

Tools and Resources to
**COMBAT ILLEGAL
WILDLIFE TRADE**



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IMPLEMENTING PARTNERS



PROGRAM STEERING COMMITTEE PARTNERS



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The ICWC is the collaborative effort of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Secretariat, INTERPOL, the United Nations Office on Drugs and Crime, the World Bank and the World Customs Organization to strengthen the national wildlife law enforcement agencies and the sub-regional and regional networks that act in defense of natural resources. The publication was designed by Will Kemp, World Bank Group Printing & Multimedia.

Abbreviations and Acronyms

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
GWP	Global Wildlife Program
ICCWC	International Consortium on Combating Wildlife Crime
IGO	Intergovernmental Organization
IWT	Illegal Wildlife Trade
MIST	Management Information System Tool
NGO	Nongovernmental Organization
UNODC	United Nations Office on Drugs and Crime
UNTOC	United Nations Convention against Transnational Organized Crime
WCS	Wildlife Conservation Society





Executive Summary



This report provides an overview of existing and emerging tools and resources to combat the Illegal Wildlife Trade (IWT). A description of each tool is provided, followed by information on their current utilization and potential applications.

The report has been commissioned by the Global Wildlife Program (GWP) in cooperation with the International Consortium on Combating Wildlife Crime (ICWC), recognizing that better awareness and understanding of available tools and resources related to law enforcement activities to tackle IWT is critical for ICWC and GWP stakeholders and for the rest of the IWT community.

An extensive review of relevant literature, as well as a survey of IWT experts' opinions, was conducted. The survey asked IWT experts about utilized and required IWT tools and resources, and current training levels and requirements. A questionnaire was developed and distributed to experts working in 17 GWP countries, drawn from police, customs, forestry officers, policy officials, and legal personnel. The data was analyzed at an aggregate level.

The report presents fourteen recommendations for future activity. Strategic and technical tools and resources to support law enforcement efforts to combat IWT are being deployed in a range of contexts at both the national and international level. Core policing functions need to be supported by access to relevant databases, by utilization of secure communications platforms, and through provision of basic and specialized equipment. Mobile apps can provide useful data

recording, monitoring, and species identification tools, and their simple user interfaces promote wider adoption and enable utilization by a broad range of persons.

Intelligence tools, such as crime visualization and mapping software, can also be of great benefit in developing investigations into complex criminal networks. However, financing for both licensing and training requirements for these software packages must be considered when adopting these tools.

Human resources remain the cornerstone of IWT efforts. Programs to improve the skills of core enforcement personnel through delivery of structured and long-term training and mentorship programs in identified areas should be implemented at the national level, as directed by national needs analysis.

As IWT is a cross-border phenomenon, promotion of communication and cooperation mechanisms, both through informal police-to-police exchanges and formal legal assistance through treaty frameworks, is of utmost importance. Similarly, developing forensic science capacities through access to national or regional facilities is important for supporting a greater number of successful prosecutions.

Recognizing that IWT frequently involves organized crime, it is essential to pay greater attention to crimes that facilitate and enable IWT, such as fraud, money laundering, and corruption. Ultimately a better awareness, understanding, and utilization of available tools and resources would contribute to an enhanced criminal justice response to IWT.



Introduction

The Illegal Wildlife Trade (IWT) has reached an unprecedented scale, in part due to increasing demand from consumers. It is widely recognized that this criminality threatens peace, security, livelihoods, and biodiversity.¹ The illegal trafficking in protected fauna and flora generates significant profits. IWT occurs globally and involves a multitude of species—both iconic and lesser known (UNODC, 2016).

The response to IWT is multifaceted. It involves multiple national actors and agencies, numerous intergovernmental organizations (IGO) and national and international nongovernmental organizations (NGO), across borders and jurisdictions. There are frequent calls for more targeted action and better coordination and cooperation. However, a dislocation between political will and practical engagement at a national level is often apparent. Understanding and utilizing available tools and resources, as well as recognizing the potential for innovation and new methods, is crucial to effectively disrupt and dismantle the criminal networks that profit from IWT.

Tackling IWT, from the crime scene to the courtroom and beyond, necessitates action from multiple actors. In a law enforcement context, rangers, police, and border officers are key to anti-poaching efforts. They are frequent first responders to crime scenes. Customs officers

act as the frontline in detecting and handling seizures at sea, land, and air borders. Prosecutors direct investigations and determine charges. Judges adjudicate on issues of admissibility, culpability, sentencing, and asset recovery.

The scientific, academic, policy, and advocacy communities all play vital roles in supporting enforcement activities. They enhance the shared understanding of the scale and scope of trafficking, and lead strategies for community engagement and reduction of consumer demand. Better communication, cooperation, and coordination are required to facilitate a unified and comprehensive response to IWT across these stakeholder groups at the tactical, strategic, and political levels.

The following section provides an overview of the key types of tools and resources available to officials in the criminal justice system for combating IWT, and provides examples of prominent tools and resources, where appropriate. It describes both publicly-available and restricted tools.

Appendix 1 contains a summary of the survey results and Appendix 2 contains a matrix of available tools and resources. The survey responses have informed the observations and recommendations throughout the report.

¹ For evidence of global recognition see Hanoi Statement 2016, Kasane Statement 2015, Brazzaville Declaration 2015, London Declaration 2014, UN General Assembly Resolution 69/314 (2015), and UN Sustainable Development Goals launched 2015 (Goals 14, 15), UN General Assembly Resolution A/71/L.88 (2017) <http://undocs.org/A/71/L.88>

Investigative Tools, Techniques and Resources

Use of investigative tools and resources can facilitate basic and advanced law enforcement responses at all stages of an investigation—from an initial investigation, that is, securing a crime scene or making a seizure, to development of investigative leads, and continuing through to proper case management, adjudication in a court room, sentencing, and potentially asset recovery.

Proper crime-scene management is the foundation for many successful investigations into poaching incidents. It facilitates admissibility of evidence in court. It also provides an important starting point for the development of investigative leads. Poaching incidents can present several opportunities to gather valuable information. Crime scene tools, such as metal detectors, can be used to locate potential evidence, such as finding bullets and casings in a field location. Ballistic analysis can be used to match fragments recovered from animals in particular crime scenes.

In contrast, the trafficking of wildlife products is most likely to be discovered at sea, land, or airports. The transnational nature of IWT means that tools and resources that promote coordinated national, regional, and international responses are required, including, for example, secure communications platforms, access to databases, and use of identification apps.

Support and resources for advanced special investigative techniques—such as surveillance (including cross-border controlled deliveries), undercover work, and the handling and management of informants—is important in developing complex investigations to uncover organized criminal syndicates and to target people orchestrating IWT offenses.

Intelligence-Led Activity

Law enforcement agencies are gathering and storing increasing amounts of data. They are being pressured to respond to new and diverse wildlife crime threats, to identify trends sooner, and to better understand complex relationships between increasingly tech-savvy criminals. Under these conditions, tools that can assist officers in processing growing amounts of information into actionable intelligence become ever more vital. Tools using Intelligence analysis allow enforcement officers to better identify connections between crimes and persons of interest, identify patterns and trends between apparently disparate events, and develop evidence packages and timelines to support successful prosecutions.

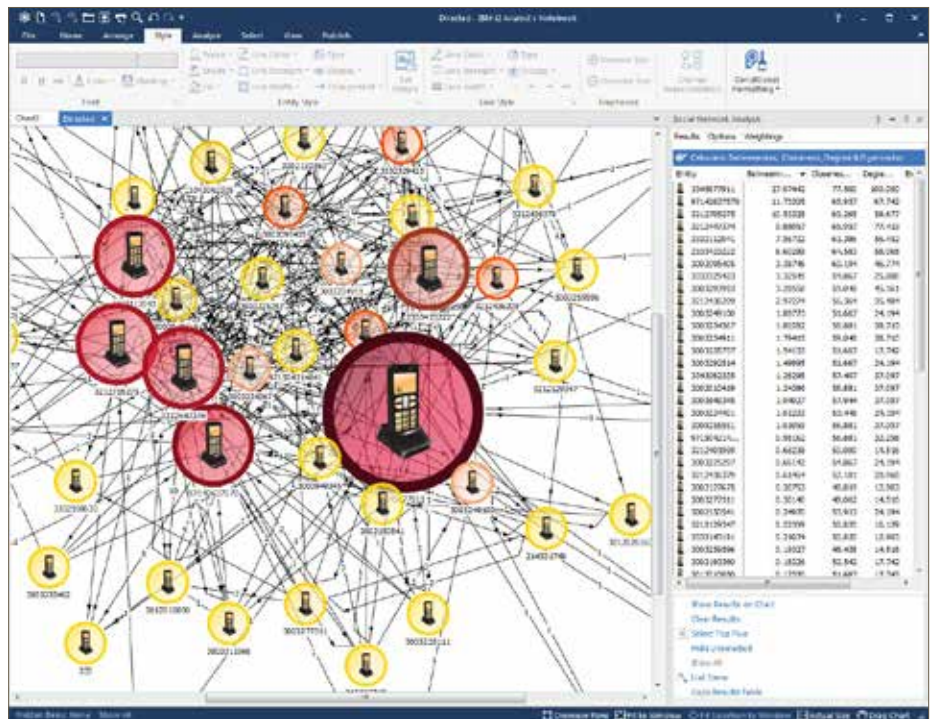
Programs using Intelligence analysis help enforcement officers and prosecutors (as well as juries) to understand the sequence of criminal events over time, to highlight patterns and locations of criminal behavior and to identify social networks of poachers, sellers, buyers, transporters, and other facilitators (such as corrupt accountants, officials, and so forth).

IBM i2 Analyst's Notebook is a prominent example of available intelligence analysis software which allows a user to find potential hidden connections and patterns in data. (See Image 1.1). It allows for mapping of criminal organizations through network visualizations, social network analysis, and geospatial or temporal views.

Basic and advanced intelligence development training and accompanying tools were topics of training often requested by survey participants. One respondent noted that their access to intelligence software is guaranteed through a memorandum of understanding with an international NGO, highlighting the crucial role of civil society actors in supporting law enforcement efforts.

Social media analysis is also an important area of intelligence development. Dealers are moving their business to social media sites, and are now advertising their wares and arranging sales via social media sites such as Facebook. If wildlife trafficking follows recent trends observed by narcotics and counterterrorism officers, it is likely that the sale of illegal wildlife products will increasingly be conducted through encrypted online communications. Sales may be completed using crypto-currencies such as Bitcoin, and the product will be sent via small fast parcels. Detecting, combating, and prosecuting the digitalization of wildlife crime will require a commensurate uplift in the skills and capabilities of enforcement officials.

IMAGE 1.1: IBM i2 Example Illustration



Source www.ibm.com

Investigative Equipment and Tools

Core resources and tools such as computers, Internet access, mobile phones, radios, and patrol vehicles represent baseline requirements to be able to mount effective enforcement responses. Respondents broadly reported a high level of basic provisions, but called for more sophisticated tools such as handheld GPS software, metal detectors, detector dogs, and surveillance drones.

Drones (unmanned aerial vehicles) could offer enforcement officials an innovative solution to some of the challenges involved in monitoring large areas of protected wildlife habitat and in gathering intelligence on wildlife criminals. Other remote sensing technologies, such as satellite imagery, thermal infrared sensors, aerial surveys, seismic ground sensors, and heartbeat monitors,

are increasingly a feature of sophisticated responses to wildlife crime in many source countries (Duporge 2016).

Detector dogs, once used for drug detection and recently for cash detection, are now being used to detect ivory, rhino horn, and other commodities in a variety of locations, including air cargo warehouses, ocean containers, and international mail facilities.

Additionally, where appropriate, protective combat clothing and firearms equipment and training for rangers and border officers is required in responding to armed poachers who have been reported to use high-caliber weaponry.

Forensic Science

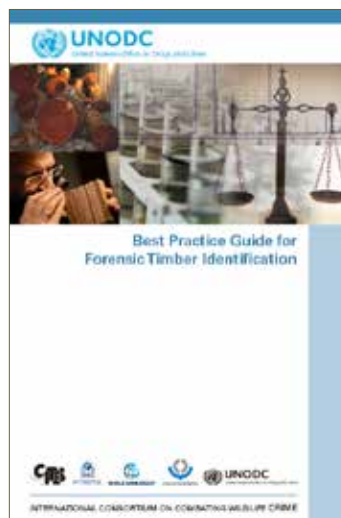
Wildlife forensics is the use of technology and science to support the investigation and prosecution of a crime. Forensic data and forensic evidence are crucial elements of law enforcement efforts. The capacity to accurately identify suspected wildlife specimens, including illegal products, can be aided by forensic science. Obtaining accurate, timely, and cost-effective collection of this data is a key challenge.

Wildlife forensic science is a much wider-ranging and more complex discipline than human forensics, encompassing as it does many hundreds of distinct species, which can provide unique challenges. Analysts, for example, could be asked to assess a whole carcass, a sample of skin or a skeleton, the shells of an invertebrate, or parts of an internal organ (Johnson et al. 2016). It is not uncommon for analysts to routinely come into contact with species they have never before encountered. Despite these challenges, wildlife forensics can provide law enforcement with invaluable intelligence and evidence. A comprehensive attempt to survey global wildlife forensic capacity to support the implementation and enforcement of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)* was recently undertaken and reported (Ogden and Mailley 2016).

The identification of the “victim”—that is, the species under investigation—is key to proving that a crime took place. A trafficker may claim that the product they are moving is from a nonprotected species. The product may have been processed to the point that it is barely recognizable, such as a rhino horn or a bear’s gall bladder ground up into a powder. Forensic analysis can be used to identify the species involved of a specimen, its geographic origin, its wild or captive/cultivated source, its individual origin, and its age (Ogden and Mailley 2016). For example, South Africa’s *Rhino DNA Index System (RhODIS)* is a database of unique DNA profiles for individual rhinos. If a rhino is killed for its horn, the database can be used to support prosecution. In 2016, guidelines were also developed in South Africa for taking DNA samples from seized whole rhino horn and horn shavings/powder, consistent with forensic requirements.

Ivory ID is a website that gives information about new forensic methods developed for the fight against poaching of elephants for their ivory. The website provides

IMAGE 1.2: Timber Guide



Source: www.unodc.org

information on how to determine the age and origin of the ivory samples. It has one database listing many reference samples and another database listing ivory seizures. The database also lists contact details of certified labs where samples can be sent.

Guidelines to facilitate the use of forensic science in criminal investigations are useful for practitioners. The *Guidelines on Methods and Procedures for Ivory Sampling and Laboratory Analysis (Ivory Guidelines)* have been developed by the United Nations Office on Drugs and Crime (UNODC) on behalf of ICCWC to support the use of forensic technology specifically to combat elephant poaching.

Additionally, a *Best Practice Guide for Forensic Timber Identification (Timber Guide)* has been developed to contribute to a legal, sustainable, and traceable trade in timber. (See Image 1.2). A complementary *Law Enforcement Best Practice Flow Diagram for Timber* was also developed to guide officers through steps that should be completed when dealing with a load or shipment containing timber. Both the Timber Guide and the Ivory Guidelines are freely available online.

Deliberate attempts are made by criminals to disguise the origins of species. Often, only identification, and thus prosecution, is possible by using DNA. In recognition of this problem, *Barcode for Wildlife* is an innovative research project seeking to promote the use of DNA evidence and to develop forensic capacity in selected countries by creating a public DNA barcode reference

library of priority-affected species and thus ultimately a DNA barcoding test that can identify protected species of wildlife.

Specific guides that can accompany training courses are beneficial, such as the *TRACE Wildlife DNA Sampling Guide*, which is a free downloadable training guide to accompany wildlife DNA sampling kits. The guide supports the collection of forensic samples from crime scenes.

Forensic elements—from chain of custody issues and sample collection methods, to laboratory analysis and the interpretation of results, are crucial elements of many successful prosecutions. Respondents to the survey reported that shortfalls in forensics tools and techniques were a major impediment to advancing investigations. Respondents specifically mentioned that additional training and reference materials in this area would be beneficial.²

Many countries do not currently have the national capability to analyze wildlife forensic samples. Respondents to the survey noted that forensic support, where available, was provided by labs outside of their countries but was frequently inadequate, citing, for example, limited capacity and lengthy timeframes for sample analysis.

Investigation of Crimes

Efforts to comprehensively combat transnational smuggling and trafficking networks along the IWT value chain need to include the investigation of facilitating and associated crimes, such as document fraud, tax evasion, corruption, and money laundering.³

Wildlife crime is committed through complex networks of criminals that vary across location and the species being exploited, and is enabled by poor governance structures. Associated criminality that surrounds wildlife crime should not be viewed as a secondary issue. Wildlife crime is frequently made possible by either the active assistance or passive permission of corrupted

officials.⁴ It is common for wildlife crime to occur “hand in hand with other offenses, such as passport fraud, money laundering, and murder.”⁵

The *United Nations Convention Against Corruption (UNCAC)* is the first global legally-binding instrument against corruption and provides for a range of preventive anticorruption measures, as well as relevant issues, such as asset recovery, technical assistance, and information exchange.⁶

Criminal networks are often poorly understood by law enforcement authorities, and this lack of knowledge surrounding associated crimes can facilitate organized criminals being highly resilient and adaptable in the face of law enforcement attempts to detect and disrupt their activities. For example, harvesters need to source and maintain illegal firearms and ammunition, distribution networks require methods to conceal their cargo and successfully corrupt officials at ports, and sellers and buyers require discrete means of moving money that cannot be detected by law enforcement or tax authorities. This can involve the assistance of criminal facilitators, such as corrupt accountants and lawyers.

Attention is increasingly being turned to research projects, tools, and resources that will facilitate anti-money-laundering efforts in the context of wildlife crime. The recommendations of the Financial Action Task Force (FATF)⁷ are widely recognized as the international standard for combating money laundering. FATF-style regional bodies are increasingly putting wildlife crime on their agendas. Considering the FATF standards, the Eastern and Southern Africa Anti-Money Laundering Group (ESAAMLG)⁸ recently published a typology report focusing on poaching, trafficking, and the proceeds thereof that occurred in its member countries (ESSAMLG 2016).

In recognition of the importance of “following the money”, and in view of the current lack of focus on wildlife crime as being financial crime, the World Bank, on behalf of ICCWC, developed a comprehensive *ICCWC wildlife crime and AML training program* which is currently being piloted.

2 For a further discussion of the survey response on forensics please see Appendix 1 – Survey Results.

3 For the first-time wildlife crime was included in the 17th International Anti-Corruption Conference (IACC) in Panama held December 1- 4, 2016.

4 Passas, 2002, notes similarly, legitimate actors can be blackmailed or otherwise coerced into facilitating wildlife criminality.

5 See Interpol Environmental Crime Programme (2012)

6 For more information on legal tools see Legal Frameworks section.

7 Financial Action Task Force: <http://www.fatf-gafi.org>

8 Eastern and Southern Africa Anti-Money Laundering Group

Electronic Platforms

Databases

Databases provide a structure and framework for information on wildlife trade and wildlife trafficking. They can be utilized to increase knowledge and understanding of the nature, scale, and scope of trade, and to highlight vulnerabilities in legal markets and supply chains. Trade data can thus be used to shed light on possible trafficking routes, including legitimate markets that are used as cover for illegal trade.

Databases are vital information systems that help enable wildlife crime enforcement officers to detect, prevent, and pursue criminals. At an operational level, they are a key vehicle for enabling sharing of information within intelligence and law enforcement agencies, and when properly integrated, between them.

At an international level, the *CITES Trade Database* is an important mechanism for monitoring legal wildlife trade levels and helps to identify where trade might adversely affect wild populations. The CITES Trade Database currently holds over 13 million records of trade in wildlife, and over 34,000 scientific names of *taxa*⁹ listed in the CITES Appendices. Each party to CITES is required to provide regular national trade reporting. The database provides a summary of trade between countries, spanning a number of years and, therefore, aids the analysis of trade routes. It is an important tool for monitoring the level of international trade in CITES-listed species.

The database can be accessed to provide a summary of trading in species between countries, which facilitates global analysis of trade patterns. However, it should be noted that there is variability in the quality and availability of this reporting.

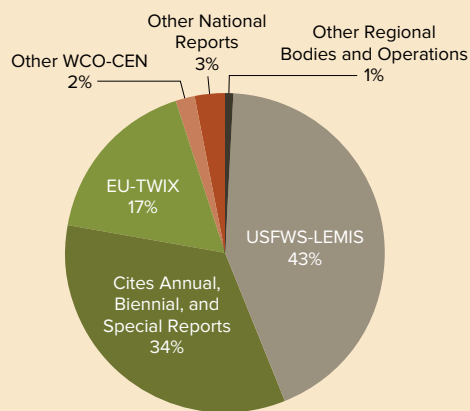
The *World Wildlife Seizures (WorldWISE) database* is a recent UNODC database which amalgamates all available data on wildlife seizures to build an

understanding of wildlife trafficking. (See Figure 1.1 below). This data was analyzed and presented in the first *World Wildlife Crime* report published in 2016 by UNODC with the support of ICCWC. The database lists over 164,000 seizures from 120 countries,¹⁰ highlighting the diversity and global reach of wildlife crime.

Beginning in October 2016, CITES parties have been required to submit annual illegal trade reports. It is expected that this reporting will, over time, build a more robust dataset for understanding illegal trade moving forward.¹¹

In addition to accessing these specific wildlife crime databases, the ability of officials to access available general national and International criminal databases is also important to be able to identify offenders and criminal syndicates.

FIGURE 1.1: Data Sources for World WISE



Source: www.unodc.org/documents/data-and-analysis

9 Taxa (plural) is a group of one or more populations of an organism or organisms seen by taxonomists to form a unit.

10 See UNODC page "Wildlife crime assessed globally for the first time in new UNODC report" available at <https://www.unodc.org/unodc/en/frontpage/2016/May/wildlife-crime-assessed-globally-for-the-first-time-in-new-unodc-report.html>

11 See CITES page "Reporting under the Convention" available at <https://cites.org/eng/resources/reports.php>

National police and intelligence agencies have been developing the capabilities of their crime databases. For example, geographical tools to map where crimes have been reported have increasingly allowed law enforcement agencies to use their resources in a more targeted manner and to accordingly prevent and disrupt criminal activity.

However, databases, despite being a vital tool, are still imperfect. Enforcement officers require training to systematically enter and search for data. Officers may resent the time-consuming nature of data entry, but nonetheless, errors in data entry or information categorization can lead to vital information being unlocatable when needed. The most effective databases are designed in such a way as to reduce the administrative burden on enforcement officers and to provide detailed, robust search functions that can effectively discriminate between relevant and irrelevant matches.

In the survey, respondents reported that access to databases, in particular national criminal databases, was a core requirement of an effective enforcement response.

Online Platforms and Mobile Applications

IN SITU APPLICATIONS

Systems to collect, record, and analyze particular geographic sites (for example, protected areas) or particular species (for example, elephants and rhinos) are important to build an accurate picture of wildlife locations, population levels, and specific threats to protected species. Free, open-source software can be an important tool in this effort.

The *Management Information System Tool (MIST)* is free, open-source software used to store and analyze data that park rangers collect while patrolling a protected area. The technology was adopted by the Wildlife Conservation Society (WCS) and implemented in a number of protected areas. MIST can be used to record information about sightings of key species, and on illegal activities, which can in turn be used to direct patrol efforts.

MIST is widely recognized as a useful tool. CITES used the software in its program, *Monitoring the Illegal Killing of Elephants (MIKE)*, at all MIKE sites. The *Elephant Trade Information System (ETIS)* monitoring program is an information system used to record and analyze levels and trends in the illegal trade of ivory and other products derived from elephants, and provides an important global database on seizures of elephant specimens. It has become a well-established and effective tool for monitoring this illegal trade.

A more recent and arguably more advanced open-source software is the *Spatial Monitoring and Reporting Tool (SMART)* application to manage law enforcement and conservation efforts in particular locations. It enables the collection, storage, communication, and evaluation of ranger data on patrol efforts, patrol results, and threat levels. It is designed to be much simpler to learn to use than generic Geographic Information System (GIS) software.

Wildlife Enforcement Monitoring System (WEMS) is another web-based information-sharing platform designed for use between national agencies and regional networks. Trials are being conducted in African and Asian countries to facilitate greater cooperation between source and destination states for key affected species such as elephant and rhino.

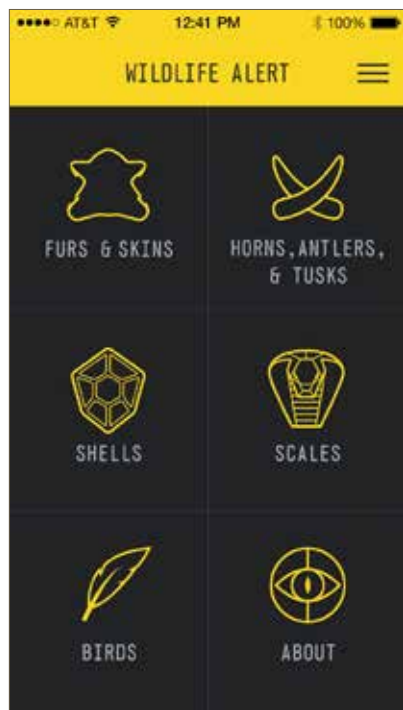
CyberTracker is another example of a data-collection tool used to record ranger observations. (See Image 1.3). It can be used on mobile phones, and its simple user

IMAGE 1.3: GPS Companion



Source: www.cybertracker.org

IMAGE 1.4: Wildlife Alert Mobile App



Source: Wildlife Conservation Society

icon interface is useful for those who cannot fluently read or write. This monitoring data can be used to direct strategic conservation and antipoaching efforts. For example, this system has been used in Kruger National Park in South Africa.

Ultimately, the more user-friendly the interface of an application (app) is, and the quicker these systems can be to use, the more these technologies will be adopted. The cost and robustness of the equipment necessary to operate these apps is also a key factor in whether users adopt and utilize these systems.

SPECIES IDENTIFICATION

Among the most innovative tools and techniques available are smartphone apps designed to aid the detection and prosecution of wildlife crime and wildlife criminals.

The Wildlife Conservation Society's *Wildlife Alert App* is a good example of a smartphone innovative design. (See Image 1.4). The app poses a series of questions regarding wildlife products the users have come across. These questions help the user assess the authenticity and the source of the item that they are handling. If the

item is thought to be from a protected species, the user is provided with instructions on how to proceed.

Additional apps, such as *Wildlife Alert*, provide users with quick access to useful information on hundreds of protected wildlife species. They are seen as broadly reliable and require little training.¹²

Certain apps include additional functionality, such as real-time communications functions. Many use a decision-tree design to allow users to quickly determine the probable identity of the wildlife product in consideration. For example, this information can be very useful to front-line officers and customs officials at ports who may be under significant time pressure to arrive at a decision to halt or pass cargo.

It is often difficult for nonexperts to quickly and accurately distinguish between protected and nonprotected species. This is particularly true if the animal product has been significantly processed or combined with other materials. Wildlife crime apps are at their most useful when they have the capability to quickly differentiate between local protected and unprotected species based on common animal products. In Vietnam, for example, an innovative Vietnamese language online platform¹³ has been developed to provide users with step-by-step guides to identify over 150 protected species based on the user's assessment of animal parts and products.¹⁴

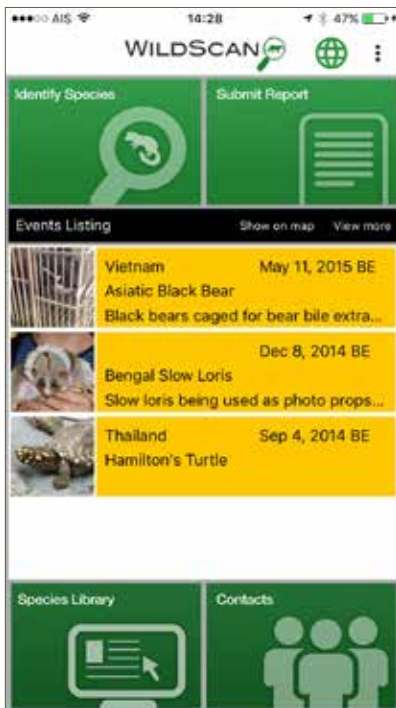
Respondents to the survey cited the utility of these specialist apps. Multiple respondents reported that the wider availability for their localities of either the apps discussed here or of other similar apps to the ones described here, would greatly assist them and their colleagues to make quicker and better judgments about the provenance of wildlife products.

¹² For example, in China, the Wildlife Guardian is supported by the Anti-Smuggling Bureau of China Customs and the China Wildlife Conservation Association and can identify 475 protected species. Recently, over 300 Chinese law enforcement officials deemed the app to be either "useful" or "very useful" in a follow up survey.

¹³ See the Vietnamese online platform here: giamdinhloai.vn

¹⁴ A recent survey considering the use of decision-tree identification tools and apps in Vietnam showed that the majority of law enforcement agents surveyed found the tools "easy to use." Over 80 percent of them expected to use these apps as part of their duties in the future.

IMAGE 1.5: Wildscan Mobile App



Source: Freeland.org

Decision-tree apps are relatively inexpensive to develop, easy to maintain and distribute, and could be used by officials to gather useful information on those trading in protected species. Local apps would better allow users to identify the most commonly-traded protected species in that location and, crucially, incorporate national legislation and local offenses into the decision-making and detection functionality of the apps.

Survey respondents specifically referenced the *Wildscan app*. This app can help users to identify over 250 protected species. (See Image 1.5). Presently, the app's focus is on protected species in Southeast Asia.¹⁵

As with other apps discussed here, it is freely available on Apple and Android formats and is targeted primarily to front-line wildlife enforcement officers. It allows users to anonymously report the sale of protected species and animal products derived from protected species, and uses the smartphone's GPS functionality to provide real time data on a suspected criminal's location.

¹⁵ The app is currently available in English, Vietnamese, and Thai, and there are plans to roll out Khmer, Indonesian, and Malay versions. Freeland is currently developing localized versions of Wildscan for African nations.

Communications Platforms

The ability to quickly and securely share information and intelligence is a cornerstone of the law enforcement response to the illegal wildlife trade. Conversely, a lack of connectivity between various enforcement agencies is frequently cited as a reason for an inability to successfully conduct more complex wildlife investigations.

Given the transnational nature of wildlife crime and the complexity of trafficking routes, access to global enforcement communications channels is important. The *Customs Enforcement Network Communication Platform (CENcomm)* is a secure platform allowing customs officers and other authorized users to exchange real-time information during an operation. It also provides a means to share information in a standardized format. It can be accessed through the Internet, giving it a broad global reach. *ENVIRONET* is a secure CENcomm platform for the exchange of environmental information, such as media updates related to wildlife crime and other environmental crimes, alerts, manuals, handbooks, and enforcement-related messages. It is also a space to share best practices and to access downloadable training materials. The site contains a discussion group and other resources for officers combating wildlife crime. Since June 2015, the CITES Enforcement Authorities Forum (EAF) has been integrated with the WCO's ENVIRONET, which includes selected folders that contain copies of CITES Notifications on enforcement matters, alerts issued by the CITES Secretariat, CITES sample permits and certificates, and other relevant materials and information.¹⁶

The European Union Trade in Wildlife Information eXchange (EU-TWIX) is a landmark wildlife crime communications tool. It is a platform for European countries to record and exchange information about wildlife seizures, and includes data that can be analyzed to monitor trafficking trends and routes. It has triggered a number of law enforcement investigations. A new TWIX for West Africa has recently been established, and another for Southern Africa is planned.

I-24/7 is the International Criminal Police Network (INTERPOL) secure communications platform for police organizations to exchange information and access

¹⁶ Notification n°2015/039 on the Integration of the CITES Enforcement Authorities Forum with WCO's ENVIRONET, available online at <https://www.cites.org/sites/default/files/notif/E-Notif-2015-039.pdf>

IMAGE 1.6: INTERPOL Purple Notice

Requesting country:	BRAZIL
Date of publication:	30/08/2016
MODUS OPERANDI	
Type(s) of offence:	Illegally trade highly valuable timber species
Date of last known offence:	04 December 2015
Place of offence:	Pará State
Country of offence:	Brazil
Circumstances of offence:	The Brazilian Federal Police (Policia Federal) has identified a technique used to illegally trade highly valuable timber species such as Ipe (<i>Tabebuia serratifolia</i>). This method involves obtaining Forest Management Plans (FMPs) that declare a higher density of timber of particular high-value species within the timber concession than there is actually on the ground. These false Forest Management Plans are obtained fraudulently through bribery or by the operators who forge them. This allows criminals to harvest timber from unauthorized areas and report it as legal timber obtained from the timber concession under the Forest Management Plan, thereby laundering it.

Source: Accessed: <https://www.interpol.int/INTERPOL-expertise/Notices/Purple-notice-%E2%80%93-public-versions>

INTERPOL criminal databases. Requests for assistance can be sent through National Criminal Bureaus (NCBs) utilizing this system. Because authorized users have access to *I-link* within *I-24/7*, this additional functionality

allows for links to be made across investigations. ECO-message application also facilitates the exchange of environment-specific information.

Dissemination of further INTERPOL Purple Notices, (which seek or provide information on *modus operandi*, objects, devices, and concealment methods used by criminals) specific to wildlife crime would also be beneficial in promoting understanding of evolving criminal *modus operandi*. (See Image 1.6).

The CITES Secretariat maintains several online forums where CITES Management Authorities can share relevant information, access CITES permits, and see other information on CITES matters.

Respondents to the survey highlighted that access for enforcement personnel to secure communications platforms was important for the development of operations to combat wildlife crime, especially in a cross-boundary context.

Training and References Materials

Effective law enforcement responses to illegal wildlife trade requires basic law enforcement training for key frontline agencies, including police, ranger, forestry, customs, and border forces. It also requires more resources and training in specialized fauna- and flora-specific categories, as well as for more advanced enforcement techniques, such as use of informants and controlled deliveries. Wildlife-specific training for law enforcement and access to materials can be facilitated in situ and online through a number of mechanisms.

Training courses and accompanying training and reference materials are vital for officers to maintain a high level of knowledge and skills in detecting and combating wildlife crime. Officers require different levels of training and reference materials depending on their duties and on the frequency with which they come into contact with traffic-protected species and

animal products. Capacity issues need to be considered when training is deployed. For the majority of respondents surveyed, wildlife crime cases made up less than 50 percent of their workloads, and fewer than 15 percent of respondents focused solely on wildlife crime cases.

Responses highlighted that port officers specifically need to receive in-depth training to assist them with identifying wildlife at a species level, thereby allowing them to better identify deliberately mislabeled consignments and shipments.¹⁷

¹⁷ Rosen and Smith (2010) note that even in the absence of in-depth training, decision-tree style computer programs and apps (discussed in detail elsewhere in the report) can be a "vast improvement on current species identification guides and could be operated successfully by an officer with relatively little training".

Training and reference manuals also need to go beyond species identification. Wildlife crime units often lack the knowledge and training required to detect and counter the *modus operandi* adopted by intricate (often international) organized crime groups. Survey respondents for this report noted that they frequently utilized various national agency, IGO, and NGO reference materials in carrying out their duties.

When asked about future training requirements, the vast majority of respondents said that they would benefit from additional training on IWT issues. Respondents reported that additional training was not a priority for crime scene management, or on applicable legislation. This suggests that the level of training in these areas is broadly in line with respondents' current needs. Areas where respondents felt strongly that they needed additional training were case/intelligence development, forensics, financial investigations, cyber investigations, and use of Mutual Legal Assistance tools.¹⁸ Respondents also highlighted that technical guidelines and tools to manage and monitor captive breeding sites would be beneficial, recognizing that laundering of wild species can happen in these locations.

Operational Training Material

National agencies, IGOs, and NGOs have all developed various informational and training materials relating to IWT. For example, UNODC developed a *Manual on Wildlife and Forest Crime for frontline officers*. This manual is designed to provide an overview of the key considerations for investigators in dealing with wildlife and forest crime.¹⁹ The key information in the manual has been condensed into a handy pocket guide, *Wildlife and Forest Crime: a field guide for frontline officers*.

The professionalization and standardization of ranger training is a key focus in many countries.²⁰ The International Ranger Federation has recently published *Training Guidelines for Field Rangers*, designed as a best practice guide on the scope, details, and standard of training that syllabuses should cover to enable rangers to perform their jobs effectively.

¹⁸ See Appendix 1 – Survey Results for more detail.

¹⁹ The manual is arranged into five sections: Information and Intelligence, Planning Operations, Advanced Techniques, Preserving Evidence, and In-Depth Investigation.

²⁰ See Southern African Wildlife College webpage at: <http://www.wildlifecollege.co.za/>

As a supplementary measure, online training courses, such as the *WCO e-learning Platform*, the *UNODC e-learning platform*, and the *CITES Virtual College* can all provide an effective low-cost way to reach many investigators working in the field of wildlife and forest crime. INTERPOL operates a website with restricted access containing a number of useful materials. Coordination and collaboration among enforcement entities on the deployment of training programs is crucial for providing a high level of standardized, targeted, and long-term training for all enforcement agents and officials.

In addition, translating these materials into other languages to broaden the applicability of training uses would be beneficial in order to reach and educate a broader audience.

The GWP in collaboration with ICCWC has developed a *Database of IWT Subject Matter Experts*, available on request. The database will list many different experts in a range of IWT areas including law enforcement, legal and judicial, forensic science, academia, strategic planning, and policy development. The database will serve as an important resource of potential experts to consult with and engage on a range of short-, medium- and long-term IWT activities including the delivery of training, mentorships, scientific and technical assistance, and expert testimony.

Capacity-building projects must be undertaken to ensure that there is a sufficient level of infrastructure and expertise to fully exploit the opportunities provided by new technologies. A high priority is for IWT officials to work with national governments to ensure that wildlife crime intelligence and enforcement is properly resourced.

Strategic Resources

In order to effectively combat wildlife crime, country officials must have a comprehensive understanding of the nature, scale, and scope of poaching and trafficking in their jurisdiction. They also need an accurate picture of the current national criminal justice system response to IWT crimes, as well as an understanding of what organizations and methods drive the illegal trade.

The *ICCWC Wildlife and Forest Crime Analytic Toolkit* is an important resource to facilitate a comprehensive

analysis of a country's national capacity to respond to wildlife crime. It contains many analysis "tools" organized in five different areas of analysis: i) Legislation; ii) Enforcement; iii) Judiciary and Prosecution; iv) Drivers and Prevention; and v) Data and Analysis.

The *ICCWC Indicator Framework for wildlife and forest crime* is a complementary tool that can be used to provide a baseline assessment and analysis of national capacity. Subsequently the framework can be used as a monitoring tool. Assessment guidelines and assessment templates have been designed to facilitate uses of the indicator framework.

At the global level, the first *World Wildlife Crime Report*

into trafficking of protected species provides a useful overview of the multitude of factors and diverse challenges that must be considered to understand this type of organized crime. The report provides a broad assessment of the nature and extent of the problem worldwide. It also has enforcement and policy implications. For example, the report highlighted that seizure data analysis indicated that customs officers at ports of entry, rather than domestic markets, provide the majority front line enforcement activity.

Respondents to the survey specifically referenced the ICCWC Toolkit as a valuable analysis resource, with several who were surveyed calling for it to be more widely implemented.

Legal Frameworks

At the global level, relevant international frameworks, including the *United Nations Convention Against Transnational Organized Crime (UNTOC)*, the *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*, and *The United Nations Convention Against Corruption (UNCAC)*, form the basis for compliant national legal frameworks, and cooperation between countries. Regional bodies, such as the European Union (EU), the African Union (AU), the Association of Southeast Asian Nations (ASEAN) and American regional organizations, can also provide a useful framework for the consideration and adoption of complementary legal frameworks. Nationally, criminal and wildlife laws (where relevant), along with accompanying regulations and sentencing guidelines, must be robust enough to achieve the desired results.

Criminals do not respect borders, so international cooperation to facilitate successful investigations and prosecutions is often of great importance. Cooperation is multifaceted and can include collecting depositions, issuing subpoenas, recovering assets, obtaining various types of documentary evidence such as permits, and so forth. Treaties are useful tools for countries to request legal or scientific assistance from another party. Cooperation between states for obtaining assistance in the investigation or prosecution of wildlife crime relies on having a framework in place for mutual legal

assistance. Where no specific bilateral or regional treaty exists, the UNODC *Mutual Legal Assistance Request Writer Tool (MLA Tool)* is a useful online tool that has been developed to assist states in drafting appropriate requests.

SHERLOC (Sharing Electronic Resources and Laws on Crime) is an online portal on the implementation of UNTOC. It contains a case law database of jurisprudence on a range of transnational organized crimes, including wildlife and forest crime, and a database of legislation which lists national laws relevant to the provisions of the UNTOC.

CITES National Legislation Project (NLP)²¹

Resolution Conf. 8.4 (Rev. CoP15) on *National laws for implementation of the Convention* directs the Secretariat, within available resources, to identify those Parties whose domestic measures do not provide them with the authority to:

²¹ See webpage "Reporting under the Convention" available at: <https://cites.org/legislation>

- i. designate at least one Management Authority and one Scientific Authority;
- ii. prohibit trade in specimens in violation of the Convention;
- iii. penalize such trade; or
- iv. confiscate specimens illegally traded or possessed;

All four minimum requirements need to be met by the national laws. Under the NLP, and in consultation with the concerned Party, national legislation is analyzed by the Secretariat in relation to these four minimum requirements and placed in one of three categories, as follows:

- Category 1: legislation that is believed generally to meet the requirements for implementation of CITES
- Category 2: legislation that is believed generally not to meet all of the requirements for the implementation of CITES

- Category 3: legislation that is believed generally not to meet the requirements for the implementation of CITES.

A legislative status table, prepared and periodically revised by the Secretariat, provides a summary of Parties' legislative progress including the category in which their legislation has been placed and whether they have been identified by the Standing Committee as requiring attention as a priority.

Responses to the survey indicate that there is a lack of sentencing guidelines in many jurisdictions. Such guidelines can be a valuable reference for judges by detailing the kinds of sentences that have been given for particular crimes taking into account any enumerating various factors that influenced the sentencing decision. Respondents also highlighted the importance of having access to expert testimony in court.

Demand Reduction

The existence and power of consumer demand for wildlife items is one of the core drivers of poaching and the illegal wildlife trade.

Working to change perceptions of wildlife products as desirable commodities, whether it be for medicinal purposes or for perceived social status, must be part of a holistic law enforcement response. Understanding the markets for wildlife products and what drives the consumers enables targeted interventions.

Online resources such as the *Wildlife Consumer Behaviour Change Toolkit*, created by TRAFFIC, the Wildlife Trade Monitoring Network, and the German Agency for International Cooperation (GIZ), are freely available online, and contain examples of successful public awareness campaigns, such as the 'Chi' campaign in Vietnam, as well as downloadable courses, key strategies, international agreements, reports and studies, and other useful information on the illegal wildlife trade and on reducing demand. (See Image 1.7).

IMAGE 1.7: Toolkit Steps

A structured approach to change consumer behavior



Source: <http://www.changewildlifeconsumers.org>

Community Engagement and Livelihoods

Understanding the impact of poaching on affected populations, and engaging with local communities on IWT enforcement activities, can both facilitate greater understanding and support for local law enforcement efforts, as well as promote intelligence-led activity.

In recognition of the pivotal role of local communities in efforts to halt poaching and trafficking at the source, as well as to deter would-be consumers in destination locations, a project has been initiated by the International Institute for Environment and Development (IIED) to create a *Conservation, Crime and Communities' Database*, searchable by country and by species, and made up of case studies of community engagement and information in national policy contexts. The database is still in development but represents a promising opportunity to record and learn from specific experiences from around the world.

Provision of alternative livelihoods, increasing incentives for stewardship, mitigating against human wildlife conflict, and strengthening disincentives for poaching (Biggs et al. 2017) are all elements of a comprehensive response to IWT. Recognizing that in certain parts of the world rural communities can depend on wild species for their livelihoods, the CITES Parties created a working group with the mandate to develop tools for sustainable implementation of CITES listings.²²



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Law enforcement efforts can be supported by members of the public through provision of secure mechanisms to anonymously report wildlife and forest crimes.

Overall, respondents to the survey felt that while there was a degree of public awareness, further awareness campaigns would be beneficial. Not all respondents felt there was sufficient community engagement, although some noted that initiatives to work with local communities were in place.

Respondents all noted that some human wildlife conflict was present in their countries, including crop raiding and killing of livestock and humans. Proximity to national and regional reserves, as well as periods of water scarcity, were cited as contributing factors.

²² See page "CITES and Livelihoods" available at: <https://cites.org/eng/prog/livelihoods>

Conclusion

This report has considered current tools and resources potentially available to criminal justice system officials to better enable them to fulfill their roles. The various actors and agencies that make up a national government law enforcement response—including wildlife rangers, police, customs officers, prosecutors, and judges, as well as policy makers, frequently lack

sufficient coordination, knowledge, technical resources, and tools to comprehensively combat transnational smuggling and trafficking networks along the IWT value chain. The following recommendations are based on research of available literature as well as on the IWT expert survey feedback.

KEY FINDINGS/RECOMMENDATIONS

1. Relevant enforcement personnel, including rangers and customs agents, should have access to the widest possible national and/or international communications platforms and databases. Where relevant, national reviews of wildlife crime enforcement structures and access should be conducted.
2. Advances in technology have created a host of online and mobile applications that can be utilized by IWT stakeholders. Broader adoption of specialist in situ management apps should be considered by enforcement agencies.
3. Greater use of mobile apps with customized species identification to assist enforcement officers and their colleagues to make quicker and better decisions about the provenience of wildlife specimens should be considered.
4. Existing training materials and strategic assessment tools should be made available in more relevant languages, and at least in English, French, and Spanish where relevant.
5. Shortfalls in access and capacity to utilize forensics tools and techniques is frequently a major impediment to carrying out investigations. Additional training, reference materials, and access to regional lab structures would be beneficial.
6. More training and tools to promote a financial approach to tackling IWT by “following the money” to identify criminal networks, aid prosecutions, and seize assets, is required.
7. Procurement and training on the use of intelligence mapping software for enforcement officers should be considered.
8. Strengthening mechanisms for international scientific and legal cooperation to advance criminal investigations is required.
9. Support for the development of prosecutor handbooks and sentencing guidelines explicit to IWT offenses in specific jurisdictions should be provided.
10. Training and tools to promote mutual legal assistance between key affected countries should be considered to further criminal investigations.
11. The criminal justice system response to IWT should be complemented by wider community engagement and demand-reduction efforts.
12. Detecting, combating, and prosecuting the increasing uses of online forums and platforms such as Facebook to facilitate wildlife crime will require better tools and training for enforcement officials.
13. Frontline officials would benefit from greater access to advanced detection tools, including cargo scanners and detection dogs.
14. Frontline officers report a need for further training in case/intelligence development, use of forensic science, financial investigations, and cyber investigations.



Appendix 1

Survey Results

Methodology

Questionnaires are a cost-effective research tool that allow users to quickly gather information from respondents. When designing the questionnaire for this report, efforts were made to adhere to best practice guidelines adopted by academia and industry—namely to ensure questions convey clear meaning and to minimize the time burden on the respondent (Biemer and Lyberg 2003).

Questions were designed to avoid using jargon and to elicit information from the respondents in a concise and unambiguous manner. The questionnaire presented the respondents with several closed, nonfactual questions requiring a Likert scale response (that is, asking a respondent to indicate the degree to which they agree or disagree with a statement or question).²³ Where appropriate, some questions offered respondents a

simple yes/no response. Additionally, space for comments and open (free writing) questions were included to allow respondents to provide more nuanced and detailed information.

Profile of Respondents

The vast majority of respondents, from seventeen countries,²⁴ were experienced wildlife crime enforcement officers with over a decade's operational experience (Figure A1.1). Similarly, more than 50 percent of these respondents had each investigated thirty or more wildlife crime cases over the course of their careers (Figure A1.2). More than 70 percent of respondents reported that their jurisdictions had legislation in place that recognized discreet wildlife crimes.

FIGURE A1.1: Overview of Respondents' Experience

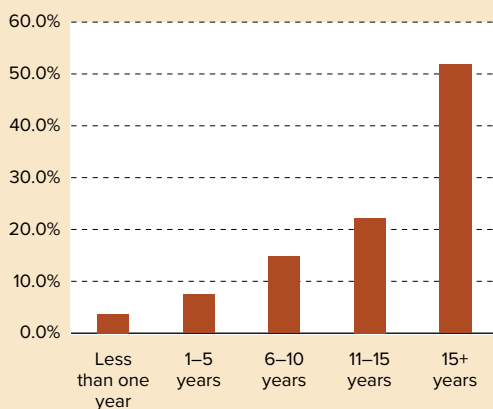
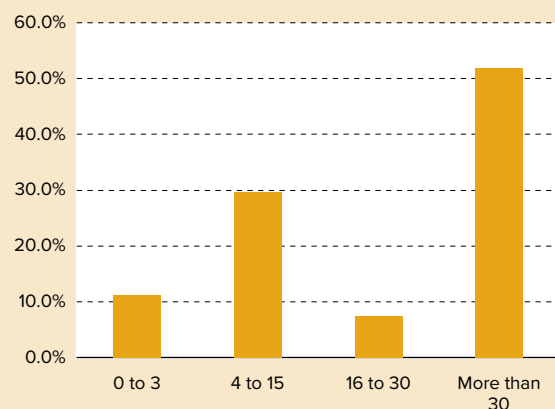


FIGURE A1.2: Number of Wildlife Cases Dealt With to Date



²³ Oppenheim, 1992, observes that although it is simplistic, the Likert scale is the optimal measure for the sort of nonfactual questions posed in the questionnaire.

²⁴ Afghanistan, Cambodia, Congo, Ethiopia, Gabon, Indonesia, Kenya, Malawi, Mali, Mozambique, Philippines, South Africa, Uganda, Tanzania, Vietnam, Zambia, and Zimbabwe

For most respondents, wildlife crime was not typical of their caseload. Fewer than 10 percent of respondents solely focused on wildlife crime cases. For roughly three-quarters of the respondents, wildlife crime cases made up less than 50 percent of their caseloads.

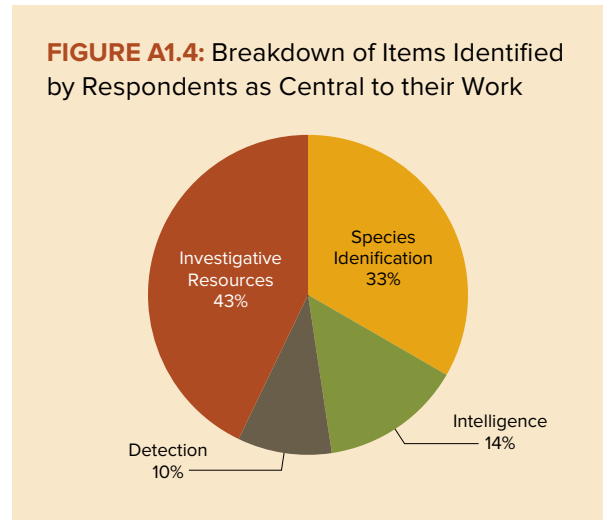
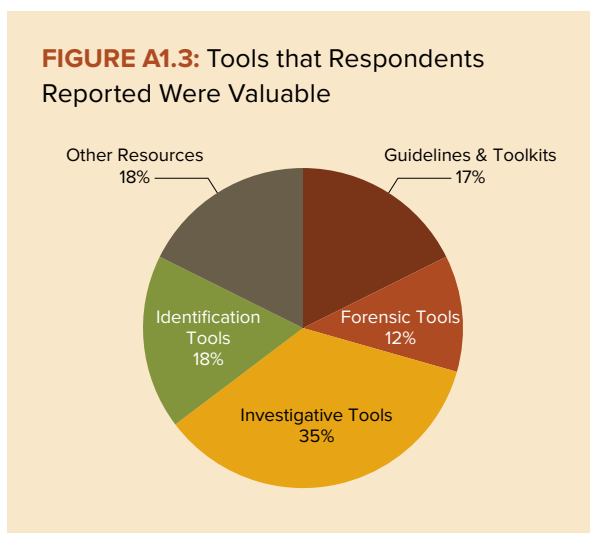
Respondents discussed the utility of the training they had received and of the tools that they had access to. They were also asked about gaps in their training and capabilities, and what additional tools and resources they require.

Tools and Resources Utilized

Respondents identified several tools and techniques they currently use in the execution of their duties (Figure A1.3).

Required Tools and Resources

Respondents specifically highlighted a range of tools and resources that they considered central to improving their ability to enforce wildlife crime legislation and prosecute criminals (Figure A1.4). These range from cutting edge, hi-tech tools and pieces of equipment to more day-to-day policing tools. Items identified by respondents are grouped into four categories: Species Identification, Intelligence, Detection, and Basics.



SPECIES IDENTIFICATION TOOLS

A large proportion of respondents noted that gaps in identification tools hamper their ability to combat wildlife crime.

As previously noted, respondents called for greater access to locally-focused mobile phone apps to support decision-making by expert and non-expert enforcement officers faced with suspect animal products. The *Wildscan* app was viewed as being particularly effective.

Interestingly, some respondents noted that more traditional physical identification manuals would be of tangible benefit to their work. It may be that some frontline enforcement officers work in locations where digital identification apps (such as *Wildscan* and others) would not be appropriate because apps may rely on a reliable Internet connection and electricity supply to be used effectively. It may also be the case that some experts are not yet aware of the widening availability of identification apps or that currently available apps do not adequately cover the protected species and common animal products that they regularly come into contact with.

Respondents noted that identification manuals are of value when they are confronted with nonnative species. This is particularly relevant to customs officials. It underscores the need to recognize that officials operating in source countries for animal products derived from native species can still come across trafficked material from across the globe.

FORENSIC SCIENCE

Respondents reported that shortfalls in forensics tools and techniques were a major impediment. Forensics tools and techniques in general, and with regards to combatting wildlife crime specifically, have developed rapidly in the last decade. Evidential quality forensics are a key aspect of building a robust enforcement and prosecution framework against wildlife crime (Huffman and Wallace, 2012).

In addition to helping provide identification, wildlife forensics allows enforcement officers and prosecutors to answer a second crucial question—where has the animal product come from? Trade of animal products from certain populations of species is permitted. Being able to scientifically determine the geographic origin of the product in question can make a big difference between detecting and failing to detect a crime.

Finally, forensics links criminals to the scene of their crimes. Matching the fingerprints on a product to a trafficker, or linking the mud on a poacher's tires to the site of an elephant carcass, provides law enforcement with reliable, admissible evidence to secure convictions.

New analytical techniques, improved technology, and to a lesser extent, greater automation of testing, enable investigators to derive detailed information from challenging samples. Skilled forensics practitioners are increasingly able (and willing) to share best practices and improved ways of working with colleagues across disciplines and national borders.

INTELLIGENCE

Respondents discussed their desire to deploy drones (unmanned aerial vehicles) to gather intelligence on wildlife crime. Drones often offer enforcement officials an affordable and flexible solution to some of the challenges involved in monitoring protected wildlife and in gathering intelligence on wildlife criminals.

Some researchers have argued that the use of drones by wildlife enforcement officers could have a number of unintended consequences relating to privacy and data security which could, in the long term, undermine conservation and enforcement efforts. (Sandbrook 2015). Ethical concerns such as these should be carefully considered before drones are deployed.

Wildlife intelligence gathering extends to the digital world. Online surveillance techniques are used to gather intelligence on the sale of illegally trafficked wildlife and animal products. The application of digital surveillance techniques to assist individual enforcement operations could yield significant results, and could contribute to a broader understanding of trends at both regional and international levels (Hansen et al., 2012).

Counterterrorism officials have pioneered the use of social media monitoring, online undercover surveillance, and other approaches to gathering intelligence on persons of interest. Access to terrorist suspects' social media accounts often yields valuable information about their contacts, intentions, funding, capabilities, and locations. Compared to traditional on-foot or in-vehicle surveillance, social media monitoring provides a cheaper alternative for monitoring the location and movements of a suspect. Collected properly, data from social media sites can also be admissible as evidence.

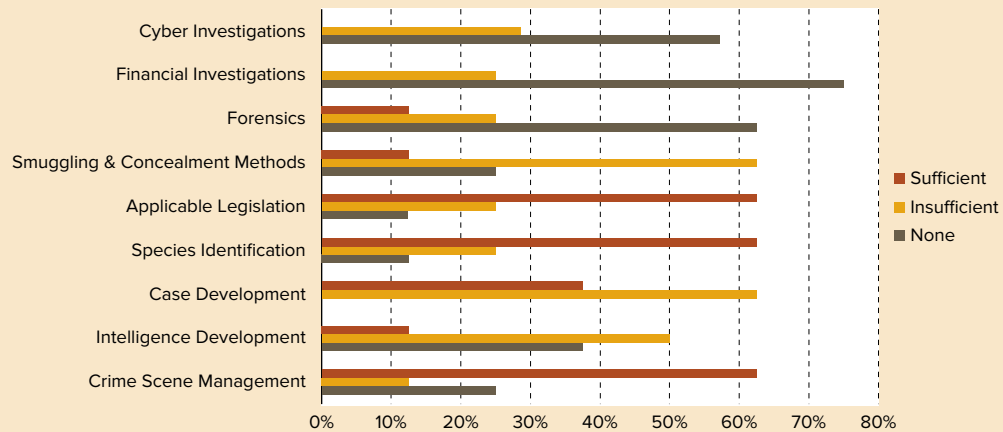
Some organizations are already involved in social media monitoring to detect wildlife crime. For example, a recent report by TRAFFIC into Chinese e-commerce platforms shows that half of the sites reviewed had become major channels for wildlife products (Xiao et al. 2017). Automated software was used to search the platforms for evidence of attempts to sell illegal animal products, allowing the authors to focus on suspect accounts. TRAFFIC shares their findings with website officials. Law enforcement organizations could potentially use similar techniques to glean valuable intelligence and evidence.

Naturally, surveillance cannot rely only on hi-tech tools and techniques. More basic resources, such as security cameras, are required to monitor both protected wildlife and the criminals who aim to profit off them. Improving surveillance, whether physical or digital, acts as a powerful deterrent to criminals because it increases the risks and expenses involved in targeting a population of protected species or doing business in a jurisdiction.

DETECTION

Respondents discussed the need for better detection tools to more easily locate illicit animal products. Particularly for customs officials, access to ivory detectors would allow them to discriminate more quickly between licit and suspect containments and to more

FIGURE A1.5: Respondents' Views on the Utility of Training that They Had Received on Various Law Enforcement Tools and Techniques



efficiently focus their limited resources. Other tools considered were metal detectors, to enable investigators to find bullets and casings at crime scenes.

Some respondents called for more access to detector dogs. These dogs are widely used by customs officials and police to use their highly-developed sense of smell to detect traces of hidden narcotics and explosives. Once trained, they provide a rapid and reliable means of screening freight, luggage, and persons of interest. Detection tools are at their most effective when they are combined.

INVESTIGATIVE RESOURCES

Finally, some respondents stated that their organizations suffered from some lack of basic investigative tools (such as GPS systems and patrol vehicles), facilities (such as computers), funding, and manpower. They also cited the need for additional training in broad investigative skills and intelligence development.

Some respondents noted the difficulties caused by inability to easily communicate and share intelligence with conventional police agencies. This speaks to wider problems in some jurisdictions where wildlife crime and wildlife crime enforcement is perceived and resourced as a secondary policing concern. Enforcement officers struggle to access intelligence held by conventional police organizations, and are unable to effectively

coordinate joint operational activity with partner organizations.

Because of this disconnect, often the limited investment that is available (from the national government or international partners) is spent on duplicating intelligence and operational functions that already exist within the jurisdiction's conventional police force. International organizations must take a more holistic view when building-up enforcement capabilities and not only look at what wildlife crime enforcement may be lacking, but also consider whether gaps in capabilities could be addressed via better inter-agency coordination.²⁵

Training Levels and Training Requirements

The chart above (Figure A1.5) shows the areas in which respondents felt that the training they had received did not match their current operational needs. The areas of greatest incongruence between training and needs

²⁵ The opposite issue is sometimes seen in national counterterrorism policing. The perceived threat of terrorist groups, coupled with the perceived complexity of counterterrorism organizations, leads to disproportionately high levels of funding for counterterrorism agencies. These agencies go on to use this funding to duplicate resources and capabilities that already exist elsewhere.

FIGURE A1.6: Training Needs Identified by Respondents

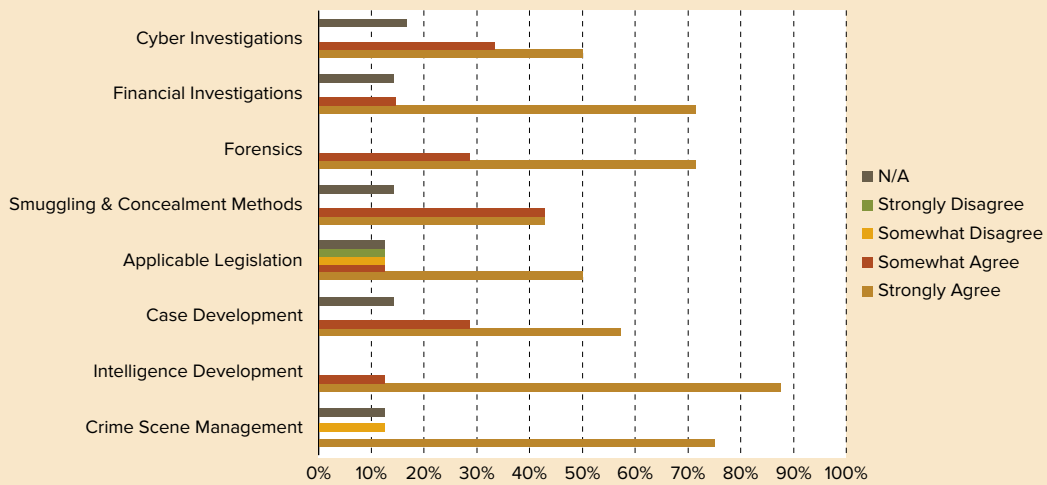
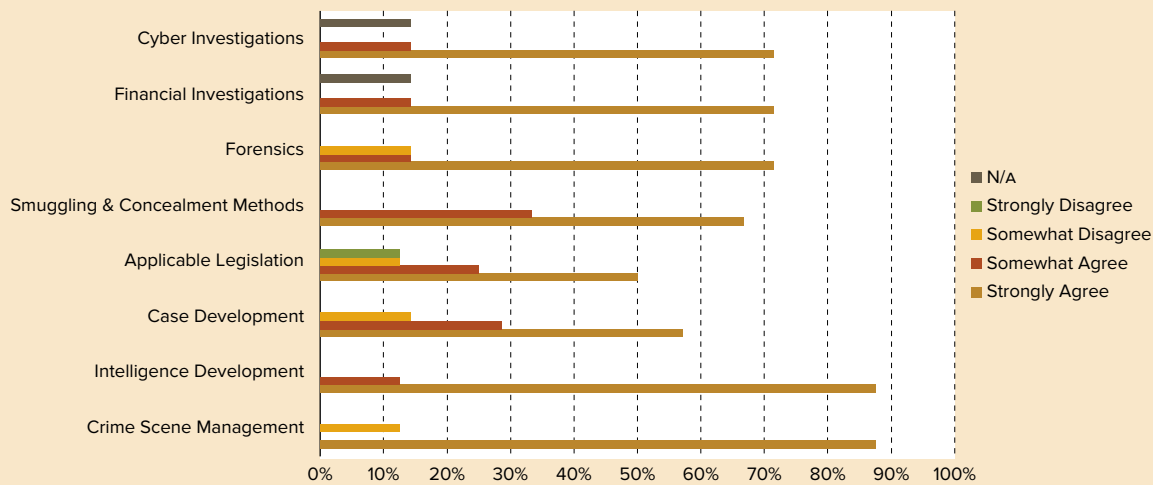


FIGURE A1.7: Areas Identified by Respondents as Requiring Additional Tools and Resources in Order to Effectively Combat Wildlife Crime



were in relation to cyber and financial investigations. Here, all respondents reported that they had either received no relevant training, or that the training that they had received had been insufficient.

Other areas where skills gaps were apparent were in forensics and in methodologies involving smuggling and concealment. Interestingly, while all respondents had received training on case development and intelligence developments, 60 percent and 80 percent (respectively) of respondents felt that what they had received was insufficient to allow them to effectively conduct wildlife crime operations.

These findings were broadly supported when respondents were asked to outline where they felt they required additional training. Figure A1.6 above outlines the results.

As indicated earlier, respondents felt that additional training was not required for case-scene management, or on being able to apply current laws. This suggests that training in these areas is broadly in line with respondents' current needs. As stated earlier, areas where respondents felt strongly that they needed additional training were in intelligence development, forensics, financial investigations, and cyber investigations.

When respondents were asked to identify the areas in which they required additional tools and resources to effectively combat wildlife crime, they broadly reported that they needed additional support across all surveyed areas (Figure A1.7). A minority of respondents felt that they currently had the right tools and sufficient resources to effectively manage crime scenes and develop cases and that they had the ability to apply relevant laws. Interestingly, a quarter of respondents felt

that they had the right tools and resources to conduct wildlife crime forensics. This was one of the areas of insufficient training consistently raised by respondents. It may be that some jurisdictions have sufficient tools to conduct routine forensic analysis, but that additional training to improve forensic skills would be required to raise these capabilities to a higher standard. A more targeted analysis would be required to better understand this discrepancy.



Appendix 2

Matrix of Tools and Resources

COMMUNICATIONS PLATFORMS

Tool Name	Responsible Agency	Website	Description
CENcomm	World Customs Organization	http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools/cen-suite/cencomm.aspx	The Customs Enforcement Network (CEN) communication system is an encrypted means for customs officers to communicate and transfer data on environmental crime cases.
CITES on-line discussion forum	CITES	https://www.cites.org/eng/user/login?destination=forum	CITES Online Discussion Forums facilitate informal discussions and exchange of information among members of the CITES community by allowing members of specific CITES groups to upload messages or documents for other members to view and respond to.
ECO-Message	INTERPOL	https://www.interpol.int/Crime-areas/Environmental-crime/Ecomessage	ECO-Message is a system for reporting all international environmental crime cases. It facilitates real-time information exchange in a standardized format, creating a reliable, searchable platform for officers to use.
ENVIRONET	World Customs Organization	http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/environmental-crime/environment/concept-note-en.pdf?la=en	ENVIRONET is a real-time communication tool for information exchange and cooperation in the area of environmental issues among customs administrations, competent national agencies, international organizations, and their regional networks. The WCO posts media updates related to wildlife crime and other environmental crimes, alerts, manuals, handbooks, and enforcement-related messages via ENVIRONET.
EU-TWIX	European Commission	http://eu-twix.org/	The European Union Trade in Wildlife Information eXchange (EU-TWIX) is a landmark wildlife-crime communications tool. It is a platform for European countries to record and exchange information of wildlife seizures. The data can be analyzed to monitor trafficking trends and routes.
I-24/7	INTERPOL	https://www.interpol.int/INTERPOL-expertise/Data-exchange/I-24-7	I-24/7 is a secure network linking all INTERPOL member countries and giving access to INTERPOL's criminal databases. It enables authorized users to share sensitive information with their counterparts around the globe.
I-link	INTERPOL	https://www.interpol.int/INTERPOL-expertise/Data-exchange/I-link	I-Link helps officers in INTERPOL member countries exchange data. It assists officers in making connections between seemingly unrelated investigations by identifying common threads. I-link can be accessed through the I-24/7 network (see above).

DATABASES

Tool Name	Responsible Agency	Website	Description
Africa TWIX	European Commission	http://www.traffic.org/home/2016/2/16/platform-to-enhance-collaboration-in-counteracting-illegal-wild.html	The recently-launched Africa TWIX is based on its successful EU counterpart. It is currently running in four central African countries: Cameroon, Gabon, Congo, and the Democratic Republic of Congo, after which, the aim is to expand its geographical scope and coverage to other parts of the continent.
CITES Trade Database	CITES	https://trade.cites.org/	The CITES Trade Database holds over 15 million records of trade in wildlife and over 50,000 scientific names of taxa listed by CITES. It is a unique tool available to CITES Parties and to the public at large, and is an indispensable source of information on the international trade in wild fauna and flora.
Elephant Trade Information System (ETIS)	CITES	https://cites.org/eng/prog/etis/index.php	The Elephant Trade Information System (ETIS) is a comprehensive information system to track illegal trade in ivory and other elephant products. It provides a database on seizures of elephant specimens that have occurred anywhere in the world since 1989.
EU-TWIX	European Commission	http://eu-twix.org/	The EU-TWIX (trade in wildlife information exchange) database contains centralized data on wildlife crime seizures and offenses reported by all 28 EU Member States.

Tool Name	Responsible Agency	Website	Description
RHODIS	University of Pretoria	http://rhodis.co.za/ http://www.up.ac.za/media/shared/678/ZP_Files/One%20paggers/rhodis_onepager_zp104406.pdf	The RhODIS rhino DNA database contains information about DNA samples of rhinos across South Africa. The goal is for all rhinos to be listed on the system. This will deter poachers and assist in prosecutions.
World WISE Database	UN Office on Drugs and Crime	https://www.unodc.org/documents/data-and-analysis/wildlife/WLC16_Chapter_2.pdf	The UNODC's World Wildlife Seizures (World WISE) Database aims to provide a global database of all seizure incidents related to wildlife crime. Seizure data is derived from CITES, ICCWC, WCO, and the European Commission's Enforcement Working Group (EU-TWIX).

ONLINE PLATFORMS AND MOBILE APPS

Tool Name	Responsible Agency	Website	Description
WCS online VN identification guide	Wildlife Conservation Society	http://www.giamdinhloai.vn/	The WCS' Vietnamese identification tool is web-based, rather than app-based. It allows users to upload photos of animal products and seek identification input from wildlife crime experts.
Wildlife Alert App	US Department of Defense/ Wildlife Conservation Society	https://apps.wcswildlifetrade.org/	The Wildlife Alert App is designed for United States law enforcement and military personnel. It uses a decision-tree system to help officials identify the genesis of wildlife products.
WildScan	Freeland Foundation	http://www.freeland.org/programs/wildscan/	WildScan is a comprehensive species identification and response mobile application designed to combat wildlife trafficking. The application is designed to help frontline wildlife law enforcement agencies correctly identify, report, and handle marine, freshwater, and terrestrial animals caught in the illegal wildlife trade.

IN-SITU GEOGRAPHIC INFORMATION SYSTEMS

Tool Name	Responsible Agency	Website	Description
CyberTracker Conservation Software	CyberTracker Conservation	https://www.cybertracker.org/	Cyber Tracker is an open-source tool that allows users to report sightings of endangered species. Sightings are uploaded to a database and the data is used to monitor protected species' reactions to changes in their environment.
Management Information System Tool (MIST)	Wildlife Conservation Society	https://programs.wcs.org/uganda/Initiatives/Law-Enforcement/MIST-SMART.aspx	The Management Information System Tool (MIST) is free open-source software used to store and analyze data that park rangers collect while patrolling a protected area. MIST can be used to record information on sighting of key species and on illegal activities, which can be used to direct patrol efforts.
Monitoring the Illegal Killing of Elephants (MIKE)	CITES	https://www.cites.org/eng/prog/mike/index.php	The database MIKE is designed to generate reliable and impartial data on the status and trends in African elephant populations, illegal killing, and illegal trade in ivory, as a basis for international and range State decision-making and action concerning elephant conservation.
Spatial Monitoring and Reporting Tool (SMART)	SMART	http://smartconservationtools.org/	The Spatial Monitoring and Reporting Tool (SMART) consists of a software application that enables collection, storage, communication, and evaluation of ranger-based data on patrol efforts, patrol results, and threat levels. The SMART Tool is open source, non-proprietary, and freely available.
Wildlife Enforcement Monitoring System	WEMS Initiative	http://www.wems-initiative.org/#	The Wildlife Enforcement Monitoring System (WEMS) is a web-based information system with GIS functionality which can identify trading routes and provide location analysis. The data entered is stored in the format of INTERPOL eco-messages providing real-time queries based on computer analysis by relevant enforcement authorities.

FORENSICS

Tool Name	Responsible Agency	Website	Description
Barcode of Wildlife Project (BWP)	Barcode of Wildlife Project	http://www.barcodeofwildlife.org/	The Barcode of Wildlife Project is an innovative research project seeking to promote the use of DNA evidence and develop forensic capacity in selected countries by creating a public DNA barcode reference library of priority-affected species.
Best Practice Guide for Forensic Timber Identification	ICCWC	https://www.unodc.org/documents/Wildlife/Guide_Timber.pdf	The Best Practice Guide for Forensic Timber Identification is a guideline aimed at facilitating the employment of forensic science to the fullest extent possible to combat timber crime. It covers the whole chain of events, providing information on best practices and procedures from the crime scene to the courtroom.
Ivory ID		https://ivoryid.org/?locale=en	The Ivory ID provides information on how to determine the age and origin of ivory samples. It has a database with many reference samples and a database with ivory seizures. It also provides contact details of certified labs where samples can be sent.
Methods and Procedures for Ivory Sampling and Laboratory Analysis	ICCWC	https://www.unodc.org/documents/Wildlife/Guidelines_Ivory.pdf	The ICCWC Ivory Guidelines are aimed at first responders, investigators, law enforcement officials, forensic scientists, prosecutors, and the judiciary. Their purpose is to facilitate the use of forensic science to the fullest extent possible in order to combat wildlife crime, and in particular, to combat the trade in illegal ivory through the provision of guidance to support transnational criminal investigations and law enforcement operations.
TRACE DNA Sampling Guidelines	TRACE	http://www.tracenetwork.org/wp-content/uploads/2012/08/Wildlife_DNA_Sampling_Guide_web.pdf	The TRACE Wildlife DNA Sampling Guide is a free downloadable training guide to accompany wildlife DNA sampling kits to support the collection of forensic samples from crime scenes.

STRATEGIC AND TECHNICAL ANALYSIS TOOLS

Tool Name	Responsible Agency	Website	Description
A Guide to CITES-Listed Tree Species	CITES	https://www.kew.org/data/CITES_User_Guides/CITES-and-Timber.pdf	The guide to CITES-Listed Tree Species provides an introduction to tree species that are regulated under CITES and provides guidance on implementation of the convention for these species.
Evaluating Effectiveness: A framework for assessing management effectiveness of protected areas	IUCN	https://portals.iucn.org/library/efiles/documents/pag-014.pdf	The Evaluating Effectiveness tool is a “best practice” guide for evaluating the effectiveness of the management of protected areas.
FAOSTAT Yearbooks	UN Food and Agriculture Organization	http://faostat3.fao.org	The FAO Statistical Yearbook provides a selection of indicators on food and agriculture by country.
IBM Analyst’s Notebook—i2	IBM	https://www.ibm.com/bs-en/marketplace/analysts-notebook	The IBM i2 Analyst’s Notebook is a prominent example of available intelligence analysis software which allows a user to find potential hidden connections and patterns in data. It allows for mapping of criminal organizations through network visualizations, social network analysis, and geospatial or temporal views.
ICCF: Wildlife Crime Checklist	International Conservation Caucus Foundation (ICCF)	http://www.internationalconservation.org/publications/Wildlife-Crime-Checklist.pdf	The ICCF Wildlife Crime Checklist provides an inventory of measures that can assist in the analysis of the nature and extent of wildlife and forest offenses and in deterring and combating these offenses.
ICCWC Indicator Framework for combating wildlife and Forest Crime	ICCWC	https://cites.org/sites/default/files/eng/prog/iccwc/ICCWC-Ind-FW-ASSESSMENT-GUIDELINES-FINAL.pdf	The ICCWC Indicator Framework is a complementary tool that can be used to provide a baseline assessment and analysis of national capacity, and can also be subsequently used as a monitoring tool. Assessment guidelines and assessment templates have been designed to facilitate use of the indicator framework.
ICCWC Wildlife and Forest Crime Analytic Toolkit	ICCWC	https://www.unodc.org/documents/Wildlife/Toolkit_e.pdf	The ICCWC Wildlife and Forest Crime Analytic Toolkit is a resource to facilitate a comprehensive analysis of a country’s national capacity to respond to wildlife crime in a number of key areas.

Tool Name	Responsible Agency	Website	Description
IUCN Red List of Threatened Species	IUCN	http://www.iucnredlist.org/technical-documents/red-list-training/red-list-guidance-docs	The IUCN Red List of Threatened Species is a comprehensive, objective global approach for evaluating the conservation status of plant and animal species.
Manual on Wildlife and Forest Crime for frontline officers (2014)	UN Office on Drugs and Crime	https://www.unodc.org/documents/Wildlife/WLFC_Annual_Report_2014.pdf	This manual is designed to provide an overview of the key considerations for investigators in dealing with wildlife and forest crime.
Wildlife-Conservancy Management Monitoring System	Northern Rangelands Trust (Kenya—NRT)	http://www.nrt-kenya.org/wildlife-comms/	The Wildlife-Conservancy Management Monitoring System (Wildlife-CoMMS) is a simple system for monitoring trends in wildlife and their threats.
World Wildlife Crime Report (2016)	UN Office on Drugs and Crime	https://www.unodc.org/unodc/en/data-and-analysis/wildlife.html	The World Wildlife Crime Report provides an intelligence picture of the wildlife crime situation with a focus on illicit trafficking of specific protected species. It provides a broad assessment of the nature and extent of the problem at the global level.
Wildlife and Forest Crime: A Field Guide for Frontline Officers	UN Office on Drugs and Crime	https://www.unodc.org/southeastasiaandpacific/en/resources/toc/border-management.html	Is a condensed handy-pocket of the Manual on Wildlife and Forest Crime for frontline officers mentioned above.

TRAINING & REFERENCE MATERIALS

Tool Name	Responsible Agency	Website	Description
A Global Register of Competences for Protected Area Practitioners	IUCN	https://portals.iucn.org/library/sites/library/files/documents/PATRS-002.pdf	The Global Register of Competences for Protected Area Practitioner aims to classify all of the staffing competences and roles that may be required for effective, efficient, and equitable management of protected areas.
CITES Virtual College	CITES	https://cites.unia.es/	The CITES Virtual College is a free online resource that aims to increase awareness of the convention and provide learning and training materials on CITES.
WCO e-learning Platform (CLIKC! the WCO)	World Customs Organization	http://clikc.wcoomd.org/	This website offers to the worldwide Customs Community a single-entry point for WCO training activities and a collaborative portal to share and foster Customs knowledge.
Risk Management Compendium	World Customs Organization	http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools//media/B5B0004592874167857AF88FC5783063.ash	The Risk Management Compendium outlines the risk management process, and identifies risk assessment, profiling, and targeting tools that inform selection criteria for identifying high-risk consignments, passengers, and conveyances for customs intervention.
The Green Customs Guide	World Customs Organization	http://www.greencustoms.org/sites/default/files/public/files/Green_Customs_Guide%20%28low%29.pdf	The Green Customs Guide, a restricted guide for customs officers, is designed as a guidebook for trainees and trainers to be used as a core element during the training courses and as a post-course reference document.
Training Guidelines for Field Rangers	International Ranger Federation	http://awsassets.panda.org/downloads/anti_poaching_in_around_protected_areas_training_guidelines_for_field_rangers.pdf	The Training Guidelines for Field Rangers is a best practice guide on the scope, details, and standard of training that syllabuses should cover to enable rangers to perform their jobs effectively and safely.
UNODC E-Learning	UN Office on Drugs and Crime	http://www.unodc.org/elearning/en/about/index.html	The UNODC Global eLearning Programme offers comprehensive training and learning solutions across a range of crime type, including wildlife crime.

ASSOCIATED & FACILITATING CRIMES

Tool Name	Responsible Agency	Website	Description
ICCWC Wildlife Crime and AML Training Program	ICCWC	https://cites.org/eng/prog/iccwc.php/Tools	ICCWC has developed and is piloting an anti-money laundering training program, with a specific focus on wildlife crime, for the training of investigators, prosecutors, judges, and other relevant stakeholders involved in the investigation and prosecution of wildlife crime cases.

LEGAL

Tool Name	Responsible Agency	Website	Description
goCASE	UN Office on Drugs and Crime	http://gocase.unodc.org/	goCASE is an investigative case management and analysis tool for government law enforcement, investigative, intelligence, and prosecution agencies of all United Nations member states.
Manual on Mutual Legal Assistance and Extradition	UN Office on Drugs and Crime	https://www.unodc.org/documents/organized-crime/Publications/Mutual_Legal_Assistance_Ebook_E.pdf	The Manual on Mutual Legal Assistance and Extradition offers practical step-by-step suggestions on how best to initiate and follow through on the processes of both extradition and mutual legal assistance as a requesting state, and on how best to respond to and follow up on incoming requests when representing the interests of a requested state.
Mutual Legal Assistance Request Writer Tool	UN Office on Drugs and Crime	https://www.unodc.org/mla/	The UNODC Mutual Legal Assistance Request Writer Tool (MLA Tool) has been developed to assist states in drafting appropriate requests where no specific bilateral or regional treaty exists.
SHERLOC	UN Office on Drugs and Crime	https://sherloc.unodc.org/	The SHERLOC portal is an initiative to facilitate the dissemination of information regarding the implementation of the United Nations Convention against Transnational Organized and its three protocols. It contains case law and national legislation relating to wildlife crime.

DEMAND REDUCTION

Tool Name	Responsible Agency	Website	Description
Wildlife Consumer Behaviour Change Toolkit	TRAFFIC/GIZ	http://www.changewildlifeconsumers.org/	The Wildlife Consumer Behavior Change Toolkit is freely available online and contains examples of successful public awareness campaigns, downloadable courses, key strategies, international agreements, reports and studies, and other useful information on reducing demand for animal products.

COMMUNITY ENGAGEMENT

Tool Name	Responsible Agency	Website	Description
Conservation, Crime and Communities' Database	IIED	https://communitiesforwildlife.iied.org/	The Conservation, Crime, and Communities' Database contains case study summaries of community-level interventions that aim to tackle the illegal wildlife trade, as well as overviews of the national policy context for IWT and community engagement.
WildLeaks Hotline	Elephant Action League	https://wildleaks.org/	Wildleaks is a global whistleblowing initiative dedicated to receiving, assessing and acting upon anonymous information provided on wildlife and forest crime. Anyone with an internet connection can send information, documents, and photos confidentially.

Appendix 3

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