CHANGES FOR JUSTICE PROJECT

WILDLIFE CRIME IN INDONESIA: A RAPID ASSESSMENT OF THE CURRENT KNOWLEDGE, TRENDS AND PRIORITY ACTIONS

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EXECUTIVE SUMMARY

Global Context

Wildlife crime refers to any activities involving wild species that have been prohibited by law. It is now one of the largest criminal industries in the world, worth an estimated $19 billion (IFAW 2013). Whilst little overall empirical data is available, there is strong evidence that wildlife crime is rising in parallel with rising economic prosperity. There is also evidence that it is increasingly overlapping with other organized criminal activities. A key driver of the illegal trade in wildlife is the demands from the traditional medicine, exotic pet, curio and food markets, with prices for some wildlife products exceeding those for gold and platinum. Although the impacts of wildlife crime on the environment, particularly on endangered species, have long been recognized, the impacts of the illegal trade in wildlife on broader economic prosperity, social wellbeing and the stability of governance are increasingly being appreciated, and in line with this trend, international recognition of the severity of the problem has grown significantly in the last 10-15 years.

Asia has long been a global hub for wildlife crime, both as a supplier and consumer. Due to the recent economic growth in Asia its role as a consumer has risen, increasing demand for regional and international products. After a long period of inaction, various Asian institutions are now also starting to respond to the threats presented by wildlife crime, with the ASEAN Wildlife Enforcement Network the key initiative but increasing interest also being shown by APEC and the Asian Development Bank

Wildlife Crime in Indonesia

It is currently impossible to provide accurate estimates of the scale and volume of wildlife crime in Indonesia. Current data gaps and biases are huge, the number of threatened and targeted species is long, and the data that does exist is often not readily accessible, or easily comparable. Despite this, the data that is available on specific species and from specific sites, combined with expert testimony from those fighting wildlife crimes in the field, paints a compelling and deeply concerning picture.

Wildlife crime is considered to be widespread and relatively open in Indonesia and the country has a reputation for being one of the key regional players in the market. Details on Indonesia's role in the illegal trade in some key species are included in Section III. Most experts believe the industry to be growing, to be getting marginally less visible and to be getting more organised, but specific estimates on the size and growth of the industry are currently lacking. Although the key drivers behind wildlife crime in Indonesia are similar to the global drivers, with demand from China key, domestic markets in Indonesia are also significant, both for domestic and international products. The prices offered for wildlife products in Indonesia are also very significant in comparison to average per capita income and experts tend to agree that prices are rising.

Secondary factors which create the enabling conditions for wildlife crime in Indonesia include limited or poorly enforced land use planning, and the weak protection of conservation areas. This leads to relatively uncontrolled deforestation, which opens up access to hunting and increases human-wildlife conflict, which is a key entry point of wild animals into the illegal trade. In addition, overlapping mandates, variable political interest in wildlife crime and a lack of inter-agency coordination are all factors that further complicate enforcement.

The wider impacts of wildlife crime in Indonesia are not well understood. Environmental impacts on specific species, such as tigers, rhinos and specific bird species have been recorded, but the likely significant social and economic impacts are still largely based on limited data, or focused on specific sites or species. Analysis of this kind is severely hampered by poor data availability, and the limited comparability of data from different sources (e.g. NGOs, and different Government agencies). However, areas where the trade is better understood show fairly complex, well-organised crime syndicates controlling activities. Some of the illegal activity involves trading totally prohibited species or species parts, such as tiger, pangolin or elephant. Others involve illegal trade of legal species, such as reptiles and birds, either by passing wild-caught specimens off as captive bred, or by exceeding quotas (see Appendix IV). Online wildlife crime is also a growing problem in Indonesia.

Although Indonesia's legislative framework is relatively robust, there are numerous loopholes related to wildlife and wildlife protection, and these remain a limiting factor in tackling the issue. Indonesia is also a signatory to CITES and a supporter of other international conventions related to wildlife crime, as well as and an active participant in numerous international and regional collaborations. As the importance of wildlife crime as an economic and social issue becomes more widely communicated regionally, these partnerships have enabled Indonesia to develop a strong political platform which could be used to demonstrate its leadership on this issue in the future.

Prioritising interventions within Indonesia for addressing wildlife crime

Interventions addressing the underlying macro-level drivers behind wildlife crime in Indonesia are important but difficult to implement, particularly because several of the markets are dominated by other countries in mainland Asia. Progress to date has been made predominantly close to the forest, with poachers, low level traders, transporters and middlemen being successfully targeted by the authorities or through combined NGO/Government operations. These efforts are critical, particularly those which target poachers *before* animals are trapped or killed, and new investment could be directed towards new and scaled up approaches at this scale, building on enforcement successes, and proven existing partnerships. Improvements in data collection, data coordination and information management are fundamental and will underpin the success of the majority of these initiatives. Much data already exists, but is of varying quality, collected using varying methodologies, and is often not shared with the agencies that need it for their work. A coordinating body on wildlife crime data could help address these concerns, and ensure all government units and all NGOs cooperate and collaborate to bring their individual competitive advantages to bear in addressing the problem.

However, any attempt to target a reduction in Indonesia's role in the international supply chains for wildlife trade will also require investment in top down approaches that target the kingpins and criminal networks controlling the import and export levels of the supply chain, alongside strong government relationships, bilateral partnerships and joint action plans with other countries in the region which codify collective action and cooperation. In addition, there is also significant potential to reduce domestic demand and to provide more robust sanctions and incentives which curtail wildlife crime. Addressing the needed revisions to national legislative frameworks would support ground level enforcement, and both the priorities and process of reform are relatively well understood. Engendering a sea change in the culture and effectiveness of the authorities enforcing the laws is also absolutely crucial, but this is considerably more complex, requiring strong leadership from within, as well as

sanctions and incentives that encourage behavioural change across institutions. High level political will is needed to engender and prioritise this change, and signs of this already occurring in Indonesia are enormously positive, and indicate that the process of raising wildlife crime from the environmental agenda to the political one has already begun.

INTRODUCTION

This report was put together by the WCS Indonesia Programme in response to a request through the USAID Changes for Justice (C4J) Project to summarise the state of current knowledge and trends on wildlife crime in Indonesia, and to highlight potential priority actions which could be explored to tackle this growing problem. The report represents a summary of the published and unpublished data available and is also informed by data and expertise provided by the WCS Wildlife Crime Unit and a series of Indonesian experts who were interviewed for this study.

This report is not a complete representation of all data available on wildlife crime in Indonesia. Access was not available to several key national and regional databases for example, and some requests for information were not granted. This report also focuses exclusively on faunal trade. The huge issues of the illegal timber trade, and illegal trade in other floral species, were not covered. This report is therefore a living document, and requires future updates and input from the government and other organisations working in wildlife crime to address the numerous information gaps that still remain.

The landscape of wildlife crime is incredibly dynamic and highly varied, and broad generalisations can be misleading. What is true for one species may be completely untrue for the same species in a different location, and variation across species groups may be large. Situations also change over time in response to market fashions, consumer demand, and product availability, as with any other conventional market product, and heavily hunted areas or species one year may barely feature the next. Opinions also vary strongly, with some recommendations in tackling the trade directly contradicting one another. This report therefore attempts to highlight key trends and recommendations which are consistently and frequently identified by different stakeholders in this area, but these cannot necessarily be viewed as an accurate representation of the views of all working in the sector.

Whilst we believe this is the first ‘country summary’ for wildlife crime in Indonesia (or indeed any other country), there are a number of reports that deal with aspects of this report in far more depth. For example, readers interested in a more in depth overview of the variety of factors involved in wildlife crime should read the 2012 ICCWC Wildlife and Forest Crime Toolkit (United Nations Office on Drugs and Crime 2012). Those interested in the drivers behind wildlife crime in Asia and a far broader review of expert opinion on where efforts should be focused should look at Chatham’s House 2014 global analysis (Lawson and Vines 2014) and TRAFFIC’s 2008 report focusing on Southeast Asia (TRAFFIC 2008a). Readers interested in a more in-depth review of Indonesia’s legal frameworks should read WCS’ 2015 report ‘Analysis of regulatory framework and Institutional Protection of Species and Implementation of CITES in Indonesia’ (WCS, 2015).

The report is structured into three main sections. Section one introduces the global and regional context for wildlife crime in Indonesia, covering the scale of the industry, what is known about the main drivers and the key legislation and organizations involved in addressing the issues. Section two then covers the same issues within an Indonesian context, looking at what can be said about wildlife crime that is applicable to all species. Section two is supported by a number of species-specific reviews. For each it reviews the data available on how, why and where poaching and trade is happening and the impacts this is having. These illustrate the degree to which wildlife crime patterns can vary in Indonesia. Finally, section three summarizes current thinking on how to respond. Collating recommendations

from across the literature as well as from key experts working in the field it highlights the key areas requiring action and funding today.

SECTION I: THE GLOBAL AND REGIONAL CONTEXT FOR WILDLIFE CRIME

The scale and impacts of global wildlife crime

The global trade in illegal wildlife is now a massive industry. Wildlife crime - defined as the poaching, illegal possession or trade in species specifically outlawed by international and/or national laws - is a global industry conducted on an industrial scale (CITES n.d.). Driven primarily by a demand for animal parts for medicinal products and as consumer goods, and the perceived impacts of both on social status, some estimates calculate the industry as now being worth $19 billion (of which half is wildlife trafficking, half illegal timber and fishing trade), making it the 4th largest criminal industry after narcotics, counterfeiting and human trafficking (IFAW 2013a, WWF International 2012). Some of the values associated with specific wildlife products are huge; ivory is being traded at over $2000 / kg whilst rhino horn can fetch over $66,000 / kg making it more valuable than gold or platinum (IFAW 2013a). It is also highly complex, with a huge range of species traded, locations they are sourced from and range of buyers and end users, and made more complicated further by operating across international barriers and in parallel with a legal, $300 billion (in 2005), wildlife trade industry (IFAW 2013a).

Wildlife crime appears to be increasing. The legal trade in wildlife increased by 70% between 1995 and 2005, representing an annual increase of 5.5% (Winters 2008). Despite a marked increase in interest in addressing wildlife crime in the last ten years, evidence indicates a rise of a similar, if not higher, scale in wildlife crime during the same period, driven in part by rising demand, high profits and low risk of detection (EIA 2014). Teasing out real increases from the results of increased attention is difficult, but estimates of the size of the global illegal ivory trade, for example, suggest it has doubled since 2007 and tripled since 1998, with 2011 the highest year ever on record for elephant poaching (IFAW 2013a, WWF International 2012). Some the volumes associated with recent seizures have been staggering – in 2011 23 tonnes of ivory were seized (representing 2,500 elephants) whilst simple online searches reveal trades of small, highly endangered species such as *Nautilus sp.* shells being sold by the container (WWF International 2012, V.Nijman, *pers.comm*).

Understanding the drivers behind wildlife crime

Wildlife crime is driven by complex demands from various complex and fluid markets. Opinions on the primary drivers behind wildlife crime (and the corollary responses to address them) differ widely amongst different wildlife experts, partly due to a lack of data and partly due to most workers in the field focusing on a specific species or area with few having a wider view across the supply chain (TRAFFIC 2008a).Many of the variations in wildlife crime can certainly be attributed to variations in markets, and most supply chains displaying high levels of variability in response to changes in supply and demand. Furthermore, increasing economic wealth is thought to be a significant factor behind increasing demand for wildlife products and the trappings of economic growth such as better infrastructure and freer trading markets are also thought to have had significant impact on wildlife crime (TRAFFIC 2008a). One of the key sources of demand for wildlife products has been the Chinese Traditional Medicine industry. This has cultural roots dating back at least 3000 years, but has been increasing in popularity in recent years in tandem with the economic growth enjoyed by China and countries where Chinese medicine as popular (World Bank 2005). However, other sources of demand are also important, including the pet trade, food (both for protein intake

but also as delicacies), curios and souvenirs and fur and skins (TRAFFIC n.d.). The few market-based instruments that have been used to address wildlife crime such as certification, taxation and buying agreements – used particularly for timber – do appear to be having success (TRAFFIC 2008a).

Without enforcement, laws and sanctions alone do little to deter wildlife criminals. Laws and regulations are generally thought to be a critical part of the framework for addressing wildlife crime (TRAFFIC 2008a). However, the existence of laws and punishments alone do not necessarily have any impact on wildlife crime. In studies of illegal bushmeat hunting in Africa, it was found that enforcement of laws was far more important than the laws and punishments themselves. If the risk of detection was perceived as being very low, people would continue to hunt even if the punishments risked were high, where as if the risk of detection were perceived as being high, people were more likely to uphold the law even if the punishments were relatively minor (Rowcliffe et al. 2004).

Awareness campaigns do not appear to deter wildlife criminals, or to reduce demand significantly. Whilst awareness campaigns on the importance of wildlife crime and why people should not buy wildlife products (such as the campaigns conducted in Asia involving David Beckham, Jackie Chan and other global celebrities) appear to be successful in improving people's knowledge on the subject, these results do not seem to translate into clear changes on the ground in terms of the number of animals being killed, perhaps because the wrong people are being influenced, or perhaps because impacts will only be felt in the long term. There is even some evidence that such campaigns could be counterproductive by raising the desirability of certain products, seen as rare and exclusive (see the interview with Debbie Martyr in Appendix III). As with the impacts of livelihoods, the relationship between awareness and wildlife crime appear to be highly complex and relatively poorly understood (TRAFFIC 2008a).

The potential to address wildlife crime through supporting livelihoods is thought to be limited. Whilst links between poverty and the wildlife trade evidently exist, particularly with regards to leaving the trade, the relationships appear to be so complex that initiatives to counter wildlife crime through alternative livelihoods or increased incomes do not seem to be very successful (TRAFFIC 2008a).

Much wildlife crime occurs on the fringes of the legal trade in species. For example, through appearances of legality wildlife traders are exceeding quotas, operating without licenses or passing wild caught specimens off as captive-bred. Many people believe the lack of regulations around the legal trade, such as the presence of hunting seasons, lack of assessments of quotas, lack of effective species management plans or weak harvesting guidelines are likely contributing to the problems of wildlife crime, but that efforts to address these are severely limited by data availability (TRAFFIC 2008a).

The environmental, economic and social impacts of wildlife crime

The impacts of wildlife crime on particular species populations are well recognised, although the impacts are likely to be far further reaching. There are many examples of wildlife crime driving the extinction of species, sub-species or populations and threatening the survival of many others together with the ecosystems they comprise (EIA 2014). For example, only five individuals of the Northern white rhinoceros now remain, thanks to sustained hunting pressure in the wild (Smith 2015). The impacts in Asia have been

particularly strong, with populations of tigers, Sumatran and Javan rhinos, Asian elephants and various turtle species showing severe losses (TRAFFIC 2008a, EIA 2011).

The economic and social impacts of wildlife crime are far less understood but potentially far more serious. The impacts of wildlife crime are not only environmental. Illegal wildlife trade involves wide, complex markets involving people from wide and various social and economic backgrounds from poor rural villagers to small scale traders to wealthy, politically connected importers and exporters. The impacts of the industry can therefore be far reaching (Lawson and Vines 2014, TRAFFIC 2008a). Firstly, the environmental impacts will have social implications through the loss of ecosystem functionality, the spread of zoonotic diseases, the reduction in available natural assets and through missed taxation revenue. In Asia this is particularly a risk for poorer communities strongly reliant on natural resources (TRAFFIC 2008a). But there is also plenty of evidence that the social impacts of wildlife trade go even further than that, including direct threats to the lives of people working in the sector, the proliferation of weapons, the fuelling of social conflict and undermining governance, socio-economic stability and even national security (Lawson and Vines 2014). Furthermore, wildlife crime is often associated with other serious, organised criminal activities and/or political rebel groups (particularly in Africa) with shared personnel, trading networks, finances and methods to undermine the rule of law (EIA 2014, WWF International 2012). Much of the world's wildlife crime is now run by extremely organized and increasingly sophisticated and well-equipped criminal syndicates (WWF International 2012).

International legislation relevant to wildlife crime

CITES is the key international convention governing wildlife trade. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) officially came into force in 1975. It is a legally binding agreement between governments to ensure international trade does not threaten the survival of wild species. The convention categorises species into three lists or appendices. Species on Appendix I are highly endangered and not generally allowed to be commercially traded. Species on Appendix II are less endangered but threatened by unsustainable trade. Trade is strongly regulated. Species on Appendix III are not endangered but still require trade regulation for various reasons. Now covering 35,000 species CITES has now been signed by 180 countries or 'Parties' and is administered by the CITES Secretariat in Geneva, Switzerland (CITES n.d., United Nations Office on Drugs and Crime 2012). CITES has had a significant impact for some species, particularly those where commercial trade has been banned altogether. However, whilst legally binding, it is not a replacement for national legislation and its impact requires enactment and enforcement of its provisions by individual Parties (United Nations Office on Drugs and Crime 2012). Furthermore, CITES only regulates international trade – it does not have a direct impact on any domestic wildlife trade that happens within countries (TRAFFIC n.d.).

All Southeast Asian countries are now members of CITES and all have passed legislation supporting the goals of CITES in some form (TRAFFIC n.d.). However, enforcement of the laws are highly variable, with Thailand and Vietnam already having faced sanctions as a result of a failure to act (World Bank 2005).

The UN Convention against Transnational Organized Crime recognizes the seriousness of wildlife crime. The UN General Assembly adopted the Convention on Transnational Organised Crime, or the Palermo Convention, in the year 2000, primarily as a response to the seriousness of organized crime but also the need for international cooperation to combat it.

Whilst not focused solely on wildlife crime, it is still highly relevant, both because serious organized crime networks have increasingly moved into wildlife crime as one of their sources of income but also because the nature of wildlife crime (transboundary, including corruption and obstruction of justice) meet the criteria of activities covered by the Convention. The UN Secretary General has specifically referred to the Convention as an effective tool and framework for furthering the principles of CITES (United Nations Office on Drugs and Crime 2012).

The UN Convention against Corruption addresses one of the key factors that allow wildlife crime to thrive. Adopted by the UN General Assembly in 2003, the Convention Against Corruption addresses all aspects of corruption from prevention to asset recovery and has been signed by 171 member states to date. Like the Convention against Transnational Crime it was not specifically set up to tackle wildlife crime, but provides a wide range of mechanisms that can support such efforts including a basis for cooperation on extradition, mutual legal assistance and various forms of technical assistance and information exchange (United Nations Office on Drugs and Crime 2012).

Various environmental treaties and decisions also support the fight against wildlife crime. The 1972 Convention Concerning the Protection of World Cultural and Natural Heritage has now been ratified by 191 countries and was designed to protect specific natural and social heritage of 'outstanding universal value'. The subsequent Convention on Biological Diversity, agreed in 1992 and now ratified by 194 Parties was designed primarily to protect the habitats of species, particularly through the establishment of protected areas, and to promote sustainable development and use of natural resources. Thus, neither was designed to specifically address wildlife crime, and neither lists specific species, but both do include some articles of relevance related to certain wildlife crime activities and, importantly, both potentially provide access to significant financial resources that can be channelled towards wildlife crime objectives (United Nations Office on Drugs and Crime 2012). Similarly the Rio+20 Outcome Document, 'The Future We Want", adopted by the UN General Assembly in 2012, was aimed more widely at global sustainable development but did specifically mention that it 'recognizes the economic, social and environmental impacts of illicit trafficking in wildlife, where firm and strengthened action needs to be taken' (EIA 2014).

The London Declaration committed 46 countries to address wildlife crime in 2014, but its lack of tangible impacts illustrate the challenges of translating commitments in theory into action on the ground. One of the most recent declarations on wildlife crime came in London in February 2014. Hosted by the British government and Princes Charles, William and Harry, forty-six countries convened at the London Conference on Illegal Wildlife Trade. The resulting London Declaration committed to eradicate the market for illegal wildlife products, ensure effective legal frameworks and deterrents are in place (including ensuring wildlife crime is recognized and treated nationally as a 'serious' crime, adopting a zero tolerance policy on corruption, supporting the prosecution of wildlife criminals and raising awareness amongst the judiciary), strengthen law enforcement (including increasing investment, setting up cross-agency structures and engaging with cross-border initiatives) and to promote sustainable livelihoods. Signatories also agreed to assess their own progress over the next twelve months for reporting at a follow up meeting in 2015 ("Declaration: London Conference on the Illegal Wildlife Trade. 12-13 February 2014." 2014). Since then some progress has been made, with Tanzania a leading light in Africa and significant awareness campaigns in China, Vietnam and Thailand, but at the same time a record 1,215 rhinos were

killed in 2014, an increase of 20% on 2013, and almost no significant arrests have been made, casting doubt on the tangibility of any outcomes (Smith 2015).

National government responses to wildlife crime are increasing, but still far from adequate. Despite the evidence of serious impacts and associations, wildlife crime is often not seen as a priority for many governments, with many viewing it purely as an environmental issue (IFAW 2013a, WWF International 2012). Agencies that are mandated to address the issues are often constrained by resources or authority levels. Relatively low levels of inter-agency cooperation occur, and punishments, for the few cases that get to trial, are often low (EIA 2014). Furthermore, many of the more general failings of governments serve to perpetuate wildlife crime, such as corruption and the failure to coordinate actions with other countries. Having said that, there has been an increasing global response to wildlife crime in the last fifteen years, both globally and in Asia, with various significant international, regional and national legislation passed and an increasing number of organizations working to address the issues (World Bank 2005).

International organisations working to combat wildlife crime

INTERPOL represents the key platform for policing authorities to work across borders to catch wildlife trade criminals. Established in 1923 and supported by the contributions of its 190 member countries, the International Criminal Police Organization (INTERPOL) is a network of national criminal law enforcement agencies. It has had a specific role in environmental crime since 1992, and its work addressing wildlife crime is now conducted through its Wildlife Crime Working Group, which works under the auspices of its Environmental and Compliance Committee. Together they lead regional operations to address wildlife crime, develop best practice guidelines and link national environmental agencies through its network of national bureaus. INTERPOL's most recent action on environmental crime has been the launch of Operation Infra Terra, aimed at rounding up 139 environmental crime fugitives (INTERPOL 2014).

The United Nations has passed several resolutions recognizing the importance of wildlife crime, and mandated UNODC to coordinate the UN's response. Over the past fifteen years the UN has passed a number of decisions and resolutions increasingly recognizing and responding to the threats posed by international wildlife crime. These include a number of resolutions passed between 2001 – 2011 by the UN Economic and Social Council (ECOSOC) on recognizing the seriousness of illegal wildlife trade and formally recognizing it as a 'serious crime' together with the 2007 resolution by the UN Commission on Crime Prevention and Criminal Justice (CCPJ) specifically calling for action by UN member states and agencies to tackle wildlife crime. The key UN agency with a mandate to act on wildlife crime is the UN Office on Drugs and Crime (UNODC). With a clear mandate to fight illicit trade in natural resources since 2000, UNODC operates a Global Program for Combating Wildlife and Forest Crime/Sustainable Livelihoods Unit (GP/SLU) through which it accesses various UN divisions to provide support to countries on training and capacity building to combat wildlife crime (TRAFFIC n.d., United Nations Office on Drugs and Crime 2012, EIA 2014, UNODC 2015).

The World Customs Organisation has recently recognized its role in tackling wildlife crime by coordinating between national customs agencies. The World Customs Organisation (WCO) represents the customs authorities of 179 countries. It established its environment programme in 2012, which includes a focus on illegal wildlife trade. It offers various resources to its members including ENVIRONET, a real time communication tool and CLiKC, a learning tool offering courses on environmental crime (WCO 2015).

The International Consortium on Combating Wildlife Crime (ICCWC) brings together all of the key international governmental organisations relevant for tackling wildlife crime. Established in 2010, the ICCWC brings together the main international governmental organisations with responsibilities for combating wildlife crime (the CITES Secretariat, INTERPOL, UNODC, WCO and the World Bank) with a mission 'to usher in a new era where perpetrators of serious wildlife and forest crime will face a formidable and coordinated response' (ICCWC n.d.)**.** One of the key outputs of the ICCW has been the Wildlife and Forest Crime Analytic Toolkit which demonstrates what an effective national response to wildlife crime should ideally include (United Nations Office on Drugs and Crime 2012).

TRAFFIC is the primary non-governmental organisation focusing entirely on wildlife trade and crime. Formed by an alliance of World Wide Fund for Nature (WWF) and the International Union for Conservation of Nature (IUCN) in 1976, TRAFFIC works to ensure the trade in wild animals and plants is not a threat to the conservation of nature. It specializes in analyzing and investigating wildlife trade patterns, informing and advocating governments to act on wildlife trade, providing information to private sector institutions on sustainability standards and understanding and influencing consumer attitudes and motivations. Employing over 100 people, it has 7 regional teams, a presence in 30 countries and an annual budget of around $6 million (TRAFFIC 2008b).

The Environmental Investigation Agency (EIA) is best known for its in depth, undercover investigations of specific wildlife crime issues. Formed in 1989, EIA is an international campaigning organization that works to tackle environmental crime through investigations, campaigns and partnerships. It has offices in Washington and London (EIA 2015).

The World Wide Fund for Nature is one of the world's largest environmental NGOs and fights wildlife crime through TRAFFIC and its national offices. The World Wide Fund (WWF) is a global network of offices with a secretariat, WWF International, in Gland Switzerland. WWF International lists addressing unsustainable and illegal wildlife trade as one of its primary activities which it addresses through technical support to CITES, working with countries to tighten and enforce legislation to comply with CITES and public education. These various activities are carried out both through TRAFFIC and through different national offices. Key national offices active in combating wildlife crime include: WWF-US which is running a Stop Wildlife Crime campaign focusing on government advocacy, ranger training and reducing demand; and WWF-UK which focuses on UK policy and demand as well as individual supporting national offices (WWF International 2015, WWF-UK 2015, WWF-US 2015).

The International Fund for Animal Welfare (IFAW) is a well-funded NGO focused on the impacts of wildlife crime on animal welfare. Founded in 1969 and based in the US, IFAW works more generally with a variety of issues related to animal protection and welfare in 40 countries around the world. Their wildlife trafficking programme focuses on improving wildlife trade policy, strengthening law enforcement, reducing demand for wildlife products

and ending online wildlife crime. They operate under an MoU with INTERPOL's Environmental Crime Unit. IFAW's total global operating budget is close to $100 million (IFAW 2013b, 2015).

The International Union for Conservation of Nature (IUCN) Red List of Threatened Species maintains a catalogue of plants and animals facing a higher risk of global extinction. The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants, fungi and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on plants, fungi and animals that are categorized as Extinct or Extinct in the Wild; on taxa that cannot be evaluated because of insufficient information (i.e., are Data Deficient); and on plants, fungi and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme (i.e., are Near Threatened). Plants, fungi and animals that have been evaluated to have a low risk of extinction are classified as Least Concern. In-depth analyses of the data contained in the IUCN Red List are published periodically (usually at least once every four years). The results of these analyses are made available in publications which are made freely available via the Publications page (IUCN, 2015). This list is an important tool for evaluating the evolving impact of wildlife crime on certain species.

Wildlife crime in Asia

Southeast Asia is a global hub for the illegal wildlife trade. Wildlife trade has been an important economic activity in Asia for centuries, with records dating back at least 2,000 years (World Bank 2005). Today Southeast Asia represents a global hotspot for wildlife trade due in part to its rich wildlife 'resources', its cultural diversity and its rapid economic growth, which means its countries act both as an important suppliers of wildlife goods (Lao, Cambodia, Myanmar, Indonesia and Malaysia), as key conduits for trade (Thailand) and as important consumers (China and Vietnam) (TRAFFIC n.d., World Bank 2005, TRAFFIC 2008a). Key animal species illegally traded in Asia include tigers, antelope, pangolins, turtles, snakes and seahorses (World Bank 2005). Estimating the size of the illegal trade is difficult. The *legal* wildlife trade industry, which often has very blurred lines with the illegal industry, is vast. Between 1998 - 2007, it has been estimated that 35 million CITES-listed animals were legally traded in Southeast Asia, 30 million of which were wild caught. Malaysia, Indonesia, Vietnam and China represent the main exporters, with the EU and Japan the primary importers (Nijman 2010). Whilst there are no precise figures for the overall scale of the illegal industry, data from parts of the industry are revealing. In 2010, sales of just elephant ivory, rhino horn and tiger parts in Asia were worth an estimated $75 million (UNODC 2015). Singular raids also illustrate the values involved, with two raids in Bangkok and China in the early 2000s confiscating illegal wildlife parts worth $1.25 million and $1.2 million respectively (World Bank 2005). As a result, addressing wildlife crime is now considered one of the most important conservation policy challenges in Asia (McNeely et al. 2009).

As with the global trade, wildlife crime in Asia appears to be on the rise. China represents the largest demand, and this has increased alongside China's economic growth. But it is far

from alone, with demand rising in parallel with economic development across the region, with the liberalizing of trade, the improvement in infrastructure and the spread of commercial logging all influential contributing factors (World Bank 2005)

In Asia, the Association of South East Asian Nations (ASEAN) has been the regional body that has made the most progress on addressing wildlife crime, particularly through its establishment of a Wildlife Enforcement Network. In 2003, ASEAN signalled a growing recognition of environmental issues in general through their Yangon Resolution on Sustainable Development followed by a more specific 'Statement on CITES' released in 2004, calling for members to increase collaboration in fighting wildlife crime (World Bank 2005). The most significant regional response was the establishment of the ASEAN Wildlife Enforcement Network (ASEAN-WEN) in 2006. Covering all ten members, ASEAN-WEN aims to provide an intergovernmental law-enforcement network to combat wildlife crime, and a mechanism for sharing information and best practices. It is meant to bring together CITES authorities, customs agencies, police, prosecutors, specialized governmental wildlife-law enforcement organizations and other relevant national law enforcement agencies from across the ASEAN region at the national and regional level. Individually, member countries are meant to establish a national inter-agency task force of police, customs, and environmental officers. Five of the ten members have achieved this to date (ASEAN Wildlife Enforcement Network 2013). Most recently ASEAN members have continued to show support for combating wildlife crime through the adoption of a Declaration on Combating Wildlife Trafficking in November 2014, a commitment that outlined 21 specific actions and that urged members in general to support the ASEAN-WEN initiative (TRAFFIC 2014).

The larger Asia Pacific Economic Community (APEC) has been slower to respond to wildlife crime but has started to show support in the last few years. APEC represents 21 countries around the Pacific rim and has recently begun to show support for tackling wildlife crime, with the Bali Declaration in December 2013, committing members to 'combat wildlife trafficking by enhancing international cooperation through Wildlife Enforcement Networks (WENs) and other existing mechanisms, reducing the supply of and demand for illegally traded wildlife, increasing public awareness and education related to wildlife trafficking and its impacts, and treating wildlife trafficking crimes seriously.' These commitments were reiterated at the 26th Ministerial Meeting in November 2014, where members agreed to 'remain committed to strengthening our efforts to combat wildlife trafficking in the APEC region and reduce the supply and demand for illegally traded wildlife', committing to join hands to combat illicit transnational trade in protected wildlife by sharing information, intelligence, experience, best practices, and strengthening international co-operation'. These statements were supported by similar language at the APEC Economic Leaders Forum in Beijing later the same month (TRAFFIC 2014).

The Asian Development Bank has been getting involved with wildlife crime in Asia in response to a request from CITES, with a particular interest in facilitating Asian judiciaries. The Asian Development Bank (ADB) has been getting more involved in wildlife crime through its Law, Justice and Development Programme, which initiated the Asian Judges Network on Environment, and through a request from CITES to facilitate member countries to improve legislation in support of CITES compliance. In 2014, the ADB hosted a three-day symposium on combating wildlife crime and has stated it will be making technical assistance grants available to help countries at the national level.

SECTION II – OVERVIEW OF WILDLIFE CRIME IN INDONESIA

The scale of wildlife crime in Indonesia

Wildlife crime is a major industry in Indonesia, although empirical data to gauge its scale and value are lacking. Many reports on wildlife crime list Indonesia as a major supplier of wildlife products as well as a significant market for wildlife, with key species hunted and traded including tigers (Ng and Nemora 2007), primates (Nijman 2005a, 2005b, Shepherd 2010, Meijaard et al. 2011), pangolins (TRAFFIC n.d., Bennett 2004, Morison 2008), sun bears (World Bank 2005, Foley et al. 2011, Krishnasamy and Shepherd 2011, Shepherd et al. 2011: 30,33,39-42), slow loris and other small mammals (Shepherd et al. 2011: 30,33,39–42), birds (TRAFFIC n.d., Shepherd et al. 2004, Jepson and Ladle 2005, Shepherd 2006, 2007, 2011, 2012, Shepherd and Shepherd 2009, Felbab-Brown 2011, Pires 2012), reptiles (Bennett 2004, Shepherd et al. 2004, Shepherd and Ibarrondo 2005, Auliya 2010, Ministry of Forestry 2011, Kimbrough 2012, Natusch and Lyons 2012, Nijman et al. 2012, Caillabet 2013, Lyons et al. 2013, Burgess and Lilley 2014, Nijman and Stoner 2014), corals (Raymakers 2001), mantas, sharks and various other fish species (Hin Keong 1996, Lack and Sant 2008, 2012, Felbab-Brown 2011, Mundy-Taylor and Crook 2013). For a more detailed look at some of the species-specific situations, please see the species reviews in Appendix IV.

As some experts report, Indonesia is one of the easiest places to see wildlife crime in action in the world, with protected species openly traded in markets a short drive from the international airport in Jakarta (see Appendix III). However, there are no definitive estimates of the size or extent of all wildlife crime across Indonesia and the national government database recording wildlife crime data was not made available for this report. Nevertheless, various records and sub-data sets exist that can give an insight into the national picture and support the general view of Indonesia as a major wildlife crime centre. One sign that the industry is significant is the size of some of the seizures made in recent years. For example, shipments of protected pangolins from Indonesia weighing 14, 7 and 6 tonnes have been intercepted in recent years (Morison 2008, Wisnubrata 2011, AFP 2013), 8,000 turtles were seized in Jakarta and Bali in 2015 (TRAFFIC 2015). One of the more developed databases currently operating in Indonesia is managed by the Wildlife Conservation Society's Wildlife Crime Unit (WCU), and details incidents encountered by the WCS team.

The WCS database is not necessarily an accurate picture of the national situation – its geographical scope is limited to their base in Jakarta (42% incidents), Lampung (39% incidents), Medan (13% incidents) and various other parts of western Indonesia (19%). It also focuses primarily on middlemen and traders with connections to WCS's area of operations, and only incidents directly involving WCS staff are recorded. However, since 2003, when the database was started, it has recorded 290 separate incidents covering 124 different species. Approximately 59% of the incidents related to transporting or trading illegal items; online trade is contributing 18% of the trade (of the 59%). About 35% of the incidents related to illegal possession of a protected species, either live or dead and just 5% involved direct hunting. About 61% of the team's seizures were of live animals, 10% were taxidermy-prepared stuffed animals, 7.5% were of skins and the rest were various parts of animals. In total, 212 people have been arrested following interventions involving WCS. 35% of the cases led to a successful prosecution and sentencing (with an average of 13 months in prison), 27% resulted in a confiscation and 13% led to a warning letter. Only 13% led to no further action from the authorities (WCS Indonesia 2015). Data from other organisations shows similar results of massive losses to highly endangered species. WWF Indonesia has

reported it has evidence of at least 17 Sumatran tigers – of which there are only thought to be several hundred remaining – being traded through the province of Riau between 2010 and 2014, ten of which are believed to have been killed locally (*C.Saleh, pers. comm)*. Fauna & Flora International (FFI) reports 28 law enforcement interventions related to tigers in their part of Kerinci National Park since 2001, involving at least 34 individual tigers poached.

Wildlife crime in Indonesia appears to be increasing, in line with global trends, and demonstrates increasing organization within the trade and a shift from physical markets to online trade. As with data on trade volumes, data on trends in Indonesia tend to be piecemeal and limited to specific species, areas or parts of the supply chain making generalisations hard to make. Data from the WCS database do not show any significant trends in the numbers of seizures, with the team averaging just over 20 seizures per year (WCS Indonesia 2015). Data on volumes of trade in tortoises and freshwater turtles show reductions of numbers being traded, but this is likely to be due to declining numbers in the wild rather than a fall in trade (TRAFFIC 2008a). However, when interviewed, most experts in the field indicated that wildlife crime was rising in Indonesia in response to rising demand across Asia. For tigers in particular, there is evidence from the Kerinci region of Sumatra that tiger prices, and poaching threats, increased around fourfold after 2010 (see 'Views from the Top in Appendix III).

Trends were noted in the WCS database regarding methods of sale, with online incidents clearly becoming an issue from 2011. Until 2010, all trade incidents were traders operating in physical markets. The first online interventions were recorded in 2011, but since then 60% of trade interventions have been online. For more analysis of wildlife trading, see 'An overview of the nature of wildlife crime networks in Indonesia' below.

Understanding the drivers of wildlife crime in Indonesia

A review of key drivers in Southeast Asia showed market forces and lack of law enforcement to be perceived as the key. The most comprehensive review of drivers of wildlife crime in Indonesia and elsewhere in Southeast Asia was conducted by TRAFFIC in 2008, based on numerous expert interviews. The report showed that most experts considered market forces to be a key driver, with particularly clear links reported between demand and prices for orangutans and tigers and poaching pressure in the field (TRAFFIC 2008a). The level of pressure exerted by market forces can be seen by looking at some of the prices involved. The average income in Indonesia (GNI *per capita*) is around $3,500 / year, or $300 a month, although this is far from evenly distributed and around 16% of the rural population live below the poverty line (The World Bank 2013). Against this context, many species fetch significant prices for rural hunters. Baby orangutans typically fetch around $30 each for the collector, gibbons closer to $60 (Nijman 2005a). In 2006, tiger bones were being sold for over $100 / kg. Tiger canines could be sold for over $50 each. According to WCS' wildlife crime database, Sumatran elephant ivory can fetch around $500 *per* kg whilst rhino horn can fetch $1,000-1,500 *per* kg (WCS Indonesia 2015). These prices can increase exponentially up the supply chain. A study of trade in Indonesian pig-nosed turtles showed price mark ups of nearly 3,000% from collection to final buyer outside Indonesia (Burgess and Lilley 2014). Another study of trade in primates showed prices of Bornean orangutans increasing fifteen fold from collection in Kalimantan to sale in Jakarta (Nijman 2005a). However, there were relatively few market-based solutions attempted beyond some attempts to control the reptile trade, which has found success. Lack of legislation, particularly the gaps in protection of some endangered species, and the lack of connection between species protection and habitat

protection were identified as key barriers. However, given that some legally protected species, such as tigers, are still fairly openly traded in Indonesia, lack of enforcement is clearly key. Those working in improving enforcement on the ground (see FFI and WCS interviews in Appendix III) report that improving enforcement does lead to a clear local improvement (TRAFFIC 2008a).

Awareness, the impact of customary and religious laws and economic circumstance are potentially important drivers, but as yet few interventions have been found having any significant impact. Lack of awareness amongst harvesters was not thought to be a key driver, with one study showing such awareness campaigns having little impact (Nowell and Ling 2007). However, it is still thought that awareness is a more important factor for the wealthier parts of the supply chain and for consumers in Indonesia. Awareness campaigns focusing on these parts of the supply chain have shown success in other parts of Southeast Asia but have yet to be tried in Indonesia. Similarly, whilst there is yet to be any clear evidence of interventions focused on customary or religious laws having an impact on wildlife crime, such factors are still thought to be 'somewhat important' drivers, with clear evidence that customary laws have conserved wildlife in certain situations. The recent fatwa passed by the Indonesian Council of Ulama is one interesting example of this, but it is too early to see if this has had an effect or not (the Indonesian Council of Ulama 2014). As with other countries, interventions focused on livelihoods have had positive impacts on other aspects of development but have failed to demonstrate any clear impacts on wildlife crime at this point. In all three cases it is probably a case of each being a driver with complicated relationships with wildlife crime but, as yet, the specific ways to address them have yet to be found (TRAFFIC 2008a).

The environmental, economic and social impacts of wildlife crime in Indonesia

The environmental impacts of wildlife crime in Indonesia are well documented, but the economic and social impacts are poorly understood. Wildlife hunting has long been recognised as a serious threat to specific species and sub-species in Indonesia. The Balinese and Javan tigers were hunted to extinction last century whilst the Sumatran tiger remains critically endangered, with poaching one of the most significant threats (Wibisono and Pusparini 2010). Up to 500 young Bornean orangutans are estimated to be removed from the population a year, which is ultimately an unsustainable harvest rate (Nijman 2005a). Birds, one of the most commonly kept species, with nearly a fifth of urban Indonesian households keeping them, are also heavily threatened by trade, with noted threatened groups including the laughing thrushes, hornbills, owls and parrots (Jepson and Ladle 2005, Cahill et al. 2006, Shepherd 2006, 2007, 2012, Shepherd and Shepherd 2009, Pires 2012). Major impacts on population viability have also been recorded for a variety of freshwater turtle species (Lyons et al. 2013) and snakes such as the Oriental Rat Snake (Auliya 2010). In fact, in some cases hunting has even been shown to be a more significant threat to wildlife than deforestation and habitat clearance, which is traditionally seen as the key environmental threat in Indonesia. Hunting, it is argued, frequently follows forest clearance but whilst deforestation tends to be a transitional impact – one major impact followed by a period of regeneration – hunting remains a permanent threat, driving species populations down to extinction levels (Meijaard 2014, Brodie et al. 2015). However, few if any studies have looked at the economic and social impacts of wildlife crime in Indonesia. Internationally, it is known to be a key tool for criminal networks to launder money, to raise finance for other illegal activities and play a significant role in perpetuating corruption and undermining good governance. All of these

impacts are likely to be important in Indonesia, but there appears to be no clear evidence demonstrating this to be the case.

An overview of the nature of wildlife crime networks in Indonesia

The make-up of wildlife crime supply chains and associated crime syndicates are becoming increasingly better understood in Indonesia, although they can be highly variable between species. Many of the people working in wildlife crime in Indonesia are now able to put together maps of the key players in wildlife crime in their respective areas or species. Some of these are fairly specific to the individual species targeted (see Appendix IV). However, some generalisations can be drawn. At one end of the supply chain are the harvesters, hunters or poachers who collect the target wildlife in the field. According to survey results reported in TRAFFIC's 2008 report (TRAFFIC 2008a) these are overwhelmingly men, with women or children accounting for less than a third, and most (70%) carried out hunting as a deliberate, rather than an opportunistic, activity. Hunters tended to be from low-income backgrounds, although hunters specialising in tigers tended to be better off thanks to the high prices they could fetch. In studies of tiger hunters in the Kerinci region, most had an alternative primary income, usually as smallholder farmers, and most worked in small groups of 2-3 people. They often come from the same family, with hunting skills passed through the generations (Ng and Nemora 2007). The primary motivation for hunters is generally financial (as opposed to enjoyment or pest removal), although interestingly this contrasts with the primary motivation for leaving the industry with only 20% of people citing financial reasons and most citing reductions in availability of wildlife as the primary motivation (TRAFFIC 2008a). Most worked on informal cash-on-sale contract basis with middlemen but a third reported being paid up front. Very few reported being paid a wage. 85% of hunters sold their products to middlemen, with only 15% selling directly to end users. Depending on the product, hunters usually deal with a middleman although, for some high value products, they may deal directly with traders who commission a hunt or even directly with end users. In Kerinci, middlemen are usually ethnic Malays, based in small and medium sized towns and, for tiger products at least, many run legitimate businesses in jewellery, medicine or souvenirs. Exporters tend to be ethnic Chinese, often Hoikken speakers, and are more likely to be based in major cities. They tend to be wealthy, politically well-connected and usually deal in a wide variety of export products, including a variety of wildlife products.

The end-users vary, depending on the product. Traditional medicine-men or '*dalangs*' are one source of demand, although demand for traditional Chinese medicines are higher outside Indonesia than within, so most products used in traditional medicine tend to be exported. However, significant domestic demand does exist for exotic pets in Indonesia, and for curios, lucky charms and decorative goods such as skins and stuffed animals (Ng and Nemora 2007, WCS Indonesia 2015).

Much of the illegal export goes through seaports, both official and unofficial. Evidence that traders are exporting wildlife goods via the sea comes both from raids within Indonesia and seizures of shipments from Indonesia in other countries. For example, in Taiwan in 2005, customs confiscated over 140 kg of tiger bones, 400 kg of pangolin scales and 1 kg of ivory hidden in a container shipment of deer antlers from Jakarta (WWF International 2005). There is also plenty of evidence that ports in Sumatra are being used to export goods to Singapore and Malaysia and to import specific bird species. For example, there have been several seizures of turtles in Singapore originating from Sumatran ports, and evidence has been obtained of illegal orangutan and bird exports occurring from Belawan port, the main port in

Medan. It is also suspected that plenty more activity occurs in the 30 completely unregulated 'pelabuhan tikus' or 'rat ports' in Indonesia (Ng and Nemora 2007).

One form of wildlife crime on the increase in Indonesia is online trading. Online trading in protected species has become popular within the last five years with various illegal products openly marketed online. WCS Indonesia has recorded a massive increase in online wildlife crime since 2011, with 32 individual sites identified selling tiger parts alone (Lawupos 2012, WCS Indonesia 2015). In 2011-2012, tiger evidence equivalent to 22 individual tigers was seized by wildlife authorities in Indonesia (Stoner 2011).

Indonesian responses to international legislation and organisations

Indonesia is a signatory to CITES and has taken steps to implement its commitments, but there is plenty more that could be done. Indonesia has been a signatory to CITES since 28 December 1978. Based on government regulation No.8/1999, the management authority for CITES is the Ministry of Forestry, with the Director General of Forest Protection and Nature Conservation (PHKA) the implementing agency. The Indonesian Institute of Sciences (LIPI) has been named as the CITES scientific authority, with the Biology Research Centre as the implementing agency. Indonesia has passed abundant legislation relevant to its commitments to CITES, most notably the 1990 Law on the Conservation of Natural Resources (see below). Initial assessments by CITES in 1992 ruled that Indonesia's laws did not meet all requirements for CITES but following the enactment of additional laws through 2005, Indonesia's legislation was declared sufficient (WCS, 2015). Now Indonesia is one of 14 countries achieving 'Category 1' status for implementation of CITES, using a standard permit system for CITES-regulated species and imposing penalties of up to IDR 250 million, or $25,000, for non-compliance (Prihadi 2013).

However, the main criticisms of Indonesia's implementation of CITES focus on the enforcement and the close relationships between the legal trade and associated illegal trade. Of particular concern has been the quota system, with early exports exceeding 'harvest guides' (WCS, 2015). For example, in 2011 Indonesia's CITES management authority reported to CITES that there was no illegal trade of snakes in Indonesia. This was been proven to be demonstrably incorrect by various studies (Lyons and Natusch 2011). Inspections of officially licensed breeding centres also seem to be lacking, allowing many wild caught and illegal species to be passed off as bred, legal species (Kimbrough 2012) whilst many of the management structures put in place to regulate trade such as quotas or marking skins do not seem to be carried through (Auliya 2010). Recently quotas have been set with a more precautionary principle involving the scientific authority, and wildlife authorities have been given more powers to inspect traders (WCS, 2015). Although early reports seem positive (Samedi, *pers com*, 2015) it is unclear as to the extent that these loopholes have been closed, with some experts calling for further regulation and oversight.

Indonesia is signatory and member of all of the key conventions and organizations and has been involved in some high profile successes, although how much difference this has made in the long term is unclear. Indonesia is a supporter of all of the main conventions and international collaborations related to wildlife crime. For example, it is a formal member of the ICCWC and was an active part of several international operations, including Operation Libra, which seized 1,220 pangolins, including a single shipment due to be shipped from Indonesia to Vietnam consisting of 260 boxes of frozen pangolins weighing 5 tons (INTERPOL 2014). Indonesia is also one of 46 signatories to The London Declaration on

wildlife crime, meaning it has committed to:ensuring that wildlife crime is treated as a 'serious' crime; adopting a zero tolerance policy to corruption; supporting the prosecution of wildlife criminals and raising awareness amongst the judiciary; strengthening law enforcement and cross border collaborations; and promoting sustainable livelihoods. Indonesia is due to report on its progress in all of these categories in mid-2015.

Regionally, Indonesia has also been a member of the ASEAN-WEN since 2008, when it established a Task Force coordinated by the Director of Investigation and Forest Protection within the Ministry of Forestry. Since then, Indonesia has participated in the USAID-funded 'ARREST' programme, which provided manuals and training to government authorities (ASEAN Wildlife Enforcement Network 2013).

Indonesia has also been one of the regional leaders in getting the judiciary better informed about environmental law, including wildlife crime. In 2009 the Supreme Court of Indonesia asked the ADB to help it certify judges for environmental cases and supported efforts to integrate activities between the police, prosecutors, environmental agencies and judges. In 2011, this was followed by Indonesia becoming the inaugural host for the Association of Southeast Nations (ASEAN) Chief Justices Roundtable of Environment (Mulqueeny and Cordon 2014), under the Chairmanship of the Chief Justice of the Supreme Court of Indonesia, at which the Chief Justices adopted 'A Common Vision on Environment for ASEAN Judiciaries', whereby the Chief Justices agreed to go back to their national judiciaries to share the results of the Roundtable and that:

(i) The ASEAN judiciaries will collaborate among themselves and, as appropriate, others engaged in the environmental enforcement processes, to significantly improve the development, implementation, and enforcement of, and compliance with, environmental law and collaborate upon Action Plan to achieve it;

(ii) The ASEAN judiciaries will share information on ASEAN countries' common environmental challenges among their own members and, as appropriate, among the legal profession, law schools, and the general public;

(iii) The ASEAN judiciaries will share information on environmental challenges and legal issues, and best practices in environmental adjudication among themselves, acknowledging the differences among their respective legal systems;

(iv) The ASEAN judiciaries will impose sanctions and penalties in accordance with their respective laws that are appropriate to the scale of environmental case or crime, and consider innovative remedies, in accordance with their respective legal systems, such as community environmental sentencing, or probation;

(v) The ASEAN judiciaries will strengthen specialized environmental courts, tribunals, benches, and specialization programs (such as environmental certification), where they exist and consider establishing them where they do not yet exist;

(vi) The ASEAN judiciaries will implement special rules of procedure for environmental cases where these already exist and consider developing and implementing them where they do not yet exist, which may include a flexible approach to legal standing, special rules of evidence for environmental cases, expediting cases, special remedies, injunctive relief, and other innovative environmental processes;

(vii) The ASEAN judiciaries will implement special rules and procedures for alternative dispute resolution in environmental cases where these already exist and consider developing and implementing them where they do not yet exist;

(viii) The ASEAN judiciaries will seek to ensure that judicial decisions on environmental cases are made available to the public and shared within the Asian Judges' Network on Environment;

(ix) The ASEAN judiciaries will ensure that timely and appropriate training on environmental legal issues is available for new and junior judges, and all other judges adjudicating environmental cases, including through national judicial institutes, and will share among themselves information on different ways to impart this training, and make training a working component of the ASEAN Chief Justice's Roundtable on Environment;

(x) The ASEAN judiciaries will encourage law schools to include environmental law in their respective curricula and legal professional associations to provide continuing legal education that includes environmental law and jurisprudence; and

(xi) The ASEAN judiciaries will seek to hold an ASEAN Chief Justices' Roundtable on Environment annually to further cooperation on environment, as a subregional grouping of the Asian Judges Network on Environment.

In January 2015, the Supreme Court of the Republic of Indonesia hosted a second ASEAN meeting. Also during the same month, with funding from the USAID Changes for Justice Project, the Supreme Court hosted an Integrated Justice Sector Workshop for judges, prosecutors, police and civil investigators on Managing Cases to Protect Biodiversity The new training program is being utilized to enhance the certification "green bench" program for judges hearing environmental criminal cases. In 2015, Indonesia's Supreme Court Training Agency began development of a new e-learning training program for judges on managing civil and criminal cases relating to protection of biodiversity.

Indonesia has also engaged in a number of bilateral agreements to support the fight against wildlife crime. In 2014, the Director General of Forest Protection and Nature Conservation within the Indonesian Ministry of Forestry signed an MoU with Vietnam on the protection of wild animals, including pangolins and reptiles, and identified a number of Priority Actions. These included information exchange, increasing public awareness, capacity building, training and law enforcement cooperation. Indonesia's Ministry of Forestry also signed an MoU with the US Secretary of State in 2014 on Conserving Wildlife and Combating Wildlife trafficking. This was followed with a Letter of Intent which outlines a commitment to implement a regional ASEAN Wildlife Crime Workshop and preparation of an Indonesian-US action plan.

Indonesia's national legislative frameworks for tackling wildlife crime

There is an abundance of national legislation in Indonesia relevant to wildlife crime, but serious gaps remain. Indonesia is generally seen as having a strong legislative framework for implementing CITES and other aspects of wildlife crime, although some see it as having too many laws (Mulqueeny and Cordon 2014). The key laws were set between 1990 and 2005,

outlining the concept of protected species, the activities allowed for each, the punishments for non-compliance and the authorities responsible for enforcing wildlife crime laws. The laws divided species simply into two categories – protected or unprotected. Protected species cannot be caught, traded or killed and punishments are set that remain fairly severe even twenty five years later (a fine of up to IDR 100 million – still more than double the current average gross national income – and imprisonment of up to five years (Ministry of Forestry 1990)). Species not listed as protected are afforded no protection unless they are in a protected area. Responsibility for enforcing wildlife laws was placed with the Ministry of Forestry. For a list of most of the relevant legislation passed in Indonesia, please see Appendix II.

Whilst CITES has declared the legislation sufficient, various criticisms of Indonesia's wildlife crime laws remain. In a review of the regulatory framework, WCS-Indonesia identified a number of areas requiring improvement. Key recommendations included (WCS 2015): updating the legislation defining which species are protected to better match the CITES appendices, and to account for changes in conservation status and even scientific nomenclature; updating the punishments; including the destruction of protected species habitats as a prohibited activity; removing loopholes, such as the ability to give protected species as 'gifts'; and strengthening the authority of forest police (WCS, 2015, Government of Indonesia 1999).

Besides national legislation, various other forms of religious, traditional and customary rules and traditions potentially influence wildlife crime in Indonesia. In many parts of Indonesia, customary laws may be just as, if not more, influential as national laws on influencing the behaviour of people. Reviewing the impacts of these customary laws is beyond the scope of this report, but it is important to note that many customary laws in Indonesia make provisions for wildlife hunting, and there is substantial evidence linking customary laws and practices with good natural resource management. For example 'sacred forests' in Kalimantan have been shown to be effective havens for wildlife (Wadley and Colfer 2004), traditional or *adat* law has been shown to be an effective framework for managing common resources in various parts of Indonesia (*e.g.*(van Ast et al. 2014)) and links between beliefs in the supernatural and effective natural resource management have been demonstrated in eastern Indonesia (Sasaoka and Laumonier 2012). One of the most significant pieces of non-governmental legislation passed in Indonesia relating to wildlife crime is the 2014 *fatwa* (an Islamic legal ruling) on the protection of endangered species issued by the Indonesian Council of Ulama, Indonesia's top Muslim clerical body and a representative of all the main Islamic groups in Indonesia. The *fatwa* draws on the various references from the Al-Qur'an –not to harm animals as well as national laws – to decree a number of activities to be *haram* (forbidden under religious law as well as national law) including illegal hunting or killing of wildlife. The *fatwa* essentially repeats what is already stated in law, but adds the weight of making such actions a crime against Islam, as well as a crime against national laws (the Indonesian Council of Ulama 2014). The impact of the *fatwa* is not yet known, but it is a potentially significant statement in a country of over 200 million Muslims where religion plays a strong part in most people's lives.

Key Indonesian government organizations responding to wildlife crime

Enforcement of terrestrial wildlife crime laws is primarily the responsibility of the forestry police (PolHut) who have similar, but lesser powers compared to the national police force. The Ministry of Environment and Forestry is responsible both for enforcing Indonesia's

wildlife crime laws at the national level and for managing Indonesia's legal trade in wildlife under CITES. These roles are delegated at the national level to the Directorate General of Forest Protection and Nature Conservation (*Direktorat Jenderal Perlindungan Hutan dan Konservasi Alam*, or *PHKA*), and at the provincial level to the Natural Resources Conservation Agency (*Konservasi Sumber Daya Alam*, or *KSDA*). Respective National Park management units are responsible for enforcing wildlife crime laws within the national parks. The forest police (*Polisi hutan*, or *PolHut*) employed by these offices have similar powers to the police, enabling them to conduct investigations and arrest suspects caught in the act. However, unlike the police, they do not have the authority to act on crimes outside forestry and wildlife, they cannot stop and check suspects, they require additional authority to make an arrest or conduct a search and they cannot take suspects to an investigator. In addition to the forest police, the Ministry of Forestry also has Civil Investigators who are generally placed at relevant duty stations. Some forest police are assigned to quick response ranger units (*Satuan Polisi Reaksi Cepat*, or *SPORC*). In 2014, the Ministry of Forestry had over 7,000 forest police, over 800 of whom were assigned to 11 SPORC units, and 1,800 civil investigators to police an area of 100 million hectares across the Indonesian archipelago.

In 2015, the newly merged Ministry of Environment and Forestry's allocation for enforcement activities (including for the prevention of illegal wildlife trade) was IDR 212 million, or $16.4 million, to be shared between the head office in Jakarta (*Directorate PPH*), regional KSDA and the national parks. The budget activities include preemptive activities (campaigns), preventive activities (patrol, socialization, awareness building), repressive activities (wildlife distribution control operation, joint operations), legal processes (investigation, intelligence gathering, filing cases), strengthening human resource capacity (forest police, investigators and Ranger Community Partners), infrastructure, development of cooperation (such as Memoranda of Understanding) and refinement and reviews of regulations. The budget to monitor the legal wildlife trade is allocated to the Directorate of Conservation and Biodiversity (*Direktorat Konservasi Keanekaragaman Hayati)*

Responsibility for marine wildlife crime law enforcement lies with the Ministry of Maritime Affairs and Fisheries (MoMAF). Within MoMAF, the Directorate General of Marine Resources and Fisheries Monitoring (*Pengawasan Sumber Daya Kelautan dan Perikanan*, or PSDKP) is responsible for monitoring marine resources and fisheries. Like the PHKA, PSDKP has the power to arrest, confiscate and investigate violations of fisheries laws both on land and sea through the special marine police (*Polsus*) and private investigators. They work variously with the navy, air force and the Maritime Security Agency (*Badan Keamanan Laut Republik Indonesia*, or *Badorkamla*) to fulfil this function. There are five regional offices of PSDKP in: Bitung, Belawan, North Sumatra; DKI Jakarta; Pontianak, West Kalimantan; and Tual, Maluku. PSDKP has around 207 *Polsus*, 56 private investigators, 328 boat crews for marine monitoring, 27 vessels and 86 speed boats. The resources are distributed in 58 units all over Indonesia. PSDKP has conducted at least two international collaborative operations: one with the Australia Fisheries Surveillance Forum (IAFSF) and one with the Regional Plan of Action (RPOA) to promote responsible fishing practices, including combating illegal fishing in the Southeast Asia Region.

Besides the forest and marine police, a number of other government units have an important role to play in combating wildlife crime, but awareness, capacity and motivation is mixed. One of the most important of the other institutions is the police. Responsibility for wildlife crimes (along with other environmental issues) lies with the Specific Criminal Action Unit (*Tindak Pidana Tertentu*, or *Tipiter*) within the Crime Investigation Directorate

(*Badan Reserse Kriminal*, or *Bareskrim*). Around seven people are employed within the sub-directorate, which handles wildlife crimes and they have collaborated with various NGOs on wildlife crime investigations including WCS, The Jakarta Animal Aid Network (JAAN) and the Centre for Orangutan Protection (COP). They have also had training in environmental criminality from the US Department of Justice through the ICITAP program (ICITAP 2015). A second key institution is the Directorate General for Customs and Excise (*Direktorat Jenderal Bea dan Cukai)*. At this point they do not have any special staff to handle wildlife crimes, nor do they have any specific budget allocated for detecting wildlife crime. Nevertheless, since 2012 the DCGE has recorded no fewer than 35 cases of wildlife smuggling. A recent example of their activities was the result of an intelligence analysis from the Investigation and Prosecution unit in Tanjung Priok which intercepted a container containing turtle shells, which were listed on Appendix II CITES with an economic value of IDR 282,000,000 or USD $21,770. A third key institution is the judiciary. As discussed, with the support of donors such as the Asian Development Bank, the Indonesia judiciary are increasing their involvement and awareness on wildlife crime issues.

Other important institutions include the Indonesian Financial Transaction Reports and Analysis Centre (PPATK). In addition to its other roles, PPATK is also currently collecting data on the financial aspects of wildlife crime in collaboration with WCS. Additionally important partners include the Army and Navy who are responsible for investigating wildlife crime within their own ranks and are occasionally brought in to support wildlife crime operations, the Ministry of Transport, which has the power to monitor shipments and the Ministry of Communications, which currently has a mandate over the activities related to wildlife crime that occur online.

Key non-governmental organizations responding to wildlife crime in Indonesia

TRAFFIC does not operate a permanent office in Indonesia but its Southeast Asia program is highly active in various aspects of wildlife crime and trade monitoring in Indonesia. Operating in Southeast Asia since 1991, TRAFFIC works in Indonesia to provide information about wildlife trade, to motivate efforts to increase sustainability and to help enforce international trade controls. TRAFFIC has produced a wide range of reports on different aspects of wildlife trade in Indonesia, most notably the trade in tigers, reptiles and birds. Although often working with government, TRAFFIC is also one of the more outspoken NGOs when it comes to criticising government actions. Criticism of the lack of response by government officials to trade in tiger parts in northern Sumatra received a high level of publicity in the late 2000s and more recently TRAFFIC has been open in its criticism of the lack of government action in conducting the inspections and monitoring activities required to manage the legal trade in species under CITES.

The Wildlife Conservation Society (WCS) has been running a wildlife crime unit in Indonesia since 2003 and, together with FFI, represents one of the most successful examples of NGO-government partnerships achieving tangible results on the ground. The WCS Wildlife Crime Unit (WCS) was started in 2003 and currently employs 11 people, including legally trained staff. Focusing its activities primarily on Lampung province in Sumatra, followed by Jakarta and supplemented by occasional work in Medan, Bali and Kalimantan the WCU unit focus on identifying and facilitating the arrest and prosecution of urban middlemen and traders of wildlife products as well as providing training and monitoring. All work is done in close partnership with counterparts within the Ministry of Forestry. Of nearly 300 interventions since 2003 the WCU team have secured successful

prosecutions in almost 90% of cases, with prison sentences accounting for 20% of convictions, confiscations in 45% of cases and warning letters in about 8% of cases. The WCU costs about $250,000 to run per year, with key funders including LCAOF, USFWS, USAID, SOS, and the Darwin Initiative.

Fauna and Flora International (FFI) has been focusing on wildlife crime in Sumatra since 2002 and, together with WCS, represents one of the most successful examples of NGO-government partnerships that is achieving tangible results on the ground. FFI began focusing on wildlife crime in Indonesia through its tiger programme in Kerinci Seblat National Park, Sumatra in 2002. Focusing specifically at the start of the supply chain, attempting to thwart poachers before they can kill tigers, the teams focus particularly on field patrols and covert undercover work as well supporting prosecution cases to conviction. A key asset to the teams is the development of a wide network of informants across the local communities. Today a team of 35 people working across 6 patrol teams made up of national park staff and local community members work in the area. Since 2001 they have been responsible for 43 successful prosecutions of people involved in tiger crimes, have provided training to a number of similarly structured wildlife crime teams in Sumatra and have recently been recognised by the British government for their services to conservation. The six patrol teams cost about $60,000 / year to run, with primary funders including Australia Zoo and the US Fish and Wildlife Service.

WWF Indonesia focuses its efforts on wildlife crime in northern Sumatra and Kalimantan, operating patrol teams as well as building government capacity and awareness. WWF Indonesia is one of the largest civil society groups in Indonesia and works on wildlife crime in four key areas. The first is wildlife trade monitoring in Riau, Sumatra, using two 6-person tiger protection units to conduct patrols on the ground and pass on information gained to the local wildlife authorities. The second is law enforcement support and capacity, providing occasional support for individual wildlife crime cases, government-training workshops in collaboration with TRAFFIC and the Indonesian Centre for Environmental Law. The third is legislative support, with WWF involved in discussions to update Indonesia's wildlife laws as well as the development and socialisation of the 2014 wildlife *fatwa*. The fourth is awareness, working to persuade the Indonesian public about the wrongs of exotic pets and use of wildlife parts though its numerous communication channels. WWF Indonesia spends around $380,000 addressing wildlife crime each year.

The UN Office for Drugs and Crime (UNODC) operates a small Indonesian office which focuses on capacity building amongst government agencies. UNODC has a global mandate to combat organised crime, with a specific focus on wildlife crime (see p.10). In Indonesia this translates into three dedicated staff for wildlife crime operating an annual budget of around $500,000. Focusing activities on Jakarta, Central Kalimantan and West Papua their primary activities are the provision of training, capacity building and workshops to the government agencies responsible for wildlife crime, as well as coordinating the Indonesian contribution to regional and global operations.

ProFauna is an Indonesian NGO focused on animal welfare, including awareness, wildlife rescue and rehabilitation. Established in 1994, based in Malang and operating in East Java and East Kalimantan, ProFauna employs 40 unpaid volunteers and focuses its operations on wildlife rescue and rehabilitation as well as awareness around wildlife crime. With close connections to the World Society for the Protection of Animals (WSPA) and Royal Society for the Prevention of Cruelty to Animals (RSPCA) it runs a wildlife education centre and

Javan langur rehabilitation centre. ProFauna frequently contributes data on wildlife trade and crime to various reports. It operates on an annual budget of around $7,500.

SECTION III – THE STATUS OF WILDLIFE TRADE IN SELECTED INDONESIAN SPECIES AND SPECIES GROUPS

The following chapter outlines and summarises what is known about wildlife trade in a number of key species in Indonesia. Data on each species is presented in the following format:

- Abundance and Distribution
- Legal Status
- Extraction Areas and Volumes
- Trade Routes
- Market Values
- Prosecution History

Sumatran Tiger

The Sumatran tiger (*Panthera tigris sumatrae*) is classed as one of six distinct sub-species of the tiger (*Panthera tigris)* based on morphological and genetic differences. They are the last sub-species of tiger remaining in Indonesia following the extinction of the Balinese and Javanese tigers over the last century (Luo et al. 2004).

Abundance and Distribution. No accurate measures of the total numbers of individuals remaining in the wild exist. Best guesses estimate a total population of several hundred individuals (Soehartono et al. 2007, IUCN 2015). However, a scientifically robust estimate of occupancy for the whole of Sumatra was calculated by a consortium of conservation organisations in 2011, concluding tigers still occupy 72% of the island, albeit at low densities (Wibisono et al. 2011). Sumatran tigers only exist in the wild on the island of Sumatra but occur throughout the island. Most studies of tiger ecology agree remaining individuals are likely divided into several increasingly isolated sub-populations. Currently 12 distinct 'Tiger Conservation Landscapes' are recognised covering 88,000km^2 (Dinerstein et al. 2007). These include 10 national parks (IUCN 2015).

Legal status.

- Red List status: Critically endangered (high risk of extinction in the wild)
- CITES status: Appendix I since 1987 (no commercial international trade)
- Indonesian law: Protected species under the 'Act of the Republic of Indonesia No.5 of 1990 Concerning Conservation of Living Resources and their Ecosystems'
- Hunting / trade quotas – no legal commercial trade since CITES signed in 1987, subsequently supported by 1990 law.

The primary demand for trade in tigers is for tiger body parts for use in Asian medicine, a practice that dates back over a thousand years. Nearly every part of a tiger has a listed medicinal value in Chinese medicine, including the skin, fat, flesh, hair, brain, eyeballs, testes, nose, teeth, whiskers, tail, gallstones, blood, stomach, bile, milk, vagina, penis and faeces. Bones, particularly the humerous, have the highest value (Mills. and Jackson 1994). However, there is also demand for various non-medicinal uses, either for decorative or superstitious reasons. Skins have a value as decoration, primarily aimed for luxury markets (EIA 2008). There is also a domestic market for whole, stuffed tigers which are perceived by some to reflect high status (Oldfield 2003). Smaller pieces of skin are thought to protect the

owner from black magic, whiskers are thought to bring good luck and canines and claws are made into jewellery for decoration and good luck (Shepherd and Magnus 2004).

Extraction areas and volumes. Globally, trade in tiger parts occurs in all parts of the tiger's range and is worth an estimated $5m/year (UNODC 2015). Historically Indonesia has long been a key exporter of raw tiger products. Although formal Indonesian customs records do not show any exports, South Korean import data show nearly 4000kg of tiger bone imported from Indonesia between 1970-1993, over half of which was after the CITES was in force in Indonesia (Mills. and Jackson 1994). In the 1990s Indonesia was thought to have been the world's largest exporter of tiger bones. In 1994 Taiwanese customs data recorded 100kg of mixed tiger and bear bone in a single shipment (Mills. and Jackson 1994). Today it is still seen as an important source, although probably not as large as India, but also a significant consumer of tiger products (Verheij et al. 2010).

Numerous recent records of tiger trade in Indonesia exist. These include a long term dataset compiled by the Ministry of Forestry recording all reports of tiger trade encountered by BKSDA, National Park or SPORC staff (which was not available for this report), independent long term datasets compiled by NGOs such as WCS and detailing all evidence of tiger trade encountered in specific areas and time periods and three short term market surveys from 1994, 2002 and 2006 resulting from specific surveys carried out by TRAFFIC (Plowden and Bowles 1997, Shepherd and Magnus 2004, Ng and Nemora 2007). In addition to these there are frequent opportunistic records of trade in tiger parts from seizures and other encounters, for example the seizure by Taiwanese customs of over 140 kg of tiger bones, including 24 skulls, in a shipment from Jakarta in 2005 (TRAFFIC 2005). Each shows snapshots of significant levels of trade in tiger parts in Indonesia. However, at present these datasets exist in isolation, with numerous overlaps meaning it is very difficult to pull out conclusions on volumes of trade, numbers of tigers killed or trends over time. Furthermore, with no measures of effort, it is very difficult to put many of the results in context. For example, numbers of seizures of tiger products have been increasing, particularly in the last few years, but it is impossible to say whether this is a result of increased effort, increased trade or both (Verheij et al. 2010).

Trade Routes. Ng and Nemora (2007) summarised current understanding of tiger trade networks in Sumatra based on data from FFI and others whilst TRAFFIC surveys give detailed descriptions of the middlemen. They described tiger hunters as typically male, aged around 40, usually farmers and generally experienced hunters for other species too. They work in small groups and tend to use poisoned baits, log-fall traps and foot snares and are armed with home-made firearms. Sometimes hunters deal directly with medicine men to sell their wares, but usually they deal with traders or middlemen. Tiger bone deals destined for export are usually conducted directly with traders whilst other items are generally through middleman.

Traders around Kerinci at least are generally ethnic Malays. Key trading premises were traditional medicine shops, precious stone vendors, souvenir shops and gold shops. Traditional medicine shops most commonly stock tiger parts (68% of those surveyed). Exporters tended to be ethnic Chinese, often Hoikken speakers. They were based in the larger cities and were usually associated with other wildlife export networks too, such as snake skins or reptile trade.

An example of trade routes comes from WCS WCU data describing a tiger syndicate operating in Northern Sumatra. There a syndicate was found to be operating around Gunung Leuser National Park. From Aceh and North Sumatra the poached tigers were being taken to Medan using a private car. From Medan the tigers were being sent to Jakarta (by bus, freight company or even a courier travelling on plane), or to Pekanbaru by bus. From Pekanbaru, tiger parts were being sent to Batam before going on to their final destination. The TRAFFIC surveys also strongly suspected that Sumatran ports were the common exit point for tiger parts with Tembilahan, Dumai and Belawan all known to be important trade routes for other illegal species.

Market values.

Table 1. Estimated values (2014) of tiger and parts[1]

Wildlife part	Poacher's price (million rupiah)	Trader's price (million rupiah)	International price (USD)
Bone (kg)	100-150	250-300	200
Canine (pair)	250-500	2500-3000	6,200 – 7,200
Claw (with silver/gold casing)	-	150	100 – 570
Live (adult)	-	12,500-20,000	50,000
Live (baby)	5000-7500	-	3,200
Penis	-	-	1,300
Skin (whole)	1200-1800	2,500-3000	14-35,000
Skin(size 10 cm)	50	100-150	-
Skull	-	-	-
Stuffed tiger	3,000	4,000 – 5,000	-
Whisker	7	30	-

Prosecution history. Data on prosecutions are largely opportunistic. Between 2004-2006 12 tiger poaching cases were recorded as being brought to court by the Ministry of Forestry records as reported to Ng and Nemora (Ng and Nemora 2007). Most were in Jambi and associated with the FFI patrol units. Eight of the cases resulted in successful prosecutions with fines up to $110 and up prison sentences of between 6 months to 3 years jail. Meanwhile, the WCS WCU has been involved in 55 tiger-related cases since 2003. The highest seizure rate was in 2012 with 14 cases representing 45 individuals killed or traded alive. The highest penalty given was 42 months in prison.

[1] Based on interviews with WCS Wildlife Crime Unit

Elephant

The Sumatran elephant (*Elephas maximus sumatranus*) is classed as one of four distinct sub-species of the Asian elephant (*Elephas maximus)* based on morphological and genetic differences.

Abundance and Distribution. In 1985, elephant population estimates were between 2800 and 4800 individuals in 44 ranges in all eight mainland provinces of Sumatra (Blouch & Haryanto, 1984; Blouch & Simbolon, 1985). Elephant populations across Sumatra are in decline. From the 12 populations originally occurring in Lampung Province, only three were extant in 2002.

Relatively recent surveys in Bukit Barisan Selatan and Way Kambas National Parks produced population estimates of 498 individuals (95% CI = [373,666]) and 180 individuals (95% CI = [144, 225) elephants respectively (Hedges et al, 2005). In 2007, Sumatran elephant population estimation was around 2400-2800 individuals (Soehartono et al, 2007), but by 2008, elephants had become locally extinct in 23 of the 43 ranges identified in Sumatra. Now, Sumatran elephants are found only in in seven provinces, many of which are under increased pressure of habitat loss and imminent conflicts with human. The population trend is decreasing (Gopala et.al, 2011). In addition to habitat pressure, forest conversion for agriculture bring elephant populations increasingly into serious conflicts with humans. As a result of this conflict, many wild elephants have been removed from the wild and put into elephant camps, or directly killed. In addition to killing related to conflicts, elephants are also targets of illegal killing for their ivory (Gopala et.al. 2011). In the last five years, an estimated 76 elephants were killed for their ivory or in direct consequence of human-elephant conflict (WWF 2015).

Legal status.

- Red List status: Critically endangered
- CITES status: Appendix I since 1975
- EU Wildlife Trade Regulation: Annex A
- Protected species under Indonesian Law No.5 of 1990. No legal trade since CITES signed in 1978, subsequently supported by 1990 law.

Extraction areas and volumes. In Indonesia, the killing of elephants occurs throughout their range in Sumatra, with conflicts centred around areas with rapid rates of forest loss. The rate of elephant deaths has increased in parallel with large increases in the illegal trade of ivory globally – a three-fold growth since 1998. The surge has been especially pronounced during the period 2011-13, with record levels of ivory totalling 116 tonnes seized during this time (EIA, 2014). In the last five years, 76 elephants in total were killed in the following areas: Aceh (Pidie Jaya, Aceh Timur, Bener Meriah Aceh Tamiang, Aceh Selatan and Aceh Barat), Riau (around Tesso Nilo NP), Jambi (around Bukit Tigapuluh NP), Lampung (Way Kambas NP), Bengkulu, and Sumatera Selatan. These areas represent the remaining elephant habitat in Sumatra. Although it is not always clear how the elephants have died, many of the dead elephants were missing their tusks, suggesting opportunistic ivory trade, as well as illegal poaching.

In Bukit Barisan Selatan NP WCS WCU data estimates a total of 12 poachers were supplying a middleman who was estimated to have sold 1,260 kg of ivory since 2003, the equivalent of killing 47 elephants. In Way Kambas NP the same data set estimates a total of 19 operational

poachers, several middleman, and a craft workshop which had processed and sold 1,785 kg of ivory since 2003 (52 elephants) (Adhiasto, 2007 in Soehartono et al., 2007). From a survey of the owners of protected species and their parts, ivory was ranked as the second most common possession after the possession of stuffed tigers or their parts (Adhiasto, 2007 in Soehartono et al., 2007).

Volumes are difficult to estimate, and are often based on enforcement successes rather than representative of the trade as a whole. Based on WCS data, between January 2003 to February 2015, a total of 15 ivory seizures were recorded. The majority of the seizures were in Bandar Lampung (9), followed by Jakarta (3) and Medan (3). The seizures were mostly in the form of smoking pipe (53%), raw teeth (20%), whole ivory (6%), carved ivory (6%), bone (6%), and live individual (6%). Much of the ivory that enters the illegal trade in Indonesia is first processed before export, and WCS also identified two ivory craft workshops in Lampung and Bekasi. Interestingly the raw material in Lampung was mainly ivory of Sumatran Elephant, while the ivory in Bekasi was a mixture of Sumatran and African elephant ivory.

Trade routes. In Indonesia the key domestic trading centres for elephant ivory are in Lampung and Jakarta (Rawa Bening-Bekasi, Tanjung Priuk). One of the identified supply chains is as follows: ivory from Central or southern Sumatra is collected and transport to a workshop for finishing in Lampung. Here the ivory is processed and carved, with finished products then shipped to Jakarta by bus or by fishing boat from an unregulated port in Lampung to Java (Merak, Banten). From here, ivory travels by road (public bus/private car) through Java for sale in Jakarta, or for final export at unregulated ports, or by air. African ivory tended to arrive by sea at Tanjung Priuk in Jakarta (EIA, 2014), and was then mainly taken to Rawa Bening and the Lampung workshop before returning to Jakarta for sale or re-export.

Market values. Ivory is the most common traded good from elephants, although teeth and bones are also commonly traded. Ivory goods are important status symbols among the new middle class in the industrial countries of the Far East such as China and Japan (Wasser et al., 2009). Ivory is most commonly turned into jewellery, trinkets, souvenirs, gifts and carvings chopsticks, ornaments, hair accessories, and many other items (UNEP, 2013; CITES, 2015; TRAFFIC, 2013; Wasser et al, 2009). It is unclear to what extent Indonesian ivory feeds the domestic market demand (for example smoking pipes – WCU staff personal communication, 2015), rather than international demand.

Surges in demand in recent years appear to have driven a rise in the price of ivory, which has also been reflected in the Indonesian market. In 2004 the international value of high-quality ivory was valued at USD 200 per kg, but this had risen to USD 850 per kg in 2007, and was estimated at USD 6,500 per kg in March 2008 (Wasser et al, 2009). Ivory prices reached USD 1,500 per kg in China in 2004 and rose to USD 3,000 in 2013. Finished ivory products in China had an estimated value of USD 6,500 per kg in 2013 (EIA, 2014).

Table 2. Values of elephant ivory and parts in Indonesia

Wildlife part	Poacher's price (USD)	Trader's price (USD)	International price (USD)
Ivory super quality whole (per kg)	388 - 465	969 - 1,550	1,800
Ivory super quality part (per kg)	388 - 465	620 - 775	-
Ivory average quality whole (per kg)	388 - 465	620 - 775	-
Ivory average quality part (per kg)	310 - 388	581 - 620	-
Ivory pipe (>±20 cm)	-	233 - 388	2,300
Ivory pipe (±12 cm)	-	39 - 155	1,000
Statue (± 20 cm)	-	-	1,500
Bone (per kg)	-	8 - 19	-
Ivory (per kg)	388 - 465	969 - 1,550	850 (in Asia)
Bone (per kg)	-	8 - 19	-
Teeth	-	-	-

* Estimated from covert interview, market survey, online price, and informant's information

Prosecution history. Between 2003 -2014, WCS WCU was involved in the investigation and prosecution of 15 cases linked to Sumatran elephants. The highest penalty secured was 30 months imprisonment (2003) for poaching Sumatran elephant, and the illegal ownership of a weapon, and the highest seizure was in 2003 involving 112 ivory pipes. In 2014, there was one seizure that involving a shop which sold carved ivory for domestic and international consumption.

Sun Bear

The Sun Bear (*Helarctos malayanus*) is one of eight species of bear that occur globally. The Sun Bear is the smallest of the world's bear species, and occurs throughout South-east Asia. Two sub species are recognized, with *H.m malayanus* occurring on mainland of South-east Asia and Sumatra, and *H.m euryspilus* on Borneo (Williamson, 2006).

Abundance and Distribution. The species is threatened by loss of habitat, and by wildlife trade, both which are the likely drivers of an estimated of 30% population reduction over the last 30 years (TRAFFIC, 2011).

Legal status.

- Red List status: Vulnerable since 2008
- CITES status: Appendix I since 1979
- EU Wildlife Trade Regulation Annex A
- Protected in Indonesia under Law No. 5 of 1990
- No legal trade since CITES signed in 1978, subsequently supported by 1990 law.

Extraction areas and volumes. Most sun bear trade in Indonesia originates from either Sumatra or Kalimantan (Sintang, Nangapinoh, Ketapang, Putussibau - West Kalimantan) (Kurniawan, 2002).

Bear paws are considered a delicacy while their hides are used as home decorations. Bear bile, a liquid substance produced by the liver and stored in the gallbladder, has been used in

traditional medicines for the last 3,000 years. It is sold in various forms including: whole gall bladders, raw bile, pills, powder, flakes and ointment but bear bile can also be found in many commodities including wine, tea, and shampoo (WCO, 2013). Bear parts and derivatives are heavily traded. These include the paws, skin, claws, canine teeth, skulls and most prized of all: the gall bladder and bile (Foley, Stengel, & Shepherd, 2011).

The scale of bile production in China, where it is legal, is estimated to be between 6,000 kg per year (Lau, 2003) and 30,000 kg per year, but a significant proportion of this amount is thought to come from wild bear populations, including those from Indonesia (TRAFFIC, 2011). Custom records in Indonesia show that between 1970 and 1980 206kg of bear bile was legally exported from Indonesia (i.e. Sumatra and Kalimantan) to South Korea alone, equalling about 700 dead sun bears [WWF, 1995). It has been estimated that approximately 3 -5 live Malayan sun bears are shipped out of Indonesia every day (Kurniawan, 2002). In Indonesia, baby sun bears are traded for the pet trade, but as the bears grow older the owner will often kill the bear and remove the gall bladder (TRAFFIC, 2011). There is also demand for stuffed sun bears. In Bali, teeth and claws from Sun Bears are frequently offered for sale, and the WCS WCU team have also discovered one shop displaying the skull of an adult individual.

Trade routes. The key trading centres in Indonesia are Jakarta, Pontianak - West Kalimantan, Surabaya, Medan and Aceh. The key demand is for bear bile medicines that are used in China, Japan, Korea, and Vietnam, and in countries across the globe with significant Asian populations (TRAFFIC, 2011). Findings in a study by Ng and Tan (2006) found that bear bile products for sale in Singapore were often sourced from China but also from Russia, Thailand, India, DPR Korea, Malaysia and Indonesia. Whole gall bladders were observed for sale in Cambodia, Hong Kong SAR, the Republic of Korea, Malaysia, Myanmar, Thailand and Vietnam.

The domestic trade route in Kalimantan originates in remote forest areas, with bears being transported by rivers or land to a middleman trader, who then in turn sells to another middleman who typically exports the animals by sea. International exports from Indonesia tend to go from Pontianak or Kuala Tungkal (Jambi, via Batam Island) to Thailand, Singapore, and Malaysia (Kuching, Malaysia, via Entikong over land (Kurniawan, 2002) by sea, or to China via Vietnam.

Fig. 2. International trade route ((Foley, Stengel, & Shepherd, 2011).

Market values. Price of bear gall bladder range dramatically depending on the country/territory surveyed. Prices for whole gall bladders were as low as USD51.11 (Myanmar) and as high as USD2000 (Hong Kong SAR). For gall bladder by the gram, the least expensive was USD0.11 per gram (Thailand) and the highest was USD109.70 per gram (Japan). Pill prices ranged from as low as USD0.38 per pill (Malaysia) to USD3.83 per pill (Thailand). In a survey of Cambodian hunters in 2008, hunters received between USD 150 to USD 250 for a gall bladder, which were then sold on by traders for USD 500 to USD 700 [(TRAFFIC, 2011). While in Sabah, Malaysia the price is USD 20 – 175 per gall bladder (TRAFFIC, 2011).

Table 3. Sun Bear market values

Part	Poacher's price (USD)	Trader's price (USD)	International price (USD)	Other Source
Live (per individual)	78 – 155	388 - 698	4,500	11 – 33** (poacher)
Gallbladder	-	1,163		100 – 2,000 *** (international)
Skin (rug)	-	-	1,800	-
Claw	-	-	50 for set of 4	26,2** (trader)

Canine	23 – 47	194	600	-
Canine (per item)	-	-	250	11,1** (trader)
Claw	-	12	150	-
Claw (per item)	388	2,326	5,700	-
Taxidermy	155 – 194	271 - 581	-	-

* Estimation from covert interview, market survey, online price, and informant's information
** Kurniawan & Nursahid (2002), 1 USD equal IDR 9.000
***Foley, Stengel, & Shepherd, (2011)

Prosecution history. Since 2003 until recently, WCS WCU was involved in 19 cases involving sun bear (live and parts): claws (4 cases), fang (4 cases, total 51 fangs), skin (3 cases, total 3 whole skin), live (4 cases, total 4 live animals), stuffed animals (6 cases, total 8 animals), gall bladder (1 case, total 109 gall bladders), skull (1 case, 1 skull), foot (1 case; total 4 feet). The highest penalty was 32 months imprisonment (2005), but multiple defendants avoided prosecution.

Pangolin

The Sunda Pangolin or Malayan Pangolin (*Manis javanica*) is classed as one of eight species of pangolin found in the world. The Sunda Pangolin is distributed across Southeast Asia from Myanmar to Indonesia (Duckworth et al., 2008).
Abundance and Distribution. This species is found in primary and secondary forest, including lowland dipterocarp forest, and cultivated areas including gardens and oil palm and rubber plantations, including near human settlements (Azhar et al., 2013, Nowak 1999). According to Wu et al. (2004a, 2007), pangolins are at very high risk of extinction due to over hunting, trade and biological and ecological characteristics such as their low reproduction rate and reclusive nature.

The primary threat to *Manis javanica* is hunting and poaching for international trade and which is largely driven by the export trade to China, involving live animals, their meat and scales (Challender 2011, Pantel & Chin, 2009). There is virtually no information available on population levels of any species of Asian pangolin and no comprehensive population estimates. This species is rarely observed, principally because of its increasing rarity, but also because it is secretive, elusive and primarily nocturnal. There is a paucity of research on population densities at local, national and global scales (WCMC *et al*. 1999, CITES 2000).

The primary use of pangolins historically was for local, subsistence level consumption as a source of protein. In recent years however, the international trade in pangolin skins, scales and meat has surpassed any traditional uses (Harrisson & Loh 1965, CITES 2000), although it continues to be hunted for subsistence in central and eastern Kalimantan (S. Cheyne pers. comm. 2013). Asian pangolins are traded widely, being highly valued for their meat, which is considered a delicacy in China and Vietnam, their scales, which are used for traditional medicine by a number of Asian communities, and their thick skins, which were exported to international markets in Europe for many years to be made into belts, bags and shoes (Duckworth et al. 1999, Baltzer et al. 2001, Ellis 2005 in Newton, et al., 2008; CITES 2000). Most trade reported to CITES up to the year 2000 involved skins and scales but there is also growing evidence that a substantial illegal trade also exists in live animals for consumption as a luxury food product (CITES 2000, Li and Li 1998 in Challender et al., 2014). From Indonesia there is a heavy industrial scale trade in pangolins, largely from Sumatra, and primarily to China and Viet Nam (Pantel and Chin 2009). There is considerable evidence of

professional, commercially supported hunting of the species solely for the purpose of international trade (Sopyan 2009, Challender, et al., 2014)

Legal status.

- Red List status: Critically endangered since 2014
- CITES status: Appendix II since 2000
- EU Wildlife Trade Regulation Annex B.
- A zero annual export quota has been established for *Manis crassicaudata, M. culionensis, M. javanica* and *M. pentadactyla* for specimens removed from the wild and traded for primarily commercial purposes based on Commission Reg. (EU) No 1320/2014 of 1 December 2014
- Protected in Indonesia under Law No. 5 of 1990
- No legal trade since CITES signed in 1978, subsequently supported by 1990 law.

Extraction areas and volumes. Most of the pangolin traded originates from Java, Sumatra or Kalimantan. Identified extraction areas in Sumatra are Lampung, Bangka Belitung, South Sumatra (Sekayu, Baturaja, Muba, Lahat, Sei Lilin), Bengkulu (Manna, Seluma, Muko-muko, Argamakmur, Rejang Lebong, Kepahiyang, Lubuk Linggau), Jambi (Muara Bungo, Muara Bulian, Singkut, Sarko, Merangin), West Sumatra, and Riau (Sopyan, 2009).

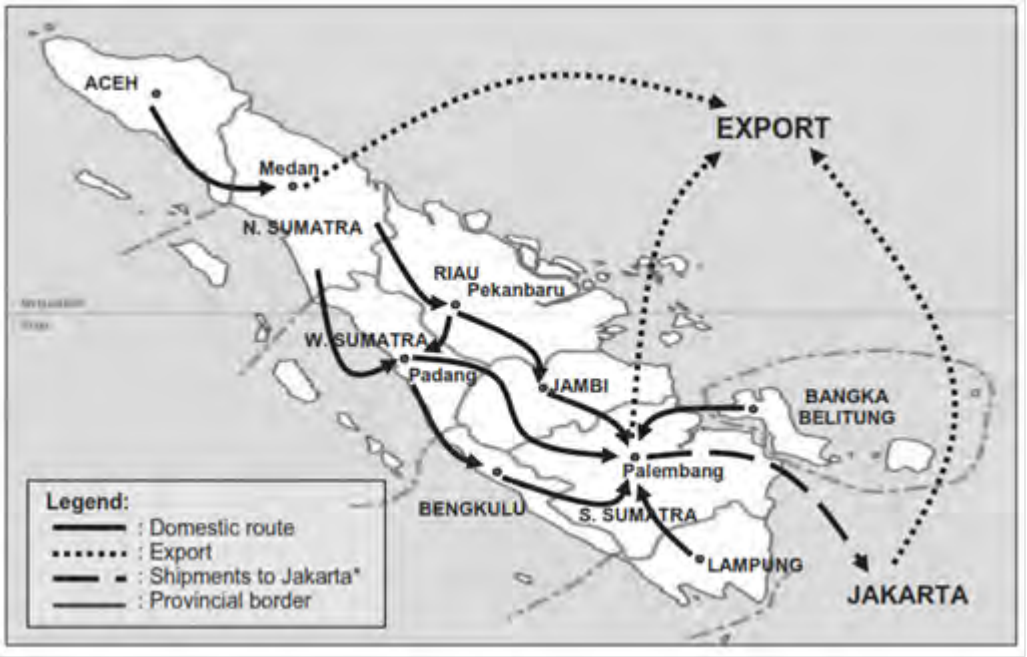
Evidence from seizures involving this species indicate extraction volumes far exceed the reproductive capacity of the population. Seizures of pangolin scales comprising 11, 14 and 17 tonnes were made by the authorities between 2000 and 2013, each of which involved several thousand animals and which likely comprises only a fraction of the trade (Challender , 2011). Bearing in mind their reproductive capacity (with 7 year intervals), and the indiscriminate nature of poaching, seizures of this magnitude suggest populations of pangolin are likely to be in severe decline. Hard evidence to support this is difficult to demonstrate due to a lack of information on past or present population levels (G. Semiadi pers. comm. 2006, Sopyan 2009; G Semiadi pers. comm. 2013; Challender 2011; Pantel and Chin, 2009).

The harvesting of one kilogram of pangolin scales requires three to four animals are killed (WCO, 2013). Around 100 pangolins were collected each month in each collection site with a higher proportion in females (two third of the stock). Collectors were actually able to supply these quantities between one to two weeks. Based on these data it can be deducted that eight to 11 t of pangolins are processed every month in Sumatra, with exporters in Palembang reporting they can send one shipment of pangolins out of the country every one to two months. TRAFFIC was able to observe the preparation of two of these shipments for export. The first one, witnessed in December 2006, consisted of 25 tonnes of pangolins. The second, observed in November 2007, consisted of eight tonnes. Two shipments were also seized in Viet Nam in 2008 with a total of 24 tonnes. Both shipments originated from Indonesia (Sopyan, 2009). The table below shows estimated volumes of pangolin extraction from Indonesia, based on 2008 surveys (from Pantel and Chin, 2008).

Supplying areas	Slaughterhouse (Data collection sites)	Volume per month
- Java - Lampung - Bangka Belitung - Sekayu, Baturaja, Muba, Lahat, Sei Lilin (S. Sumatra) - Several regencies in Jambi	Palembang, S. Sumatra	2-3 t (300 to 400 heads)
- Manna, Seluma, Muko-muko, Argamakmur (Bengkulu) - Several regencies in W. Sumatra	Bengkulu	1 t (>143 heads)
- Lebong Regency - Rejang Lebong Regency - Kepahiyang Regency - Kota Padang District	Rejang Lebong Regency, Bengkulu	1 t (>143 heads)
- Muara Bungo Regency, Jambi - Several regencies in W. Sumatra - Several regencies in Riau	Kuto Baru Sub-district, Darma Seraya Regency, W. Sumatra	2-3 t (300 to 400 heads)
- Bulian, Sarko, Matang Merangin Singkut Regencies, Jambi - Several districts in Lubuk Linggau, Bengkulu	Musi Rawas Regency, S. Sumatra (2 pangolin slaughterhouses)	2-3 t (300 to 400 heads)

Trade routes.

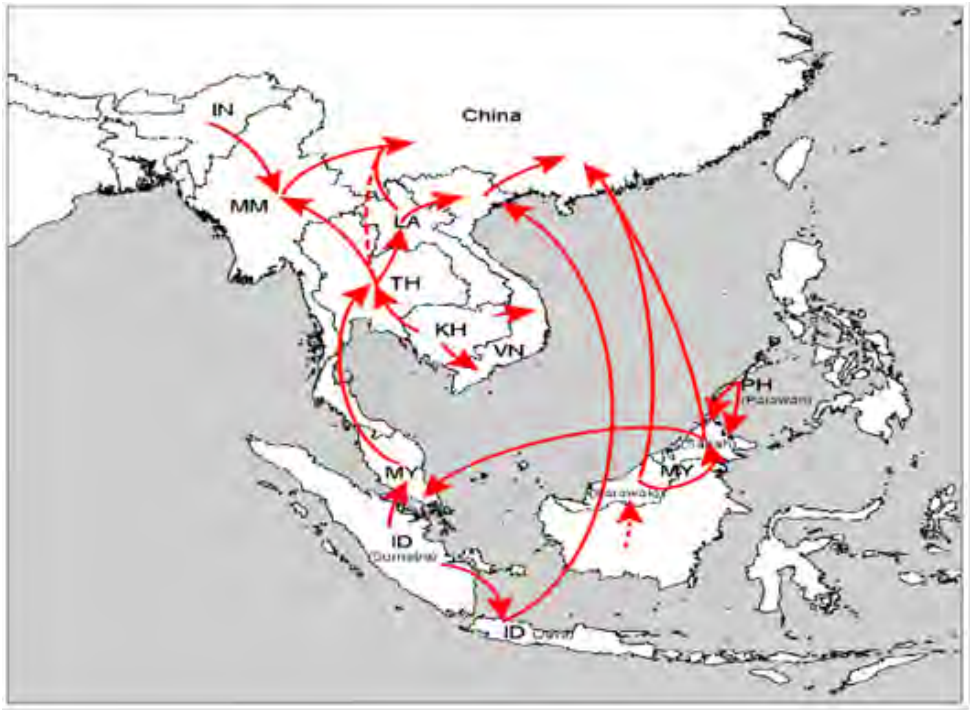
Fig. 2. Domestic pangolin trade route 2007 -2008 (Sopyan, 2009)



Pangolin are hunted throughout Sumatra and Kalimantan but exported out of the country principally via Medan and Palembang, and from ports in Java. The majority of shipments to/from Jakarta of pangolin are predominantly pangolin scales, and a proportion of these are powdered in Jakarta before export (Sopyan, 2009). Scales and meat are not always exported

together in the same shipments. Principal importers are based in Hong Kong and Vietnam (WCO, 2013).

Fig. 3. International pangolin trade route (Pantel & Anak, 2010)



Market values. The price of pangolins in Indonesia is approximately US$17 per kg, based on estimates made in 2008 (D. Martyr pers. comm. in Newton, et al., 2008). In Sabah, Malaysia, in the same year, pangolins were purchased by a dealer at a price of USD32 per kg and scales for USD51per kg (Pantel & Anak, 2010). By 2014, WCU data showed that the international price had risen to around USD 300 per kg for meat, USD 3,000 per kg for scales. The scale price from hunters in Indonesia is currently around USD 39 per kg, while from the trader's hand the price is USD 124 per kg.

Prosecution history. WCS WCU data records only six pangolin seizures since 2003, a likely fraction of the overall trade: In 2004 (1 case, 1 stuffed animal), in 2006 (1 case, 208 frozen pangolins), 2007 (1 case, 14 live pangolins), 2008 (1 case, 13.8 tonnes frozen pangolins), and 2013 (2 cases, 22 live pangolins and 27 kg scales). The highest penalty was 20 months for smuggling 14 pangolins (2007). While the lowest penalty recorded was confiscation letter for 208 frozen pangolins in 2006. The person who was arrested for trading 13.8 tonnes pangolins in Palembang, South Sumatra received only an 8 month sentence.

Orangutans and other primates

Abundance and Status. Sumatran orangutan females give birth to just one infant at a time, only every eight or nine years (Wich et al., 2009). As a direct consequence of this slow reproductive rate, orangutan populations are very susceptible to even very low levels of hunting. Indeed, the loss of as little as 1% of females each year through hunting or other unnatural causes of mortality can place a population on an irreversible trajectory to extinction (Marshall et al, 2009a in Wich et al. (eds), 2011). For the Bornean orangutan, the estimated annual and total killing rates of orangutans and their spatial patterns are highly

worrying. Orangutans are killed throughout Kalimantan in numbers that appear far above maximum take-off rates for viable populations. No data that distinguish between killings of male or female orangutans, but the assumption ratio is about 1:1. It could be biased towards females, which are smaller than males and often accompanied by juvenile orangutans, a possible target for the pet trade, but it could also be biased towards unflanged males which are more likely to leave their natal population and roam widely (Meijaard et al., 2014). B

Sumatran orangutans are also still regularly killed or captured, either for food or as a result of human-wildlife conflict on farms or plantations at the forest edge, where they are often shot or otherwise killed, and surviving infants are traded as pets (Hockings and Humle 2009). Hunters also deliberately seek out adult females and kill them solely to obtain their infants, regardless of whether they are in the forest or raiding crops (Nijman 2009; Campbell-Smith *et al*. 2010).

Other primate species are similarly targeted and enter the illegal trade through similar means. At least 14 primate species are being traded relatively openly in Indonesia, 12 of which are protected species.

Legal status.

Table 4. Legal status of primate species in Indonesia

Species	**Red List status**	**Protection Status**	**CITES**	**Quota (2007)***	**EU Wildlife Trade Regulation**
Sumatran orangutan *Pongo abelii*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Bornean orangutan *Pongo pgymaeus*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Javan Gibbon *Hylobates moloch*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Agile Gibbon *Hylobates agilis*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Bornean White-bearded Gibbon *Hylobates albibarbis*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Müller's Gibbon *Hylobates muelleri*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
White-handed Gibbon *Hylobates lar*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Kloss' Gibbon *Hylobates klossi*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A

Siamang *Symphalangus syndactylus*	Endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Long-tailed macaque *Macaca fascicularis*	Least Concern	Not protected under Law No. 5 1990	Appendix II since 1977	4,100	Annex B
Greater slow loris *Nycticebus coucang*	Vulnerable	Protected under Law No. 5 1990	Appendix I since 2007	12	Annex A
Tarsius *Tarsius bancanus/spp*	Vulnerable	Protected under Law No. 5 1990	Appendix II since 1977	No Legal quota	Annex A
Pig-tailed macaque *Macaca nemestrina*	Vulnerable	Not protected under Law No. 5 1990	Appendix II since 1977	200	Annex B

* Quota from Ministry of Forestry based on Director General PHKA Decree No:SK.33/IV-KKH/2007

Extraction areas and volumes. Most of the primates traded originate from either forest blocks in Sumatra or Kalimantan (Nijman, 2005), and there is anecdotal evidence to suggest that the majority of the trade is conducted within or at the boundaries of national parks and protected areas.

Primates are traded for a number of reasons, including for consumption, use in traditional medicines, bio-medical research and for zoos, wildlife collections and the entertainment industry (Kavanagh, 1984; Nijman, 2005a,b). Indonesia is one of the key source countries for primates in Southeast Asia (Kavanagh, 1984, Soehartono & Mardiastuti 2002; Shepherd, 2010). The bulk of the primate trade in Indonesia is for the pet market, and the majority of this is to supply local demand (Shepherd, 2010; Malone et al. 2003, Shepherd et al. 2004, Nijman 2005a,b, Geissmann et al. 2006).

During 2003 market surveys, a total of 89 gibbons and 18 orang-utans were observed (Nijman, 2005). From 1997 to 2008, 66 surveys were conducted at bird markets in Medan, North Sumatra, where primates are also sold openly. In total, 1953 primates of 10 species were observed throughout this period. The most common of which were the long-tailed macaque *Macaca fascicularis* (774 individual), the greater slow loris *Nycticebus coucang*(714 individual) and the pig-tailed macaque *Macaca nemestrina* (380 individual). Six of the species observed are totally protected in Indonesia, yet were openly traded. Trade in the remaining 4 species is regulated through a harvest and trade quota system, but no quotas are allotted for them to be traded as pets (Shepherd, 2010).

Trade routes. Key trading centres in Indonesia include Java (Jakarta – Pasar Pramuka, Semarang and Surabaya) and Bali (Denpasar). Most gibbons, and to a lesser extent, orang-utans from Sumatra, seem to arrive on Java overland, with the sea crossing being made between Bakauheni (Sumatra) and Merak (Java). Animals are transported in trucks and ordinary cars, at various times of day or night, and there is little or no control of cargo at these inter-island crossings. The major destination for animals from Sumatra is said to be the Pramuka bird market, which also functions as an entry port for re-distribution overland to other parts of Java and further east to Bali. It is believed that a smaller but unknown number of primates arrive by sea through the north coast of West Java (Nijman, 2005).

The route for gibbons and orang-utans from Kalimantan to Java appears to be largely by sea, primarily smuggled by ships that carry other goods. Anecdotal evidence from individuals involved in the monitoring of wildlife trade suggest that many of the gibbons and orang-utans from Kalimantan are transported to Java by ships that also carry timber. There are indications that gibbons and orang-utans are directly shipped from Kalimantan's main ports (e.g., Banjarmasin and Pontianak) to the main (timber) harbours in Java (e.g., Tanjung Priok, Jakarta, Tegal, Semarang, Gresik), but, at least in the case of wildlife arriving in Semarang, there are indications that the animals are transferred from timber vessels to smaller ships near the Karimata archipelago, some 120 km north of Java.

In Semarang, like in other parts of Java, a section of the harbour is exclusively reserved for the armed forces and some investigators indicated that in all likelihood, a number of protected animals do arrive on Java through this. It is allegedly common for army personnel to bring home an (protected) animal as a souvenir upon completion of their duty in one of the outer provinces. In many cases, this involves birds and since a large part of the army has been serving in eastern Indonesia, primates are not especially common souvenirs.

There are no large harbours along the north coast of Bali and therefore it is likely that the majority of the gibbons and orang-utans that arrive on the island do so overland via Java, crossing the Bali Strait. There are strong links between the traders at the Ksatria bird market in Denpasar and the Kupang bird market in Surabaya and many of the birds offered for sale at the Balinese bird markets arrive from Java.

Undoubtedly, some gibbons and orang-utans will be transported from Sumatra and Kalimantan to Java by air as well, but the numbers are likely to be small. There have been several cases where international wildlife dealers have (successfully or not) made attempts to smuggle orangutans, but also gibbons and Siamangs, out of the country via the Sukarno-Hatta international airport. Investigations by ProFauna Jakarta and others have claimed to reveal a complex and extensive network of smugglers working in close co-operation with Customs officials, police and airport personnel at this airport. These NGOs claimed that this group of organized criminals were involved in the export of at least two dozen orang-utans (and possibly more) in the first few months of 2003 alone (Hardi Baktiantoro, Profauna, pers. comm to Vincent Nijman, 2003). According to ProFauna, these animals were then transported to destinations including the Netherlands, Germany, Taiwan and Japan. In 2014, an attempt to smuggle a gibbon by plane from Bali to Cyprus (originally from Sumatra) was halted by the authorities with the support of the WCS WCU.

Although there is limited data demonstrate the illegal trade in primates from Indonesia to mainland Asia, it is likely that this is an ongoing problem. Cases in 2004 in Thailand for example indicated that 115 orangutans housed at an entertainment park, Safariworld Bangkok were likely smuggled from Borneo or Sumatra into Thailand and not bred locally as was claimed by the owners. This was confirmed by DNA sampling (Wiek, 2004). The smuggling chain is also likely to extend beyond Thailand, as 22 orang-utans were also said to have been smuggled from Thailand into another entertainment park in Cambodia (Anon, 2004a).

Market values.

Table 5. Indonesian Primate market values

Species	Condition	Poacher's	Trader's	International	Nijman

		price (USD)	price (USD)	price (USD)	(2005)
Javan gibbon	Live	78 - 155	194 - 233	2,000 – 2,500	60 - 180
Agile Gibbon	Live	78 - 155	194 - 233	2,000 – 2,500	50 - 150
Bornean White-bearded Gibbon	Live	78 - 155	194 - 233	2,000 – 2,500	50 - 150
Javan surili	Live	-	-	-	-
Kloss's gibbon	Live	-	-	-	60 - 180
Müller's Gibbon	Live	-	-	-	50 - 150
Orangutan	Live	39 - 116	233 - 1,163	45,000	200-1000
Siamang	Live	116 - 155	388 - 581	unknown	60-220
Slow loris	Live	23 - 39	78 - 116	180 - 250	-
Tarsius	Live	5	39 - 78	200	-

* Price was estimated from covert interview, market survey, online price, and informant's information

Prosecution history. From 2003-2015, the WCS Wildlife Crime Unit (WCU) was investigated 85 cases involving 549 live primates. These consisted of: Sumatran orangutan 2 cases (2 individual); Bornean orang-utan 2 cases (2 individual); Slow loris 16 cases (396 individual); Siamang 50 cases (60 individual); Javan gibbon 3 cases (4 individual); Silvered langur 2 cases (2 individual); Black-handed gibbon 1 case (2 individual); White-handed gibbon 1 case (1 individual); Bornean gibbon 1 case (1 individual); Javan lutung 1 case (2 individual); Javan surili 1 case (1 individual);Mitred leaf monkey 1 case (2 individual); Long-tailed macacaque 3 cases (74 individual).

Although the highest penalty recorded was 18 months (2014), 63 % of the cases only received a confiscation letter from the authorities, and no further legal process was taken, an extremely low level of prosecution for cases which are otherwise legally robust, and which has contributed to a general lack of fear of prosecution amongst wildlife traders (Shepherd & Magnus 2004, Nijman 2005a, Ng & Nemora 2007) in (Shepherd, 2010). However, anecdotal evidence suggests that the trade some high-profile protected primate species, such as orangutans, is increasingly being driven underground due to a combination of enforcement efforts and public awareness campaigns, which largely eliminates opportunistic or compulsive buying (Shepherd, 2010).

Birds (Hornbills, parrots, songbirds)

Abundance and Status. Studies from a decade ago indicate that the international trade in Indonesian birds is arguably a lesser immediate risk to most wild populations than habitat loss and hunting for food (Du Plessis, 2000; BirdLife, 2004). However, the continued unsustainable extraction of birds to supply international demand and illegal domestic trade do now threaten the wild survival of some species (Cooney & Jepson, 2006). Capture for the pet trade is the primary threat category for 34 bird species in Asia and is a major problem for several threatened birds in Indonesia (BirdLife International, 2003). From 1997 – 2001, of the 300 species of birds observed for sale in the markets of Medan, 18.6 % (n = 56) of them were listed as being protected by Indonesian law and therefore illegally traded (Shepherd, Sukumaran, & Wich, 2004). The hugely popular Indonesian pastime of keeping wild birds as pets is also threatening the long-term survival of many songbird species on Java and Bali (Jepson & Ladle, 2005).

Key species of concern include the helmeted hornbill (*Rhinoplax vigil)*, numerous species of songbirds, and many parrot species. With a wingspan about 1.7m, the helmeted hornbill is a large bird inhabiting the South-East Asia forests of Sumatra and Borneo. Populations have been in serious decline due to a combination of habitat destruction and concentrated poaching for their beak ivory, also known as 'red ivory'. Despite its critically threatened status, there has been relatively little attention focused on its illegal trade (EIA, 2015).

Of Indonesia's 85 parrot species, 14 are classified as threatened. One of the regions with many parrot species is Wallacea which includes Sulawesi, Nusa Tenggara, and the Maluku Islands where trapping for domestic and international trade, combined with habitat loss has resulted in local extinctions for some species. These include the yellow-crested Cockatoo (*Cacatua sulphurea*), salmon-crested Cockatoo (*Cacatua moluccensis*), red-and-blue Lory (*Eos histrio*), and the chattering Lory (*Lorius garulus*) (Coates, BJ. 2000). The parrot death rate during trade is also very high, around 40 %, largely caused by injuries during trapping, poor transportation conditions and poor keeping (Profauna, 2008).

Legal status.

Table 6. The legal status of selected Indonesian birds

Species	Red List status	Protection Status	CITES	Quota (2007)*	EU Wildlife Trade Regulation
Bali myna *Leucopsar rothschildi*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Black-capped lory *Lorius lory*	Least Concern	Protected under Law No. 5 1990	Appendix II since 2005	No Legal quota	Annex B
Black-winged kite *Elanus caeruleus*	Least Concern	Protected under Law No. 5 1990	Appendix II since 2013	No Legal quota	Annex A
Brahminy kite *Haliastur indus*	Least Concern	Protected under Law No. 5 1990	Appendix II since 2013	No Legal quota	Annex B
Citron-crested cockatoo *Cacatua sulphurea citrinocristata*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 2005	No Legal quota	Annex A
Crested serpent eagle *Spilornis cheela*	Least Concern	Protected under Law No. 5 1990	Appendix II since 2013	No Legal quota	Annex B
Great hornbill *Bucheros bicornis*	Near Threatened	Protected under Law No. 5 1990	Appendix I since 1992	No Legal quota	Annex A
Green peafowl *Pavo muticus*	Endangered	Protected under Law No. 5 1990	Appendix II since 1977	No Legal quota	Annex B
Helmeted hornbill *Rhinoplax vigil*	Near Threatened	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Javan hawk-eagle *Nisaetus bartelsi*	Endangered	Protected under Law No. 5 1990	Appendix II since 2013	No Legal quota	Annex B

King bird-of-paradise *Cicinnurus regius*	Least Concern	Protected under Law No. 5 1990	Appendix II since 1975	No Legal quota	Annex B
Lesser bird of paradise *Paradisaea minor*	Least Concern	Not protected under Law No. 5 1990	Appendix II since 1975	No Legal quota	Annex B
Maleo *Macrocephalon maleo*	Endangered	Protected under Law No. 5 1990	Appendix I since 1987	No Legal quota	Annex A
Palm cockatoo *Probosciger atterimus*	Least Concern	Protected under Law No. 5 1990	Appendix I since 1975	No Legal quota	Annex A
Pesquet's parrot *Psittrichas fulgidus*	Vulnerable	Protected under Law No. 5 1990	Appendix II since 2014	No Legal quota	Annex B
Rhinoceros hornbill *Buceros rhinoceros*	Near Threatened	Protected under Law No. 5 1990	Appendix II since 1992	No Legal quota	Annex B
Salmon-crested cockatoo *Cacatua moluccensis*	Vulnerable	Protected under Law No. 5 1990	Appendix I since 1990	No Legal quota	Annex A
Single-wattled cassowary *Casuarius unappendiculatus*	Vulnerable	Protected under Law No. 5 1990		No Legal quota	
Western crowned pigeon *Goura cristata*	Vulnerable	Protected under Law No. 5 1990	Appendix II since 1975	No Legal quota	Annex B
Wilson's bird-of-paradise *Cicinnurus respublica*	Near Threatened	Protected under Law No. 5 1990	Appendix II since 1975	No Legal quota	Annex B
Wreathed hornbill *Aceros undulatus*	Least Concern	Protected under Law No. 5 1990	Appendix II since 1992	No Legal quota	Annex B
Yellow-crested cockatoo *Cacatua sulphurea*	Critically endangered	Protected under Law No. 5 1990	Appendix I since 2005	No Legal quota	Annex A

* Quota from Ministry of Forestry based on Director General PHKA Decree No:SK.33/IV-KKH/2007

Extraction areas and volumes. Main extraction areas include Sumatra, Java, West Kalimantan (Melawi, Sintang, Ketapang), Sumba, North Sulawesi, North Maluku, West Papua. Nationwide pictures of the extent of the trade are difficult to establish, and data only exists from specific studies. For example:

- From 1997 – 2001, of the 300 species of birds observed for sale in the markets of Medan, 18.6 % (n = 56) of them were listed as being protected by Indonesian law and therefore illegally traded (Shepherd, Sukumaran, & Wich, 2004).
- Before legal trade ceased in 1993 the numbers of yellow-crested cockatoos leaving Sumba averaged c. 1,600 per year (Cahlil, Walker, & Marsden, 2006).
- According to 2008 estimates annual poaching rates for parrots in North Halmahera, Maluku reached an estimated 9760 parrots, 41% of them are smuggled to the Philippines, and 59 % are for domestic trade. The species are white cockatoo (*Cacatua alba*), chattering Lory (*Lorius garrulus*), Eclectus parrot (*Eclectus roratus*), and the violet-necked Lory (*Eos squamata*) (Profauna, 2008).

- In West Kalimantan at least 1,800 hornbills had been poached and 1,027 hornbill beaks confiscated by law enforcement officers. Its estimated that up to 5,000 individuals were poached in 2012-2013 (WCU unpublished report, 2013). From 2012–2013, a total of 716 helmeted hornbill's beaks were confiscated (Sigit, 2015).

All statistics are indicative of a large scale and persistent trade in a large number of legally protected and otherwise threatened species.

Trade routes. Key trading centres in Indonesia are Java (Jakarta, Semarang and Surabaya) and Sumatra (Medan). While international demand for birds centres around markets in China, Singapore, Malaysia, and the Philippines.

Eastern Indonesia's birds, particularly those for the domestic market, seem to arrive on Java overland, with the sea crossing being made between Surabaya and Semarang (Java). Animals are later sent to Jakarta. From Jakarta, birds will travel to Medan or Bali, or be sent abroad (Thailand, Singapore, Malaysia). In Sumatra, poached birds travel to Medan and from there to Penang (Malaysia) or Singapore directly, or if they travel to Jakarta they typically do so by truck and are sold at Pramuka bird market. From here, birds can be distributed to other areas in Java (Semarang, Yogya, Surabaya, and Bandung). Some cockatoos have been also transported by plane to Jakarta in the past. Some birds poached from Eastern Indonesia have also been smuggled directly to George Santos in the Philippines by boat (Profauna, 2008). Hornbill beaks have also been transported by air; from Supadio airport West Kalimantan directly to China; or from Soekarno Hatta airport to China (based on seizures and reports).

Market values. In Indonesia wild birds are kept in part for the social status they bring. Ownership of a rare and regulated species is 'a popular way of showing that one is sufficiently important and powerful to be immune from prosecution' (Nash, 1993 in Cooney & Jepson, 2006).There is also a cultural significance to bird-keeping in Indonesia. In traditional Javanese culture a bird in a cage symbolizes the importance of a hobby in a balanced life and the symbolic species is generally considered a dove, either the zebra dove or the spotted dove (Jepson & Ladle, 2005). Lesser Bird-of-paradise *Paradisaea minor* was also quite popular as a dried wall ornament, although both species recorded were for sale as cage birds (Shepherd, Sukumaran, & Wich, 2004). In addition to the keeping of animals for pets, some species found in bird markets were also used locally as food, traditional medicine, and for magic and religious practices especially in Chinese Buddhism (Shepherd, Sukumaran, & Wich, 2004).

In China, helmeted hornbill beaks are traded and processed through the same carving industries as elephant and rhino ivory, and sold in shops as luxury products, namely jewellery and decorative ornaments. With prices in China estimated at RMB40 per gram (USD 6.400 per kg), it commands an estimated five times the average price of black market elephant ivory by weight (EIA, 2015), and is seen in some areas as a more 'prestige' product.

Table 7. Estimated market values for Indonesian bird species.

Species	Condition	Poacher's price (USD)	Trader's price (USD)	International price (USD)
Citron-crested cockatoo *Cacatua sulphurea citrinocristata*	live	39 - 54	78 - 271	600 - 800

Crested serpent eagle *Spilornis cheela*	live	23 - 39	47 - 116	-
Great hornbill *Bucheros bicornis*	live	-	47 - 116	-
Green peafowl *Pavo muticus*	live (chick)	-	31	-
Helmeted hornbill *Rhinoplax vigil*	bill (per item)	194 - 233	388 - 698	6400 per kg
Javan hawk-eagle *Nisaetus bartelsi*	live	39 - 78	116 - 543	-
Lesser bird-of-paradise *Paradisaea minor*	live	465	465 - 620	-
Lesser bird-of-paradise *Paradisaea minor*	taxidermy	-	62 - 310	-
Long-tailed parakeet *Psittacula longicauda*	live	23 - 54	78 -155	-
Maleo *Macrocephalon maleo*	egg	-	3 - 7	-
Palm cockatoo *Probosciger aterrimus*	live	233 - 388	1,163 - 1,318	15,000 – 16,000
Rhinoceros hornbill *Buceros rhinoceros*	live	-	47 - 116	-
Single-wattled cassowary *Casuarius unappendiculatus*	live (one pair)	-	-	10,000
Single-wattled cassowary *Casuarius unappendiculatus*	femur bone	-	78	-
Single-wattled cassowary *Casuarius unappendiculatus*	Decorated egg	-	78 - 271	100
Western crowned pigeon *Goura cristata*	live	271	-	-
Wreathed hornbill *Aceros undulatus*	live	-	47 - 116	-
Yellow-crested cockatoo *Cacatua sulphurea*	live (per individual)	54 - 78	155 - 388	2,400

* Price was estimated from covert interview, market survey, online price, and informant's information

Prosecution history. From 2003 – February 2015, WCS's Wildlife Crime Unit investigated 55 cases involving 47 protected bird species. The top five protected birds involved in these cases were the Brahminy kite (9 cases, 15 individuals), Changeable hawk-eagle (8cases, 18individuals), Black-capped lory (8 cases, 12 individuals), Yellow-crested cockatoo (7 cases, 15 individuals), White-bellied serpent eagle (4 cases, 7 individuals).

From 55 recorded cases by WCS during this period, 37% of the confiscations made were of live birds, (142 individuals), 2% were of stuffed birds (8 individual), and 61% were of bird parts, namely hornbill beaks (helmeted hornbill 237 pieces, wreathed hornbill 1 piece). The sentences were highly varied and not entirely logical, for example smuggling 237 helmeted hornbill beaks was sentenced 8 months in prison, while trading 2 black-winged kites and 1 otter resulted in 19 months imprisonment.

Reptiles

Status and Abundance. Reptiles (*Squamata, Crocodilia, Testudines*) are among the most intensively harvested vertebrates for international export from Indonesia; extremely large volumes are traded both legally and illegally to supply the global demand for pets, traditional medicines, skins and food (cf. Webb & Vardon, 1998; Shepherd, 2000; Soehartono and

Mardiastuti, 2002 in Nijman, Shepherd, & Mumpuni, 2012). There are at least 14 species of testudines, 22 species of squamatas, and 2 species of crocodilian poached and traded in Indonesia. Decline in many of these species groups is due largely to overexploitation, together with habitat degradation and loss (Thirakhupt & van Dijk, 1994; Klemens & Thorbjarnarson, 1995; Das, 1997; Gibbons et al., 2000; van Dijk et al., 2000; Moll & Moll, 2004; Cheung & Dudgeon, 2006; Krishnakumar et al., 2009; Horne et al., 2012 in Lyons, Natusch, & Shepherd, 2013).

Legal status.

Table 8. The legal status of Indonesian reptiles present in international and domestic trade.

Species	Red List status	Protection Status	CITES	Annual Harvest Quota	EU Wildlife Trade Regulation
Testudines:					
Asiatic softshell turtles*Amyda cartilaginea*	Vulnerable	Not protected	Appendix II since 2005	10,000	Annex B
Malayan Softshell Turtle *Dogania subplana*	Lower Risk/LC	Not protected	Appendix II since 2013	-	Annex B
Frog-faced Softshell Turtle *Pelochelys cantorii*	Endangered	Not protected	Appendix II since 2003	-	Annex B
Pig-nosed turtle *Carettochelys insculpta*	Vulnerable	Protected under Law No.5 1990	Appendix II since 2005	-	Annex B
Roti Island Snake-necked Turtles *Chelodina mccordi*	Critically Endangered	Protected under Law No.5 1990	Appendix II since 2013	-	Annex B
Sulawesi Forest Turtle *Leucocephalon yuwonoi*	Critically Endangered	Not protected	Appendix II since 2003	-	Annex B
Parker's snake-necked turtle *Chelodina parkeri*	Vulnerable	Not protected	-	250	-
Reimann's long-necked turtle *Chelodina reimanni*	Lower Risk/NT	Not protected	-	100**	-
Green turtle *Chelonia mydas*	Endangered	Protected under Law No.5 1990	Appendix I since 1981	No quota	Annex A
Hawksbill turtle *Eretmochelys imbricata*	Critically Endangered	Protected under Law No.5 1990	Appendix I since 1981	No quota	Annex A
Asian leaf turtle *Cyclemys dentata*	Lower Risk/NT		Appendix II since 2003		Annex B
Painted Terrapin *Batagur borneoensis*	Critically Endangered	Protected under Law No.5 1990	Appendix II since 2013	No quota	Annex B
Northern snake-necked turtle *Chelodina rugosa*	-	Not protected	-	1,000**	-
New Guinea snapping turtle *Elseya branderhorsti*	Vulnerable	Not protected	-	No quota	-
New Guinea spotted turtle *Elseya novaeguineae*	Lower Risk/LC	Protected under Law No.5 1990	-	No quota	-
New Guinea painted turtle *Emydura subglobosa*	Lower Risk/LC	Not protected	-	500**	-
Squamata:					
Papuan ground cobra *Candoia aspera*	-	Not protected	Appendix II since 1977	-	Annex B
Papuan tree cobra	-	Not	Appendix II	-	Annex B

Candoia carinata		protected	since 1977		
King cobra *Ophiophagus hannah*	Vulnerable	Not protected	Appendix II since 1990	-	Annex B
Papuan olive phtyon *Apodora papuana*	-	Not protected	Appendix II since 1977	-	Annex B
White-lipped python *Leiopython albertisii*	-	Not protected	Appendix II since 1975	-	Annex B
Brown water python*Liasis fuscus*	Least Concern	Not protected	Appendix II since 1977	-	Annex B
Macklot's python *Liasis mackloti*	-	Not protected	Appendix II since 1977	-	Annex B
Amesthine python *Morelia amethistina*	Least Concern	Not protected	Appendix II since 1977	-	Annex B
Carpet python *Morelia Spilota variegate*	-	Not protected	-	-	-
Javan spitting cobra *Naja sputatrix*	Least Concern	Not protected	Appendix II since 1990	-	Annex B
Borneo blood python *Python breitensteini*	Least Concern	Not protected	Appendix II since 1977	10,800	Annex B
Red blood python*Python brongersmai*	Least Concern	Not protected	Appendix II since 1977	36,936	Annex B
Black blood python *Python curtus*	Least Concern	Not protected		1,944	Annex B
Reticulated python *Python reticulatus*	-	Not protected	Appendix II since 1999	157,500	Annex B
Javan filesnakes *Acrochordus javanicus*	Least Concern	Not protected	-	200,000#	-
Oriental Rat Snake *Ptyas mucosa*	-	Not protected	Appendix II since 1990	100,000 ***	Annex B
Tokay geckos *Gekko gecko*	-	Not protected	-	50,000*	-
Green tree python *Morelia viridis*	Least Concern	Protected under Law No.5 1990	Appendix II since 1977	-	Annex B
Komodo dragon *Varanus komodoensis*	Vulnerable	Protected under Law No.5 1990	Appendix I since 1975	-	Annex A
Common water monitor *Varanus salvator*	Least Concern	Not protected	Appendix II since 1975	-	Annex B
Frilled-neck lizard *Chlamydosaurus kingii*	Least Concern	Protected under Law No.5 1990	-	-	-
Crocodilia:					
Estuarine crocodile *Crocodylus porosus*	Lower Risk/LC	Protected under Law No.5 1990	Appendix II since 1995	-	Annex A
False gharial *Tomistoma schlegelii*	Vulnerable	Protected under Law No.5 1990	Appendix II since 1975	-	Annex A

*as live animals for the pet industry, no quota for the skin or medicinal trade.
**harvest quota 2011
***harvest quota 2007. In 2008, the quota was reduced to 89 500 skins and 450 live specimens.
#for skin export, domestic use and pet export

Extraction areas and volumes. Data on extraction areas is patchy, and highly biased towards areas where surveys have been completed.

In Eastern Indonesia, Chelid turtles are largely collected from rivers and swamps by local people in the villages of Kumbe and Salor, near Merauke, but turtles are also harvested from more remote areas such as Okaba and Muting. Both villagers and wildlife traders claimed that turtles were also collected from the nearby Wasur National Park (Lyons, Natusch, & Shepherd, 2013). Pig nosed turtles are harvested from throughout their range in West Papua & Papua (Burgess & Lilley, 2014). Roti Island Snake-necked Turtles *C.mccordi* was collected in Roti Island (Shepherd & Ibarrondo, 2005). While Asiatic softshell turtle (*A. cartilaginea)* is harvested from all over Sumatra (Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Testudines:
Extraction volumes for different species are often extremely high. The case of the Roti Island Snaked Necked Turtle provides an interesting example of the impacts of unsustainable harvesting. This species was highly abundant on Roti Island, but became extremely popular for the international pet trade during the 1980's. Species numbers rapidly declined, and it is now thought to be extinct in the wild. For example, in 1979, 300 *C. mccordi* caught in a single day in the centre of Roti Island, and as its popularity grew by 1986 the main reptile trader in Ba'a was sending approximately 100 turtles per week to Jakarta for the international market. This resulted in massive species decline, and during 2003-2004 a total of only 48 *C. mccordi* were recorded as being shipped to Jakarta (Shepherd & Ibarrondo, 2005).

Additional data points that indicate significant trade volumes include:

- During 1998 and 1999 (North Sumatra and Riau), 200–450,000 individuals of *A. cartilaginea* were traded internationally. Assuming a price of USD 10.00 for a kg, the export value was 10 million USD / year (Nijman, Shepherd, Mumpuni, & Sanders, 2012). In late 1999, approximately 25 tonnes of tortoises and freshwater turtles were being exported per week from North Sumatra, Indonesia (Shepherd, 2000 in TRAFFIC, 2008).
- Between December 2010 and March 2011, a survey recorded 264 chelid turtles, of six species traded in Merauke (Lyons, Natusch, & Shepherd, 2013).
- Between 2003 and 2012, thirty-two seizures of Pig-nosed Turtles were compiled in this study, including more than 81,689 individual turtles. Most seizures (75%) occurred early in the calendar year (i.e., between January– March) towards the end of the nesting season for Pig-nosed Turtles in Indonesia (Burgess & Lilley, 2014).
- Eggs of Pig-nosed Turtles are collected in large numbers in Papua, and it has been estimated that 1.5 –2 million eggs were being collected each year in some regions (Samedi and Iskandar, 2000). Observations during the present survey indicate that quantities of harvested and/or incubated eggs are potentially even higher than previously estimated (R. Lilley, pers. obs., 2010).
- By 2000, turtle eggs were being transported in significant numbers on ships bound for Surabaya or Jakarta, with an estimated 800 eggs per bucket and up to 22 buckets on board i.e., a total of 17 600 eggs in one shipment (Anon., pers. comm., 2010 in Burgess & Lilley, 2014).

Squamata (scaled reptiles):

- In 1993–2005, 50,000 to 100,000 skins and gall bladders, along with 30 to 60 tonnes of meat of *Ptyas mucosa* were exported annually.

- In 1996, during two weeks observations on nine sites in Central Java, estimated that regional annual harvest levels were at 24 ,71 to 117,551 specimen (Auliya, 2010).
- In 2005 – 2006, *A. javanicus* annual harvest (in five cities in East and South Kalimantan, and North Sumatra, Riau (central Sumatra) and South Sumatra) was estimated between 310,000 and 330,000 individuals. Assuming a price of USD 10.00, the export values are in excess of one million USD / year (Nijman, Shepherd, Mumpuni, & Sanders, 2012).
- The trade in *G. gecko* from Central and East Java (2006) amounts to around 1.2 million individuals annually. Assuming a price of USD 1.00 for *G. Gecko*, the export values are in excess of one million USD / year (Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Trade routes. Trade can be divided into the legal exports of unprotected species (subject to quotas), and illegal exports of protected species. Exporters of tortoises and freshwater turtles must belong to the Indonesian Reptile and Amphibian Trade Association (IRATA), which is responsible for dividing quotas among members of the Association. If an exporter is not a member, they do not receive a quota and therefore are not legally permitted to export (Shepherd & Ibarrondo, 2005). However, in reality there have been significant problems with both establishing quotas, due to a lack of scientific data on many species, and monitoring their correct application. Although reports suggest that the situation is improving, studies by TRAFFIC in the past have indicated that breeding centres and permitted exporters are also breaking export quotas. The ongoing paucity of scientific data to adequately determine non-detrimental harvests is likely to remain a continuing challenge for many species. In a connected issue, there is also thought to be widespread laundering of illegally caught wildlife through captive breeding centres throughout Indonesia. For example, a study in 2011 reported that approximately 80% of green pythons (*Morelia viridis*) exported from Indonesian breeding centres are illegally caught in the wild (Lyons and Natusch, 2011). Captive bred export data for many reptile species for example regularly exceeds the reproductive capacity of the number of reported captive breeding animals (TRAFFIC, 2012). Animals from Indonesia are also smuggled to neighbouring countries, and then exported by those countries as domestically sourced or bred (TRAFFIC, 2012).

It is difficult to generalise about trade routes for these species groups. Most hard-shelled turtles are exported to China, while wild-caught soft-shell turtles commonly end up in domestic markets of Indochina, notably Southeast Asian Softshell Turtle (TRAFFIC, 2007). Species traded for pets are often sold to markets in the European Union (EU), USA and Japan (Shepherd and Ibarrondo, 2005), and increasingly in urban market centres in south-east Asia (e.g. Jakarta, Bangkok, Kuala Lumpur; Nijman and Shepherd, 2007 in TRAFFIC, 2008). Scaled reptiles are also popular in Asian markets for both consumption and the pet trade (Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Trade routes.

- Geckos: Surabaya, Malang, Semarang & Kudus (Nijman, Shepherd, Mumpuni, & Sanders, 2012).
- Pig-nosed Turtles: from remote source villages (via boat or small aircraft) to centralized trade hubs within Papua, including the towns of Agats, Merauke, Timika and Jayapura. From Papua, turtles were typically smuggled westward into major domestic trade destinations in Indonesia, including Jakarta, Surabaya and Probolinggo in Java, Makassar (Ujung Pandang) in south Sulawesi, and Denpasar in Bali. This survey also found that Pig-nosed Turtles could be bought through a growing online

marketplace, with sellers located in Indonesia as well as in the United States and the United Kingdom (Burgess & Lilley, 2014).

- C. *mccordi*: From Roti Island to a middleman trader based in Kupang, for resale to exporters in major cities in Java, such as Surabaya and Jakarta. Shipment to Jakarta was send via Kupang by both sea (to Surabaya and then by train) and by air from Kupang (Shepherd & Ibarrondo, 2005). This route is now largely defunct as the population is essentially extinct in the wild.
- *A.javanicus*: Trading areas to Medan or Jakarta for re- export mostly to European (primarily Italy and Spain) and US markets. While gecko was exported to China from Java (Nijman, Shepherd, Mumpuni, & Sanders, 2012).
- *P.mucosa*: Small-scale collectors sometimes take the snakes to the larger traders for sale (Jakarta, Cirebon, Bandung, Surabaya, Semarang, Magelang, Solo, and Bali); however these larger traders may also send agents to both small-scale and large-scale collectors. Some collectors send the skins to Jakarta and Bali, the meat to Semarang and the gall bladders to Bali. One collector sends live specimens only to Semarang, but dispatches skins to Magelang. Semarang is the main domestic destination for skins and also functions as the major port for export of snake meat. Only one exporter ships skins to Europe, the remainder all ship either skinned snakes or frozen specimens with skins via Singapore (a transit country) and then onwards to China (including Hong Kong) (Auliya, 2010).

Market values.

Testudines (turtles, tortoises, terrapins):
Softshell turtles are primarily traded for consumption as meat and “tonic foods” in traditional medicine, while hard-shelled taxa are harvested for consumption, use in traditional medicines and as pets. Tortoises and freshwater turtles are traded for a variety of purposes, including for use as meat, ingredients in traditional medicines and as pets (TRAFFIC, 2008). Asiatic softshell turtles, *Amyda cartilaginea*, harvested for meat; each species is also exploited for the pet trade, but to a lesser extent (Nijman, Shepherd, Mumpuni, & Sanders, 2012). Chelid turtles are for pet (Lyons, Natusch, & Shepherd, 2013).Highly prized as food, the pig-nosed turtles are caught and their eggs are collected for consumption by local villagers or for trade in local markets (Maturbongs, 1999; Samedi and Iskandar, 2000; Georges et al., 2008; Eisemberg et al., 2011 in Burgess & Lilley, 2014).

Squamata (Scaled reptiles):
In Indonesia, there are 15 species included in CITES appendix which are predominantly traded: 9 species are largely poached and traded for pet markets, consisting of *Candoia aspera, Candoia carinata, Ophiophagus Hannah, Apodora papuana, Leiopython albertisii, Liasis fuscus, Liasis mackloti, Morelia amethistina,* and *Morelia spilota variegata*. While another 6 species i.e. *Ptyas mucosa, Naja sputatrix, Python breitensteini, Python brongersmai, Python curtus and Python reticulatus* were exported for skins as well as pets (MoF, 2011). Javan filesnakes, *Acrochordus javanicus* are also harvested for skins but are not CITES listed (Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Tokay geckos, Gekko gecko:
Are exploited for the pet and traditional Chinese medicinal trades: consuming Tokay geckos is thought to relieve coughs, asthma and symptoms of tuberculosis (Gu et al., 2011 in Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Squamata:

- *A. javanicus* is harvested in Sumatra (North Sumatra, Jambi, Riau, South Sumatra, Bangka, Lampung) or Kalimantan (West Kalimantan, East Kalimantan, South Kalimantan, Central Kalimantan)(Nijman, Shepherd, Mumpuni, & Sanders, 2012).
- *P.mucosa* is collected in West Java, Central Java and East Java (Saputra, 2008 cited in Auliya, 2010). While gecko mainly from Java (East Java)(Nijman, Shepherd, Mumpuni, & Sanders, 2012).

Table 9. Estimated Indonesian Reptile Market Values

Species	Part	Poacher's price (USD)	Trader's price (USD)	International price (USD)
Testudines:				
Asiatic softshell turtles *Amyda cartilaginea*	Live (kg)	-	10	-
Green turtle *Chelonia mydas*	meat (per kg)	-	78	-
Green turtle *Chelonia mydas*	egg (per item)	-	0 – 13	78
Green turtle *Chelonia mydas*	taxidermy	-	23 – 54	-
Green turtle *Chelonia mydas*	live	-	78 -116	-
Hawksbill turtle *Eretmochelys imbricata*	trinkets (per item)	-	8 – 39	-
Hawksbill turtle *Eretmochelys imbricata*	taxidermy	-	78 - 233	50 – 100 (per pound)
Hawksbill turtle *Eretmochelys imbricata*	jewellery (per item)	-	8 – 39	-
Pig-nosed turtle *Carettochelys insculpta*	Live (each)	0.56–1.33	3.30–8.33	39–56
Pig-nosed turtle *Carettochelys insculpta*	live (juvenile)	4	4 -12	-
Pig-nosed turtle *Carettochelys insculpta*	live (adult)	-	233 - 388	500 – 2,000
Roti Island Snake-necked Turtles *Chelodina mccordi*	Live (each)	150	545	2,000
Squamata:				
Javan filesnakes *Acrochordus javanicus*	Individu	-	10	-
Oriental Rat Snake *Ptyas mucosa*	Live (individu)	1.65 – 2.42	1.87–2.64	-
Oriental Rat Snake *Ptyas mucosa*	Skin	1.41 – 2.20		-
Oriental Rat Snake *Ptyas mucosa*	Meat (kg)	1.08	1.65	-
Tokay geckos *Gekko gecko*	Dried (each)	-	1	-
Green tree phyton *Morelia viridis*	live	-	2.5 - 5	249 - 299
Komodo dragon *Varanus komodoensis*	live (juvenile)	-	2,713 - 3,101	30,000
Frilled-neck lizard *Chlamydosaurus kingii*	live (juvenile)	23 - 47	-	-

* Price was estimated from covert interview, market survey, online price, and informant's information

Prosecution history. WCS WCU from 2003 – February 2015 recorded 29 seizures involving reptiles. The most common reptile found in the seizure is Green turtle *Chelonia mydas* (14 seizures). Followed by reticulated python *Python reticulatus* (6 cases), and painted terrapin (6 cases). The highest penalty issued was 24 months imprisonment, with many other cases dismissed without legal process or confiscation letter.

Fish (Manta rays, sawfish and sharks)

Taxonomy. Manta rays (two species *Manta birostris* and *Manta alfredi*; Donndor, 1798) are in the Family *Mobulidae* that includes the devil rays. Manta rays are the largest of all rays reaching a disc width of up to 6.7 m and 1,400 kg weight (Last and Stevens, 1994). Like the largest whales and sharks, manta rays are filter feeders. They and the other members of the subfamily funnel water and prey into their mouths using their distinctive cephalic lobes. Prey is then filtered from the water by modified gill rakers. Mantas are often observed feeding in surge channels (Wilson et al. 2001), on surface slicks, or near lights at night that act to concentrate prey. Like the largest filter feeding shark (the whale shark), manta rays occur worldwide in tropical and subtropical waters (Bigelow and Schroeder 1953; Last and Stevens, 1994; Compagno, 1999 in Dewar et al., 2008).

The sawfishes are among the largest chondrichthyans (cartilaginous fishes): maximum size ranges from 318 cm total length in the dwarf sawfish to more than 700 cm total length in the green sawfish. The green sawfish and the largetooth sawfish are the third and fourth largest chondrichthyans, respectively, after the whale shark *Rhincodon typus* (Smith, 1828) and basking shark *Cetorhinus maximus* (Gunnerus, 1765). Hence, sawfishes, along with the oceanic manta ray *Manta birostris* (Walbaum, 1792), are among the largest members of the rays (Superorder *Batoidea*). The Pristis sawfishes are long lived, reaching between 30 and >50 years of age. By comparison the narrow sawfish is thought to live for only 9 years. The generation length varies between 14.6 and 17.2 years in the Pristis sawfishes, and is much shorter (4.6 years) in the narrow sawfish (Dulvy, et al., 2014).

Shark species (species in the subclass Elasmobranchii) began to be listed in the CITES Appendices in 2003. More species have been included over the years and 18 are now listed in the CITES Appendices, which consist of *Cetorhinus maximus* (Basking shark), *Rhincodon typus* (Whale shark), *Carcharodon carcharias* (Great white shark), *Pristidae* spp. (Sawfishes - 7 species), *Lamna nasus* (Porbeagle shark), *Carcharinus longimanus* (Oceanic whitetip shark), *Carcharinus longimanus* (Oceanic whitetip shark), *Sphyrna mokarran* (Great hammerhead shark), *Sphyrna zygaena* (Smooth hammerhead shark), *Manta* spp. (Manta rays) (CITES, 2014).

Status and Abundance. The characteristic toothed rostrum of sawfishes in combination with their shallow-water distribution, makes them extremely susceptible to entanglement in fishing gear particularly gillnets and trawl nets. Sawfishes were once found throughout the coastal and inshore regions of the tropical Atlantic, Pacific, and Indian Oceans; they were historically present in 90 countries and overseas territories (Sutarno, 2012).

Sharks are landed and sold in domestic Indonesian markets and contribute to subsistence requirements in some coastal communities. However, international demand for shark meat, and particularly shark fins, is the driving force behind most shark landings. The high prices for some shark meat, for example spiny dogfish and porbeagle, as well as the premium prices paid for shark fins has prompted the increased targeting of some shark species and the

increased retention of sharks taken as bycatch (Lack and Sant, in TRAFFIC, 2003). Indonesia and India alone were responsible for over 20% of global shark catches between 2002 and 2011 (Fischer et al., 2012 in Mundy-Taylor & Crook, 2013).

Manta ray aggregations have been monitored and investigated in various locations around the world, including Indonesia. Some of these locations experience regular peaks in manta ray abundance, while others are only visited by the species seasonally. The strong seasonal visitation pattern of manta rays in the Komodo Marine Park, Indonesia, was linked to changes in sea temperature and productivity, both factors being influenced by monsoonal shifts. Long-term site fidelity by a part of the manta ray population both has been reported at Komodo Marine Park, Indonesia (Dewar et al., 2008).

Legal status.

Table 10. Legal status of manta, sawfish & shark,

Species	Red List status	Protection Status	CITES	Quota	EU Wildlife Trade Regulation
Sawfishes *Pristidae spp*	VN - CE	Protected under Law No. 5 1990	Appendix I since 2007		Annex A
Oceanic manta ray *Manta Birostris*	Vulnerable	Protected under Kepmen No.4/ Kepmen- KP/2014	Appendix II since 2014		Annex B
Reef manta ray *Manta alfredi*	Vulnerable	Protected under Kepmen No.4/ Kepmen-KP/2014	Appendix II since 2014		Annex B
Grey reef shark *Carcharhinus amblyrhynchos*	Near Threatened	-	-		Annex A
Scalloped hammerhead *Sphyrna lewini*	Endangered	-	Appendix II since 2014	-	Annex B
Whale shark Rhincodon typus	Vulnerable	-	Appendix II since 2003	-	
Spinner shark*Carcharhinus brevipinna*	Near Threatened	-	-	-	Annex B
Spottail Shark *Carcharhinus sorrah*	Near Threatened	-	-	-	-
Silky shark *Carcharhinus falciformis*	Near Threatened	-	-	-	Annex A
Blacktip shark *Carcharhinus limbatus*	Near Threatened	-	-	-	Annex B
Dusky shark *Carcharhinus obscurus*	Vulnerable	-	-	-	Annex A
Bignose shark *Carcharhinus altimus*	Data Deficient	-	-	-	Annex A
Spadenose shark *Scoliodon laticaudus*	Near Threatened	-	-	-	Annex B

Bigeye sixgill shark *Hexanchus nakamurai*	Data Deficient	-	-	-	Annex A
Tiger shark *Galeocerdo cuvier*	Near Threatened	-	-	-	Annex B
Gulper shark *Centrophorus ganulosus*	Vulnerable	-	-	-	Annex A
Sicklefin hound shark Genera *Hemitriakis*	Least Concern	-	-	-	Annex A
Bluespotted stingray*Neotrygon kuhlii*	Data Deficient	-	-	-	
Ribbontailed stingray *Taeriura lymma*	Near Threatened	-	-	-	Annex B

* Sharks identified being traded in Nusa Tenggara Barat, Indonesia (WCS Marine Program, 2014).

Extraction areas and volumes. Sharks are often taken in targeted longline fisheries (e.g. Tanjung Luar, off East Lombok, but other locations also), while targeted Manta fisheries have been confirmed in Lombok's Lamakera, Lamalera and in other villages in Alor (WCS, 2015). Fowler et al. (2005) reports that targeted shark fisheries exist throughout much of Indonesia at varying scales.

- Indonesia's average annual reported shark catch between 2000-2010 was 106,288 tonnes (FAO Fisheries Department, 2012) representing 13.1% of reported global catch. According to FAO data, Indonesia catches more sharks than any other country in the world (FAO, 2012).
- Indonesia was responsible for 100% of reported Hammerhead catches in the Western Central Pacific (8,931 tonnes) and two thirds of total catch reported for the Eastern Indian Ocean (5,154 tonnes) during 2002 – 2011, and reported 'Manta rays/Devil ray catches of 17,878 tonnes, the majority of which was taken in the Western Central Pacific (15,243 tonnes), with the remaining quantity taken in the Eastern Indian Ocean (Lack and Sant, 2006).
- The extraction number estimate in Indonesia for mantas was 1,320 individuals per year (Erdmann, 2012).
- Between 2000 and 2008 Indonesia reported shark exports to FAO in three categories: Shark fins, dried, unsalted; Sharks frozen; Sharks, rays, skates, fresh or chilled, (FAO Fisheries Department, 2010). Over that period, exports of fins averaged over 1400 tonnes per year, of frozen shark over 750 tonnes per year, and of fresh chilled shark around 80 tonnes per year. Indonesia also imports dried unsalted shark fins (around 160 tonnes per year) and frozen shark products (around 60 tonnes per year) (FAO, 2014) .Indonesia's production and export of frozen shark meat increased from 500 tonnes per year between 2000 and 2006, to nearly 8000 tonnes per year in 2007 and 2008 (FAO, 2014).
- Fisheries statistics for West Nusa Tenggara Province reported a production of 1,792.8 tonnes for sharks and rays in 2012. While the National Statistics Agency recorded production of shark fins in West Nusa Tenggara Province reached 434 tonnes in 2012. The production is equal to a market value of approximately USD 6 million (WCS-IP Marine Program, 2014).

Trade routes. Key trading centres in Indonesia include Tanjung Luar – Lombok, Bali, & Surabaya. The main destination regions for fins are Hong Kong, China, Taiwan, Japan and Korea. Mantas are targeted and retained as valuable by catch to supply the international gill raker trade in Singapore, Hong Kong, Macao, Taiwan and Guangzhou, China (WCS, 2012). Some sharks teeth, and sawfish rostra are going to Bali and Mataram for handicrafts or souvenirs.

Fresh products such as skin, meat, and entrails are typically sold within local markets (WCS, 2015). Supply chains for shark fins, meat, bones, teeth, and liver oil starts from shark fishers who supply one or more middlemen and then on to traders, who typically supply the international markets. One of the key exit points for shark and manta products from Indonesia is Surabaya, but Bali also plays an important role as a domestic market, and an international trading hub (WCS, 2015).

Table 11. Products of sharks and rays in Lombok, Nusa Tenggara Barat

Product	Sharks/Rays	National destination	Export destination	End product
Dried fin	All shark species. (Price depends on size)	Local, Surabaya	Singapore, China, Hong Kong, Taiwan, Japan	Shark fin soup
Shark meat	All shark species	Local market in East Lombok,	No	Satay, Smoked
Bones	All shark species	Surabaya	Singapore, China, Hong Kong, Taiwan, Japan	Oriental medicine
Sharks & rays skin	Large size sharks, Tiger ray, whip ray, honeycomb whip ray	Mataram, Surabaya	Singapore, China, Hong Kong, Taiwan, Japan	Wallet, shoes, belt, skin crackers
Gill racker	*Manta birostris* and *Manta alfredi*	Surabaya	Singapore, China, Hong Kong, Taiwan, Japan	Oriental medicine
Liver oil	*Squalus*	Local, Mataram, Surabaya	Singapore, China, Hong Kong, Taiwan, Japan	Food supplement
Teeth	All shark species with large size teeth	Surabaya, Bali	No	Souvenirs, jewellery

Market values. Sawfishes are used for a range of products, many of which are of unusually high value even at the first point of sale by fishers. The fins from a large sawfish are highly prized for Asian shark fin soup. A set of sawfish fins can sell for several thousand dollars, making them among the most valuable marine fish products (McDavitt, 2014b). Sawfish rostra have long been traded as curios and for other purposes, including currently on internet auction sites. The individual rostral teeth, sourced from Central and South America, are the preferred material for cockfighting spurs in Peru and are valued at US$80–220 for each pair of spurs (Sutarno, 2012).

Sharks and rays utilized body parts include meat, bones, skin, teeth, fins, liver oil and manta's gill racker. These body parts are processed as smoked shark meat, fin soup, souvenirs and oriental medicine. Most meat and fin trade in Porbeagle, Oceanic Whitetip and Hammerheads is reported under more general shark commodity codes, which include: (a) fresh and frozen shark meat, (b) shark fins in various forms, and (c) other shark products including dried and salted meat, frozen fillets and oil (FAO, 2012).The fins of sharks are generally worth more than their meat, which creates an economic incentive to retain the fins and discard the carcass at sea, a practice known as 'finning' (Dulvy, et al., 2008).

Table 12. Estimated market values for shark/ray products from Indonesia

Species	Part	Poacher's price (USD)	Trader's price (USD)	International price (USD)
Manta birostris	Gill raker (kg)	-	93 - 154	250 - 500
Manta alfredi	Gill raker (kg)	-	154	-
Manta alfredi	Carcass (individu)	-	775	-
Mobulidae	Gill plate (kg)	-	46 - 70	-
All shark species	Bones (kg)	-	4,6	-
All shark species	Shark meat	1,1 – 2,3	1,5	-
All shark species (price depends on size)	Dried fins (kg)	-	11 - 138	-
Sharks group *Squalus*	Liver oil	6 - 8	11	-
Large size sharks, Tiger ray, whip ray, honeycomb whip ray	Sharks and rays skin	-	4,6	-
All shark species with large size teeth	Teeth	-	4,6	-
Sawfishes (price depends on size)	Rostrum	-	11 – 1,153	-

* Price was estimated from covert interview, market survey, online price, and informant's information

Prosecution history. The WCS Wildlife Crime Unit began working on marine issues in July 2014. Data from the MMAF was lacking for this study, and the legislative framework for marine species is rapidly changing. Despite these factors the WCU investigated 8 cases during 2014 related to marine species, with 8 seizures and numerous arrests of key traders made. These involved whale shark fins, quantities of manta ray gill raker, bone, and sawfish rostrums. The highest penalty achieved was 18 months imprisonment with a fine of USD 154 for trading 53 sawfish's rostrum, and the highest fine was USD 3,846 with 16 months in prison for trading 27kg manta gill rakers. According to early reports, these enforcement efforts by the authorities have resulted in the effective dismantling of the manta fishery in Tanjung Luar, and have been very successful in reducing the trade in these protected species.

SECTION IV – PRIORITISING POTENTIAL INTERVENTIONS WITHIN INDONESIA FOR ADDRESSING WILDLIFE CRIME

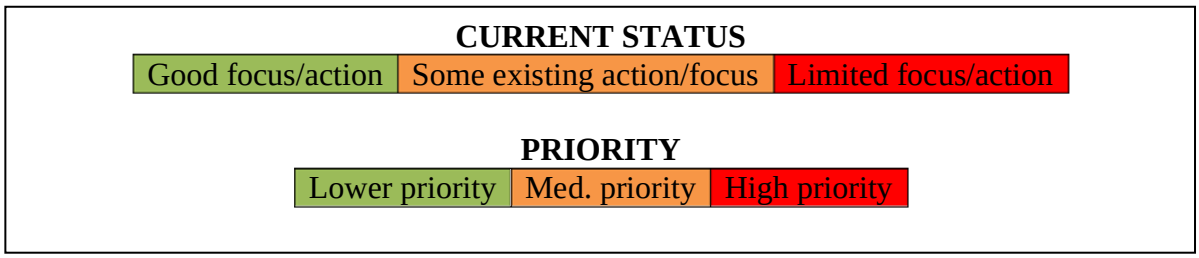
The challenges of identifying challenges

In Sections I and II it has been shown that, globally, wildlife crime is essentially driven by the demand for wildlife products, particularly for traditional medicine, by the availability of these products in bio diverse-rich countries and by the willingness of people to supply these products. This supply and demand relationship is exacerbated by economic development, which increases demand and facilitates trade through improved infrastructure and trade relations, by social trends which drive desires for certain products and by the existence of the legal wildlife trade which provides many of the frameworks under which illegal activities thrive.

Efforts to combat these supply chains are predominantly hindered by a lack of information and/or understanding of what the problems are and the severity of the impacts, which in turn lead to an associated lack of political will or resources to address them. A lack of political will and resources can result in failures to address gaps in regulatory frameworks, and limited enforcement of the existing regulations.

Enforcement efforts are further weakened by the complexity of the responses required. Section IV asks which of the possible interventions might be most likely to yield results in the Indonesian context. As discussed, the landscape of wildlife crime is incredibly dynamic and highly varied, and broad generalisations can be misleading, with situations and opinions varying considerably. The results presented here are drawn from a comprehensive analysis of the literature, and checked against the recommendations drawn from expert interviews in order to highlight potentially valuable interventions. Each of these is assessed according to current implementation status and to its relative priority level for immediate action. The results are loosely structured around the section headings in the comprehensive ICCWC toolkit on wildlife crime (United Nations Office on Drugs and Crime 2012).

The following table lists a number of priority target areas, identified by respondents, and describes interventions that could assist in tackling each of these. Target areas and their respective interventions are assessed against a simple criterion – 1) to what extent is the target area already the focus of government/NGO attention and action (current status), and 2) to what degree is this target a priority for increased funding and more developed interventions (priority).



Prioritising Wildlife Crime Challenges

Target	Current Status	Action	Priority
Reducing domestic demand		Important for some species in Indonesia, particularly those feeding the live pet trade, but challenging to achieve. Awareness campaigns have been shown to influence attitudes, but are rarely shown to have tangible impacts on the ground in terms of wildlife crime, possibly because they are targeting the wrong audiences. Often it is wealthier, urban elites that are the primary markets for the live pet trade and for illegal wildlife products and they should be the primary target. Awareness campaigns would be best led either by government or by NGOs with a significant domestic following.	
Reducing hunting and poaching		Driven by domestic demand and, to an extent, subsistence activities, and connected to deforestation and human-wildlife conflict. Addressing hunting is critical to cutting off the supply chain at its roots, and NGO and government efforts to enforce protected area boundaries and patrol national parks are critical and need further resources.	
Regulating the legal trade in wildlife		For species where legal trade exists, an important intervention would be to ensure the trade is well regulated and comes from sustainable populations. Such market-based interventions have had success for combating illegal timber trade, with certification systems, bilateral trade agreements and closely controlled management systems ensuring there is a clear supply of sustainable, legal timber which has had significant impacts on the illegal markets. However, implementing this for other wildlife species is still some way off.	
Improving political will		Whilst some high ranking civil servants identify wildlife crime as a serious issue (see Appendix III), many do not, as reflected by the relatively low budgets allocated to tackling wildlife crime, and the absence of staff/budgets in some key institutions. This is at least partly due to the lack of data on wildlife crime and its connections to governance, corruption and organised crime.	

Target	Current Status	Action	Priority
Int'l engagement on wildlife crime		International, regional and bilateral frameworks and institutions are key to addressing international demand for Indonesian wildlife products, and Indonesia is already engaging with most of the key initiatives available. Indonesia should use its status as a key member of such groupings to lead regional action against wildlife crime, and to seek bilateral anti-wildlife trafficking agreements with key market countries, such as China. While still a key priority, Indonesia's progress on this issue is promising and can be built upon.	
Legal reform		Key reforms identified include updating the status of the protected species lists, increasing the sanctions and sentences (including the introduction of minimum sentences[2]), ensuring wildlife crime is classed as a serious crime in law, (allowing coverage by the UN Convention on Drugs and Organised Crime), making wildlife crime a 'predicate offence' under the Financial Action Task Force enabling forfeiture of criminal assets and revising and clarifying the shared authority and responsibilities of the forest police and national police and addressing any conflicts of interest risked when tasking the same government divisions with issuing permits for legal trade whilst simultaneously being responsible for prosecuting those who break the law, many of whom may be the same people.	
Improving inter/intra agency coordination		The MoEF and MMAF have been clearly tasked with the primary role in tackling wildlife crime, but their powers, whilst significant, are limited. Coordination with other institutions, such as the police, customs, judiciary and military requires huge levels of coordination. A lack of clear mandates and limited budgets make this challenging. This could be improved through some regulatory reform, see above, to increase the powers of the primary agencies responsible for wildlife crime, and/or by prioritising coordination with the other relevant government departments. Alternatively, a coordinating agency for wildlife crime within the Ministry of Coordinating Economic Affairs for example, could be of high	

[2] Note - the efficacy of increased penalties is strongly disputed by some, although making wildlife crimes punishable by four years or more would allow them to be covered by the UN Convention against Transnational Organised Crime

Target	Current Status	Action	Priority
		value. Each of these interventions is reliant to some degree on political will.	
Increasing resources for enforcement		A lack of financial resources was a factor highlighted by many inside and outside the government as a critical barrier to effective enforcement. The amount budgeted to the Ministry of Forestry for all wildlife management is just USD $70 million, to cover an area of 130 million hectares, an average of 16,000 ha (the size of the country of Liechtenstein) per staff member. Investigations, patrols and other 'boots-on-the-ground' interventions have the benefit of stopping wildlife crime *before* animals are killed. Intelligence and investigative actions are a proven tool for addressing wildlife crime across the supply chain. However, it is an area where the mandate and authority of Forest Police and Civil Investigators overlaps strongly with the police, and the numbers of patrol staff on the ground are insufficient to act as a deterrent for poaching, and wages for those who do exist are low. Technical resources and staff capacity are also often lacking – calls were made by several respondents for DNA identification technology which could identify source sites for wildlife, and the Customs Authority requested simple identification manuals of CITES-listed species. However, although resources are limited, they are not always efficiently utilised – ratios of office vs. patrol staff in national parks are weighted to keep most employees in park headquarters. NGO-government partnerships established by WCS and FFI have also been identified as good hybrid models for the interim which are achieving firm results on the ground, albeit in limited areas, and require further financial support. Many cases strongly reliant on funding through NGOs to take cases through to prosecution.	

Target	Current Status	Action	Priority
Develop a top down approach to wildlife crime		An increased focus on the kingpin positions and major smuggling syndicates controlling the export of products from Indonesia is needed. In Asia, wealth is a far more important driver of wildlife crime than poverty, and this should be reflected by targeting the wealthier parts of the supply chain. Such interventions are rare because they involve well connected, well-resourced individuals and because operations at this level require far more cross-agency collaboration and coordination than tackling hunters and traders. However, such figures represent the key links to the major demand that drives much of the crime and their removal could have far reaching effects.	

Target	Current Status	Action	Priority
Improve accountability, efficiency and morale		Ensuring that government agencies and government officers do the job they are mandated to do is a critical challenge. Although quality varies across Indonesia, with some offices and staff setting an excellent example, there appear to be limited procedures (or limited enforcement of them) to ensure the accountability of under-performing units. A common complaint for example was the lack of inspections and monitoring of legal CITES-registered traders, allowing high volumes of illegal trade to be conducted parallel to the legal trade, something that could be easily addressed if inspections were conducted. Addressing this problem is partly a question of morale (see below) but also of management. Inspections can only be avoided if either line managers are turning a blind eye or if the procedures for ensuring accountability are failing. An intervention that supported the Ministry of Forestry in particular to reform these practices would be highly valuable. A third aspect, somewhat connected to the last, is the issue of morale and attitudes amongst wildlife crime officers. One observation made more than once was that a culture of 'turning a blind eye' prevailed amongst the law enforcement agencies, with many under the impression that detecting wrongdoing would be interpreted as a failure on their part. Some of the presentations and reports coming out of the CITES management agency lend support to this view, presenting a picture of a system in perfect working order. Interventions addressing institutional culture are extremely hard to implement, but there may be scope in training programmes or incentive schemes for addressing this. Finally, improvements in management and integrity are not only issues for government agencies. Numerous NGOs also work in the sector and whilst cooperation is good in some places, it is lacking in others. A common complaint recorded was of rival NGOs 'taking credit' for interventions that others believed they did not deserve. Databases remain separate and overlapping. One organisation even declined to contribute to this report on the basis they would be writing a similar one in the near future.	

Target	Current Status	Action	Priority
Reduce corruption		Corruption in Indonesia is a recognised issue, with a specific and powerful independent government unit tasked with addressing it. Progress is being made, but corruption remains a key barrier to progress when addressing wildlife crime in Indonesia. Addressing corruption in Indonesia is a massive, ongoing task, but providing specific support to the KPK to address corruption relevant to wildlife crime could have important impacts.	
Improve coordinated data management.		Data on wildlife crime in Indonesia is incredibly patchy and incomplete. Data is collected in different ways in different areas, even for the same species, and government agencies do not have oversight of data from other agencies. Furthermore, even within the agencies themselves, few staff have access to relevant data, or training on how to use the databases. Patterns and trends on wildlife trade are virtually impossible to determine at any scale, and existing data may provide a very incomplete picture. Good databases are being put together by the Ministry of Forestry and individual NGOS but there is little coordination between them or those in other agencies. A critical intervention would target improving and aligning these datasets and establishing data sharing agreements between the relevant groups.	
Commission research into additional issues		The production of this report has highlighted the need for a more comprehensive and structured approach to wildlife trade research in Indonesia, and a key ongoing output would be a multi-stakeholder situation report on wildlife crime. Additional data gaps include any policy focused analyses on the impacts of wildlife crime, for example targeting economic analyses, and work on highlighting key supply chains in wildlife products. Some areas are particularly data deficient, such as Eastern Indonesia, and some species groups, particularly reptiles, have virtually no data	

SUMMARY

One of the original aims of this report was to provide a more accurate nationwide estimate of the scale and volumes of wildlife crime in Indonesia. Unfortunately, during the research it became clear that not only was the available data, when viewed at a national scale, extremely limited in scope and not easily comparable, any national estimates of the overall volumes of the illegal trade in wildlife were likely to be misleading. This is largely as the trade in each species is unique, dynamic, highly influenced by demand, and rapidly changing. Existing datasets typically focus on individual areas, or on individual species, and often only at one specific point in the supply chain. Consolidated national estimates on volumes and scale are always therefore likely to be an imperfect guess, and one with a limited shelf life and value for long term policy making as they would be open to much criticism.

Despite this, the data that is available on specific species and from specific sites, combined with expert testimony from those fighting wildlife crimes in the field, paints a compelling and deeply concerning picture. The vast majority of expert respondents, and the bulk of the recent literature agree on several key points: 1) the illegal trade in wildlife and wildlife products in Indonesia is increasing, often rapidly, and in line with increasing demand in Southeast Asia and globally; 2) the trade is becoming increasingly well organised and sophisticated to avoid simple detection, although in Indonesia the trade in some species is still relatively open; 3) the online trade in illegal wildlife is growing rapidly in the absence of a coordinated enforcement response; 4) demand from domestic markets is also increasing, and is a significant threat for some species (e.g. birds); 5) limited enforcement, and the weak protection of conservation areas is enabling uncontrolled deforestation, which opens up access to hunting and increases human-wildlife conflict and the entry of wild animals into the illegal trade.

Critical interventions on which there is currently limited focus in Indonesia, and which are of high priority include the need to: improve coordinated data management on wildlife crime; in parallel with scaled up efforts on the ground develop a top down approach which targets the criminal kingpins and upper end of the supply chains for these products; and to improve efficiency, accountability and morale amongst enforcement agencies.

APPENDICES

APPENDIX I: BIBLIOGRAPHY

AFP. 2013, August 15. 6 tonnes rare pangolins found in Vietnam. The Nation.

ASEAN Wildlife Enforcement Network. 2013. ASEAN-WEN website. www.asean-wen.org.

Van Ast, J., A. Widaryati, and M. Bal. 2014. The ′Adat′ institution and the Management of Grand Forest ′Herman Yohannes′ in Indonesian Timor: The Role of Design Principles for Sustainable Management of Common Pool Resources. Conservation and Society 12:294.

Auliya, M. 2010. Conservation status and impact of trade on the Oriental Rat Snake Ptyas mucosa in Java, Indonesia. Page 39. Petaling Jaya, Malaysia.

Bennett, E. L. 2004. Hunting , Wildlife Trade and Wildlife Consumption Patterns in Asia. World.

Birdlife International. 2003. Saving Asia's Threatened Birds: A Guide for Government and Civil Society. Birdlife International, Cambridge, UK.

Brodie, J. F., A. J. Giordano, E. F. Zipkin, H. Bernard, J. Mohd-Azlan, and L. Ambu. 2015. Correlation and persistence of hunting and logging impacts on tropical rainforest mammals. Conservation Biology 29:110–121.

Burgess, E. a, and R. Lilley. 2014. Assessing the Trade in Pig-nosed Turtles Carettochelys insculpta in Papua, Indonesia. Petaling Jaya, Malaysia.

Cahill, A. J., J. S. Walker, and S. J. Marsden. 2006. Recovery within a population of the Critically Endangered citron-crested cockatoo Cacatua sulphurea citrinocristata in Indonesia after 10 years of international trade control. Oryx 40:161.

Caillabet, O. 2013. The trade in Tokay Geckos in South-East Asia: with a case study on Novel Medicinal Claims in Peninsular Malaysia. Page 44. Petaling Jaya, Malaysia.

Challender, D., Nguyen Van, T., Shepherd, C., Krishnasamy, K., Wang, A., Lee, B., Panjang, E., Fletcher, L., Heng, S., Seah Han Ming, J., Olsson, A., Nguyen The Truong, A., Nguyen Van, Q. & Chung, Y. 2014. Manis javanica. The IUCN Red List of Threatened Species. Version 2014.3. <www.iucnredlist.org>

Challender, D. W. S. (2011). Asian Pangolins: Increasing affluence driving hunting pressure. *Traffic Bulletin*, *23*(3), 92–93.

CITES. 2014. History of CITES listing of sharks (Elasmobranchii). http://cites.org/eng/prog/shark/history.php.

CITES. (n.d.). CITES website. http://www.cites.org/eng.

Cooney, R., and P. Jepson. 2006. The international wild bird trade: what's wrong with blanket bans? Oryx 40:18–23.

Declaration: London Conference on the Illegal Wildlife Trade. 12-13 February 2014. 2014.

Dinerstein, E., C. Loucks, E. Wikramanayake, J. Ginsberg, E. Sanderson, J. Seidensticker, J. Forrest, G. Bryja, A. Heydlauff, S. Klenzendorf, P. Leimgruber, J. Mills, T. G. O'Brien, M. Shrestha, R. Simons, and M. Songer. 2007. The Fate of Wild Tigers. Bioscience 57:508–513.

Dewar, H., P. Mous, M. Domeier, A. Muljadi, J. Pet, and J. Whitty. 2008. Movements and site fidelity of the giant manta ray, Manta birostris, in the Komodo Marine Park, Indonesia. Marine Biology 155:121–133.

Duckworth, J.W., Pattanavibool A., Newton, P. and Nguyen Van N. (2008). Manis javanica. In: IUCN 2009. IUCN Red List of Threatened Species. Version 2009.2

Dulvy, Nicholas K; Baum, J.K; Clarke, S; Compagno, L.J.V; Cortes, E. . 2008. You can swim but you can't hide: the global status and conservation of oceanic pelagic shark. Aquatic Conservation: Marine and Freshwater Ecosystems 19:554–565

Dulvy, N. K., L. N. K. Davidson, P. M. Kyne, C. a. Simpfendorfer, L. R. Harrison, J. K. Carlson, and S. V. Fordham. 2014. Ghosts of the coast: global extinction risk and conservation of sawfishes. Aquatic Conservation: Marine and Freshwater Ecosystems:n/a–n/a.

EIA. 2014. In cold blood: Combating organised wildlife crime. London, UK.

EIA. 2008. Skin Deep: The need for effective enforcement to combat the Asian Big Cat skin trade. Briefing for the 57th Meeting of the CITES Standing Committee.

EIA. 2011. Enforcement Not Extinction - Zero tolerance on tiger trade. London. UK.

EIA. 2014. In cold blood: Combating organised wildlife crime. London, UK.

Felbab-Brown, V. 2011. The Disappearing Act: The Illicit Trade in Wildlife in Asia.

Foley, K.-E., C. J. Stengel, and C. R. Shepherd. 2011. Pills, Powders, Vials and Flakes: The Bear Bile Trade in Asia.

Fredriksson, G., R. Steinmetz, S. Wong, and D. L. Garshelis. 2008. Helarctos malayanus. www.iucnredlist.org.

Gopala, A., Hadian, O., Sunarto, ., Sitompul, A., Williams, A., Leimgruber, P., Chambliss, S.E. & Gunaryadi, D. 2011. *Elephas maximus ssp. sumatranus*. The IUCN Red List of Threatened Species. Version 2014.3. <www.iucnredlist.org>

Government of Indonesia. 1999. Peraturan Pemerintah Republik Indonesia Nomor 7 Tahun 1999 tentang Pengawatan Jenis Tumbuhan Dan Satwa. Indonesia.

Hin Keong, C. 1996. Shark fisheries and the trade in sharks and shark products of Southeast Asia. Page 129. Petaling Jaya, Malaysia.

ICCWC. (n.d.). The International Consortium on Combating Wildlife Crime website. http://www.cites.org/eng/prog/iccwc.php.

ICITAP. 2015. ICITAP Website.

IFAW. 2013a. Criminal Nature: the Global Security Implications of the Illegal Wildlife Trade. Massachusetts, US.

IFAW. 2013b. Annual Report July 2012 - June 2013. Massachusetts, US.

IFAW. 2015. IFAW website. http://www.ifaw.org/united-states.

INTERPOL. 2014. INTERPOL seeks public assistance to locate environmental crime fugitives in global operation. http://www.interpol.int/en/News-and-media/News/2014/N2014-220.

IUCN. 2015. IUCN Red List of Threatened Species.

Jepson, P., and R. J. Ladle. 2005. Bird-keeping in Indonesia: conservation impacts and the potential for substitution-based conservation responses. Oryx 39:442.

Kimbrough, L. 2012. Indonesia remains epicenter for illegal wildlife trade in reptiles and amphibians. http://news.mongabay.com/2012/1024-kimbrough-reptile-trade-indonesia.html.

Krishnasamy, K., and C. R. Shepherd. 2011. A Review of the Sun Bear Trade in Sarawak, Malaysia. TRAFFIC Bulletin 26:37–40.

Kurniawan, D., and R. Nursahid. 2002. Bear Markets: Indonesia. A summary of the findings of “The Illegal Trade In Bear Products, Bear Parts, And Live Malayan Sun Bears In Indonesia”, published by Animal Conservation for Life (KSBK).

Lack, M., and G. Sant. 2008. Illegal , unreported and unregulated shark catch: A review of current knowledge and action. Page 62 Traffic. Canberra, Australia.

Lack, M., and G. Sant. 2012. An Overview of Shark Utilisation in the Coral Triangle Region.

Lawson, K., and A. Vines. 2014. Global Impacts of the Illegal Wildlife Trade: The costs of crime, insecurity and institutional erosion.

Lawupos. 2012, January 28. Jual Beli Harimau di Internet. Lawupos.net.

Luo, S.-J., J.-H. Kim, W. E. Johnson, J. van der Walt, J. Martenson, N. Yuhki, D. G. Miquelle, O. Uphyrkina, J. M. G. H. B. Quigley, R. Tilson, G. Brady, P. Martelli, V. Subramaniam, C. McDougal, S. Hean, S.-Q. Huang, W. Pan, U. K. Karanth, M. Sunquist, J. L. D. Smith, and S. J. O’Brien. 2004. Phylogeography and Genetic Ancestry of Tigers (Panthera tigris). PLoS 2:e422.

Lyons, J. A., and D. J. D. Natusch. 2011. Wildlife laundering through breeding farms: Illegal harvest, population declines and a means of regulating the trade of green pythons (Morelia viridis) from Indonesia. Biological Conservation 144:3073–3081.

Lyons, J. A., and D. J. D. Natusch. 2012. Over-stepping the Quota: The trade in sugar gliders in West Papua, Indonesia. Traffic Bulletin 24:5–6.

Lyons, J. A., D. J. D. Natusch, and C. R. Shepherd. 2013. The harvest of freshwater turtles (Chelidae) from Papua, Indonesia, for the international pet trade. Oryx 47:298–302.

McNeely, J. A., P. Kapoor-Vijay, L. U. Zhi, L. Olsvig-Whittaker, K. M. Sheikh, and A. T. Smith. 2009. Conservation Biology in Asia: the Major Policy Challenges. Conservation Biology 23:805–810.

Meijaard, E. 2001. Conservation and Trade of Sun Bears in Kalimantan. 3rd International Symposium on Trade in bear Parts.

Meijaard, E. 2014, December 26. Indonesia's silent wildlife killer: hunting. Mongabay.com:1–5.

Meijaard, E., D. Buchori, Y. Hadiprakarsa, S. S. Utami-Atmoko, A. Nurcahyo, A. Tjiu, D. Prasetyo, Nardiyono, L. Christie, M. Ancrenaz, F. Abadi, I. N. G. Antoni, D. Armayadi, A. Dinato, Ella, P. Gumelar, T. P. Indrawan, Kussaritano, C. Munajat, C. W. P. Priyono, Y. Purwanto, D. Puspitasari, M. S. W. Putra, A. Rahmat, H. Ramadani, J. Sammy, D. Siswanto, M. Syamsuri, N. Andayani, H. Wu, J. A. Wells, and K. Mengersen. 2011. Quantifying killing of orangutans and human-orangutan conflict in Kalimantan, Indonesia. PLoS ONE 6:1–10.

Mills., J. A., and P. Jackson. 1994. Tiger Killed for a cure. A review of the worldwide trade in tiger bone. Page 53. Cambridge, UK.

Ministry of Forestry. 1990. Act of the Republic of Indonesia No.5 of 1990 concerning Conservation of Living Resources and Their Ecosystems. Indonesia.

Ministry of Forestry. 2011. Country report of Indonesia: Snake trade and conservation.

Morison, D. 2008. 14 Tons of Frozen Scaly Anteaters Seized in Indonesia. http://news.nationalgeographic.com/news/2008/08/080807-pangolin-trade.html.

Mulqueeny, K. K., and F. J. J. Cordon. 2014. Symposium on combating wildlife crime: Securing enforcement, ensuring justic and upholding the rule of law. Symposium on combating wildlife crime: Securing enforcement, ensuring justic and upholding the rule of law. ADB, Mandaluyong City, Philippines.

Mundy-Taylor, V., and V. Crook. 2013. Into the Deep: Implementing CITES Measures for Commercially-Valuable Sharks and Manta Rays. Pages 1–106. TRAFFIC for the European Commission.

Natusch, D. J. D., and J. A. Lyons. 2012. Exploited for pets: the harvest and trade of amphibians and reptiles from Indonesian New Guinea. Biodiversity and Conservation 21:2899–2911.

Newton, P., N. Van Thai, S. Roberton, and D. Bell. 2008. Pangolins in peril: Using local hunters' knowledge to conserve elusive species in Vietnam. Endangered Species Research 6:41–53.

Ng, J., and Nemora. 2007. Tiger Trade Revisited in Sumatra, Indonesia. TRAFFIC South East Asia. Petaling Jaya, Malaysia.

Nijman, V. 2005a. Hanging in the balance: An assessment of trade in orang utans and gibbons on Kalimantan, Indonesia. Page 44. Petaling Jaya, Malaysia.

Nijman, V. 2005b. In Full Swing: An assessment of trade in Orang-utans and Gibbons on Java and Bali, Indonesia. Petaling Jaya, Malaysia.

Nijman, V. 2010. An overview of international wildlife trade from Southeast Asia. Biodiversity and Conservation 19:1101–1114.

Nijman, V., and K. A. I. Nekaris. 2012. Trade in Wildlife in Bali, Indonesia, for Medicinal and Decorative Purposes. TRAFFIC Bulletin 26:31–36.

Nijman, V., C. R. Shepherd, Mumpuni, and K. L. Sanders. 2012. Over-exploitation and illegal trade of reptiles in Indonesia. Herpetological Journal 22:83–89.

Nijman, V., and S. S. Stoner. 2014. Keeping an ear to the ground: Monitoring trade in earless monitor lizards. A Rapid Assessment. Page 17. Petaling Jaya, Malaysia\.

Nowell, K., and X. Ling. 2007. Taming the Tiger Trade: China's Markets for Wild and Captive Tiger Products Since the 1993 Domestic Trade Ban. Hong Kong, China.

Oldfield, S. 2003. The Trade in Wildlife: Regulation for conservation. Pages 1995–1995 (S. Oldfield, Ed.) October. Earthscan, London, UK.

Pantel, E. S., and S. Y. Chin. 2009. Workshop on Trade and Conservation of Pangolins Native to South and Southeast Asia. Proceedings of the Workshop on Trade and Conservation of Pangolins Native to South and Southeast Asia. TRAFFIC Southeast Asia, Petaling Jaya, Malaysia.

Pantel, S., and N. A. Anak. 2010. A preliminary assessment of sunda pangolin trade in Sabah. Petaling Jaya, Malaysia.

Pires, S. F. 2012. The Illegal Parrot Trade in the Neo-Tropics: the Relationship Between Poaching and Illicit Pet Markets. Rutgers, The State University of New Jersey.

Plowden, C., and D. Bowles. 1997. The illegal market in tiger parts in northern Sumatra, Indonesia. Oryx 31:59–66.

Prihadi, N. 2013. CITES and its implementation: case study and experiences of Indonesia. Trade and Environment for Asia and Pacific Economies Bogor, 2013. Bogor, Indonesia.

ProFauna. 2008. Pirated Parrots: Profauna Investigation of the Indonesian Parrot Smuggling to the Philippines.

Raymakers, C. 2001. Review of Trade in Live Corals from Indonesia. Brussels.

Rowcliffe, J. M., E. de Merode, and G. Cowlishaw. 2004. Do wildlife laws work? Species protection and the application of a prey choice model to poaching decisions. Proceedings. Biological sciences / The Royal Society 271:2631–2636.

Sasaoka, M., and Y. Laumonier. 2012. Suitability of local resource management practices based on supernatural enforcement mechanisms in the local social-cultural context. Ecology and Society 17.

Shepherd, C. R. 2006. The bird trade in Medan, north Sumatra: an overview. BirdingASIA 5:16–24.

Shepherd, C. R. 2007. Trade in the black-and-white laughing thrush Garrulax bicolor and white-crested laughing thrush G. leucolophus in Indonesia. Birding Asia 8:49–52.

Shepherd, C. R. 2010. Illegal primate trade in Indonesia exemplified by surveys carried out over a decade in North Sumatra. Endangered Species Research 11:201–205.

Shepherd, C. R. 2011. Observations on trade in laughing thrushes (Garrulax spp.) in North Sumatra, Indonesia. Bird Conservation International 21:86–91.

Shepherd, C. R. 2012. The owl trade in Jakarta , Indonesia : a spot check on the largest bird markets 18:58–59.

Shepherd, C. R., J. L. Belant, C. Breitenmoser-Wursten, N. Duplaix, L. N. Ambu, and A. Wilting. 2011. Conservation challenges and opportunities for Borneo's carnivores. TRAFFIC Bulletin 23:89–91.

Shepherd, C. R., and B. Ibarrondo. 2005. The Trade of the Roti Island Snake-necked Turtle. Page 51. Petaling Jaya, Malaysia.

Shepherd, C. R., and N. Magnus. 2004. Nowhere to hide: The trade in Sumatran tiger. Petaling Jaya, Malaysia.

Shepherd, C. R., and L. a. Shepherd. 2009. An emerging Asian taste for owls? Enforcement agency seizes 1,236 owls and other wildlife in Malaysia. BirdingAsia 11:85–86.

Shepherd, C. R., J. Sukumaran, and S. A. Wich. 2004. Open Season: An analysis of the pet trade in Medan, Sumatra. Petaling Jaya, Malaysia.

Smith, D. 2015, March 21. Africa is centre of a " wildlife war " that the world is losing. The Observer.

Soehartono, T., H. T. Wibisono, Sunarto, D. Martyr, H. D. Susilo, T. M. Maddox, and D. Priatna. 2007. Strategi dan rencana aksi konservasi harimau sumatera (Panthera tigris sumatrae) 2007-2017. Departemen Kehutanan, Jakarta.

Sopyan, E. 2009. Malayan Pangolin Manis javanica Trade in Sumatra, Indonesia. Pages 134–142 *in* C. S. Pantel, S; Yun, editor. Proceedings of the Workshop on Trade and Conservation of Pangolins Native to South and Southeast Asia, 30 June-2 July 2008, Singapore Zoo, Singapore. TRAFFIC Southeast Asia, Petaling

Stoner, S. 2011. Tigers: exploring the threat from illegal online trade. TRAFFIC Bulletin 26.

The Indonesian Council of Ulama. 2014. Fatwa on Protection of Endangered Species to Maintain the Balance of the Ecosystems. Pages 1–28.

The World Bank. 2013. The little data book. Washington DC.

TRAFFIC. (n.d.). Wildlife Trade in South-East Asia. Petaling Jaya, Malaysia.

TRAFFIC. 2005. Massive Tiger bone seizure in Taiwan highlights continued poaching threat. http://www.traffic.org/news/Tiger_poaching.htm.

TRAFFIC. 2008a. What's Driving the Wildlife Trade? A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam.

TRAFFIC. 2008b. TRAFFIC website.

TRAFFIC. 2014. WWF and TRAFFIC applaud global commitments to combat wildlife crime. http://www.traffic.org/home/2014/11/25/wwf-and-traffic-applaud-global-commitments-to-combat-wildlif.html.

TRAFFIC. 2015. More than 2300 turtles seized at Jakarta international airport. http://www.traffic.org/home/2015/1/23/more-than-2300-turtles-seized-at-jakarta-international-airpo.html.

UNODC. 2015. UNODC Wildlife and Forest Crime website. http://www.unodc.org/unodc/en/wildlife-and-forest-crime/index.html.

United Nations Environment Programme (UNEP), and World Conservation Monitoring Centre (WCMC). 2007. Indonesia : A review of trade in CITES- listed species.

United Nations Office on Drugs and Crime. 2012. Wildlife and Forest Crime Analytic Toolkit:212.

Verheij, P., K.-E. Foley, and K. Engel. 2010. Reduced To Skin and Bones: An analysis of tiger seizures from 11 tiger range countries (2000-2010). Cambridge, UK.

Wadley, R. L., and C. J. P. Colfer. 2004. Sacred Forest, Hunting, and Conservation in West Kalimantan, Indonesia. Human Ecology 32:313–338.

WCO. 2015. World Customs Organisation Environment Programme website. http://www.wcoomd.org/en/topics/enforcement-and-compliance/activities-and-programmes/environmental-programme.aspx.

WCS, . 2015. Analysis of regulatory framework and Institutional Protection of Species and Implementation of CITES in Indonesia. Jakarta, Indonesia.

WCS Indonesia. 2015. WCS Wildlife Crime Unit Database. WCS Indonesia Program, Bogor, Indonesia.

WCS-IP Marine Program. 2014. Shark and Ray Fishery Supply Chains of West Nusa Tenggara. Bogor, Indonesia.

Wibisono, H. T., M. Linkie, G. Guillera-Arroita, J. a. Smith, Sunarto, W. Pusparini, Asriadi, P. Baroto, N. Brickle, Y. Dinata, E. Gemita, D. Gunaryadi, I. a. Haidir, Herwansyah, I. Karina, D. Kiswayadi, D. Kristiantono, H. Kurniawan, J. J. Lahoz-Monfort, N. Leader-Williams, T. Maddox, D. J. Martyr, Maryati, A. Nugroho, K. Parakkasi, D. Priatna, E. Ramadiyanta, W. S. Ramono, G. V. Reddy, E. J. J. Rood, D. Y. Saputra, A. Sarimudi, A. Salampessy, E. Septayuda, T. Suhartono, A. Sumantri, Susilo, I. Tanjung, Tarmizi,

K. Yulianto, M. Yunus, and Zulfahmi. 2011. Population status of a cryptic top predator: An island-wide assessment of tigers in sumatran rainforests. PLoS ONE 6.

Wibisono, H. T., and W. Pusparini. 2010. Sumatran tiger (Panthera Tigris Sumatrae): A review of conservation status. Integrative Zoology 5:309–318.

Wich, S., Riswan, J. Jenson, J. Refisch, and C. Nellemann. 2011. Orangutans and the Economis of Sustainable Forest Management in Sumatra.Winters, J. 2008. The Value of International Wildlife Trade. TRAFFIC Bulletin 22:4–5.

Wisnubrata, A. 2011, May 26. 7 Ton Trenggiling Nyaris Diselundupkan. Kompass.com. Jakarta, Indonesia.

World Bank. 2005. Going, going, gone: The illegal trade in wildlife in East and Southeast Asia. Page 23. Washington DC.

World Customs Organization. 2013. Illicit Trade Report 2013:112.

WWF International. 2005. Tiger bone seizure in Taiwan highlights continued poaching threat. http://wwf.panda.org/?22372/Tiger-bone-seizure-in-Taiwan-highlights-continued-poaching-threat.

WWF International. 2012. Fighting Illicit Wildlife Trafficking. Gland, Switzerland.

WWF International. 2015. WWF International Unsustainable and illegal wildlife trade website. http://wwf.panda.org/about_our_earth/species/problems/illegal_trade/.

WWF-UK. 2015. WWF UK Wildlife Crime website. http://www.wwf.org.uk/what_we_do/illegal_wildlife_trade/.

WWF-US. 2015. WWF-US Stop Wildlife Crime website. http://www.worldwildlife.org/pages/stop-wildlife-crime.

APPENDIX II: KEY INDONESIAN LEGISLATION RELEVANT FOR WILDLIFE CRIME

For a comprehensive review of all relevant legislation in this area, see also the report from USAID's Changes for Justice Project, *'Wildlife Trade, Wildlife Crimes And Species Protection In Indonesia: Policy And Legal Context' (2015*). A summary of the laws is outlined below.

1. Law 5/1990: Sets out the main classification of conservation areas in Indonesia and prohibits the killing, possession, transfer/transport and trade in live, dead or parts of a list of 'protected' species (see below), setting a fine of up to IDR 100 million (USD 7500 at 2015 rate or more than double average GNI) and imprisonment of up to five years for failure to comply (Ministry of Forestry 1990).
2. Government Regulation No. 7, 1999: Specified the 236 animal and 58 plant species listed as protected in Indonesia. Sets fines of up to IDR 40 million (USD 300) for illegally collecting protected species, IDR 25 million (USD 192) for illegal breeding and IDR 250 million (USD 19,200) for illegally transporting species together with a revokement of the business license. The lists are supportive of CITES, but do not match entirely, with some CITES Appendix I species not protected in Indonesia, and others protected without being CITES priorities. Furthermore, the list has not been updated since 1999 meaning changes in ecological status, or in scientific nomenclature, have left some key species potentially unprotected (Government of Indonesia 1999)(Samedi and Exploitasia 2014).
3. Law No. 8 /1999: Designated the Ministry of Forestry as the Management Authority for CITES
4. Law No. 41/1999: (later amended by Law No. 19/2004 and P56/2014): Established the Forest Police (PolHut) as the main actors of law enforcement for wildlife crime.
5. Minister of Forestry Decree No. 104/2003: Appointed the Director General of the PHKA as the CITES Management Authority in Indonesia.
6. Decree of Minister of Forestry No. 447/Kpts-II/2003: Provided direction on the inspections to be carried out by the forestry authorities to check quota compliance, transport, export and import.
7. Law No. 31 of 2004 (later amended by Law No. 45/2009). Regulation of fisheries, specifying kinds of fish that are prohibited from trade and setting IDR 100-250 million fines (USD 7,500-19,200 in 2015)
8. Minister of Forestry Decree No. P.13/Menhut-II/2005 (and subsequent amendments): Outlines the organization and working procedures for the Ministry of Forestry
9. Minister of Forestry Decree No. P. 19/2005: Legislation on captive breeding management including data management, labelling and control of sources.
10. Minister of Forestry Regulation No 19/Menhut-II/2010: Classification and procedures to determine the number of hunting animals.
11. Minister of Forestry Regulation No P.31/Menhut-II/2012 on Conservation Institution.
12. Minister of Forestry Regulation No. 39/ Menhut-II/2012 on the Exchange of Protected Species with Foreign Conservation Institution.
13. Minister of Maritime Affairs and Fisheries Decree No. 18 of 2013 on the Whale Shark Protection Status.
14. Minister of Forestry Regulation No. P. 63/MenhutII/2013 on Procedures to Received Wild Animal and Plant Specimen for Conservation Institution.
15. Minister of Maritime Affairs and Fisheries Regulation No. 35 of 2013 on Procedures on the Determination of Fish Protection Status.

16. Minister of Maritime Affairs and Fisheries Decree No. 37 of 2013 on Napoleon Fish Protection.
17. Minister of Maritime Affairs and Fisheries Decree No. 14 of 2014 on Protection of All Manta Species.
18. Law No. 7 of 2007 on Coastal Area and Small Islands Management. Article 36 (4) support the establishment of Polsus PWP3K (special marine police) as the main actors of law enforcement on marine and fisheries law.
19. Ministry of Marine and Fisheries Regulation No. 12/PERMEN-KP/2013 on Monitoring of Coastal Area and Small Islands Management. Established Polsus PWP3K (special marine police) as the main actors of law enforcement for marine and fisheries law.

APPENDIX III: VIEWS FROM THE TOP – INTERVIEWS WITH INDONESIAN WILDLIFE CRIME EXPERTS

Background

To supplement the literature review in this report, several key figures working in wildlife crime in Indonesia were interviewed informally and their answers used to guide the contents and conclusions of the report. This was not meant as a scientific sampling of expert opinion, but simply a way of ensuring key recommendations were picked up. The questions asked, the respondents and the answers given, are detailed below. Although respondents have been named below, their responses have been anonymised:

Questions

- Summarise the wildlife crime situation in Indonesia in your own words.
- What trends are you noticing in wildlife crime in Indonesia?
- Where do you see the main progress in Indonesia regarding the fight against wildlife crime in the last ten years? What interventions have worked? Specific examples?
- What do you see as the main challenges to improving the situation in Indonesia? Any specific examples?
- Which are the key parts of the wildlife trade supply-chain requiring attention at the moment? Why?
- Who are the key organisations/individuals required to improve the situation for wildlife crime in Indonesia?
- Where are the key areas we are lacking information?
- In your opinion, where should external donors be focusing their funds to fight wildlife crime in Indonesia?

Respondents

- **Vincent Nijman** (VM), academic expert on wildlife trade in Asia and author of over 200 publications on wildlife trade in Asia.
- **Irma Hermawati** (IH) WCS Programme Coordinator, Wildlife Crime Units
- **Indra Exploitasia** (IE) Head of the Sub Directorate Program on Evaluation, Investigation and Protection within the Ministry of Forestry
- **Lucky Arliansyah** (LA) Head of Sub Directorate TIPITER I (Specific Criminal Action or TIPITER within the Crime Investigation Directorate or BARESKRIM). Sub Directorate I handles natural resources related crimes.
- **Debbie Martyr** (DM), head of FFI's wildlife crime units in and around Kerinci Seblat National Park in Sumatra.
- **Agung Krisdiyanto**(AK) Head of Sub Directorate Intelligence - Directorate of Investigation and Prosecution, Directorate General of Customs and Excise
- **Rosek Nursahid** (RN) ProFauna Founder
- **Dwi Adhiasto** (DA) WCS Programme Manager, Wildlife Crime Unit

Responses

Overview of wildlife crime in Indonesia

a) Wildlife trade in Indonesia is surprisingly open compared to other countries. Whilst well organized in parts it is not particularly high tech and highly opportunistic, with many traders dabbling in various parts of the industry.

b) It is a problem of organized crime and a disorganized response. The organization of the criminals has suddenly got much better in the last five years whilst the disorganized response is primarily a result of people working on their own geographical and species islands. Current understanding of what is happening is only a fraction of the bigger picture.

c) Better law enforcement has had impacts on some wildlife trade in Java, Sumatra and Bali. For West and East Kalimantan there have been some minor improvements whilst in East Indonesia little has changed. Wildlife criminals are increasingly developing new *modus operandi* and covert techniques.

d) The situation of wildlife trade in Indonesia is getting worse. The visibility in bird markets is going down, and many have switched to online trade. The volumes of wildlife, the variety of species being traded and the number of people employed in the industry are increasing. Newcomers are particularly focused on online trade with online exotic pet lovers' communities in Indonesia and globally driving the expansion.

e) Wildlife trade is still rife, although now it is changing to online trade, rather than conventional bird markets. Compared to ten years ago or in 1990s, now if you check bird markets, there are not too many protected species traded openly.

f) From the number of cases registered in Government records it looks like wildlife crime in Indonesia is declining, however, this is probably not the case. The number of cases related to illegal wildlife trade in the last 5 years slightly increased. This is because implementation of the current legislation was not sufficient, where the perpetrators who poached or kept wildlife were not given maximum sentence, so there is no deterrent effect. The *modus operandi* continues to evolve, *e.g.* exploiting human - wildlife conflict to poach and smuggle protected species by mixing products with unprotected ones. Intentionally exceeding the established quota for unprotected species is also another *modus operandi* common in Indonesia.

g) The total number of cases of illegal wildlife trade recorded by the Ministry of Forestry from 2003-2014 is 889 cases. 628 of these (or 70%) have been processed to P.21. level. Investigations were mainly conducted by civil investigators from forestry (PPNS) together with police investigators.

Figure 4. Annual count of wildlife cases recorded from the Ministry of Forestry dataset

h) Based on the information we've collected, wildlife trade, both legal and illegal are rife, and it's happening openly or covertly. Such practices might be seen in the bird market (for example: Pramuka Market). Pramuka market traders do not display protected wildlife. If they have received orders, they will take the wildlife from its hidden storage. Transactions made only to buyers trusted by the traders. Besides that, illegal wildlife trade through social media (Facebook, Kaskus, *etc*.) is also rampant.

i) We cannot predict whether wildlife trade is increasing or decreasing because the wildlife trade we know is like the tip of the iceberg, only visible on the surface, we don't know how big what lies beneath the surface. But with intensive law enforcement against the crimes, the perpetrators of wildlife trade will be more cautious and refrain from trafficking wildlife.

Key trends

a) Both the legal and illegal markets are increasing rapidly. Both are highly dynamic, shifting species and sources in response to supply and demand. So whilst trade in one species may appear to fall, it usually reflects a switch to a different species.

b) Law enforcement is much better than five years ago. However, the wildlife trade patterns have also changed, from conventional direct transactions into indirect transactions such as online, transfer, or delivery via cargo services. For some species law enforcement trend is getting better, but for non-priority species, the presence of online trading models actually exacerbates the condition.

c) Between 2007-11 poaching in Kerinci was showing a steady decline. Then there was a clear and sudden increase in illegal activity on the ground (by a factor of 4) from around 2010, driven primarily by export markets and a doubling of prices. For the first time traders started actually facilitating poachers with equipment. This was the same time the international community was increasing its focus on tiger conservation. Relevant for tigers (driven by increased demand for tiger bone) but also seen for other species such as helmeted hornbills, porcupines and pangolins.

d) The increase in online trade. Cooperation between agencies is improving but also the scale of wildlife crime is increasing.

e) Open visibility is declining but online trade is increasing.

f) Positive trends include improving cooperation between relevant law enforcement agencies, NGOs and other countries (such as the USA and Vietnam). The number of wildlife trade cases handled by forestry investigators and the police investigator are also increasing, and the number of cases being prosecuted are increasing. Hopefully this condition will be supported by the amendment of the regulation, so the sentence will be optimum and give deterrent effect. Negative trends include the ability to prove wildlife crime, including handling exhibits, is decreasing. This needs technology and laboratory support to uncover the complex illegal wildlife trade.

g) Trade via the internet (online trade) is becoming more important. Commitment and increased enforcement efforts from the Police is improving. Wildlife traders are increasingly using disconnected network systems, like drug traffickers, as well as unidentified methods to get through custom exit points.

h) Surely wildlife trade will still occur. The rise or fall of wildlife crimes very much depends on law enforcement intensity and focus.

Positive developments

a) One of the main positives in the last ten years have been the rise of various NGOs whose activities have led directly to arrests and prosecutions, such as WCS, FFI and ProFauna. Progress has also been made on awareness and responses to international initiatives such as CITES and the ICCWC and on training initiatives but the impacts of these have yet to be seen on the ground.

b) The recent announcement of a dedicated wildlife crime position within the Directorate of Investigation and Enforcement within the Ministry of Forestry and the Environment is potentially great news. The approach of government-NGO partnership in places like Kerinci has also been a success. The sudden increase in threats since 2010 has stretched them recently, but they have been successful in protecting the wildlife in the areas they can cover.

c) There have been positive changes for specific species including tiger, pangolin, slow loris, elephant, manta, gibbons, and Sumatran orang-utans. There is also some positive change for Bornean orang-utan, but not in all provinces in Kalimantan or Sumatra. In general, the number of cases and the level of cooperation between different agencies has been increasing. There are good examples of effective cooperation between NGOs and government. Wildlife trade is now becoming an internationally trending issue.

d) The increasing awareness amongst law enforcement agencies *e.g.* the Attorney General's new special task force for natural resources, the national police's special task force for forest crime and the Indonesian Financial Transaction Reports and Analysis Centre (PPATK) research into the economic impacts of wildlife crime.

e) No significant improvements, especially from government. There are still no simple monitoring programmes or raids on markets known to openly trade illegal wildlife. Some confiscations are happening but are giving little deterrence.

f) Currently the Director of PPH is building cooperation with the Police Forensic Laboratory to develop forensic analysis for wildlife crime to support the investigation of illegal wildlife trade cases.

g) Law enforcement against illegal wildlife trade conducted by the Directorate General of Customs and Excise (DGCE) in Customs Region and areas along the land border has been performed optimally and produced significant results. The uses of technology such as X-Ray scanner and intelligence techniques have yielded significant results over the past few years. Since 2012, DCGE recorded no fewer than 35 cases of wildlife smuggling tackled by the DGCE. As example of success, based on intelligence analysis, the Investigation and Prosecution unit in Tanjung Priok recently intercepted a container containing turtle shells which were listed on Appendix II CITES with an economic value of USD 21,770.

h) Cooperation and coordination between law enforcement agencies and NGOs is getting better. We can see examples from the increasing number of seizures including online wildlife trade through BBM, Facebook, etc.

Key challenges

a) One of the key challenges remaining is the reptile trade. This is enormous, both in terms of value and numbers of animals being traded, but has relatively little attention. The situation is particularly complex because it is mixed in with the legal trade in reptiles. Evidence shortly to be published from TRAFFIC suggests much of what is reported as legal, captive bred supply are illegal, wild caught individuals.

b) The key challenge is tipping the balance in the risk-reward ratio for poachers. In Africa it was found that the key factors were not size of penalties that influenced poaching decisions, it was the risk of detection and response. This equation needs to be changed for the key parts of the chain, for example the exporters. Another key challenge is changing attitudes towards the problem. Recognising, detecting and responding to wildlife crime is seen as a failure of the past where it should be seen as a measure of success. Too many people claim there is no problem. The rise in wildlife crime in 2010 was not responded to until too late as a result.

c) Key challenges include: unequal distribution of civil investigator and ranger capacity across the provinces, the variable quality of BKSDA and National Park management, the lack of coordination between civil investigators and the police, funding limitations, investigation facility limitations, civil investigator's restricted authority, lack of understanding of the new *modus operandi*of wildlife criminals, the impact of corruption and lack of awareness of wildlife crime amongst the judiciary.

d) Key challenges include: The lack of rescue centres /quarantine/rehabilitation facilities for confiscated wildlife, lack of inter-agency coordination, limited interest in 'smaller' cases, the failure to consider the illegal pet trade as a crime, the lack of cooperation from the Ministry of Communication regarding online trade, the failure of legislation to cover all relevant species (such as exotic species from abroad).

e) Weak law enforcement, the lack of government support for rescue and rehabilitation centres, the failure of the Ministry of Communication to act on online trade.

f) There are three main challenges:
    1. Weakness in the regulation and enforcement of the existing regulations related to wildlife crime, for example - low sentences, the need to update the list of protected wildlife, administration sanctions on the trade system and the distribution of wildlife is not complete.
    2. Forest rangers and civil investigators have limited authority in monitoring wildlife distribution, and to enforce the law on the offenders.
    3. The number of forest ranger is not sufficient to secure protection areas from poaching, and to monitor protected species outside protection areas. There are only 8,000 personnel to secure and monitor approximately 130 million hectares, so 1 ranger must monitor 16 thousand hectares.

g) Law No. 5 of 1990 is not sufficient for three reasons.
    1. It does not regulate law enforcement against importing of illegal wildlife from abroad. As a result the police cannot apply criminal sanctions against these practices. The only law that could be applied is Law No. 17 of 2006 on Customs, which is based on article 102, where the perpetrator can be punished for smuggling. This is only possible in the customs area. After the wildlife is taken out from the customs area, law enforcement cannot take any legal action.
    2. Sanctions for those who wilfully violate Article 40 paragraph (2) of Law 5/1990 are only imprisonment of 5 years and a fine of IDR100 million ($10,000) which has proven to be no deterrent for illegal wildlife traders. The fine is much less than the benefits received from illegal wildlife trade.
    3. There is no minimum penalty for perpetrators of illegal wildlife trade.

h) How to increase law enforcement agency coordination, because besides Law No. 5 of 1990 there are other regulations which relate to wildlife crimes, thus special task force which consist of law enforcement agencies and other stakeholders is necessary as a coordination forum.

Which parts of the supply chain require priority attention?

a) Existing legislation is fine. The issue is enforcement of existing rules, in particular encouraging proactivity. Too many people are reluctant to look because of what they might find.

b) There needs to be an increased focus from the ground up if there is going to be any success in prevention rather than responses after the fact. There are many initiatives happening at the international level, a few dealing with the middle-men but very few stopping the poachers before they act. This needs boots on the ground and ears in the villages but this must be balanced by strategically focused actions against key trade syndicates operating at a trans-border/trans provincial sub national level. Top down is fine so long as it is matched by bottom up.

c) Demand must be stopped. Because wildlife trafficking in Indonesia is carried out by individuals or groups of criminals, law enforcement agencies should address all existing structures, ranging from poachers, middlemen, exporters, and consumers. For wildlife with foreign destinations, the exporter’s identification is very important. For

national trade, the identification of the trader/middlemen is very important, while to reduce hunting in the source area, the identification of the poacher is very important.

d) The exotic pet industry needs more attention.

e) The main priority is to stop the poaching of protected species from protection areas (*supply of goods*). Poachers and middlemen are the main target to cut the supply. Local community's awareness and active participation in conservation activity are also important factors to cut the wildlife trade supply chain. The Ministry of Forestry and Environment is responsible for wildlife crime upstream in the protected areas. Efforts are also required to combat illegal wildlife trade downstream at the exit points such as airports and seaports. Indonesia's geographic condition as an archipelago gives opportunity to many illegal ports for entry and exit point of illegal wildlife trade to grow. The Ministry of Forestry does not have the authority to conduct surveillance and secure the air and sea ports.

f) Both upstream and downstream.

g) Every component of the supply chain is important, because from poacher, trader, middlemen until customer is conducting crime. The most important priority for now is to have a database on wildlife crime as an evaluation tool.

Key organizations?

a) Within government the priority should be with the police, army or navy who have far greater power to act. There are good BKSDA offices, but they tend to be the exception. However, it might be more effective to focus more investment on the international non-governmental organizations who have demonstrated the power (and will) to put pressure on the government where required.

b) Within the government three agencies are key. The first is the police. There has been good progress made at the national level with a wildlife crime position already in place, but this is not filtering down to local police forces. When local forces have the budgets to operate they have proved very useful. The second is the PPATK to focus on the illicit financial transactions associated with wildlife crime. The third is the KPK, who are required to address the levels of corruption that compromise the effectiveness of the wildlife authorities and customs.

c) Ministry of Environment and Forestry, Customs and Excise, Quarantine, Ministry of Maritime & Fisheries, PPATK (Indonesia Financial Transaction Report and Analysis Centre), Attorney, Judge, Police, Ministry of Transportation, KPK (Commission of Corruption Eradication), NGOs, LIPI, Wildlife Exporter's Association, CITES, and Local government.

d) Attention should be focused on the forestry police.

e) There are three key organisations / sectors:
   1. CIQ (Customs, Immigration and Quarantine), has a very important role in curbing illegal wildlife trade. These institutions have authority to conduct surveillance and security at seaports and airports.

2. Local and international NGOs, have an important role to provide support for the Government of Indonesia to implement established policy through implementation of activities which technically support the policy, information exchange, and building public opinion including support from other countries and international citizens.
3. The private sector, especially plantation companies who need to build corridors and define areas of HCV (High Conservation Value) whenever possible.

f) From a regulatory perspective it is the Ministry of Environment and Forestry. In terms of law enforcement it is the police, Attorney, Judge, Forestry Rangers, Animal and Plant Quarantine, Quarantine Fish and the Directorate General of Customs and Excise.

g) The key is on Ministry of Environment and Forestry, with collaboration from other organization.

Where are the primary data needs?

a) On the ground, inspecting markets and breeding facilities.

b) On the ground, identifying threats before they are realized. Understanding the decisions made by poachers based on the risks/rewards they face.

c) Eastern Indonesia and parts of Kalimantan.

d) East Indonesia.

e) Downstream, forestry rangers have limited powers to monitor and secure entry & exit for wildlife trade at air and seaports. This condition makes the access to gain information on the contraband limited. On the other hand, the capacity and knowledge of CIQ officers about regulations, distribution, and illegal wildlife trade is not sufficient, especially the ability to identify wildlife product and its derivatives. Upstream, data is required on protected species that roam outside protection areas.

f) In the traditional ports along the coast and inland border areas.

g) The priority should be focus on transportation hub that could be use to move wildlife such as seaport and airport, and not only focus on trading centres.

Priorities for funding

a) Shutting down illegal markets and traders, training the judiciary, providing money to start, build and follow through with prosecutions.

b) Invest in better detection and response rates to make the decision to rely on wildlife crime no longer such a safe and lucrative bet. Increase convictions at key pinch points in the trade chain, particularly the exporters rather than the poorer poachers. Money to help government agencies take over the investigative roles currently being played by NGOs would be important. Investment in individuals. Large-scale training and awareness of limited value unless they are supported with money to follow through

and act on the training and participants get a taste of success. Better to focus resources on strategic areas and players and aim to dismember the organized illegal wildlife trade at key points.

c) Increasing wildlife protection and reducing demand reduction followed by a systematic campaign, improved regulation and strong law enforcement.

d) Building rescue/rehabilitation centres

e) Building rescue/rehabilitation centres.

f) There are 6 priorities.
    1. Development of tracking systems for wildlife trade through DNA barcoding to determine the origin of wildlife and prevent biopiracy.
    2. Development of forensic systems for combating wildlife crime and poaching.
    3. Increasing the capacity of law enforcement agencies to combat wildlife trade (forestry ranger, investigators, prosecutors, judge, etc.).
    4. Campaigns and improved public awareness to prevent illegal wildlife trade.
    5. An increase in community participation and development to prevent poaching and trade of protected species, for example through the formation of Ranger Community Partners and Collaborative Forest Patrols.
    6. Raising awareness and political commitment of politicians and decision makers to participate in wildlife trade eradication and make wildlife crime as a national priority.

g) 7 priorities:
    1. Campaign / awareness online, in the papers, on social media to increase public awareness of wildlife trade ban.
    2. Development of a softcopy / hardcopy list of protected wildlife along with photo / picture as a guide that outlines the identification of wildlife physiological traits and morphological.
    3. Transportation to reach remote areas for forestry ranger and other law enforcement officers.
    4. Adding human resources to monitor vulnerable points of the wildlife resource.
    5. Funding informants to supply accurate information for follow-up.
    6. Funding research related database updates on what is extinct/will become extinct wildlife.
    7. Funds to build up the infrastructure of a wildlife DNA bank in Indonesia

h) Besides funding wildlife crime’s enforcement, outside funding should be directed on creating alternative livelihoods for local community who live in the border of protection areas.