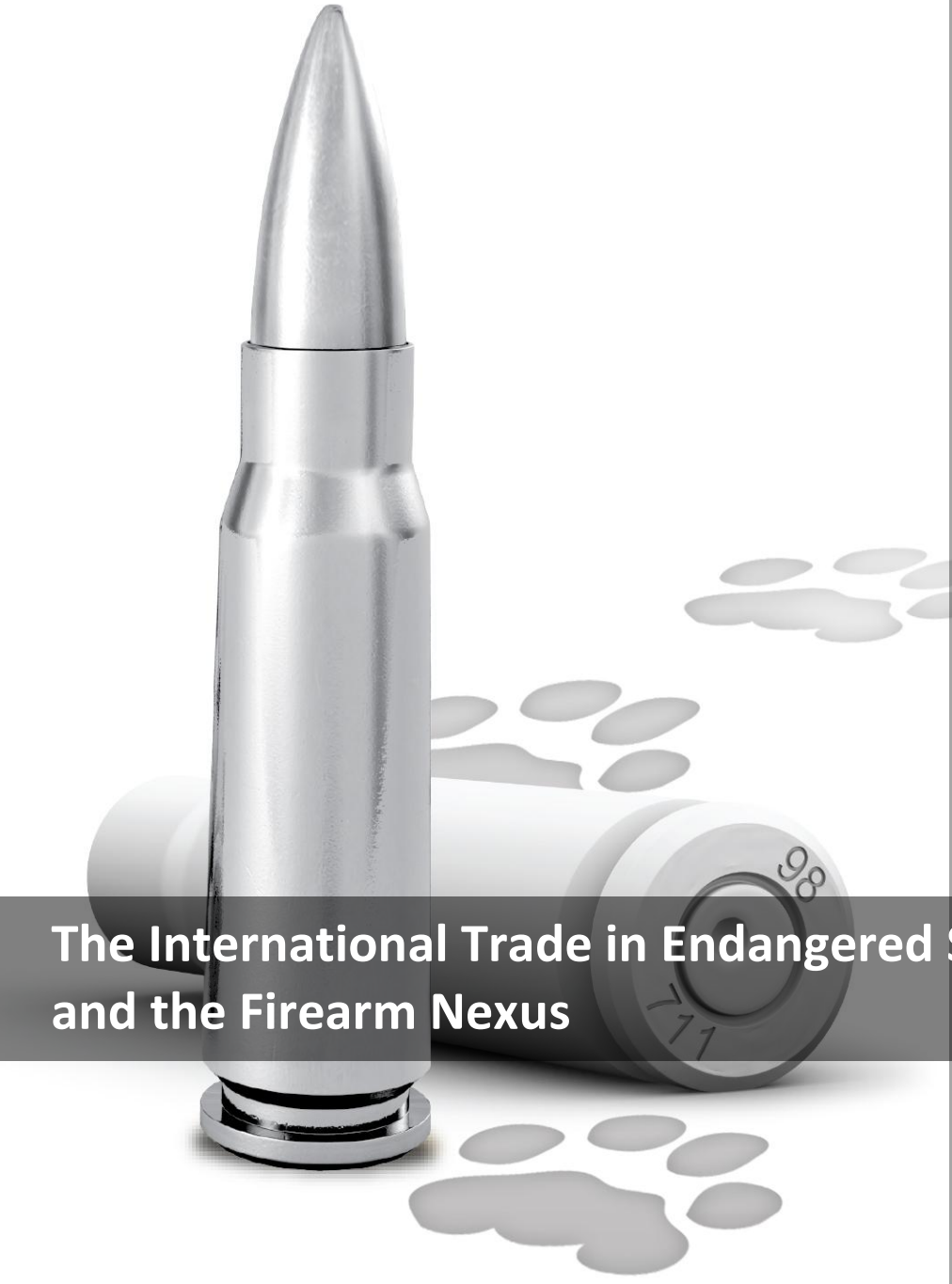
FORENSIC TECHNOLOGY



The International Trade in Endangered Species and the Firearm Nexus

White Paper

March 2012

Table of Contents

This white paper provides real-world examples of how international trade in endangered species and gun violence are interrelated, and makes the case for the international sharing of firearm forensic intelligence as an integral component of the fight against these cross-border crimes.

The objectives of this paper are:

- To articulate the danger that the international trade in endangered species poses to wild fauna.
- To provide examples of international trade in endangered species that are clearly associated with firearms and violence.
- To demonstrate a connection between the international trade in endangered species and violent criminal enterprises, such as the illicit drug trade and organized criminal gang operations.
- To encourage collaborative efforts among law enforcement across the many regions affected by the international trade in endangered species in order to find ways to most efficiently and effectively use IBIN as a tool for combating the international trade in endangered species.

Introduction

The international trade in endangered species is much more than a few poor villagers selling wildlife parts in order to purchase the essentials to live. More and more often, the investigative trail leads to well organized, highly financed criminal organizations that are attracted to the high profitability of the wildlife trade. In an October 2011 EU Organized Crime Threat Assessment, Europol stated that "The trade is principally coordinated by well-organised, loose networks based in the EU and in the source regions" (EU Organized Crime Threat Assessment – OCTA, 2011[1]), including Colombia and Chinese gangs based in Hong Kong. In addition, Europol has identified an increased interest in wildlife trafficking by "poly-criminal organised crime groups" involved in drug trafficking in Brazil and Mexico[2]. To facilitate the trade in wild species across international borders, these groups use methods similar to those used to smuggle drugs.

The Problem

In May 2011, a meeting of "The Ivory and Rhinoceros Enforcement Task Force of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)" was held in Gigiri, Kenya[3]. There, David Higgins, INTERPOL's Environmental Crime Manager, framed the issue by stating:

> *"The illegal trade in wildlife can have a significant effect on a nation's economy and security. In the case of ivory and rhinoceros horn illicit trafficking, where heavily armed poaching gangs and international organized criminal networks are involved, illegal activities reduce tourism revenue, may place the individual tourist in danger, damage the balance of biodiversity and ultimately erode the rule of law.[4]"*

These crimes are inherently transnational in scope, as the market is driven by a global demand for certain highly sought after animal products. Armed criminals on the move leave firearms and related evidence strewn across multiple jurisdictions spanning city, provincial, and national boundaries. This movement can greatly hamper police efforts in solving transnational crimes like the trade in endangered species. Therefore, an intelligence-led policing effort is required.

The Cost

The international trade in endangered species exploits many different types of wild fauna killed for such things as their horns, skins, and ivory.

---

[1] https://www.europol.europa.eu/sites/default/files/publications/octa_2011.pdf

[2] Ibid.

[3] UN, Press Release, "Wildlife Enforcement Task Force meets to combat organized crime targeted at elephants and rhinos", CITES Secretariat, Press Service, Geneva, 25 May 2011, retrieved from http://www.unodc.org/documents/E-PR-Enforcement-Nairobi.pdf

[4] Ibid.

This illicit trade is said to be in the financial top three illegal enterprises worldwide, along with the global drug trade and the trade in illegal arms. In 2008, the U.S. Congressional Research Service estimated the global illegal trade in wildlife to be at least $5 billion (US), potentially worth $20 billion annually[5] and by Europol estimates could be as high as 18 to 26 billion Euros[6]. Big money and well-oiled criminal organizations fuel the illegal trade in wildlife and wildlife parts. Individual jurisdictions working in isolation and without the aid of high technology solutions are simply no match for this growing and potentially devastating force.

As well, increasing wealth in Asian countries is driving many already dwindling Asian and African species into extinction. Traffic.org, a joint program of the World Wildlife Fund and the International Union for Conservation of Nature, states that:

> *"In the past decade, the economic boom in countries such as China and Vietnam has fuelled an appetite for the consumption of wildlife products, such as other Asian big cats, elephants, rhinos, pangolins and marine species such as sharks, Humphead Wrasse and marine turtles. This demand has been a main cause for the drastic decline in populations of these species, resulting in, for example, wild Tiger numbers plummeting to only 3,200 in increasingly small pockets of forest, grassland and swamp in 12 countries in Asia and the Russian Far East."*

The Nexus: Where Crimes Against Wildlife and Crime Guns Meet

One of the primary tools of the poaching trade is the firearm. The fired ammunition components—bullets and cartridge cases—can often be the common denominator that can link a suspected poacher's gun to a crime or series of crimes.

The connection between illegal wildlife trade and illegal arms is straightforward: Illegally traded arms are used by poaching rings to illegally take endangered species out of the wild. Even where wildlife is captured live and trafficked into the pet trade, firearms are used to kill adult animals protecting their young, or to fire upon wildlife officers.

On September 27, 2011, Zomedel Pierre Achille, a Cameroon Forest Ranger was killed while investigating the shooting of two critically endangered Western lowland gorillas near Lobéké National Park. The park is located only 10 km from Cameroon's border with the Central African Republic.

Organized poaching rings are every bit as much a threat to the safety and security of law enforcement officials and the general public as are criminals involved in any other crime.

Organized crime recognizes that the illegal trade in wildlife carries a high reward while offering relatively very little in risk when compared to other criminal enterprises, such as drug, illegal arms, or human trafficking. Often these organizations will use trade in wildlife, in particular trade in endangered species, as high gain/low risk capital to fuel other more-violent aspects of their enterprise. It is well known among conservation law enforcement officials that people who are involved in the illegal trade in endangered and non-endangered species are, in the vast majority of cases, also involved in more-violent crimes and typically have a criminal record.

Given the increasing occurrence of illegal international trade in all wild species, technology that can be developed to assist modern, well-funded agencies would be best used by agencies that have unfettered access to existing technology. Unfortunately, in many jurisdictions, wildlife crime is very low on the expenditure priority list, particularly where there is a high rate of violent crime or where the needs of the human population far outweighs the needs of those endangered

[5] CRS Report for Congress – International Illegal trade in Wildlife: Threats and U.S. Policy, August 22, 2008, http://fpc.state.gov/documents/organization/110404.pdf

[6] https://www.europol.europa.eu/sites/default/files/publications/octa_2011.pdf

species. As well, many jurisdictions in the developing world are not able to offer security and efficiency through the use of high-end technology, even though some of the poorest, most technologically-challenged countries are the most impacted by the illegal trade in endangered species. Technology, then, would be best utilized initially by those jurisdictions that see endangered species as a high priority and already have an established technological infrastructure (that is, readily available high speed Internet, efficient transportation means and methods, and secure facilities in which to analyze and store data). Once efficiencies are realized in the developed nations, bringing developing nations into the fold will be much more effective.

Wildlife Crime Scene Investigations

Evidence is collected at wildlife kill scenes with the hope of connecting the animal and the scene to a potential violator. Officers typically search for biological evidence, such as blood and remains, and for non-biological evidence, such as cigarette butts, beverage containers, and pieces of paper, with the hope of collecting DNA or fingerprint evidence pointing to a suspect. As with violent crimes, DNA and fingerprints are entered into national and/or international databases so as to search for a match to known persons.

A dead elephant that could hold information about an international wildlife trafficking organization. Any bullets found lodged inside this animal can be "fingerprinted" and compared to other bullets in a database, once established.

Investigators also look for firearm evidence, such as the bullets and cartridge cases used in the crime. Any firearm evidence is collected and held as evidence in that particular crime. This evidence is then sent to a forensic ballistic lab for analysis so as to try to link it to a firearm that has been seized, or to match it with other firearm evidence found on the scene. A trained firearm examiner physically looks at each bullet or cartridge case and observes the individual and class characteristics to determine the probable make and model of the firearm used. The examiner also attempts to determine if two bullets or cartridge cases are a match, that is, they have been fired from the same firearm. Once the examiner is finished with the evidence, it is returned to the investigating officer, and, unfortunately, no further action is taken to catalog and share this information across the borders used by international poachers. However, the means to share this information is very much available.

A national, international, or global database of firearm evidence would offer wildlife law enforcement an opportunity to make better use of the information that they already possess. Bullets in carcasses and cartridge cases found on or near the scene could and should be examined forensically, analyzed, cataloged, and stored centrally. Furthermore, this information should be made available to the global wildlife law enforcement community. This would make the best use of the evidence that is already being collected, similar to the way in which DNA and fingerprint evidence is already being used in human-related violent crimes in most parts of the world.

SUPPORTING INFORMATION

News reports abound which chronicle the violence against law enforcers, the link to organized crime, and the unlawful shooting of protected species driven by criminal greed. This increased awareness has led to calls for more urgent measures to tackle this illegal trade.

Forest ranger killed by gorilla poachers

World Wildlife Fund [7]

CAMEROON, October 6, 2011 — A forest ranger has been killed and another seriously injured following a violent clash with gorilla poachers in Cameroon. We utterly condemn the attack, and want to see more protection for our courageous colleagues working on the frontline of conservation - and much stronger deterrents and severe sentences for those involved in this kind of horrific crime.

The United Nations' Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) cites wild fauna and flora as:

- *An irreplaceable part of the natural systems of the earth and must be protected for this and future generations.*
- *Growing in esthetic, scientific, cultural, recreational and economic value.*
- *Wholly dependent upon people and the international cooperation of states for protection against exploitation.*

The attack occurred on September 27, near Lobéké National Park, close to Cameroon's border with Central African Republic. WWF supports gorilla conservation programmes in the park, providing crucial funds, training and equipment to forest rangers.

"This is the saddest day in the history of conservation in south-east Cameroon," says Basile Yapo, WWF's director in Cameroon. "It is a clear testimony of the danger we face - and calls for firm action to be taken against poachers."

As we understand it, the two men were on patrol when they discovered the carcasses of two critically endangered Western lowland gorillas in a forest camp. The rangers confronted the poachers on their return to the scene, and the gang of six or more men opened fire on the unarmed forest guards, both of whom sustained multiple gunshot wounds.

Ranger Jean Fils Mamendji was hit in the arm and shoulder, but managed to escape. Mamendji's partner, Zomedel Pierre Achille, a 12-year veteran of the patrol, was hit in the chest and back, and Mamendji was forced to leave him behind.

After searching all night, a rescue mission located Achille's body the following day, tied to a tree. There were signs that he had been severely beaten before his death.

Retaliatory attacks by poachers against rangers have intensified in recent months in response to increased law enforcement efforts by the government. Illegal activity has been particularly prevalent in south-east Cameroon, where dedicated WWF teams are working to support the government efforts.

Victims of the violence have not been restricted to forest rangers. Earlier this year a group of six Baka pygmies were shot and wounded by poachers.

"Rangers are putting on a uniform every day to protect their wildlife, their forests and ultimately, the wellbeing of their communities from individuals who seek only to commit criminal acts such as trafficking protected species," adds David Greer, our African Great Ape Coordinator.

"Law enforcement efforts at all levels need to be dramatically scaled up, especially in judicial systems. That is where a criminal deterrent can be established that will not only save Africa's dwindling wildlife, but will also protect its people from lawless violence such as this.

"As this case goes well beyond wildlife crime, we expect that our government partners will take the necessary steps to locate and bring these assailants to justice, while making a firm statement that criminal behavior will receive swift and severe punishment. Anything less would dishonor the memory of our brave, fallen colleague."

[7] http://www.wwf.org.uk/news_feed.cfm?5315/Forest-ranger-killed-by-Gorilla-poachers

Poachers who killed wildlife guard in 1994 surrender

By Wang Qingchu | 2011-12-5 | ONLINE EDITION[8]

Six suspects who shot dead a well-known wildlife protection activist 17 years ago in Hoh Xil, a vast nature reserve in northwest Qinghai Province, have surrendered themselves to police.

Suonandajie was a government official of Zhiduo County and a volunteer patrol in the desolate and frigid Hoh Xil to protect endangered Tibet antelopes from poachers. He was killed in a gun battle with poachers in 1994, the Beijing Times reported today.

Suonandajie and his four team members caught 20 poachers and confiscated seven pickup trucks loaded with more than 1,800 pieces of antelope hide on January 18, 1994. But he was later ambushed by 18 poachers and was shot dead, the report said.

When people found his body, it was already frozen stiff but maintained the shooting posture, according to the report.

Police never stopped searching for his killers and talked to the suspects' families many times to persuade them to surrender. Six suspects turned themselves in recently and another three remained in hiding.

Despite its harsh climate, Hoh Xil is a wildlife paradise and home to more than 230 animal species.

Six give themselves up 17 years after allegedly killing wildlife ranger in NW China

XINING, Dec. 5 (Xinhua)[9] -- Six poachers have turned themselves in after allegedly killing a wildlife ranger in the northwestern province of Qinghai 17 years ago, local authorities said Monday.

The six surrendered after the public security bureau in the autonomous prefecture of Yushu expanded its hunt for the wanted men in September, said Li Yongqian, a police officer with the criminal police squad.

Sonam Dargye, a government official with Zhidoi county responsible for organizing anti-poaching work and who patrolled the Hoh Xil region frequently in person, was shot dead in January 1994, allegedly after 16 men poaching Tibetan antelope turned their guns on him, said Li.

[8] -ShanghaiDaily.com
http://www.shanghaidaily.com/article/print.asp?id=489277

[9] Full article: http://news.xinhuanet.com/english2010/china/2011-12/05/c_131289295.htm

Organized criminal gangs deal wildlife and drugs

Environment News Service [10]

LONDON, United Kingdom, June 18, 2002 (ENS) - While conservation groups are working hard and spending millions to save endangered species, their efforts are being undermined by organized gangs conducting a hybrid drug and wildlife trade. Live snakes stuffed with condoms full of cocaine are shipped across borders; live snails packed with heroin travel by air. Drug money is laundered through pirate timber companies.

A new report from the World Wide Fund for Nature and its investigatory branch TRAFFIC, documents the lucrative links between the drug trade and the wildlife trade conducted by organized criminal gangs.

"There is evidence," the report says, "that organized crime elements are becoming increasingly involved in the most lucrative parts of the illegal trade and that they are prepared to use intimidation and violence." The report gives examples of wildlife wardens and border guards killed by organized and armed gangs.

Organized crime groups dealing in wildlife include Colombian drug cartels, Chinese Triad groups, the "red mafia" from the former Soviet Union who use violence to control the illegal trade in caviar, West African and West Indian groups. But, the conservationists found, "much illegal wildlife trading starts at the level of small networks which consist of fellow collectors/enthusiasts or family members."

The WWF and TRAFFIC investigators found that about half the wildlife criminals prosecuted in the United Kingdom have previous convictions for drugs, violence, theft and firearms offenses, a pattern that they say shows up around the world.

Stuart Chapman, head of WWF-UK's species program said Monday, "This report confirms what many have suspected. The huge profits that can be made from wildlife trafficking are acting as a magnet to organized crime networks. The profits, sometimes worth up to 800 percent, combined with the low risks of detection and lack of serious punishment, make illegal wildlife trade very attractive to criminals."

"Ounce for ounce, wildlife products such as rhino horn or deer musk can be worth more than Class A drugs or gold," confirms a study into wildlife crime commissioned by the UK government and carried out by Wolverhampton University last year.

The WWF and TRAFFIC investigators found that about half the wildlife criminals prosecuted in the United Kingdom have previous convictions for drugs, violence, theft and firearms offenses, a pattern that they say shows up around the world.

In Brazil, recent estimates suggest that up to 40 percent of illegal drug shipments are combined with wildlife.

The U.S. Fish and Wildlife Service reports that more than a third of cocaine seized in the United States in 1993 was associated with wildlife imports.

The report identifies five broad categories of activity: specialist specimen collecting; skins and furs, and traditional Asian medicines; activities linked to drug trafficking; caviar trafficking; and illegal timber trade.

"Each of these categories has its own often highly organized methods, markets, routes and tricks of the trade, which include concealment, misdeclaration, permit fraud and the laundering of illegal wildlife products through the complexities of re-exports.

[10] Full article: www.ens-newswire.com/ens/jun2002/2002-06-18-01.html

EUROPOL Public Information

EU Organized Crime Threat Assessment[11]*-- Trafficking in Endangered Species (TES)*

October 2011 – The revenues generated by TES are estimated at 18 to 26 billion Euros per year, with the EU the foremost destination market in the world. The trade is principally coordinated by well-organised, loose networks based in the EU and in the source regions.

While in the past the perpetrators travelled personally to collect animals, it is now more common for them to use couriers and air mail-orders. Animals from several destinations are concentrated in one place, from which it is possible to organise transit into the EU. In addition, the Internet is used with increasing sophistication to facilitate trade.

In terms of criminal groups dedicated to TES, a number of highly sophisticated Colombian groups manage the supply chains for a wide variety in species. Chinese organised crime groups, based mainly in Hong Kong, have specialised in the supply of traditional Chinese medicine products containing derivatives of endangered species to several companies across the EU, particularly in North West Europe.

Within the EU, dedicated organised crime groups often exploit legitimate business structures to facilitate the importation and retail of specimens. Groups in North West Europe, for instance, cooperate with breeders in other Member States to launder 'wild caught' animals, using false documents to trade them as captive bred on the legitimate market. Difficulties in ascertaining the authenticity of foreign certificates frustrate enforcement efforts. Of note, there is evidence that TES is of increasing interest to poly-criminal organised crime groups. Groups involved in high-level drugs trafficking in Brazil, Colombia and Mexico have established a notable role in the illegal supply of endangered species to the EU and US markets. As a result, some of the concealment methods developed for drug trafficking are now used to traffic endangered species. Within the EU also, organised crime groups involved in drug trafficking, the facilitation of illegal immigration, fraud, THB [trafficking in human beings] and the distribution of counterfeit products are now active in trafficking endangered species such as birds of prey and products for traditional Chinese medicine along routes established for other types of illicit commodity.

United Nations Environment Programme Public Information

In Vietnam[12], 14,758 cases involving wildlife hunting and trade violations were identified and prosecuted from 1996 to March 2007, and about 635 tons of wildlife with a total of 181,670 individual animals was confiscated. The data showed an increasing trend in the number of wildlife violations, from 1,469 cases in 2000 to 1,880 cases in 2002. The expansion of markets and price acceleration have contributed an important boost for the development of illegal wildlife trade that was identified as the most important factor contributing to the significant depletion of populations of some species such as cats, (bears, pangolins, amphibians, reptiles, orchids, agarwood and some other endemic plants. The quantity of wildlife provided for the Vietnam markets is estimated at about 3,400 tons and over 1 million heads per year.

[11] https://www.europol.europa.eu/sites/default/files/publications/octa_2011.pdf

[12] Nguyen Manh Ha, Vu Van Dung, Nguyen Van Song, Hoang Van Thang, Nguyen Huu Dung, Pham Ngoc Tuan, Than Thi Hoa and Doan Canh (2007). Report on the review of Vietnam's wildlife trade policy. CRES/FPD/UNEP/CITES/IUED, Hanoi, Vietnam.

Rhino poaching hit an all-time high in 2010

By John R. Platt, January 13, 2011, Scientific American[13]

Rhinoceros poaching in South Africa hit an all-time high in 2010, with 333 animals slain for their valuable horns. That's nearly triple the 122 rhinos killed in the country in 2009.

Most of the poached rhinos were southern white rhinoceri (*Ceratotherium simum simum*). The most prolific type of rhino, it is considered a near-threatened species. But 10 critically endangered black rhinos (*Diceros bicornis*) were also among the dead.

The killing hasn't abated with the New Year. As of January 11 five more rhinos had already been killed. Most of the deaths in the past year were in Kruger National Park, which lost 146 rhinos due to poaching.

Stopping poaching has become increasingly difficult as the money fetched by rhino horns on the black market makes it possible for gangs to use high-tech methods to commit their crimes. Poachers often use helicopters to fly into national parks under the cover of darkness. They carry night-vision goggles and high-powered rifles to track and take down their prey, then land, hack off the rhinos' horns, and fly out again before park rangers can apprehend them. According to TRAFFIC International, the wildlife trade monitoring group, a single rhino horn can fetch $70,000 or more for its use in traditional Asian medicine.

"The criminal syndicates operating in South Africa are highly organized and use advanced technologies. They are very well coordinated," Joseph Okori, African rhino program manager for the World Wildlife Fund (WWF), said in a prepared statement. "This is not typical poaching."

South Africa's park rangers aren't completely helpless. So far this year authorities have shot and killed five suspected poachers and arrested seven more, according to a report from Reuters.

"More successful convictions, backed up by appropriately daunting penalties will significantly demonstrate the South African government's commitment to preventing the clouding of the country's excellent rhino conservation track record that it has built up over the past several decades," said Morné duPlessis, CEO of WWF South Africa.

But South Africa can't do this job alone. Poachers often enter the country and its Kruger National Park through bordering nations—Zimbabwe and Mozambique—where enforcement is lax. A South African nongovernmental organization, the Coalition for the Survival of Endangered Species, hopes to organize a multinational conference to discuss rhino conservation this June.

[13] John R. Platt, "Rhino poaching hit an all-time high in 2010", Scientific American, January 13, 2011, retrieved from: http://blogs.scientificamerican.com/extinction-countdown/2011/01/13/rhino-poaching-hit-an-all-time-high-in-2010/

Moving Forward

David Higgins, INTERPOL's Environmental Crime Manager, described the efforts required to address the illegal trade in wildlife in more detail: **"To combat this illegal trade, there is an urgent need for well-built and well-designed strategies at the local, national and international levels, and at the frontline of this there must be effective criminal intelligence management, exchange and analysis.[14]"**

"To combat this illegal trade, there is an urgent need for well-built and well-designed strategies at the local, national and international levels, and at the frontline of this there must be effective criminal intelligence management, exchange and analysis.
David Higgins, INTERPOL's Environmental Crime Manager

INTERPOL has long recognized the need to develop intelligence-led policing strategies and practical policing models as effective means for law enforcement to move beyond the traditional, reactive method of policing towards a more-proactive approach focused on serious offenders. In fact, criminal intelligence analysis is one of INTERPOL's core services to member countries.[15]

In his opening response to an INTERPOL-sponsored symposium on intelligence-led policing, INTERPOL Secretary General Ronald K. Noble emphasized the important role that technology plays in facilitating the intelligence process: *"In order to produce timely, actionable intelligence, we must also focus on further developing technology that will help us better manage and analyse information, and also assist us in providing the right information to the right officer at the right time, allowing him to take the right decision".*

Converting the Secretary General's words into action, the INTERPOL Ballistic Information Network (IBIN) was created in 2009, in partnership with Forensic Technology Inc. of Canada. IBIN provides a platform for the large-scale international sharing and comparing of ballistic data with the capacity to connect over 60 member countries or territories that currently employ the Integrated Ballistics Identification System (**IBIS®**).

IBIN: Effective Criminal Intelligence Management, Exchange, and Analysis

Although seemingly untouchable, the illegal global trade in wildlife must be attacked with a global force using technology and resources that are much more powerful than those usually at the disposal of most individual agencies.

The INTERPOL Ballistic Information Network (IBIN) can help police develop and share actionable intelligence across borders in an efficient and effective manner to address transnational crime like the international trade in endangered species.

IBIN was created in 2009 as a platform for the large-scale international sharing and comparing of ballistic data. Just as fingerprint data can link crimes and criminals across international borders, IBIN can identify matches between pairs of spent bullets and cartridge cases within minutes, thereby helping forensic experts give police investigators timely information about crimes, guns, and suspects.

[14] UN, Press Release, "Wildlife Enforcement Task Force meets to combat organized crime targeted at elephants and rhinos", CITES Secretariat, Press Service, Geneva, 25 May 2011, retrieved from http://www.unodc.org/documents/E-PR-Enforcement-Nairobi.pdf

[15] INTERPOL Press Release, 9 Oct. 2007, retrieved from: http://www.interpol.int/public/News/2007/CASsymposium20071009.asp

INTERPOL'S IBIN Program leverages the power of automated ballistics technology to provide the global law enforcement community with a "worldwide ballistic data sharing network". With such a network in place, internationally mobile criminals who use firearms to further their illicit activities will find escaping detection increasingly challenging.

In searching for efficient and effective processes to implement IBIN, one does not have to look much further than INTERPOL's front door. INTERPOL routinely formulates Field Operations Support Programs that target both illicit transnational markets and transnational criminal groups.

In 2011, IBIN also created the "High Priority IBIN Correlation Protocol" [16]. It enables INTERPOL member countries that do not have access to IBIS technology to submit crime gun test fires and resin casts of ballistic evidence for IBIN processing.

Just as fingerprint data can link crimes and criminals across international borders, IBIN is a tool that can be used to find matches between pairs of spent bullets and cartridge cases within minutes, thereby linking suspected poachers' firearms to the illegal wildlife trade.

INTERPOL'S IBIN Program leverages the power of automated ballistics technology to provide the global law enforcement community with a worldwide ballistic data sharing network. With such a network in place, internationally mobile criminals who use firearms to further their illicit activities can no longer escape detection.

[16] Tracy Hite, "INTERPOL Firearms Programs: Providing the Tools and Technology to Fight Firearm Violence", (IFFS 2011 INTERPOL, Lyon, France, 2011)

Conclusion

The trade in endangered species is a worldwide phenomenon. Somewhere on this globe, there exists a market for any fauna that flies, walks, or swims. Demand for these species is high and continues to grow. Much is made of the medicinal market, but law enforcement officials in North America increasingly see commercial markets for wild game meat having a marked effect on populations of moose, elk, and deer.

Commercialization of wild species is a leading cause of species extinction. Waiting to help a species until it is in trouble is waiting too long. A coordinated global effort must be made to assist wildlife enforcement efforts in protecting all wild species impacted by illegal slaughter even before they are classed as endangered.

Well organized, highly financed criminal organizations are attracted to the high profitability of the global wildlife trade, an estimated $5 billion (US) to $20 billion according U.S. Congressional estimates, and as high as 18 to 26 billion Euros by Europol estimates.

This lucrative trade has led to organized and mobile criminals becoming more and more involved in the illegal trade of wildlife. Thus, intimidation and violence have become commonplace to the point where wildlife wardens and border guards are being killed by armed gangs.

In the face of such crimes, one thing is clear; unless we are able to collect and analyze accurate information about the criminal misuse of firearms across a city, state, province, or country, we cannot begin to apply effective law enforcement tactics and design new strategies to address the problem.

The public safety benefits of collecting and exchanging of ballistic data across nations are obvious and undeniable only when ballistic intelligence sharing is viewed from a proper law enforcement context and perspective.

Cross-jurisdictional sharing of ballistics information not only makes sense when so dictated by the distinctive circumstances of a case, but also when law enforcement and forensic organizations focus their efforts on the following sectors:

1. *Specific border frontier regions*
2. *Specific transnational illicit markets*
3. *Specific criminal groups*

The INTERPOL Ballistic Information Network (IBIN) presents a sustainable solution for the cross-border sharing of crucial data and the generation of actionable intelligence needed to help solve and prevent these crimes of violence directed both against man and beast.

To find out how to put IBIN to work for you please contact Ms. Tracy Hite, Criminal Intelligence Officer, INTERPOL, Public Safety & Terrorism Sub-Directorate, +33 (0) 4 72 44 73 92, or email: firearms@interpol.int.

Helping Make the World a Safer Place

Forensic Technology pioneered automated ballistic identification more than 20 years ago and continues to be a leader in ballistic and firearm identification technologies that promote a safer society. We partner with hundreds of public safety agencies in over 60 countries, providing cost-effective and sustainable solutions. With vast experience in scalable-networked solutions, we employ a dedicated team of engineering, forensic, and law enforcement professionals around the world.

At Forensic Technology we take great pride in what we do. Quality is vital to the successful application of our technology and our customers' ability to use our solutions to combat crime. As an ISO 9001 registered company, our quality assurance management procedures ensure that we are meeting the needs of our customers and providing them the best tools possible. Superior quality, unparalleled support services, and a passion for problem solving, make Forensic Technology the solutions provider of choice for many law enforcement and public safety agencies around the world.

At Forensic Technology we steadfastly believe that technology is critical to winning the war on crime and we are committed to research and development that aid in the creation of new crime-fighting solutions. We pride ourselves on the fact that our award-winning technological innovations have aided public safety agencies in solving thousands of crimes worldwide. For more information about Forensic Technology please visit: www.forensictechnology.com.

About the Authors

Pete Gagliardi
Pete Gagliardi is a Senior Vice President at Forensic Technology Inc. in the U.S. (a subsidiary of the Montreal-based parent company, Forensic Technology Inc.). The company provides field proven leading-edge products and services to help law enforcement agencies around the world better address the criminal misuse of firearms and more effectively manage information across the entire criminal justice system—from the crime scene to judicial disposition.

In addition to his more than 10 years in the ballistics technology field at Forensic Technology, Pete has 30 years of law enforcement experience at both the local and federal levels—most of which focused on the investigation of firearm-related crimes. In 1999, after 24 years of service, he retired as the United States Bureau of Alcohol, Tobacco and Firearms (ATF) Special Agent in Charge of the New York Field Division. In this role, he was responsible for managing all of ATF's law enforcement and regulatory operations within the New York/New Jersey metropolitan area that were related to firearms, explosives, arson, alcohol, and tobacco. Pete also held other senior executive positions while assigned to ATF headquarters in Washington, D.C. He has served as the agency's principal liaison to Congress, the Deputy Assistant Director of Science and Technology, the Deputy Assistant Director of Law Enforcement Programs, and the Chief of Strategic Planning.

As a result of these assignments, Pete has acquired and demonstrated a keen sense of awareness of the important factors to be considered when designing effective violence reduction programs that provide substantial and sustainable benefits for the cop on the street, the policy maker, and the public at large. Pete is also the author of a book entitled *The 13 Critical Tasks: An Inside-Out Approach to Solving More Gun Crime*. He can be reached by email at: pete.gagliardi@contactFT.com.

Allan M. Orr (MBA)
Allan Orr has been an instructor in the Bachelor of Applied Science in Conservation Enforcement program at Lethbridge College in Lethbridge, Alberta, Canada since 2001 and has held various posts including Program Chair for the Bachelor of Science in Conservation Enforcement program, co-chair of the President's Advisory Task Force, Faculty Advisor for the Conservation Enforcement Student's Club, Faculty Representative for the Lethbridge College Foundation, and Faculty Chair of the program's Advisory Committee. He is also the college representative to the Association of Natural Resource Enforcement Trainers and the Society for Wildlife Forensic Scientists. Allan currently teaches in the areas of applied law enforcement, field forensics, communication, and environmental sampling techniques. He was awarded a Masters of Business Administration in Executive Management (specializing in Educational Administration) from Royal Roads University in 2005.

Prior to his teaching career, he spent almost 20 years as a Conservation Officer in his home province of Saskatchewan. Allan is in a unique position to view conservation law enforcement from both a local and an international/global perspective and understand the business implications of the illegal trade of wildlife parts.

He can be reached by email at: Allan.Orr@lethbridgecollege.ca.