



Evidence to Action

Research to Address Illegal Wildlife Trade
9 October 2018 • London, UK

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ABSTRACT BOOK

Sept-2018

This abstract book is produced as part of the [2018 Evidence to Action: Research to Address Illegal Wildlife Trade](#) (IWT) event, organised by five of the UK's most active IWT research institutions, to support the [Illegal Wildlife Trade \(IWT\) London Conference 2018](#). Our research event will showcase the world's research excellence in addressing the illegal wildlife trade carried out by research institutions and collaborators worldwide. This is vitally important as the UK hosts the London 2018 IWT Conference, which offers the opportunity to promote evidence-based action on IWT, and to draw on researchers' expertise when addressing sustainable use at the government level.

WORKSHOP SESSION

Characterising the consumers of wildlife products

Organisers: Laura Thomas-Walters, Durrell Institute of Conservation and Ecology, University of Kent; Diogo Veríssimo, University of Oxford

Our overall aim is to develop the concept of consumer and demand in the context of wildlife products. Conservationists increasingly recognise the importance of demand-side interventions in the form of demand reduction, with multiple calls for demand reduction in both the academic and grey literature (e.g., Challender et al. 2014; Burgess 2016). Demand reduction campaigns are just beginning to be implemented in the conservation sector, however, we are still lacking a rigorous investigation into the characteristics of wildlife consumers. The wildlife trade is incredibly varied, encompassing a wide range of different wildlife products used for different purposes. The motivation behind a Vietnamese businessman purchasing rhino horn as a status symbol is very different to bushmeat consumed for nutritional purchases in parts of rural Africa, which varies again from someone in the UK buying an imported orchid. The approach we use in creating demand reduction campaigns needs to take into account this diversity of motivations and uses. Our work would build on the theoretical framework of motivational clusters proposed by Burgess (2016), and Phelp's typology of key actor roles along IWT market chains (2016). The open access paper we produce could be used as a guide to help design better interventions for reducing consumer desire for wildlife products in the future.



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From policy rhetoric to practical reality: engaging communities in tackling IWT

Organisers Dilys Roe, International Institute for Environment and Development; Holly Dublin, IUCN SULi / IIED; Rosie Cooney, IUCN SULi

This workshop will start by examining the rationale for community engagement as a strategy to tackle IWT, presenting a simple framework that describes key ingredients for determining if community members are likely to be poachers or protectors of wildlife. It will then review the commitments that have been made at successive intergovernmental policy forums to support communities and engage them as active partners in conservation. We will present an analysis of evidence of uptake of these international commitments into national policies and legislation in rhino and elephant range states in Africa and will then hold a discussion with a panel of community representatives from some of the same countries to explore whether there has been any translation of these commitments to action at the local level. The second theme of the workshop will be to explore the strategies that have been used to engage communities at the site level. We will start with a presentation of a “Theory of Change” for engaging communities that suggests four key approaches. We will then present a review of evidence of the effectiveness of these different approaches based on an analysis of case studies, highlighting lessons for best practice. This overview presentation will be followed by a series of speed presentations from some of the projects included in the case study analysis. We will then focus on a participatory action research initiative that has been conducted in three community conservancies in Kenya to test the theory of change – and in particular the assumptions that underpin it. We will involve community members who live in the sites where the research has been conducted to provide their perspectives on the process, the findings it generated, and the subsequent actions that have been taken. We will then move to Uganda where we will describe a different approach to engaging communities – this time focussing on a state protected area. We will discuss the process for developing a park level action plan for combatting illegal wildlife trade, and the community-based research that provided the evidence for the actions proposed in the plan. The workshop will conclude with a live demonstration of a new, interactive, online Learning Platform on communities and IWT, which will be a key tool in increasing understanding and awareness of the results of research and practice and in using them to influence policy and practice.



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Global GIS Standards to Help Combat Illegal Wildlife Trade

Organisers: Meredith Lynn Gore, Michigan State University; Lee Schwartz, Office of the Geographer and Global Issues, US Department of State

Many organizations, agencies and institutions are already engaged in information management to combat illegal wildlife trade (IWT) and wildlife trafficking (CWT). Common standards are currently lacking across these efforts, creating an evidence-to-action barrier. Benchmarking, monitoring and evaluating actions are hampered. Further, decision makers, donors and other data users are not benefiting from evidence that is optimally documented, managed, or coordinated. This workshop presents recent collaborative and participatory data collection efforts to enhance evidence-based database standards for wildlife trafficking geoinformatics, including identifying the types of geographic information that would help end users be more effective in combating wildlife trafficking, key common denominators in transboundary contexts, and coping with conditions of data delivery. Panellists from academia, government, the private, non-profit, and international organizations will discuss collaborative and participatory research efforts and workshop the audience through moving evidence to action. These efforts will guide participants through identifying types and attributes of geospatially-enabled data. Conversations will be framed in terms of data most relevant for end users to support development of coordinated information databases. These data can include "traditional" geospatial data such as imagery, but also human geography data and data produced by communities. Panellists will highlight the new collaborative opportunities that have emerged to realize benefits of standardizing guidelines across sectors, stakeholders and scientists from different disciplines. Benefits and challenges associated with the collaborative effort will be discussed. The panel will include a live Beta-Version demonstration of the cloud-based platform populated with real-world data and its ability to document, manage, analyse and leverage geospatially-enabled information to help combat wildlife trafficking in accordance with end user needs.

How do lawyers and scientists conceptualise the harm caused by IWT?

Organisers: Jacob Phelps, Lancaster Environment Centre

There is growing focus on characterising and quantifying ecosystem goods and services and their contributions to human wellbeing, including to inform decision-making. However, when the environment is harmed, can we also conceptualise and quantify that harm in similar terms? How should we characterise and measure the harm caused to biodiversity, such as by illegal wildlife trade? What are the implications for conservation and legal practise?

This question has profound legal implications, particularly where legal processes are used as a remedy following environmental harm. Indeed, when environmental harm results from



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actions such as oil spills, legal institutions in many countries respond not only with fines and criminal sentences, but often also with actions that seek to 'make the public whole' through financial claims for restoration, orders of apologies, compensation of victims, etc. However, these depends on natural and social science analyses in their inception.

Such methods, used elsewhere, might be applied to the harm that results of illegal wildlife trade. How can our growing understanding of ecosystem goods and services, restoration and links to human wellbeing inform concepts of environmental harm and legal remedy?

How to make IWT research in China more useful to decision makers

Organisers Amy Hinsley, University of Oxford; Tien Ming Lee, Sun Yat Sen University; Sifan Hu, Sun Yat Sen University; Anita Wan, Sun Yat Sen University

China is the focus of a lot of international discussion and research regarding IWT led by groups outside of the country. China itself acknowledges the importance of addressing IWT, and has taken steps to close markets, increase enforcement, promote supply-side approaches such as farming, and work with researchers to better understand the markets for wildlife in the country. However, there still exists a gap between international research and action in China, with many international research projects not engaging meaningfully with the relevant stakeholders in China who could translate this into action. It is likely that there are several overlaps between the priorities for researchers, practitioners and decision makers, that could be better defined with closer collaboration. This workshop aims to bring together key stakeholders, researchers, and practitioners to discuss lessons learnt from past successes, and define key priorities for addressing IWT in China in the future, with a focus on how research can be more useful for informing action in the country.

Raising the profile of plants in IWT policy: an evidence-based agenda setting workshop

Organisers: Jared Margulies, University of Sheffield

This workshop proposes to bring together researchers, policy experts, and conservation practitioners to discuss and debate practical opportunities for raising the profile of wild plant species that are actively traded across international markets. Of particular interest for this workshop is brainstorming what evidence-based analyses are possible that remain to be undertaken for highlighting the importance of plant IWT to further raise the profile of illegal plant trading within IWT policy spheres. Through facilitated discussion, the workshop group will identify and discuss gaps and opportunities in synthesizing evidence surrounding plant IWT, and for raising awareness about the use and exploitation of plants, with a particular focus on identifying areas or themes of research that could help fill important knowledge



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gaps in understanding the illegal trade of a variety of plant taxa. Further, the workshop will serve as an opportunity to draft a research action plan regarding 'plant blindness' in IWT, with the aim of producing a publication output for a special issue on 'plant blindness' in early 2019 the co-organizers have been invited to write. An additional press release for dissemination at the London Conference on IWT highlighting the importance to include plants in policy discussions of IWT will be drafted as well.

Recent developments in portable molecular technologies and their use for rapid and cost-effective species identification to tackle illegal wildlife trade

Organisers: Adeline Seah, Wildlife Conservation Society; Stefan Probst, University of California Berkeley

Illegal wildlife trade (IWT) is the 4th most profitable illegal industry in the world. Unfortunately, there is not one single approach to tackle this global issue. One of the key steps in investigating and prosecuting IWT is species identification, which can be difficult for animal products where the species of origin is unrecognizable or where the product is composed of multiple species such as traditional medicine products. Our workshop aims at exploring advancements in genetic species identification, portable technology and their use by IWT investigation agencies, such as local and international law enforcement and NGOs. Specific components that we will discuss are:

1. Issues with forensic samples (DNA degradation, treatment with chemicals, etc.)
2. Advances in recovery of short degraded DNA (in aDNA and forensics).
3. Portable laboratory equipment

We will explore and discuss the use of portable laboratory equipment to carry out species identification locally to avoid long waiting times in cases where samples would need to be shipped nationally or internationally.

4. Issues of making the approach cost effective and easy to use.

A specific aim here is to investigate and discuss what the actual needs of law enforcement/agencies are to make the processing simple enough to be carried out by agencies that do not employ full time researchers.

5. Citizen science approach and rural education

To explore collaborations with local schools and citizen scientists for gathering current data on species in trade. Designing molecular training workshops in partnership with outreach educators.



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Understanding Wildlife Protection Economies: Policy, Practice, Rationales, and Impacts

Organisers: Francis Massé, University of Sheffield; Annette Hübschle, University of Cape Town

The intensification in commercial poaching, trafficking and the illicit trade in biodiversity has led to a parallel intensification in efforts to disrupt illicit wildlife economies. Most notably, there is a wealth of policy, practice, and research on anti-poaching and law enforcement in protected areas in source countries. Interventions to address IWT, however, are not limited to these spaces and the illicit extraction of biodiversity but are focused at and across many scales along the IWT supply chain. Given the sense of urgency that is attached to the rise in IWT, there is a necessity to understand the challenges, opportunities, and impacts of wildlife protection economies. Recognizing the theoretical paradigms and empirical bases on which IWT-related policing, enforcement, and other responses are based and how this shapes interventions, or not, is equally important. Hence, taking stock of current approaches to address IWT, understanding their challenges, successes, and effects to date, and shedding light on areas where more resources and research are needed is a necessary step in shaping informed policy and practice. The diversity of approaches in social science research is well-positioned to do just this. Many researchers are engaging with the broad range of efforts being implemented to disrupt IWT and related economies, with much of this complemented by colleagues and research in the conservation sciences. In our mini workshop, panellists from a variety of backgrounds and approaches will contribute to an informed and enhanced understanding of the landscape of wildlife protection economies by speaking to one or more of the following themes and questions:

- What their research method or disciplinary approach offers to an understanding of IWT-related policing, enforcement, and responses?
- Empirical cases of the successes/challenges of anti-poaching, law enforcement and policing and lessons learned.
- Comparable case studies on protection economies, illegal markets or criminal networks outside of IWT.
- How might wildlife protection economies be more socially, economically and ecologically just and sustainable?
- What kinds of effects have wildlife protection economies had on conservation practice, policy, and personnel, researchers and local communities?
- Gaps in policy and practice that require further research and/or attention.



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PANEL DISCUSSION

Addressing the foundation of wildlife protection: improving ranger welfare for better outcomes

Organisers: Rohit Singh, WWF; Drew McVey, WWF Kenya; Cath Lawson, WWF UK; Rob Parry Jones, WWF International

Speakers: Rohit Singh, WWF; Drew Mcvey WWF Kenya; Jampel Lhendup, Ranger Department of Forest & Park Services; Ges Hoddinott, Ranger Lee Valley Regional Park; Musa, Kenya Community Representative

Environmental protection and human rights are interdependent. A healthy environment is necessary for the full enjoyment of human rights. Those, such as rangers, who work to protect biodiversity and the wider environment are protecting and promoting human rights, local livelihoods, and the economic pillars of sustainable development. The continued existence of biodiversity, with its associated economic benefits, depends to a large extent on the working conditions of these men and women. While true that rangers can be both victims and perpetrators of corruption and human rights abuses, professionalization of the work force can help also to reduce such abuses.

Rangers work under a diversity of environmental conditions and under a range of human-induced working conditions (salary, training, healthcare, job stress, etc.) which either promote or inhibit the welfare of these personnel. WWF and the University of Central Florida, in collaboration with conservation partners, academic institutions and ranger associations, have conducted the largest scientific survey concerning rangers ever carried out to understand the perceptions and working conditions of field rangers across 18 countries in Asia and Africa. Going forward, the results of this survey will be used to support targeted, evidence-based advocacy efforts with governments in order to achieve the changes needed to improve ranger working conditions and motivation.

The proposed panel discussion will be an excellent platform to:

1. illustrate the challenges faced by rangers;
2. ensure that this important topic is part of the discourse around the London 2018 IWT Conference;
3. lay the foundations for ongoing advocacy efforts; and
4. create opportunities to identify future research synergies.



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Challenges and solutions for tackling cyber-enabled illegal wildlife trade

Organiser: David L. Roberts, Durrell Institute of Conservation and Ecology, University of Kent

Speakers: Lucas Joppa, Microsoft; David Roberts, University of Kent; Joss Wright, University of Oxford; Julio Hernandez-Castro, University of Kent; Caroline Cox, University of Portsmouth; Anita Lavorgna, University of Southampton; Alan Roberts, National Wildlife Crime Unit

The global online trade, including in wildlife, is growing. With increased publicity and moves to enforce and expand current local and national legislations, the illegal wildlife trade is likely to move further online and to darker areas of the internet. However, the identification of illegally traded items online can be challenging. The panel will discuss the latest research in cyber-enabled illegal wildlife trade and engagement with stakeholders including corporate and law enforcement. Specifically, we will discuss the challenges faced in the process of identifying illegalities, the ethical issues that arise, potential computer forensic solutions, the role of online platforms in facilitating the trade and the changing opportunities this provides criminals. How these results are transformed into action will be discussed with the perspective of stakeholders from corporate and law enforcement.

Gender – a missing link in efforts to eradicate the Illegal Wildlife Trade

Organisers: Helen Anthem, Fauna & Flora International; Rebecca Drury, Fauna & Flora International

Speakers: Helen Anthem, Fauna & Flora International; Rebecca Drury, Fauna & Flora International; Francis Masse, University of Sheffield; Meredith Gore, Michigan State University; Moses Muthoki, Ol Pejeta Conservancy

The importance of integrating gender into conservation is increasingly acknowledged but there are still significant gaps in knowledge, policy and practice. This is particularly true in the context of illegal wildlife trade where, despite anecdotal evidence that the roles of actors in the trade are highly gender differentiated, there appears to be very little attention paid to gender in research, policy and programming. Indeed, most approaches to addressing IWT appear to be 'gender blind' i.e. no distinction is made between the sexes, or differences are acknowledged but not adequately analysed and acted upon. This can result in interventions based on unfounded assumptions as well as a bias in favour of existing gender relations. Indeed, some interventions, for example where associated with increased militarisation, may in fact reinforce rigid gender roles and stereotypes and marginalise women further. Given that gender analysis and integration has been shown to improve outcomes in other



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spheres of conservation, it could be surmised that this is likely also to be true for IWT. However, the gender-blind nature of practice to date means that the evidence base for this hypothesis is currently lacking. This session aims to begin to address this gap by initiating a discussion between a diverse set of IWT stakeholders framed around the following questions:

- What is already known about the roles of both men and women in aiding or preventing IWT?
- How is gender being integrated (or not) into interventions designed to reduce IWT?
- What are the implications and risks of gender blind approaches?
- What are the key knowledge gaps and priority areas for future interdisciplinary action research?

What opportunities exist for multi-stakeholder collaboration to move this agenda forward?

Harnessing the Power of Global Legal Intelligence in the Fight Against IWT

Organiser: James Wingard, Legal Atlas

Speakers: James Wingard, Legal Atlas; Andrea Crosta, Elephant Action League; Maribel Rodriguez, Legal Atlas; Dalia Conde, Species360; John Sellar, former CITES Chief of Enforcement (TBD)

Legal Atlas proposes a one-hour interactive session during which all participants will be given access to the Legal Atlas platform. Attendees will be able to use the Legal Atlas platform in tandem with the research presented. Panellists will show how IT technologies combined with specific legal and species related research methods can be used to generate data that, when combined, have the potential to improve monitoring of illicit wildlife trade. The panel will use research results specific to wildlife trade in great apes and gibbons. The panel will consist of one facilitator and three panellists focusing on the following practical exercises with the audience free to follow or conduct their own research:

1. Legal research process and sampling of results: the first panellist will introduce an area of comparative legal research looking how legal frameworks for selected countries protect endangered species (in particular great apes and gibbons) from illicit trade. The panellist will briefly describe the research methods, and then present a selection of available results, including in particular the assessment of penalty provisions that apply to all wildlife generally, endangered species, great apes, and gibbons. Other areas of inquiry include advertising, e-commerce, forgery, forms of liability, and more.
2. Species research and data development process: the second panellist will discuss a separate area of research to develop the Zoological Information Management System



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(ZIMS); applied to animal husbandry of 22,000 species, it is designed to manage information about animal accessions and dispositions, animals wanted and available, and more. Among its many research and data management tasks, ZIMS for Inventory and Husbandry can also help generate information needed for CITES and other permitting and governmental uses.

3. Monitoring of illicit activity: the third portion of the presentation, led by either the second panellist or an enforcement official/investigator, will discuss how the combination of these research processes and the resulting data can be merged to enable enhanced monitoring of potentially illicit activity passing through zoos or using zoo transfers as a cover; an area of concern for great apes and gibbons, but also for many other species.

Panel on Militarization and Conservation

Organiser: Rosaleen Duffy, University of Sheffield

Speakers: Bram Buscher, University of Wageningen; Rosaleen Duffy, University of Sheffield; Jasper Humphreys, Kings College London; George Wambura, Community Voices; Charles Jones Nsonkali, Community Voices

This panel will debate the militarisation of conservation as a strategy for tackling IWT. Militarised approaches to conservation appear to be expanding, becoming institutionalised and normalised in a growing number of places and among particular conservation NGOs and donors (Duffy, 2016; Marijnen, 2017; Massé, Lunstrum & Holterman, 2017). Part of the reason for a shift towards militarised conservation is that some conservationists feel pressure to act urgently, before it is too late to prevent extinctions in the wild. A sense of urgency can be especially acute in conflict zones or if conservationists feel that poachers are adopting more aggressive tactics. However, there have been growing criticisms of militarisation as socially unjust, ineffective at preventing poaching and contributing armed conflict in particular places.

This panel offers an opportunity to discuss and reflect on militarisation of conservation as a key policy agenda in IWT. We will discuss the wider context of militarisation, including the links to wider logics of militarism, global security and the political economy of developing more forceful approaches. The roundtable brings together expert researchers on conservation, with backgrounds from politics, sociology, conflict studies and human geography to develop the debate. The aim is to draw on evidence from research on militarisation more widely and conservation more specifically to inform this debate.



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Preventing Conservation Crime: Beyond the Criminal Justice System

Organisers: Jessica Bell Rizzolo, Michigan State University; Sarah Gluszek, Michigan State University; Julie Viollaz, Michigan State University; Meredith Gore, Michigan State University

Speakers: Jessica Bell Rizzolo, Michigan State University; Sarah Gluszek, Michigan State University; Meredith Gore, Michigan State University

This panel has two foci: 1) moving beyond crime detection towards prevention of wildlife crime, and 2) extra-legal approaches to wildlife crime prevention, or expanding crime prevention beyond the criminal justice system. All three of the presenters use an interdisciplinary (conservation criminology) framework that integrates the natural and social sciences and are working hand-in-hand with NGOs to feed their research directly into media and enforcement campaigns that are aimed at eradicating the market for illegal wildlife products and building coalitions between academics, conservation practitioners and community members. The presentations in this panel focus on three forms of crime prevention: demand reduction, situational crime prevention, and community-based crime prevention. The first presentation uses survey data from 12 countries to empirically analyse how demographic, geographic, behavioural, and cognitive variables impact the stigma against wildlife consumption; the second presentation explores the growing demand for bushmeat from urban populations and uses a hot product analysis to identify targeted bushmeat groups; the final presentation focuses on how community guardianship of wildlife can increase the risks for poachers in places where ranger patrols are difficult to organize and implement effectively. The discussion will focus on how conservationists can move beyond detection of wildlife crime towards crime prevention, and how models of wildlife crime prevention can be integrated with enforcement, education, and community-based conservation campaigns.

The welfare of the wildlife: is there a place for non-human animal welfare concerns in the IWT?

Organisers: Tanya Wyatt, Northumbria University; Jenny Maher, University of South Wales

Speakers: Tanya Wyatt, Northumbria University; Jenny Maher, University of South Wales; Debbie Rook, Northumbria University; Daniel Allen, Keele University; Nicholas Bruschi, World Animal Protection; Nancy Clarke World Animal Protection

Research by the panellists has found that individual wildlife suffers a great deal during (illegal) trade. Despite this, a majority of discussion about IWT focuses on human communities and conservation. Based upon their evidence regarding the lack of consideration for non-human animal welfare, the panellists explore whether inclusion of



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non-human animal welfare concerns can contribute to reduction of illegal wildlife trade, particularly the reduction of consumer demand. The session will be fast-paced dynamic debate of the practicalities of implementing campaigns and prevention strategies that take into account non-human animal welfare concerns.

Using ranger-generated data for predictive patrol planning

Organisers: Colin Beale, University of York; Drew Cronin, WCS/SMART; Rohit Singh, WWF; Andrew Dobson, University of Edinburgh; Milind Tambem, University of Southern California

Speakers: Drew Cronin, SMART Partnership; Rohit Singh, Zero Poaching Lead, WWF Wildlife Crime/SMART Partnership; Andrew Dobson, University of Edinburgh; Colin Beale, University of York; Milind Tambe, University of Southern California

AI decision aids have been successful in many application areas, where machine learning is used to provide predictions about future time steps, and AI planning algorithms are used to prescribe actions to take to help an agent achieve his/her goals given these predictions. We focus on the use of such AI decision aids to improve efficiency and effectiveness of law enforcement within protected areas. Ranger-derived data on the locations of infractions, combined with artificial intelligence techniques -- including both machine learning and patrol planning algorithms, have been shown to substantially increase detection of law-breaking. Moving these algorithms and statistical analyses from research desks and limited field trials to the law-enforcement agencies responsible for tackling is the next challenge. This panel will highlight some of the algorithms being trialled and the field results so far, will identify how the SMART Partnership (<http://smartconservationtools.org/>) has started developing plans for implementation of predictive patrol planning within SMART and will encourage discussion of challenges and solutions from the audience.



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VISUAL PRESENTATION

African elephant and rhino poaching for the illegal ivory and rhino horn trade in Asia today

Presenter: Lucy Vigne, Consultant

Co-author: Esmond Martin, Consultant

Our most recent fieldwork in Myanmar in December 2017 found African (and Asian) ivory and rhino horn mainly for sale for the Chinese. African ivory, as for African rhino horn, comes mostly from poached animals notably from central Africa for ivory and from Kruger National Park in South Africa for rhino horn. These illegal animal products are smuggled from the African continent into Asia by various and varying routes to avoid detection. Both ivory and rhino horn are nowadays processed into trinkets for cheap production and fast sale to the growing middle-class Chinese. The items are often displayed together below glass-topped counters in Chinese shops where inspections and confiscations of illegal wildlife products remain inadequate, mostly in Myanmar, Laos and Vietnam. I will talk mainly about our fieldwork carried out over the last few years in these markets. I will show my photographs of some of the items surveyed to illustrate our findings. I will give information about the numbers and types of retail outlets selling these items, the numbers and types of items for sale, prices, the sellers and buyers and general demand and trends in recent years. I will also have available for the audience our newest illustrated publications that cover 1) the ivory trade in Myanmar and 2) Kruger and the rhino horn trade in Asia. I hope to spread awareness in order for more appropriate action towards improved laws and law enforcement to take place where significantly needed, i.e. in countries where highly connected individuals are heavily involved in illegal trade, in order to arrest and penalize effectively more kingpins. Illegal wildlife items for sale are also appearing increasingly online to meet Chinese demand in particular, and there is thus also a vital requirement to clamp down on this growing problem. These efforts all require collaboration and commitment. Evidence-based and policy relevant information needs to reach the decision makers for effective action to close down the illegal trade in wildlife products, notably in this case, ivory and rhino horn. These measures are crucial in order to reduce pressure on the survival of wild elephants and rhinos being poached to meet the demand for ivory and rhino horn illegally and uncontrollably in Asia.



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An Evidence-based Approach to Closing China's Ivory Markets

Presenter: Gavin Edwards, WWF International and Xu Ling, TRAFFIC China

Co-author: Xu Ling, TRAFFIC China

Every year, more than 20,000 elephants are killed in Africa, and just over 400,000 remain today. The primary driver that fuels the rampant poaching of the world's remaining elephants is consumer demand for ivory.

Promisingly, China – by far the world's largest market for elephant Ivory - has taken the remarkable step of closing its legal domestic ivory market from December 31st, 2017. Recent research has identified the demographics and motivations of potential Ivory buyers in China, and also shows that 31% of Chinese consumers are far less likely to buy ivory once they are aware that it is illegal to do so. Worryingly, a further 19% are 'die-hard buyers', who will consider buying even though it is illegal to do so.

WWF & Traffic are partnering with Chinese government agencies and working alongside other NGOs to raise awareness of China's Ivory ban, and to dissuade die-hard buyers from purchasing Ivory.

NGOs practitioners who are playing leadership roles in these efforts will provide a Visual Presentation. This will include:

- Examples of NGO interventions to promote ban awareness and demand reduction of elephant ivory in China
- Trends in Market availability of Ivory in physical and online markets from 2017 to 2018
- Trends in consumer attitudes to Ivory purchasing from 2017 to 2018
- Challenges in working at the scale of China, in measuring impact, and how to overcome these challenges

A Sum of Scales: how counting pangolin scales can aid law enforcement efforts

Presenter: Tessa Ullmann, Durrell Institute of Conservation and Ecology, University of Kent

Co-authors: David Roberts, Durrell Institute of Conservation and Ecology, University of Kent; Diogo Verissimo, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford; Daniel W.S. Challender, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford / IUCN SSC Pangolin Specialist Group, Zoological Society of London

Background and Rationale



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Much of IWT involves parts and derivatives, which makes identification and estimating the numbers of individuals extracted for the trade a challenge. This is true with pangolins, where nearly half of the illegal trade is in their scales. The focus on pangolins in recent years has led to a number of seizures, the size and origin of which indicate that illegal trade persists, and an emergence of intercontinental trafficking of pangolin scales from Africa to Asian markets. There is therefore a need to accurately quantify the number of individuals represented to understand the magnitude of this trade and its impact on the different species, particularly those of African range states.

Current estimates of the number of individual pangolins represented in a seizure of scales are calculated by weight, though this has limitations given that (1) accurate parameters for each species do not yet exist, (2) consignments can contain more than one species, and (3) the origin of the seizure is not always known. Also, reports on seizures of pangolin derivatives infrequently report the species involved due to a lack of capacity among law enforcement personnel to correctly identify and/or differentiate between species at that level.

Our Study

We quantified the number of scales the eight-different species of pangolin possess by counting them individually, then calculated the mean and standard error (SE) at the species, genus and family level and developed a sampling method to derive the number of individual pangolins represented in a consignment of scales in a number of scenarios.

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With the call from CITES for the development of tools to help combat trafficking of pangolins, our method offers a simple, low-tech approach for improving seizure estimates, and will be disseminated through the IUCN Pangolin Specialist Group. This method can strengthen law enforcement capacity by informing standardised protocols for sampling seizures of large volumes of pangolin scales, a crucial need in effective anti-trafficking efforts. This knowledge not only increases our understanding of the scale and impact of the trade on the eight pangolin species, but will improve our understanding of the growing threat to African pangolins specifically.

Closing the Door on Corruption: Developing a Universal Standard for Secure Ivory and IWT Storerooms

Presenter: Ruth Musgrave, Elephant Protection Initiative

Co-authors: Winnie Kiiru, Elephant Protection Initiative; Olivia Scholtz, Elephant Protection Initiative, Dolmia Malachie, Elephant Protection Initiative, Sophie Ledger, Elephant Protection Initiative



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The issue: Ivory, accrued either by natural mortality or seizures of illegal stock, is held in government storerooms that often lack adequate security and management procedures, and are vulnerable to corruption and theft. Once stolen, the ivory feeds back into the black market, adding to the supply chain and undermining law enforcement.

The evidence: In 2017, the Environmental Investigation Agency (EIA) published publicly reported seizures between 2000 and 2017 on their ivory seizure map, which documented 15 thefts from government held ivory stockpiles alone. Reports to CITES using data from the Elephant Trade Information System (ETIS) and analysis of illegal ivory also confirm the leakage of stockpiled ivory back into the market.

The action: Evaluate existing methods, identify key threats across the multi-agency management process, facilitate a multi-disciplinary knowledge exchange and identify areas for collaboration. Initiate the establishment of a robust, internationally recognised management system and development of stockpile management Guidelines and Standard Operating Procedures.

Combatting IWT in a war-zone: action research applied to a socio-ecological system in Mali

Presenter and author: Susan Canney, University of Oxford, WILD Foundation

Despite a surge in poaching combined with a deepening insurgency, conflict and lawlessness, the annihilation of the Mali elephant population has been prevented by two mutually supportive sets of activities directed by a common “world-view”.

Initial studies had shown that these elephants would only survive if the whole of their migration route was protected. Their range covers a vast, remote, populated area almost the size of Switzerland (40,000km²). The scale of the migration route, the level of the threat, and the absence of resources meant that conventional approaches to conservation and anti-poaching were impossible. The size of the elephant population meant there was no time to lose: immediate action was required.

Poaching began with the conflict of 2012 and community action initially contained the loss to 20 elephants in 3 years. From around 350-400 elephants in 2015, 147 were lost over the next two years as security plummeted further and it became more and more difficult to mobilise an enforcement response. After several iterations the anti-poaching unit became fully operational, and elephant poaching stopped thanks to the combination of community empowerment and enforcement capacity.

Starting from ignorance, both activities were progressively guided by seeing elephant poaching as an “emergent property” of a complex socio-ecological system of dynamic inter-relationships. Embracing this complexity has informed the collection of data to understand



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the key drivers of the problem, develop appropriate strategy, execute actions, and analyse the impacts in a continually repeating iterative cycle. This facilitates adaptation to a changing context and allows learning about the system through changing it.

This approach has also drawn an ever-widening group of partners to collaborate in IWT, it is highly cost-effective, and is particularly relevant to situations where a landscape approach to conservation is required such as in populated lands outside of protected areas.

Countering Corruption in Wildlife Crime

Presenter and author: Chris Morris, Independent researcher

Much of recent attention relating to international wildlife crime has been in the area of poaching and the subsequent end market. Indeed, there have been significant improvements in both areas, poaching numbers are generally down, penalties for poaching have increased, China has closed its markets and Hong Kong is apparently on the way. What has received scant attention, however, are the continuing obstacles with illegal wildlife trade (IWT) investigations and prosecutions, striving to achieve convictions amidst an ocean of corruption. Corruption is, no pun intended, quite definitely the “elephant in the room”. Certainly, anyone that is even remotely involved in countering wildlife crime is aware of its omnipresence. It is everywhere. But most amongst the conservation world and corresponding government entities treat it like the alcoholic mother who everyone pretends doesn’t exist; who change their behaviour to keep the peace while in fact enabling the drinking even more. This report is about one of the prime strategies that can counter this corruption, wildlife crime courtroom monitoring. Not given the credit it deserves; definitely underfunded and subsequently underutilized, the process of wildlife crime courtroom monitoring and its positive impact on corruption is not only proven but uniquely validated as shall be explained in this report. The backdrop is Kenya where the author has been for the last three years. This is not indicative in any way that Kenya is any worse or any better than any other African elephant range state. Indeed, from a corruption perspective, what is happening in Kenya is simply a microcosm of what is happening on the rest of the continent to a greater or lesser degree. This report is based on a compilation of information of what is happening within the criminal justice system of Kenya, and in particular with respect to wildlife crime. Much of it is open source or from previously published reports that are easily corroborated but some is anecdotal from confidential sources. The information from confidential sources simply corroborates what the general Kenyan public and global conservation pundits are already aware. The author had the privilege of doing volunteer work on an informal basis with both The Eagle Network (Eco-Activists for Governance and Law Enforcement) and Kenyan NGO, Wildlife Direct. Time spent with Ofir Drori, Paula Kahumbu, Liz Gitari, Jim Karani and the many others who are part of those organizations was, not only invaluable but altered the author’s life course. You have the author’s profound thanks and gratitude. The author, coming from a law



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enforcement background, is in the unique position of writing this report as an independent researcher, unfettered by political or sponsorship considerations. There is no hidden agenda, just a simple desire to present an honest and impassioned belief that corruption can, at anytime and anyplace, subvert the course of justice in IWT and that courtroom monitoring presents an effective counter to that subversion.

Critical evidence to drive a reduction in Cambodia's ivory trade

Presenter: Regine Weckauf, Fauna & Flora International

Co-authors: Jackson Frechette, Fauna & Flora International; Trang Nguyen, Fauna & Flora International; Regine Weckauf, Fauna & Flora International; Darith Sieng, Royal University of Phnom Penh; Helen Senn, Royal Zoological Society of Scotland; Alexander Ball, Royal Zoological Society of Scotland; Rebecca Drury, Fauna & Flora International

Now in its second year, the four-year Defra funded IWTCF project gathers knowledge of Cambodian ivory markets and trading networks through market and undercover surveys and determines ivory provenance and regional trade networks by building national capacity for genetic analysis of ivory. The collected data is the first evidence of its kind in Cambodia and is being used to strengthen national legislation and its implementation. Key findings so far see Cambodia as a rapidly growing, internationally connected transit and end-user market for ivory. Within one year, the number of outlets selling ivory tripled and the estimated total value of the market increased by 3.5 times to US\$ 1,418,059.00 (~28 USD/gr). About 25% of sellers claimed to import their ivory from other Asian countries while another 25% claimed to source their ivory from Africa. Our market and undercover surveys indicate that the presence of Chinese consumers drives much of the end-user ivory market in Cambodia. The project also saw the extraction of DNA from ivory and a species identification test conducted in Cambodia for the very first time. Our early results using DNA to identify the origin of the ivory indicates much of ivory comes from Africa, although 20% of the samples do show Asian origin. Critically, Cambodian law currently does not prohibit the sale of African ivory nor have there been any market seizures of ivory before the start of this project. Therefore, there is a high risk of illegal ivory markets diverting to Cambodia from elsewhere; e.g. we documented that buyers of worked ivory are mostly from China, where ivory trade was recently banned. The groundwork to effectively leverage governmental commitment for strengthening national legislation and law enforcement has been laid in the first year of the project. Data and evidence on ivory will continue to be gathered and is to be shared and discussed with the government. Our survey data already led to the first ever market-level seizures of ivory from two shops. Genetic analysis proved that African Elephant ivory is present in Cambodian markets, something that has never been proven before and this is a substantial step towards closing the existing loopholes surrounding African elephants in legislation and prosecution. Specifically, we will address



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legislative weaknesses and support the implementation of the Cambodian Elephant Conservation Action Plan and National Ivory Action Plan to ensure effective enforcement that prevents illegal trade in African and Asian ivory.

Decline of the wild ploughshare tortoise caused by its illegal international trade

Presenter: Angelo Ramy Mandimbihasina, Durrell Wildlife Conservation Trust

Co-authors: E.J. Milner Gulland, Zoology Department, University of Oxford; Richard E. Lewis, Durrell Wildlife Conservation Trust; Andrew Terry, Durrell Wildlife Conservation Trust; Richard P. Young, Durrell Wildlife Conservation Trust

Ploughshare tortoises, *Astrochelys yniphora*, are protected not only by laws in Madagascar but also internationally as it is listed in appendix 1 of CITES and classified as critically endangered by the IUCN. This land tortoise is endemic to a 160 km² area of Baly Bay National Park and is known as the rarest tortoise on earth. Despite its rarity, wild ploughshare tortoises are victims of human-made fires burning their habitats and also the poaching to supply the international pet trade.

This study was done to see the decline of the wild ploughshare tortoise with the objective of (1) identifying any conservation action to fight against poaching and IWT, and (2) evaluate the impact of undertaken conservation actions.

In order to understand the impact of IWT on the wild populations of ploughshare tortoises, we have conducted population surveys from 2006 until 2015 using the distance sampling method. The first set of survey was done from 2006 until 2008, then another set for 2012 to 2013, and the last set for 2014 and 2015. In the same time, we have recorded all reported seizures inside Madagascar and internationally during the same period in order to see the impact of the international trafficking of ploughshare tortoise on the wild populations.

Results shows that population size of wild ploughshare tortoise has decreased from 1108 into 506 from 2006 to 2015, which is more than 50% in about 9 years. Number of seized ploughshare tortoises has been increasing since 2009 and had a big peak in 2011 and 2015.

Permanent markings by shell engraving were done in Madagascar in order to reduce the value of this species, but that did not affect the poaching and trafficking. Some of the seized animals and photos of ploughshare tortoises seen for sales on websites or social media have shown marked animals. This has shown an evidence of ploughshare tortoises taken from wild and released populations to be sold and trafficked.



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Conservation actions were held in the ground including permanent patrols, sometimes armed, law enforcement and lobbying in different levels in order to stop poaching from the wild but trafficking still continues as the species is getting rarer which drive its demand higher in the trade.

Domestic ivory markets, community livelihoods and elephant survival

Presenter: Ross Harvey, South African Institute of International Affairs

Co-authors: Romy Chevallier, South African Institute of International Affairs; Chris Alden, London School of Economics; Yushan Wu, University of Pretoria

To defeat the illegal trade in ivory – only one but nonetheless crucial element of ensuring elephant survival in African range states – consumer markets have to be closed, but local communities on the frontline of conservation also have to be deeply committed (and adequately compensated). Our research shows how markets can be shut more effectively and community benefits more optimally generated and distributed from wildlife tourism. The evidence informs how governments can structure domestic market closures and build community based natural resource management programmes that avoid some of the current problems.



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Emerging issues in illegal wildlife trade in 2018: a horizon scan

Presenter: Nafeesa Esmail, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford

Co-authors: Bonnie Wintle, University of Melbourne; Michael 't Sas-Rolfes, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford; Andrea Athanas, African Wildlife Foundation; Colin Beale, University of York; Zara Bending, The Jane Goodall Institute Australia; Ran Dai, Conservation Ecology Program, King Mongkut's University of Technology; Michael Fabinyi, University of Technology Sydney; Sarah Gluszek, Fauna & Flora International; Cathy Haenlein, Royal United Services Institute for Defence and Security Studies; Lauren Harrington, University of Oxford; Amy Hinsley, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford; Kennedy Ole Kariuki, Meru Carnivore Project; Jack Lam, City University of Hong Kong; Matthew Markus, Pembient; Kumar Paudel, Greenhood Nepal; Sofiya Shukhova, Animal Concerns Research and Education Society; William Sutherland, University of Cambridge; Diogo Veríssimo, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford; Yifu Wang, University of Cambridge; John Waugh, Integra LLC; Jon Wetton, University of Leicester; Catherine Workman, National Geographic Society; Joss Wright, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford; E.J. Milner-Gulland, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford

Illegal wildlife trade is gaining prominence as a global threat to biodiversity, but remains inadequately researched and poorly understood. To help inform appropriate future policy responses in the face of uncertainty and act proactively, we conducted a horizon scan of significant emerging issues. We built upon existing iterative horizon scanning methods, using an open and global participatory approach to evaluate issues from a diverse range of sources. Key issues that emerged related to developments in biological, information and financial technologies; changing trends in consumer demand for wildlife products, and global demographic and political shifts (particularly between and within East Asia, Africa and Latin America). The top three ranked issues related to China, illustrating its vital role in tackling emerging threats. This analysis can support national governments, international bodies and others as they develop strategies for addressing the illegal wildlife trade and researchers as they examine issues of potential future importance.



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Enhanced Equity and Governance, Reduced Unauthorised Resource Use at Uganda's Protected Areas

Presenter: Medard Twinamatsiko, Faculty of Interdisciplinary Studies, Mbarara University of Science and Technology

Co-authors: Grace Kagoro Rugunda, Department of Biology, Faculty of Science, Mbarara University of Science and Technology; Tom DeHerdt, Institute of Development Policy and Management, University of Antwerp, Belgium; Phil Franks, International Institute for Environment and Development, London; Francesca Booker, International Institute for Environment and Development, London; Dilys Roe, International Institute for Environment and Development, London; Julia Baker, Balfour Beatty, United Kingdom; Benon Basheka, Uganda Technology and Management University, Uganda; Charles Muchunguzi, Department of Environment and Livelihood Support Systems, Mbarara University of Science and Technology; Clemencia Neema Murembe, Department of Human and Relational Studies, Mbarara University of Science and Technology

Equity and governance are two important concepts that facilitate sustainable biodiversity conservation. Reduced unauthorised resource use is vital in achieving biodiversity conservation. In protected area management however, equity and governance have not always been prioritised by protected area managers and policy implementers. An assessment has been made on the importance of equity and governance as pathways towards reducing unauthorised resource use in Uganda's Protected Areas. Data from Bwindi and Lake Mburo National Parks in Uganda reveals that, the more people are involved in decision making processes and also equitably share resources, the more they are likely to be co-managers of protected area resources. At the moment, those who bear the most conservation costs are not well targeted by conservation benefits and are likely to develop resentment and undertake unauthorised resource use. When people are excluded or perceive exclusion in protected area management and governance, they are likely to resent conservation efforts and poach. Bush meat hunting is still evident in most protected areas in Uganda and has led to the declining stock of wildlife species. Key principles of governance such as; meaningful participation, accountability, recognition of actors, fairness in benefit sharing and effective dispute resolution systems are paramount in addressing unauthorised resource use and promoting sustainable conservation. Enhanced equity and governance is also connected to enhanced livelihood improvement and conservation support. This research creates a linkage between equitable distribution of benefits, equitable governance, people's livelihood improvement and conservation support. We recommend the application of an equitable framework in order to improve the policy implementation practice that is vital for addressing illegal resource use and wildlife trade.



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Evidence and precautionary action in the lion bone trade: How are they related?

Presenter and author: Michael 't Sas-Rolfes, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford

At the 17th CITES Conference of the Parties in 2016, a proposal to up-list the African lion to Appendix I was set aside in favour of an alternative arrangement whereby it remained on Appendix II and South Africa was granted exclusive permission to export an annual quota of lion skeletons supplied from its captive breeding industry. Following the decision, the South African Scientific Authority decided to initiate a research project and follow the principles of adaptive management, adjusting the annual export quota each year according to the best available current information relating to the quota's potential impact on wild populations. This process is under way and South Africa has already announced two subsequent quotas while the research is ongoing. However, these decisions have been criticized, with some suggesting that, under the circumstances, a 'highly precautionary' approach is necessary. There are further suggestions that such a highly precautionary approach would involve setting a zero-export quota until such time as better evidence becomes available. My presentation interrogates the precautionary principle (PP) and considers its application in this particular context. Starting with a discussion of the intent and basis of the PP, I then consider different interpretations of risk and appropriate responses to it in the presence of uncertainty. Evaluating the evidence, we have to date on the linkages between captive lion breeding and the trade in body parts from wild lions and other felids such as tigers, I establish what is known and what remains unknown. I further identify the crucial questions we need to answer to address the uncertainties, the type of evidence required and how to obtain it. I then consider whether the uncertainties are better addressed through a radical action (setting a zero quota or completely unrestrictive quota) with a reasonably predictable (and risky) outcome or through a less radical, more experimental approach with the potential of gaining more valuable evidence about the nature of the market (including factors such as price elasticity of demand), which can not only inform future policy toward trade in lion body parts, but that of other felid species too. The presentation will visually lay out the evidence (certainties and uncertainties), as well as a flow chart / decision-tree type diagram that represents the reasoning and feedbacks adopted in an adaptive management approach. Laying out the approach in this way should elucidate the possible answers to the central question of how to minimise risk in the presence of the uncertainty associated with this trade policy issue.



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Evidence to address the illegal trade in cheetahs

Presenter: Nicholas Mitchell, Institute of Zoology, Zoological Society of London

Co-authors: Sarah Durant, Institute of Zoology, Zoological Society of London; Helen O'Neill, Institute of Zoology, Zoological Society of London

Unbeknown to many, there is an appalling trade in cheetah (classed as vulnerable by the IUCN Red List), both live and for their parts. The trade in live cheetah feeds an international market for pets, notably in the Middle East where ownership of a cheetah is often a marker of social status. A separate trade in cheetah skins is poorly understood for scale or trade routes; understood to often represent a domestic trade, it does not gain its due attention or publicity in the face of the strong focus on international trade.

The poster will highlight work already carried out for cheetah trade in terms of research and within CITES and highlight research areas requiring attention to facilitate the most appropriate and targeted interventions. The scale of trade, traders' mode of operation, the degree of organisation along the chain of trade, and the extent of the trade, and the location and scale of the cheetah skin trade are all areas requiring urgent research.

The incentive for owning live and cheetah products should also be subject to research to understand how best these motivations can be countered. The role of social media, important for both the direct facilitation of trade online and the increase in appeal of cheetah ownership, needs to be properly assessed with attention to which mechanisms are available for addressing it.

The scale of trade cannot currently be gauged from official records of confiscations as it goes largely undetected by border officials. Numbers are gleaned from unofficial records of seizures and relies on the good will and trust of informants, but such records carry limited weight in official arenas such as CITES. The poster argues that with greater recognition for unofficial records there is greater potential to gain international political will and collaborative action to tackle the trade.

Gathering the Evidence for Action: Ghana's pangolin trade

Presenter: Kofi Amponsah-Mensah, Centre for African Wetlands, University of Ghana

Co-authors: James McNamara, Breakthrough Institute; Yaa Ntiamoa-Baidu, Centre for African Wetlands, University of Ghana

Pangolins are recognised as the world's most trafficked mammal. Increasingly African pangolins are being traded for supply to Asian markets. The forests of Ghana are home to



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three of Africa's four species of pangolins. With a long history of wildlife use and local bushmeat trade, Ghana likely plays an important role in the international trade passing through neighbouring West African States. Recently, Malaysian customs officials seized 400 kg of pangolin scales, worth US\$ 1.2 million, that had originated from Ghana. The scales and bones of pangolins are prized for medicinal uses locally and internationally. Despite mounting evidence that both the local and international trade are putting catastrophic pressure on the species, little is known about the status and magnitude of the trade of African Pangolins in many parts of the continent, including Ghana. The need for Evidence for action has never been so critical. We suggest that local bushmeat markets are an important tool that can provide valuable evidence and insight to the larger international trade in pangolins. Our current market survey estimates about 252 pangolins have been delivered to two bushmeat markets within a 9-month period, despite their status as wholly protected species. These Pangolins originated from at least 21 different locations including neighbouring Côte d'Ivoire. Using data from local bushmeat markets we aim to develop a detailed understanding of the Pangolin trade networks and supply chains, provide a genetic profile of species based on samples collected from bushmeat markets, and identify key pangolin habitats and population strongholds based on records of sources of animals delivered to the market to help identify potential trade routes. Understanding these networks at the local level is an essential precursor to understanding the flow of pangolin into international markets that are potentially much more complex and harder to delineate owing to their illegal and highly lucrative nature.

Gibbon Gibbon Gone: The impact of social media and photo prop trade on the small apes

Presenter: Susan M. Cheyne, IUCN SSC Primate Specialist Group, Section on Small Apes

Co-authors: Jaima Smith, Oxford Brookes University; Mariani Ramli, Gibbon Protection Society Malaysia; Thanaphat Payakkaporn, Wild Animal Rescue Foundation of Thailand

Asia is Facebook's largest region with almost 400 million daily active users. Since 2016, photo-sharing app Instagram gained significant momentum reaching over 700 million monthly active accounts, most of which are in Southeast Asia. The rapid growth and widespread use of social media facilitate the wildlife trade, often undetected. Evidence points to Indonesia and Malaysia as the top two habitat countries with the most prolific trade in wildlife, predominantly of very young animals servicing the illegal pet trade. Thailand tops the table with use of wildlife as photo-props for tourists to take selfies on beaches and in bars. The question becomes one of what can be done about this use of such platforms, being that social media closed groups are inaccessible; and the 'back-end' of social media sites, for security and privacy reasons are controlled strictly by the companies; which are technically not 'publishers' and have no requirement to 'edit' content, even if



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illegal. The focus needs to be to reduce demand for gibbons as sales are rife across social media (Facebook, Instagram, WhatsApp) and the traders have an online presence and website which is openly accessible. Law enforcement is limited. One answer may therefore be in working out how to reach and counter the activities of vendors and potential buyers through novel educational narratives. There are theories of social cognitive learning that have not yet been applied to social media. We present an overview of the situation and the current and future plans to reduce demand of gibbons as pets and selfie-props.

Healers and Dealers: use of endangered wildlife for traditional Asian medicine in South Africa and Vietnam

Presenter: Trang Nguyen, WildAct Vietnam / DICE, University of Kent

Co-author: David Roberts, Durrell Institute of Conservation and Ecology, University of Kent

In South Africa, there is an existing use of wildlife parts for medicine, and the use of wildlife parts for medicinal purposes is also popular in China and Vietnam. With the increase in the Asian diaspora, particularly the Chinese in South Africa, the demand for African wildlife parts, such as rhino horn, lion bones and pangolin scales for traditional medicine purposes might increase. There have been a number of studies on the consumption of wildlife products through Traditional Asian Medicines in Asia, however very little is known about the impact of Traditional Asian Medicines on African wildlife and how it might influence behaviour of local people towards wildlife consumption. Here we surveyed African and Asian Traditional Asian Medicines practitioners and traders in South Africa and Vietnamese Traditional Asian Medicines practitioners living in Vietnam to understand the similarities and differences between their values, attitudes, behaviours and knowledge regarding the use of wildlife products in Traditional Asian Medicines.

How can we influence decision making regarding the consumers of sea turtle products in Nicaragua?

Presenter: Isabel M. Vique Bosquet, Fauna and Flora International

Co-authors: Alison Gunn, Fauna & Flora International; Rebecca Drury, Fauna & Flora International; Nigel Leader-Williams, University of Cambridge

Unsustainable harvest and trade for consumptive use is an on-going threat to marine turtles. This is despite increased conservation and legal protection at international and national levels in recent decades. Five of the seven species of marine turtle (loggerhead,



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green, leatherback, hawksbill, olive ridley) nest on Nicaragua’s beaches. The country harbours two of the largest nesting sites for Critically Endangered hawksbills in the Eastern Pacific and two of only nine mass nesting arribada beaches for Vulnerable olive ridleys. To reduce the illegal harvest and trade of turtles and their products, past interventions have focused on preventing poaching and in raising public awareness and environmental education. National environmental education programmes and awareness campaigns such as “Yo no como huevos de tortuga” (I don’t eat turtle eggs) and “Yo no uso carey” (I don’t use hawksbill shell), combined with community-led protection and monitoring of nesting beaches, have been successful in raising awareness and protecting nests, but have not reduced demand for turtle products. In 2016, a piece of research was developed with the aim of identifying the profile of the most important consumers of sea turtle products in Nicaragua. Information gathered for this profiling was:

1. Identification of user groups
2. Motivations to consume
3. Barriers to stop consuming
4. Potential reasons to stop consuming
5. Identification of most effective communication channels
6. Identification of the most effective messages to produce a change in this behaviour

Three profiles were identified: Don José and Doña María, consumers of sea turtle eggs and Rachel, consumer of turtle eggs. With the information about the consumer profiles, a set of recommendations for the development of a communication strategy targeting these profiles was created. This set of recommendations is now the foundation for the communication strategy on IWT for FFI in Nicaragua.

[How unchecked demand for tiger products is driving transnational criminality and is impacting on all big cats?](#)

Presenter and author: Aron White, Environmental Investigation Agency

EIA has over two decades’ experience investigating trade in tigers and other big cats and advocating, including trade in wild-sourced tigers and leopards across the trans-Himalayan region (India, Nepal, Bhutan, China), and trade in wild and captive-bred tigers in China and South-East Asia. EIA shares actionable information from our investigations with law enforcement and uses this information to advocate for stronger legal frameworks and enforcement action to combat illegal trade and protect endangered big cats. Findings from investigations by EIA and our partners will inform the presentation, which will include:

- Situational analyses of illegal trade in big cats, both in the trans-Himalayan region and in South-East Asia;



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- Examples of best practice in legislation to combat illegal trade in and demand for big cat parts and products, and remaining challenges, including legal domestic markets in China;
- The nature of demand and consumption of big cat products in China and Vietnam, including evidence of how unchecked demand for tiger parts and products is impacting upon trade in other big cats, including leopards, snow leopards, clouded leopards, lions and jaguars, which are frequently sold to consumers as tiger.

Illegal pangolin trade in the Gulf of Guinea

Presenter: Daniel J. Ingram, University College London

Co-authors: Drew T. Cronin, Wildlife Conservation Society; Daniel W. S. Challender, University of Oxford; Mary K. Gonder, Drexel University

Humans and pangolins have a long and intertwined history in Africa and Asia, whereby people use pangolins for a variety of subsistence, livelihood, medicinal, and cultural activities. Populations of Asian pangolins have severely declined, and a booming intercontinental trade of African pangolins to Asia has been uncovered. Coastal countries in the Gulf of Guinea have been highlighted as hotspots of pangolin trade, and in 2017, the international trade in pangolins was banned. We set out to characterise the trade in African pangolins in the coastal countries around the Gulf of Guinea by combining data across three tiers. Firstly, we investigated which countries were most heavily involved in the international trade using international seizures data. Secondly, we investigated where pangolins were seized, and whether they were seized with other illegally trafficked species, using seizures data from active law enforcement agencies. Finally, we tracked the open sale of pangolins across 20-years at the market in Malabo, Bioko Island, Equatorial Guinea. Our results showed that Cameroon and Nigeria are the most common start destinations from which pangolins seized internationally passed through. Cameroon had the largest number of local seizures, where we also observed a shift from seizures of meat to scales from 2013 onwards. At the Malabo market, that the number and price of pangolins increased over time (*Phataginus* sp. and *Smutsia* sp.), particularly for the protected *Smutsia* sp. which appeared on the market in 2004 when the market began receiving imported species from Cameroon. Together, these results highlight the scale of pangolin trade in the region. We discuss Cameroon in particular and suggest conservation actions and policy interventions to ensure strengthen law enforcement, tackle organised crime, and ensure effective deterrents and legal frameworks in the region.



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Influencing Wildlife Consumers: Experimental Testing of Demand Reduction Messages

Presenter: Tom Moorhouse, University of Oxford

Co-authors: Neil C. D’Cruze, School of Science and Environment, Manchester Metropolitan University / Wildlife Conservation Research Unit, University of Oxford; David W. Macdonald, Wildlife Conservation Research Unit, University of Oxford

From exotic pets to traditional medicines and wildlife tourism, humans acting and thinking as individual consumers drive multibillion-dollar illegal markets that have hugely negative impacts on both biodiversity and animals’ welfare. In the absence of sufficient regulation or adequate enforcement, the ultimate arbiter of acceptable use of wildlife has become consumers’ willingness to purchase a given product. Consumers, however, are ill placed to safeguard ethical standards. Their motivation to buy desirable items, coupled with their uncertainty about the consequences of doing so, often overrides any moral concerns they may have. Demand reduction messaging is a potentially powerful tool for reducing the resulting markets for illegal wildlife products. Demand reduction messaging seeks to present the correct information in the right medium to counteract people’s desire to purchase a given product – and perhaps to direct them towards a more sustainable substitute. The effectiveness of different types of messages, however, is rarely tested before being rolled out in campaigns. This often results in campaigns in which the wrong message is presented to the target audience. As an example, global campaigns to reduce the demand for exotic pets typically focus on the terrible welfare consequences for the animals, and on the role of the pet trade in endangering wildlife. Such messaging overlooks the psychology of the consumers - who may believe they can counteract the animals’ suffering through care, or who are attracted by the prospect of owning something rare. Our work has demonstrated that such messages are likely to be ineffective. Messages that instead focus on the zoonotic disease risks and potential legal implications of owning an illicitly-sourced animal are far more likely to be influential. Our research tests the effectiveness of different demand reduction messages for potential exotic pet owners, wildlife tourists and buyers of traditional medicines. This talk demonstrates how experimental market survey methodology can pinpoint consumers’ values and the messaging most likely to influence them to reduce their consumption of illegal and damaging wildlife products. Experimentally establishing the correct levers provides the evidence that can then underpin the design of more effective campaigns.



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Legal 'Grey Areas' in Shark and Ray Trade in Indonesia

Presenter: Muhammad Ichsan, WCS Indonesia Program

Co-authors: Hollie Booth, WCS Indonesia Program; Nuruliawati, WCS Indonesia Program; Efin Muttaqin, WCS Indonesia Program; Benaya Simeon, WCS Indonesia Program

In order to implement CITES for sharks and rays, Indonesia has taken action to fully protect sawfishes, whale sharks, and manta rays, and introduced export bans for hammerhead, oceanic whitetip and silky sharks. These regulations are being implemented through law enforcement action against trade in protected species, with investigation and prosecution of 28 illegal shark and ray traders since 2014. However, most of this enforcement action has focused around fully-protected, easily-identifiable species, such as manta rays. Challenges still remain for species only partially-protected by export bans, which can still be legally caught and traded within Indonesia. Exploitation for these species only becomes illegal once it is outside of Indonesian borders, and since a profitable market for these species still exists, with high price and demand both within and outside Indonesia's borders, fishing and trade continues. This is exacerbated by a lack of species-specific monitoring, and challenges associated with visual inspection and identification of species in trade, particularly for non-fin body parts. As a result, legal and illegal trade are closely interrelated, and sometimes hard to tease apart. Some solutions include improved trade monitoring and traceability systems for shark commodities, and domestic and international demand reduction efforts. For traceability, there is a need to develop more reliable tools for verifying the provenance and species of traded products, (e.g. through rapid in-situ visual and genetic identification protocols). For demand reduction, there is a need for improved consumer awareness and information on seafood retail products in big cities in Indonesia, while also understanding the role and importance of shark products for food security in coastal communities.

Mapping the Evidence: Effectiveness of International Wildlife Trade Practices and Policies

Presenter: Janine E. Robinson, Durrell Institute of Conservation and Ecology, University of Kent

Co-authors: Samantha H. Cheng, National Center for Ecological Analysis and Synthesis, University of California-Santa Barbara / Centre for Biodiversity Outcomes, Arizona State University; Neil Cox, International Union for the Conservation of Nature; Duan Biggs, Environmental Futures Research Institute, Griffith University; Annette Olsson, ARC Centre of Excellence for Environmental Decisions, University of Queensland / Conservation International; Michael B. Mascia, Moore Centre for Science, Conservation International, Arlington; Madeleine C. McKinnon - ARC Centre of Excellence for Environmental Decisions, University of Queensland / Stellenbosch University / Vulcan, Inc.



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We specifically address pressing issues, gaps and needs through presentation of an evidence map, outlining the current state of knowledge on effectiveness of international wildlife trade practices and policies. This is a collaborative project between academics specialising in wildlife trade and evidence synthesis, and experts and stakeholders from Conservation International. To address overexploitation of wildlife, various interventions - from international trade policy conventions to local awareness campaigns - have been established to regulate wildlife trade, reduce threats, improve conservation outcomes, and provide co-benefits for human communities. However, data on effects of these interventions are inconsistent, dispersed and inadequately synthesized, limiting our ability to understand which interventions work, under what circumstances, and where trade-offs and synergies between outcomes occur. To this end, we systematically mapped the occurrence and frequency of existing knowledge on the effectiveness of international wildlife trade policies and programs. This evidence map includes peer-reviewed and gray literature that documented a change in biological (e.g. population abundance), behavioural (e.g. trade levels) and human well-being outcomes (e.g. income) as a result of international wildlife trade interventions. The final evidence map consisted of 42 studies published from 1994-2015. While ~4000 potentially relevant studies were initially recovered, the majority were excluded, as they did not sufficiently evaluate impacts or employ a study design that reliably attributed outcomes to actions. This absence of robust evidence on impacts has significant implications for existing wildlife trade strategies in the conservation sector as a whole. Included studies covered a range of species threatened by poaching and/or high levels of international trade -such as queen conch, black rhinos, and many birds from illegal pet trade - and documented effects in predominantly developing countries. The majority documented impacts of trade controls on behavioural or biological outcomes. Comparatively, there is less robust evidence documenting impacts on socio-economic outcomes or impacts of supply-side and end-consumer actions. Insight from this process can aid in determining future research needs to fill critical knowledge gaps.

Mapping Trends in International Assistance to Conservation and IWT: The case of USFWS

Presenter: Angelica Ochoa, University of Sheffield

Co-author: Francis Massé, University of Sheffield

The presentation will be one of a poster or a digital poster allowing for multiple visual to be presented and scrolled through on the screen. Through maps, charts, and graphs, the presentation will visually display the findings of an analysis of the United States Fish and Wildlife Services' International Affairs funding since 2002. This analysis consists of over 3,800 projects funded by USFWS to understand what has been funded, where, and how this has changed over time. As a leading provider of assistance and support to conservation and



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efforts to address IWT worldwide, this analysis gives a snapshot of how the landscape in assistance for conservation and IWT has shifted over the past 15 years. By understanding what is being funded and where we can then start to analyse where the gaps in assistance to IWT lie, what geographic, species, and thematic areas are overlooked, and how might future funding allocations better reflect the diversity of IWT in terms of species and geographies as well as the needed responses. As such, this empirical and easy to understand visual presentation accompanied by relevant handouts promises to be of practical use to donors, funders, and researchers of IWT and conservation-related work and a key tool for thinking about how to allocate limited resources to disrupt IWT and promote species conservation.

Quantification to Mitigation: Investigating the Scale and Drivers of Seahorse Trade in Cambodia

Presenter: Vong Rylida, Fauna and Flora International

Co-authors: Marianne Teoh, Fauna & Flora International; Lara Baptista, The Durrell Institute of Conservation and Ecology, University of Kent

INTRODUCTION

Global seahorse trade is under CITES protection, requiring all signatories including Cambodia to regulate the trade for sustainability and seahorse conservation. However, there is minimal regulation of seahorse trade in Cambodia. To effectively regulate the trade in Cambodia, its scale and drivers needs to be quantified to design locally-appropriate and feasible mitigation measures. FFI's Coastal & Marine Conservation Project and Illegal Wildlife Trade team and DICE have conducted surveys to investigate the scale and drivers of the trade in the nation.

GATHERING THE EVIDENCE

Market surveys were conducted in Phnom Penh and all coastal provinces to quantify the scale and understand the drivers of the trade. Two survey methodologies were used: the first method targeted fishers and middlemen in fisher markets and ports (N= 13) and the other one targeted retailers and wholesalers (N=23).

RESULTS

It was found that the majority of seahorses were caught as bycatch in trawl nets with other key gear types also identified. Most were dried for home consumption or selling. Moreover, the majority of the seahorses found to be on sale in Cambodia are caught in National waters. Vietnam and China were the main countries consuming and importing Cambodia dried seahorses. The results showed that seahorses' price varied depending on size and



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texture. The live seahorse trade was smaller than the dried one, sold mainly for aquarium decoration.

Regarding the drivers of the trade, from the consumers' perspective, the main driver is the use for traditional medicine. The main driver from the fishers' perspective is the waste of resources if they were released back into the sea. From the sellers' perspective, the main driver is large profits from the trade.

TURNING EVIDENCE INTO ACTION

The evidence gathered so far will help FFI and government to design and advise fisheries management practice and policy. FFI's next steps are to 1) use the results to develop behaviour change campaign targeting the fishers, 2) consult with local communities and stakeholders to design seahorse bycatch mitigation measures, and 3) bring results from the surveys and community consultation to the Fisheries Administration to inform policy such as the Endangered Fisheries Species sub-decree and National Strategy for Fisheries Conservation.

Quantifying Unregulated Wildlife Trade in Nepal Exemplified by Trade in Turtle and Tortoise Species

Presenter: Sandesh Neupane, GoldenGate International College, Tribhuvan University

Co-authors: Bhagwan Raj Dahal, Zoological Society of London, Nepal Office; Prakash Chandra Aryal, GoldenGate International College, Tribhuvan University; Bishal Sharma, GoldenGate International College, Tribhuvan University

Illegal wildlife trade, major problem and conservation challenge in Asia which is vast in number, geographic range and is accomplished on a regular basis. Unregulated wildlife trade in Nepal was quantified and was exemplified by trade in turtle and tortoise species through Terai through Multiple correspondence analysis and Register analysis. Secondary data was collected from throughout Nepal while primary data was collected from 21 districts through southern region of Nepal bordering India. Illegal wildlife in Nepal was dominated by trade in cat species such as *Panthera pardus*. The major origin and final destination of the species/specimen intercepted correlate to Province 3 and Karnali Province. A total of 35 different parts from 56 species were seen to have been seized while being traded. The identified changes in temporal patterns and liabilities of illegal wildlife trade showed newer addition to the species trade in the past decade and a rise in species trade with political stability. *Pangshura* sps which is native to Nepal along with *Trachemys scripta* which is an exotic species imported from India is traded and exported to Kathmandu as pets. Soft shell species of turtles were exclusively used as food by farmers. Higher trade of turtles and tortoise was seen from eastern region of Nepal while the trade from western region was low



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despite high exploitation which was indistinct in the past. Gaps were seen about actual exploitation and records of the exploitation/trade maintained at government level. Improvements in government record keeping deemed necessary along with improvements in monitoring and coordination between stakeholders for control of illegal wildlife trade.

Recent genetic developments and their use in rapid and cost-effective species identification in wildlife forensics

Presenters and authors: Stefan Prost, University of California Berkeley; Adeline Seah, Wildlife Conservation Society

Illegal wildlife trade (IWT) is the 4th most profitable illegal industry in the world. Unfortunately, there is not one single approach to tackle this global issue. One of the key steps in prosecuting IWT is species identification, which can be difficult for animal products such as traditional medicine. This represents a rather underexplored research topic in the fight against IWT. Over the last years, ancient DNA derived laboratory methods have proven to be very effective in extracting DNA from degraded or processed samples. However, they have so far not been regularly applied in wildlife forensics. Furthermore, the subsequent sequencing still remains a major bottleneck leading to very long waiting times for positive species identifications, often hindering rapid action. A possible solution to this problem is portable nanopore-based sequencing, which we have recently successfully used for rapid species identification in remote field sites. Here, I discuss recent developments in genetic species identification, future areas of development and their possible use in forensic investigations, to strengthen law enforcement and subsequent legal prosecution.

Reducing Demand for Unsupported Health Remedies: A Novel Evidence-Based Approach

Presenter: Douglas MacFarlane, University of Western Australia, Conservation Evidence, Cambridge University

Co-authors: Mark J. Hurlstone, University of Western Australia; Ullrich K. H. Ecker, University of Western Australia

One of the major drivers of the illegal trade in endangered species, is the demand for traditional health remedies containing wildlife products such as rhino horn, tiger bone, and bear bile. The demand for unsupported health remedies—remedies that are untested, ineffective, harmful, irrational, or fraudulent—causes other extensive and persistent harms to people including side effects, opportunity costs, as well as considerable social and financial costs. There is currently a lack of effective behavioural change techniques (BCTs)



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to tackle this pressing problem. Further, few, if any, guidelines exist for designing evidence-based interventions that specifically target reducing demand for unsupported health remedies. To address this, my PhD research has created a new taxonomy, that aims to guide practitioners in the design of psychology informed interventions to reduce this demand. This taxonomy targets the cognitive barriers that impair consumers' capacity to behave in accordance with their own self-interest; and provides a framework to test the premise that, at a population level, consumers make better health decisions when empowered. The taxonomy presents an integrative, accessible, and testable framework for designing evidence-based interventions. The taxonomy is currently being prepared as a "Review" for submission to the industry leading journal, Health Psychology Review. To test our framework, my collaborators and I, developed a novel auction mechanism (based on a variation of a mechanism commonly used by economists), which measures consumer willingness to pay for unsupported health remedies. We used consumer demand for multivitamin supplements, as an initial proof of concept, and conducted a series of incentivised laboratory experiments, whereby participants could use real money to place bids on real multivitamin products. Our preliminary results provide compelling evidence that targeting cognitive barriers, can significantly reduce consumer willingness to pay for unsupported health remedies compared to the common approach employed by Health Authorities. In our first randomized controlled experiment, we tested a novel intervention, which targeted the illusion of causality. The intervention aimed to empower consumers to overcome this illusion, and to understand how clinical trials have determined that multivitamins provide no health benefit. Our experimental intervention resulted in a reduction in willingness to pay for a common multivitamin product by 24%. Our manuscript of the results of this experiment are currently under second stage review with the well-regarded journal, Psychology & Health. In a follow up experiment, we combined our first novel intervention with a fear appeal, which highlighted evidence from large clinical trials showing that multivitamins may cause considerable health harms. This intervention enabled consumers to overcome their unsupported affective associations, i.e., the pervasive association linking vitamin supplements to a lack of health harms. The results of this second experimental intervention were decisive ($BF_{10} = 6.02e +6$) and showed that the intervention reduced consumer willingness to pay by $\sim 50\%$. Combined, the results from our first two experiments, reveal the enormous potential for our novel approach to reduce consumer demand for health remedies containing illegal wildlife derivatives. The "Evidence to Action" forum, presents an exceptional platform to present our preliminary results that support our evidence-informed approach to assessing and designing behaviour change interventions.



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Resolving the links between poverty and rule-breaking in a conservation context

Presenter: Freya St John, Bangor University

Co-authors: Leejiah Dorward, Bangor University; Corinna Van Cayzele, Bangor University

Poverty is frequently perceived to be the root cause of illegal natural resource use – the hunting or extraction of wildlife not sanctioned by the state. When unsustainable, such activities threaten conservation of ecosystems and endangered species. However, understanding what motivates individuals involved is a major challenge; understandably few are willing to discuss their motives for fear of punishment. Furthermore, severe, multifaceted poverty overlaps with regions prioritised for their globally important biodiversity. This association exacerbates the problem that illegal activities pose for policy-makers responsible for managing and policing the use of nature. The dominant approach to conserving biodiversity is to establish protected areas which typically restrict resource use and manage infractions through law enforcement. However, the designation of such areas does not guarantee compliance, as demonstrated by ongoing infractions and its conspicuous profile on global policy agendas. This includes the 2030 Agenda for Sustainable Development which calls for urgent action to halt biodiversity loss and hunting of protected species. Solving this problematic cocktail of poverty, exclusion from resources and drivers of illegal resource use requires a new approach to understanding why people break rules and to what extent poverty underpins behaviour. Combining conservation social science with development studies, criminology and social psychology, this project will examine the relative importance of multidimensional poverty and socio-psychological characteristics in dictating people’s involvement in illegal resource extraction. Project outputs, obtained through extensive data collection campaigns at the source of the illegal trade in animals such as tigers and elephants, will provide vital and currently scant data concerning the drivers of rule-breaking behaviour. Filling this knowledge gap is crucial to designing effective policies and interventions to curtail the supply of wildlife at source.

Securing Economic Returns from Stopping IWT

Presenter: Fiesta Warinwa, African Wildlife Foundation

Co-authors: Andrea Athanas, African Wildlife Foundation; Kirstin Johnson, African Wildlife Foundation

Illegal wildlife trade (IWT) impacts Africa’s iconic species and the need for strong leadership from African governments is well recognised. But human development challenges are foremost in the minds of African leaders who emphasise the need for jobs and growth over conservation. African leaders need to see the returns from incorporating a nature-based



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economy into development aspirations, which means the protected areas estate and wildlife more generally needs to generate a return in the form of societal benefit (water flows, ecosystem services) and, where possible, revenue from tourism and other markets. Mainstreaming IWT into growth strategies, investment plans and trade agreements provides a path for Africans to pursue growth aspirations without losing wildlife resources that are core to functioning ecological systems underpinning sustainable development on the continent. Practically that means creating tangible economic benefits from wildlife and wild lands through markets such as tourism, carbon, and water. This session builds on work AWF and The Giants Club have undertaken with government counterparts in Uganda, Rwanda, Kenya, Mozambique, Botswana, Ethiopia, Cameroon and, looking forward, Gabon and Nigeria to mobilise business models that generate revenue streams and governance structures that ensure benefits are distributed equitably. The aim of the event is to showcase the potential for Africa to leapfrog to inclusive and green growth development pathways where ecological systems are sustained and restored, rather than undermined and exploited for individual (or a small groups') benefit and wealth, as is the case of IWT. Because ultimately stemming IWT hinges on creating value for species in situ and ensuring communities, protected area authorities, and governments benefit from having wildlife and wild lands.

Solutions for tackling the illegal and unsustainable trade of high-value marine products in the Trans-Fly, Papua New Guinea

Presenter: Sara Busilacchi, Land and Water Townsville, CSIRO

Co-authors: R A Butler, Land and Water Brisbane, CSIRO; Ingrid Van Putten, Ocean and Atmosphere Hobart, CSIRO; Michaela Cosijn, Land and Water Brisbane, CSIRO; Danie Nilsson, Land and Water, CSIRO; Joseph Posu, PNG National Fisheries Authority

In our visual presentation we showcase work we have been conducting in the transboundary Trans-Fly region of Papua New Guinea (PNG), Australia and Indonesia since 2011. The project, conducted in collaboration with the PNG National Fisheries Authority and local communities, is long-term action research which has the ultimate aim of reducing levels of illegal and unsustainable activities in the region, while increasing the income and empowerment of the communities. Between 2011 and 2018 the project has engaged with communities, local and national agencies and other value chain stakeholders to identify solutions which are now being implemented. The Trans-Fly forms the borderland region between the South Fly District, PNG, the Torres Strait of Australia and Papua Province of Indonesia. Development asymmetries exist among the neighbouring regions, and the PNG communities are the least developed. The South Fly District is very remote and isolated from major domestic markets and suffers some of the highest levels of poverty in PNG. Our



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research has revealed the complex linkages between poverty, illegal activities, over-fishing and food security. Livelihoods are heavily dependent on subsistence and artisanal fisheries, and the main market available to fishers is via illegal cross-border value chains into the growing Asian market. Marine commodities traded are primarily shark fins (mainly *Carcharhinus* spp.), beche-de-mer (BDM, *Holothuria* spp.), fish bladders from black jewfish (*Protonibea diacanthus*) and barramundi (*Lates calcarifer*), and live mud crabs (*Scylla serrata*). These products are regularly traded with Indonesian middlemen who illegally cross the border to engage with the PNG fishers and Australian traditional inhabitants in the Torres Strait. Using participatory systems modelling, the research has revealed that there are numerous root causes for illegal trade, including the lack of incentives to cooperate and legally market the products for higher returns. Fishery management agencies also lack the capacity to manage the resources sustainably. Value chain actors have identified several solutions to divert communities towards legal and sustainable livelihoods in the South Fly:

- a) developing business models compatible with traditional social structures and values;
- b) building capacity for improved fisheries, market and product management among national, provincial and community stakeholders;
- c) identifying alternative value chains which can diversify livelihoods. The project is now implementing these solutions in the Trans-Fly, based on the trust established between the researchers, communities, value chain actors and government authorities. The aim is to trial alternative enterprise and community-based management models that may induce behavioural change and reduce illegal activities, overexploitation and poverty. By partnering with numerous stakeholders from local to international scales, the implementation phase is taking a systems-based approach which attempts to tackle simultaneously the various root causes of fishers' illegal activities.

During the visual presentation we plan to showcase our work with the communities by two visual means: a video and a poster. The 9:10 mins video will provide the background information on the socio-cultural and environmental context of the South Fly District and will highlight the challenges faced by communities in this remote transboundary region. This will give the audience a better understanding of the system in which the illegal trade operates, and of the drivers of illegal livelihoods. The poster, which will include the infographics, will give an overview of the results of our participatory value chain research, and the systems-based approach to identify the root causes of illegal activities and solutions.



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Sounding the Horn: Findings from a Report on the Trade in Rhino Horn Antiques in the UK

Presenter: Cathy Dean, Save the Rhino International

Co-author: Sue Brace, member of Save the Rhino International

Save the Rhino International commissioned research into the trade in rhino horn antiques during 2017 in the UK. We documented all rhino horn antiques offered for sale via auction houses, the types of item offered and their composition, their guide prices (minimum and maximum) and actual sale prices if sold, whether the age of the item was stated (and if so, what this was), whether a detailed provenance (history / source) was available, the auction houses offering these items, and any unusual items and outliers.

The key questions we wanted to be able to answer were:

1. Can we be sure that all rhino horn antiques are pre-1947 and 'worked'?
2. Are CITES regulations and export issues consistently flagged?
3. Is the trade in rhino horn antiques effectively regulated and monitored and are suspect items properly investigated?
4. Is the UK antiques trade being used to launder modern rhino horn?

Our report (to be published early October 2018) concludes with a series of recommendations for further research, discussion and action.

Stable isotopes as forensic tools for establishing origin of traded wildlife products

Presenter: Clive Trueman, University of Southampton

Co-authors: Juliet Wilson University of Southampton; Katie St John Glew, University of Southampton

The ability to determine the true geographic origin of a traded wildlife product is a key evidence requirement for enforcing wildlife trade restrictions. In marine systems in particular, establishing the origin of wild caught fish and marine reptiles is challenging, and, coupled with regional variations in legislation, opens potential for widespread fraud and illegal trade. The ability to retrospectively test claims of the origin of marine wildlife products may act as a powerful deterrent. Public and commercial awareness Genetic tests of species identity have dramatically reduced the incidence of species mislabelling and illegal species substitution in fisheries markets. We are developing maps of natural variations in stable isotope compositions across the global ocean that can provide new evidence to test claimed origin of marine wildlife products. We show examples at local, regional and global scales. Isotope-based tests of geographic origin are not suitable for all types of marine organisms and we can explain how ecological and physiological traits of organisms



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determine the potential for successful isotope-based forensic tests of geographic provenance.

Strengthening Community Engagement in Rhino Conservation: evidencing knowledge, perception & wellbeing impacts

Presenter: Rob Small, Fauna and Flora International

Co-author: Moses Muthoki, Ol Pejeta Conservancy

With 120 black rhinos, the Ol Pejeta Conservancy (OPC) in Kenya holds the largest population in east Africa. This 37,000ha site has the interrelated goals of conservation, generating a resilient income through wildlife tourism, livestock and agriculture and supporting the sustainable development of local rural communities.

Despite a continual net growth in black rhino since its formation in 2004, OPC suffered the loss of 10 black rhinos to poaching from 2012-2016 alongside an additional 17 failed poaching attempts.

Threats to rhinos at OPC are met through protection measures including fencing, ranger and dog units, armed KPR teams and intelligence networks. However poaching gangs have entered and killed rhinos where detection-response is weak, or collusion exists. Incentives for local communities to support the efforts of the conservancy depend on reinforcing positive impacts for local people, and the means for improved liaison and reporting.

To complement disincentives to poaching, OPC and Fauna & Flora International have recognised the need to more explicitly link its community development programme to rhino conservation in order to reduce active or tacit support for poaching and increase local action against poachers.

In order to develop the evidence base for how OPC can increase its impact in empowering, supporting and incentivizing local communities to help end rhino poaching 224 interviews were conducted with people from local communities in 2017. These questioned the hypothesis that people from local communities who have received benefits from OPC are more likely to have a positive attitude and knowledge of the conservancy, rhino conservation and IWT. It was found that people who benefitted either from direct employment or engagement with OPC's Community Development Programme (CDP) showed significantly higher levels of positive conservation attitude, conservation knowledge and rhino knowledge compared to people who had received no support. Respondents articulated the need for increased participation in conservation activities for local people and to ensure a balanced approach through community engagement, enforcement and appropriate technologies.



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Results are being used to inform the Theory of Change for OPC's CDP and the design of measures to further community engagement in tackling rhino IWT.

Testing hypotheses on socio-Economic Drivers of Illegal African Wildlife Trade

Presenter: Lucrecia Souviron-Priego, Universidad de Málaga

Co-authors: John Emmanuel Fa, Manchester Metropolitan University; Juan Mario Vargas, Universidad de Málaga; Jesús Olivero, Universidad de Málaga

Illegal wildlife trade (IWT) is threatening the survival of lots of species across the globe. In order to fight effectively against this illegal business, it is necessary to understand which are the drivers that make some countries participate as wildlife supplier and demanding actors. In this study, we focus on seven heavily trafficked species in Africa according with TRAFFIC bulletins. We identified 16 supplier countries in Africa (i.e. exporters) and 34 demanding countries worldwide (i.e. importers). By employing a hypothetico-deductive approach, we tested economic and cultural hypotheses from the literature that could explain country participation in IWT. Poverty, lack of wildlife protection and corruption are proposed as main factors for becoming exporters, whereas importer countries could be motivated by the demand of luxury goods from emerging economies, weak law enforcement, population size and traditional medicines. Our main objective is to know whether countries not recorded by TRAFFIC as participating in IWT have, instead, socio-economical potential for becoming involved. Our results show that, among the hypotheses proposed, poverty provides the best explanation of why a country becomes an illegal wildlife supplier. Importer countries are mostly Asian, but some of them are located in North America and Europe. Population size and the Asian Traditional Medicine are the most supported hypotheses. Although both factors are partially correlated, their influence on the importer character of countries shows no significant overlap (6.9%). Finally, there are a few countries that could be potentially led by their socio-economy to become importers of African wildlife. This research highlights that there are clearly identifiable drivers significantly correlated with the country involvement in IWT.



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The lions share? Assessing South Africa's commercial captive lion breeding and bone export industry

Presenter: Vivienne L. Williams, School of Animal, Plant & Environmental Sciences, University of the Witwatersrand

Co-authors: Michael J. 't Sas-Rolfes, Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford

The contentious legal international trade in lion bones to Asia, allegedly to supply the substitute tiger bone market, began in South Africa in February 2008 when the first CITES permits were issued. It was initially unclear to what degree bones were sourced from captive-origin versus wild lions, and thus whether trade was a threat to wild lion populations. The 2016 CoP17 amplified debates on the lion bone trade, resulting in a compromise agreement under which South Africa is required to establish an annually reviewed export quota for lion bones (set in 2017 at 800 skeletons and proposed for 2018 to be 1500 skeletons). Since few wild lions are hunted and poached within South African protected areas, skeletons for the legal trade appear to be derived from captive bred lions. However, reports of lion poaching in neighbouring countries indicate that further evaluation of the legal and illegal trade is necessary in African lion range states where more threatened and vulnerable wild lion populations occur. Since South Africa's wild lion population is not threatened, and lion poaching/poisoning for body parts is limited to privately-owned individuals (mainly from captive breeding, keeping or hunting facilities), national research on the trade in lions (bones, derivatives, trophy and live animals) is essential – primarily to expand the understanding of South Africa's captive lion breeding industry, including its inherent links to wild lion conservation. To this end, we conducted a survey of private facilities owning lions for the core purposes of breeding, hunting, keeping, display and/or rehabilitation (e.g. in a sanctuary). The study is intended to serve as a 'situational analysis' and a prerequisite for understanding factors and dynamics in the investigative landscape pertinent to captive lions and the trade in lion body parts. We report on preliminary results from a national survey with 117 respondents (36% of registered facilities) to 63 questions.



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Towards sustainable wildlife conservation: a case study of wildlife crimes in two major protected areas and adjacent communities in Zimbabwe

Presenter: Edson Gandiwa, School of Wildlife, Ecology and Conservation, Chinhoyi University of Technology

Co-authors: Never Muboko, School of Wildlife, Ecology and Conservation, Chinhoyi University of Technology; Victor K. Muposhi, School of Wildlife, Ecology and Conservation, Chinhoyi University of Technology

Wildlife crimes, mainly illegal hunting and trafficking of wild animals and animal products, are a major phenomenon threatening wildlife conservation in tropical savanna ecosystems. Using a case study of two major protected areas and adjacent communities in Zimbabwe, i.e., Gonarezhou and Hwange National Parks, the drivers, nature of crimes and impacts of wildlife crimes were explored through mixed methods approach with fieldwork being conducted between 2008 and 2013. Results show a multiplicity of drivers of wildlife crimes. The drivers include subsistence and commercial motivation pushed by poverty levels, and a growing wealth mismatch between source countries and consumer markets leading to increased demand and illegal exploitation of wildlife resources, especially from developing countries. Wildlife crimes have negative impact on flagship species, framing of ecotourism, community-based wildlife management and increases conservation costs. At local level, the extent of local people involvement in wildlife management and incentives are important variables for buffering wildlife resources in the protected areas from illegal exploitation. At the regional level, cross-border networks related to transboundary conservation provides opportunities for enhanced collaboration of wildlife resources and wildlife protection among range states. Addressing wildlife crimes, thus, requires both bottom-up and top-down approaches as a way of enhancing sustainable wildlife conservation.

Understanding the prevalence of bear part consumption in Cambodia using specialised questioning techniques

Presenter: Elizabeth Oneita Davis, San Diego Zoo Global, University of Bristol

Co-authors: Jenny Anne Glikman, San Diego Zoo Global; Brian Crudge, Free the Bears; Thona Lim, Free the Bears; David O'Connor, San Diego Zoo Global; Matt Hunt, Free the Bears

This presentation will be a poster presentation of the following research. The trade in bear parts for medicine and for status is a recognised conservation challenge throughout Asia (Crudge et al., 2018). The Asiatic black bear (*Ursus thibetanus*) and the sun bear (*Helarctos*



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malayanus) populations are estimated to have declined throughout their ranges due to widespread illegal killing of bears and trade in parts, combined with loss of habitat. Research has indicated that legislation and enforcement alone is insufficient to prevent illegal hunting and trade in Southeast Asia, considering the “casual hunting” landscape, i.e. the persistent prevalence of snares (Gray et al., 2018). In consideration of the marked difficulties associated with addressing this problem, there is a clear need to address the human demand for bear parts and products that drives poaching of bears in Southeast Asia. However, little research has been accomplished in to understanding this demand, including such baseline information as the actual, estimated prevalence of bear part consumption behaviour in the population. In recognition of this research void, San Diego Zoo Global and Free the Bears conducted mixed-method surveys in Cambodia to understand the prevalence of bear part use. Bear part use is illegal in Cambodia and may therefore be considered a sensitive behaviour, in that individuals may be reluctant to admit to it. To counteract possible biases, four specialised questioning techniques were used in this study: randomised response technique (RRT), unmatched count technique (UCT), nominative technique (NT), and false consensus bias (FCB). All four methods serve to shield a respondent's admittance of a sensitive behaviour from the interviewer. The results presented here show that great variability exists in anonymous methods' efficacy in certain contexts. However, the results overall indicate that individuals in Cambodia are under-reporting their consumption of bear parts when directly asked, and that the prevalence of bear part use in Cambodia may be as high as 15% of the population, representing a significant conservation challenge.

[Using seizure reports to guide enforcement against illegal trade in lesser known species in India](#)

Presenter: Uttara Mendiratta, Independent researcher

Co-authors: Vallari Sheel, NC State University; Shailendra Singh, Turtle Survival Alliance - India

The illegal global trade in tortoises and freshwater turtles (TFTs) targets a wide range of species and is one of the main factors driving over 60% of all TFT species toward extinction. However, enforcement against illegal TFT trade is impeded by a challenge that is common to most lesser-known ‘non-charismatic’ species, namely the paucity of even basic data describing the magnitude and mechanisms of the trade. For example, it has long been recognized that India, which is a global hotspot of TFT diversity harbouring 25 species, constitutes an illegal source of TFTs for the vast pet, meat and traditional medicine markets in South and Southeast Asia, but enforcement-relevant information on this trade is virtually absent for all but two species. In this poster, we present a recent study based on systematic surveys of Internet and media resources that yielded key new insights into the scale and



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functioning of illegal TFT trade in India, including information on the large numbers of species and high volumes of traded TFTs, and information on TFT trading hotspots and routes in India and beyond. We highlight the involvement and roles of TFT experts and enforcement agencies in this exercise, which was crucial for addressing issues of data quality that are typically associated with Internet/media sources, and for facilitating translation of research findings into enforcement action. We briefly describe the post-study trajectory of TFT conservation and enforcement against illegal trade in India, including the revision of species' threat statuses, large seizures of illegal TFT consignments and arrests of trade kingpins. We would like to share lessons learned and discuss possible refinements of our research approach that could provide a cost-effective tool for understanding and combating illegal trade of other poorly studied 'non-charismatic' taxa that are threatened by illegal wildlife trade.

Using social media to detect evolving and emerging markets

Presenter: Lauren A. Harrington, Wildlife Conservation Research Unit, University of Oxford

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Social media is hugely relevant to IWT, as a market place, and as an influencer (both negative and positive). We are exploring the use of social media to detect evolving and emerging markets – by observing social media posts (for example, Facebook posts, YouTube videos, Twitter tweets) and responses to them to understand what products (species) are desirable (or most popular), why and to what extent people might desire them. We are currently focusing on the pet trade, at both broad and species-specific levels, with the aim of identifying the species that are likely to be targeted, and the potential threat that the pet trade may pose to them. Our objective is to explore these types of data to assess their usefulness in providing evidence (or not) of a market, as a first step in ensuring that legal markets are sustainable, and that illegal markets are eradicated.



Evidence to Action

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Wildlife Judicial and Prosecutorial Assistance Programs in Africa: Collaborating to Combat Wildlife Crime Through Effective Prosecution

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The role of the judiciary and the prosecution is key in ensuring successful wildlife law enforcement. Interventions at the judicial and prosecutorial level will work towards improving the quality of wildlife crime investigations and prosecutions as a contribution towards protection of wildlife. If cases are properly managed, offenders properly prosecuted and deterrent penalties meted out, criminal groups will not have the incentive to commit crime. This in turn will reduce the incidence of wildlife crime. It is important to intervene and collaborate at this level because Africa is losing its wildlife at alarming rates and law enforcement agencies need to collaborate nationally and regionally to beat the criminals who are highly organized and operate internationally. Challenges that have led to increase in poaching and trafficking in wildlife products in Africa include inadequate capacity of law enforcement officers, weak legislation, lack of collaboration between different law enforcement agencies and lack of sensitization of judicial officers and prosecutors on the uniqueness and seriousness of wildlife crimes. Wildlife Judicial and Prosecutorial Assistance Programs (WJPAPs) are an essential element in fighting wildlife crimes as they help to ensure that the entire criminal justice system from the patrol officer to the investigator, prosecutor and judicial officer have similar competencies and read from the same page when it comes to the handling of wildlife cases. They aim at identifying weaknesses within the criminal justice system and curing those weaknesses. They also aim at improving communication and collaboration among law enforcement agencies. In addition, the value of WJPAPs can be related to specific outcomes such as properly worked case files, prosecution guided investigations, use of supporting legislation, appropriate sentencing and ultimately deterrence and education of wildlife offenders. Efforts include advocating for stronger wildlife laws with more deterrent penalties, training investigators, prosecutors and judicial officers on wildlife laws and wildlife law enforcement, putting in place and using standard operating procedures for prosecution and investigation of wildlife crimes and forming collaborative networks between agencies and across countries, among others. Ideally, these programs are aimed at responding to the gaps in the criminal justice systems in African Countries. Different programs have specific objectives which seek to address a particular weakness in the criminal justice system. This session will highlight work with African governments, development partners, academia and NGOs based on experiences across Africa to deter wildlife crime and to build a cross-sector coalition in support of Wildlife Judicial and Prosecutorial Assistance Programs.