Chapter 5

What works?

What works to decrease wildlife crime?

Policy makers, regulatory and enforcement agencies, and funding institutions have good reason to seek insights into which interventions are effective in decreasing wildlife crime and in what contexts success has been achieved. Such knowledge can inform decisions about which interventions to fund or implement and which policies to pursue.[1]

A critical question to consider in assessing the impact of interventions aimed to decrease wildlife crime is what constitutes success? In basic terms, levels of criminal activity are expected to decline and flows of illegal trade to decrease, leading to a reduction in the severity of the various types of harm discussed in chapter 3 of this report. As harms reduce, positive benefits may result, such as recovery of wildlife populations or restoration of lost livelihoods.

It is not easy to measure the impact of crime reduction interventions although for some, immediate results may be obvious, such as increased arrests or seizures arising from an increase in patrolling or inspections. Others, such as the outcome of interventions aimed to deter or disrupt trafficking or reduce opportunities for crime, are more difficult to assess. In such cases a successful outcome is that a potential criminal act does not take place.

Furthermore, it is also difficult to discern which results arise from a specific intervention and which relate to other causes of change in the levels of crime and related harms that might have occurred regardless. There is also the question of how to assess and view displacement of crime. One intervention may have a positive impact in one location or on one commodity but may or may not push the crime to other locations or other commodities.

BOX 5.1 Funding wildlife crime interventions

Globally, most interventions to reduce wildlife crime are likely managed and resourced from within individual government budgets. This includes financing ranger, police, customs, and criminal justice functions. There is limited available data to quantify such investments, in part because they are typically embedded within budget allocations, such as an annual allocation for policing or customs controls. It is also important to recognize that there is likely considerable variability at a national level in terms of the adequacy of these allocations.

Funding to address wildlife crime is also provided by multilateral, national and private donor institutions. While it is not possible to assess how the level of such international donor funding compares to the financial resources spent by national governments to tackle illegal wildlife trade, useful information is available on where and how it is allocated. A World Bank survey of multilateral and bilateral donor agencies, foundations, United Nations programmes and international non-governmental organizations found that over $1.3 billion had been committed between January 2010 and June 2016 to combat illegal wildlife trade in Africa and Asia, approximately $190 million per year.[a] Donor funding was allocated to projects in 60 different countries and to various regional/multi-country and global projects. In total, 63 per cent of the funds were committed to Africa ($833 million), 29 per cent to Asia ($381 million), 6 per cent to global programmes and initiatives ($81 million), and 2 per cent to projects covering both Africa and Asia ($35 million). The top five recipient countries accounting for $328 million were: United Republic of Tanzania (8 per cent), Democratic Republic of the Congo (5 per cent), Mozambique (5 per cent), Gabon (3 per cent), and Bangladesh (3 per cent).

The purpose of funding allocations was broken down into various categories (Table 5.1).[a]

This significant volume of funding begs the question as to whether the interventions funded by these donors were effective. Notably only 6 per cent of the funding was allocated to research and assessment. This limited investment may in part explain why the evidence base for the efficacy of interventions to counter wildlife crime is so limited.

Tab. 5.1 Funding allocations to address different aspects of wildlife crime

Type of action	% of funding
Supporting protected area management to help prevent poaching	46%
Law enforcement that included intelligence-led operations and transnational coordination	19%
Sustainable use and alternative livelihoods	15%
Policy and legislation	8%
Communication and awareness raising	6%
Research and assessment	6%

Source: World Bank

a. World Bank Group, *Analysis of International Funding to Tackle Illegal Wildlife Trade* (World Bank, Washington, DC, 2016), https://doi.org/10.1596/25340.

The evidence-base for the identification of what works and what does not work to prevent wildlife crime is in the early stages of development. Existing prevention efforts draw primarily on the knowledge and expertise of individual practitioners, qualitative learning, and inference from logic models. Formal evaluations of wildlife crime prevention are rare, particularly those with strong evaluation designs.[2]

Intervention planning for some other crime sectors benefits from more sophisticated evaluations of interventions and a strong body of professional experience and research provides helpful insights into what works for crime prevention. Some of the insights from other sectors can help widen the scope of approaches used in responding to wildlife crimes.

This chapter begins by classifying different types of interventions to counter wildlife crime. It then probes evidence about which of these interventions work best to reduce wildlife trafficking levels and related harms, based on available literature and some illustrative examples. The chapter then takes stock of what can be learned from the evidence of what works to address other crime types and refers to some existing sources of guidance on how such approaches might be applied in the wildlife crime sector. Finally, there is a discussion of future needs for building and using evidence to evaluate outcomes and impacts of crime prevention interventions properly.

A taxonomy of interventions to counter wildlife crime

Several types of intervention are currently employed to reduce wildlife crime and illegal wildlife trade. The approach in the following analysis is focused primarily on wildlife crime interventions intended to engage directly with the people involved or potentially involved in the criminal supply chain. They are separated into three generalized trade stages, at source, in trade and at consumption. Criminal justice interventions, treated as a fourth distinct category, are applied at all of these trade stages (Figure 5.1).

These wildlife crime interventions are distinguished from other types of action that are aimed to shape or shift the enabling environment in which wildlife crime takes place. As illustrative examples, a change in trade rules through legislation or a new mechanism for inter-agency cooperation may be critically important in shaping the environment for reducing illegal wildlife trade. However, such initiatives will only have impact when implemented through direct wildlife crime interventions, whether that be simply through deterrence triggered by publicity about the new initiative or through active enforcement action.

What evidence is there about which interventions to counter wildlife crime work best?

There are remarkably few published systematic assessments of the effectiveness of wildlife crime interventions. When such assessments are carried out, their value as a basis for evaluation depends largely on whether they can draw a clear comparison between the situation before and after remedial interventions were made.

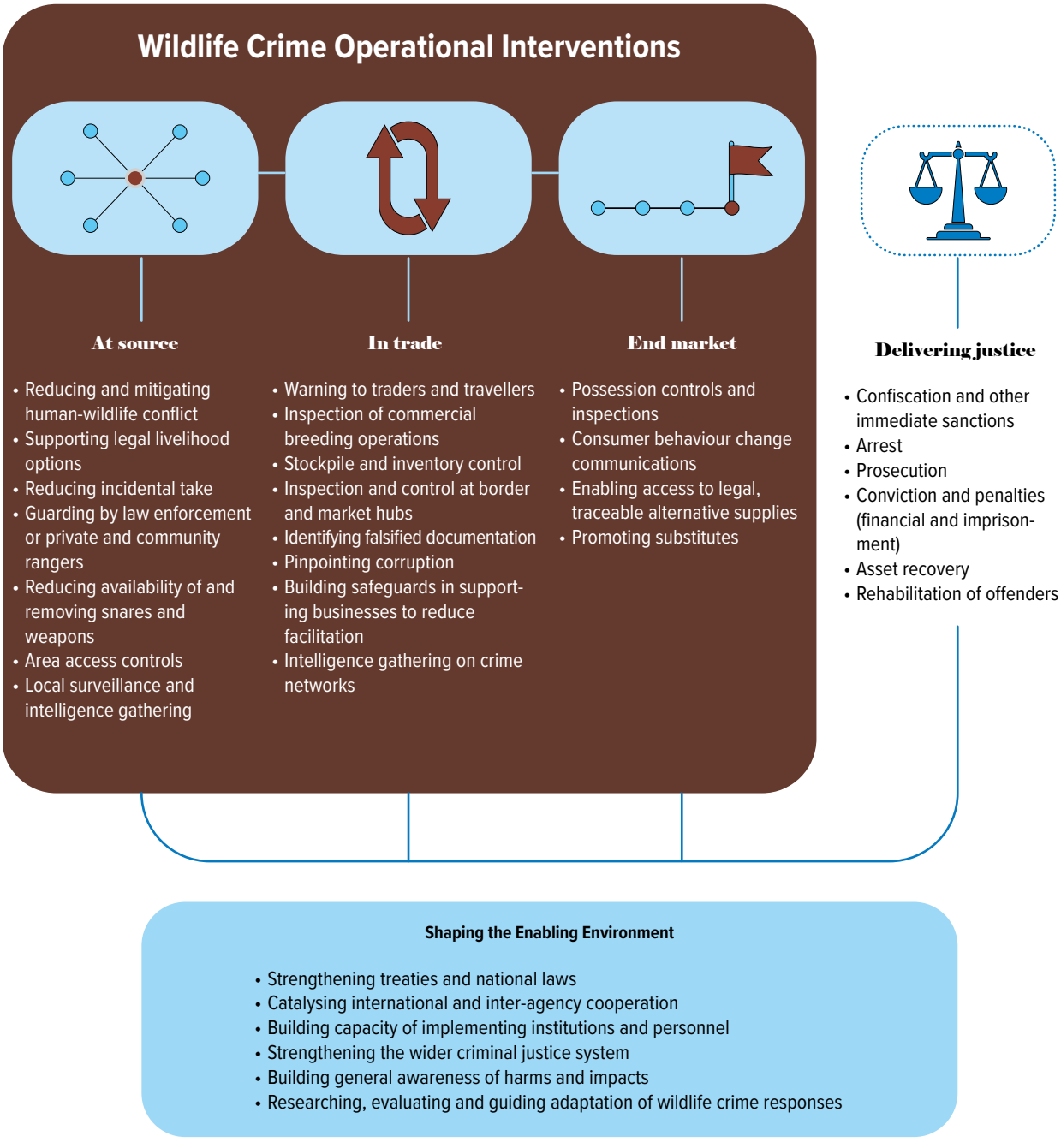
One group of researchers used a systematic mapping approach to collate the existing body of literature addressing the effectiveness of interventions to counter wildlife crime, including those that directly protect wildlife from illegal harvest, detect and sanction rulebreakers, and interdict and control illegal wildlife commodities.[3] The "effectiveness" of interventions was viewed in terms of whether they could be linked to biological or threat reduction outcomes.[4] The focus was plant and animal species targeted by the international grant programmes and law enforcement activities of the United States Fish and Wildlife Service (USFWS), specifically those directly threatened by exploitation and native to Africa, Asia and Latin America.[5]

Preliminary results of this research have been provided to UNODC for the current report in advance of publication as follows:

- 530 studies from 477 articles met the inclusion criteria and were subsequently included in the systematic map (Figure 5.2).

- The most common species groups for which relevant studies were identified were African and Asian elephants (16 per cent of studies), followed by felids (14 per cent), and turtles and tortoises (11 per cent).

FIG. 5.1 A taxonomy of interventions aimed to counter wildlife crime and actions aimed to shape the enabling environment



Source: UNODC

- Approximately 90 per cent of the evidence base included an evaluation of interventions to counter wildlife crime employing only post-intervention data and lacked any before/baseline intervention data or spatial comparator.

- Only 11 per cent of the evidence base used direct biological measures (e.g. increased wildlife population numbers) to evaluate intervention effectiveness; instead, most often, threat reduction (e.g. fewer poaching incidents) or intermediate outcomes (e.g. increase in offender arrests) were used as indicators of a potential or perceived change in population/species outcomes.

- Many knowledge gaps still exist in examining interventions to address wildlife crime for (1) Latin America, (2) all relevant plants (e.g. rosewoods, mahoganies, cycads, succulents, aloes), (3) reptiles and birds, especially related to actions aiming to prevent the loss of target wildlife species from their habitat by illegal harvesters (i.e. wildlife population-centric actions), and (4) non-patrol-based interventions to counter wildlife crime.

- Among the different intervention types and impacts covered by the systematic mapping, "the effectiveness of patrol regimes on population abundance" was identified as a candidate for further synthesis, based on the presence of sufficient pre- and post-intervention evidence.

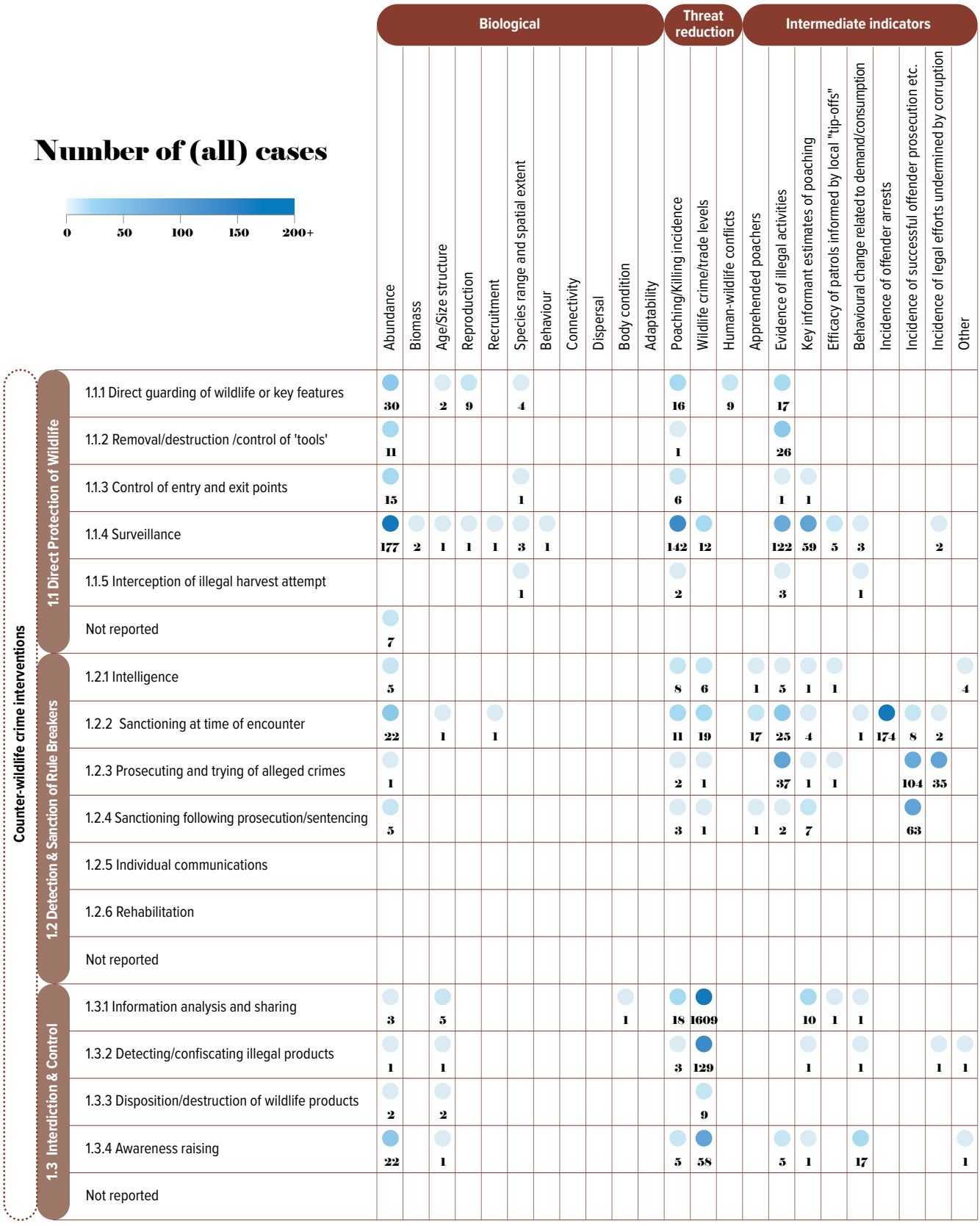
- Initial findings of this further analysis indicate that overall, for areas implementing a patrol regime (alongside other interventions) there was an increase, on average, in wildlife abundance of African, Asian, and Latin American wildlife directly threatened by exploitation compared to a time period(s) or location(s) where no patrols (or some baseline level of patrols) were conducted. However, causality is difficult to confirm.

- Detailed results of the study can be found in the published paper and a deeper analysis of variability within the patrolling subset will be published in due course.

An earlier systematic review focused specifically on interventions to prevent crime involving terrestrial species.[6] This review was based on a full text assessment of over a hundred published articles on wildlife crime prevention and sought quantitative evidence of effectiveness in delivering positive outcomes in reducing crime and poaching impacts on species populations. The study discovered that only five of these studies met the inclusion criteria for further analysis. Some were excluded because they did not focus on direct crime prevention interventions, others because they lacked outcome evidence. The five retained studies took place in four different countries, two in Asia and two in Africa (two different studies in one African country). Studies focused on the impact of anti-poaching patrols indicated that they were effective to a larger or lesser extent in decreasing the prevalence of poaching. Factors highlighted as influencing the efficacy of anti-poaching patrols were: the habitat's accessibility; rangers' level of experience and numbers; the time spent patrolling; the longevity of patrols; the type of patrol conducted; the type of target and its mobility; and the bonus/incentives provided to patrollers. The studies also shed light on various supporting conditions for patrol efficiency that those designing anti-poaching patrols might consider. However, the results are from a low number of studies focused on rhinoceros, elephants, and tigers.[7]

A recent review of 115 case studies of community-based interventions to counter illegal wildlife trade featured on the People Not Poaching platform aimed to understand their effectiveness and how this was measured.[8,9] It noted that not all studies provided sufficient evidence to understand how they had determined their intervention was effective at reducing poaching. When they did do so, frequently used indicators were process rather than outcome based, like the number of poaching incidents detected or the number of seizures made, or even the number of individuals involved in education or awareness raising activities. This made it difficult to discern if a reduction in poaching had occurred. This study also noted that behavioural change on the part of poachers was primarily measured by observation rather than quantitatively. In conclusion, it was suggested that future evaluations of community-based approaches to wildlife crime prevention should use stronger social science methods to assess behavioural change in addition to using direct measures of intervention success such as ecological indicators (population numbers, changes in reproductive rates).

FIG. 5.2 Heatmap of wildlife crime studies by intervention and measured outcome type



Source: Rytwinski et al., 2024[10]

at the other end of the trade chain, a recent meta-analysis of communication campaigns and other initiatives potentially impacting illegal wildlife consumption in selected countries in Asia assessed evidence of reductions in indicators of consumer demand. Post-campaign evaluation through market surveys indicated an average 50 per cent drop from 2018–2020 in consumers' intent to buy wildlife products and a 30 per cent decrease in perceived social acceptability of buying and using wildlife products. Research also showed significant reductions in demand related indicators, including attitudes/beliefs driving consumption, social acceptability, and intention to purchase.[11] However, these findings are not definitive in terms of reducing actual demand. Demonstrating links between attitudinal changes and reductions in actual purchasing behaviour is difficult and requires triangulation with other measures of market trends.[12]

Overall, the challenge of finding evidence of what works remains. Many evaluations are designed only to measure process outputs rather than outcomes and many are carried out within short-term projects before it is realistic for impact to be noticed. Even the more ambitiously structured evaluations can fail to discern clear patterns. Indeed, it is technically very challenging to evaluate quantitatively how interventions, often with multiple elements, impact complex social-ecological systems. Moreover, the scope of interventions that are evaluated is geographically and thematically biased. For example, a review of the Conservation Evidence platform database for primates showed that: 1) fewer than 1 per cent of studies evaluated conservation effectiveness, and 2) those studies that included an evaluation were biased geographically on certain types of interventions and on specific taxa of primates.[13,14] Evaluations undertaken by institutions typically focus on understanding the impact of their priority interventions. A 2015 USAID review of the metrics used to assess illegal wildlife trade interventions focused mainly on two strategic approaches:[15] building capacity for effective enforcement and prosecution; and improving monitoring and response to the status and trends of wildlife and wildlife crime together. These two strategic, but non-operational intervention types, accounted for 70 per cent of the metrics reported on.

Learning from success

Despite the paucity of impact-level evidence, it is nevertheless informative to consider cases in which success at an outcome level has been demonstrated. Actions taken to address wildlife crime and indicators used to measure outcomes are summarized in Box 5.2 for four examples of successful wildlife crime interventions compiled for a 2020 guide on problem-oriented wildlife protection.[16] These successes in reducing wildlife crime indicate that, despite the size and scope of the global illicit wildlife trade, there are grounds for cautious optimism. The case studies summarize the preventive responses and the indicators for interventions with manta rays, amur falcons, leopards, and illegal fishing. They are described here using the problem-solving cycle for crime reduction known as SARA (Scanning, Analysis, Response, and Assessment).[17]

Common characteristics of the successful case studies include the diverse information gathered, the focus on a specific rather than generalized problem, and the locally appropriate responses introduced. A set of responses, rather than a single response, was common, and crime prevention research suggests that a set of measures is more effective because they reinforce each other to positive effect.[18] The interventions in the case studies worked via numerous mechanisms. Some initiatives blocked crime opportunities, including promoting the accountability of fishing vessel movements, and removing nets used for falcon trapping. Such measures reduce access to targets, facilitate compliance with the law, and make it much harder for offenders to act. Other responses reduced the reward to poachers, including the distribution of subsidized leopard skins to reduce the market for illegal products and the promotion of tourism that encouraged local conservation with a set of guidance rules, increased formal surveillance, and alerted the conscience of local poachers. Where traditional law enforcement techniques, such as patrols and arrests, were used, it was complementary to other responses.

BOX 5.2 Some examples of wildlife crime interventions with evidence of successful outcomes

Example 1: Foiling falcon trapping in India

The Amur falcon is the longest-distance migrant raptor in the world and passes through Nagaland, India, where it is nationally protected, as part of its 22,000 km annual migration from North-East Asia to Southern Africa. Through *Scanning* of the case, it was clear that the problem was large-scale trapping of migrating Amur falcons at Doyang Reservoir in Nagaland for cheap meat. *Analysis* showed falcons were killed during a 10-day period when congregating for migration. Around 70 hunter groups in three villages used fishing nets to catch the birds. Research indicated that trapping did not have a cultural motivation and that trapper behaviour might be strongly influenced by village council and male local religious leaders. In *Response*, the Nagaland Fisheries Department seized nets and posted reservoir guards, local leaders discouraged falcon consumption, hunters were supported to transition into tourist guides and falcon protection teams, eco-clubs were established, and falcon protection encouraged. *Assessment* found that falcon trapping declined from at least 120,000 birds in 2012 to zero in 2013 with minimal evidence of illegal harvest during subsequent surveys through to 2019.[a,b,c]

Example 2: Interrupting illegal fishing in Australia

Scanning of the problem identified illegal commercial fishing in unapproved areas or at unapproved times. *Analysis* showed that fishers bypassed regulations by failing to install a vessel monitoring system (VMS) on board and/or have it always operating. In *Response*, a team was formed that cross- checked logbooks against VMS data within three days of landing, along with a zero-tolerance policy whereby patrols forced vessels without VMS to return to port. *Assessment* found VMS compliance rates increased from 87.5 to 97.9 per cent during the study period in the mid-2010s.[d]

Example 3: Protecting manta rays in Indonesia

Scanning of evidence determined that the problem was illegal hunting of manta rays in Eastern Indonesia, where these species have been protected since 2014. Hunting was motivated by demand for manta ray gills in traditional medicine markets elsewhere in Asia. *Analysis* determined that one village was the location of the illegal hunting and market, with a group of repeat offenders who targeted concentrations of manta rays at certain times. The *Response* was patrols focused on the problem times and locations. High-level traders were prosecuted, supported by training of the judiciary. Livelihood interventions were focused on hunters, processors, and the community. *Assessment* found manta ray hunting in the intervention area declined 85 per cent in 2017 compared to the 2013 baseline.[e]

Example 4: Lessening leopard poaching in South Africa

Scanning of the situation identified the problem as illegal, unlicensed leopard hunting for fur capes used in local traditional religious ceremonies. *Analysis* estimated thousands of leopard skins in use locally by one religious community within South Africa. Capes were costly and lasted seven years, but some community members used artificial capes. There was low awareness of leopards' threatened status. The *Response* was the manufacture and distribution from 2013 onwards of durable synthetic leopard skins, initially free before transition to a sustainable business model, combined with education to reduce the desirability of wild leopard skins. *Assessment* showed the proportion of real leopard skins in use by the community likely dropped to 50 per cent by 2018.[f]

a. Sahana Ghosh, 'A Naga Village's Journey from Hunting Ground to Safe Haven for the Amur Falcon', Mongabay-India, 4 May 2018, https://india.mongabay.com/2018/05/a-naga-villages-journey-from-hunting-ground-to-safe-haven-for-the- amur-falcon/.

b. *The Pangti Story*, Documentary, 2016, https://www.youtube.com/watch?v=kJrPg2rWav0.

c. Anwaruddin Choudhury, Anil Kumar Goswami, and Debendra Luitel, 'Three Years Monitoring of the Amur Falcon Falco Amurensis at a Roosting Site in Assam in North-East India', *The Rhino Foundation*, 2020, Newsletter and journal of the Rhino Foundation for Nature in North East India.

d. Mark C. G. Gibson, 'Problem-Oriented Policing for Natural Resource Conservation', in *Conservation Criminology* (John Wiley & Sons, Ltd, 2017), 115–31, https://doi.org/10.1002/9781119376866.ch7.

e. Hollie Booth et al., 'An Integrated Approach to Tackling Wildlife Crime: Impact and Lessons Learned from the World's Largest Targeted Manta Ray Fishery', *Conservation Science and Practice 3*, no. 2 (February 2021), https://doi.org/10.1111/csp2.314.

f. Vincent N. Naude et al., 'Longitudinal Assessment of Illegal Leopard Skin Use in Ceremonial Regalia and Acceptance of Faux Alternatives among Followers of the Shembe Church, South Africa', *Conservation Science and Practice 2*, no. 11 (2020): e289, https://doi.org/10.1111/csp2.289.

It can be argued that the decline of the ivory market described in the case study in chapter 6 of this report is also an illustration of how multifaceted interventions can bring success. These interventions include both demand and supply reduction strategies: introduction of stricter domestic market restrictions in China, Thailand and other countries in the late 2010s represented a major shift in the enabling environment.[19] Operational interventions included market inspection and enforcement of new domestic trade restrictions, large-scale communication to both retailers and potential customers about risks of non-compliance, and an increase in international collaboration to identify and close important smuggling routes and networks.[20,21] In combination, these measures appear likely to have contributed significantly to declining illegal ivory trade flows inferred by the triangulation of different indicators: poaching levels, seizures and market prices.

What can be learned from the evidence of what works to address other crime types?

There are gaps in the evidence of what works to reduce wildlife trafficking across all intervention types, from livelihood-related actions at source through to demand reduction in end markets. Based on the review in the previous section of this chapter, the shortage of evidence appears to be particularly acute for interventions aimed to disrupt criminal activity through law enforcement and other criminal justice actions. It therefore makes sense to take stock of the knowledge accumulated by criminologists and enforcement strategists who have evaluated interventions aimed to address other crime sectors. Some crime types that, for decades, appeared likely to continue to increase have been contained, and others significantly reduced. Car crime, burglary, and violence that once characterized high-income countries, have generally been declining for decades. This reflects the blocking of crime opportunities, particularly through security improvements to vehicles, households, businesses, and in many sectors of public and private life.[22]

The following examples by no means represent a comprehensive review of research on action against other crime types, rather they illustrate the types of lessons that might be taken into account in shaping effective interventions to counter wildlife crime.

Targeting enforcement effort

Crime requires the convergence in time and space of a likely offender who is disposed to committing crime, a suitable target that is attractive to an offender, and the absence of a capable guardian to prevent the crime.[23] These circumstances only come together at certain points and in certain places in a predictable pattern. However, some basic patterns hold true across crime types, providing insights about the circumstances when risk and the need for prevention are greatest. Examples include the concentration of crime in geographic hotspots,[24] along certain routes,[25] and on specific types of products.[26] Identifying these patterns in crime can help target resources more effectively.

For wildlife crime, application might include focusing patrols on known access routes into national parks and enforcement at critical transport hubs. Caution is needed to avoid confirmation bias, so collation of comprehensive data for analysis of patterns and trends is of great importance. Gaining deeper understanding of participant motivations can also help with the forecasting of places and species likely to be targeted in future by wildlife trafficking.

Understanding and predicting criminal behaviour

Crime scientists have also shown that criminal behaviour can be predicted and manipulated. Offenders often make rational choices, but that rationality is bounded by their understanding of their environment, which is never perfect. They act in a certain way because of their own disposition and because of the cues and reinforcements that their environment provides. A car thief, for example, will choose to target a car that is easy to resell in a parking lot with fewer lights and no visible cameras at a time when they know few people will be parking or retrieving their cars. There is a logic why offenders choose to commit a crime and when and how they do so. Generally, offenders decide to commit a crime by weighing up its risks and benefits at a particular time and place, but they tend to focus on immediate, not long-term, risks and benefits.[27] Understanding how these choices are made is key to designing effective crime prevention interventions.

For wildlife trafficking, as for other crime sectors, there is great potential to learn more about behavioural motivations from qualitative research, such as offender interviews, and to employ such insights to design and target interventions better.

Designing for deterrence

Understanding offenders' decision making is also critical to using deterrence appropriately. The assumption is that punishments like prison will deter specific offenders because the experience of punishment will dissuade them from future crime.[28] Meanwhile, others around the offender who see or hear of the punishment will be discouraged from criminal behaviour.[29] However, the reality of deterrence is far more complicated. The general tenet of classical theories of deterrence is that punishment must be certain, severe, and swift to deter.[30] However, deterrence hinges on the public perception of this and people are poor at accurately predicting arrest certainty or sanction severity.[31] Overall reviews of deterrence conclude that perceptions of the severity of punishment show weak to no impact on crime levels, but the perception of certainty of punishment does.[32] This is because people are remarkably good at assuming "getting caught could never happen to me, it only happens to the unlucky ones.[33]" To design effective interventions, it is important to understand how first-time and repeat offenders perceive risk in their environment when making decisions. The goal is to increase the perception of risk through specific cues that counter crime interventions can place in the environment to deter offenders. An effective approach based on this insight, labelled "focused deterrence", targets high-volume offenders with a combination of increasing perceptions of punishment certainty, while at the same time offering support through provision of social services.[34]

Numerous examples in this report indicate that more strategic approaches to deterrence could enhance wildlife crime reduction interventions. Research in source countries indicates that participants in crime may underestimate risks. Perhaps of even greater concern, higher-level traffickers may perceive impunity and may count on the inefficiency of the criminal justice system. Some high-profile cases that dig deeper into criminal networks, like those related to ivory trafficking in recent years, could have a significant impact on perceptions of risk. For legislative design, there is guidance available on penalty and sentencing approaches to dissuade wildlife crime.[35]

Restorative justice

An alternative approach that shows promise for crime prevention, specifically recidivism (re- offending), is restorative justice. Restorative justice is an approach that focuses on the rehabilitation of offenders by encouraging them to "accept responsibility for the harm caused by their actions to make themselves accountable to those they have harmed," promoting reconciliation with the victim and the community at large who take part in resolving the situation.[36] It has shown evidence of some effectiveness in decreasing repeat offending when carried out within a range of specified parameters. Careful attention is needed to manage any offender-victim meetings and the type of reparation requested. One study focused on recidivism behaviour for various groups of offenders in Australia. Offending by violent youths who participated in a restorative justice conference fell by 49 per cent, while offending for those assigned to traditional court processes only fell by 11 per cent. Offenders and victims reported the conferences to be procedurally fairer than court.[37]

As documented in Chapter 3 of the current report, wildlife trafficking is not a victimless crime as people affected, including environmental defenders, can suffer loss of livelihoods, persecution, injury and loss of life as a result of wildlife offences. Examples in the current report indicate that innovation in criminal justice responses to wildlife crime is particularly worthy of consideration in deterring low-level participants in source countries. Illegal harvesting and trade in many wildlife goods often depends on occasional and sometimes opportunist participants in the wildlife trafficking chain. A pilot application under way in South Africa aims to trial restorative justice within communities where wildlife crime has impacted impacted people and their natural heritage.[38]

Liability for remedying harm

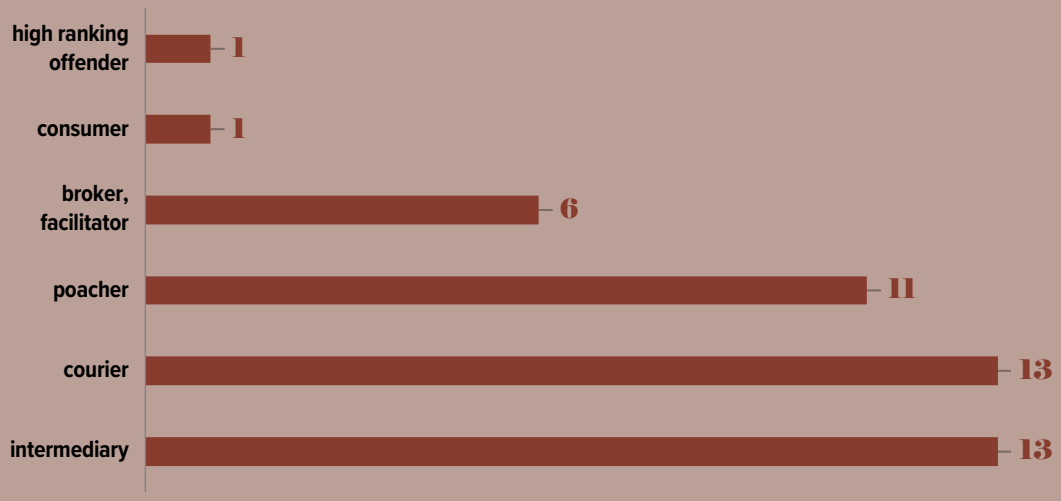
Complementary to criminal justice interventions, many countries also have existing legal provisions (within administrative, criminal and civil law) that can hold offenders legally responsible for remedying the harm

BOX 5.3 Insights from wildlife crime offender interviews in Indonesia

In recent years, Indonesia has made great strides in improving its enforcement of wildlife crime laws, leading to numerous prosecutions and prison sentences for wildlife crime offenders.[a] UNODC collaborated with the Indonesian prison service to interview offenders as part of a broader initiative for criminal justice reform to reduce prison overcrowding. The interviews focused on understanding how offenders got into wildlife poaching and trafficking, their modus operandi, and what would deter them from future criminal acts.

Two thirds of those interviewed claimed that the action leading to their arrest was their first involvement in illegal wildlife trade and only two were convicted reoffenders. The majority explained that they had been motivated by opportunity for supplementary income rather than livelihood necessity and that they had been aware that the activity they were involved in was illegal. In terms of deterrence, it is noteworthy that 21 of the offenders interviewed indicated that they did not worry about the effects of conviction on their social standing.

FIG. 5.3 Wildlife crime offenders in prison in Indonesia and their roles in the trafficking chain



Source: UNODC

What is clear from an initial sample of 45 interviews is that while Indonesia has ramped up enforcement successfully, those incarcerated may not be the most prolific or high-ranking offenders (Figure 5.3).

a. Dwi N. Adhiasto et al., 'A Criminal Justice Response to Address the Illegal Trade of Wildlife in Indonesia', *Conservation Letters 16*, no. 2 (2023): e12937, https://doi.org/10.1111/conl.12937.

caused, including for the harm caused through wildlife crimes documented in chapter 3.[39] Liability cases seeking remedies for harm have demonstrated success in changing the behaviours of environmental offenders in other contexts, notably pollution,[40] and public health,[41,42] where the increased costs and public visibility of court cases and providing remedies have had deterrent effects.

A growing number of cases around the world have operationalized these types of liability provisions for illegal wildlife trade cases in recent years, including against pangolin traders in Cameroon, illegal zoo owners in Indonesia, illegal fishers in France,[43] and illegal recreational hunters in Thailand.[44] Several additional cases are currently under way in five other countries.[45]

Understanding crime displacement

Crime displacement has been characterized as the relocation of crime from one place, time, target, offence, or tactic to another as a result of some crime prevention initiative.[46] A systematic review of over a hundred situational crime prevention evaluations where spatial displacement was measured found that it only occurred in around a quarter.[47] When spatial displacement did occur, on average, its impact tended to be less than the gains achieved by the intervention. Furthermore, in another quarter of the examples reviewed there was evidence of what criminologists refer to as a "diffusion of benefits." This occurs when reductions of crime (or other improvements) are achieved in areas that are close to crime-prevention interventions, even though those areas were not actually targeted by the intervention itself.[48] Further research on this topic concluded that it is more helpful to think about crime deflection, rather than displacement, with possible malign and benign outcomes that can be predicted in the design of prevention interventions.[49] The scarcity of displacement is likely because it requires extra time, effort and risk, reduces rewards, and increases uncertainty on the part of offenders. Some offenders are unable, and others unwilling, to shift their activities.[50] Insights into likely displacement effects can therefore be used strategically to deflect offenders to less harmful crime forms, and to delay crime, sometimes indefinitely.

Displacement of wildlife crime geographically and in terms of target species and smuggling methods was raised as a concern in the *World Wildlife Crime Report 2020*.[51] These are certainly important trends to track, but learning from other crime types makes it clear that displacement is not necessarily a sign of failed intervention and that there is a lot to gain from detailed analysis of displacement outcomes. Wildlife populations have defined areas of distribution and availability, and some types of harvest opportunity may be seasonal. As is clear from the analysis of trafficking drivers in chapter 4, different wildlife market sectors have specific preferences. Shifting wildlife sourcing to a new location likely attracts increased costs leading to reduced criminal profits. Shifting to a new species may be a compromise in terms of market value. Evidence on displacement has strong potential to inform design of strategies to address different wildlife trafficking sectors.

Avoiding unintended consequences

Increasing the number of enforcers is not necessarily proven to reduce crime. Overall, there is some evidence of higher police numbers decreasing crime in the short-term but only if large-scale increases in police numbers are seen—marginal changes in policing numbers most likely do not greatly alter crime levels.[52] Increased enforcement can also have the negative consequence of inciting backlash from communities if the legitimacy of the increased enforcement and force used is not established.[53] A review of learning from "tough-on-crime" sentencing policies concluded that such approaches may prove ineffective at reducing crime rates and recidivism, and that they can be harmful to individuals, communities, and state economies.[54] There is also evidence, that law enforcement resulting in large numbers of arrests of low-level offenders may not necessarily have the hoped for impact of crime reduction and can incur high unintended economic and social costs.[55]

These are particularly important lessons for wildlife crime given evidence that low-level offenders are incarcerated for offences in this sector, as discussed in chapter 3. Recent research carried out by UNODC probed this issue through interviews of offenders convicted of wildlife crimes in Indonesia (Box 5.3).

Sources of guidance

Several guides that outline step-by-step processes and factors to consider when designing interventions to counter wildlife crime are found on a website hosted by Arizona State University dedicated to the problem-solving approach to "wilderness problems" (which includes illegal wildlife trade and broader wildlife crimes). Content is peer-reviewed to the extent that the website is led by an editorial board of crime reduction specialists from both urban and wildlife crime backgrounds.[56] Guidance is rooted in the evidence-based practice of problem-solving. Content includes: an overview guide on how to conduct problem-oriented wildlife protection;[57] a problem analysis manual;[58] guides for specific types of wildlife crime problems including wildlife poaching on US Federal Lands;[59] illegal commercial fishing;[60] methods

for understanding the crime problem in detail, such as crime scripting;[61,62] and a guide on the use of situational crime prevention methods in response to illegal wildlife trade.[63]

Crime script analysis is another tool increasingly used to help design illegal wildlife trade interventions. It employs a step-by-step review of how a specific crime is committed, identifying the complete sequence of choices and actions prior to, during, and after the crime and the links between them.[64] Any specific crime, in terms of type and location, can be represented in a crime script as following a decision sequence with several broad stages from preparation through commission and aftermath. From a crime script, it is possible to determine which actors to target with interventions and where and when those interventions might be best implemented. Over a hundred published crime script studies include a range of wildlife crime examples, including some involving organized and financial crime.[65] Further specific wildlife crime examples and guidance on use of crime scripts to address illegal wildlife trade are included in some of the aforementioned guidance sources.[66,67]

The second edition of the International Consortium on Combating Wildlife Crime (ICCWC) Wildlife and Forest Crime Analytic Toolkit provides national and local government officials with guidance in five key areas: legal frameworks; law enforcement; criminal procedures and the court; international cooperation; and drivers and prevention.[68] It allows government officials to assess national and local structures and procedures in comparison to international best practice and provides practical guidance for design and implementation of different interventions. Guidance is also available on design and implementation of interventions to address drivers of wildlife trafficking at source and in end markets. For example, the People Not Poaching online platform fosters learning and experience-sharing on supporting and engaging communities in initiatives to reduce poaching and illegal trade.[69] On the demand side, a social and behavioural change community of practice operates an online platform to share knowledge on application of behavioural science approaches to reduce demand for illegally traded wildlife products[70]

Towards better insights into what works to address wildlife crime

There are clear advantages to be gained from enhancement of evidence about what works to address wildlife crime. Such knowledge can be used to prioritize, target, evaluate and refine wildlife crime interventions, employing the wide range of analytical and planning tools already in use in the wider crime prevention community. The evidence can be used to inform policy and other reforms to the enabling environment within which wildlife crime takes place. Every intervention then becomes an opportunity to understand "what works" and improve.

Among current obstacles to accumulation and use of such evidence, the most significant challenge is a lack of investment in monitoring and evaluation processes, including indicator development, data collection and structured assessment. Within relevant government systems, priority is usually given to direct operational intervention, with limited attention to collection and evaluation of associated crime data. Success is typically judged based on outcomes such as contraband seizures, and arrests and prosecutions, rather than through assessment of changes in crime levels, illegal trade volumes or reduction in associated harms like the recovery of threatened species populations.[71]

Project-level interventions do usually require more rigorous monitoring and evaluation elements. However, they typically rely on limited baseline reference points and post-intervention data gathering. Even in cases where data are available, weaknesses in associated decision-making processes may lead to ineffective use of evidence, faulty decisions, wasting of resources, and the erosion of public and political support.[72] This challenge is compounded by the fact that project funding cycles are typically too short to incorporate evidence-driven adaptive management cycles or rigorous assessment of harm reduction. Furthermore, monitoring and evaluation costs are often capped at relatively low levels in budgets.

Improved approaches to assessment of what works need to focus on two levels of evidence and evaluation, the direct process-related results of interventions made, and the consequent impact on crime levels and associated harms. Experience from other crime research indicates that spending adequate funds for strong evaluations in a few sites is far more cost-effective than spending little amounts of money for weak evaluations in thousands of sites,[73] although caution is necessary in generalizing results on a wider scale.

Tools for tracking process-related results include the ICCWC Wildlife and Forest Crime Indicator Framework, which is structured under eight enforcement outcome measures and 50 individual indicators. It can be used to guide development of baseline measures, monitoring of progress, and evaluation of effectiveness over time.[74] Similarly useful at this level are the ICCWC Guidelines for Wildlife Enforcement Networks, which include a comprehensive evaluation matrix.[75]

At an impact assessment level, many wildlife crime studies report something about observed changes without establishing that the intervention caused that change.[76] An example would be the observation that the number of arrests in a protected area increased and the number of wildlife carcasses detected decreased in a six-month period. While it is possible that the two are related, the causal link has not been established. Establishing that causal link would be best done through experimental or quasi-experimental evaluation designs that ask what would happen if there had been no intervention?[77] Often, these designs require a control group or location where the intervention is not implemented to use for comparison with where it was. This could create ethical problems if a choice is made purposely not to help a location or group, although in reality, with limited resources for intervention, a non-intervention comparator will likely be available. However, if such experimental approaches are not feasible, the best solution may be to collect baseline data before an intervention and compare this to the same indicators post intervention. Nevertheless, a mix of indicators is needed to establish impact through triangulation (Box 5.4).

Evidence reviews indicate that data sources on wildlife crime are currently rather limited in terms of scope and accessibility compared to those available for other crime sectors for which policing results and crime

BOX 5.4 Experimental learning

A study in Kui Buri National Park, Thailand, covering the period 2008–2011 provides a good example of quasi-experimental methods being used where data are triangulated. Some 116 outreach events were held with the aim of decreasing local poaching. The interventions aimed to: build trust and raise awareness; offer opportunities for action; promote benefits and confidence that positive results were achievable; generate social pressure against poaching. Wildlife abundance was assessed for four species at three sites using both observational studies and camera trapping. Poaching pressure was recorded as the encounter rate of poaching signs per kilometre patrolled. The deterrent effect of the outreach was assessed by triangulating measures of patrol effort (mean number of days per month) and poaching for the months before and after outreach, along with an attitudinal survey of people in the area to learn about poaching involvement, motivations and perceptions of changing intensity. Two thirds (67 per cent) of respondents believed that community outreach had caused a decline in poaching.[a]

While neither the simple before and after comparison of poaching levels, in the absence of a control site, nor the perceptions survey is perfect, they both point to similar results (a decrease in poaching, not due to an actual patrol increase). The limitations of such a design are that the results cannot be reliably assumed to be replicable in other contexts and ideally a control area is needed, but the study does provide an example of promising evidence being generated from a relatively simple design because it is strengthened by some element of triangulation and examination of evidence for the assumed mechanisms being activated.[b]

a. Robert Steinmetz et al., 'Can Community Outreach Alleviate Poaching Pressure and Recover Wildlife in South-East Asian Protected Areas?', *Journal of Applied Ecology 51*, no. 6 (2014): 1469–78.

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perception and other surveys are available to researchers and the public in many jurisdictions. This is partly attributed to what has been termed the "silent victim syndrome", whereby wildlife troubled by crime cannot "call the police" as other victims might do.[78] As a result, evidence of wildlife crime is usually a product of enforcement effort. National datasets on wildlife crime are typically fragmented, short-term and difficult to access, with a bias towards information on seizures, particularly of CITES-listed species.[79,80]

Like arrest and conviction statistics that are sometimes available for wildlife crime offences and used as indicators of success, seizure data are a mixed indicator in that they illustrate the level of enforcement effort made as much as they indicate the extent of crime and illegal trade. They may also reflect embedded biases of enforcement efforts, including racialized and gendered presumptions. Furthermore, as noted earlier in this chapter, research from other crime fields indicates that seizure and arrest do not necessarily deter further criminal behaviour. Complementary measures of market data, such as price changes, retail availability and turnover, and changes in harm, such as poaching levels and wildlife population impacts, are necessary to extend the utility of such data.[81] Triangulation with less direct measures can help to check logically whether mechanisms have been activated, and whether those mechanisms are therefore likely to be achieving some impact.[82]

The absence of accessible baseline data on a range of metrics along the illegal wildlife trade chain is a persistent concern.[83,84] It is generally not practical for the costs of pre-intervention monitoring and data compilation to be absorbed into budgets for discrete enforcement actions and support projects. A community of practice approach for collation and sharing of data for key variables, such as wildlife population trends, market indicators and criminal justice results could greatly boost evaluation of wildlife crime interventions overall.

Another topic worthy of greater investment in evidence gathering and analysis is the performance of law enforcement, prosecution and sentencing processes related to wildlife crime within criminal justice systems. Factors of interest include the impact of corruption, identification of process obstacles and gaps, and ultimately the evidence for impact on criminal behaviour.[85]

Overall, there is a clear case that priority-setting and tactics would benefit from stronger evidence. Climate science provides an informative example of how progress in the accumulation, collaborative analysis and policy use of evidence for problem-solving can be achieved.[86] For wildlife crime this will require investment in data gathering and analysis and stronger cooperation between relevant agencies, including multilateral, government, civil society and academic institutions. It will also require prioritization by funding agencies.

Putting current learning into action

Despite evidence gaps, wildlife crime reduction policies are being implemented by regulatory and enforcement agencies and funding institutions are making decisions about investments in related interventions. Since multi-faceted approaches appear to be effective in reducing other types of crime, these efforts are unlikely to be in vain. Furthermore, this chapter demonstrates that there is a growing body of research on the effectiveness of different wildlife crime responses and that useful insights are emerging. The lessons from such work should be put to use.

For example, evidence-based analysis illustrates how different factors influence the impact of anti-poaching patrolling in certain locations and how multifaceted enforcement and market interventions are contributing to reductions in ivory trafficking and elephant poaching. Such findings can already be used to help inform intervention design in other places and for other trafficked commodities. There is also a wide range of useful knowledge to draw from insights already developed for other crime sectors. For example, displacement of wildlife crime between places and species may not simply be a sign of failure, systematic situational analysis can guide effective intervention design and effective deterrence requires action beyond seizures and arrests. Again, such learning can be applied now. A call for better evidence is not a case for inaction due to uncertainty.

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