as the *modus operandi* of the pangolin trade. Open markets and restaurants were visited in a total of 29 localities; 18 villages (rural areas) and 11 towns (urban and semi urban areas) in three regions of Cameroon (Adamawa, East and South regions). A total of 131 interviews were conducted with wild meat vendors and restaurant owners (n=73), wildlife law enforcement officers and wildlife conservation non-governmental organisations (NGOs) as well as other local inhabitants. In addition, markets and restaurants were observed for the presence of pangolin/pangolin products. 94 pangolins were observed (23 live, 68 fresh carcasses, and 3 smoked carcasses) in 16 different localities. Seven cases of cooked pangolin on sale were observed, while a single case of seized scales in the keeping of wildlife law enforcement officers was also observed. According to respondents, the price of Giant Pangolin ranged from FCFA10,000 (USD20) in very rural localities to FCFA80,000 (USD160) in urban centres, while that for the White-bellied Pangolin ranged from FCFA2,000 (USD4)–FCFA12,000 (USD24) and the Black-bellied from FCFA2,500 (USD5)–FCFA10,000 (USD20). Eighty-six per cent (n=63) of wild meat vendors (vendors in open markets as well as restaurants) interviewed were women mostly aged between 20 and 50 from 22 different tribes. The buyers of pangolin meat were mostly Cameroonians, but also included foreign nationals alleged to be Equatorial Guineans, Nigerians and Gabonese. The principal buyers of scales were also said to be mostly Cameroonians, and also included foreign nationals alleged to be Nigerians and Chinese. The principal means of transportation were reported to be motorcycles and other land vehicles. This research recommends the development of a long-term monitoring programme to quantify the scale of the pangolin black market and conduct a more detailed investigation of pangolin trade between Central African countries and Nigeria. We equally recommend the development of a systematic environmental education,

awareness raising and behaviour change programme as well as improvement of pangolin law enforcement.

## EXECUTIVE SUMMARY (FRENCH)

Bien que les pangolins soient exploités dans les zones rurales du Cameroun depuis des décennies. L'émergence de son commerce pour satisfaire la demande croissante de viande sauvage au sein des centres urbains en expansion au Cameroun et dans les pays asiatiques (Chine et Vietnam en particulier) exerce une pression importante sur les trois espèces de pangolins d'origine camerounaise. Récemment, d'importantes saisies d'écailles de pangolins en provenance du Cameroun et en destination de la Chine et du Vietnam ont été effectuées. Ce rapport décrit l'importance des pangolins au sein des marchés de la viande sauvage, les principaux acteurs de sa chaîne commerciale ainsi que le *modus operandi* de ce commerce. Des marchés ouverts et des restaurants ont été visités dans 29 localités au total ; 18 villages (zones rurales) et 11 villes (zones urbaines et semis urbaines) dans trois régions du Cameroun (Adamaoua, Est et Sud). Au total, 131 entrevues ont été menées auprès des vendeurs de viande sauvage et des restaurateurs (n=73), d'agents d'application de la loi sur la faune et d'organisations non gouvernementales (ONG) de conservation de la faune ainsi que d'autres habitants locaux. De plus, ces marchés et ces restaurants ont été observés pour détecter la présence de produits de pangolin/pangolin. En effet, 94 pangolins ont été observés (23 vivants, 68 frais et 3 fumés) dans 16 localités différentes. Sept cas de pangolin déjà préparés et mise en vente ont été observés, tandis qu'un seul cas d'écailles saisies dans les locaux d'agents de la faune a également été observé. Selon les répondants, le prix du pangolin géant variait de 10,000 FCFA (USD20) dans les localités rurales à 80,000 FCFA (USD160) dans les zones urbaines, tandis que celui du pangolin à ventre blanc variait de 2,000 FCFA (4 USD) à 12,000 FCFA (USD24) et du pangolin à ventre noir de 2,500 FCFA (USD5) à 10,000 FCFA (USD20). Quarante-six pour cent (n=63) des vendeurs de viande sauvage (vendeurs sur les marchés ouverts et dans les restaurants) interrogés étaient des femmes âgées pour la plupart de 20 à 50 ans appartenant à 22 tribus différentes. Les acheteurs de viande de pangolin étaient pour la plupart des Camerounais, mais aussi des ressortissants étrangers présumés être des Equato-Guinéens, des Nigériens et des Gabonais. Les principaux acheteurs d'écailles seraient également majoritairement camerounais, mais aussi des ressortissants étrangers présumés nigériens et chinois. Les principaux moyens de transport étaient les motos et les véhicules. Cette recherche recommande l'élaboration d'un programme de surveillance à long terme pour quantifier l'ampleur du marché noir du pangolin et mener une enquête plus détaillée sur le commerce du pangolin entre

les pays d'Afrique centrale et le Nigeria. Nous recommandons également l'élaboration d'un programme systématique d'éducation environnementale, de sensibilisation et de changement de comportement, ainsi que l'amélioration de l'application de la loi sur le pangolin.

## **1. INTRODUCTION**

Pangolins, also known as scaly anteaters, are the only mammals covered in overlapping scales (Challender *et al.*, 2012, 2014). There are eight extant species of pangolins in the world

today. Four species occur in Asia and four in Africa with three of Africa's pangolins (Giant Pangolin *Smutsia gigantea*; White-bellied Pangolin *Phataginus tricuspis*; and Black-bellied Pangolin *Phataginus tetradactyla*) present in Cameroon. All three species are classified as Vulnerable on the IUCN Red List.

Pangolins are thought to be the most trafficked wild mammals in the world, with an estimated one million+ pangolins trafficked within one decade (Challendar *et al.*, 2014) and between 0.4–2.7 million pangolins estimated to be harvested annually within Central Africa alone (Ingram *et al.*, 2017). At current rates, these unique species risk extinction. Pangolins are eaten as prestigious, sought-after meat in Central Africa (Chausson *et al.*, 2019), while their scales are used in Asian traditional medicine (Drury, 2009). The populations of Asian pangolins have declined and traffickers are increasingly turning to African countries as a source location. Since 2006, many seizures of pangolin meat and scales have been made in Cameroon, while seizures of scales exported from Cameroon have been made in Asia (Ingram *et al.*, 2019).

In order to address the threat to pangolins from illegal trade in both meat and scales, there is need for a detailed study to gain an insight into these activities in order to inform decision making.

The aim of this study was to understand the status and trends in pangolin trade in Cameroon, as well as between Cameroon and China, and other countries. Specific research questions included:

- What is the relative importance of pangolins in the wild meat market?
- Which pangolin products are sold in the market?
- What is the volume of pangolin products sold in the market?
- What prices are being paid for pangolin products?
- Where are the pangolin products coming from?
- What route did they take to market?
- How were they transported to market?
- Who buys and sells them? (Nationals, residents, visitors, nationalities...?)
- What is driving the trade? (Why do buyers buy – uses? Why do sellers sell in this market?)

- Where are pangolin products going to?
- How are they transported from the market?

## **2. OVERVIEW OF PANGOLINS IN CAMEROON**

The illegal wildlife trade (IWT) is a multibillion dollar industry worth between USD7–23 billion annually and leaves a long-lasting impact on both humankind and the environment (UNODC, 2016). It is considered to be one of the fastest growing illegal trades, although its underground nature, high corruption, weak legislation, controls and lax law enforcement make it difficult to estimate its true scale (Sollund and Maher, 2015). Needless to say, IWT is a major threat to wildlife populations. It negatively impacts ecosystems by emptying forests and other habitats of their wildlife, and also has a direct negative effect on the food security and livelihoods of local and indigenous people, by depleting game populations and destabilising communities that depend on wildlife for subsistence (Robinson, 2015).

Although there has been much global awareness concerning the hunting of elephants and rhinos for ivory and horn, pangolins are considered the world's most trafficked mammal (Challender *et al.*, 2014).

### **2.1. Pangolin Trade and Derivative Products in Cameroon: Status and Trends**

Pangolins have a long history of subsistence, livelihood, medicinal, and cultural uses in Africa and Asia (Soewu and Sodeinde, 2015; Ingram *et al.*, 2019). Trade in all forms of pangolins in Cameroon is illegal as pangolins are protected both by national and international legislation (listed in CITES Appendix I).

#### **2.1.1 Trade in Pangolin meat in Cameroon**

Pangolin meat is either illegally consumed locally in rural areas as a source of protein or illegally traded as wild meat in open markets, roadsides, and restaurants, transported to more urban areas or exported, mostly to Asia (especially China and Viet Nam) where it is considered a delicacy (Challender 2011; Mambeya *et al.*, 2018, ZSL and TRAFFIC, 2019). The prices of wild meat have increased over the years. In Libreville, Gabon, for example, between 2002 and 2014, Giant Pangolin prices increased 211%, while arboreal pangolin (White-bellied Pangolin and Black-bellied Pangolin) prices increased 73% (Mambeya *et al.*, 2018).

The situation is likely similar in Cameroon given that the trade in all species of pangolins has been illegal since January 2017 (MINFOF, 2017).

### **2.1.2. Trade in Pangolin Scales**

Pangolin scales are collected periodically from inhabitants in rural communities by local traffickers, and when a significant quantity has been put together, the scales are transported to urban and semi-urban areas where they are sold to international traffickers (mostly urban based Cameroonian or Chinese nationals) to be exported directly to Asia, mainly to China and Viet Nam, sometimes passing through Nigeria (LAGA, 2018). Malaysia and Singapore have emerged as major transit countries for pangolin scales in recent years (Heinrich, 2017, May, 2019; DW, 2019). Pangolin scale trafficking is carried out by highly organised criminal gangs, operating across countries with division of labour from the source up through the entire traffic chain (LAGA, 2018). In some cases, international traffickers are workers from China stationed in Africa for major logging, oil exploration and agro-industry projects (Mambeya, *et al.*, 2018; USAID, 2019). The large number of Chinese workers in logging companies and other China-backed projects in Central Africa has meant there are now sufficient logistical and organisational links between range states and China to facilitate the illegal export of scales. Cameroon has become a hub for pangolin trafficking within Central Africa. Pangolins from Cameroon are allegedly also taken to Equatorial Guinea (Ingram *et al.*, 2019), while pangolins from the Central African Republic (CAR) are also allegedly taken to Cameroon (A. Biye, personal communication, 22nd May 2019). In August 2018 an international network consisting of six pangolin scale traffickers was dismantled in Douala, Cameroon, following the seizure of 718 kg of pangolin scales and the arrest of six traffickers who were in Cameroon for a big transaction (LAGA, 2018) (see Table 1). The network comprised residents from the Democratic Republic of the Congo (DRC), CAR, Cameroon and Nigeria. Ingram *et al.*, (2019) suggests that between 2000 and 2018, the majority of pangolin seizures directly linked to Asia were consignments of scales which were either exported from or originated in Nigeria and Cameroon.

**Table 1: Examples of large-scale seizures including Cameroon**

	Period	Quantity	Place of seizure	Destination	Estimated N° of pangolins killed	Nationalities involved
1	March 2019	3,000 kg	Douala, Cameroon	Asia via Nigeria	831–4,998	2 Cameroonians
2	August 2018	718 kg	Douala, Cameroon	Viet Nam via Nigeria	200–1,200	DRC, CAR, Cameroon, Nigeria
3	January 2017	5,400 kg	Douala, Cameroon	China	1,500–9,000	2 Chinese
4	June 2016	4,000 kg	Hong Kong SAR	Unknown	1,100 –6,600	Unknown
5	2016	680 kg	Yaoundé, airport	Malaysia	105–633	4 Cameroonians
6	June 2014	2,300 kg	Hong Kong	Hong Kong SAR via Malaysia	600–3,500	1 Malaysian

## Sources

Number	Link
1	<a href="https://www.voanews.com/a/cameroon-busts-ivory-pangolin-traffickers/4839359.html">https://www.voanews.com/a/cameroon-busts-ivory-pangolin-traffickers/4839359.html</a>
2	<a href="https://phys.org/news/2018-08-cameroon-pangolin-traffickers-caught.html">https://phys.org/news/2018-08-cameroon-pangolin-traffickers-caught.html</a>
3	<a href="https://allafrica.com/stories/201701240090.html">https://allafrica.com/stories/201701240090.html</a>
4	<a href="https://www.info.gov.hk/gia/general/201606/23/P201606231001.htm">https://www.info.gov.hk/gia/general/201606/23/P201606231001.htm</a>
5	<a href="http://www.laga-enforcement.org/Portals/0/Activity%20reports%202016/LAGA%20Annual%20Report%202016.pdf">http://www.laga-enforcement.org/Portals/0/Activity%20reports%202016/LAGA Annual Report 2016.pdf</a>
6	<a href="https://annamiticus.com/2014/06/16/2-tons-pangolin-scales-cameroon-seized-hong-kong/">https://annamiticus.com/2014/06/16/2-tons-pangolin-scales-cameroon-seized-hong-kong/</a>

The estimated number of pangolins corresponding to the quantity of scales seized was calculated based on the conversion rate estimated by Tikki Hywood Foundation (see Table 2).

**Table 2: Number of pangolins killed to get a tonne of pangolin scales estimated by Tikki Hywood Foundation**

Species	Ave Individual Weight	Weight of scales represented by 30% of body weight	Number of animals per 1,000 kg scales
White-bellied Pangolin	2 kg	600 g per animal	1,666
Black-bellied Pangolin	2.2 kg	660 g per animal	1,515
Ground Pangolin	9.7 kg (Zimbabwean Average)	2,910 g per animal	344
Giant Pangolin	12 kg	3,600 g per animal	277

## 2.2. Key Drivers of Pangolin Trade and Derivative Products in Cameroon

### 2.2.1. Local Pangolin trade

Ingram *et al.*, (2016) suggests that the exploitation of pangolins for local consumption is increasing throughout Africa. The increasing urban demand for meat and the international demand for scales, coupled with insufficient law enforcement, and unemployment/poverty, are driving pangolins and other species towards extinction. The increasing illegal

commercial wild meat trade to satisfy demand from Cameroon's growing urban populations, and the illegal intercontinental trade in pangolins, especially in pangolin scales to supply demand in East and South-East Asia, has increased significantly over the past decade (Challender and Hywood, 2012; Gomez *et al.*, 2016).

In Cameroon and other countries in Central Africa, there is high rural to urban migration where most people of working age leave rural areas to live and work in urban and semi-urban areas. Many people still desire the wild meat they grew up consuming in rural areas even though it may be more expensive than other protein sources. In two separate studies carried out in selected towns and cities in Cameroon, pangolin meat was the second most preferred wild meat amongst wild meat consumers in restaurants, second only to the porcupine in both studies (Linh *et al.*, 2019; ZSL and TRAFFIC, 2019). The taste of pangolin meat was mentioned by consumers as the main reason pangolins were popular.

Increasing urbanisation, growing income for some families, increasing proliferation of arms and technology, opening of forests associated with selective logging and declining culture have increased the rate of extraction of wildlife for meat and is considered unsustainable (Mbotiji, 2002; McDonald, 2013). This is facilitated by bribery and corruption as traders pay sums of money at law enforcement control posts on their way to urban and semi-urban areas where the meat is sold.

### **2.2.2. Pangolin Trade between Cameroon and China**

In Asia, pangolins are believed to have medicinal properties. Despite an absence of scientific evidence to support the alleged curative properties, a WildAid survey report conducted in six major cities in China showed that 70% of respondents believed pangolin products had medicinal value (Vallianos *et al.*, 2016). Since 2008, about 25 tonnes of pangolin scales are consumed each year in China (Vallianos *et al.*, 2016). As Asian species of pangolins have rapidly declined and become more difficult to obtain, traffickers are increasingly turning to Africa to source pangolins in order to satisfy demand in Asia (Challender and Hywood 2012). This has led to a boom in international and intercontinental pangolin trafficking. There has been a sharp increase in seizures of African pangolins in Asia within the past decade.



- Cameroon, Ghana and Ivory Coast were significant exporters in 2017, while in 2018; the biggest seizures of African pangolins in Asia were exported from Cameroon, Republic of the Congo (Congo) and Nigeria (USAID, 2019).
- In 2018, 70% of international seizures in Asia were exported from Nigeria destined mainly for China and Viet Nam.
- In May 2019, over 5 tonnes of pangolin scales were seized in Viet Nam exported from Nigeria ([phys.org, 2019](#)).
- In April, 2019 alone, roughly 26 tonnes (seizures of 12.7 tonnes and 12.9 tonnes) of pangolin scales were seized in Singapore in two separate shipments within five days (May, 2019; DW, 2019). The pangolin scales which originated from Nigeria were headed for Viet Nam, home to the second-most lucrative black market for pangolin scales, after China. A component of the exports from Nigeria may be coming from range states in Central Africa including DRC, CAR, and Congo (LAGA, 2018). The April 2019 seizure in Singapore (26 tonnes of pangolin scales) alone represented anywhere between 7,202 Giant Pangolins (if all scales were that species) and 43,316 White-bellied Pangolins (if all scales were that species) (see Table 2 for conversion rates).

In Cameroon, trade in pangolins shifted from meat to scales, from approximately 2013 onwards (Ingram *et al.*, 2019) (see Table 1 for examples of large-scale seizures directly involving Cameroon). A survey of pangolin scale seizures in Cameroon in 2017 found the total quantity of annual seizures increased steadily and ranged from 5 kg in 2013 to more than 5,400 kg in 2017 representing an increase of more than one thousand times (Nebaneh *et al.*, 2017). This could either be attributed to increased protection and law enforcement, an increase in trade, or a contribution of both factors.

### **2.3. Status of Pangolin Conservation in Cameroon**

All African pangolin species are considered as vulnerable on the IUCN Redlist ([IUCN, 2014](#)). Cameroon is a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). All eight species of pangolins were up-listed from CITES Appendix II to CITES Appendix I in 2017 ([CITES, 2017](#)) thereby placing a ban on all commercial international trade in pangolins or their derivatives. In Cameroon, the main legal instrument that guides the protection of wildlife species is the 1994 wildlife law (Law N° 94/01 of the 20th January 1994 to lay down Forestry, Wildlife and Fisheries regulations), its

decree of application (Decree N° 95/466/PM of 20th July 1995 to lay down the conditions for the implementation of Wildlife Regulations), and several ministerial orders and decrees. Order N° 0648/MINFOF of 18th December 2006 accords different levels of protection to wildlife species and lists species of animals in classes A, B and C based on the level of protection. Class A species are totally protected and cannot be hunted, captured, killed or traded, while animals in Class B can be hunted, captured or killed subject to the granting of a hunting license. Class C species are partially protected and can be hunted, captured or killed following conditions laid down by the government. The law states that the capture, keeping or trade in totally protected species will result in a maximum sentence of three years in prison and/or a payment of between FCFA3 million (USD6,000) to 10 million (USD20,000). In the 2006 list of protected species, only the Giant Pangolin was placed in Class A, while the White-bellied and Black-bellied pangolins were placed in Class B. However, a ministerial circular letter banned all trade in pangolin scales within the national territory in 2013 (Circular letter No.0153/LC/MINFOF/SG/DFAP/SDVEF of 27th June 2013, suspending the exportation of pangolins scales). Following the transfer of African pangolin species from CITES Appendix II to Appendix I, a Ministerial circular letter placed a total protection on pangolins, hence, any capture, keeping or trade in live or dead pangolins is strictly prohibited nationally (Circular letter No.00017/LC/MINFOF/DFAP/SDVEF/ of 11<sup>th</sup> January 2017, relating to the exportation of Pangolins and Grey Parrots).

#### **2.4. Pangolin Conservation Efforts in Cameroon**

In the past, very little was done on pangolin conservation in Cameroon, although more partners are now working closely with the government to step-up pangolin conservation in the country. In February 2017, the government of Cameroon burnt 3 tonnes of pangolin scales on the eve of World Pangolin Day 2017, sending a strong message that pangolin trafficking will not be tolerated within its territory. However, it is still common to find pangolins for sale along major highways, in wild meat markets, restaurants and to have them as part of the menu during celebrations in urban centres. It is therefore important to invest further in enforcing the laws protecting pangolins, raise awareness of pangolin protection measures, carry out research, and develop additional conservation actions.

#### **2.5. Some Recent Efforts to Conserve Pangolins Include:**

##### **Cameroon Pangolin Working Group (CPWG)**

Facilitated by TRAFFIC in Central Africa, the Cameroon Pangolin Working Group (CPWG) was launched in February 2019 in Yaoundé, Cameroon. The CPWG is a collaborative platform for sharing knowledge, experience/expertise, advocacy, lessons, information, research, and conservation tools on pangolins. The group, with members in Cameroon and beyond, includes government representatives, non-governmental organisations, diplomatic missions, and independent university researchers, and will meet periodically to advance pangolin conservation in Cameroon.

### **The Last Great Ape Organization**

The Last Great Ape Organization (LAGA) has been helping the Cameroon government in its wildlife law enforcement efforts by providing intelligence leading to arrests of pangolin traffickers and seizures of wildlife products. Since 2013, the organisation has supported efforts leading to seizures of pangolin scales. Since the complete ban on both national and international trade in pangolins, increasing attention has been paid to the seizure of pangolin scales, and related arrests and prosecutions. By February 2019, the organisation had assisted wildlife officials in the seizure of 7.5 tonnes of pangolin scales over the previous five years.

### **MENTOR-POP (Progress on Pangolins) Fellowship Program**

Based in Yaoundé, Cameroon, the 18-month MENTOR-POP programme was organised by the US Fish and Wildlife Service in collaboration with ZSL. The programme developed a trans-disciplinary team of nine early career Central African and Asian conservation practitioners to champion the conservation of pangolins in Central Africa. Fellows from a variety of different organisations implemented projects on field assessment, law enforcement, and demand reduction and created the Pangolin Conservation Network. Network members now also include students conducting pangolin research and other early career conservationists working on pangolin conservation across Central Africa.

### **Pangolin Rescue Centre**

The Tikki Hywood Foundation is currently developing a pangolin rescue centre in Mefou, close to Cameroon's capital Yaoundé that will be involved in the rescue of live pangolins, their rehabilitation, and eventual release into the wild.

## **TRAFFIC**

TRAFFIC has been leading several surveys aimed at monitoring the trade in pangolins and their derivatives in Cameroon, working with the government to improve law enforcement and sensitisation efforts. The Cameroon Pangolin Working Group is currently facilitated by TRAFFIC.

## **Zoological Society of London (ZSL) – Cameroon Programme**

The ZSL Cameroon Programme has been conducting pangolin ecological and market surveys, combating trafficking, and supporting in situ and ex situ law enforcement efforts around the Dja Biosphere Reserve, a UNESCO World Heritage Site, for several years.

## **2.6. Challenges Facing Pangolin Conservation in Cameroon**

### **2.6.1. Lack of Data on Population and Ecology**

There are no established protocols to estimate the population of the three species of pangolins in Cameroon reliably and there is very little data on pangolin ecology. Most research has focused on the identification of areas with pangolin populations using simple methods like camera trapping, transect surveys, and socioeconomic surveys (Bruce *et al.*, 2017, Ichu *et al.*, 2017). However, monitoring pangolin population trends is vital in order to enable management/policy makers to take more informed decisions to conserve pangolins. While estimating pangolin populations remains a challenge, the quantity of seizures of pangolin scales, coupled with the high commercial value of the pangolin meat trade and the animals' low reproductive rate (Ganguly, 2013), suggests that pangolin populations are declining. There is also lack of information about the ecological behaviour of pangolins including habitat preferences, home range, lifespan, feeding habits, etc which are equally important to guide decisions on where conservation efforts can be concentrated given the limited means available.

### **2.6.2. Law Enforcement**

Wildlife legislation in Cameroon accords the highest level of protection to all species of pangolins thanks to a ministerial order. However, the degree of protection on paper is not directly translated into action on the ground. There is insufficient motivation to clamp down on pangolin traders in some markets and this contributes to the booming illegal trade in pangolins.

Corruption is a major setback to effective wildlife law enforcement in Cameroon. When caught with illegal wildlife products (including pangolins and their derivatives), some traders in pangolin wild meat and high level traffickers in pangolin scales attempt to bribe law enforcement officers (LAGA, 2017).

At the level of the judiciary, many pangolin related offences result in lenient court sentences, sometimes influenced by bribery, influence peddling and other forms of corrupt practices (LAGA, 2017), hence some offenders do not receive maximum sentences (LAGA, 2017, Nebaneh *et al.*, 2017). As a result of lenient sentences, coupled with insufficient follow-up to recover damages, some sentences are not severe enough to deter offenders from the trade in pangolins and their derivatives given the high potential profits.

### **2.6.3. Awareness Raising**

Currently, there is no established pangolin education/awareness raising programme in Cameroon, although some have taken place in the past. The MENTOR-POP Fellows have organised activities annually to celebrate World Pangolin Day every second Saturday in February. These have included activities in rural communities around protected areas which are potential pangolin strongholds and in urban centres. Independent researchers and organisations, such as the Tikki Hywood Foundation, have also conducted some pangolin education/awareness raising. However, many Cameroonians still do not understand why they should conserve a small species like pangolins.

## **3. MATERIALS AND METHODS**

### **3.1. Type of Survey**

The research took the form of a physical market survey where surveyors visited open markets and restaurants to study the trade in pangolins and pangolin products in Cameroon. Since pangolins are listed in CITES Appendix I and are totally protected under Cameroonian wildlife legislation, all trade observed is assumed to be illegal. As such, the survey combined open interviewing techniques as well as covert interviewing and investigation techniques. During the open interviews surveyors were introduced either as consultants or master's degree students (in situations where respondents were judged to be friendly). Questions were asked directly with the help of questionnaires through oral interviews including information about age, tribe, and religion. During covert interviews, surveyors posed as people interested in purchasing pangolins in order to establish casual conversations. During covert interviews, the age of each respondent was estimated while the religion and tribes were asked directly or indirectly during casual discussions depending on how amicable the respondent was. The survey followed a questionnaire divided into two major sections and made up of both open ended and closed questions. The first part of the questionnaire was the observation checklist, while the second part was made up of interview questions. Questionnaires were short enough so that the researcher could ask questions and memorise answers without using papers in front of the person being interviewed. The interviews were conducted in French, which is the dominant spoken language in the surveyed areas.

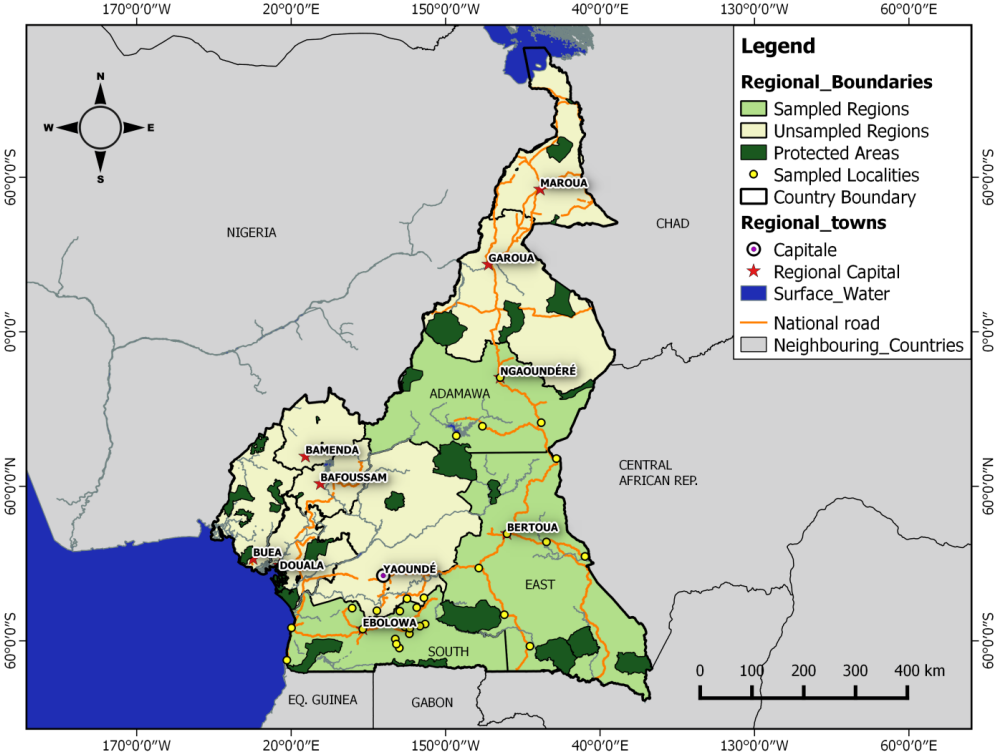
### **3.2. Sample**

Both stratified and selective sampling methodologies were used to choose localities and interviewers. The survey area covered three administrative regions (Adamawa, East and South Regions) which were all considered as separate strata. In each region, selective sampling was used to choose target localities. Localities were selected to include at least two localities in urban areas, one locality around a harvesting area and one around a residential neighbourhood of East Asian and South-East Asian nationals. Selective sampling was also used to identify and interview a total of 131 wild meat/pangolin traders, experts in wildlife conservation organisations and wildlife law enforcement officers. At least four localities were targeted in each region: Adamawa, East and South regions (see Figure 1). In addition to the target localities, other localities were surveyed upon recommendations from wild

meat/pangolin traders, field NGO experts and wildlife law enforcement officers during the survey. The recommended localities were mostly found in the South Region (see Table 3). A total of 29 localities were surveyed.

**Table 2 : Localities surveyed in each region**

Adamawa Region		East Region		South Region	
Towns	Village	Towns	Villages	Towns	Villages
Meiganga	Mbakao	Bertoua	Lomie	Kribi	Campo
Ngaoundal		Abong Mbang	Kentzou	Ebolowa	Akak
Ngaoundere		Batouri	Ngoyla	Sangmalima	Ako'olu
		Garoua Bulai		Meyomessala	Assok-Yenk
					Mengon
					Biba
					Bikou
					Ebonma
					Mangueme
					Mezesse
					Mvangan
					Nyabizeme
					Nkolbiteng
					Nkpwang



**Figure 1: Localities surveyed**

### **3.3. Interview method**

An average of four to five people were interviewed per day during the survey. Although the questionnaire was short and could be completed within 20 minutes in a straightforward interview, a longer time was usually taken because of the need to build rapport and hold casual conversations. The markets generally occupied small areas. For instance, Bertoua market, reputed to be one of the biggest markets in the East Region, was roughly estimated to occupy less than 5,000 square metres. Therefore, to reduce the risk of being identified as covert researchers, legal products were sometimes bought from the markets when visited more than once.

### **3.3. Market Surveys**

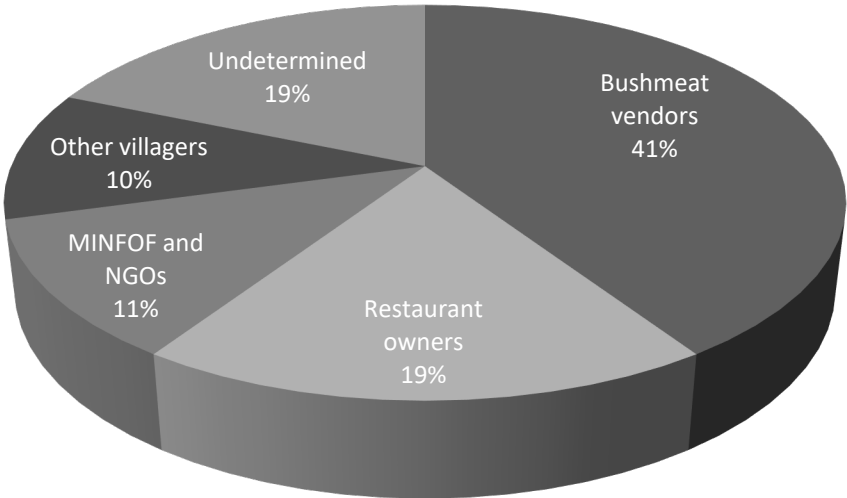
The research was conducted by three teams, deployed to all three regions at the same time. A one-day training session was conducted in Yaoundé prior to the fieldwork. During the training session, surveyors, all of whom were familiar with market surveys, were briefed on the method and procedure for conducting this survey and what was expected from each question in the questionnaire. Each team was made up of two people who were all familiar with the local area and with covert techniques. In each locality, a local guide who was familiar with the area and the local language was recruited. Some of the guides were recommended by MINFOF officials, NGO workers, while others were selected by surveyors following discussions to ensure that they could be trusted. The guide was responsible for directing the team to markets and restaurants and sometimes helped to introduce the researchers during open interviews to minimise suspicion. Each market was surveyed for two days and visited twice per day (morning and evening). The morning visits were usually longer, lasting about three hours between 4:00 am and 11:00 am depending on when wild meat was expected to arrive at the markets. The evening visits usually took about 90 minutes and were usually held between about 4:00 pm and 11:00 pm. One member of the team was responsible for interviewing respondents while the other member observed the availability of pangolins in the market and also any potential for conflict or aggressive behavior, instructing the interviewer to adjust or leave the scene given that some traders became aggressive at the mention of pangolins. Wild meat traders in open markets were interviewed during market visits while restaurants were surveyed between 11:00 am and 3:30 pm. During this time, the team was usually split into two. Restaurants were visited by one surveyor while MINFOF



officials, as well as experts from wildlife related NGOs and other officials were visited by the other surveyor and interviews conducted. Restaurant owners were sometimes interviewed in the evening depending on the availability of respondents. Much effort was made by each team to collect information that covered all aspects of the questionnaire and observation checklists. The survey period lasted for 12 days from 14–25th May 2019.

#### 4. RESULTS

- A total of 131 interviews were conducted, but only 122 questionnaires were retained for data analysis. Eight questionnaires had responses that were obviously incorrect and were discarded.
- Most respondents were females (72%, n=88), while men constituted 28% (n=34) of respondents.
- The ages of respondents ranged from 16 to over 70, with 66% (n=80) between the ages of 30 and 60.
- A majority of interviewees (74%, n=90) clearly identified as Christian, just 1% of respondents identified as Muslim. The religion of some respondents could not be clearly determined (25%, n=31), especially when they were hostile and suspicious of the interviewer.
- A majority of the respondents (n=73) were wild meat vendors and restaurant operators (see Figure 2 for professions of respondents).



**Figure 2: Profession of respondents**

## 4.1 Key Markets in Cameroon Where Pangolins and Their Products Are Found To Be On Offer

### 4.1.1. Pangolin Observations

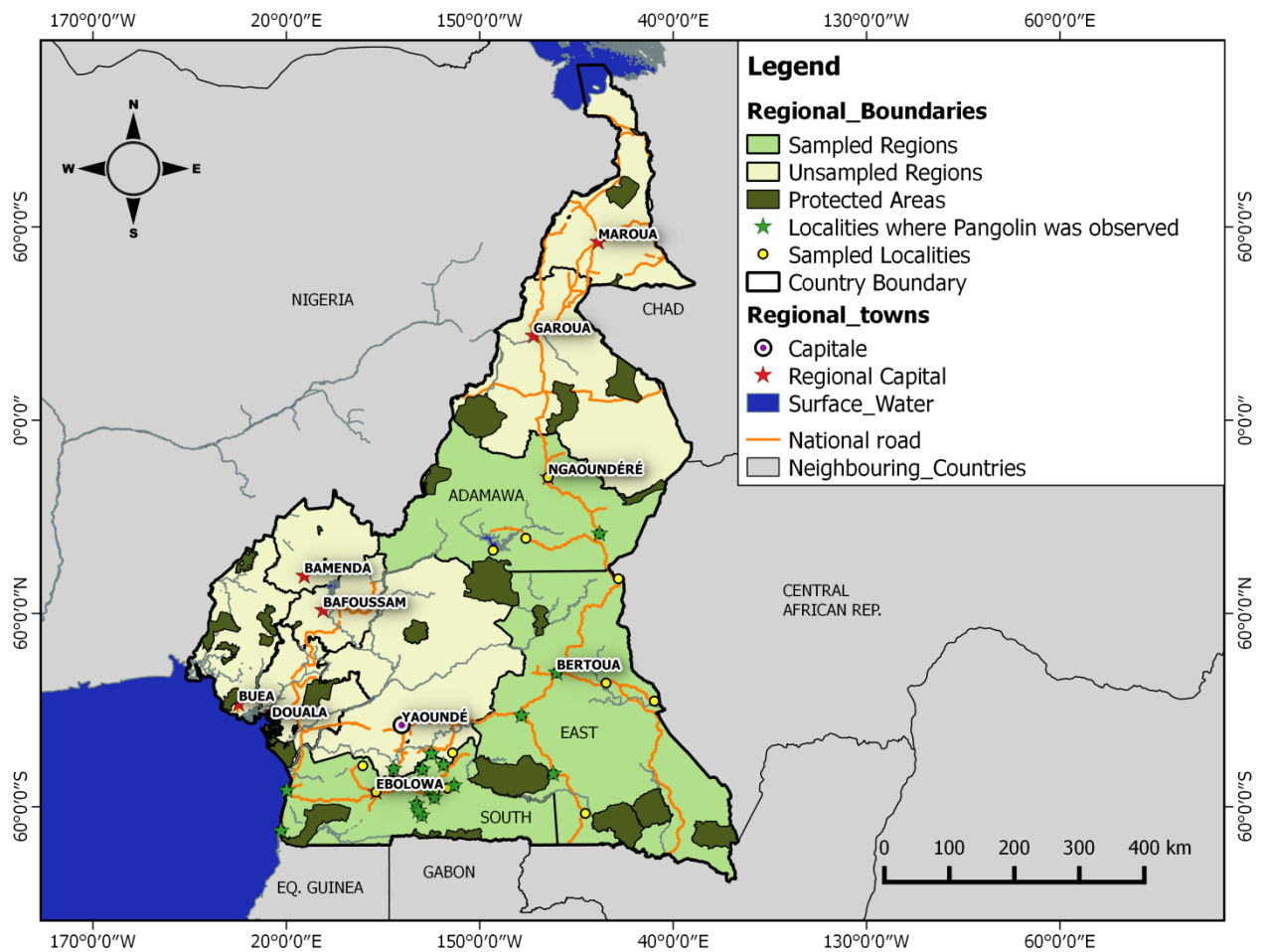
Pangolins were observed in all three study target regions (see Table 4). The White-bellied Pangolin was the most commonly encountered and was observed in all three regions, while the Black-bellied Pangolin was seldom observed (only in the South Region). Live pangolins, fresh carcasses, smoked carcasses, cooked pangolin meat, and pangolin scales were all observed during this study.

There was, however, no observation of Giant Pangolins or pangolin scales in either markets or restaurants.

**Table 3 : Summary quantity of pangolins observed per locality**

Region	Locality	Live	Fresh carcass	Smoked carcass	Cooked	Scales
Adamawa	Mbakao	0	0	0	0	0
	Meiganga	0	0	0	1	0
	Ngoundal	0	0	0	0	0
	Ngoundere	0	0	0	0	0
East	Abong Mbang	1	0	0	1	0
	Batouri	0	0	0	0	1 (MINFOF seizure)
	Bertoua	1	0	3	2	0
	Garoua-Boulai	0	0	0	0	0
	Kentzou	0	0	0	0	0
	Lomié	0	0	0	3	0
	Ngoyla	0	0	0	0	0
South	Campo	2	6	0	0	0
	Ebolowa	9	11	0	0	0
	Kribi	0	3	0	1	0
	Meyomessala	0	2	0	0	0
	Sangmelima	0	0	0	0	0
	Akak	5	8	0	0	0
	Ako'olu	0	7	0	0	0
	Assok-Yenk	0	0	0	0	0
	Mengon	0	0	0	0	0
	Biba	3	7	0	0	0
	Bikou	2	10	0	0	0
	Ebonma	0	6	0	0	0
	Mangueme	0	3	0	0	0
	Mezesse	0	0	0	0	0
	Mvangan	0	0	0	4	0
	Nyabizeme	0	5	0	0	0
	Nkolbiteng	0	0	0	0	0
	Nkpwang	0	0	0	0	0
TOTAL		23	68	3	11	1

Pangolins were observed both in villages like Nyabizeme and Akak, as well as in towns like Bertoua and Kribi (See Figure 3).



**Figure 3: Localities where pangolins were observed in open markets/or restaurants**

In the Adamawa and East regions, pangolins were only seldom observed in open markets. Respondents in these regions generally said that the trade was booming but had gone underground as pangolins were now totally protected in the country and therefore it was illegal to trade in them. Another reason mentioned was the fact that some live and dead pangolins were taken directly to cities like Yaoundé and Douala where pangolin prices were higher. Only a single pangolin observation was made in the Adamawa Region. This was cooked White-bellied Pangolin meat sold in a bar (see Figure 4).

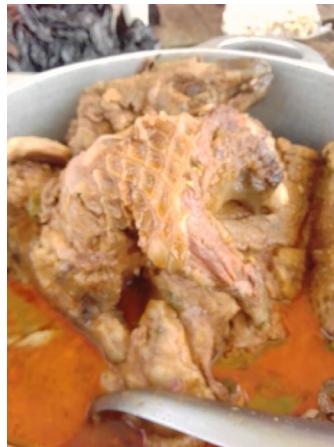


**Figure 4: Cooked pangolin meat on sale in a bar in Meiganga**

In the East Region, live, smoked and cooked pangolins were observed during the study period (See Figure 5) in different localities. Photos of pangolin carcasses from Batouri (East Region) were also received from an informant two weeks before our intended fieldwork suggesting an alleged profitable market in Batouri.



A



B



C

**Figure 5: Pangolins on display in the East Region**

A: Smoked White-bellied Pangolin on sale in Bertoua

B: Cooked pangolin for sale in Abong Mbang

C: Scales seized and kept by MINFOF in Batouri

More pangolins were observed in the South Region than the other two regions (See Figure 6). Here, researchers observed the market and later went to villages which were mentioned as source localities to survey as well as talk to traders. The traders were generally aggressive and very suspicious, probably due to increased law enforcement. In some markets, phones were taken from the surveyors before they were allowed to access areas where wild meat was sold in order to prevent them taking pictures of wild meat on sale. Both White-bellied and Black-bellied pangolins were observed in the markets.



A

B

C

**Figure 6: Pangolin meat and scales observed in the South Region**

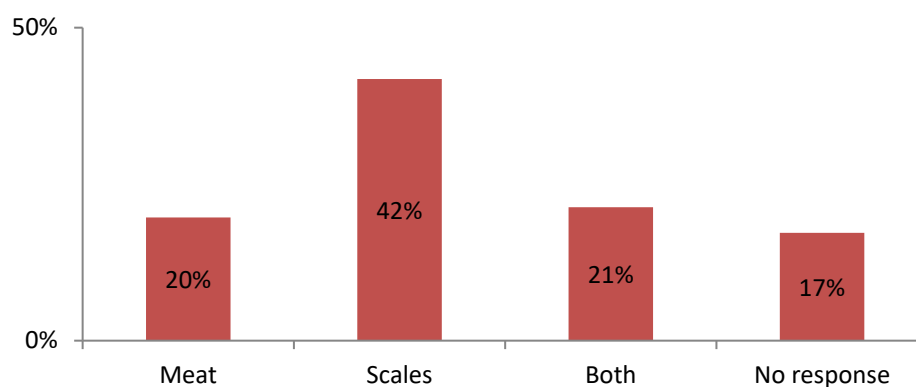
A: Pangolin carcass on sale in Nyabizeme

B: Live pangolins on sale in Ebolowa

C: Freshly removed pangolin scales in a restaurant in Kribi

#### **4.1.2. Respondents' Opinions on the Most Important Pangolin Parts in Trade**

Even though both pangolin meat and scales were traded, for many respondents, the scales were the most important pangolin part in trade (42%, n=51), while the meat was the most important pangolin part in trade for 20% (n=24) of respondents. For 21% respondents, both the meat and scales were of equal importance (See Figure 7).



**Figure 7: Respondents' opinions on the most important pangolin parts in trade**

#### 4.1.3. Price of Pangolins

The prices of meat and scales of the different species of pangolins estimated from interview responses varied across different localities and ranged from FCFA2,000 (USD4) for White-bellied Pangolins in remote localities like Ebonma (South Region) to about FCFA80,000 (USD160) for Giant Pangolins in urban commercial areas like Ngaoundal (see Table 5). The Giant Pangolin was generally the most expensive, followed by the Black-bellied Pangolin, while the White-bellied Pangolin was the least expensive.

**Table 4: Prize range of various species of pangolins from local to urban localities**

Species	Region	Prize range				
		Live	Fresh carcass	Fresh carcass without scales	Smoked carcass	KG Scales
Giant Pangolin	Adamawa	-	20,000–80,000	15,000–60,000	-	10,000–50,000
	East	-	15,000–80,000	-	-	-
	South	10,000–50,000	10,000–60,000	9,000–35,000	7,000–60,000	6,500–60,000
White-bellied Pangolin	Adamawa	3,500	2,000–12,000	2,500–10,000	3,000–3,500	2,500–20,000
	East	4,000	2,500–6,000	2,500–8,000	2,500–6,000	
	South	2,000–9,000	2,000–8,000	2,000–7,500	2,500–8,000	1,000–13,000
Black-bellied Pangolin	Adamawa	-	4,000–10,000	5,000	-	3,500–25,000
	East	-	-	-	-	
	South	2,500–9,000	2,500–8,500	3,000–8,500	3,000–10,000	5,000–30,000

**All prices in XAF (FCFA): USD1 ≈ XAF500**

## 4.2 Key Pangolin Sellers, Traders, Buyers and Other Stakeholders in Cameroon

Wild meat vendors (73 vendors in open markets and restaurant owners) were interviewed during the survey. The majority were female (86%, n=63), while 14% (n=10) were male. The youngest was 16 years old, a girl selling in a restaurant, while the youngest in a market was 17 years old. The oldest pangolin trader interviewed was 55 years of age. Most of the wild meat traders (77%, n=56) were between the ages of 20 and 50 (see Table 6)

**Table 5: Age distribution of wild meat sellers in open markets and restaurants**

Age range	Frequency
<20	4
20-29	10
30-39	23
40-49	23
>50	6
Not determined	7

Wild meat vendors originated from different parts of the country. The tribe with the highest number of wild meat vendors was the Gbaya (34%, n=25), mostly in the Adamawa Region (n=13) and the East Region (n=12). This was followed by the Bulu tribe with 8% (n=6) mostly in the South and East Regions (n=4) (see Table 7).

**Table 6: Tribes of wild meat vendors**

Region	Major tribe	Frequency	Other tribes involved
Adamawa	Gbaya	17	Bamelike, Bamoun, Mbouda, Houm, Mambila, Mbamvele, Tika
East	Gbaya	12	Bamoun, Ddjem, Sango, Nzime,
	Maka	5	
	Bulu	4	
South	Bulu	2	Bameleke, Bassa, Batanga, Eton, Ewondo, Fang, Kribi
	Beti	4	

### 4.2.1. Buyers of Pangolin Meat

Respondents mentioned that the principal buyers of pangolin meat were Cameroonians, most of whom were local inhabitants (41%, n=50) with some national visitors from urban areas (7%, n=12), while 25% (n=31) mentioned both local inhabitants and national visitors

as the principal buyers of pangolin meat (see Table 8). International visitors were also said to be involved in buying pangolin meat. Nationalities alleged to be involved included Chinese and Vietnamese nationals resident in Cameroon, as well as visitors from Nigeria, and Equatorial Guinea.

**Table 7: Respondents’ opinions on principal buyers of pangolin meat**

Region	Local	National visitors	Both locals and national visitors	International visitors	Foreign nationalities cited
Adamawa	22	4	2	1	Nigerians
East	21	3	13	1	Chinese
South	7	2	16	5	Nigerian, Equator Guineans Vietnamese, Chinese
<b>TOTAL</b>	<b>50</b>	<b>9</b>	<b>31</b>	<b>7</b>	

**4.2.2. Buyers of Pangolin Scales**

Only about half of the respondents provided responses on the principal buyers of pangolin scales, and half of this them (n=33) said they were national visitors while very few said they were local inhabitants. More respondents suggested that international visitors were involved in the purchase of scales (n=17) rather than meat (see Table 9).

**Table 8: Respondents’ opinions on principal buyers of pangolin scales**

Région	Local	National visitors	Both Locals and national visitors	International visitors	Foreign nationalities cited
Adamawa	1	6	0	6	Chinese, Nigerian
East	2	13	4	1	Chinese
South	5	14	6	10	Chinese, Equator Guinean, Gabonese
Total	8	33	10	17	

**4.2.3. Principal Vendors of Pangolin Meat**

Most respondents either indicated local inhabitants or both local inhabitants and national visitors as the principal vendors of pangolin meat (79%, n=96) (see Table 10). Nationals of



other neighbouring countries were also cited as vendors of pangolin meat. Alleged nationalities included; Gabonese, Congolese and Equatorial Guineans.

**Table 9: Respondents’ opinion on principal vendors of pangolin meat**

Région	Locals	National visitors	Both Locals and national visitors	International visitors	Foreign nationalities cited
Adamawa	27	2	0	0	0
East	29	0	3	0	-
South	6	-	31	4	Gabonese, Congolese, Equator Guinean
<b>Total</b>	<b>62</b>	<b>2</b>	<b>34</b>	<b>4</b>	-

#### 4.2.4. Vendors of Pangolin Scales

Like pangolin meat, most respondents either indicated local inhabitants or both local inhabitants and national visitors as principal vendors of pangolin scales in the three regions (52%, n=64) (see Table 11). While no respondent mentioned international visitors in both the Adamawa and East regions, some respondents in the South Region mentioned the involvement of international visitors allegedly from Equatorial Guinea, Gabon, Republic of the Congo in the sales of pangolin scales.

**Table 10: Respondents’ opinions on vendors of pangolin scales**

Région	Local	National visitors	Both Locals and national visitors	International visitors	Foreign nationalities cited comments
Adamawa	14	0	0	0	-
East	20	1	0	0	-
South	6	-	24	5	3Gabonese 1Congolese 1Equatorial Guinean
<b>Total</b>	<b>40</b>	<b>1</b>	<b>24</b>	<b>5</b>	-

### 4.3 Trade Routes

#### 4.3.1. Adamawa Region

In the Adamawa Region, pangolin is mostly harvested in the Mbam et Djerem National Park and other surrounding forests and savannah. Surveyors were informed that most of the

pangolins in unprotected areas had been hunted and therefore it was more difficult to find there.

From the Park, the pangolin meat is usually taken to surrounding communities where there was little or no wildlife law enforcement. In most instances, hunters and middlemen avoided passing through Mbakao, the headquarters of Mbam et Djerem National Park, due to the presence of wildlife law enforcement officials. In other situations, poachers and middlemen secretly passed through Mbakao with fresh pangolin meat mixed and hidden under legal products like fresh fish. From the communities around the park, the meat is transported and sometimes stored in refrigerators in Tibati or taken directly to Ngaoundal. From Ngaoundal, it is transported directly to Yaoundé and Douala, sometimes passing through Meiganga, Garoua-Bulai, Bertoua etc. Sometimes it is also supplied to Meiganga and other semi-urban localities.

Pangolin scales are transported on a similar route and upon reaching Ngaoundal, they are transported directly to Bertoua, Douala or Yaoundé, or they are transported to Nigeria passing through Ngaoundere (Adamawa Region), Garoua (North Region), and Maroua (Far North Region).

#### **4.3.2. South Region**

In the South Region, pangolins were mostly poached from Campo Ma'an National Park as well as the Dja Biosphere Reserve. From Campo Ma'an National Park, consignments were usually assembled in small villages adjacent to the Park, like Akak, and collected by middlemen and taken to larger villages like Campo Ville, which has populations of foreign nationals, alleged to be Nigerians, Equatorial Guineans, Vietnamese and Chinese. Some of the meat is consumed in Campo Ville while some is usually taken to Kribi and Equatorial Guinea. The majority of meat ends up in Kribi and Ebolowa where it is consumed, while the scales are usually transported to Yaoundé and Douala. Alternatively, they are transported from Campo Ma'an National Park through Nyabizene and Ma'an to Ebolowa. From Dja Biosphere Reserve, pangolins are transported through Djoum and Sangmalima to Ebolowa.

### **4.3.3. East Region**

In the East Region, protected areas mainly cited as sources of pangolins included the Dja Biosphere Reserve (DBR), Ngoyla Faunal Reserve (NFR), Deng-Deng National Park (DDNP) and Nki National Park (NNP), as well as surrounding forests.

In Ngoyla village for example, pangolins are harvested from NFR, DBR and NNP. They are then transported to Lomié and Abong-Bang where there is a daily wild meat market. The transportation is done by small local transport vehicles that ply the Ngoyla-Lomié route as some drivers have agreements with checkpoints that rarely verify the content of their vehicles. Sometimes hunters make the journey themselves from Ngoyla to Lomié using motorcycles to sell their wild meat (including pangolin meat). The journeys are made at night when the checkpoints are closed.

On the Kentzou side, traffic is very low because most of the population is Muslim, who are not commonly known for dealing in wild meat because of their faith. However, some game collected in the surrounding forests around Yokadouma is consumed locally; part is traded to Batouri or taken across the Cameroon border to CAR mainly by trucks. In these rural areas considerable scale trafficking was not observed and pangolins were sold with scales.

In semi-rural areas like Batouri or Abong-Bang, pangolins are collected in surrounding forests but the majority come from Yokadouma Mindourou I and Mindourou II. There is a daily wild meat market where pangolins are traded and many wild meat restaurants. Scales are mostly collected from households and restaurants and carried to major cities like Douala or Yaoundé.

In Bertoua, pangolins come from surrounding community forests and areas like DDNP and Outchaba. Some of the meat is sold in Bertoua wild meat market, while part is carried to Yaoundé. Scales are mostly transported to Yaoundé, Douala or sent to Nigeria through the Northern Region. Discussions with residents in Garoua-Bulai also indicated that pangolin meat and scales from CAR were hidden and transported in trucks (carrying timber and other goods between Cameroon and CAR) through Garoua-Bulai.

#### **4.4. Exit Points**

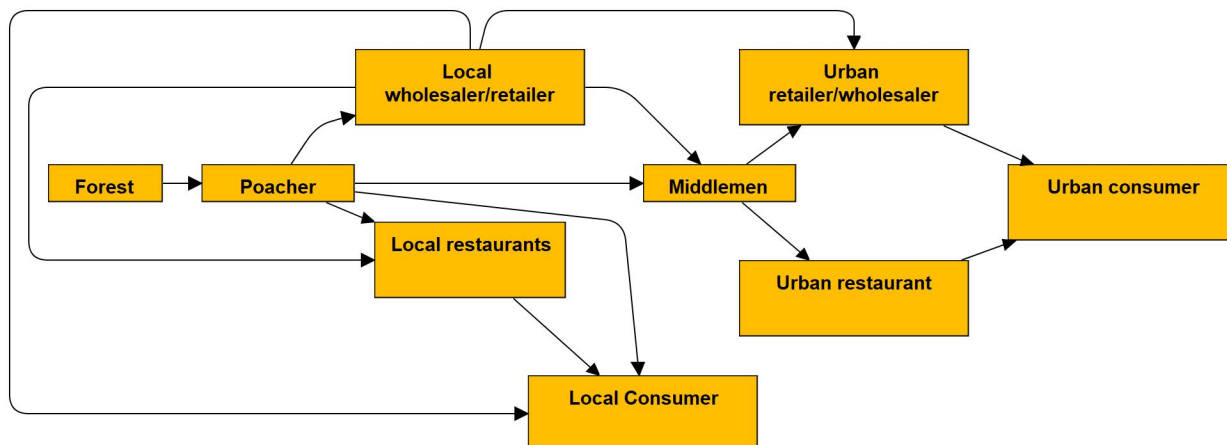
Pangolin scales are exported from Cameroon to meet the increasing demand from China and Viet Nam (see Table 1). For exports leaving the continent from Cameroon, the scales are mostly exported through Douala seaport, Douala International Airport and Yaoundé Nsimalen International Airport. In other cases, pangolin scales are sent to Nigeria where they are then exported to China and Viet Nam. There are two major exit points in Cameroon for pangolins going into Nigeria: the first is in the South West Region where scales are transported on boats from Idenau seaport to Nigeria. The second is through the Far North Region where scales are sometimes transported from the East and Adamawa through Ngaoundere, Garoua and Maroua into Nigeria. Pangolin scales transported by a major national road transport agency, Denay Express, en route from Bertoua to Maroua were seized in Meiganga in March 2019 by custom officers.

Pangolin meat is also exported to neighbouring countries such as Equatorial Guinea. In this case, the main exit point is Campo Ville, which provides access to the sea and other small border localities. About two weeks after this market survey was conducted, one of the surveyors observed five White-bellied Pangolins in the Malabo wild meat market while on a visit to Equatorial Guinea. He was told all the pangolins observed had been brought in from Cameroon.

#### **4.5 Methods of Trade**

##### **4.5.1. Pangolin Meat**

Figure 8 shows the primary route of trade for pangolin meat. Pangolins are poached from the wild (mostly in protected areas) and are either sold to local consumers, local retailers/wholesalers, and restaurants, or to middlemen mostly from urban areas. Local wholesalers also retail in most cases and supply local restaurants, local consumers, and middlemen and urban retailers (mostly in Kribi, Bertoua, Yaoundé and Douala). In urban centres the meat is either bought by restaurants or urban households (see Figure 8).



**Figure 8: Flow diagram showing the primary trade chain for pangolin meat**

Pangolin meat was considered to be very important in the wild meat trade by many vendors. Poachers, traders and consumers preferred to have live pangolins.

- Sometimes pangolins are traded alive, alternatively pangolin carcasses are sold together with their scales or the scales removed by poachers and the fresh unscaled pangolin either sold directly to consumers, local restaurants, and or middlemen.
- Fresh pangolins are transported (sometimes in iced containers) and stored in refrigerators in semi-urban areas. They are sometimes hidden in legal items. In Adamawa Region for example, fresh unscaled pangolins are hidden underneath fish legally harvested in the Djerem River and transported in an iced container across checkpoints.
- Sometimes pangolins are smoked before sale or transportation, usually when poachers spend long periods in the forest hunting and also in areas where access to cooling facilities is limited.
- In some localities, pangolin meat is transported very late at night to avoid checks as wildlife officers may not be on duty. Sometimes administrative and military vehicles are used since such vehicles are rarely checked.
- The trade at markets or selling points sometimes takes place very early in the morning (from about 4:00 am) or very late at night (from about 10:00 pm). Very little pangolin meat is displayed in open in markets in even though trade levels remain high.

- In most cases, poachers arrange where and when to deliver to buyers. Sometimes pangolins are sold from the homes of poachers or occasionally in open markets alongside unprotected species, but hidden and only revealed when buyers show a particular interest in them. Sometimes they are cut into smaller pieces to make the meat more affordable in areas where consumers find it difficult to buy a whole pangolin.
- It is easier to find pangolins in Yaoundé than in some semi-urban areas as poachers prefer selling to traders who bring them to Yaoundé where prices are high.

The situation in restaurants is similar to open markets. In some restaurants, pangolin meat is openly sold, while in others the meat is hidden and served to particular customers who are already well known or served only on specific demand.

#### **4.5.2. Pangolin Scales**

Respondents outlined the main scenarios for pangolin scale collection and trade. Sometimes, pangolin scales are removed by poachers before the meat is sold or the pangolins sold dead or alive still with scales which are later removed before consumption (see Figure 9).

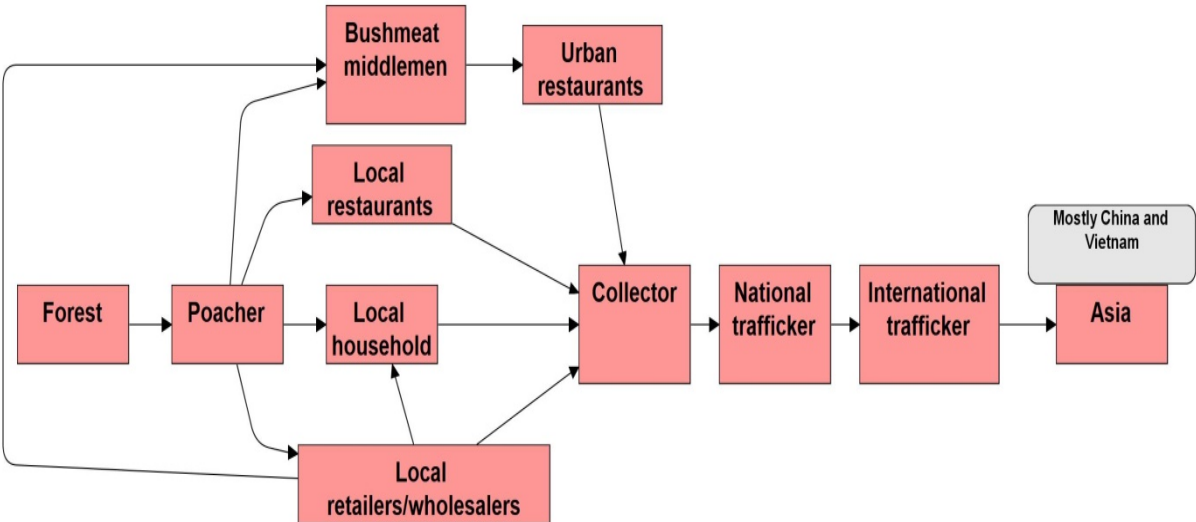


**Figure 9 : Scales removed from a pangolin in a restaurant in Kribi**

These scales are kept for collectors from urban areas like Douala, Yaoundé, Bertoua who pass by periodically or are called in when a significant quantity has been accumulated. The collectors buy and transport the scales (sometimes hidden in bags) to semi-urban and urban

areas where they are delivered or sold to international traffickers who are alleged to be Cameroonians, Nigerians, and Chinese in most cases. Seizure records indicate the scales are transported to Yaoundé or Douala then exported to Asia, particularly China and Viet Nam, sometimes passing through Nigeria.

In another common scenario, a Chinese trafficker arrives from China for a short stay in an urban area, typically around one month. Large sums of money are given to trusted scale collectors who visit localities to publicise the arrival of a Chinese trafficker and the potential to make significant sums of money. During such times, the price of pangolin scales may double, giving extra motivation to trade in scales. Many households, restaurants etc assemble and sell all their available pangolin scales, while poachers redouble their efforts to catch pangolins. Within one month, a huge quantity of scales can be assembled before the trafficker sends them to China (see Figure 10).

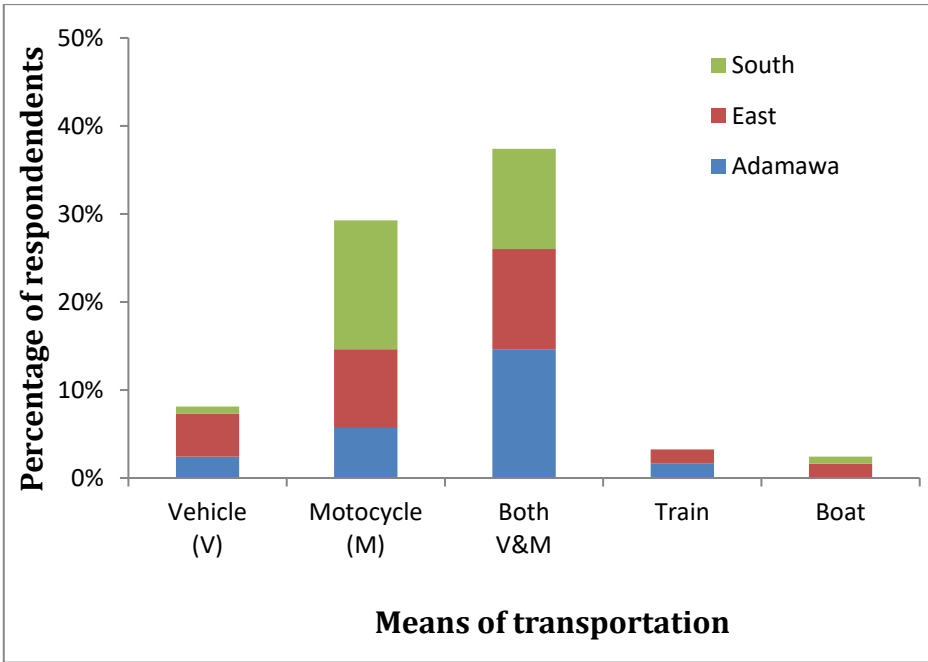


**Figure 10: Flow diagram showing the primary trade chain for pangolin scales**

**4.5.3. Transportation of Pangolin Meat and Scales**

**4.5.4.1. Transportation to the Market**

Land vehicles and motorcycles were the most common means of transportation for pangolins and their products to and from markets mentioned by about 75% of respondents (n=92) in all three regions. In the Adamawa and East regions, trains were also cited as a means of transportation, while boats were mentioned in both the East and South regions (see Figure 11). Respondents suggested that boats were preferred by some poachers and middlemen because wildlife officials did not have the logistics necessary to work in rivers.



**Figure 11: Respondents’ opinions about major means of transporting pangolins to the market or markets or localities**

Pangolin meat is transported with other wild meat species. Figure 12 shows a motorcycle loaded with wild meat and ready to be transported from Ngoyla to Lomie in the East Region. Attempts to find out whether pangolins were part of the stock were unsuccessful.

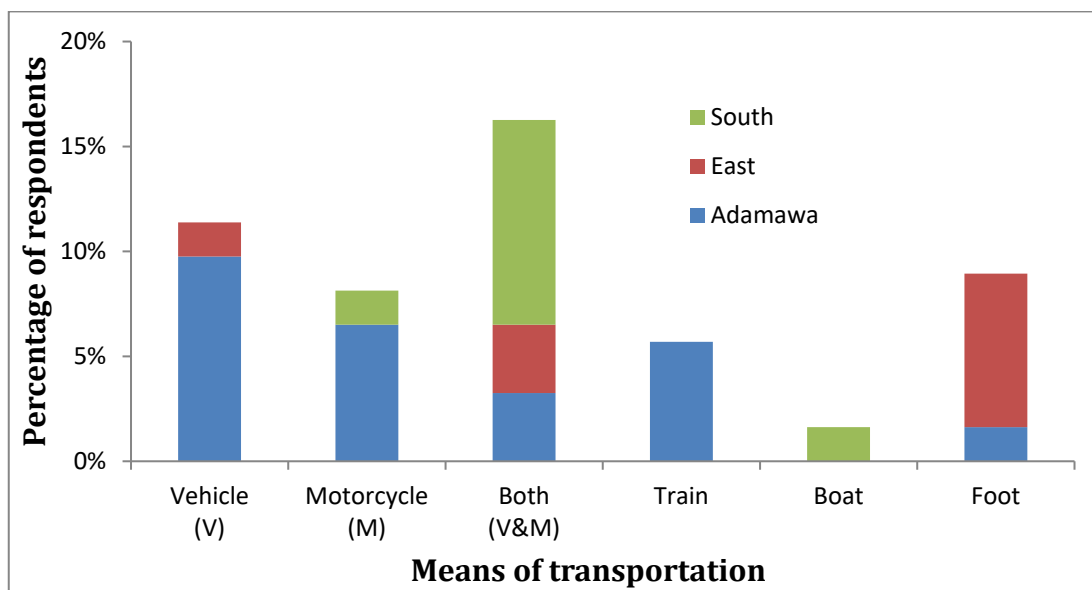




**Figure 12: Wild meat loaded on a motorcycle in Ngoyla ready to be transported to Lomie**

#### 4.5.4.2. Transportation from Market

Only about half of the respondents (n=64) had any idea about the means of transportation of pangolin and their products away from the markets or other locations. Those who did, either mentioned mainly land vehicles, motorcycles or both (see Figure 13). Transportation by train was also mentioned in the Adamawa Region, while the boat was mentioned in the South Region.



### **Figure 13: Respondents' opinions about major means of transporting pangolins/pangolin products from the market or locality toward urban markets**

In Ngaoundal train station, a list of protected species has been posted close to the counter where train tickets are sold informing boarders that transporting the listed species is strictly prohibited. However, only the Giant Pangolin is totally protected (Class A) on this list probably because it might have been designed or printed before the ministerial decree according total protection status to all three species present in Cameroon (See Figure 14).



**Figure 14: List of protected species posted at Ngaoundal train station**

## **5. CONCLUSIONS**

Despite the up-listing of all species of pangolins from CITES Appendix II to Appendix I, and the accordance of total protection status in Cameroon, the trade in pangolins remains very high as large quantities of pangolins are still intercepted by law enforcement officers within the country (see Table 1). Few pangolins/pangolin products were observed in open markets and restaurants in the Adamawa and East regions compared to the South Region. Cameroonians and foreign nationals alleged to be Chinese, Vietnamese and Nigerians were involved in trade. Middlemen and collectors played a central role linking rural trade to urban trade. Most of the pangolins in trade were allegedly poached from protected areas. While the majority of the meat in trade is destined for urban cities and neighbouring countries like Equatorial Guinea, most of the scales are destined for Asia, especially China and Viet Nam. An unknown but potentially significant proportion of the pangolin scales exported from

Nigeria might come from Cameroon. Pangolin traffickers easily adapt and create alternative routes when law enforcement increases along principal transport routes. Organisations should work closely with the government of Cameroon to help address the threat to the survival of the three species of pangolins in Cameroon from both the rural-urban demand.

## **6. RECOMMENDATIONS**

### **6.1. Recommendations for MINFOF**

#### **6.1.1. Need to Improve Wildlife Law Enforcement**

Pangolin trade is normally carried out clandestinely. In some cases, pangolins are transported at night when there is very little chance of meeting law enforcement officers at checkpoints. In other cases, pangolins are transported on boats because wildlife law enforcement officers lack the necessary logistics to carry out water-related operations. In order to improve law enforcement:

- Wildlife law enforcement officers should rely more on intelligence and work closely with organisations like LAGA, WWF, ZSL, etc to tackle international traffickers
- MINFOF should increase their staff and efforts at checkpoints by: increasing the number of MINFOF officials at checkpoints, conduct checks at night, and provide equipment necessary for wildlife law enforcement officers to operate more effectively
- Law enforcement officers should not shy away from checking administrative/military vehicles
- MINFOF should make sure that seizures are fully investigated leading to arrests and prosecution
- MINFOF should make an inventory of all the stockpiled seizures and ensure they are stored in a safe place so they do not leak back into trade.

#### **6.1.2. Data Sharing**

Data/information about IWT, traffickers, seizures, arrests, etc should be shared between law enforcement officers and conservation organisations, such as TRAFFIC, LAGA, WCS, WWF, ZSL, AWF, etc within Cameroon, and also with other countries in the trade chain, such as Nigeria, Equatorial Guinea, China, and Viet Nam, to increase success in breaking up organised

international groups through joint operations. One way to help achieve this within the region is ensure Cameroonian law enforcement staff submit their data to the Africa Trade in Wildlife Information eXchange (AFRICA-TWIX).

### **6.1.3. Update list of all protected species**

Even though pangolins are totally protected in Cameroon based on the January 2017 ministerial order, there is an urgent need for MINFOF to update the complete list of all protected species in Cameroon. The current list dates back to 2006 and only the Giant Pangolin was placed in Class A (totally protected) then, while the White-bellied Pangolin and the Black-bellied Pangolin were placed in Class B (partially protected). In Ngaoundal train station for example, the list of protected species has only the Giant Pangolin in class A (see Figure 14). In a similar research conducted by ZSL and TRAFFIC in 2017, 79% of respondents thought Black-bellied Pangolin had no protection status while 68% thought the White-bellied Pangolin had no protection status. 59% knew the Giant Pangolin was protected. Given that the list of protected species is posted in many offices and public places, there is a real potential for raising awareness. In addition, it places pangolins alongside other vulnerable species giving as much importance to their protection.

## **6.2. Recommendations for NGOs/Research Institutions**

### **6.2.1. More Awareness Raising/Behaviour Change of Pangolin Meat Consumers**

Currently, there is very little/no systematic pangolin awareness raising/demand reduction effort in Cameroon. While some are aware that pangolins are totally protected and many understand and agree on the complete protection of the Giant Pangolin, many, including the residents of Lomie do not understand why small species like White-bellied and Black-bellied pangolins should be protected. Hence there is need for NGOs to design awareness raising, demand reduction/behaviour change programmes and work closely with the government to garner support for pangolin conservation.

### **6.2.2. Work with Transport Agencies**

It was reported that domestic transport agencies carry pangolin products. It is important to work with proprietors and managers to ensure that these agencies do not serve as safe means for transporting pangolins. NGOs should work together with wildlife law enforcement

officers to train agency personnel (managers, drivers, car loaders etc) about compliance with wildlife legislation.

### **6.2.3. Capacity building and awareness raising for Law Enforcement Officials, airline/shipping company staff and the judiciary/prosecution sector**

While some wildlife law enforcement officers can easily recognise wildlife products, there are many other enforcement personnel (Customs, police etc) as well as port staff and airline/shipping company staff that cannot easily do so. An example was the case of the seizure of pangolin scales and ivory in Meiganga where a Customs officer initially mistook ivory for horns. It is important for NGOs to train enforcement officers on identifying products of protected species, including pangolins. The Cameroon Pangolin Working Group can play a major role in facilitating the training of these law enforcement officers.

It is also important for NGOs to continue raising awareness and building the capacities of judges, lawyers and other legal personnel given that some court cases usually result in unsatisfactory penalties.

### **6.2.4. The need for Long-Term Monitoring of IWT**

There is need for more detail, long-term research and monitoring of pangolin related trade. NGOs and universities should develop and implement a pangolin monitoring programme with field data collectors who constantly record pangolin observations in the field in order to quantify the pangolin trade that occurs in the black market. There is also need for a more detailed investigation into the trade in pangolins that occur between countries in Central Africa and Nigeria.

NGOs/research institutions should work with transit/consumer countries that are making seizures and testing their DNA to understand better the role of Cameroon in the pangolin trade—are pangolins seized from Cameroon or were they poached elsewhere and trafficked through Cameroon?

NGOs/research institutions should conduct ecological research in order to monitor the impact of wildlife trade on pangolin populations.

## 7. REFERENCES

- Akeredolu, E.O., Routh, A., Temitope, O. (2017). Trade and the decline of the African tree pangolin in Lagos State, Nigeria. *Solitare* 28: 31–35.
- Bruce, T., Kamta, R., Tabue Mbobda, R.B., Talla Kanto, S., Djibrilla, D., Moses, I., Deblauwe, V., Njabo, K., LeBreton, M., Ndjassi, C. and Barichievy, C. (2018). Locating giant ground pangolins (*Smutsia gigantea*) using camera traps on burrows in the Dja biosphere reserve, Cameroon. *Tropical Conservation Science* 11 p.1940082917749224.
- Challender, D.W.S. (2011). Asian pangolins: Increasing affluence driving hunting pressure. *TRAFFIC Bulletin* 23(3): 92–93.
- Challender, D.W.S. and Hywood, L. (2012). African pangolins under increased pressure from poaching and international trade. *TRAFFIC Bulletin* 24(2): 53–55
- Challender, D.W.S., Waterman, C. and Baillie, J.E.M. (2014). *Scaling up pangolin conservation*. IUCN SSC Pangolin Specialist Group Conservation Action Plan. Zoological Society of London, London, UK.
- Chausson, A.M., Rowcliffe, J.M., Escouflaire, L., Wieland, M. and Wright, J.H. (2019). Understanding the Sociocultural Drivers of Urban Bushmeat Consumption for Behavior Change Interventions in Pointe Noire, Republic of Congo. *Human Ecology* 47: 179. <https://doi.org/10.1007/s10745-019-0061-z>
- CITES. (2017). Appendices I, II and III. retrieved from <https://cites.org/sites/default/files/eng/app/2017/E-Appendices-2017-10-04.pdf>
- DW. (2019, 6th May). Singapore seizes 26 tons of pangolin scales. Retrieved from <https://www.dw.com/en/singapore-seizes-26-tons-of-pangolin-scales/a-48273097>
- Drury, R.C. (2009). *Identifying and understanding consumers of wild animal products in Hanoi, Viet Nam: Implications for conservation management*. Thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy, University College of London.
- Ganguly, S. (2013). Pangolin Zoological Characteristics and Its Uniqueness in Mammalian Group. *Journal of Entomology and Zoology Studies* 1(1): 1–2.
- Gomez, L., Leupen, B.T.C. and Hwa, T.K. (2016). The trade of African pangolins to Asia: a brief case study of pangolin shipments from Nigeria. *TRAFFIC Bulletin* 28(1): 3–5
- Heinrich, S., Wittman, T.A., Ross, J.V., Shepherd, C.R., Challender, D.W.S. and Cassey, P. (2017). *The Global Trafficking of Pangolins: A comprehensive summary of seizures and trafficking routes from 2010–2015*. TRAFFIC, Southeast Asia Regional Office, Petaling Jaya, Selangor, Malaysia

- Ichu, I.G., Nyumu, J.K., Moumbolou, C.L.M., Nchembi, F.T. and Olson, D. (2017). Testing the Efficacy of Field Surveys and Local Knowledge for Assessing the Status and Threats to Three Species of Pangolins in Cameroon. A Report Submitted in Partial Fulfilment [SIC] of the Requirement for the Completion of the MENTOR-POP (Progress on Pangolins) Fellowship Program. Zoological Society of London Cameroon, Yaounde, Cameroon.
- Ingram, D.J., Coad, L. and Scharlemann, J.P.W. (2016). Hunting and sale of African Pangolins across Sub-Saharan Africa: A preliminary analysis prepared for WCS. OFFTAKE Working Paper No. 1. doi:10.5281/zenodo.44527.
- Ingram, D.J., Coad, L., Abernethy, K.A., Maisels, F., Stokes, E.J., Bobo, K. S., Breuer, T., Gandiwa, E., Ghiurghi, A., Greengrass, E., Holmern, T., Kamgaing, T.O.W., Obiang, A.M.N., Poulsen, J.R., Schleicher, J., Nielsen, M.R., Solly, H., Vath, C.L., Walter, M., Whitham, C.E.L., Wilkie, D.S. and Scharlemann, J.P.W. (2017). Assessing Africa-Wide Pangolin Exploitation by Scaling Local Data. *Conservation Letters* 11(2): 1–9.
- Ingram, D.J., Coad, L., Abernethy, K.A., Maisels, F., Stokes, E.J., Bobo, K.S., Breuer, T., Gandiwa, E., Ghiurghi, A., Greengrass, E. and Holmern, T. (2018). Assessing Africa-wide pangolin exploitation by scaling local data. *Conservation Letters* 11(2): 1–9
- Ingram, D.J., Cronin, D.T., Challender, D.W.S., Venditti, D.M and Gonder, M.K. (2019). Characterising trafficking and trade of pangolins in the Gulf of Guinea. *Global Ecology and Conservation*. <https://doi.org/10.1016/j.gecco.2019.e00576>
- IUCN. (2014). Annual Report of the Species Survival Commission and the Global Species Programme. Available at <https://portals.iucn.org/library/sites/library/files/documents/2015-024.pdf>
- Last Great Ape Organization, LAGA. (2017). Annual Report 2017. Retrieved from [http://www.laga-enforcement.org/Portals/0/Activity%20reports%202017/LAGA\\_Annual\\_Report%20%202017..pdf](http://www.laga-enforcement.org/Portals/0/Activity%20reports%202017/LAGA_Annual_Report%20%202017..pdf)
- Last Great Ape Organization, LAGA. (2018). Annual Report 2018. Retrieved from [http://www.laga-enforcement.org/Portals/0/Activity%20Reports%202018/LAGA\\_Annual\\_Report\\_%202018.pdf](http://www.laga-enforcement.org/Portals/0/Activity%20Reports%202018/LAGA_Annual_Report_%202018.pdf)
- Linh, B.N., Esua, E.F. and Affana, N.C. (2017). Bushmeat consumer survey at restaurants in Bertoua and Ebolowa, Cameroon targeting pangolin species. MENTOR-POP (Progress on pangolins) Fellowship Program, Zoological Society of London.

- Mambeya, M.M., Baker, F., Momboua, B.R.K., Pambo, A.F., Hega, M., Okouyi, V.J.O., Onanga, Challender D.W.S., Ingram, D.J., Wang, H. and Abernethy, K. (2018). The emergence of a commercial trade in pangolins from Gabon. *African Journal of Ecology*. 00,1–9 <https://doi.org/10.1111/aje.12507>
- May, T. (2019, April 8). Seizure of 14 Tons of Pangolin Scales in Singapore Sets a Dismal Record. *The New York Times*. retrieved 6th May 2019 from <https://www.nytimes.com/2019/04/08/world/asia/pangolin-singapore-seizure-poaching.html>
- Mbotiji. (2002). Sustainable use of wildlife resources: the bushmeat crisis: wildlife e management working paper number 5, Food and Agriculture Organization of the United Nations, Rome.
- McDonald R.I., Marcotullio P.J. and Güneralp B. (2013). Urbanization and Global Trends in Biodiversity and Ecosystem Services. In: Elmqvist T. *et al.* (eds) *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities*. Springer, Dordrecht. DOI: [https://doi.org/10.1007/978-94-007-7088-1\\_3](https://doi.org/10.1007/978-94-007-7088-1_3)
- Nebaneh, S.N., Mbi, J.K. and Fosab, E.E. (2017). Survey on Pangolin Scale Seizures in Cameroon. MENTOR-POP (Progress on pangolins) Fellowship Program Robinson, J.G. (2015). *Livelihoods, Jobs, and the Illegal Wildlife Trade*. National Geographic Society. Retrieved June 2019 from <https://blog.nationalgeographic.org/2015/03/31/livelihoods-jobs-and-the-illegal-wildlife-trade/>
- Sollund, R. and Maher, J. (2015). *The illegal wildlife trade*. A Case Study report on the Illegal Wildlife Trade in the United Kingdom, Norway, Colombia and Brazil. A study compiled as part of the EFFACE project. University of Oslo and University of South Wales
- Soewu, D.A. and Sodeinde, O.A. (2015). Utilization of pangolins in Africa: Fuelling factors, diversity of uses and sustainability. *International Journal of Biodiversity and Conservation* 7(1): 1–10. <https://doi.org/10.5897/IJBC2014.0760>
- UNODC (2016). *World Wildlife Crime Report: Trafficking in protected species*. United Nations Publication, Sales No. E.16.XI.9, ISBN: 978-92-1-148288-1.
- USAID Wildlife Asia. (2019). *Counter Wildlife Trafficking Digest: Southeast Asia and China*. Issue I1, Bangkok: USAID Wildlife Asia. Retrieved from <http://www.usaidwildlifeasia.org/resources>.
- Vallianos, C. (2016). *Pangolins on the brink*. Wild Aid Survey Report. Retrieved from <https://wildaid.org/wp-content/uploads/2017/09/WildAid-Pangolins-on-the-Brink.pdf>



Vietnam seizes 5 tonnes of pangolin scales from Nigeria (24th May 2019). Retrieved from [https://phys.org/news/2019-05-Viet Nam-seizes-tonnes-pangolin-scales.html](https://phys.org/news/2019-05-Viet-Nam-seizes-tonnes-pangolin-scales.html)

ZSL and TRAFFIC. (2019). Analysis of Wild Meat Markets and Consumers in the Central, East and South Regions of Cameroon: with a Focus on Pangolins (Unpublished)

## 8. APPENDICES

### 8. 1. Appendix I: Questionnaire/Observation Checklist

#### SECTION 1: OBSERVATION CHECKLIST FOR PANGOLIN SURVEY

- Name of questionnaire administrator: \_\_\_\_\_ Sheet No \_\_\_\_\_
- 0) Occupation of respondents: \_\_\_\_\_
- 1) Region \_\_\_\_\_ 2) Location \_\_\_\_\_ 3) Date \_\_\_\_\_
- 3) Time \_\_\_\_\_ 4) Age \_\_\_\_\_ 5) Gender \_\_\_\_\_
- 6) Nationality: \_\_\_\_\_ 7) Latitudes: \_\_\_\_\_ Longitudes \_\_\_\_\_
- 8) Type of market: A) Open Market B) Restaurants C) Roadside  
C) Others, specify: \_\_\_\_\_
- 9) Name of market: \_\_\_\_\_
- 10) Number of wild meat tables in the market (Open markets only)? \_\_\_\_\_
- 11) Number of tables with pangolins (Open markets only)? \_\_\_\_\_
- 12) Number of pangolins observed in the market  
A) Giant pangolin \_\_\_\_\_ B) White-bellied pangolin \_\_\_\_\_ c) Black-bellied pangolin \_\_\_\_\_
- 13) Estimated weight of pangolin/pangolin product observed  
A) Giant pangolin \_\_\_\_\_ B) White-bellied pangolin \_\_\_\_\_ c) Black-bellied pangolin \_\_\_\_\_
- 14) Estimated length of: A) Giant pangolin \_\_\_\_\_ B) White-bellied pangolin \_\_\_\_\_  
c) Black-bellied pangolin \_\_\_\_\_
- 15) Which pangolin products were observed in the market?  
A) Giant pangolin scales B) White-bellied pangolin scales c) Black-bellied pangolin scales
- 16) Number of vendors' selling pangolins/pangolin products \_\_\_\_\_
- 17) Which other wild meat species were sold alongside pangolins \_\_\_\_\_
- 
- 18) Is the trader / vendor aware pangolins are protected?  
A) YES B) NO C) Cannot tell

#### SECTION 2: INTERVIEW QUESTIONS

- 20) How important are pangolins in the wild meat market?  
A) Very important B) Somehow important C) Not important
- 21) Explain? \_\_\_\_\_
- 
- 22) Which pangolins products do you think are mostly targeted by the traffickers?  
A) Meat B) Scales C) Others, Specify \_\_\_\_\_
- 23) What prices (FCFA) are being paid for the pangolin products?
- | Species                      | Scaled carcass | Unscaled carcass | Life | Smoked | 1KG scales |
|------------------------------|----------------|------------------|------|--------|------------|
| Giant pangolin               |                |                  |      |        |            |
| White-bellied pangolin       |                |                  |      |        |            |
| Black-bellied pangolin (1KG) |                |                  |      |        |            |
- 24) What are the possible sources of pangolin products (Names of regions, cities, villages, forests etc)

Species	Region	Town	villages	Forest/savannah	others
Giant pangolin					
White-bellied pangolin					
Black-bellied pangolin					

25) What route itinerary did they take to the market? \_\_\_\_\_

26) What means of transportation are used to get pangolins/products the market? (Can tick more than once)

A) Vehicle    B) Motor-bike    C) foot    D) Others, specify \_\_\_\_\_

27a) Who do you think are the main buyers of pangolin meat?    A) Locals    B) National visitors

C) Foreigners, Specify \_\_\_\_\_

27b) Who are the main buyers of pangolin scales?    A) Locals    B) National visitors

C) Foreigners, Specify \_\_\_\_\_

28a) Who are the main vendors of pangolin meat?    A) Locals    B) National visitors

C) Foreigners, Specify \_\_\_\_\_

28b) Who are the main vendors of pangolin scales? \_\_\_\_\_

29) Where are the products taken to? \_\_\_\_\_

30) What are pangolin products used for? \_\_\_\_\_

31) How are they transported from the market? \_\_\_\_\_

32) Tribe of vendor \_\_\_\_\_ Religion \_\_\_\_\_

34) Are you aware that pangolins are totally protected?    A) Yes    B) No

35) Are you aware that pangolins are openly sold in some market (MINFOF only)    A) Yes

B) No

NOTES (Give additional information not captured in the questionnaire)

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

TRAFFIC, the wildlife trade monitoring network, is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:  
TRAFFIC  
Global Office  
David Attenborough Building  
Pembroke Street  
Cambridge CB2 3QZ  
UK

Telephone: +44 (0)1223 277427  
E-mail: [traffic@traffic.org](mailto:traffic@traffic.org)  
Website: [www.traffic.org](http://www.traffic.org)

UK Registered Charity No. 1076722,  
Registered Limited Company No. 3785518.