



Wildlife Law Enforcement in Sub-Saharan African Protected Areas

A Review of Best Practices

David W. Henson, Robert C. Malpas and Floris A.C. D'Udine



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This review of site-level wildlife law enforcement practices in Sub-Saharan African protected areas was carried out by the Conservation Development Centre, Nairobi, in collaboration with the Frankfurt Zoological Society (FZS) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The analysis and study have been financed by the German Federal Ministry for Economic Cooperation and Development (BMZ).



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The Polifund project on combating poaching and the illegal trade in ivory and rhino-horn, implemented by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB), combines the expertise and resources of five German ministries, international organizations, NGOs and the private sector to combat poaching and the illegal trade in wildlife products (ivory and rhino-horn) in Africa and Asia.



BMZ is responsible for Germany's official development assistance commitments. It develops guidelines and fundamental concepts on which German development policy is based, and devises long-term strategies to encourage sustainable development through international cooperation and partnerships.

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Acronyms

ANCE-Togo	Alliance Nationale des Consommateurs et de l'Environnement	INTERPOL	International Criminal Police Organization
ANPN	Agence Nationale des Parcs Nationaux du Gabon	IUCN	International Union for Conservation of Nature
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety	KAZA	Kavango-Zambezi Transfrontier Conservation Area
BMZ	German Federal Ministry for Economic Cooperation and Development	KPR	Kenya Police Reserve
CASOS	Computational Analysis of Social and Organizational Systems	KWS	Kenya Wildlife Service
CAWM	College of African Wildlife Management, Mweka	KZN	KwaZulu-Natal
CBNRM	Community-based Natural Resource Management	LEM	Law Enforcement Monitoring
CDC	Conservation Development Centre	MIKE	Monitoring the Illegal Killing of Elephants
CEDAMM	Complexe Educatif Dr Alphonse Mackanga Missandzou	MIST	Management Information SysTem
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	MOMS	Management Orientated Monitoring System
DNA	Deoxyribonucleic acid	NGO	Non-governmental Organization
EAGLE	Eco Activists for Governance and Law Enforcement	NP	National Park
ECEC	Environmental Compliance and Enforcement Committee	OCTRIB	Office Central de Répression du Trafic illicite des Drogues et du Blanchissement
ECI	Environmental Crime Investigation Unit	OP	Observation Post
EFG	Ecole de Faune de Garoua	PA	Protected Area
EIA	Environmental Investigation Agency	PDA	Personal Digital Assistant
FZS	Frankfurt Zoological Society	RBM	Ranger-based Monitoring
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	SADC	Southern African Development Community
GNP	Gonarezhou National Park	SANParks	South African National Parks
GPS	Global Positioning System	SAWC	Southern African Wildlife College
HF	High Frequency	SIGINT	Signal Intelligence
HUMINT	Human Intelligence	SMART	Spatial Monitoring And Reporting Tool
ICCN	Institut Congolais pour la Conservation de la Nature	SOP	Standard Operating Procedure
ICCWC	International Consortium on Combating Wildlife Crime	TALFF	Togo Application de la Loi sur la Faune et la Flore
		TRAFFIC	The Wildlife Trade Monitoring Network
		TRIDOM	Tri-National Dja-Odzala-Minkebe Project
		UMCC	Unité Mixte Control des Containers
		VHF	Very High Frequency
		WCS	Wildlife Conservation Society
		WF	Wildlife Forces
		WWF	World Wide Fund for Nature
		ZAWA	Zambia Wildlife Authority

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We would also like to thank the more than 100 protected area professionals that responded to the online survey that formed the foundation for the review structure and findings, some of whom responded to the survey at considerable length. Since the survey was anonymous, we are unable to acknowledge the respondents individually, but all the contributions are gratefully acknowledged.

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Nationale des Consommateurs et de l’Environnement (ANCE - Lomé, Togo), the Wildlife Conservation Society, the South Luangwa Conservation Society (Zambia), the Malilangwe Trust (Zimbabwe), and Conservation Outcomes. We apologize if we have missed any organizations from this list.

Rob Muir, Hollie Booth and other members of the FZS Africa Office in Seronera were instrumental in establishing the structure for the review and for providing the review team with contacts in the field. Klemens Riha of GIZ and Ed Sayer of FZS played an important role in presenting the review’s major findings to the World Parks Congress held in Sydney, Australia, in November 2014. The CITES MIKE Programme made several important contributions to the review process, including assistance with the initial design of the review’s analytical framework, making available the MIKE Site-level Law Enforcement Capacity Assessment framework¹ as a basis for defining the review’s law enforcement strategies and management needs, and sharing the MIKE Programme’s mailing list for the online survey. We thank Julian Blanc, the MIKE Programme Coordinator, for all these contributions.

We would like to acknowledge with thanks the various individuals who made substantial contributions to improving the report during its development, in particular: Hugo van der Westhuizen and Ed Sayer, both of FZS, who reviewed the entire draft and especially provided feedback on the Law Enforcement Patrols and Management sections; Carmen Van Ticklen of Kwa Zulu-Natal Wildlife and Sandra Snelling of South African National Parks, who provided feedback on the Intelligence and Investigations section; and Bryna Griffin and Karen Laurenson, both of FZS, for their contributions to editing and consolidating the final version of the report.

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Foreword

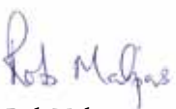
Across Africa, illegal killing and trade in wildlife, especially of iconic species such as elephants and rhinos, has now reached crisis proportions. Illicit wildlife trafficking now comprises the fourth largest illegal trade internationally after arms and drugs trafficking, and trafficking in human beings. In recent years, tens of thousands of elephants have been killed every year for their tusks. Faced with this unprecedented level of poaching and organized wildlife crime, many conservationists now fear that species such as elephants and rhinos may disappear in the wild within our lifetime.

In response to this poaching crisis, African countries and their development partners have convened a number of high-level forums aimed at raising international awareness of the seriousness of the situation, and identifying strategies to address the crisis at site, national and international levels. These forums have included the London Conference on the Illegal Wildlife Trade in 2014, at which 41 participating countries committed themselves to measures designed to eradicate the market for wildlife products, ensure effective legal frameworks and deterrents against wildlife crime, strengthen law enforcement, and support sustainable livelihoods. This was followed by the Kasane Conference on the Illegal Wildlife Trade in early 2015, at which participating countries reiterated their commitment to halting the illegal killing and trafficking of wildlife, and defined additional measures aimed at addressing key aspects such as the role of communities in supporting conservation efforts and combating poaching based on benefit sharing, and engaging the private sector, which is often the conduit for the illicit wildlife trade, but which if effectively engaged has the means to prevent it.

As part of these international efforts to combat wildlife crime, the German Government is supporting tangible measures to fight poaching and illegal trade in range countries of rhinos and elephants and in countries where ivory and rhino horn-based products are consumed, as well as at the international level. This is part of Germany's commitment to make available €500 million annually from 2013 onwards for the conservation of forests and other ecosystems worldwide. Practical initiatives include strengthening the capacity of park managers and rangers in key protected areas across Africa, working with local communities to enhance their participation in wildlife protection and management efforts as well as to improve sustainable livelihoods, and promoting transboundary collaboration in protecting wildlife and combating wildlife crime.

Toward this end, the BMZ has set up a special project within the cross-sectoral Polifund that brings together the competencies and know-how of different German line ministries in complementary fields of action. The project aims to combat poaching and the illegal wildlife trade throughout the entire trade chain in Africa and Asia, with an emphasis on activities that strengthen law enforcement and demand reduction. This current publication has been produced through this mechanism, in collaboration with the Frankfurt Zoological Society, which has a unique track record in supporting practical wildlife law enforcement efforts in Africa, and the Conservation Development Centre, which provides practical support to conservation and wildlife management agencies and donors in developing effective protected area management and wildlife protection efforts based on best practice.

One of the major strategies to combat wildlife crime and poaching identified at both the London and Kasane Conferences is the need to strengthen wildlife law enforcement capacity at both site and national levels. In this regard, African protected area practitioners have been amassing experience about how best to manage and protect wild places and biodiversity since the first African national park – Virunga – was established back in 1925. While new technologies and methodologies are certainly assisting in enhancing wildlife law enforcement efforts on the ground, it is a truism that the tried and tested law enforcement approaches that have emerged from many years of practical experience are still the most effective means of combating poaching and wildlife crime. This report is an effort to identify the most effective methods based on best practice as it is identified by the practitioners themselves. It synthesizes the feedback received from hundreds of African conservation professionals, complemented by in-depth interviews with some of the leading wildlife law enforcement practitioners across the continent. Using an evidence-based approach, the report identifies and describes key law enforcement methodologies that are advocated by the practitioners themselves, according to a set of law enforcement strategies and management needs. Most of all, the report aims to take a realistic and pragmatic look at which law enforcement approaches the professionals themselves know to work well and which don't, based on the underlying philosophy that many law enforcement practitioners expressed to the report authors – that *there is no substitute for a well-equipped, well-trained, and highly motivated ranger*.



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Executive summary

Overview

Unprecedented levels of poaching of elephants, rhinos and other high value charismatic species across Africa is severely threatening the future of these species and the ecosystems they inhabit. As poaching groups increase in size, number and sophistication, it is more important than ever that law enforcement responses in protected areas are robust, reliable, and effective.

A strategy to combat this crisis must address root causes, such as international demand for ivory and rhino horn, as well as drivers and enabling conditions, such as poverty and the lack of livelihood options for rural communities, corruption and weak governance. Further, in addition to direct poaching threats, the loss of habitat to agriculture and natural resource extraction and a growing human population, particularly around protected areas, will increasingly threaten the survival of elephant and rhino populations. Therefore, conservation of these species must take a holistic, long-term approach. While improved law enforcement in protected areas is just one element of this approach, it is an essential component and can achieve significant results in the short to medium-term.

This report aims to contribute to the international effort to combat wildlife crime in Sub-Saharan African protected areas by providing a systematic and evidence-based review of law enforcement practices that have proved to be effective in different situations, and by identifying emerging best practice. Specifically, the report aims to assist in these efforts in the following ways:

WHERE? The report is primarily aimed at supporting law enforcement strengthening at the protected area or site-level; however, some of the law enforcement best practices the report describes may also be relevant at the sub-national and even national level.

WHO? The report is primarily aimed at protected area or site-level managers and professionals. This could be government, community or private sector managers, as well as staff from NGOs and other organizations supporting law enforcement practices in these areas.

WHY? By highlighting initiatives that have been proven to achieve success and address existing shortfalls in law enforcement activities, it is hoped that the law enforcement practices described in the report can influence and inform the implementation of more effective anti-poaching interventions. It is also hoped that the review will improve communication and knowledge sharing across sectors and countries, including helping

to promote more and better targeted wildlife law enforcement support across the continent.

WHAT? The report describes a range of emerging as well as longstanding law enforcement best practices, which, in the view of the report's authors, are likely to be of maximum relevance for the mainstream of law enforcement professionals working in protected areas across the continent. It does not attempt to be an exhaustive manual of all law enforcement best practices being implemented across the continent, nor does it attempt to describe some of the most advanced law enforcement practices that are now underway in some protected areas which, while very promising, may not yet be relevant to the mainstream of law enforcement managers and professionals.

Furthermore, to keep the report to an acceptable length, the various best practices are described relatively superficially, but wherever possible the reader is pointed to additional resources where further information can be sourced as required. As such the report aims to present in a single document the spectrum of approaches that effective site-level wildlife law enforcement requires, and to provide an insight into approaches that have worked and could potentially be adapted to other circumstances.

HOW? For ease of reading, the report uses a hierarchical structure, divided into the following main components:

- Three site-level law enforcement '**strategies**'. While these strategies are not intended to be exclusive, they represent the key packages of law enforcement activities at the site level that emerged during the review consultations;
- Each strategy is then broken down into a series of key '**management needs**' that have been identified by protected area managers and professionals consulted during the review as being critical to success;
- Lastly, each management need is further broken down into a set of '**key aspects**', which highlight some of the main issues that can help managers to achieve effective and efficient law enforcement practice.

In line with the desire to keep the report as user-friendly and accessible as possible, some aspects of site-level law enforcement were deliberately not addressed in any detail. In particular, three key law enforcement dimensions are not considered in detail in the report:

- The role of communities in supporting site-level law enforcement. In particular, the emerging concept of 'Beyond

Enforcement', which argues that in order to succeed, law enforcement efforts must go hand in hand with community engagement and empowerment;

- The role of corruption as a crucial factor in driving wildlife crime and undermining efforts to strengthen wildlife law enforcement. In this regard, the report deals with some key aspects of corruption that can potentially be addressed at the site level, but does not deal with those aspects which are best dealt with at the national level;
- The role of sustainable financing in enabling wildlife law enforcement efforts. As law enforcement efforts become ever more complex and extensive in response to increasingly sophisticated wildlife crime, so the cost of these efforts increases. However, the sustainable financing of law enforcement efforts is best dealt with at the national level, and is therefore not addressed in this report.

These three major dimensions of successful site-level law enforcement are overviewed in the report's 'Introduction', in a section entitled 'The elephants in the room'.

To provide a structure for information gathering, consultations with conservation professionals and subsequent analysis, the review adopted an analytical framework developed at an early stage of the work, which incorporated the inputs, gathered through an online survey, of over 100 wildlife management professionals and practitioners from 22 African countries working in government, NGOs and the private sector. Information was also collected through a series of site visits to selected countries and protected areas, including Mozambique, South Africa, Botswana, Namibia, Zambia, Zimbabwe, Gabon and Togo.

The Law Enforcement Best Practices Review was carried out in 2014 by the Conservation Development Centre, Nairobi, in collaboration with the Frankfurt Zoological Society (FZS) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The analysis and study have been financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) through the support of the Polifund project 'Combating Poaching and Illegal Wildlife Trade in Africa and Asia'.

Key findings

The broad cross-section of issues that are covered in this report highlights that there are no stand-alone or universal solutions to tackling wildlife crimes in protected areas. Rather, successful wildlife law enforcement in protected areas depends on sustained and well-targeted actions across a number of inter-related components of protected area management. The majority of approaches covered in this report are straightforward and well-known, but for a variety of reasons some may be difficult to implement, requiring determination, hard work and the investment of significant time and resources.

A number of these approaches have been developed in other sectors with vast bodies of experience that can be applied to strengthen wildlife law enforcement in protected areas. From the public sector, important lessons can be drawn from the police, where many forces have moved away from preventative patrols towards 'Intelligence-Led Policing.' This approach employs intelligence, surveillance and informants, combined with other information to focus patrols on crime hot spots. Experience from the military, particularly regarding patrol staff selection procedures and training, has proven valuable in many sites.

Similarly, the private sector has a long history of performance optimization. This can be applied to improve the effectiveness of law enforcement, including merit-based recruitment processes, systems for aligning efforts and rewards, and transparent methods for assessing staff and management performance. At the organization level, applicable private sector techniques for improving operational effectiveness include decentralizing decision making to autonomous management units, and empowering leaders while holding them accountable to high performance standards. These methods can all potentially be adapted and applied to improve the effectiveness and efficiency of many protected areas' operations.

The methods described in this report are generally well known and have been tested in other sectors, and while most require some upfront investment of resources, many do not require vast amounts of financial resources. However, many require a broader knowledge of management methods, which has not traditionally been common among wildlife law enforcement leaders, managers and staff. Furthermore, many area managers are under constant pressure and have little spare time or resources to devote to investigating or trialling new management methods. It is hoped that this report will make it easier for those involved with wildlife law enforcement to understand the spectrum of approaches that are available to help them in their task.

The three main law enforcement strategies covered by the report are:

1. **Law enforcement patrols.** Optimizing the effectiveness of law enforcement patrols, with a particular focus on the capacity of the patrol staff.
2. **Law enforcement management.** Maximizing effectiveness of management, planning and implementation of law enforcement operations.
3. **Intelligence and investigations.** Implementation and integration of intelligence and investigations into law enforcement operations, leading to the arrest and prosecution of wildlife crime perpetrators.

The most important findings with regard to each of the three strategies are outlined below. In addition, a 'Quick Reference Guide' which follows on from this Executive Summary summarizes practical information and key points related to each.

Law enforcement patrols

Law enforcement patrols are at the frontline of a site's anti-poaching efforts. Their effectiveness, and in particular that of the patrol staff, is one of the most important factors in providing an effective deterrent to illegal activities in an area. This chapter aims to identify key steps that protected area managers can take to develop their patrol staff abilities, intrinsic motivation, and their commitment to their work, the area they work in, and the organization they work for.

Poachers are typically extremely driven and effective because if they do not succeed in their crimes they make no profit. Often emerging from a context of hardship and lack of opportunities for legitimate income generation, they are willing to accept the risk of imprisonment, injury or even death as a result of their activities. A fundamental challenge for area managers is therefore to develop a ranger/scout force with capabilities and motivation that matches that of the poachers they are up against. There are no simple or universal solutions that will result in the development of these key attributes. Such qualities are built up over time and are dependent on innumerable small acts, incremental changes, and continual positive interactions with patrol leaders and senior management.

As a foundation, a transparent merit-based recruitment process is required for getting the best people for the job. Subsequently, recruits must undergo rigorous basic training to provide them with the necessary skills and attributes, which can only be maintained over time through ongoing in-service training. In addition, it is critical that patrol staff are provided with sufficient and suitable field equipment, rations and firearms.

While training and provision of equipment can improve short-term motivation, sustained improvements depend on strengthening the link between performance and valued rewards. Among other things, this requires a clear definition and understanding of performance expectations, a transparent system for evaluating performance (on which the allocation of financial rewards and promotions should be based), and the use of contracts that allow for non-performers to be disciplined or discharged.

It should also be noted that the work of law enforcement patrol staff is always challenging and at times extremely dangerous, especially when combating heavily armed and determined poachers. In such circumstances, it is essential that the responsibilities, powers and legal mandate of patrol staff are not only known to the staff concerned, but are also established in law. Over time, robust legal backing, coupled with tangible efforts to improving living and working conditions, can help build patrol staff morale, dedication and operational efficiency.

One aspect that emerged during the review process is the importance of ranger/scout numbers in achieving effective law enforcement. In practice, the optimal ranger/scout density for effective law enforcement depends on a variety of factors, including size and location of the area, the type of threat being

faced, the human population density, and the animal species that require protection. As a rule of thumb, some law enforcement professionals advocate one ranger/scout for every 10–50 sq km, depending on the intensity of the poaching threat. However, the report argues that of even greater potential importance is the capability, experience and motivation of the rangers/scouts and the effectiveness of patrol operations (see below).

Law enforcement management

The effective implementation of anti-poaching patrols and other law enforcement activities depends on a firm foundation of institutional competencies and functions. Without substantial law enforcement management capacity, even the most dedicated staff will be unable to have a sustained impact on illegal activities. This chapter outlines some of the main aspects of management and organizational capacity that are critical to ensure law enforcement operations are supported by appropriate leadership, operational planning and resource organization.

Perhaps the most important aspect in this regard is strong leadership from senior protected area managers. It is essential that these managers have sufficient frontline law enforcement experience and authority to make decisions, as well as appropriate training in key management and administrative skills (such as managing budgets and human resources, strategic operations planning, effective leadership, and anti-corruption measures). In addition, effective managers need to directly engage with patrol staff, providing them with regular feedback on their performance as well as on shifting law enforcement priorities.

Although routine foot patrols form the backbone of law enforcement efforts in most areas, law enforcement strategies need to be regularly reviewed and should remain dynamic if they are to effectively anticipate and respond to changing situations on the ground. This is particularly important because poaching cartels, inspired by significant potential rewards, tend to rapidly adapt their tactics in response to changing law enforcement scenarios or market conditions. Thus, effective law enforcement management requires pre-emptive and strategic planning to guide future operations, and should make use of a wide range of anti-poaching tactics and approaches, including the deployment of elite or specialist units (e.g. canine units), to the degree possible.

In this regard, the planning and management of law enforcement efforts should be based on objective and reliable spatial and temporal information collected by patrols on illegal activities and law enforcement efforts. In order to achieve this, ranger-based monitoring data must be regularly collected, analysed and reported to senior managers in a timely manner and in an accessible format that can effectively inform operational planning.

Crucially, managers must also have effective communication and operations coordination systems, as well as adequate infrastructure and sufficient means of transportation. An adequate road network enables year-round rapid deployment of key staff (e.g. elite rapid

response units), and an effective operations control room is essential to direct law enforcement efforts. Lastly, a variety of new technologies, including thermal imaging equipment, unmanned aerial vehicles or drones, helicopters, radar surveillance and detection systems and GPS-based monitoring devices, provide potentially important tools for law enforcement managers to combat increasingly sophisticated poaching gangs.

Intelligence and investigations

Effective field intelligence and investigations are among the most important proactive measures that protected area managers can take against wildlife crime. However, in order to optimize their potential impact, intelligence and investigations operations need to be comprehensive, capitalizing on the range of techniques and supporting technology available, systematic in their approach to collecting, organizing and managing information, and integrated with other aspects of law enforcement operations and prosecutions.

Specialized capacity (human resources, equipment, and systems) is critical to the effectiveness of wildlife crime intelligence and investigations operations. In this regard, the establishment of dedicated intelligence and investigations units with appropriate resources and skilled staff is a major success factor. In addition, it is vital that site-level intelligence and investigations units establish effective collaboration mechanisms with other law enforcement agencies and with prosecutors, ensuring that the entire investigative process leading up to prosecution in court is appropriately coordinated and supported.

In order for intelligence systems to be effective, it is also essential that accurate and reliable information from as many sources as possible is collected in a systematic and comprehensive manner. In this regard, the development and management of informer networks, including the provision of rewards for accurate information, is critical. In protected areas with more advanced investigative capacity, intelligence obtained through informers is increasingly complemented by electronic information, known as 'signals intelligence'.

Once intelligence data has been collected, it needs to be consolidated, analysed and concisely reported to relevant law enforcement management officers in ways that effectively inform subsequent investigations and operations. Professional software specifically designed to collate and analyse intelligence can be extremely useful, and in this regard the general consensus among users and managers is that IBM i2 is the optimal solution for

protected areas with sufficient budgets and human resources, as it strikes a good balance between cost, capacity and simplicity of use. However, inexpensive low-tech solutions are also available to protected areas with limited budgets and capacity. The key to effective intelligence data management and analysis is organizing the information collected in an accessible format, and ensuring appropriate outputs are provided to management in a timely manner.

Furthermore, as most wildlife crimes have no witnesses and convictions typically require physical evidence, robust procedures for evidence handling and management are critical. In order to ensure all available evidence is collected and that it will be admissible in court, adequate systems and procedures must be in place to maintain the integrity of crime scenes and to manage evidence in a legally-sound manner. In this regard, maintaining a secure chain of evidence requires some basic equipment and facilities (i.e. evidence bags, evidence tags, a secure storage location) and appropriately trained managers. In addition, effective inter-agency cooperation, in particular between investigators and prosecutors, from the very outset of a wildlife crime investigation can be key to ensuring evidence is collected and stored appropriately.

Unfortunately, the majority of wildlife cases fail to result in successful prosecutions. In addition to the robustness of crime scene handling and evidence collection, this is often due to problems with the administration and management of the case. In order to address this issue and develop viable cases, it is important to focus on the preparation of a robust arrest or case report and to ensure that suspects are appropriately charged, making optimal use of all available legislation. It is also critically important to monitor the progress of wildlife cases throughout the judicial process, as well as to monitor repeat offenders. In this regard, awareness raising and effective collaboration between wildlife managers, the police and judiciary are required to ensure wildlife cases are accorded appropriate priority in the justice system.

In conclusion, it should be noted that while several African protected areas, especially in southern Africa, are now employing sophisticated intelligence and investigations systems to combat equally sophisticated wildlife crime gangs and networks, these methodologies are only briefly reviewed in this report. This is partly due to the fact that some of these techniques are not suitable for most African protected areas that have very limited financial and human resources capacity, but also because discussing the details of these advanced systems could serve to inform the wildlife crime gangs they are designed to combat.

Quick reference guide

Law enforcement patrols

Management needs	Key aspects	Page
1. Skilled and knowledgeable patrol staff	Selection and recruitment <ul style="list-style-type: none"> The optimal ranger density for effective law enforcement depends on a variety of factors, including size and location of the area, the type of threat being faced, the human population density, and the animal species that require protection. As a rule of thumb, some law enforcement professionals advocate one ranger/scout for every 10–50 sq km, depending on the intensity of the poaching threat. However, of even greater potential importance is the experience and motivation of the rangers/scouts and the effectiveness of patrol operations. An initial selection process, essential for identifying the right candidates for patrol staff positions, should have two components: <ol style="list-style-type: none"> A short initial pre-selection (e.g. one-day) to identify a large pool of suitable candidates, based on physical fitness and a short interview to assess motivation. A rigorous selection course, typically two/three weeks long, which if successfully completed, leads to recruitment. Assessment in this course is based on aptitude for discipline, physical fitness, route march, teamwork, and ability to absorb theory. A number of areas under central government management have successfully managed to integrate both nationally and locally recruited staff through innovative recruitment and partnering approaches. Two examples of how this has been achieved are provided on page 8. 	p 8
	Basic training <ul style="list-style-type: none"> Whenever possible, basic training should take place in field situations over a period of several weeks, ideally in the same area in which trainees will be working. Topics covered in a basic training typically include: wildlife and protected area laws, musketry, legal issues (rights of suspects, the rules of engagement), bush-craft, and paramilitary/patrol tactics. If preceded by a selection process, a low dropout rate is typical. However, a selective element needs to be incorporated throughout the training to ensure performance standards are maintained and unsuitable trainees can be removed. 	p 9
	In-service training <ul style="list-style-type: none"> Rather than viewing training as a one-off event undertaken by external professionals, many PA managers now see training as a continuing and routine function of area management itself. This can be achieved through on-going, collaborative assessment by managers and patrol staff of situations as they occur, discussion of proposed responses and potential alternatives, as well as incident debriefs and 'after-action reviews'. Frequent site-based trainings can motivate patrol staff by providing task variety, build relationships amongst staff, and increase interaction between patrol staff and management without significant impact on daily operations. 	p 10
2. Experienced and competent patrol leaders	Leader selection <ul style="list-style-type: none"> Informal leadership rotation, for example appointing patrol leader positions on a patrol-by-patrol basis, can empower and develop greater numbers of staff, while formal appointment has the advantage of providing a career development path for more ambitious staff. If appointment to the patrol leader position is informal, senior management should be involved in selection and evaluation to ensure that most appropriate staff member is selected. If the position is a formal appointment it should be based on transparent and objective evaluation that incorporates senior management knowledge of an individual's leadership qualities and abilities. 	p 11
	Skills and attributes <ul style="list-style-type: none"> Skills should include: operational planning, patrol management, equipment maintenance, intelligence handling, standard operating procedures, and field forensics. Patrol leader trainings can be used to develop the required skills and attributes in existing patrol leaders or be incorporated into a patrol leader selection process. 	p 11

Management needs	Key aspects	Page
3. Suitable and sufficient equipment and supplies	Field equipment <ul style="list-style-type: none"> Simple yet reliable equipment can help improve patrol staff performance and boost motivation. Typical equipment needs per staff member and patrol team are summarized on page 12. Provision of equipment is highly valued by patrol staff. As a result, conditional promises of future equipment can be used as an incentive to help improve performance before it is provided. 	p 12
	Patrol rations <ul style="list-style-type: none"> Timely provision of rations is essential for effective patrol implementation. Simple, local provisions are sufficient. Typical daily rations per ranger are outlined on page 13. To ease the burden on management, some agencies have opted to provide cash that patrol staff use to organize their own supplies, but this is not practical in most circumstances. 	p 13
	Communication equipment <ul style="list-style-type: none"> Digital VHF radios have a number of advantages over the traditional analogue system including: real-time tracking and monitoring of patrols, improved battery life and more efficient use of bandwidth, improved audio quality and clarity. Portable solar panel and battery units that are compatible with a variety of electronic devices, such as VHF radios, GPS, phone and laptops, can be used to recharge radios or other devices overnight enabling continued use throughout a patrol. 	p 13
	Firearms and ammunition <ul style="list-style-type: none"> National legislation should make provisions for rangers/scouts to carry firearms, and should provide rangers/scouts similar status and rights to a national police officer. If patrol staff are not authorized to carry firearms, other mechanisms may be available to enable armed patrols. For example, registering rangers/scouts as police reservists or organizing joint patrols with other armed forces. 	p 15
4. Appropriate terms and conditions of service	Roles and responsibilities <ul style="list-style-type: none"> Clear, concise job descriptions, with frequent reminders of key roles and responsibilities, clarify expectations and help improve performance of patrol staff. Innovative ways of presenting this information can improve impact. A patrol staff 'Code of Conduct' outlining the behaviour that rangers/scouts are expected to demonstrate rather than the detailed technical aspects of the job can be useful if the contents are frequently reinforced and applied. Patrol staff routinely encounter challenging and highly dangerous situations, especially when combating heavily armed and determined poachers. To ensure that they are legally protected to carry out their duties without fear of prosecution, it is essential that the powers and mandate of these officers are fully established in law. An example of appropriate legislation is given on page 16. 	p 16
	Job design <ul style="list-style-type: none"> Job design can help retain and improve performance of motivated staff by increasing variety and responsibility of work. This can be achieved through job rotation, enlargement or enrichment (details are provided in section 2.5.2). Adjusting job design will not be effective as a motivator in all cases, for example if staff lack motivation to improve their performance. Changes should be assessed and implemented gradually. 	p 17
	Performance evaluation <ul style="list-style-type: none"> Evaluations inform employees about their performance in relation to expectations, and inform management to make personnel decisions such as promotions, scholarships, pay rises, and terminations. Evaluations help create a perception that management decisions are fair, understandable, and necessary, leading to increased motivation and commitment. Simple evaluation methods are outlined on page 20. 	p 19
	Contractual arrangements <ul style="list-style-type: none"> Finding the right balance between staff job security and the ability of managers to discipline poor conduct and reward high performance is essential to the motivation of an area's ranger/scout force. Shorter-term and/or performance-based contracts based on 'Key Performance Indicators' (KPIs) for each role are increasingly being used instead of permanent government contracts; these show good results in some areas. Examples of potential categories of KPIs are given on page 20. 	p 20
5. Supported and incentivized patrol staff	Satisfaction of basic needs <ul style="list-style-type: none"> Factors causing dissatisfaction with job context (e.g. working conditions, salary, work-life balance) need to be addressed before using other methods to promote performance, such as job design or incentives. 	p 21

Management needs	Key aspects	Page
5. Supported and incentivized patrol staff, cont'd	Satisfaction of basic needs, cont'd <ul style="list-style-type: none"> Many of these factors are relatively simple and inexpensive to address, and many areas have a strong track record of doing so. (Examples are provided in the table on page 21). Some wildlife authorities are finding it increasingly necessary to provide patrol staff with psychological and legal support to help them deal with the stress resulting from repeated engagement with armed poachers, attendance at crime scenes, or dealing with hostile community members. The provision of financial support (or life insurance) for families of rangers that have been killed or seriously injured in the line of duty is also being increasingly recognized as an important aspect for incentivizing patrol staff. 	p 21
	Staff incentives <ul style="list-style-type: none"> When recognized and rewarded for high performance, employees show increased morale, higher job satisfaction and more involvement in their work. Incentive schemes need careful design as if inappropriate they can undermine staff motivation. Performance improvements from incentives are better maintained if individual schemes are overlaid with (but not replaced by) rewards linked to team (or patrol) performance over a longer period of time, typically a year. 	p 22

Law enforcement management

Management needs	Key aspects	Page
1. Competent and effective leaders	Practical experience <ul style="list-style-type: none"> One of a protected area's greatest assets is managers that understand the situation on the ground. Extended experience in an area is essential for senior staff to develop a sense of 'intuition' about when conditions stray from the norm. The rotation of PA staff, both managers and patrol staff, between protected areas has both advantages and disadvantages. These are discussed on page 26. Career paths should be provided to enable high-performing patrol staff to be promoted to more senior management positions in the PA concerned. Extensions in a manager's tenure in a particular protected area should be based on a transparent performance evaluation. 	p 25
	Management training <ul style="list-style-type: none"> In order to perform their duties effectively, law enforcement managers need a range of management skills. Provision of appropriate management training is especially important for managers that have come up through the ranks from rangers/scouts. Training should focus on leadership skills, managing budgets, human resources and joint inter-agency anti-poaching operations, as well as practical aspects of management plan implementation, wildlife legislation and anti-corruption systems. Several African wildlife training institutions offer specialist management training courses targeted at in-service law enforcement managers. These are discussed on page 27. 	p 26
	Decision-making authority <ul style="list-style-type: none"> The authority and responsibilities of senior management positions should match; responsibility without the authority to influence the situation can be demoralizing. This is especially important for leaders making human resource decisions. Adjusting the balance between senior staff authority and responsibility can improve operational effectiveness. More autonomous protected areas often have less internal disruption and higher staff performance. 	p 27
	Engagement with frontline staff <ul style="list-style-type: none"> Senior management that is visible and involved in day-to-day law enforcement activities provides inspiration, motivation and clear direction to patrol staff, and improves managers' understanding of issues on the ground. Visits by managers to employees at their work locations are common in many sectors (e.g. 'Management by Walking Around'; see page 28), and studies show a correlation between increased visits to out-posted patrol staff and performance. 	p 27
2. Proactive and dynamic patrol strategies	Pre-emptive strategic planning <ul style="list-style-type: none"> Proactive assessment of law enforcement effectiveness is essential as poacher tactics continually evolve in response to any changes. This is also an opportunity to review threats and critical gaps in skills, equipment and infrastructure. The development of a medium-term (i.e. three years) law enforcement plan can focus and drive the collection and analysis of critical information. 	p 28

Management needs	Key aspects	Page
2. Proactive and dynamic patrol strategies, cont'd	Adaptable and diverse tactics <ul style="list-style-type: none"> The use of complementary patrol types, such as observation points, vehicle-assisted patrols, and ambushes, can significantly increase the effectiveness of law enforcement. Elite units made up of small numbers of the highest performing rangers/scouts in an area can significantly increase the effectiveness of law enforcement activities and boost morale. Canine units can play a key role in apprehending poachers and recovering illegal weapons and wildlife contraband. However, they require continued investments for on-going training of dogs and handlers, and rapidly become ineffective in the absence of appropriate leadership, motivated staff and adequate kennelling and provisions for the dogs themselves. 	p 29
3. Collection and use of patrol data	Data collection and analysis <ul style="list-style-type: none"> The collection of Ranger-Based Monitoring (RBM) information needs to be well chosen and focused to avoid overburdening patrol staff and complicating analysis. Large amounts of data can rapidly accumulate. Hardware used to collect data needs to be simple to use and easy to maintain or replace. RBM software must be sufficiently user-friendly for timely and accurate data entry and report production, and reliable computers and power are essential. Rapid staff turnover can undermine RBM data entry and reporting capacity, so multiple staff with data collation/analysis skills need to be trained at each site. The implementation of an RBM system can itself lead to improvements in patrol staff effort and performance. Providing feedback to patrol staff using data collected can improve motivation and the quality of the information collected. 	p 33
	Feedback and use of RBM information <ul style="list-style-type: none"> PA managers need to have sufficient capability and time to make use of RBM reports and to conduct law enforcement patrol briefing and debriefing. The transmission of RBM information from patrols to data analysts to law enforcement managers needs to be sufficiently efficient and timely to inform law enforcement tactical planning. This has proved very difficult in most areas, but if turnaround is not fast enough to inform short-term tactical planning it can still provide a foundation for medium-term strategic planning (e.g. showing trends in poaching tactics, wildlife population trends, etc.). 	p 35
4. Effective management systems and infrastructure	Operations control room <ul style="list-style-type: none"> Common features essential for an effective control room include reliable and secure communications, clearly defined communications and reporting SOPs, maps with markers, and an 'incident book' to record all information as it occurs. High-tech solutions include screens displaying real-time data. Direct links between the control room and senior staff with decision-making power are critical. Without an efficient decision-making process, much of the benefit of a control room is lost, especially in urgent situations. 	p 37
	Outposts/pickets <ul style="list-style-type: none"> To be effective, outposts/pickets require strong management. Rotating out-posted patrol staff and regular visits by senior staff can help maintain and improve performance, and reduce corruption. Some areas have stopped using outposts/pickets and have instead opted for basing all staff at protected area headquarters and supporting multi-day patrols, despite the logistical complications this can create. 	p 38
	Access and transportation <ul style="list-style-type: none"> Good fleet and inventory management is important to ensure that all commonly used spare parts are available and avoid vehicle down time. A system for ensuring that there is adequate fuel and that it is properly managed is essential. Vehicles must be able to be serviced and repaired on-site. While many sites prefer Toyota Landcruisers because they are robust, easy to service, and have spare parts that are widely available, they are also relatively expensive. Some conservation agencies have therefore used less expensive alternatives such as pick-ups or double cabs. The establishment and maintenance of a road network becomes critical as areas become more developed. Significant funds are required for this, as well as specialized equipment such as a grader or tractor-mounted grader. Sufficient fuel availability is often one of the key factors that undermine law enforcement mobility for many areas. 	p 38
	Stores and equipment management <ul style="list-style-type: none"> An efficient equipment management system is essential and it need not be complex. Simple check out/in sheets signed by the patrol leader and counter-signed by the storekeeper is typically sufficient. A trustworthy and capable storekeeper is essential. The system should be clear and non-negotiable, and should include the steps to take when equipment is not returned. 	p 40

Management needs	Key aspects	Page
5. Clear and consistent standards and procedures	Standard Operating Procedures <ul style="list-style-type: none"> SOPs that cover a wide variety of circumstances clarify behavioural expectations and are particularly useful for new staff. They are most effective when developed and tailored to a specific target audience. Frequently reminding staff of SOPs is essential; this can be done during the recruitment processes, patrol briefings or other meetings, and in a variety of formats, such as portable folding cards and posters. 	p 40
	Staff ethics and integrity <ul style="list-style-type: none"> Building a positive and cohesive institutional culture that promotes high ethical standards and integrity is the best long-term approach. Proactive measures to deter corruption include the rotation of all staff, deploying locally recruited staff away from their home areas, and setting up mechanisms to enable whistleblowing. Where the threat of corruption is high, some areas have implemented more intrusive measures such as staff voice analysis tests, inclusion in an intelligence database, collection of phone records, and the use of staff informers. Typical guidelines for the establishment of a whistleblowing scheme are given on page 42. 	p 41

Intelligence and investigations

Management needs	Key aspects	Page
1. Specialized intelligence and investigations capacity	Dedicated intelligence and investigations units <ul style="list-style-type: none"> Dedicated intelligence units are important for improving the effectiveness of investigations and operations. They enable the use of trained staff, specialized techniques and equipment. Staff from these units should ideally be distributed in key population centres around an area, as well as within the area itself to ensure appropriate communication with and supervision by area senior management. 	p 43
	Skills and attributes <ul style="list-style-type: none"> Key skills and attributes of field intelligence officers include patience, discretion, an ability to establish rapport with a variety of people and, due to the autonomy and sensitivity of the work, high levels of integrity. This often depends more on the personality, motivation and commitment of the individual concerned than on any specific skills that can be taught in a formal training environment. The skill-sets needed for intelligence data analysis are different to those needed for intelligence data collection, and if resources permit it is therefore preferable to employ specialist intelligence analysts. Wildlife crime investigation officers need in-depth understanding of the legal standards required for collecting evidence and preparing court cases. Training or mentoring should cover crime scene management, handling of suspects, statement writing, court procedures and giving evidence. 	p 44
	Equipment and resources <ul style="list-style-type: none"> Intelligence and investigations officers require access to transportation; motorbikes are often the most cost-effective option. A petty cash fund that can be used by officers to cover operational expenses and reimburse staff for costs they have incurred is important for sustaining continued operations. Evidence collected with basic surveillance equipment (e.g. digital cameras, audio recording devices) can contribute to building a case against suspects. 	p 45
	Inter-agency collaboration <ul style="list-style-type: none"> Effective collaboration mechanisms should be in place with police for investigations, intelligence and case preparation, and with prosecutors for appropriate charging. These mechanisms can be at the national, sub-national or site levels. Prosecutors who are knowledgeable in wildlife crime are essential to ensure that cases are tried efficiently and effectively, especially in situations where wildlife crimes are rapidly intensifying. Strategies for improving prosecution include hiring prosecutors within the wildlife service (e.g. Zambia), developing a specialized wildlife crime prosecution unit (e.g. Kenya), or using prosecution support from NGOs (e.g. EAGLE Network, Central/West Africa). 	p 45
2. Comprehensive intelligence gathering	Informants <ul style="list-style-type: none"> Strong management of informants is necessary for their effective use. Guidelines for the recruitment and management of informers, combined with systems to ensure anonymity and track payments, make this easier. See example on page 47. The development of an informer network is time consuming and requires investing resources that may not deliver immediate results. Often a small number of informants provide most intelligence received. Networks that include diverse informants result in better quality and quantity of intelligence information. This also enables the triangulation of information received. Gaps can be identified through mapping informant distribution. 	p 46

Management needs	Key aspects	Page
2. Comprehensive intelligence gathering, cont'd	Rewards <ul style="list-style-type: none"> • Providing significant and timely rewards for information from informers is critical if the potential benefits of developing a network of informers are to be realized. Without rewards, most potential informants will not provide information. • Many areas have adopted a standardized, non-negotiable reward payment system, which varies depending on the quality and seriousness of the information. These are generally paid on the basis of results (i.e. arrests or encounters). • Due to the confidential nature of rewards payments, funding must be flexible, substantial and sustainable. Where there is donor funding, the donor's financial rules may not allow use of funds for rewards. 	p 48
	Electronic information <ul style="list-style-type: none"> • Mobile phones confiscated from poachers can provide a wealth of information. However, specialist equipment is needed to maximize the use of this technique and protocols need to be followed to ensure that evidence is legally admissible. • A range of other sources of information and techniques are available and utilized by specialist intelligence staff but open discussion of many of these techniques is not advisable to ensure their continued utility. • Wildlife agencies need to seek legal advice concerning restrictions on the collection and use of electronic information. Another approach is to collaborate with other law enforcement or national security agencies that may not be subject to the same legal limitations. 	p 49
3. Efficient Data Management and Analysis	Intelligence data organization and analysis <ul style="list-style-type: none"> • All intelligence collected needs to be collated in a unified database. The use of specialized software is increasingly important for achieving this; IBM's i2 suite of software is one of the most promising options. • Multiple trained and dedicated staff are required at each protected area in which an intelligence database is implemented in order to maintain capacity and cover absences, leave, etc. • In practice, many African protected areas may not have the resources to operate specialized intelligence software systems. The features of a basic intelligence analysis system utilizing Microsoft Excel that may be appropriate in these circumstances are described on page 51. 	p 49
	Intelligence feedback <ul style="list-style-type: none"> • Placing intelligence officers outside the traditional chain of command facilitates communication with staff members at all levels while restricting wider distribution of sensitive information. Intelligence officers need direct links with the operational control room and/or senior management. • Developing shorthand codes that specify the threat level and actions required can speed up understanding and response times. • Visual representation of the process and timeline of an investigation, including connections that have emerged, can facilitate management understanding. Specialist software can assist with this. 	p 52
4. Robust evidence handling and management	Crime scene management <ul style="list-style-type: none"> • Effective collaboration between investigators and prosecutors from the very outset of a wildlife crime investigation can help ensure that the required evidence for successful prosecutions is collected, and that it is handled appropriately. • Developing in-house capacity to manage wildlife crime scenes can speed up response times and improve the quality of crime scene handling. Training rangers/scouts to secure a scene without undue contamination is critical. • Detailed SOPs should guide the collection and processing of evidence by investigative officers as well as the actions of others involved. An example illustrating the level of detail required is provided on page 54. 	p 54
	Evidence collection and management <ul style="list-style-type: none"> • Strict procedures need to be followed during the collection and removal of evidence. This includes photographing in-site, the use of legally recognized evidence bag, and labelling. Detailed guidance is outlined on page 55. • Evidence management inventories are used to manage, monitor and maintain the chain of evidence. These can be developed using basic spreadsheet software. • Wildlife crime investigators are increasingly being required to apply specific forensics skills, such as the collection of DNA from wildlife specimens to confirm their origin; this requires specialized training and tools. • Training in crime scene handling and evidence collection should ideally be restricted to dedicated investigations officers to minimize the risk of poaching gangs gaining such insider information. However, in areas where specialized investigations officers are not available, field patrol staff should be trained in basic evidence collection procedures. 	p 55

Management needs	Key aspects	Page
5. Competent case development and charging	Arrest or case report preparation <ul style="list-style-type: none"> • Arrest reports must be presented properly and in accordance with local legal requirements to enable prosecutors to assess the case and apply appropriate charges. Training staff in legal procedures can help with this. • Close collaboration and a good working relationship between the officers putting forward the arrest report and the prosecutors is essential to ensure that case administration is legally sufficient. 	p 57
	Prosecution of suspects <ul style="list-style-type: none"> • The full range of legislation that can be applied to a wildlife crime should be considered to ensure that the most appropriate charge sheets are drawn up against an accused. • Simple guides can be developed for prosecutors to link types of wildlife crime with relevant legislation. • Specialist prosecutors or units focused on wildlife crime can be appointed or developed to liaise with wildlife agencies as cases develop and to ensure that the most appropriate charges are applied. 	p 57
	Monitoring cases and offenders <ul style="list-style-type: none"> • The simple act of tracking the progress of a case can ensure it remains a priority for law enforcement and related authorities. • Centralizing the monitoring of wildlife crime cases nationally or sub-nationally can make it easier to track the progress of prosecutions and improve success rates. • Maintaining records of wildlife crime perpetrators can help identify repeat offenders and enable the application of more serious penalties. Online databases have been used for this purpose. 	p 58

1. Introduction

1.1 Background

Unprecedented levels of poaching of elephants, rhinos and other high-value charismatic species across Africa are severely threatening the future of these species and the ecosystems they inhabit. This crisis demands a re-evaluation of current law enforcement practices across the continent. As poaching groups increase in size, number and sophistication, it is more important than ever that law enforcement responses are robust, reliable, and effective. This report aims to help address this need by providing a systematic and evidence-based review of effective wildlife law enforcement practices across the continent. Specifically, the report aims to contribute to the international effort to strengthen wildlife law enforcement in the following ways:

WHERE? This review is primarily aimed at supporting law enforcement strengthening at the protected area or site-level; however, some of the law enforcement best practices the report describes may also be relevant at the sub-national and even national level.

WHO? The review is primarily aimed at protected area or site-level managers and professionals. This could be government, community or private sector managers, as well as staff from NGOs and other organizations supporting law enforcement practices in these areas.

WHY? By highlighting initiatives that have been proven to achieve success and address existing shortfalls in law enforcement activities, it is hoped that the law enforcement practices described in the report can influence and inform the implementation of more effective anti-poaching interventions. It is also hoped that the review will improve communication and knowledge sharing across sectors and countries, including helping to promote more and better targeted wildlife law enforcement support across the continent.

WHAT? The review describes a range of emerging as well as longstanding law enforcement best practices, which, in the view of the report's authors, are likely to be of maximum relevance for the mainstream of law enforcement professionals working in protected areas across the continent. It does not attempt to be an exhaustive manual of all law enforcement best practices being implemented across the continent, nor does it attempt to describe some of the most advanced law enforcement practices that are now underway in some protected areas which, while very promising, may not yet be relevant to the mainstream of law enforcement managers and professionals.

Furthermore, to keep the report to an acceptable length, the various best practices are described relatively superficially, but wherever possible the reader is directed to additional resources where further information can be sourced as required. As such the report aims to present in a single document the spectrum of approaches that effective site-level wildlife law enforcement requires, and to provide an insight into approaches that have worked and could potentially be adapted to other circumstances.

HOW? For ease of reading, the report uses a hierarchical structure, divided into the following main components:

- Three site-level law enforcement '**strategies**'. While these strategies are not intended to be exclusive, they represent the key dimensions of law enforcement activities at the site level that emerged during the review consultations;
- Each strategy is then broken down into a series of key '**management needs**' that have been identified by protected area managers and professionals consulted during the review as being critical to success;
- Lastly, each management need is further broken down into a set of '**key aspects**', which highlight some of the main issues that can help managers to achieve effective and efficient law enforcement practice.

The hierarchy of site-level law enforcement management practices is further discussed in section 1.3 below, and is used as the basis of the Quick Reference Guide at the beginning of this report.

During the implementation of this review, it became clear that the most effective wildlife law enforcement approaches are often simple in concept, but not easy to implement. A variety of interrelated issues impact the effectiveness of wildlife law enforcement, and unfortunately there are no stand-alone, simple or universal solutions to addressing wildlife crime. Rather, successful wildlife law enforcement depends on sustained and well-targeted actions across a number of fronts, many of which require determination and hard work.

The Law Enforcement Best Practices Review was carried out in 2014 by the Conservation Development Centre, Nairobi, in collaboration with the Frankfurt Zoological Society (FZS) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The analysis and study have been financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) through the support of the Polifund project 'Combating Poaching and Illegal Wildlife Trade in Africa and Asia' (see Box 1.1 over).

1.2 Methods and approach

The following sections provide an overview of the methods and approaches used during the assessment.

1.2.1 Literature review

As an initial step, a review of relevant literature and past studies was conducted to inform the development of the study and to avoid duplicating past work. The literature review was necessarily broad to reflect the scope of the work. Key documents reviewed included a number of peer-reviewed papers, official reports, such as the International Consortium on Combating Wildlife Crime (ICWC) Toolkit, and a variety of grey literature (including workshop outputs, area assessments and consultant reports).

1.2.2 Analytical framework development

Building on the review, a 'wildlife law enforcement analytical framework' was then developed to provide a technical foundation for the assessment. The framework divided the wildlife law enforcement chain into a set of law enforcement strategies,

which were further broken down into a series of law enforcement 'management needs', each of which could then be investigated in more detail. Before finalization, the analytical framework was reviewed by a number of stakeholders with practical experience and expertise at key stages in the wildlife law enforcement chain. This included both FZS and CITES Monitoring the Illegal Killing of Elephants (MIKE) Programme staff.

1.2.3 Online survey design and implementation

An online survey was judged to be the most cost-effective and efficient mechanism for obtaining feedback from a large number of wildlife law enforcement experts and practitioners across the continent. The survey was developed based on the law enforcement analytical framework, and was designed to identify the key success factors that are most critical as well as those most challenging for achieving effective and efficient law enforcement at the site level. The survey was initially tested on a small group of conservation practitioners and CITES MIKE Programme staff, before being distributed to approximately 300 law enforcement stakeholders. It was available in both English and French.

Box 1.1 German 'Polifund' supported anti-poaching and wildlife law enforcement activities in Africa

The Polifund project, implemented by GIZ on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB), combines the expertise and resources of five German ministries, international organizations, NGOs and the private sector to combat poaching and the illegal trade in wildlife products (ivory and rhino-horn) in Africa and Asia. The project is fostering cross-sectoral, cross-border and transcontinental cooperation along the entire illegal trade chain. In Africa, for instance, support has been provided to anti-poaching and wildlife law enforcement activities in Namibia and the Democratic Republic of Congo (DRC).

In **Namibia**, for example, support has been provided for improving the current wildlife conservation and criminal procedure legislative frameworks in order to better protect wildlife and effectively prosecute poachers, as well as to set up a conservancy support mechanism that includes awareness raising and advocacy campaigns. To this end, in collaboration with the Ministry for Environment and Tourism (MET) and the Legal Assistance Centre (LAC), a national stakeholder consultative workshop had been conducted in May 2014 in Windhoek which critically assessed the current wildlife protection and criminal procedural legislation in light of the poaching threat and identified long-term strategies. Based on the workshop results, a number of selected pilot activities have been supported, such as:

- participatory information and intelligence gathering;
- liaison with community members and authorities;
- strengthening the Kunene Rhino Protection Unit;
- establishment of informant networks and a high-level task force;
- awareness raising and fostering youth advocacy;
- environmental education measures in cooperation with schools;
- sensitizing the Namibian parliament about the current poaching threat.

In the **Democratic Republic of Congo (DRC)**, in collaboration with the Wildlife Conservation Society (WCS), the capacity of the *Institut Congolais pour la Conservation de la Nature* (ICCN) in site-based law enforcement monitoring and adaptive management has been strengthened through introducing the 'Spatial Monitoring And Reporting Tool' (SMART). This tool has specifically been developed for measuring and evaluating the effectiveness of wildlife law enforcement patrols, thus contributing to improved capacity and more effective law enforcement monitoring and management in DRC's protected areas, and to establishing the foundations for an improved national framework for protected area monitoring and governance. This project has been beneficial for enhancing enforcement effectiveness across target protected areas, and for building awareness, support and buy-in at ICCN Directorate General level of the value of SMART to improved protected area management and governance. Through a suite of training sessions and national workshops, a number of important results have been achieved, including:

- development of a common standardized reporting template and database for DRC protected areas;
- capacity building of ICCN SMART users to support more efficient decision making in patrol deployment;
- provision of equipment for protected areas (e.g. smart phone devices for mobile data collection);
- progress towards a central structure for coordinating SMART efforts, centralizing data from different protected areas and enabling a more informed approach to decision making and resource allocation;
- building partnerships among conservation actors in DRC on protected area management (e.g. through developing a national Technical Coordination Unit);
- building awareness of the key issues and pre-conditions for effective implementation of SMART (e.g. personnel, technical and financial capacity for basic patrol operations).

The survey was challenging and required more time than is typically advised for an online survey. This in effect forced respondents to pass a 'high-hurdle' for participation, which helped to ensure that the responses referred to practical experience, were evidence-based and of a high quality. Despite the survey's difficulty, over 100 respondents completed it (comprising of 46% NGOs, 36% government, and 18% private and others), which is roughly in line with a typical email survey response rate. Around 30% of respondents provided additional information, including examples of areas and countries where approaches have worked well, and details of key people to consult.

1.2.4 Preliminary information analysis

Quantitative analysis of the survey results focused on identifying the most important and challenging success factors for each law enforcement strategy. Section 5.1 provides an example of the survey outputs illustrating these factors. Additional qualitative information came from the comments, suggestions and other additional details provided in the survey responses. These proved particularly useful and were taken into consideration when planning the follow-up targeted stakeholder consultations.

1.2.5 Targeted stakeholder consultations

The first set of follow-up consultations, with stakeholders in Mozambique, South Africa, and Namibia, took place from 17–29 June 2014. This coincided with invitations to present the preliminary results of the assessment to over 60 people at stakeholder workshops in Mozambique and Namibia. These consultations yielded particularly useful insights on intelligence gathering and use, and law enforcement operations.

The second set of follow-up stakeholder consultations took place in Gabon and Togo from 26 August–5 September 2014. Both of these countries had emerged from the online survey as regional examples of best practice regarding law enforcement patrols and wildlife crime case development. Consultations in Gabon took place both in the capital city, Libreville, and at Lopé National Park. In Togo, all consultations were held in the capital city, Lomé. The consultations yielded particularly useful insights on the role of NGOs in supporting law enforcement operations.

The third set of stakeholder consultations took place from 15–30 September 2014, in Zimbabwe and Zambia. Consultations focused on law enforcement patrols, in particular on training patrol staff, use of intelligence, and law enforcement operations management, including the use of ranger-based monitoring systems and the development of management systems that are needed to support patrol operations. Section 5.2 provides a summary of the locations visited and stakeholders consulted during the assessment.

1.2.6 Analytical framework refinement

Based on the outputs of these stakeholder consultations, and related work on the CITES MIKE Programme Law Enforcement

Capacity Assessment methodology¹, the analytical framework was then further revised and consolidated to focus on the most important areas that were emerging. As part of this process, the number of strategies to be addressed by the report was reduced and the key management needs were reviewed and clarified. This redesign was also intended to make relevant sections of the final report more accessible to different audiences.

1.2.7 Review and finalization

The last stage was the review and compilation of the information gathered into a draft report, which was then reviewed by a number of experts that had provided inputs into the different law enforcement management needs, before the development of the final report.

1.3 Document structure

The structure of this document is based on the wildlife law enforcement analytical framework developed as a foundation for the study. As described in section 1.1, the report chapters are aligned with the three main law enforcement strategies that emerged from the analysis and consultations, and that were identified as being especially critical for successful anti-poaching and wildlife law enforcement at the site level. These are:

1. **Law Enforcement Patrols.** Optimizing the effectiveness of law enforcement patrols, with a particular focus on the capacity of the patrol staff.
2. **Law Enforcement Management.** Maximizing effectiveness of management, planning and implementation of law enforcement operations.
3. **Intelligence and Investigations.** Implementation and integration of intelligence and investigations into law enforcement operations, leading to the arrest and prosecution of wildlife crime perpetrators as well as strengthened wildlife crime prevention measures.

Each strategy is divided into '**management needs**' that describe some of the key aspects of wildlife law enforcement best practice relating to the strategy. An overview of the three strategies and their management needs is given in Table 1.1 over.

Lastly, each management need is split into a series of '**key aspects**' that describe important features relevant to each management need. The boxes included throughout the document provide additional details and examples, and each section concludes with '**success factors**' that summarize important points under each key aspect.

It is important to note that the strategies and management needs identified in this report, while regarded as priorities by most of the law enforcement managers and professionals consulted during the review, are not comprehensive. There are additional potential strategies that can potentially be pursued, as well as potential

Table 1.1 Wildlife law enforcement analytical framework used in this report

Law enforcement strategies	Management needs
Law Enforcement Patrols	<ol style="list-style-type: none"> 1. Skilled and Knowledgeable Rangers/Scouts 2. Experienced and Competent Patrol Leaders 3. Suitable and Sufficient Equipment and Supplies 4. Appropriate Terms and Conditions of Service 5. Supported and Incentivized Patrol Staff
Law Enforcement Management	<ol style="list-style-type: none"> 1. Competent and Effective Leaders 2. Proactive and Dynamic Patrol Strategies 3. Collection and Use of Patrol Data 4. Effective Management Systems and Infrastructure 5. Clear and Consistent Standards and Procedures
Intelligence and Investigations	<ol style="list-style-type: none"> 1. Specialized Intelligence and Investigations Resources 2. Comprehensive Intelligence Gathering 3. Efficient Data Management and Analysis 4. Robust Evidence Handling and Management 5. Competent Case Development and Charging

additional management needs under each strategy. Rather, the report attempts to describe what has emerged from the review as some of the most important strategies and management needs that are considered relevant for the typical protected area manager or professional working in Sub-Saharan Africa. Some of the most significant law enforcement topics that the report has not attempted to address are described in the next section on the ‘elephants in the room’.

1.4 The elephants in the room

In a review such as this, there is a trade-off between ensuring that the document is as user-friendly and accessible as possible to busy protected area managers, and ensuring that it comprehensively deals with the wide spectrum of law enforcement issues and methodologies. One way that the report achieves this is to focus on law enforcement methodologies that are chiefly relevant at the site or protected area-level, rather than including broader national-level approaches. In addition, to ensure that the report is relevant to the typical site-level law enforcement manager, it only briefly overviews the various law enforcement methodologies, and where necessary points the reader to additional information sources for more in-depth information.

Nevertheless, it has not been possible to address every aspect of wildlife law enforcement at the protected area level. This section overviews three especially important dimensions that are not comprehensively addressed in this report, although other wildlife management professionals will no doubt be able to identify others:

- The role of *communities* in supporting site-level law enforcement;
- The role of *corruption* as a crucial factor in driving wildlife crime and undermining wildlife law enforcement efforts;

- The role of *sustainable financing* in enabling wildlife law enforcement efforts.

These three topics are briefly discussed in the paragraphs below, so that some of the key potential gaps in the report are made clear from the outset.

1.4.1 The role of communities – Beyond Enforcement

The crucial role of communities in contributing to effective protected area management and biodiversity conservation has long been recognized, and there is a huge amount of experience and knowledge available from Africa and around the world in community conservation and park-community cooperation. Most of these initiatives have focused on emphasizing the potential role of the communities as ‘good neighbours’ and partners, through efforts to bring about community support for conservation efforts, including sharing economic benefits and access to PA resources, reducing human-wildlife conflict, establishing PA-community cooperation mechanisms, improving community livelihoods, and empowering communities in natural resource ownership.

The recent escalations in wildlife crime in protected areas, and the subsequent emphasis on strengthening law enforcement operations, has encouraged a number of community conservation professionals working in Africa and around the world to re-emphasize the potential role of communities in combating wildlife crime, in an initiative that has been dubbed ‘Beyond Enforcement’². The Beyond Enforcement proposition is that strengthening law enforcement without the active support and engagement of local communities is insufficient to address the current wave of wildlife crime impacting Africa’s protected areas, especially in the longer term, and may simply serve to displace poaching from areas of strengthened law enforcement to other areas of weak law enforcement. The case is also made that

strengthening law enforcement without the involvement of local communities is likely to serve to antagonize these communities, especially when enforcement is carried out in an aggressive or militaristic manner, resulting in worsening PA-community relations, reduced legitimacy of the PA and wildlife agency concerned, and potentially leading to yet further increases in poaching pressures.

In essence, Beyond Enforcement makes the case that the communities neighbouring protected areas have the potential to be the first line of defence against poaching, with law enforcement ideally being the second line of defence. However, the Beyond Enforcement proponents acknowledge that community conservation approaches on their own are unlikely to be sufficient to address the current scale and sophistication of wildlife crime. Rather, a unified approach is needed in which communities are part and parcel of law enforcement efforts, rather than the antagonists in these efforts. The actual community-centric approaches advocated are drawn from the same tried and tested community conservation practices that already exist in many parts of Africa, including:

- At the broader level, strengthening efforts to give communities ownership over wildlife and natural resources, and means of tangibly benefitting from these resources;
- Enhancing mechanisms for actively engaging communities in both the decision-making and implementation processes for law enforcement at all stages – prevention of wildlife crimes through engagement in intelligence information sharing, combating wildlife crimes through community involvement in patrolling, and responding to wildlife crimes through active engagement between government and communities in apprehending and prosecuting perpetrators.

This report recognizes the importance of such community empowerment and cooperation approaches to the long-term success of law enforcement efforts, but time and space has not allowed for the broad diversity of these approaches to be explored here. Suffice it to say that, as the Beyond Enforcement proposition emphasizes, this is not an either-or scenario, or a win-lose scenario – rather, law enforcement efforts need to be pursued alongside a recognition that ultimate and lasting success will depend on ensuring that communities are fully a part of these efforts.

1.4.2 The role of corruption in fuelling wildlife crime and undermining enforcement efforts

The present value of the global trade in illegal wildlife, excluding fisheries and timber, is estimated at between \$7–10 billion annually³, and some observers believe it is even higher. With the magnitude of these potential economic rewards, it is not surprising that Transparency International identifies corruption as one of the most critical factors driving wildlife crime at all stages along the wildlife trade route, from site to national level, and internationally⁴. At the site level, corruption can potentially impact on the successful delivery of all three

law enforcement strategies that are dealt with in this report: at the ranger patrol level, where the rangers may themselves become actively involved in poaching, or may turn a blind eye to poachers that bribe them; to law enforcement managers, who may forge alliances with the kingpins behind poaching gangs; and to intelligence officers and investigators who, in return for a share of the proceeds from poaching, may bias their information collection to avoid pinpointing key poachers.

In response to these issues, Transparency International has identified a number of approaches that can help reduce the impact of corruption on wildlife crime, including establishing a strong legal framework against both corruption and wildlife trafficking, human resources management reforms in the public sector, capacity building on both wildlife crime and corruption technical and integrity-related issues, and more generally, raising ethical standards across the public sector. All of these approaches, while undoubtedly important to the success of efforts to combat wildlife crime, are considered largely beyond the scope of site-level managers and law enforcement professionals to address, and are therefore not dealt with in detail in this report. However, to the extent that site managers do have the ability to deal with the influence of corruption within the site's patrol force, this aspect is addressed in Chapter 3, Law Enforcement Management.

As with the role of communities, while this report does not provide the appropriate forum for addressing the role of corruption and its impact on wildlife crime across Africa, it is nevertheless important to recognize the powerful influence that corruption inevitably has on the effectiveness of wildlife crime and law enforcement operations across the continent, both indirectly and directly, especially where high value species are concerned.

1.4.3 The role of sustainable financing for wildlife law enforcement

As wildlife crime in Africa increases in extent as well as sophistication, so the law enforcement response strategies and management needs become ever more complex, especially in the case of high value species such as rhinos and elephants. For example, in the case of rhino populations in southern Africa that are currently experiencing heavy poaching threats from sophisticated international wildlife trafficking gangs, the law enforcement response involves highly trained and experienced specialists and the application of a diversity of sophisticated modern technology such as thermal imaging equipment, unmanned aerial vehicles (drones), helicopters, radar surveillance and other detection systems.

These specialized human resources, techniques and equipment are inevitably very costly to maintain and operate, and the greater the extent and sophistication of the poaching threat, the higher the costs involved in delivering them. This is a reality now for a number of protected areas in Africa harbouring high value

species, but as the poaching threat intensifies, it is likely to be an increasing reality for more and more protected areas across the continent.

The issue of accessing sufficient and enduring financing to sustain these intensive law enforcement operations necessarily comes to the fore. Fortunately, several international bilateral and private sector donors have recognized the need to invest more in law enforcement, including the European Union, USAID, the German Government, the Global Environment Facility (GEF), and a number of private sector organizations such as Africa Parks, the Buffett Foundation, and conservation NGOs such as the Frankfurt Zoological Society, the Wildlife Conservation Society, and WWF. For example, the European Union has established a special funding window aimed at combating the wildlife crime crisis under its Biodiversity For Life (B4L) Flagship Initiative, and is already supporting a variety of initiatives aimed at strengthening law enforcement at the site level. Similarly, GEF with other international donors has established the Global Partnership to Support Wildlife Conservation and Sustainable Livelihoods, which is currently developing a series of new projects implemented with national wildlife authorities across Africa aimed at combating wildlife crime, and intensifying anti-poaching efforts.

These are all highly laudable and crucial efforts. However, still more needs to be done to ensure that sufficient sustainable financing is available to combat the escalating wildlife crime crisis in Africa, both from national governments, who need to do more to recognize the value of the fast-diminishing wildlife species which once lost will be almost impossible to restore, and also by international donors, who need to do more to demonstrate that wildlife is ultimately an international resource and a benefit to all mankind, and to recognize that individual countries cannot be expected to finance the full costs of protecting threatened species against increasingly international wildlife crime gangs and trafficking networks.

Although law enforcement strategies and management needs as described in this report are crucial, more effort also needs to go into integrating local communities into the fight against wildlife crime, as discussed in section 1.4.1 above. Although this will inevitably add to the short-term costs of law enforcement efforts, in the long run, efforts to involve local communities are likely to lead to greater sustainability and more cost effectiveness, while at the same time improving community well-being.

2. Law enforcement patrols

2.1 Overview

Law enforcement patrols are at the frontline of a site's anti-poaching efforts. Patrol effectiveness, and specifically the effectiveness of the patrol staff, is one of the most important factors in deterring illegal activities in a protected area. The majority of an area's staff are typically involved either in the direct implementation of patrols or in supporting the patrol regime. Personnel are the most important resource for maximizing the impact of site-based law enforcement.

Poachers, even when not sophisticated or well resourced, are often determined and highly skilled. They may know the area well or will work with someone who does, may have years of poaching experience and usually have few alternative options for generating income. They are highly driven and committed to their work because they are only paid based on results; they are often willing to accept the risk of imprisonment, being injured, or even killed as a result of their activities.

A fundamental challenge for area managers is therefore to develop a ranger/scoutⁱ force with the abilities, motivation and dedication that matches or exceeds that of the poachers they are up against. Unfortunately, due to a variety of institutional, personnel management, resource allocation and other issues, this is rarely achieved. This chapter therefore aims to identify key issues and steps that can be taken by area managers to develop their patrol staff *abilities*, *intrinsic motivation*, and their *commitment* to their work, the area they work in, and the organization they work for.

There are no simple or universal solutions that area managers can implement that will result in the development of these three key attributes. Such qualities are built up over time and are dependent on innumerable small acts, incremental changes, and continual positive interactions with management. However, the following sections provide an overview of five management needs that have been identified as critical for the development of the abilities, motivation and dedication of an area's patrol staff that should improve overall patrol effectiveness. These five management needs are:

1. **Skilled and knowledgeable patrol staff**
2. **Experienced and competent patrol leaders**
3. **Suitable and sufficient equipment and supplies**
4. **Appropriate terms and conditions of service**
5. **Supported and incentivized patrol staff.**

Box 2.1 Patrol staff numbers: what is the optimal density?

Studies have shown that as effective law enforcement activities increase, poaching declines⁵ and fewer illegal activities take place (due to the deterrent of an active ranger force)⁶. In this regard, patrol staff density has been shown to be the factor that correlates most strongly with law enforcement effectiveness⁷, and some studies have identified an ideal number of patrol staff for areas facing specific challenges. The optimum ranger density for a given area depends on a number of key factors, such as the size and location of the area, the type of threat faced, the human population density, and above all, the animal species that require protection and their relative densities⁸.

For example, the SADC Regional Programme for Rhino Conservation recommends a ranger density of one ranger per 20 sq km in rhino sanctuaries^{9–10} while, based on rhino poaching in Zambia and Zimbabwe, other studies have recommended ranger densities as high as one ranger per 9–19 sq km¹¹ and one ranger per 10 sq km¹² respectively. On the other hand, a density of one ranger per 50 sq km has been commonly suggested for elephant protection^{10–13}, and the same figure has been used as an IUCN guideline for protected areas in Cameroon¹⁴. However, a study conducted in the mid-1990s in the Central Luangwa Valley of Zambia estimated the optimum ranger density for protecting elephants, i.e. when zero elephants are killed, to be approximately one ranger per 24 sq km¹⁵.

In practice, it would be simplistic to suggest a fixed ranger density for all protected areas, as each area needs to identify its own threshold manpower density based on its specific challenges. For example, areas where the main threat is agricultural encroachment may not require ranger densities as high as those experiencing heavy poaching. In addition, it is important to note that staff numbers are largely beyond the control of area managers, as they are generally dictated by budget constraints or national policies. So, while recognizing that appropriate ranger densities are critical, the law enforcement strategies in this document focus on qualitative factors that can improve the effectiveness of patrols, i.e. making the best use of the available rangers even if their number is below the optimum requirement.

In a context of diminishing resources and escalating threats, two key qualitative factors to focus on are the quality of individual rangers and that of law enforcement patrols. The quality of the rangers (i.e. their technical capacity) largely depends on staff selection criteria, training, equipment, motivation and experience, which are dealt with in Chapter 2 (Law Enforcement Patrols). On the other hand, the quality of patrols (i.e. their effectiveness) is largely influenced by law enforcement strategies and management capacity, as well as the availability of adequate means of transport. Specific aspects of how monitoring data, intelligence and mobility relate to patrol effectiveness are dealt with in Chapters 3 (Law Enforcement Management) and 4 (Intelligence and Investigations).

i Some countries in Africa use the term scout to refer to members of the patrol force, and ranger to denote a more senior wildlife manager. Others use the term ranger to refer to patrol force members. In this report, we refer to members of the patrol force as rangers/scouts.

2.2 Skilled and knowledgeable patrol staff

The ability of rangers/scouts to carry out their duties is a key foundation for the overall effectiveness of all site-based law enforcement operations. Three inter-related aspects have been identified for developing skilled and knowledgeable staff. These are: 1) getting the best people for the job through a robust selection and recruitment process; 2) ensuring that those selected have the skills and attributes necessary through rigorous basic training; and 3) ensuring that these skills and attributes are maintained over time through in-service training. Each of these aspects is discussed in the following sections.

In addition to the overview of patrol staff training needs provided in this report, IUCN has recently published a comprehensive training guide for field rangers¹⁶ that sets out more detailed information on optimal law enforcement training topics.

2.2.1 Selection and recruitment

The process of selecting and recruiting rangers/scouts is a critical step for improving the overall quality of the candidates that proceed to basic training, and provides an important opportunity for strengthening the performance of an area's patrol force over the long-term. In contrast, ineffective selection and recruitment, resulting in the appointment of inappropriate candidates, can lead to poor performance, interpersonal difficulties and low ranger/scout morale and motivation, and represents a missed opportunity for improving the effectiveness of a PA's patrol force.

In many countries, rangers/scouts are recruited as part of a national process, and once recruited there is often neither meaningful assessment nor further site-specific selection process. In addition, commonly used stipulations on minimal education requirements can disqualify some of the most suitable potential candidates from the outset, particularly those from rural areas, who may have more practical experience and appropriate skills for a field-based position than their better educated peers.

This situation has contributed to a significant number of rangers/scouts in many sites being ill-suited for the demands of the position, which in some cases has led to poor performance norms, low motivation, ineffective operations and increased management costs. In response, some areas have introduced a high degree of competitive selection into the ranger/scout recruitment process. This often begins with a one-day preselection process of physical tests and an interview that are used to identify a subset of candidates who proceed to a formal selection process.

The formal selection process typically involves an intensive selection course, often lasting two–three weeks. Candidates are assessed against a variety of criteria outlined in Box 2.2, and a high drop-out rate of around 70–80% is not uncommon. The elimination of low quality recruits during the selection course ensures that only the very best candidates are eventually appointed as rangers/scouts. Further, as experience from military selection

processes has shown, the selection process itself is a critical factor for building stronger team cohesiveness and higher performance standards among those selected. To be successful, it is important that the process of eliminating sub-standard candidates is based on a fair and transparent assessment process. To improve assessment accuracy and fairness, a variety of approaches can be combined for evaluation, including trainer observation, formal testing, and peer evaluation or 'buddy-ranking'.

Box 2.2 Selection course criteria

Candidates undertake a variety of practical exercises and attend lectures during the selection course that are designed to assess their employability and suitability for the role. This is typically based on the following five factors:

- Discipline (ability to follow instructions and maintain standards)
- Physical fitness
- Route march (typically carrying around 20 kg and a firearm or substitute)
- Team work
- Ability to absorb theory (e.g. basic tactics, laws, first aid).

Although a robust selection process involves initial costs and effort, many protected area managers see it as essential for developing a capable and motivated patrol force, and observe that patrol staff that have been subjected to a rigorous selection process often perform much better than others. Such a process also helps to ensure that the significant investment in putting new recruits through basic training is focused on those with the attributes and motivation that the role demands. Box 2.3 describes two selection processes that have been used in Zimbabwe and Zambia.

Box 2.3 Approaches to recruitment and selection

Gonarezhou National Park, Zimbabwe. 'Cadet rangers' have been recruited locally to supplement the staff deployed by the national wildlife agency (Zimbabwe Parks and Wildlife Management Authority) in Gonarezhou National Park. The pre-selection process usually takes one day, and consists of a series of physical tests and an interview. Suitable candidates then proceed through a very demanding three-week selection course that has a 10–20% pass rate (during this time candidates are retained on temporary contracts). Successful candidates are then employed as cadet rangers on general duties and are not armed. Suitable candidates from these cadet rangers are then subsequently selected for a seven-week basic training course (see section 2.2.2) after which they will be formally employed as a ranger/scout.

South Luangwa National Park, Zambia. In Zambia 'Village Game Scouts' have been recruited to work alongside staff from the national wildlife agency (the Zambia Wildlife Authority) in and around South Luangwa National Park. This selection process takes place over several days in community-managed areas around the park, and involves daily 10 km route marches, additional physical exercises, discipline assessments and an informal 'job preview' outlining the nature of the work, as a mechanism for helping manage candidate expectations. Typically, about 50% of recruits that complete the process are selected for basic training.

Integrating nationally and locally recruited staff

Although recruiting rangers/scouts on an individual site basis and targeting people living around an area for recruitment has many advantages, it does present a number of administrative challenges for protected area managers working in centrally-managed national wildlife agencies that may not have the autonomy, resources or budget to implement these kinds of processes at the site level. However, these obstacles have been overcome in a number of cases, often with the help of an NGO partner and the use of donor funding.

In a number of areas, the recruitment of staff on a site-specific basis has been achieved by using the staff selected locally to supplement rather than replace nationally recruited staff. For example in Zambia, 'Escort Scouts' are recruited by the Zambia Wildlife Authority in South Luangwa National Park on a regional basis (and only on short-term contracts of around six months), and a robust recruitment and selection process has been used for employing Village Game Scouts that work alongside national wildlife agency staff in and around South Luangwa National Park (see Box 2.3).

Elsewhere, such as in Gonarezhou National Park, in Zimbabwe, the recruitment, assessment and final appointment of local candidates for basic training has been achieved through the creation of the new 'cadet ranger' position in the park. While these scouts are formally contracted and employed by the national wildlife agency, they are only deployed to Gonarezhou National Park and the costs of their recruitment, training, salaries and equipment are supported through donor funding (see also Box 2.3 for details).

Recruitment: success factors

- In many places large numbers of potential recruits will try out for a limited number of positions. The initial recruitment process is therefore very important to select the right calibre of person.
- The initial pre-selection process need not be complicated. Basic physical tests followed by a simple interview are usually sufficient to identify suitable candidates for a more rigorous selection course.
- Retaining recruits on temporary or casual contracts until they have successfully completed the selection course clarifies the need to perform and simplifies elimination of unsuitable candidates.
- Some candidates may not be well nourished at the start of the training; gradually increasing the physical elements of the course can help ensure all can compete equally.
- Evaluation processes must be fair and transparent. A variety of techniques should be used including trainer observation (overt and covert), testing, and peer evaluation.
- Formal education is not essential for effective field-based rangers/scouts; minimum education requirements may disqualify some of the best potential candidates.
- Ideally, successful local candidates should be deployed away from their home areas around the PA to reduce risks of complicity and other distractions. This is more easily achieved in large PAs.

2.2.2 Basic training

The initial training of new ranger/scout recruits is a one-time opportunity to establish a strong work ethic and high

performance standards among the trainees, as well as to provide them with skills and knowledge to efficiently and effectively carry out their duties. The initial training is also a chance to build confidence and strong team cohesion among the recruits. If done well, this initial training process develops a strong foundation for a highly skilled, confident and motivated ranger/scout force.

Box 2.4 Common basic training topics

The following topics typically form the foundation of an initial ranger/scout training course. Assessment is normally through a combination of written and/or oral tests and practical exercises. A basic training typically takes place over 8–12 weeks.

- Wildlife laws, including national laws, protected area regulations and wildlife crime penalties and provisions.
- Musketry, including handling, maintenance, storage and management of firearms and ammunition.
- Legal issues, including the rights of suspects, the rules of engagement, the process of arrest, the prosecution process, evidence handling, crime scene control and protocols.
- Bush craft, including tracking, orienteering, basic first aid, camp management, etc.
- Tactics, including use of patrols, ambushes, night operations, observation posts, communication protocols, etc.
- Basic wildlife and habitat conservation and ecology.

Although the topics covered in initial trainings are relatively standard, there are two different approaches for implementing the trainings. The first, often linked to national recruitment, is the training of all newly recruited staff at a dedicated training institution. This is often run by the national wildlife agency and uses a standard curriculum. This has the advantage of simplifying logistics and enabling the processing of a large number of recruits that can then be deployed to any protected area in the country.

When many of these training centres were first established, such as the Kenya Wildlife Service's Manyani Training Centre, they were initially designed to offer training in a field environment similar to the working conditions that a ranger/scout can expect. As such, no permanent accommodation or facilities were built and classes were conducted under makeshift shades so that trainees could get used to field conditions. However, due to increasing demands on the training centres, many permanent facilities have developed over time and less emphasis has been put on practical field-based training.

Unfortunately, this shift makes it more difficult to assess the performance of recruits *in-situ*. A centrally-coordinated training process can also undermine team cohesion as trainees may be subsequently deployed to different areas. Protected area managers are also unable to build relationships with new recruits during their training, hindering the development of high performance norms and expectations associated with a particular site and/or area manager that could otherwise be carried forwards into day-to-day operations.

An alternative approach is to conduct training in the field in basic or temporary camps, ideally in the area in which successful

recruits will be working. This enables the evaluation of a recruit's suitability in circumstances that mimic their future work environment, and avoids many of the issues associated with a centrally coordinated and more generic approach to training. However, this approach requires a level of training capacity at the site, and can make it difficult to train large numbers of recruits.

One training method that brings in elements of both these approaches is that used by the Uganda Wildlife Authority. In this case a temporary training facility is established in one of the country's national parks that is then used to train staff from areas throughout the national park network. Although lacking some of the benefits of a site-specific training, this approach captures many of the important benefits of the ranger/scout training in a field setting.

Increasingly, ranger/scout training draws from the body of experience of the armed forces and the police service. As the level of professional poaching escalates, military, investigative and other skills that have traditionally been the strengths of the military and police are increasingly being required by ranger/scout patrols. Using trainers and/or facilities from these organizations can improve training of rangers/scouts in law enforcement skills that have not historically been a speciality of many wildlife agencies.

Basic training: success factors

- Whenever possible, basic training should take place in the field and, ideally, in the area in which the rangers/scouts will be working.
- The trainer should participate in physical aspects of the training, as this builds respect for the trainer as well as a stronger trainer-trainee relationship. Protected area managers may also use this opportunity to develop relationships with future rangers/scouts.
- The training should focus on practical skills that rangers/scouts will need as part of the duties rather than an over-emphasis of more scientific or theoretical topics (such as ecology, biology, etc.)
- Celebrating successful completion with a parade, ceremony and certificate consolidates a sense of achievement. Inviting close family members to participate can enhance this.
- The use of staff and/or facilities from other armed forces is one method of building ranger/scout capacity in areas that are not a traditional strength of wildlife agencies.

2.2.3 In-service training

Experience has shown that the training of rangers/scouts as a one-off, stand-alone event is unlikely to have a significant or sustained impact on their performance over time. Continued investment in training is essential to ensure that patrol staff maintain their skills to the required levels and are updated with new knowledge and technologies as they become relevant, and, importantly, as a mechanism for area management to demonstrate the continued value and importance of patrol staff to site operations.

In-service training has often been used as a mechanism for achieving these aims. Traditionally, in-service training often

follows a similar curriculum to that outlined in the previous section for basic training, and takes place over several weeks away from the site. However, for a variety of reasons, such as financial shortfalls, manpower limitations or low management priority, the implementation of such training has often been sporadic and infrequent, contributing to a steady degeneration of ranger/scout force capacity over time.

More recently, the managers of some areas have recognized the need to shift from viewing training as a discrete event undertaken by external professionals, towards being an on-going function of area management. This fosters the development of a 'continual learning' approach. This represents a major shift from the traditional attitudes towards training prevalent in many wildlife agencies, and requires an institutional and cultural shift away from conventional hierarchical working relationships towards a more collaborative way of operating.

A continual learning approach is widely used in military organizations. The approach is based on joint assessment by managers and patrol staff of situations as they occur, development of proposed responses and potential alternatives, as well as incident debriefs and 'after-action reviews'. Success rests on the ability of managers and patrol staff to work collaboratively in analysing incidents and operations as they occur, without fear of failure or punishment. It necessitates a level of site-based training capacity as well as senior staff with the aptitude to foster such engagement.

One practical way that some protected areas are achieving a gradual change towards continual learning is by adapting the traditional 'in-service' refresher trainings that have at best taken place every three or four years to a model based on more frequent, smaller and shorter trainings. These typically last around a week, and occur two or three times a year. In some sites, rangers/scouts are selected from different units across an area to participate in such trainings.

Compared with the traditional approach, more frequent site-based trainings typically cause less disruption to regular operations, motivate patrol staff by providing task variety, build relationships amongst patrol staff from different units within an area, increase interaction between patrol staff and management, and provide management with manpower they can use for specific tasks linked to training. Although a relatively small and well-funded site, one area where this has been successfully implemented is the Malilangwe Wildlife Reserve in Zimbabwe. Through a rigorous recruitment process combined with a continuous in-service training programme, Malilangwe managers have gradually built up a small cadre of skilled and experienced law enforcement staff at the site (linked to the establishment of an elite anti-poaching unit) that have the capacity to oversee most of the regular and continual training of the ranger/scout force, with periodic inputs from senior managers. This peer-to-peer training has in turn served to minimize the impacts of continued training on senior management's time.

In-service training: success factors

- Training needs to be continual and not a standalone or one-off event if it is to have a sustained impact in an area.
- Training needs to be viewed as one of the key functions of site management, and should not simply be outsourced to headquarters or a human resources department.
- An institutional shift towards the development of a continual and collaborative learning environment maximizes opportunities for developing sustained ranger/scout capacity.
- Frequent (i.e. two or three times per year), smaller and in-house training opportunities for all staff can be efficient and effective if sufficient capacity for training exists at the site.
- Developing a cadre of skilled and experienced law enforcement staff at the site will reduce the burden of frequent trainings on senior management's time.

2.3 Experienced and competent patrol leaders

Patrol leaders take the lead in implementing and managing patrols once they are deployed. Strong and effective leadership is essential. Two key aspects have been identified as critical for developing competent patrol leaders: 1) selecting the most appropriate patrol leaders from amongst area staff; and 2) ensuring that leaders have the right personal attributes to manage patrols.

2.3.1 Leader selection

A strong patrol leader is essential to ensuring the effectiveness of a patrol once it has been deployed. They fulfil a number of important tasks, including directing tactical operations during the deployment, taking responsibility for all equipment issued to the patrol (see section 2.4.1), ensuring that all ranger-based monitoring data is collected in accordance with the required standards (see section 3.4.1), and ensuring adherence to communications (see section 2.4.3) and other protocols, such as crime scene handling (see section 4.5.1).

In some areas, a patrol leader is an official position above that of other patrol members, while in others it is an informal position that rotates among patrol staff. Regardless of the formality of the position, the patrol leader provides a vital link between senior area managers and the rest of the patrol staff, and needs to have the confidence of both parties in order to be able to fulfil this role. They also need the respect of the patrol staff they are leading, in order for them to be able to delegate the responsibilities for individual tasks and deal with any personnel issues that may arise during a patrol.

If appointment to the patrol leader position is informal and done only on a patrol-by-patrol basis, senior management are normally involved in their selection. Some managers have noted that, if allowed to select their own leaders, some patrols select weaker staff members that are more likely to allow them more freedom during the patrol deployment. If the position is a formal appointment this should be based on a performance evaluation (see section 2.5.3) and an assessment of key skills and attributes the role requires (see next section).

Leader selection: success factors

- If the position is informal and done on a patrol-by-patrol basis, senior management should be involved in the patrol leader selection.
- If the position is a formal appointment, it should be based on transparent and objective evaluation that incorporates senior management knowledge of an individual's leadership qualities and abilities.
- Rotation of patrol leadership combined with performance assessment enables management to gauge the leadership abilities of a greater number of rangers/scouts.
- Formal appointment has the advantage of providing a career development path for more ambitious and high-performing rangers/scouts, while keeping them in field-based positions.

2.3.2 Skills and attributes

For optimal effectiveness, patrol leaders should have a clear understanding of and be able to apply a range of skills in the execution of their duties, and should have the personal attributes that good leadership of staff in a field situation requires. Patrol leaders must lead the patrol team with confidence based on a thorough understanding of their role and experience of the area in which they are patrolling, in order to be able to effectively manage, motivate and control their patrol team for extended periods in the field.

While the skills and attributes discussed below are important to build patrol staff confidence and respect, there is no substitute for patrol leaders having direct experience of carrying out patrols in the area, ideally over many years. This experience will enable competent staff to develop an understanding of the patterns of wildlife distributions and illegal activities in the area, which, combined with a solid understanding of law enforcement patrol procedures and protocols, can make them an essential element of effective law enforcement patrols.

However, not all experienced staff have the necessary skills or personal attributes. A number of areas have begun implementing specific trainings for patrol leaders to either help develop the required qualities in existing leaders, or as a part of the selection process for the appointment of new patrol leaders. These courses need not be particularly comprehensive, and in one recently implemented training course in North Luangwa National Park, in Zambia, the following subjects were covered over a seven-day course:

- Operational planning and deployments
- Patrol management
- Care and maintenance of equipment
- Intelligence handling
- Standard operating procedures
- Crime scene training (field forensics)
- Fitness training.

The results of the assessments on the above subjects, combined with senior managers' knowledge of the intrinsic leadership qualities and abilities of the staff concerned, can provide an

objective and transparent mechanism for the appointment of patrol leaders. If such a process is linked to the appointment of patrol leaders, it can also serve to motivate high-performing patrol staff by providing opportunities to advance their careers, while enabling valuable personnel to remain in the field and providing recognition for increased effort and performance.

Skills and attributes: success factors

- Significant direct experience of implementing patrols in the area, ideally over many years, is essential for patrol leaders to gain the confidence and respect of other patrol staff.
- Strong leadership qualities, including the ability to lead by example in the field and motivate patrol members over a number of days, are essential.
- Specific trainings for patrol leaders can help develop the required qualities in existing leaders, and/or can be incorporated as a part of the selection process for new patrol leaders.
- Performance assessments and senior managers' knowledge of their patrol staff can provide an objective and transparent mechanism for the appointment of patrol leaders.
- A comprehensive approach to selecting and training patrol leaders can motivate high-performing patrol staff by providing opportunities to advance their careers, while enabling valuable personnel to remain in the field.

2.4 Suitable and sufficient equipment and supplies

Suitable and sufficient equipment and provisions are critical for enabling rangers/scouts to effectively and confidently carry out patrols. Four aspects have been identified for ensuring patrol staff have the equipment and supplies needed, including: 1) basic field equipment needed to operate with a reasonable level of comfort while on patrol; 2) sufficient and appropriate rations to support staff while on patrol; 3) a reliable communication system with the PA headquarters; and 4) appropriate firearms and sufficient ammunition to confidently carry out patrols. Each of these aspects is discussed below.

2.4.1 Field equipment

Appropriate field equipment is essential to keep rangers/scouts effective and motivated in the difficult and inclement environments where much of their work takes place. Appropriate equipment makes the work of the rangers/scouts more comfortable, demonstrates the importance of patrol staff, and strengthens their motivation and commitment. In many areas, patrol staff highlight field equipment as the most important issue that they would like to be addressed.

Although often touted as the 'front line' in the fight against poaching, in many cases rangers/scouts appear to be last in line when it comes to the provision of equipment. This can be particularly problematic in remote areas, areas that are not seen as a national priority, or areas that have not been supported by donor funding. In such cases, insufficient and inappropriate field equipment undermines both the ability and the motivation of rangers/scouts to carry out law enforcement patrols.

Even when suitable field kit has been provided, there is an inevitable rate of attrition through loss, breakage or overuse. However, the resupply of patrol equipment is often insufficiently planned for. Donor projects, for example, frequently make provisions for new equipment at the start of the project (often linked to training) but fail to account for replacement costs in later years. The poor planning of kit replacement often leaves patrol staff using equipment well beyond its useful life (e.g. boots, which may need to be replaced every year).

The minimum basic equipment for patrol staff is summarized in the box below. The suggested focus is on providing simple, robust and reliable equipment that is easily obtainable and simple to maintain. Most is neither expensive nor difficult to procure. While other more complicated equipment may bring some benefits, the opportunity costs of purchasing and investing time in training, combined with additional maintenance requirements, often undermine its potential value.

Box 2.5 Field equipment

Individual field equipment

Basic equipment required by each patrol member:

- Rucksack large x 1
- Webbing/day pack x 1
- Water bottles x 2
- Uniform x 2
- Belt x 1
- Boots x 2
- Socks x 2
- Hat x 1
- Waterproof/poncho x 1
- Sleeping bag x 1
- Sleeping mat x 1
- Tent/dome net x 1
- Handcuffs x 1
- Firearm and ammunition (see section 2.4.4 below).

Team field equipment

Equipment distributed between members of a patrol:

- Radio and spare battery or charger (see section 2.4.3 below)
- GPS plus spare batteries or solar charger (see Box 3.6 page 34)
- Binoculars
- Camera and spare battery or charger.

Ideally, a set of the 'individual field kit' listed above should be issued to each ranger/scout, who is then responsible for its maintenance. However, in reality, due to limited resources many of the items can only be issued to rangers/scouts each time they go on patrol (e.g. sleeping equipment, backpacks, etc.). This requires efficient record keeping and strong stores management (see section 3.5.4) to enable accountability of patrol staff, and ensure inventories are sustained and equipment is well maintained.

Due to its high value to patrol staff, the issue of new equipment may be used to encourage patrol performance improvements. For example in Lower Zambezi National Park, Zambia, the NGO Conservation Lower Zambezi made the provision of new equipment that was identified as a priority by patrol staff contingent on previous improvements in patrol effort

over a number of months. Combined with increased senior management engagement, this contributed to significant improvements in performance as well as the relations between management and patrol staff.

Field equipment: success factors

- The best equipment is generally simple, robust and reliable, and is easily obtainable and simple to maintain.
- Ideally, each ranger/scout should maintain their own personal equipment, but if resources are limited, good stores and inventory management can compensate for this.
- Provision of equipment should be seen as an on-going, reoccurring event rather than a one-off cost when budgeting.
- Some redundancy is necessary (e.g. two uniforms – if staff are only provided with one uniform it is often only used for parade and not in the field).
- Provision of equipment is highly valued by patrol staff and can be used to reward effort and performance.

2.4.2 Patrol rations

Timely provision of adequate patrol rations is another issue that is seen as critical by many law enforcement staff. If patrol staff do not have sufficient, appropriate rations they may either not go on patrol, or they may spend a significant amount of time on patrol gathering food (e.g. fishing or, in some areas, killing wildlife for food). This reduces the impact of patrols and sets an extremely damaging precedent when dealing with park-adjacent community members.

The on-going provision of rations to support patrols is a time-consuming task, especially in remote areas, and frequently becomes a complex and contentious issue. Many park managers have therefore developed a standardized formula for issuing rations based on the number of patrol staff and the planned length of a patrol. The development of such a system has the advantage of reducing conflict and enables monitoring of the balance between rations provided and actual patrol effort. Box 2.6 gives an example of the typical rations issued per person per patrol day.

The management burden of purchasing, storing, and managing rations can be significant. In response, some agencies (such as Ezemvelo KZN Wildlife, which manages KwaZulu-Natal's protected areas in South Africa) have stopped providing

rations altogether, and instead simply provide cash that patrol staff use to buy and organize their own supplies. This approach can, however, only be implemented in less remote areas, and requires a relatively high-level of discipline and organization among patrol staff. In most areas, self-provisioning of rations is not seen as practical, as poor organization by patrol staff risks delaying deployment, the provision of cash can quickly become viewed as an intrinsic part of the payment package rather than to support patrols, and there is the risk that the money is not used for its intended purpose, with patrol staff reverting to using a site's natural resources for food or being underfed in the field. Therefore, despite the effort involved, a simple and standardized system for issuing and managing rations remains the best option for many managers.

Patrol rations: success factors

- Using a standardized formula to allocate rations simplifies the process and enables assessment of the amount allocated against actual patrol days.
- Although specialized ration packs are available, for typical law enforcement patrols on foot, simple, locally-available food is all that is required, where possible supplemented by high-energy dry rations.
- If collection of wood is an issue or concealment is important, gas camping stoves can be used for cooking, but this complicates logistics.
- In some circumstances cash for patrol staff to organize their own rations can reduce the burden on management.

2.4.3 Communication equipment

Reliable communication between patrol staff and a senior manager with decision-making authority is critical to enabling patrol members to report incidents, and request support or logistical back-up. This increases the confidence of patrol staff during operations. From a management perspective, reliable communications are essential for enabling the monitoring of patrol progress and the rapid adaptation of patrol movements in response to new information or changing conditions on the ground.

In the vast majority of areas, such communication has usually been achieved using analogue VHF handheld radios that are linked to a central control room via a system of repeater stations distributed throughout the area. However, many areas are now transitioning to digital VHF radios. Despite higher cost and some additional complexity of operation, they have a number of advantages over the traditional analogue system, including:

- Real-time tracking and monitoring of patrols with all patrol routes, patrol location and voice data being stored for future reference.
- Increased simultaneous talking paths, and the ability to embed information such as enhanced text messages into a single digital radio channel.
- Improved battery life and more efficient use of bandwidth enabling multiple paths on the same channel and more secure communications.

Box 2.6 Typical standardized rations

- Maize flour – 500 grams/person/day
- Sugar – 100 grams/person/day
- Rice – 100 grams/person/day
- Beans/lentils – 100 grams/person/day
- Dried fish/meat – 125 grams/person/day
- Tinned meat – 60 grams/person/day
- Cooking oil – 25 ml/person/day
- Salt – 20 grams/person/day
- Stock – 200 grams/person/10 days
- Tea – 30 grams/person/10 days
- Curry powder – 1 packet/patrol/10 days

- The digital conversion process improves audio quality and clarity and reduces external background noises.
- The digital platform provides a migration path that allows for simultaneous use of digital and analogue radios.

Box 2.7 Mobile phones: blessing or curse?

Cellular network coverage has now reached many protected areas, and will reach many more in the near future as networks continue to expand. If appropriately capitalized on, this development can bring significant benefits for area management, such as improved emergency communications, and the ability to enhance ranger-based monitoring systems by enabling faster speeds of information flow, especially from informants. However, device reliability, airtime availability and battery life remain a challenge and mobile phones are unlikely to replace the need for an effective VHF radio network.

Improved communications also increases the risk of corruption, complicity and patrol movements being compromised. Many area managers have developed policies to manage the use of personal mobile phones, such as banning the carrying of personal phones on patrol. However, banning mobile phone use communicates a sense of mistrust and reduces the accessibility of staff to their families, which undermines patrol staff morale.

A number of parks have found that banning the use of mobile phones is impossible to enforce in practice. For example, parks in KwaZulu-Natal, South Africa have 'recognized that all staff have the right to communications.' They have therefore opted to allow staff to take personal mobiles on patrol, but insist that they are kept switched off or on silent mode during patrol exercises. Some area managers feel that in the long run the technology must be embraced, and management attention should be focused on fostering wise and appropriate use of personal phones rather than enforcing an outright ban.

These advantages, and particularly the ability to track the real-time location of the patrol through the VHF radio, have led to the rapid adoption of the digital platform over recent years. A number of managers report improved reliability and quality of communication compared to the traditional analogue system. However, the system still requires a network of repeaters throughout the area that need to be secured, powered and serviced. As such, in large, insecure, and remote areas, the use of portable HF 'manpack' radios is still an alternative, although these are heavy, require significant battery power, and are often prohibitively expensive.

Despite the improved battery life of digital VHF radios, it is still not sufficient for a multi-day patrol. One option to address this being applied in North Luangwa National Park, Zambia, is the use of commercially available portable solar panels and chargers that are designed to be compatible with a variety of electronic devices, such as VHF radios, GPS devices, mobile phones and laptops. The panels are small enough to be carried on a backpack and connected to the charging unit while on patrol, which is then used to recharge radios or other devices overnight.

Communication equipment: success factors

- Digital (rather than analogue) VHF radio is rapidly becoming the standard for site communications.
- Key advantages include longer battery life, clearer signals, more secure communications, more efficient use of bandwidth and the ability to track positions in real time.
- The advantages they provide over the traditional analogue radios outweigh the additional costs and learning needed for their operations.
- Portable solar panels and chargers provide an appropriate option for keeping radios operational on multi-day patrols.

Solar panels and chargers can be used to recharge GPS devices, VHF radios and other equipment. © CDC



2.4.4 Firearms and ammunition

Studies have shown that along with the number of days spent on patrol, the arming of rangers/scouts is the most important factor influencing a patrol's probability of encountering poachers, due to the increased confidence firearms give patrol staff¹⁷. In addition, studies have shown that the use of more severe fines and longer imprisonment for wildlife poaching increases the likelihood of patrol staff encountering aggressive resistance from poachers¹⁸.

However, despite the benefits and increasing need for rangers/scouts to be supported by appropriate arms and sufficient ammunition, in many areas a lack of both is seriously undermining ranger/scout operational effectiveness and confidence. This may be due to insufficient funding for new firearms as well as broader issues such as institutional conflict between agencies and legislative weaknesses. As such, it can be very difficult for area managers to address this problem at the site level.

For example, the Zambia Wildlife Authority has experienced difficulties procuring military-grade automatic rifles, such as AK-47s, largely due to the military's concern about allowing a wider distribution of such firearms. Ironically, most of the semi-automatic and automatic rifles used by patrol staff in some areas, such as North Luangwa National Park, have been confiscated from poachers (many are in a poor state of repair). Elsewhere, such as in Gabon, national legislation does not allow for rangers/scouts to carry firearms, and so joint patrols have to be implemented with other armed forces.

Legislative constraints can also be a particularly important issue in private reserves or community-managed areas that contain high value wildlife species, as they require armed protection. These restrictions have been overcome in a number of different ways. For example, the privately managed Malilangwe Wildlife Reserve in Zimbabwe uses high specification, small calibre firearms that are allowed under national legislation. Whereas in

Kenya, many community game scouts have gained police reservist status that enables them to carry arms (see Box 2.8 below).

In some recently developed wildlife legislation, measures have been included to overcome these issues. For example in the 2013 South Sudan Wildlife Bill, wildlife agency staff have been given the ability to 'exercise all or any of the powers conferred upon any policeman under the Code of Criminal Procedure Act, 2008'. This enables them to make arrests, seize weapons, belongings and wildlife contraband, search people, vehicles and buildings, and, importantly, to carry firearms. This legislative provision effectively removes many of the legal constraints undermining ranger/scout performance. For a further discussion of the need to appropriately empower and protect wildlife officers, see also Box 2.9 over.

Alongside training in the safe handling and management of firearms, any provision of firearms must be accompanied by the capacity for their secure storage in the area and a robust management system that ensures all arms and ammunition are continually accounted for. In addition, on-site capacity to service and maintain the firearms is critical, and should ideally be linked to a system to ensure that each firearm is cleaned and maintained each time it returns from patrol.

Firearms and ammunition: success factors

- Ideally national legislation should make provisions for rangers/scouts to carry firearms suitable for addressing increasingly organized and proficient poachers.
- In many cases, provisions in national legislation according rangers/scouts similar status and rights to a national police officer are sufficient for this.
- If this is impossible, other mechanisms can be investigated to enable armed patrols (e.g. registering rangers/scouts as police reservists or joint patrols with other armed forces).
- Provision of firearms needs to be accompanied by strong inventory and stores management systems, and procedures to ensure all firearms are well maintained.
- Rangers/scouts provided with firearms must be well trained in the use of firearms and have high discipline standards.

Box 2.8 Empowering community game scouts in Kenya¹⁹

Across much of Kenya, the Kenya Police Reserve (KPR) is the most visible and dependable form of community security in rural areas. KPR members are most commonly recruited from local pastoral communities, so they speak the local language, understand the security context, and are familiar with the area's geography, terrain, and climate. For the government, the KPR is a cost-effective security body that is well placed to protect livestock, which has traditionally been its primary function. KPR members may be authorized to carry firearms, which are subject to inspection and accounted for by the commanding officer at the local police station.

Over recent years, the KPR has increasingly been used as a means of providing legal status for rangers/scouts working in Kenya's community conservancies and reserves, especially in the Laikipia region of northern Kenya. By early 2012, there were 30 conservancies in Laikipia, a number that has continued to increase. They may be privately owned (Lewa, Borana), community owned (Il Ngwesi, Tasia), or government owned (Mutara). In 2012, there were an estimated 1,137 KPR members distributed between these community conservancies, just less than a quarter of which were authorized to carry firearms. Many of these were formally appointed by the conservancies as rangers/scouts, and provided with uniforms, training, salaries and equipment such as VHF radios, binoculars, GPS, and other field equipment.

Although the role of these community conservancies has now been recognized in Kenya's wildlife legislation, they still lack full legitimacy and support from government, and the use of KPR members as a law enforcement force remains the most viable and cost-effective option for providing protection for wildlife in these areas.

2.5 Appropriate terms and conditions of service

Appropriate terms and conditions of employment form the basis of the relationship between patrol staff and management, and if well-developed, lay strong foundations for optimal staff performance. Four aspects have been identified for ensuring patrol staff have appropriate terms and conditions of service. These are: 1) defining and communicating the roles and responsibilities of the position; 2) designing the job to ensure opportunities for growth and increasing motivation; 3) informing staff how they are performing and where improvements are needed; and 4) using contracts that support performance and the retention of good staff. Each of these is discussed in the following sections.

2.5.1 Roles and responsibilities

To perform effectively, rangers/scouts need a clear understanding of the rights, duties, and responsibilities of the role, as well as the desired types of behaviours that will lead to the fulfilment of respective expectations. Research from a number of sectors has shown that unless these aspects of a job are made clear to employees, the resulting 'role ambiguity' can increase job dissatisfaction, staff frustration and employee turnover, all of which have a negative impact on organizational performance and effectiveness.

A formal job description defines the critical aspects of a particular position and reduces role ambiguity. It can also help area managers in a number of ways, for example, improving the recruitment process by enabling a better match between recruit attributes and the specific needs of an area. A clear job description is also essential for employee performance evaluations (see section 2.5.3).

Unfortunately, the utility of a job description as a management tool is frequently lost due to the formal appointment process. Even if it exists, its review by employees has often been reduced to a box to check rather than a mechanism to help guide and improve performance, and is only likely to be reviewed once (at best) during the initial hiring process. Furthermore, a written document using official language is often a poor medium for communicating the key duties and responsibilities of a ranger/scout to many patrol staff.

Various strategies have been used to build awareness of ranger/scout roles and responsibilities among patrol staff. Both Malilangwe Wildlife Reserve in Zimbabwe and South Luangwa Conservation Society in Zambia spend a significant amount of time during initial selection clarifying the ranger/scout role, responsibilities and performance expectations and measurements. In other areas, such as community conservancies in Namibia, posters that provide an overview of the role are placed in key positions to remind rangers/scouts of their responsibilities (see poster facing page).

Other sites are investigating the use of laminated, foldable documents outlining key performance points for patrol staff to carry with them (these can also be used to remind rangers/scouts of other protocols, such as crime scene handling). While in other areas, such as Grumeti Game Reserve in Tanzania, desired behaviour is constantly reinforced through the use of a 10% monthly bonus that is routinely provided to all employees. Any infraction, no matter how minor, results in its loss for that month. This ensures all employees are continually reminded of the requirements of their role.

The work of wildlife law enforcement officers is always challenging and at times can be extremely dangerous, especially when combating heavily armed and determined poachers. In such circumstances, it is essential that the responsibilities, powers and legal mandate of these officers are not only known to the staff concerned, but are also established in law. A good example of this is provided by the Kenya Wildlife Conservation and Management Act, 2014, which sets out the legal mandate of protected area law enforcement officers in some detail (see Box 2.9).

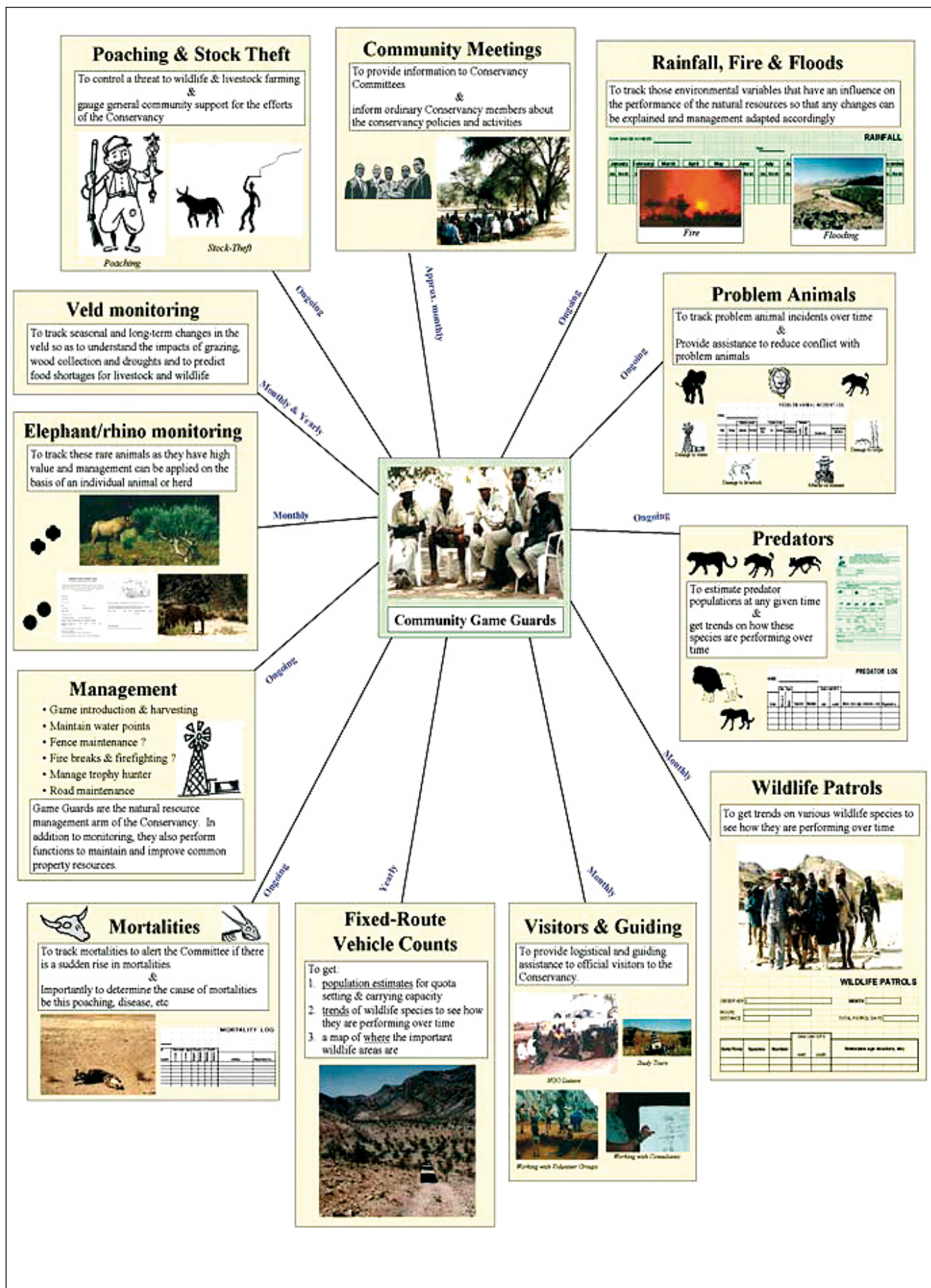
Box 2.9 Empowering and protecting wildlife officers: the role of legislation

The powers and scope of action of wildlife law enforcement officers are comparable to those of other law enforcement services such as the police and, as with the police, it is essential that these powers are set out in law. This will ensure that: a) wildlife officers are adequately empowered to fulfil their duties; b) they are appropriately protected against any subsequent legal action by wildlife criminals that they apprehend or engage with; and c) criminals do not have the opportunity to escape prosecution because the legal powers of wildlife officers have not been appropriately defined.

In this regard, a good example of the definition of the powers of wildlife law enforcement officers is the Kenya Wildlife Conservation and Management Act (2014), which provides the necessary legal framework for these officers to carry out their duties with confidence and with an appropriate protection in law. These powers include the ability to:

- Search anyone suspected of having committed a wildlife offence or of being in the possession of an illegal wildlife specimen;
- Search any vehicle and seize any illegal wildlife specimen found;
- Confiscate any vehicles or equipment used for capturing or harming wildlife;
- Arrest, detain and take before a magistrate any person who is believed to have committed a wildlife crime, or who fails to produce a valid license/permit for any wildlife specimen in their possession;
- Subject to the necessary training, use firearms against anyone unlawfully hunting wildlife using a firearm, or attempting to escape arrest or custody, or in self-defence or defence of another officer or person.

To ensure that their wildlife officers are similarly empowered and protected, countries that have not already done so should ideally enact suitable national or provincial legislation along the lines of that adopted by Kenya. An alternative approach is that used by South Sudan, which has taken the route of giving authorized wildlife officers the same legal powers as the national police force (see section 2.4.4 above).



Code of Conduct

A ranger/scout 'Code of Conduct' is a separate document that focuses on the general behaviour that rangers/scouts are expected to demonstrate rather than the detailed technical aspects of the job (see Box 2.10 below). Studies of the impacts of codes of conduct in the private sector have shown that they must be linked to an on-going process that requires persistent instruction, reinforcement and measurement²⁰. As such, the mere existence of a formal code alone is not sufficient to change behaviour, and frequent reminders are needed during trainings, management briefings and ideally through other methods, such as posters placed around headquarters and patrol outposts/pickets.

Unfortunately, most codes of conduct in protected areas are not regularly referred to and patrol staff can effectively plead ignorance against any transgressions. However, in some areas rangers/scouts are expected to review and sign this code, and infringements can be the basis for disciplinary action. Some areas, such as Malilangwe Wildlife Reserve, Zimbabwe, have developed and effectively used standards to guide the behaviour of their rangers/scouts, and expect this behaviour to be followed while off duty (rangers/scouts have been disciplined for activities that took place while off duty away from the reserve). This level of implementation, if consistent and combined with frequent opportunistic reminders of the standards and management expectations, can play an important role in fostering a cohesive and constructive organizational culture that reinforces positive behaviours.

Box 2.10 Example sections of the South Sudan Wildlife Forces Staff Code of Conduct

The Wildlife Forces (WF) are obliged to adhere to the following code of conduct while operating within or outside the protected areas:

- WF staff will know, adhere to and enforce the existing and applicable Wildlife Conservation and National Parks Acts.
- WF staff will report all infringements of the Acts by fellow Wildlife Forces staff to senior officers or the Park Warden.
- WF staff must not be involved in any conspiracy with offenders, take bribes or be in any other way involved in illegal activities in or around any protected area.
- WF staff shall at all times on duty behave in a polite, friendly, responsible and professional manner.
- WF staff are not allowed to commit crimes, or pose a threat to innocent people, or torture or inflict cruelty to offending persons.
- WF staff are not allowed to kill for eating or trade meat or other wildlife parts, either dead or alive.
- All confiscated equipment and other evidence seized from offenders or traders must be recorded and kept in secure place as directed by the Park Warden.
- WF staff must refrain from becoming involved, in any way, in any commercial operations within or outside the protected area.
- WF staff shall at all times while on duty dress in the official uniform. The uniform must be clean, neat and well presented.
- Any unauthorized use of weapons and ammunition is strictly forbidden. No firearms shall be carried or handled whilst under the influence of alcohol.
- WF staff should ensure hygiene and cleanliness in headquarters, substations and at camps in the field.

Roles and responsibilities: success factors

- Job descriptions should be clear and concise, and free from unnecessarily complex language; an informal version can also be used to complement the official document.
- A job description can be included with the contract and signed by the employee on appointment, but this alone is unlikely to have an impact on individual behaviour.
- The job description should be defined so that it helps other aspects of area management, such as recruitment and performance evaluations.
- The initial recruitment process and subsequent in-service trainings can be used to instil knowledge of the role and responsibilities of a ranger/scout.
- Innovative and appropriate ways such as bonuses, posters or portable laminated cards can be used to continually refresh important aspects of the ranger/scout position.
- A formal ranger/scout code of conduct can be useful but is not sufficient to impact behaviour without frequent reminders during trainings, management briefings, etc.

2.5.2 Job design

Many jobs have traditionally been designed to encourage specialization; for example, in the case of rangers/scouts focusing mainly on the implementation of foot patrols. Whilst some rangers/scouts may become very efficient and skilled at this activity, the lack of variety in their work can lead to boredom and a feeling of detachment from the overall goals and success of the area that they work in (especially in high performers). They may feel that as long as they complete their job satisfactorily, there is no need to be concerned with a greater involvement in improving current operations or an area's overall goals. One possible solution to this problem involves providing employees with more variety in their work.

Well-designed jobs that increase the job satisfaction have been shown to lead to improvements in efficiency, performance and morale. In turn, this can reduce staff turnover and absenteeism, and improve overall performance. However, this approach does rely on an effective recruitment process that ensures a high standard of staff that have the intrinsic desire to improve themselves and to perform highly. It works best when linked to a performance evaluation process that recognizes increased efforts and contractual arrangements that enable corrective measures (see following sections).

Although beyond the scope of some area managers in centrally administrated wildlife agencies, 'job design' (or redesign as would be the case for many ranger/scout roles) has been shown to have significant and sustained positive impacts on employee motivation, job satisfaction and commitment²¹. Through job design, organizations try to raise performance levels by offering non-monetary rewards such as greater satisfaction from a sense of personal achievement in meeting increased challenges and responsibilities that are integrated into their role. There are three common techniques to do this that are listed below in order of increasing effectiveness:

1. Job rotation: moving employees between different jobs periodically. This reduces the monotony of their work and

develops a team with a wider range of skills. For rangers/scouts this could mean rotating responsibilities for fence maintenance, data recording, communications or other roles.

2. Job enlargement: gradually providing employees with more challenging work and greater responsibility. This also leads to overall improvements in staff capacity. This could mean adding responsibilities for equipment management, entering monitoring data, training of peers, etc.
3. Job enrichment: providing employees with more control over the work they do. Providing more authority and responsibility encourages staff to find better ways to accomplish their work. This could include patrol planning, leave scheduling, purchase of rations, etc.

Job design: success factors

- Effective job design is predicated on the desire for staff to improve themselves and relies on a good recruitment process to select motivated individuals.
- Observing high-performing individuals can help identify behaviours that can then be encouraged in other staff members.
- Any changes should be made incrementally from job rotation, to enlargement and then finally job enrichment if staff respond positively.
- Additional investments in training may be necessary during the early stages of implementation; peer-to-peer training can reduce the impacts of this on managers' time.
- Job design will not be effective in all circumstances, for example if staff lack any internal motivation to improve themselves and their performance.

2.5.3 Performance evaluation

Evaluation or appraisal of staff performance is a commonly, if not always appropriately, used tool in many organizations. If done well, it can fulfil a number of useful functions for any organization:

- it informs employees on where they stand relative to performance expectations and where they need to improve;
- it provides management with information that can help them to make appropriate personnel decisions, such as promotions, scholarships, pay rises, terminations; and
- it helps identify employees with training and other development needs.

If supervisors continually and carefully assess the performance of employees, and the results are communicated clearly to them, they are more likely to understand the link between performance and rewards or corrective measures. If managers make recommendations for pay rises, promotions, training and terminations based on objective data, employees will be more likely to perceive the practises as being fair, transparent, responsive, and necessary. This should lead to increased motivation and commitment to their jobs and the organization.

However, in practice, the majority of rangers/scouts do not receive any useful structured appraisal of their performance. Evaluation processes are often considered to be a low

organizational priority and there is a lack of understanding of their potential benefits by managers. Where appraisal processes do exist, they have often not been developed with the goal of providing information to area management, but instead to fulfil the requirements of a centrally-based human resource department. In the few cases where evaluations have been used (e.g. village game scouts around South Luangwa National Park), the process has had a punitive rather than constructive approach and has not been maintained.

Although developing a performance evaluation system may require some additional initial work, once the fundamentals are in place it can run without placing too heavy a burden on area management. A significant amount of research has been carried out to identify what makes for an effective appraisal system. A summary of the conclusions from this work is provided in the following five bullet points:

- **Clear objectives:** The objectives of appraisal should be clear and specific. An effective performance system will have specific appraisal attributes to match the employee's job description.
- **Reliable data:** An effective performance appraisal system provides data that are consistent, reliable and has implications for the role in question.
- **Defined criteria:** Effective performance appraisal has standard appraisal forms, rules and appraisal procedures. It will have well-defined performance criteria and standards.
- **Minimal impact on operations:** Effective performance appraisal systems are designed to be economical and use the minimal time possible.
- **Clear feedback:** The results must be communicated to employees; ideally feedback should include '360° feedback' that incorporates comments from subordinates, peers and supervisors.

In addition, it is useful to provide an opportunity for the employee to raise issues and concerns that they feel are impacting their own performance. These may be structural, related to their capacities, or related to other personnel.

Box 2.11, over, provides examples of common methods to measure performance. These are often implemented through a standardized, short written or oral assessment (often a short form) combined with follow-up discussions with an employee's supervisor. Wherever possible, the employee assessment should include feedback from peers, subordinates and supervisors. Although formal evaluations typically take place on an annual basis, they are most effective when complemented by regular informal feedback sessions.

Some more advanced protected area systems are presently moving towards articulating the performance expectations of specific PA roles, through the definition of Key Performance Indicators (KPIs). These are discussed further in the next section.

Box 2.11 Common performance measurement methods

The following points summarize some of the common approaches that can be used for evaluating employee performance:

- **Rating scales:** Rating scales consist of several numerical scales representing job-related performance criteria such as dependability, initiative, output, attendance, attitude etc. Each scale ranges from excellent to poor. The total numerical scores are computed and final conclusions are derived. Advantages: Adaptability, easy to use, low cost, every type of job can be evaluated, large number of employees covered, no formal training required. Disadvantages: Assessor's biases.
- **Checklist:** Under this method, a checklist of statements of traits of the employee in the form of 'Yes' or 'No' based questions is prepared. The total scores are then calculated and final conclusions are derived. Advantages: Economy, ease of administration, limited training required, standardization. Disadvantages: Assessor's biases, use of improper weights, do not allow the assessor to give relative ratings.
- **Easy narrative:** The assessor writes down the employee description within a number of broad categories, such as: overall impression of performance, suitability for promotion, existing capabilities and qualifications for performing jobs, strengths and weaknesses and training needs. Advantage: It is useful in filling information gaps about the employees that often occur in a more structured checklist. Disadvantages: It is highly dependent upon the writing skills of the assessor.
- **Critical incidents:** The approach is focused on certain critical behaviours of the employee. Supervisors record key incidents as and when they occur. Advantages: Evaluations are based on actual job behaviours, ratings are supported by descriptions, and feedback is easy. Disadvantages: Negative incidents can be prioritized, incidents can be forgotten, requires close supervision, feedback may be too much and may appear to be punishment.

Performance evaluation: success factors

- Developing clear job descriptions is an important foundational step for implementation of performance evaluation.
- If area managers are involved in the design of evaluation processes, they can ensure the process will provide them with the information they need.
- Keeping the process simple and streamlined minimizes the burden on management.
- A number of standardized performance assessment methods can be combined (e.g. rating scale and easy narrative).
- The evaluation should include '360° feedback' that includes comments from peers, subordinates and supervisors to help provide a full picture of the employee.
- The formal evaluation process should be combined with more regular informal sessions and feedback throughout the year.
- Using the process as a basis for making key personnel decisions helps employees perceive the practices as being fair, transparent, responsive and necessary.

2.5.4 Contractual arrangements

Finding the right balance between patrol staff job security and the ability of area managers to either discipline poor conduct or reward high performance is essential for maintaining the capacity of an area's ranger/scout force. The wrong balance can result in either a high turnover of temporary staff, increasing training and management costs or, at the other extreme, the retention of poorly performing and unsuitable staff.

Unfortunately, many protected areas suffer from the latter problem. Permanent civil service contracts, combined with a slow bureaucracy and centralized decision-making process, are in many cases severely restricting the ability of senior area managers to either discipline poor performers or reward those with good records. Talented and ambitious patrol staff often feel under-appreciated and are more likely to leave (in some cases to work for conservation NGOs working in the same area). Over time, this contributes to a gradual decline in the capacity of an area's patrol force.

This issue is difficult for many managers to address at the site level, but in areas where rangers/scouts have been recruited locally and put on shorter-term contracts and with simple disciplinary procedures, performance standards have been consistently higher. In some cases, such as Gonarezhou National Park, this higher standard is also linked to a more rigorous recruitment process; in other circumstances, such as the use of 'Escort Scouts' in Zambia, the reported improvements in performance of some scouts compared to more permanent staff can be more easily attributed to the use of shorter-term contracts.

Although this is an issue that was highlighted by a number of protected area managers, very little progress has been made in addressing it in most government-managed areas. However, in some agencies, such as Ezemvelo KZN Wildlife in South Africa, employees are being moved to performance-based contracts based on measureable 'Key Performance Indicators' (KPIs) defined for each specific role (see Box 2.12 below). Linking decisions to an objective and transparent performance evaluation, combined with clearly defined decision-making processes and delegating responsibility to area managers, can also reduce the impacts of this issue.

Box 2.12 Key Performance Indicators

Key Performance Indicators (KPIs) provide a measure of how an employee is performing against agreed and expected goals (most commonly specified in their job description and increasingly in their employment contract). Although common in the private sector, KPIs are only recently gaining traction in some advanced protected area systems in southern Africa, and at the time of undertaking this review, are not yet being fully implemented in practice.

Specific KPIs need to be developed for each job type. As with all indicators, to aid effective evaluation they should be Specific, Measurable, Achievable, Relevant and Time-bound (SMART). For example, KPIs that could be applied to a typical ranger/scout position might relate to:

- Effort: number of patrols undertaken, number of days/nights out per month or year, number of kilometres patrolled, etc.
- Effectiveness: number of encounters on patrol, number of arrests (possibly as a percentage of encounter), number of trophies recovered, number of firearms/snares etc. recovered.
- Reporting: percentage of patrols for which debriefing was completed, percentage of patrol data forms properly completed and submitted.

Contractual arrangements: success factors

- Delegating more responsibility and autonomy for staff recruitment and retention to individual area managers provides a means for disciplining poor performers and rewarding high performers.
- Using performance-based contracts provides an objective method of ensuring that high-performing staff are retained and rewarded.
- These contracts need to be linked to clear job descriptions, specific 'Key Performance Indicators' and objective and transparent performance evaluations.

2.6 Supported and incentivized patrol staff

Much of the work of a ranger/scout takes place in a difficult and potentially dangerous environment, and typically involves lengthy periods away from home. As such, any steps that area management can take to offset these difficulties by supporting and incentivizing staff can help improve overall staff performance. Two key aspects for achieving this have been identified. These are: 1) making sure that the basic needs of patrol staff are met; and 2) providing incentives to encourage and reward high performance. Each of these aspects is discussed in the following sections.

2.6.1 Satisfaction of basic needs

Many of the aspects of a rangers/scouts job are challenging for patrol staff, such as working in a remote, inclement and sometimes dangerous environment, and spending significant amounts of time away from friends and family while on duty. If left unaddressed, these contribute to the build-up of resentment and dissatisfaction among rangers/scouts, impacting their ability to focus on their work and undermining management efforts to improve performance.

Studies have shown that a number of factors related to the context of a job (rather than the actual work itself) have a profound impact on the level of dissatisfaction that employees experience. Importantly, the factors causing this dissatisfaction need to be addressed *before* using other methods to promote performance, such as job design or incentives²³. That is, while these 'dissatisfiers' don't themselves have any motivational value when addressed, they do have a de-motivational impact if left unattended by management.

However, many of these dissatisfying factors are well known and typically include issues such as status, salary and benefits, job security, personal life and work conditions. Fortunately, many of these issues are relatively simple and inexpensive to address; many areas have a strong track record in doing so. Table 2.1 below provides a list of common 'dissatisfiers' and examples of how and where they have been addressed in different areas.

Of increasing importance is the need to provide law enforcement patrol staff with the psychological and legal support that can help them deal with the stress resulting from repeated engagement with armed poachers, attendance at crime scenes, or dealing with hostile community members (especially where the staff member is drawn from the community concerned). Some areas, such as Kruger National Park, have already begun offering psychological support to law enforcement staff after engagements, and others may have legal support on standby to provide advice to patrol staff if needed. In addition, the provision of financial support (or life insurance) for families of rangers that have been killed or seriously injured in the line of duty is also being increasingly recognized as an important aspect for incentivizing patrol staff.

Table 2.1 Key patrol staff satisfaction challenges and potential solutions

Common dissatisfiers	Examples of how and where addressed?
Status	<ul style="list-style-type: none">• Provided new uniforms and good field equipment (Kruger National Park, South Africa and Niassa Reserve, Mozambique)• Holds annual celebration to show management appreciation for the work of patrol staff (Malilangwe Wildlife Reserve, Zimbabwe)• Holds annual 'Labour Day' award ceremony to recognize high-performing staff (South Luangwa Conservation Society, Zambia)
Salary and benefits	<ul style="list-style-type: none">• Raised basic salaries to the national minimum wage (Niassa Reserve, Mozambique)• Provided life insurance for patrol staff that supports any widows of patrol staff killed on duty (Africa Parks)
Job security	<ul style="list-style-type: none">• Lawyer retained and made immediately available to provide legal support and advice after a poaching contact (Kruger National Park, South Africa)• Increased use of performance contracts to enable objective performance evaluation (Ezemvelo KZN Wildlife, South Africa)
Personal life	<ul style="list-style-type: none">• Mandatory assessment of all rangers/scouts involved in a fire fight by a psychologist (Kruger National Park, South Africa)• Funded a medical clinic and provided care to rangers/scouts and their families (Malilangwe Wildlife Reserve, Zimbabwe)• Supported local schools and provided boarding facilities for patrol staff children (North Luangwa National Park, Zambia)
Working conditions	<ul style="list-style-type: none">• Improved quality of ranger/scout accommodation and facilities (Gonarezhou National Park, Zimbabwe)• Built basic sporting facilities at ranger/scout posts (Kruger National Park, South Africa)• Provided monthly transport to all out-posted rangers/scouts for purchasing of rations and personal supplies (North Luangwa National Park, Zambia)

It should be noted that reducing the impact of these dissatisfiers is a common theme implicit in many of the management needs discussed in this chapter. For example, as discussed previously, status is improved through investments in training and the provision of field equipment. Other dissatisfiers, notably the nature of supervision, are also implicitly addressed through the approaches to in-service training and the development of a constant learning environment discussed previously.

However, it is commonly accepted that, while a necessary step on the path to improving performance, the best result that can reasonably be expected from reducing dissatisfiers is 'neutral indifference'. As such, there remains the need to proactively take other steps that are focused on improving overall staff motivation. This is explicitly addressed under section 2.5 on terms and conditions of service and through the implementation of a properly aligned incentives scheme (discussed in the following section).

Satisfaction of basic needs: success factors

- Fundamental 'dissatisfiers' associated with the job of a ranger/scout need to be addressed as a precursor to implementing measures to improve motivation and commitment of patrol staff.
- The relatively small and tangible nature of these changes makes them appealing projects for some smaller or locally-focused donor organizations that can be approached for support.
- To leverage maximum benefit, this approach should be followed with attempts to increase both intrinsic motivation (e.g. through job design) and extrinsic motivation (e.g. through incentives).

2.6.2 Staff incentives

Incentives strongly influence employee effort and performance levels. When recognized and rewarded for high performance, employees show increased morale, higher job satisfaction and more involvement in their work. A well planned and implemented incentive scheme can therefore help develop a positive and productive work environment, foster good relations between management and rangers/scouts, and increase the perceived linkages between effort and reward that is essential for encouraging and retaining high-performing staff.

Unfortunately, the centralized funding and management of many government-administrated areas makes incentive schemes difficult to implement, and as a result they are often developed only in areas with flexible donor financing (and in many cases even this has proved difficult). A lack of incentives can result in severe disruption of a ranger/scout's 'line of sight' linking performance to rewards, because all staff, no matter how poorly performing, often receive the same remuneration.

If the conditions do allow the implementation of an incentive scheme, its development requires careful consideration. Before implementing such a scheme, a basic level of discipline and, ideally, a ranger/scout 'Code of Conduct' needs to be in place and understood (see section 2.5.1). Staff expectations need to be well managed to prevent payments being seen as an entitlement,

and the sustainability of the scheme needs to be reviewed as the subsequent removal of incentives can drastically impact patrol staff performance. (This happened in South Luangwa National Park when donor support was reduced and management was unable to continue the scheme.)

Lastly, the actual structure of the scheme itself needs careful design; if not designed appropriately the scheme can actually undermine the motivation of patrol staff (see Box 2.13) and set up perverse incentives. The most commonly used incentives for rangers/scouts are based on arrests and confiscation of wildlife contraband, firearms and other equipment used in poaching. Although viewed by many managers as more desirable, basing rewards on prosecutions is generally difficult due to slow and sometimes ineffective or corrupt prosecution processes.

Box 2.13 Equity theory

Equity theory²⁴ is based on the assumption that all employees are constantly comparing the efforts that they exert and the rewards they receive with their colleagues. It is based on the idea that individuals are motivated by fairness, and the higher an individual's perception of equity of the rewards they receive for work, the more motivated they will be, and *vice versa* – if someone perceives an unfair environment, they will quickly become demotivated. If this situation occurs, they will seek to adjust their efforts to reach their perceived equity (potentially through trying harder, but more likely by reducing their effort).

The easiest way to see the equity theory at work, and probably the most common way it impacts employees, is when colleagues compare the work they do with someone else that gets paid the same as them for doing less work. For example, a ranger/scout that risks his safety in making arrests on patrol is often paid the same as a ranger/scout that stays in the headquarters or in town. (In some cases, such staff pursue other economic activities, such as side businesses, while remaining on the payroll of the national wildlife agency – more rewards for significantly less effort and risk.)

In this situation, the hard-working ranger/scout compares his own effort-to-reward ratio to that of his less motivated colleagues and becomes dissatisfied. In order to re-establish 'equity' he will either seek out options to increase his rewards (e.g. through performance-based salary improvements or incentives), or, if these options are not available, he will reduce his efforts accordingly and may be tempted to engage in illegal activities to increase his income. Importantly, it is the **perceived fairness** of promotions, bonuses, allowances and incentive schemes (and not necessarily the amounts involved) that is absolutely critical for maintaining staff motivation.

Some areas, such as North Luangwa National Park, have developed a two-tier system of rewards. One tier of rewards is based on general arrests and confiscations, which can take time to get back to the ranger/scout as written verification is needed from the police and the court before being submitted to management for approval. However, a separate tier is used for crimes related to rhino or elephant poaching and/or the confiscation of military grade weapons, which, if accompanied by sufficient proof, is paid out immediately. Box 2.14 opposite provides an overview of another incentive scheme used in Gonarezhou National Park, Zimbabwe.

Box 2.14 Patrol Staff Incentive Scheme in Gonarezhou National Park, Zimbabwe

Guidelines for Incentive Payments

Incentives will be paid on discretion. An incentive payment is not a right but a privilege. The following guidelines outline under what circumstances an incentive can be paid.

1. Only arrests made within the boundaries of Gonarezhou National Park (GNP) or arrests made after a follow up on poachers involved in an illegal incident in the GNP will be considered.
2. Only arrests made on a long foot patrol (seven days and more) will be considered. Any other arrests will be calculated at 50% of the bonus as specified in the categories guide.
3. To qualify for the bonus the following steps needs to take place:
 - a) When the arrest is made it should be communicated to the control room that will record it in the **Incidence Book** using the correct Patrol ID.
 - b) The incident should then be recorded in the **Observation Form – Illegal Incidents** with the correct patrol ID.
 - c) An **Incentive Claim Form** will be filled in correctly with all the details provided and correct ID during debriefing.
 - d) The incidence will then be recorded in the **Crime Register Book** using the correct ID.
 - e) The incentive form will then be stapled together with the **Patrol Forms** and it will be submitted to the supervising officer before the end of the month.
4. Only if the above steps are followed will the payment be made. It is the patrol leader's duty to make sure that the steps are followed and that the correct information is provided.
5. Payments will only be considered for arrests made within that specific month or the previous month. No payments will be made in arrears.
6. Payments will be made to the senior wildlife officer who will pay the patrol leader and it is his duty to distribute the bonus.

Categories for Incentive Payments

Category 1

- Arrest of any person who has hunted a rhino or elephant inside GNP.

Category 2

- Arrest of person where it can be proved beyond doubt that the particular person had an intention to hunt a rhino or elephant inside GNP.
- Arrests of any person outside the GNP who is in possession of illegal part of a rhino which is believed to have been killed inside the GNP.
- Arrest of any person in possession of an unlicensed firearm or a firearm that was not declared to management.
- Arrest of any person who has deliberately killed lion, leopard, sable antelope, wild dog, cheetah or roan antelope inside GNP.

Category 3

- Arrests of any person outside GNP who is in possession of illegal part of an animal described in category 2 which is believed to have been killed inside GNP.
- Arrest of any person who has deliberately killed buffalo, eland, giraffe, or zebra.
- Recovering of a fully functional firearm that was used or intended to be used for poaching in GNP.

Category 4

- Arrests of any person outside the GNP who is in possession of illegal part of an animal described in category 3 which is believed to have been killed inside the GNP.
- Arrest of any person who has killed any animal, bird, reptile apart from those specified above.
- Arrest of a person who was checking his/her snare line inside GNP.
- Arrest of a person hunting with dogs inside the GNP.

South Sudan Wildlife Service rangers undergoing basic training in Southern National Park. © WCS.



While individual incentives can help to motivate rangers/scouts in the short-term, experience has shown that performance improvements are better maintained if these types of schemes are combined with (but not replaced by) longer-term rewards linked to team or patrol performance over a longer period of time, typically a year²⁵. This approach proved effective when employed by the South Luangwa Conservation Society in Zambia, and resulted in higher performance improvements than individually-based, short-term incentives alone.

This corresponds well with experience from other sectors which has shown that the use of team-based incentives, if rewards are timely and significant, helps attract and retain high-performing staff, improves motivation and performance, and helps move the organizational culture towards one that focuses on and values high performance. Studies have also shown that comparing performance of different teams to each other and defining team performance targets throughout the year can foster an atmosphere of friendly competition between teams, resulting in dramatic performance improvements⁵.

Staff incentives: success factors

- The limitations of any incentive scheme need to be recognized from the outset: it may make good staff better, but will not make bad staff good.
- A basic level of discipline and good behaviour needs to be established among patrol staff before the implementation of incentives.
- Incentives should be paid on the basis of performance (e.g. arrests or prosecutions) rather than effort (e.g. patrol days).
- The incentive scheme rewards and processes need to be transparent and effectively communicated to all patrol staff.
- The basis for paying out incentives needs to be measurable and verifiable; police and/or court records can be used to help with this.
- The rewards need to be significant enough to motivate patrol staff to exert the extra effort that obtaining them demands.
- Rewards should be paid out as quickly as possible to strengthen the perception of their link to high performance.
- Separating and fast-tracking rewards paid for critical performance, such as actions linked to elephant or rhino poaching, can help avoid payment delays in key cases.
- Longer-term team rewards can be combined with individual incentives to further enhance motivation and performance.

3. Law enforcement management

3.1 Overview

The effective implementation of anti-poaching patrols and other wildlife law enforcement activities depends on a firm foundation of underlying institutional competencies and functions. This includes strong leadership from senior managers, effective operational planning, and efficient systems for organizing and allocating resources. Without such capacities, even the most skilled, motivated and dedicated law enforcement staff will be unlikely to have a significant and sustained impact on illegal activities.

However, institutional capacity in many areas is currently being undermined by shortcomings in both leadership and management. Senior staff are frequently constrained by cumbersome bureaucratic procedures, and are often required to spend significant time away from the areas they are responsible for managing. Furthermore, the development of essential administrative and organizational systems is challenging in areas that are operating under severe resource constraints and that face sustained pressures from illegal activities that require immediate management responses.

By contrast, the organization of poaching groups and networks is typically cellular and dynamic, made up of autonomous groups with little or no direct top-down external control. Inspired by significant potential rewards, such groups are able to plan and rapidly adapt their strategies and tactics in response to changing law enforcement approaches or market conditions. Moreover, the significant profits from such activities enable these groups to easily obtain and organize the resources they require to invest in their activities (i.e. arms, ammunition, transport, etc.).

As such, a key challenge facing many areas is developing and retaining leaders with the skills and attributes to inspire law enforcement staff, establish processes to optimize law enforcement planning, and develop organization systems to efficiently and adaptively allocate the resources for field patrols and other operations. This chapter identifies key issues and steps that can be taken to help ensure that sites have the management and organizational capacity to provide the *leadership*, *operational planning* and *resource organization* that law enforcement operations need.

The following sections provide an overview of five key management needs that have been identified as critical for improving the level of staff inspiration, operational planning and resource organization in an area, and that can make significant contributions to improvements in law enforcement effectiveness.

These are:

1. **Competent and effective leaders**
2. **Proactive and dynamic patrol strategies**
3. **Collection and use of patrol data**
4. **Effective management systems and infrastructure**
5. **Clear and consistent management procedures**

As with other management needs, there are no simple or swift solutions that will result in these desired characteristics. Their development depends on sustained efforts to address a wide range of factors that underlie and influence diverse aspects of an area's management.

3.2 Competent and effective leaders

Effective leadership has been repeatedly highlighted as one of the most critical factors influencing the success of law enforcement operations at the site level. Although it has proved difficult to define the precise qualities that are essential for effective leadership, this section outlines four key aspects. These are: 1) practical experience; 2) management training; 3) decision-making authority; and 4) engagement with frontline staff.

3.2.1 Practical experience

Long-term, first-hand experience of the area and of law enforcement activities can significantly improve the credibility and effectiveness of an area's leadership. One of an area's greatest assets is management that understands the situation on the ground, developed *in-situ* and over a long period of time. This helps ensure that law enforcement strategies are appropriate for the site, are practical, and, ultimately, have a high chance of success.

It is for this reason that in many countries police officers are obliged to spend time on patrol duty, even if they are eventually destined for more senior management positions. Although unglamorous, this experience ensures that senior management is able to relate to issues on the ground, and can understand the circumstances in which front-line staff operate. Where such practical experience of the site is lacking, there is a risk that senior managers will become isolated from patrol staff, and that communication barriers will be increased.

Fortunately, many area managers began their careers as rangers/scouts and have been promoted through the ranks, and may remain in the PA concerned for many years. While this is not without risks, longer tenure in a PA helps senior staff to develop

stronger connections to their subordinates and strengthens commitment to the area concerned. It is for this reason that in some areas administered by NGOs, a five-year commitment is considered an ideal minimum. Increases in management tenure in a protected area should be based on a performance evaluation (see section 2.5.3), ideally including an element of management peer review, such as that used by Ezemvelo KZN Wildlife.

However, senior managers in many wildlife agencies are frequently rotated between sites, in which they may have little or no experience of working. This can be demotivating, undermine their ability to develop relationships with staff, and reduce their personal commitment to a particular area. Critically, it also prevents the development of 'intuition' to identify situations in which conditions stray from the norm (for example, unusual patterns of illegal activities); this intuition can only emerge over years of working in an area.

Box 3.1 Staff tenure: to rotate or not to rotate?

The issue of rotating protected area staff, both managers and patrol staff, is a challenging one for most national wildlife agencies. Apparent benefits include that periodic rotation exposes staff to a greater range of management conditions and environments, thereby creating job diversity for the staff concerned and preventing them from losing motivation or becoming complacent by spending too long in one place. Regular rotation of staff also reduces opportunities for corruption – for example, for managers and patrol staff to establish undesirable relationships with local community members or local politicians (see section 3.6.2).

However, such potential benefits, which are often used to justify the regular rotations that occur in many protected area systems, need to be offset against the significant drawbacks of too much staff movement – including the loss of intimate knowledge of the protected area concerned that staff who have stayed in the area for a long time inevitably develop. Another drawback is that relationships between staff members – manager to patrol members as well as between patrol members – that can take months or even years to build, are inevitably lost when staff move on to other protected areas.

The importance of effective teamwork – between PA leaders and patrol staff and between patrol staff members themselves – is an often overlooked aspect of successful PA management and law enforcement. This is especially the case in situations where decisions about staff deployment are made in distant capital cities by human resource departments that may have little understanding of the crucial importance of local knowledge and inter-personal relationships on the ground, and can easily undo with the stroke of a pen processes that have often taken years to evolve. For this reason, many wildlife agencies need to strive towards a more balanced and informed approach to staff rotation that fully recognizes the drawbacks as well as the benefits associated with this practice.

Practical experience: success factors

- Leaders with substantial first-hand experience of the area and its law enforcement activities have significantly more credibility with staff and are more effective.
- Extended experience in an area is essential for senior staff to develop a valuable sense of 'intuition' of when conditions stray from the norm.

- Career paths should be provided to enable high-performing patrol staff to be promoted to more senior management positions in the PA concerned.
- Extensions in a manager's tenure in a particular protected area should be based on a performance evaluation, which includes peer review and comparison with other areas.

3.2.2 Management training

While, as outlined in the previous section, there are many benefits to be gained by rangers/scouts being promoted through the ranks and ending up in management positions, it is essential that this type of career advancement is accompanied by appropriate management training, focusing on key competencies and effective leadership. In particular, training for law enforcement managers should prioritize key aspects of administration that may not be easily learnt through practical experience in more junior positions, such as managing budgets and human resources, strategic operations planning, effective leadership, and anti-corruption measures.

In order to effectively oversee anti-poaching operations, aspiring law enforcement managers should ideally obtain relevant management qualifications from specialist institutions. For example, the Southern African Wildlife College (SAWC), located on the edge of Kruger National Park in South Africa, offers a variety of specialist qualifications including a Higher Certificate in Conservation Implementation and Leadership. This certificate programme runs over a period of one academic year and aims to provide national and international students with the capacity to effectively perform conservation administration functions, execute conservation management plans, and manage human resources. The programme is accessible to candidates with a high school diploma and is designed to facilitate entry into mid-ranking leadership and supervisory positions in a wildlife law enforcement context.

The College of African Wildlife Management, Mweka (CAWM), located on the southern slopes of Mount Kilimanjaro in Tanzania, offers a Postgraduate Diploma in Wildlife Management aimed at more senior in-service law enforcement staff, such as protected area wardens. The course runs over a period of seven months and is designed for PA management staff from across Africa already holding relevant undergraduate degree qualifications seeking careers as upper rank managers within wildlife agencies, NGOs or private sector organizations. This postgraduate programme covers a range of topics relevant to law enforcement management, including land use planning, project planning, conservation enterprise management and conflict management.

Similarly, a number of postgraduate qualifications aimed at strengthening the law enforcement management capacity and technical skills of senior field staff are also offered in Francophone Africa. For example, IUCN and Senghor University of Alexandria (Egypt) have partnered to offer both short and long-term courses in Ouagadougou, Burkina Faso. In this regard, a two-year Master's degree in Protected Area Management (*Master*

en Gestion des Aires Protégées) is offered alongside an eight-week University Diploma in Protected Area Management (*Diplôme d'Université en Gestion des Aires Protégées*), which has also been replicated in Central Africa in partnership with the WCS-CEDAMM Training Centre in Lopé National Park, Gabon. In addition, the Garoua Wildlife College (*Ecole de Faune de Garoua*, EFG) in northern Cameroon is also set to offer a Master's degree in Protected Area Management (*Master Professionnel en gestion des Aires Protégées*).

Given the increasing need for specialist technical skills, as well as widespread time constraints among in-service law enforcement managers, training institutions across the continent are increasingly offering short courses of a few days to several weeks, focusing on specific management training needs and anti-poaching operational capacity. For instance, in South Africa SAWC offers short training courses in Personnel Management, Project Management, and Transfrontier Conservation Areas Management. Similarly, in Tanzania CAWM offers short courses in Conservation Action Planning, Financial Reporting for Wildlife Management Areas, and Intelligence and Law Enforcement for Modern-Day Poaching, while EFG in Cameroon offers a range of *à la carte* training modules to fit the specific capacity needs of key management staff.

Box 3.2 Management training: key capacity building needs

- Budgeting, financial management and administration.
- Human resource management and strategic evaluation of staff performance.
- Leadership skills, including planning and executions of joint inter-agency law enforcement operations.
- Practical aspects of PA management plan implementation.
- Fundamentals of wildlife and natural resource management legislation.
- Anti-poaching operations management, including intelligence-led operations and coordination of wildlife crime investigations.
- Implementation of anti-corruption systems and strategies.

3.2.3 Decision-making authority

A key principle of good management is that the authority and responsibilities of a position must be aligned. Authority without responsibility can lead to abuses of power, while responsibility without the authority to influence situations can be demoralizing. This is particularly important for senior protected area managers that have significant resources under their control and operate in a relatively loose supervisory environment with only periodic inputs from supervisors in national headquarters.

Unfortunately, a degree of mismatch between these two factors has developed in many protected area systems with highly centralised decision-making, particularly with regard to human resources decision-making. In some cases the ability of area managers to recruit suitable staff, promote high-calibre personnel or discipline poor performers is very limited, which can lead

to a decline in the overall capacity of an area's ranger force (as discussed in section 2.5.4). In other areas, site-based staff may be transferred or rotated between areas on orders from headquarters, without senior management approval or even knowledge.

In such cases, a re-examination of the balance between senior staff authority and responsibility can contribute to improvements in operational effectiveness. At present, slow bureaucracy and centralized decision-making processes often prevent managers from providing strong and decisive leadership. In general, more autonomous areas where site managers have more authority appear to experience less internal disruption and higher staff performance (although these areas are often also better funded than many centrally managed areas).

Decision-making authority: success factors

- To be effective, the authority and responsibilities of senior area management positions must be aligned; responsibility for management situations without the authority to influence those situations can be demoralizing and lead to poor management outcomes.
- A re-examination of the balance between senior staff authority and responsibility (particularly regarding recruiting, retaining or removing staff) can improve operational effectiveness.
- In general, more autonomous areas where senior site managers have more authority appear to experience less internal disruption and higher staff performance.

3.2.4 Engagement with frontline staff

Visible senior management involvement in day-to-day law enforcement activities provides inspiration, motivation and clear direction to patrol staff. It can help senior managers develop a better understanding of the practical issues that rangers/scouts face and build positive relations with staff. Studies have shown that the relationship between frequency of visits to patrol outposts by senior staff and the number of serious offences encountered per patrol is highly significant, with poaching sharply declining as the regularity of visits increases⁵.

Unfortunately, many area managers, especially those working in centrally-managed, national institutions, are burdened with other obligations, and may have to spend significant amounts of time away from the field in national capitals attending meetings or addressing administrative issues. This is compounded by the fact that career progression in many of these institutions is often headquarters-centric, rather than based on performance in the field. As such, many rangers/scouts rarely, if ever, meet senior managers during the course of their regular duties.

The resulting distance between management and frontline staff is not unique to wildlife institutions and has long been recognized in the private sector. This has been addressed in many successful companies by managers making spontaneous visits to employees in the workplace. This has become a common practice known as 'Management By Walking Around' (see Box 3.3 over). This approach of in-person engagement and demonstrating an interest

Box 3.3 Management By Walking Around (MBWA)

MBWA is the unstructured approach to hands-on, direct participation by the managers in the work-related affairs of their staff. In practice, this means managers spend a significant amount of their time making informal visits to work areas and listening to the employees. The purpose of this approach is to collect qualitative information, listen to suggestions and complaints, and keep in touch with prevailing sentiments and attitudes in the organization.

The potential benefits include:

- Approachability – When staff see management regularly they are more likely to be open with them. This can increase the likelihood of learning about issues before they become serious problems.
- Trust – As management and staff interact more frequently trust will naturally develop. This should improve communication and reduce workforce disruption.
- Knowledge – Regular management visits to different parts of an area gives an unparalleled understanding of the situation on the ground and potential issues.
- Accountability – Frequent interactions make any agreements made more likely to be respected. Because of regular meetings, all parties are more motivated to follow up on commitments.
- Morale – Staff often feel better about their jobs and their organization when they have opportunities to be heard. Regular interactions make such opportunities available.
- Productivity – Many creative ideas come from casual exchanges. Regular visits promote casual discussions, and enable staff to approach management with ideas and suggestions.

Although unstructured, MBWA does require a determined and genuine effort on the part of managers to understand staff, their work, and what can be done to make their work more effective and conditions better. Studies have shown that focusing on easy-to-solve problems, rather than entrenched issues, is most associated with improved performance as it results in greater action on the part of management.²⁶

in staff can be particularly important given the difficult and sometimes dangerous environmental conditions in which many rangers/scouts operate.

Linked to spending time in the field with staff is the ability of managers to empathize with staff needs, issues and concerns. Some researchers have identified empathy as the most important trait that a leader can possess;²⁷ it has been highlighted as particularly important for relations between senior area managers and patrol staff. Empathy implies that, through openness to learning how their staff feel, managers are better able to understand and respect their needs.

This level of understanding is key to establishing trust, and builds faith in staff that managers will take their feelings into consideration when making decisions. Although at odds with the traditional hierarchical nature of many working relations in protected areas, developing this understanding can also help managers make more efficient use of resources by enabling them to better target staff needs, which in turn can further strengthen relationships, increase collaboration and improve overall performance.

Engagement with frontline staff: success factors

- Visible senior management involvement in law enforcement activities is essential for providing inspiration, motivation and clear direction to patrol staff.
- Spontaneous senior management visits to employees in the workplace have become a common practice in many successful companies (i.e. Management by Walking Around).
- The ability of managers to empathize with staff needs, issues and concerns is critical for forging positive and constructive relations.
- Improved understanding resulting from increased manager-staff contact can help managers to use resources more effectively and better address staff needs.

3.3 Proactive and dynamic patrol strategies

Although routine foot patrols form the backbone of law enforcement efforts in most areas, law enforcement activities need to be proactively developed and remain dynamic if they are to be able to anticipate and respond to changing situations on the ground. Two key aspects have been identified as important for achieving this. These are: 1) using pre-emptive and strategic planning to guide future activities; and 2) making use of a range of complementary law enforcement tactics and approaches. These aspects are discussed in the following sections.

3.3.1 Pre-emptive strategic planning

The proactive planning of law enforcement activities provides an opportunity for area management to take stock of changing patterns of illegal activities and assess the effectiveness of past law enforcement activities. Importantly, it can also provide an opportunity to review emerging threats, key management risks and critical gaps in capacity, skills, equipment and infrastructure that need to be addressed. This information can provide the basis for adaptations designed to improve the effectiveness of law enforcement activities over future years.

Studies have shown that proactive assessment of law enforcement effectiveness is essential as poacher tactics continually evolve in response to any changes^{28 29}. For example, in Kruger National Park it was noted that rhino poaching increased during full moon periods. Management responded by increasing patrols during this time. However, subsequent analysis showed that poachers had countered this move by shifting their activities to dark moon periods. (This example also illustrates the importance of law enforcement monitoring for effective planning, discussed in section 3.4.)

However, in many areas, law enforcement efforts are not reviewed and planned in such a way, and foot patrols continue to be implemented without a formal review, assessment or adaptive planning process. This can reduce patrol planning to a largely reactive process responding to threats that have emerged, rather than proactively anticipating and responding to changing conditions. Although immediate pressures can make

it difficult for management to make time for strategic planning, if approached in the right way and provided information is available, the process does not need to take up an excessive amount of time.

The development of a medium-term law enforcement plan has been used in some areas as a mechanism to focus and direct law enforcement patrols. The development of this document helps ensure that management effort is based on all available information, provides a set of clear and achievable common goals that can be used to improve the motivation and commitment of area staff, helps to preserve institutional memory if senior staff leave or are transferred, and can be used for assessing the effectiveness of law enforcement efforts against specific performance targets.

In some areas, such as Bangweulu Wetlands in Zambia, proactive planning has been achieved by developing a three-year law enforcement strategy, which is then updated every year. The document draws heavily on the information and data gathered from various sources over the planning period (e.g. ranger data collection, section 3.4 and/or poacher interviews, section 4.4). The resulting plan sets out specific objectives for the year, based on an analysis of illegal activities and law enforcement patterns collected from the previous year, and a series of activities that are designed to achieve these objectives.

Alongside the objectives, a typical plan can contain activities relating to patrol planning, use of complementary approaches (see below), equipment to be purchased, training to be carried out, and activities focused on species that require special protection. Each activity is accompanied by a 'SMART' indicator (Specific, Measurable, Achievable, Relevant and Time-bound) that can later serve as a basis for evaluation and is allocated to a particular staff member for implementation. A document with this level of detail also has the benefit of providing a basis for budgeting, if appropriate.

Although it may take some time to set up the initial document structure and gather the information for the first three-year plan, the annual revisions can simply be inserted into this document keeping the plan up-to-date and relevant and avoiding the need for lengthy re-writes. In addition the presentation of information using maps (e.g. for illegal activities and patrol effort) and the use of tables rather than text for activity planning can help reduce the time it takes for preparing and updating the plan. Involving all senior law enforcement staff in its development will also help improve overall awareness of the plan.

Pre-emptive strategic planning: success factors

- Good information collection and analysis on law enforcement efforts and illegal activities is critical to effective planning.
- Strategic planning should focus on medium-term goals that are the focus of efforts over the next one to three years.
- The plan should be kept as short and simple as possible, using maps, graphs and tables to reduce the text needed.

- If activities are included, they should ideally be accompanied by a timeframe, specific responsibility for implementation, and a SMART indicator.
- Involving all senior law enforcement staff in plan development builds awareness of its contents (even if it is not reviewed by them again during the year).
- The plan's objectives can be used as a focus for generating staff motivation and commitment around a common, achievable set of goals.

3.3.2 Adaptable and diverse tactics

As noted above, poachers quickly become accustomed to law enforcement approaches and it is essential to keep approaches dynamic and unpredictable if they are to remain effective. Although extended, multi-day foot patrols are likely to continue to form the foundation of law enforcement activities in most areas, the patrols themselves can be adapted in response to changing circumstances, and a variety of other law enforcement approaches and tactics can be employed to complement a robust regime of foot patrols in an area.

However, despite the increasing range of options for diversifying law enforcement efforts, many of them have only been implemented in a limited number of areas. While to a degree this can be ascribed to the additional resources that some of the approaches require, in other cases it is due to a lack of awareness of their potential positive impacts on law enforcement efforts or as a result of institutional inertia in taking advantage of new opportunities. The following sections provide an overview of some of the most common tactics that have been employed and that have demonstrated success in a number of sites.

Different patrol types

Alongside standardized multi-day law enforcement foot patrols, which form the mainstay of law enforcement activities in many areas, there are a number of adaptations or complementary patrol types that have been used to significantly increase the effectiveness of law enforcement activities. The utility of these approaches depends to a large degree on the nature of the poaching threat and the environmental conditions in the site concerned (and the management resources available). However, Table 3.1 over lists a variety of commonly used patrol types that have proved effective in a number of areas.

Different patrol types: success factors

- If logistics allow, restricting patrols within a maximum of seven/eight days can help keep effectiveness high, and avoid reducing the last few days to a 'route march home'.
- Static observation posts should be avoided as they can easily become known to poachers.
- Motorbike-assisted patrols (ideally utilizing at least three bikes) enable a rapid response for pursuing poachers and can be used to effectively demonstrate management presence in an area.
- The involvement of senior staff in vehicle-assisted patrols helps build motivation and strengthens management-staff relations without taking up excessive amounts of management's time.
- Aircraft support can be effective for guiding rangers/scouts on foot (and particularly motorbikes) but good communications and training are essential.

Table 3.1 Complementary patrol types commonly used to increase law enforcement effectiveness

Patrol type	Description and typical uses
Variation of foot patrol duration	Studies and experience have shown that in many cases the effectiveness of foot patrols remains high up to around eight days, after which it declines ³⁰ . Varying the typical length of foot patrols is a simple way to enhance ranger/scout work routine and to adapt the intensity of patrol efforts to improve effectiveness in specific parts of an area. E.g. Studies from Kafue National Park Zambia, and experience from North Luangwa National Park, Zambia.
Mobile Observation Posts	The primary objective of an Observation Post (OP) is to locate and observe poachers and/or monitor their movements. A small team, of as few as two men, can effectively observe a relatively large area if equipped appropriately (ideally with spotter scopes, thermal imaging and a VHF radio). This approach has been used effectively in a number of areas, including Lewa Wildlife Conservancy, Kenya.
Motorbike assisted patrols	Patrols on motorbikes are primarily effective as a deterrent to poaching as they are noisy and demonstrate management presence in an area, and can also be effective when used for pursuing poachers. They enable a rapid response, and can be especially useful (compared to foot patrols) when combined with air support (<i>see below</i>). Motorbike patrols have been effectively used in Bangweulu Wetlands, in Zambia. Ideally they should be made up of at least three bikes, as the final pursuit and apprehension will be on foot and one ranger/scout will need to remain with the bikes.
Vehicle assisted patrols	These usually take place over three or four nights, and involve vehicle-assisted deployment of patrol staff that set up a night ambush in a key location each night. Vehicle presence improves staff confidence in case of a nocturnal contact; and if senior managers take part (<i>see Box 3.3 on MBWA, above</i>) this can also improve staff motivation and internal relations without using up significant amounts of management's time. They have been used in Bangweulu Wetlands, Zambia.
Aircraft assisted patrols	The use of an aircraft (fixed wing or helicopter) gives management a significant operational advantage. An aircraft is particularly effective for general surveillance, monitoring patrol staff activities, and for coordinating ground patrols in pursuit of suspects (however, to be effective this requires practice and good ground-air communications). Aircraft-assisted patrols have been used effectively in Lewa Wildlife Conservancy, Kenya and other areas.

Elite or Specialist Units

Elite units are made up of a small number of the highest performing rangers/scouts in an area. They are typically based at headquarters and provide management with a valuable resource that can be rapidly deployed to address incidents throughout the site. A small group of highly skilled, motivated and dedicated rangers/scouts can also be used to lead elements of in-service training (see section 2.2.3), and to verify the activities of the rest of the patrol force. The existence of such a unit can also provide an aspirational career path for patrol staff with high motivation. Many areas have successfully developed and utilized elite or specialized units, and integrated them with their law enforcement operations (some countries, such as Kenya, have also recently developed elite units at the national level). In KwaZulu-Natal in South Africa and Malilangwe in Zimbabwe, the elite units are kept very small (typically 8–18 men) and focused on responding rapidly to incidents. While elsewhere, such as North Luangwa National Park, a larger number of high-performing patrol staff (around 36) has been selected to focus on providing protection for rhinos.

Regardless of the specific purpose of an elite unit, if it is to be effective, and be able to attract and retain the most suitable staff, appointment to the unit needs to be perceived as prestigious and attractive. As such, measures need to be taken to offset the inconveniences of the position, which can involve being on call 24-hours a day, a much greater amount of time spent in the field than a typical ranger/scout, and the increased risks associated

with the significantly higher probability of being involved in an aggressive encounter with poachers.

These issues are often offset through increased basic salaries for members of the elite unit; in many cases this is combined with either field allowances, overtime or other top-ups, all of which serve to increase the attractiveness of appointment to the unit. In addition, members of the unit typically receive additional training and are provided with the best field equipment and most effective firearms available. Box 3.4 provides an example of the training and equipment provided to the specialized rhino protection unit deployed in North Luangwa National Park.

In addition to being seen as attractive and prestigious, an elite unit also needs to be perceived as distinct from the regular patrol force. As such, members of the unit are typically housed separately from other patrol staff, and report directly to the area manager (who should ideally have a personal relationship with all members of the unit). Some area managers have combined this with other approaches to enhance cohesion, such as branding the unit with a striking name (along the lines of the 'Hawks' in the South African Police Force) or printing T-shirts for all unit members.

Two main approaches have been used to recruit staff for such units. Some area managers strongly prefer to recruit staff from outside the regular patrol force as this strengthens the separateness of the unit (this is especially important if the unit is being used for internal controls and checks). Whereas other

Box 3.4 The Rhino Protection Unit, North Luangwa National Park

Zambia once held Africa's third largest black rhino population until the poaching throughout the 1970s–80s resulted in their 'national extinction' in 1998. However, in 2003 efforts began to translocate black rhino back to Zambia's North Luangwa National Park. Wildlife agencies across South Africa donated 25 individuals and, by 2010, all the animals had been released into a sanctuary in the centre of an Intensive Protection Zone. As of 2014, there has been no poaching of black rhino. The establishment of the elite Rhino Protection Unit in the park aims to ensure that this remains the case.

The unit is made up of 36 rangers/scouts selected from the regular patrol staff that have been divided into six squads of six men. All of the men have received three weeks 'Specialized Rapid Response Tactical' training by former members of the British special forces, with patrol commanders receiving an additional seven-days training to enhance their daily operational management of staff, field deployments, and use of tactics involved in planning and conducting operations. Two members of each squad have also undergone training in field first aid and advanced trauma management.

A significant part of the advanced training was linked to use of the advanced equipment provided to the unit. This includes regular basic field equipment, solar charging equipment to enable 24-hour radio contact, GPS, long-range optics ('spotter scopes') and thermal imaging equipment for use in night operations. In addition, each ranger scout is issued with a minimum of two bandages and a combat tourniquet, and each patrol has a more comprehensive patrol medical kit that can be used by staff trained in advanced first aid and trauma to mitigate a wide variety of injuries.

The result is a unit comprised of six squads of six highly skilled and motivated individuals, each of which can operate autonomously once deployed. Strong leadership at the patrol level and the close relationship with senior area managers further enhances the effectiveness of the unit, while the knowledge of first aid and trauma management gives members additional confidence. In the near future it is hoped that an additional 12 men will join the unit bringing it to full strength, and members will be selected for driver training to optimise use of a dedicated vehicle to support unit operations.



Training in the use of long-range optics for use in observation posts.
© CDC



Field equipment issued to rhino protection unit staff. © CDC

managers prefer to select the highest performing members from within the regular patrol force, which has the advantage of providing a career path that high-performing regular staff members can aspire towards.

Once appointed to the unit, it is important that membership remains performance-based in order to maintain high standards. In theory, the assessment of performance should be based on an objective evaluation (see section 2.5.3); however, in reality the close relationships between senior managers and unit staff should also inform any decisions. Ideally appropriate positions would be found for aging unit members which make optimal use of the skills they have developed, such as training or supervisory positions, rather than 'demoting' them to the regular patrol force.

Elite units: success factors

- Appointment to the elite unit needs to be seen as prestigious and attractive; enhancements in benefits, additional training and good equipment can help achieve this.

- Keeping the unit's staff in separate accommodation from regular rangers/scouts, and with direct reporting lines to senior management helps build the unit's distinction.
- Ideally, senior managers should have a personal relationship with all members of the unit; this helps build commitment and ensure that performance standards are maintained.
- Membership of the unit should remain a privilege that is earned, not a right; under-performing staff members need to be reassigned back to regular duties or retired into supervisory positions.

Canine Units

The potential of working dogs to support police, customs and military law enforcement operations has long been recognized. Similarly, in recent years wildlife management agencies, NGOs and private wildlife managers across Africa have also increasingly been using canine units as part of their wildlife law enforcement strategies, including their use for apprehending poachers and recovering illegal weapons, ammunition and wildlife contraband. Alongside actual operational improvements in the effectiveness of wildlife law enforcement operations, the use

of working dogs can also provide a significant psychological advantage and deterrent to wildlife crime throughout an area.

Wildlife law enforcement dogs fall into two primary categories: detection dogs and tracking dogs. Detection dogs are trained to respond to specific scents, i.e. they search for targets by sniffing odour from objects (such as vehicles, vegetation, walls, doorways, and people) until they encounter the scent they are looking for. Individual detection dogs may be trained to recognize multiple scents such as ivory, rhino, various types of bushmeat, firearms, ammunition, and skins. On the other hand, tracking dogs are trained to follow the scent of an individual person (e.g. a poacher) across a landscape. Depending on factors such as terrain, temperature, humidity, wind, and the age of the tracks, tracking dogs can follow scents for up to 10 km³¹.

Tracking dogs can sometimes also be used in a restraining function when detaining tracked suspects requires force. In this regard, some law enforcement experts use the term 'attack dogs' to refer to elite tracker dogs, typically Belgian Malinois or German Shepherds, trained specifically to chase, seize and forcibly immobilize a suspect. Attack dogs have been credited with anti-poaching successes in South Africa's Kruger National Park, and are among the services offered by some environmental security consultancies operating in Africa. However, in much of Africa the use of attack dogs remains limited due to legal uncertainties and ethical concerns.

Detection, tracking and attack dogs are all currently being used for wildlife law enforcement in various parts of Africa, with varying degrees of success. According to the Assessment of Detection and Tracking Dog Programs in Africa carried out by Working Dogs for Conservation in 2015³¹, several challenges related to insufficient capacity and funds limit the effective deployment of canine units across the continent. A key problem in this regard are the high start-up costs, which need to include the construction of secure kennels, intensive staff training, and the acquisition of dogs, handlers, support staff and dedicated vehicles with specialized transport crates.

Unfortunately, not all working dog programmes in Africa are able to make adequate investments. As a result, many canine units are run without access to critical ongoing training for handlers and dogs, and some also lack sufficient resources to provide adequate equipment, veterinary care and specialized high protein food for the dogs. The decision to establish a canine unit should therefore only be made with a full understanding of the scope and extent of the investment needed. In this regard, the minimum resources for the effective operation of a canine unit identified in the 2015 Assessment of Detection and Tracking Dog Programs in Africa³¹ carried out by Working Dogs for Conservation are summarized in Box 3.5 opposite.

Emerging technology

The use of new technology to support wildlife law enforcement efforts has received an increasing amount of attention in recent

Box 3.5 Minimum resources for effective operation of a Canine Unit

Kennels

- A well-built kennel with shade, quiet, clean water and room for dogs to exercise, room for privacy and surfaces that can be cleaned easily.
- Security, 24 hours a day.
- Kennel supplies for cleaning, grooming, feeding dogs and maintaining a safe, secure kennel.
- Veterinary supplies for minor injuries, parasites, etc. and a trained kennel guardian or handlers able to care for dogs seven days/week.
- Veterinary care available with possible evacuation to a veterinarian in emergencies.

Training

- Well-selected handlers and backup handlers with several months of initial training.
- Refresher training for handlers and dogs, at least four times a year.
- Access to training samples so dogs are exposed to an adequate number of scents during initial and refresher training.
- Dog rewards for training and deployment.

Operations

- Dog equipment, including travelling crates, food and water bowls, collars, leashes, harnesses or vests, booties, water vessels to make water available to dogs while working, shade cloth for covering crates if a vehicle does not provide adequate shade.
- Access to a vehicle for training and transport to sites.
- Strong links with national law enforcement agencies to facilitate use of evidence produced by canine unit.
- Secure and reliable coordination for canine unit to interact with national law enforcement and for deployment.
- Training for canine unit staff in proper and legal search and seizure techniques in accordance with national law enforcement regulations, including chain of command for confiscated contraband.

years as poaching has escalated throughout the continent, and the potential for transferring technology that has been initially developed for military purposes to support wildlife law enforcement operations has increasingly been investigated. Table 3.2 opposite provides a short summary of the most frequently discussed approaches that have at least been piloted in one or more areas in Africa.

At present, most of these approaches are in the early pilot stages, and it is too early to assess their effectiveness. However, the majority of area managers consulted felt that the potential of most of these approaches was limited in typical African circumstances, due to the high cost and the level of expertise required for their implementation. Although possibly due to a lack of knowledge of their potential benefits, many site managers felt that resources at the site level are better directed at strengthening the effectiveness of patrols, operations management and the use of intelligence methods.

As part of its intensive efforts to halt rhino poaching in Kruger National Park, which has included moving rhinos to rhino protection zones, South Africa National Parks has recently

Table 3.2 Emerging technology

Approach	Description and typical uses
Unmanned aerial vehicles ('drones')	The use of drones for monitoring environmental crime such as poaching and illegal logging has been applied in Africa, Asia and South America. At the end of 2012, Google awarded a US\$5 million grant to the World Wildlife Fund (WWF) to pilot the use of drones, alongside other technologies, to track wildlife at risk of poaching. This technology has recently been piloted in Namibia by the Ministry of Environment and Tourism and WWF and by SANParks in Kruger National Park, South Africa.
Acoustic traps ('echo' technology)	Used to monitor sound waves for sharp noises such as gunshots, chain saws, truck engines, blasts, or airplane engines. Most systems consist of unattended sensors that can be stationed throughout an area to triangulate the source of suspicious sounds and provide accurate real-time information on the precise location of the sound. They can be equipped to automatically deploy unmanned aerial devices to collect footage. Piloted in Kruger National Park, South Africa.
Camera traps	Camera traps traditionally used for monitoring wildlife have been adapted to track the movement of poachers. This has become increasingly viable with recent improvements in the specifications of some camera trap models, which come equipped with live video feeds, triggers based on heat or vibration, and use of thermal imaging or infrared cameras. Currently being piloted in Tsavo West National Park, Kenya.

embarked on a comprehensive programme to test the usefulness of a range of new technologies designed to support law enforcement efforts, with generous financial support provided by the Buffett Foundation and other donors. Although the exact details of these technologies and how they are being deployed is being withheld to ensure that this information does not come into the hands of poachers or criminal gangs, they potentially include thermal imaging equipment, unmanned aerial vehicles or drones, helicopters, radar surveillance and detection systems, stationary balloons, and microchips. It is relatively early days for assessing the results of the different technologies, but the outcomes of this programme will in due course help to inform their possible adoption in support of anti-poaching efforts elsewhere in Africa.

3.4 Collection and use of patrol data

The planning and management of law enforcement efforts should ideally be based on objective and reliable spatial and temporal information on illegal activities and law enforcement efforts. Two key aspects have been identified as important for achieving this ideal. These are: 1) the effective collection and analysis of data; and 2) ensuring this information is provided to management and incorporated into operational planning. These aspects are discussed in the following sections.

3.4.1 Data collection and analysis

The importance of using data collected by patrol staff as part of their regular patrols has long been recognized. If properly implemented, the information generated can be used to assess both the effort invested in and effectiveness of law enforcement patrols, provide management with an overview of the extent and intensity of illegal activities in an area, and offer valuable information on key aspects of the site, such as location of key species, incidences of fire etc., all of which can help improve the planning and implementation of law enforcement operations.

There is a relatively long history of ranger-based monitoring (RBM) in Africa, and a number of common features of successful RBM systems have emerged. These include: ensuring the system has clearly defined information requirements to avoid overburdening patrol staff and 'data swamp' during analysis; using data recording forms that are designed to enable completion by patrol staff with little formal education; and keeping any data collection equipment simple, robust (ideally dust and waterproof) and easy to maintain or replace (see Box 3.6 over).

Once collected, RBM data needs to be collated in a database, analysed and used to generate management-orientated information. It is critical that this database is simple to use and can be managed at the site level where information technology equipment and skills are commonly limited. Fortunately, a variety of systems have been developed over recent years to facilitate the collation of relevant data, and have been implemented with varying degrees of success in a number of areas across Africa. A summary of the most common is provided in Box 3.7 over.

Regardless of the RBM data collection and analysis methods used, the successful implementation of any RBM system relies heavily on appropriate staff training and back up. For patrol staff this is often reasonably straightforward, and focuses on improving understanding of the system's purpose and functions, the use and maintenance of data collection equipment, the completion of patrol forms, and procedures to ensure the data enter the system following the completion of patrols. Ideally, as with other aspects of ranger/scout training discussed under sections 2.2.2/2.2.3, this training should also take place *in-situ*.

Equally important is building sufficient capacity for staff to manage data collation and analysis at the site level; however, in many areas this has proved more challenging. Although, once a system has been set up, only basic computer skills are typically required, staff with IT capacity are often in high demand, and it has been difficult to retain them in many areas as they are often

Box 3.6 Common equipment used for RBM data collection

Handheld GPS

A handheld, basic GPS navigation device is the most common equipment used by patrol staff to collect RBM data. In the majority of circumstances only the most basic features are needed (i.e. the ability to take 'waypoints' and record a 'tracklog'). As such, low-specification devices are generally sufficient and can be purchased relatively cheaply. GPS' are relatively robust, typically use standard AA batteries, and some more recent models are small enough to remain permanently attached to a ranger/scout's wrist. However, in many cases their operation is not particularly intuitive or user-friendly, and their limited data recording capacity necessitates the use of complementary patrol forms.

An even simpler GPS device is the Trackstick® and similar devices. These are small display-less GPS trackers resembling a USB memory stick or dongle. The Trackstick is turned on at the beginning of a patrol and records the patrol track into its memory, with tracking data downloaded by USB to a computer later. Lacking a display, battery life is relatively good, with potentially as much as a week's duration on two AAA batteries. However, the lack of a display also means that GPS waypoints cannot be recorded manually on patrol forms as with normal GPS devices, and patrol staff may feel that the devices are mainly intended to allow managers to spy on them, or they may fail to notice when they are not functioning properly.

Trimbles

A significant step up from a basic GPS device in capacity (and price), Trimbles are promoted as an 'all-in-one mobile solution'. They are effectively a combination of a GPS device, digital camera, PDA, and mobile phone. As such, they are able to provide location data through their GPS, geo-referenced digital images, are compatible with RBM software (see Box 3.7 below) reducing the need for patrol data forms, and can be used to make phone calls and transfer data over a cellular mobile network. Some models are also specifically designed to cope with rugged field conditions, and have battery life that is only slightly lower than a typical handheld GPS device.

Smartphones

The potential use of smartphones as an effective alternative to dedicated GPS devices or Trimbles is increasing as their prices continue to decline and specifications increase. Smartphones with many of the desirable features of a Trimble (e.g. GPS, camera, cellular access, and compatibility with RBM software) can now be purchased for a fraction of their cost. Although these phones may lack the robustness and high degree of accuracy a Trimble provides, in the vast majority of cases this is acceptable. As technology and battery life continue to improve, the future use of smartphones for RBM data collection is likely to become increasingly important.



Basic GPS devices have commonly been used to collect RBM data. © FZS



Trimbles provide a robust, comprehensive RBM collection method, but are expensive.

redeployed to other duties or transferred to other areas. For truly effective input and analysis, each site also requires multiple staff with sufficient skills (to cover absences, leave, etc.) to prevent a backlog of data developing.

Lastly, a number of area managers noted that the use of an RBM system itself can encourage improvements in patrol effort and effectiveness, as patrol staff know that the results of patrols are regularly reviewed by senior area management (this corresponds with experience from other sectors; see Box 3.8, facing page, on the Hawthorne Effect). Studies have also shown that providing feedback to rangers/scouts on the effectiveness of different units can help foster an atmosphere of friendly competition with sometimes dramatic impacts on law enforcement effort and effectiveness⁵.

RBM Data collection and analysis: success factors

- The RBM information collected needs to be well focused and demand-driven to avoid overburdening patrol staff and

complicating analysis. Large amounts of data can rapidly accumulate.

- Data collection forms need to be as simple as possible with the minimum amount of writing required. Use of check boxes, tables etc. on the forms can help achieve this.
- Hardware used to collect data needs to be simple, robust (ideally dust and waterproof), and easy to maintain or replace.
- Reliable computers and power are essential for managing the RBM database. RBM software must be sufficiently user-friendly for timely and accurate data entry and report production.
- Multiple staff (to allow for leave and absences) with data collation and analysis skills need to be trained and retained at each site. Rapid staff turnover has a significant potential of undermining RBM data entry and reporting capacity.
- Continually using the same staff for data management and analysis can help develop the skill to identify potential issues and interpret emerging trends.
- Patrol debriefings should be routinely carried out to verify data collected by patrols. Providing feedback from RBM outputs (e.g. maps or diagrams) to patrol staff collecting the data can help strengthen motivation and improve the quality of the information collected.
- The implementation of an RBM system can itself lead to improvements in law enforcement patrol staff effort and performance.

Box 3.7 Common systems for collating and analysing RBM data

Management Orientated Monitoring System (MOMS)

MOMS was developed in southern Africa to enable communities to monitor aspects of their conservancies. A distinctive feature of the system is that the community dictates what needs to be monitored and undertakes all data analysis. The system is based on a series of different coloured forms that can easily be completed by community members with minimal education. Aggregation of the data occurs at the site level, and is based purely on the forms completed by community members with no need for computers or other equipment. Over 30 conservancies and at least six national parks in Namibia have adopted the system.

MOMS

Cybertracker

Cybertracker software was originally developed to enable illiterate trackers to record wildlife data on hand-held computers. Since then it has been adapted significantly to support operations in a wide range of sectors, and has been used extensively by wildlife agencies in South Africa. Its main strength has been to support collection of 'front end' data through a user-friendly interface on handheld devices such as Trimbles and smartphones. Complementary PC software also provides data analysis, including maps of incident locations, patrol routes etc. in a format that can be used by area managers. The software is free and can be adapted to suit the needs of a particular area or organization. It is also compatible with SMART (see below).



Management Information SysTem (MIST)

MIST has been specifically designed to service protected area management needs, providing a standardized, computer-based system for recording wildlife and human activities during ranger patrols. The data entry and analyses are designed to be simple. Outputs include ranger patrol coverage, wildlife encountered, and standardized indicators that allow trends in patrol activities to be tracked over time. Although its developers have placed it into long-term support (i.e. no new development), MIST remains the standard system for many areas and countries. The software is free.

MIST

Spatial Monitoring and Reporting Tool (SMART)

SMART has been specifically developed for measuring and evaluating the effectiveness of wildlife law enforcement patrols and is being used globally in more than 140 sites across 30 countries. Development has focused on the 'back end' data input and analysis, compatibility with the range of hardware used for data collection, a user-friendly interface, and on generating maps and reports in a format that can be used by area managers. The software has been designed to enable analysis at the individual outpost, the area, or the national level. SMART is fully compatible and can easily be used with existing RBM tools. Mobile data collection is enabled through a Cybertracker plug-in. The software is free and open source and SMART is backed by a global consortium of eight conservation agencies.



Open Data Kit (ODK)

Open Data Kit (ODK) is a set of tools designed to help users to easily build data collection forms or surveys (which can be based on simple Excel spreadsheets), collect data on a mobile device (including GPS coordinates and images), and to consolidate and then extract data in a number of formats. ODK enables collected data to be rapidly visualized with Google Maps and a range of simple graphs. The ODK platform is free and open source, and is supported by an international community of software developers and data analysts.



Box 3.8 The Hawthorne Effect

The Hawthorne Effect is a psychological phenomenon in which people change their behaviour or performance in response to being observed. In the workplace, the Hawthorne Effect explains how the more attention an employee receives, the higher the level of effort and productivity. Essentially, productivity increases when employees think that they are being watched or observed closely. The effect was first described in studies carried out at the Hawthorne Works electric company. The company commissioned research to determine if there was a relationship between productivity and the work environment. The focus of the original studies was to determine if increasing or decreasing the amount of light workers received would have an effect on worker productivity. Results showed that productivity increased when the light was increased, and when it was decreased! And plummeted after the experiment was over. Researchers showed that the increases in employee productivity were due to the additional attention staff were receiving, and not because of changes in any environmental variables.

3.4.2 Feedback and use of RBM information

Providing management with concise, relevant information that can be used to inform decisions is arguably the most important part of any RBM system. If done effectively, information from patrols can provide area managers with a valuable resource informing both the short-term tactical deployment of patrols, and the medium-term strategic planning of law enforcement priorities and approaches. However, despite its importance, providing this feedback to management in a timely and appropriate format has proved difficult to establish and maintain in many areas.

With regard to short-term operational planning, the challenge of collecting the data from patrols, analysing it and then providing information to management in time to inform adaptive management has been hard to overcome in many areas; even achieving this turnaround on a monthly basis has proved impossible in most cases. This is often due to the logistical

difficulties inherent in large and remote areas, which are frequently compounded by a shortage of staff with the skills to input and analyse the data (discussed in the previous section).

Areas where such information has successfully been used to inform short-term management, for example Grumeti Game Reserve, in Tanzania (where it occurs on a weekly basis), are typically small, well-equipped with vehicles, and have senior managers that place a high priority on the use of the data. In other larger areas, such as Gonarezhou National Park, Zimbabwe, some monthly management-orientated reports have been generated; however, it has proved challenging to include data from all patrols due to logistical difficulties and the reassignment of staff responsible for data management.

In some areas with cellular coverage, such as Hluhluwe-Imfolozi Game Reserve in South Africa, managed by Ezemvelo KZN Wildlife, real-time information transfer has been achieved using a combination of Trimbles, Cybertracker and a novel 'reporter' software that automatically reviews all data, and generates reports. This has achieved 'complete automation in monitoring patrol data and its seamless delivery through to the organization's existing databases'. However, reaching this stage took over two years of dedicated work and a level of investment in equipment that is well beyond most areas.

Although some RBM systems are investigating the use of techniques such as cloud computing to overcome logistical difficulties, such approaches are unlikely to be suitable for the

majority of areas in the foreseeable future. As such, patrol data has more typically been used for elucidating long-term trends, which have then informed medium-term strategic operational planning (as discussed in section 3.3.1). Box 3.9 below illustrates how information generated from patrol data has been used to inform medium-term planning of law enforcement operations in North Luangwa National Park, Zambia.

However, if the RBM system is to be successfully used to support such medium-term planning, it is essential that it is designed to address the specific needs and information requirements of area managers. In some counties, such as Gabon, the system has primarily been used to measure and evaluate the level of law enforcement effort in different protected areas against national standards. While this may provide staff in headquarters with information they need to monitor area performance, much of the potential operational benefit from the system, and support for its implementation, may be lost at the site level.

Use of other information

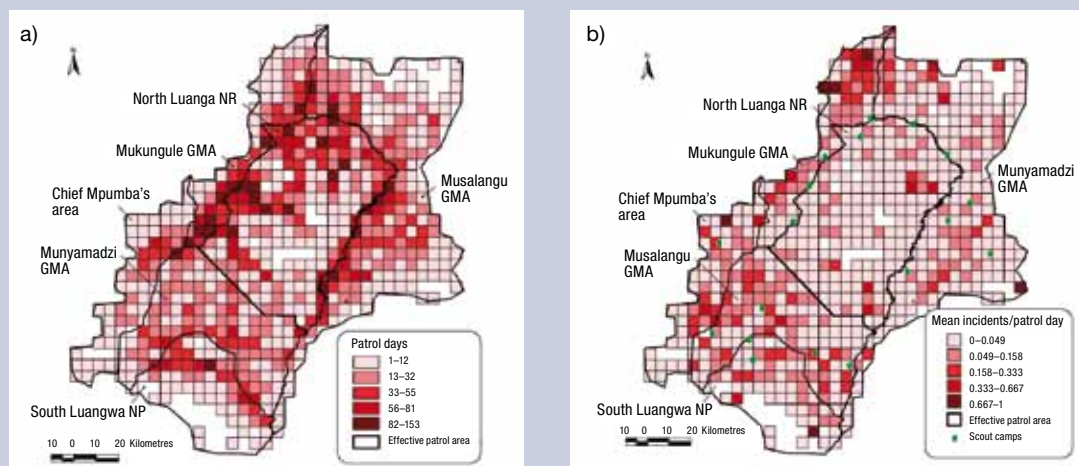
A number of managers commented that in practice most important information used for short-term planning is based on a combination of senior management's knowledge of local trends and circumstances, and effective patrol debriefs and incident reports. Key points from these sources can be instantly communicated over the radio, and followed in due course by the associated paperwork and patrol logs for incorporation into the formal system. (N.B. The integration of information from intelligence gathering is covered separately under Chapter 4.)

Box 3.9 Ranger-based monitoring and strategic planning in North Luangwa National Park

An example from North Luangwa National Park shows how a ranger-based monitoring system can provide managers with effective information on which areas of the park are most at risk. The data were collected by rangers/scouts between 2001 and 2005 and were compiled into a central database at the park headquarters. The analysis involved 857 illegal events collected during 1,808 foot-patrols (a total of 15,310 patrol days).

Figure (a) shows the total number of patrol days and high levels of protection effort around the eastern and western boundaries of the park; Figure (b) shows the mean number of illegal events per patrol and suggests the majority of poacher activity was in game reserves to the west and south of the national park and not inside the national park itself. (Data from Van der Westhuizen, 2006³².)

Further analysis showed the mean number of poachers arrested and animal carcasses recovered per patrol declined over the period, but the number of snares recovered increased. These results suggested poachers might have been switching from guns to snares in a response to increased law enforcement. Based on this information, law enforcement strategies could be adapted.



Maps © FZS

In addition, in many areas, all significant events are recorded in an 'incident book' in the control room (key features of an effective control room are discussed in the following section). This includes all information as it is reported by patrols, as well as information from a range of other sources (such as tourists, airplane surveillance, etc.). As such, in many cases, the incident book provides management with the most up-to-date and comprehensive source data that can help inform short-term tactical patrol planning (see also 'Box 4.4 Basic intelligence analysis in the absence of specialist software' on page 51, which discusses the analysis of incident reports).

Feedback and use of RBM information: success factors

- PA managers need to have sufficient capability and time to make use of RBM reports and to conduct law enforcement patrol briefings and debriefings.
- To ensure that managers prioritize the application of RBM data, reports need to be relevant to site law enforcement management needs and user-friendly.
- The transmission of RBM information from patrols to data analysts to law enforcement managers needs to be sufficiently efficient and timely to enable law enforcement decision-making. This typically requires good communications and transport links.
- In areas with cellular coverage, real-time information transfer has been achieved, but this requires significant technical capacity and investment in equipment and training.
- Use of other sources of information (e.g. incident book, patrol debriefs, management knowledge) can offset management need for a rapid turnaround in formal reporting of patrol data.
- Even if RBM information turnaround is too slow for short-term tactical planning, it can still provide an important foundation for medium-term strategic planning.

3.5 Effective management systems and infrastructure

The effectiveness of law enforcement in any protected area is built on an underlying foundation of supportive management systems and infrastructure that are essential for creating an enabling environment for the implementation and management of law enforcement operations. Without such systems and infrastructure, even the most basic law enforcement tasks, such as organizing and deploying a patrol, can become a difficult and time-consuming activity.

Although the links between some of the aspects described under this management need and effective law enforcement operations may not be immediately obvious, many area managers have repeatedly emphasized their importance. The diversity of the infrastructure and systems highlighted as important in the following sections also illustrates the integrated approach needed to enhance the overall effectiveness of law enforcement operations in a particular area.

In this regard, four key aspects of effective management systems and infrastructure have been identified that are needed to provide a firm foundation for effective law enforcement operations in an area. These are: 1) a control room for coordinating operations; 2) appropriate use of ranger/scout outposts; 3) good access to

and transportation within the site; and 4) efficient stores and inventory management systems. Each of these aspects is discussed in the following sections.

3.5.1 Operations control room

A control room is the nerve centre of site-based law enforcement operations. It is the central location through which all information passes from patrols to senior management and vice versa. A well-equipped, suitably staffed and efficiently managed control room is therefore a critical component of any site's law enforcement system. Broadly speaking there are two models of control room that have developed in different areas: one where information is recorded and passed to management for action; and the second where control room staff are empowered to make operational decisions.

In general, the former approach is used where the control room is less 'secure', for example located amongst site headquarters where the room can easily be accessed by a large number of staff. The second approach is typically used in more restricted locations, where access to the room is limited and more information can be displayed with less risk of compromising patrol effectiveness. Regardless of the approach used there are a number of common features that have emerged as essential for an effective operations room, these are:

- Reliable and secure radio or other communications with law enforcement staff in the field (and other key staff, such as intelligence officers).
- Presence of (or direct links to) a senior member of area management staff who has decision-making authority with regard to patrol deployments and movements.
- Twenty-four hour operations (even if the room itself is not manned at night, at least one control room staff member and one senior manager should remain on call).
- Sufficient numbers of staff trained in radio communication protocols and basic record keeping (ideally with computer skills).
- Clearly defined Standard Operating Procedures (SOPs) regarding communications and reporting (see section 3.6.1 for more details on SOPs).
- A summary of the patrols deployed, including: date out, patrol leader and the number of planned patrol days.
- An 'incident book' (which can be a spreadsheet or database) to record all information provided by patrol staff and other sources of information as it occurs.

If the control room is restricted or in a more secure location, the following features are also typical:

- A map of the area showing the last reported location of patrols deployed and the recent patrol routes taken, and illegal activities/encounters.
- Senior managers with the capacity, authority and responsibility to make real-time decisions on patrol deployment and routing.

Direct links between the control room and senior managers with decision-making power is one of the most important features of an effective control room. Without an efficient decision-making process, much of the potential benefit of a control room is lost, especially in urgent situations. Some areas, such as Zakouma National Park in Chad, have addressed this by locating the head of operations and the head of intelligence in the same office adjacent to the control room. This has the advantages of enabling rapid decision making, promoting discussion, and reducing silos.

Control room: success factors

- Twenty-four hour secure communications with all deployed patrol staff and direct links to at least one member of senior management with decision-making authority are essential.
- Key equipment required includes radios and computers for record keeping.
- Clear protocols are needed for reporting to management and communicating orders to patrols.
- Strong information management and record keeping systems are important, and an 'incident book' for recording all occurrences can be a crucial part of this system.

3.5.2 Outposts/pickets

Outposts/picketsⁱⁱ are used to enable the permanent deployment of law enforcement staff to locations that are often remote or hard to reach where it would otherwise be difficult to maintain a management presence. If well planned and developed effectively, a network of outposts/pickets across an area can greatly simplify the organization and logistics of supporting law enforcement patrols, and can help ensure a permanent law enforcement presence in parts of an area that may otherwise be left unsecured.

However, to be effective, outposts/pickets require strong management. The permanent deployment of staff in remote locations with little supervision raises the risk of declining performance standards over time and the increasing likelihood of staff corruption developing. The risk of these impacts has become so pronounced in some areas (e.g. Bangwelu Wetlands in Zambia) that management has stopped using the majority of outposts/pickets in the area and has made the decision to house all staff permanently at the area headquarters and to focus on supporting multi-day mobile foot patrols.

The approach of retaining all or most staff at the operational headquarters has the advantage of improving staff management, patrol data collection and training provision, and makes it easier for patrol staff to access services and facilities, and be close to their families. However, it does increase the logistical burden of deploying patrols, particularly to remote areas, and relies on sufficient transport and resources to support the movement of patrol staff throughout an area, and to collect any offenders apprehended during the course of the patrols.

In other areas where problems with outposts/pickets have arisen, such as Lewa Wildlife Conservancy in Kenya, area management opted to retain the outposts but implemented measures to strengthen their oversight. This included regularly rotating patrol staff between outposts as a mechanism to maintain performance (see section 2.5.2 on task variety) and reduce the risk of corruption. In North Luangwa National Park, in Zambia, access to the outposts/pickets was improved, which made inspections more feasible (see section 3.2.4 regarding the positive impacts of management visits).

Facilities at outposts/pickets have also been improved in many areas with the aim of boosting staff morale and motivation. Alongside simple accommodation and basic mess facilities, providing clean water, electricity and basic recreational facilities has also been highlighted as important for maintaining staff morale. An increasing number of areas have also allowed immediate family members to stay temporarily or permanently with outposted staff, which, combined with initiatives such as monthly transport to assist staff with personal resupply, can also improve staff morale and motivation.

Ultimately, many managers felt that while outposts/pickets would ideally be avoided, in large or difficult to access areas they may be the most realistic option available. However, both patrol staff and outpost/picket managers need to be rotated, and a concerted effort is needed to keep law enforcement activities dynamic. If access to the area improves, then it may be more effective to implement longer multi-day patrols from headquarters, as this fosters a more unpredictable patrol pattern and makes it easier to manage equipment, rations, patrol debriefings and RBM data.

Ranger/scout outposts: success factors

- Rotating outposted patrol staff (and less frequently leaders) between outposts/pickets and area headquarters can help maintain staff performance and reduce the risk of staff corruption.
- Providing good facilities, such as water, electricity, and basic recreational facilities, can help maintain the morale of outposted staff.
- Allowing immediate family members to stay with outposted staff on a temporary or permanent basis has also worked well and improved morale in some areas.
- Regular visits by senior managers to outposts/pickets can help maintain staff performance and increase motivation; these visits are more likely with reasonable access.
- The costs and benefits of using outposts/pickets against basing patrol staff at area headquarters and supporting patrols from a centrally-managed location should be periodically reviewed.

3.5.3 Access and transportation

The ability to move patrol staff quickly and efficiently throughout an area, either in response to specific incidents or as part of a regular patrol planning, is an essential component of many law enforcement regimes. This ability relies on sufficient, well-

ii In this document the term 'outposts/pickets' refers to operational bases distributed throughout an area at which law enforcement staff are deployed. Outpost/picket size can vary from as little as two or three staff up to 40 or more. Staff may be permanently based at an outpost/picket (sometimes with accompanying family members) or based there only while on duty.

serviced, suitable vehicles and a well-designed and maintained transport network. Unfortunately, both of these elements are capital intensive and many areas have not received the degree of investment that enables them to maintain the level of mobility that effective law enforcement activities require.

Many protected areas prefer to use Toyota Landcruisers for transportation, which are relatively robust and easy to service, and have spare parts that are mostly available. However, they are also expensive, especially if duties have to be paid, so many conservation agencies in less well-resourced areas have often had to make do with cheaper alternatives, such as pick-ups or double cabs (where possible 4WD). Vehicles need to be accompanied by the on-site ability to carry out basic services and repairs (see Box 3.10 below), as well as a reliable source of fuel. Thus a fleet of vehicles entails significant on-going costs. Such costs can be difficult to budget for, especially if the vehicle has been paid for with external funding. In many areas the impact of these costs (resulting in poor servicing and maintenance) has led to a significant reduction in the useful life of vehicles.

Of particular importance is the use of competent drivers, that, depending on the environmental conditions in the area, have experience in handling 4WD vehicles (particularly in wet conditions) and in using the vehicle recovery equipment that is often provided with the vehicles (such as a winch, manual winch, hi-lift jack, etc.). In areas with multiple vehicles and drivers, management has found that allocating a specific vehicle to a particular driver can help to improve accountability for its upkeep and maintenance.

Even where areas have adequate vehicles and drivers, they are often handicapped by a lack of sufficient funds for their operation, or for more remote areas, a lack of access to reliable supplies of fuel. Sufficient fuel availability is often one of the key factors that undermine law enforcement mobility for many areas – vehicles may be available, even spares may be available, but lack of fuel can be a significant constraining factor. A system for ensuring that there is adequate funding for and access to a sufficient and reliable supply of fuel and that fuel supplies are properly managed is therefore critical to maintaining adequate law enforcement mobility.

In areas that have multiple vehicles, strong fleet management is needed to help ensure that vehicles are checked and serviced regularly. Linked to this is the need for effective stores management (see next section) to ensure that sufficient spare parts (see examples given in Box 3.10 below) are kept in stock so that vehicles are kept operational. In areas where the use of such capital-intensive transport is not an option, patrols have been supported using motorbikes, bicycles or simply on foot, however these patrols are generally much more restricted in their manpower and range.

Linked to the maintenance of a functional fleet is the upkeep of the area's road network. This is also associated with significant costs (although these are offset to a small degree by the reduced cost of operating vehicles on improved roads). Ideally a dedicated road grader should be used to maintain roads and to cut mitre drains, although the purchase and running costs of this is well beyond many areas. A more cost-effective option is a tractor-mounted grader. The purchase of a tractor and mounted grader is still a significant investment, but much cheaper than a dedicated road grader, and the tractor can be used for other management tasks.

Access and transportation: success factors

- Strong fleet management is needed to help ensure that vehicles are serviced regularly and before serious problems develop.
- The ability to service vehicles, source and procure emergency spares, and carry out common repairs on site is essential to keep vehicles operational and minimize down time.
- Good stores and inventory management (see next section) is important to ensure that all commonly used spare parts are available, thereby avoiding vehicle down time.
- Using the same model and make of vehicle can reduce the complexity of managing spare parts and enables interchangeability of parts between vehicles.
- The reoccurring costs associated with running vehicles (fuel, spares, repairs, etc.) need to be recognized and accounted for in budgets.
- Maintaining reliable and sufficient supplies of fuel is a major challenge for many areas, and a key factor in ensuring adequate law enforcement mobility.
- Maintaining an area's roads will improve accessibility and reduce vehicle running costs; a road grader is ideal for this, but a tractor and mounted grader is perhaps more realistic for many areas.

Box 3.10 Priority vehicle maintenance skills and spare parts

Typical vehicle maintenance skills needed on site:

- Ability to carry out vehicle servicing, including:
 - Basic Service: Oil and fluid change
 - Interim Service: As above, plus, brakes, steering, suspension and shock absorbers.
 - Full Service: As above, plus fuel filters, spark plugs (wheel alignment and bearings checked if off site).
- Knowledge of and ideally ability to repair the following parts:
 - Cooling system
 - Suspension
 - Drive chain
 - Brakes
 - Tyres
 - Ignition and fuel systems

Typical vehicle parts needed in stock on site:

- Oil Filters
- Air Filters
- Fuel Filter
- Brake Pads
- Brake Shoes
- Spark Plugs
- Engine Oil
- Gear Oil
- Brake Fluid
- Bushes (complete set)
- Shock Absorbers
- Inner Tubes
- Spare Tyres

3.5.4 Stores and equipment management

Appropriate field equipment is essential to keep rangers/scouts effective and motivated in the difficult and inclement environments where much of their work takes place. While each item of field kit would be issued to each ranger/scout, in reality, resource restrictions often necessitate issuing items to rangers/scouts each time they go on patrol. This requires efficient record keeping and strong stores management to enable accountability of patrol staff, and ensure inventories are sustained and equipment is well maintained.

Although not necessarily complex (simple check out/in sheets signed by the patrol leader and countersigned by the issuer is typically sufficient), such a system is essential for the efficient deployment of patrols. Perhaps the most critical part of any system is the storekeeper, who must be trustworthy and capable of implementing the system. Keeping the system clear and non-negotiable, including the steps to take when equipment is not returned or is returned damaged, is also important. Finally, regular independent checks of the actual stocks against recorded inventory are also essential.

Stores and equipment management: success factors

- The system of issuing and receiving equipment needs to be clear, accountable and non-negotiable; it should also cover steps to take when equipment is damaged/lost.
- A forceful, trustworthy and capable storekeeper is absolutely essential for the effective implementation of any system.
- An accurate inventory management system can also be used to assess future requirements (based on past needs) and can therefore assist in budgeting.
- Regular independent checks of the actual stocks against recorded inventory are also essential to check storekeeper performance and the efficiency of the system.



Well stocked and managed stores in Gonarezhou National Park headquarters, Zimbabwe. © CDC

3.6 Clear and consistent standards and procedures

The final management need under this strategy is focused on the use of clear and consistent management procedures to promote desired staff behaviours and measure performance. This is typically achieved through the development of Standard Operating Procedures (SOPs) and guidelines on acceptable conduct and behaviours for rangers/scouts. The final key aspect under this section deals with measures for promoting staff ethics and integrity.

3.6.1 Standard Operating Procedures

Clear procedures on how patrol staff should react and operate under certain conditions and circumstances is an important

Basic equipment storage in an outpost in Southern National Park, South Sudan. © WCS



part of clarifying what is expected of patrol staff and setting performance standards. The establishment of such standards also provides management with a basis for investigating why staff may have deviated from prescribed behaviour (helping combat corruption, see next section) and a benchmark against which the actions and behaviour of patrol staff can be assessed and measured.

This is typically achieved through the development of Standard Operating Procedures (SOPs) that are prescribed methods to be routinely followed during designated operations or in designated situations (see example in Box 3.11 below). These SOPs typically cover a wide variety of circumstances and procedures and can be particularly useful for new staff. This could include, for example, rules of engagement, apprehending suspects, reporting and rank structures, and equipment management. An example SOP is provided in Box 3.11.

However, despite their potential benefits and the fact that they have been developed in many protected areas, SOPs have often been relegated to part of an area's bureaucracy and may be relatively unknown by patrol staff and under-utilised by management. The standards developed can be very detailed and are typically written in a formal style, which can also make communicating them to rangers/scouts a difficult task, while opportunities and methods to reiterate the standards to patrol staff are often missed by management. As such, in many areas much of the potential utility of defined standards is lost.

Where SOPs have been effective, they have often been developed with a clear target audience in mind, in this case patrol staff, kept relevant to the activities they undertake, and management has taken full advantage of opportunities to frequently remind staff of their stipulations and requirements. This can be done during recruitment processes, during in-service refresher trainings, at staff meetings and through complementary media, such as portable folding cards that can be carried in the patrol

staff uniforms for key standards (such as crime scene security or communications).

Standard Operating Procedures: success factors

- Developing SOPs that cover a wide variety of circumstances and procedures can be particularly useful for new staff.
- Where SOPs have been most effective they have often been developed with a clear target audience (i.e. patrol staff).
- Frequently reminding staff of the standards is essential; this can include reviews during the recruitment processes, patrol briefings or other meetings.
- Using other presentation options such as portable folding cards for key standards (such as crime scene security or communications) and posters can help improve general awareness.

3.6.2 Staff ethics and integrity

Ensuring the ethical behaviour and integrity of protected area staff in an environment of potentially large financial rewards from wildlife crime combined with the often loose supervisory environment prevalent in many areas (due to their size, inaccessibility and limited staff numbers) can be extremely challenging. Even the most famous and well-funded protected areas – such as Kruger National Park, South Africa and Lewa Wildlife Conservancy, Kenya – have been impacted by staff complicity in wildlife crimes, although both these areas have recently had some successes in reducing its impact and arresting suspects.

A number of approaches have been tried to help maintain high ethical standards and integrity in protected areas staff and to apprehend those staff involved in corruption. In some areas, notably Kruger National Park, this has become quite intrusive, for example involving staff voice analysis tests designed to detect emotion and stress, inclusion of personnel information in the intelligence database, collection of staff phone records, and the use of staff informers. While this approach has had some notable recent successes (with the arrest of at least one senior manager

Box 3.11 Examples of Standard Operating Procedures, from Ezemvelo KZN Wildlife, South Africa

Basic rules and procedures for radio communications

Law enforcement personnel should have a dedicated radio channel. Radio techniques are to be used for brevity and clarity. Radio congestion should be alleviated through pre-planning and reducing radio calls to essential information only. Patrol codes are to be established for each outpost in an area and changed on an annual basis. The codes should be laminated and waterproofed and should indicate patrol areas, time of patrol and whether any other activity is taking place.

Daily radio situation reports

Two situation reports should take place daily from the post to control room at specific times, one in the morning and one in the evening. The situation reports should contain the following information:

- Problems: staff and infrastructure
- Patrol Codes for the next day (provided in the evening).

Emergency situation reports

Refers to any security related incident or priority species mortality where urgent interventions or decisions are needed. Procedure:

- Listen before transmission to ensure another transmission is not interrupted
- Prepare message, which should be concise and clear
- Speak clearly and directly; speak ordinary conversation speed with correct pronunciation
- Make full use of accepted standard phrases, procedures and pronunciation
- Release microphone immediately after transmission is complete.

and other more junior staff), it has the potential to undermine staff-management relations.

Other more proactive measures that can be taken before such interventions are needed can include the regular rotation of all staff stations (especially at outposts, as discussed previously) and ensuring that any staff recruited from surrounding areas are not posted to their home environs, thus reducing opportunities for corruption or pressure from associates. The use of SOPs, as described above, can also provide guidelines that require an explanation if not followed, while the use of procedures for enabling staff 'whistleblowers' has recently been initiated by some wildlife NGOs. Typical guidelines for the establishment of a whistleblowing system are given in Box 3.12 below.

Ultimately, the ideal approach is the proactive promotion of high ethical standards and the prevention of corruption before it develops. A central component of this rests on the development of a positive and cohesive organizational culture within an area, where ethical behaviour and integrity are viewed as the norm and

corruption and complicity as simply unacceptable by all levels of staff. As set out throughout this document, this can best be achieved through a sustained and multifaceted approach to building patrol staff motivation and dedication, and building positive and constructive relations between rangers/scouts, their supervisors and senior area management.

Staff ethics and integrity: success factors

- Building a positive and cohesive institutional culture that promotes high ethical standards and integrity is the best long-term approach, but this is difficult and takes time.
- Proactive measures to prevent corruption developing can include the regular rotation of staff and deploying locally recruited staff away from their home areas.
- SOPs can provide guidelines that provide management with the basis for assessing any deviation from expected behaviour.
- In severe cases more intrusive measures can be taken (e.g. voice analysis tests, phone record analysis) but this is likely to undermine staff-management relations.
- Some organizations have developed procedures for enabling and protecting 'whistleblowers' that encourage staff to report inappropriate activity.

Box 3.12 Guidelines on whistleblowing

(Adapted from the International Chamber of Commerce Whistleblowing Guidelines³³)

Research has shown that whistleblowing is a major factor in the detection of corruption in organizations, with whistleblowing potentially uncovering as much as 25% of the cases of corruption or fraud discovered in organizations. This box sets out some basic principles underlying the establishment of an effective whistleblowing system.

An organization's whistleblowing system should:

- Receive all reports from employees on professional conduct matters, ethical concerns, and breaches in laws, regulations, or codes of conduct, and handle these as soon as possible.
- Appoint a high-level person of good standing and with extensive work experience to be in charge of the management and administration of their whistleblowing unit.
- The personnel involved in the unit should be given significant autonomy and report to the highest echelon possible within the organization.
- The organization should define the communication channels it will use for whistleblowing purposes: e.g. in-person, telephone, email, web-based or any other appropriate means.
- A whistleblowing system will only be successful if it is not over-regulated. However, there may be labour laws or other legislation that the whistleblowing system must comply with.

- In line with the applicable laws, the organization needs to decide whether reporting will be compulsory or voluntary, and if reporting can be anonymous or only on a disclosed basis.
- All employees must be in a position to report serious occurrences without fear of retaliation or of discriminatory or disciplinary action. As such, any whistleblower's employment, remuneration and career opportunities should be protected for a reasonable period of time.
- All whistleblowers' reports should be acknowledged, recorded and screened. All genuine reports should be investigated and forwarded to the appropriate person(s).
- As far as possible the organization should maintain the confidentiality of the data revealed through whistleblowing and the identity of the whistleblower (subject to legal requirements).
- The main results of the due diligence examination should be appropriately communicated as feedback to the whistleblower as soon as possible.
- The person whose behaviour has been reported should also be informed of the main object of the ongoing procedure, thereby allowing them to present objections.

4. Intelligence and investigations

4.1 Overview

Intelligence and investigations operations provide tactical and strategic information in support of wildlife law enforcement activities, aimed at preventing illegal activities and maximizing the chances that perpetrators are apprehended, and that subsequent prosecutions are successful. The use of effective field intelligence and investigations operations is perhaps the most critical pre-emptive measure that protected area managers can take against wildlife poachers and traffickers.

While ranger patrols remain the front line of defence against poaching, for optimal effectiveness they need to be complemented by intelligence and investigations-led operations¹¹. Studies have shown that, over the 1988–1996 period, investigations-led operations in the Luangwa Integrated Resource Development area in Zambia were on average 34 times more likely to encounter poachers and 77 times more likely to recover firearms than regular patrols. The cost-effectiveness of investigations-led operations was over 11 times that of regular patrols, even when the additional resources required were taken into account⁸.

However, in order to optimize their potential impact, intelligence and investigations operations must be developed to a professional level. This involves ensuring they are comprehensive, in that they capitalize on the full range of techniques and supporting technology available, are systematic in their approach to collecting, organizing and managing information, and are integrated with other aspects of site-based wildlife law enforcement operations, such as the effective development of a prosecution case against an accused (in order to ensure prosecutions succeed, and that the impact on illegal activities is maximized).

The development of these approaches to the standards required to address the current level of threat from poaching and wildlife crime is a significant undertaking, which requires actions in a number of inter-related areas. The following sections aim to provide an overview of the five management needs that have been identified as critical for developing comprehensive, systematic and integrated intelligence and investigations operations, and that can make significant contributions to improvements in law enforcement effectiveness. These are:

1. **Specialized intelligence and investigations capacity**
2. **Comprehensive intelligence gathering**
3. **Efficient data management and analysis**
4. **Robust evidence handling and management**
5. **Competent case development and charging.**

As with the other chapters of this report, the management needs and key aspects that are discussed in the following sections describe a range of intelligence and investigations best practices and approaches that are primarily intended for application at the protected area or site level, rather than at the national or sub-national level. In this regard, some national wildlife management agencies are utilizing more sophisticated intelligence and investigations systems and capacity than are reviewed in this chapter, for example in investigating organized crime networks involved in serious wildlife crimes and trafficking. These techniques are intentionally not discussed in this report, since they are unlikely to be of practical relevance to most site-level intelligence and investigations operations, and also, by publicizing the details of these advanced systems, there is a danger of informing the very crime networks that they are intended to combat.

4.2 Specialized intelligence and investigations capacity

The existence of specialized capacity (human resources, equipment, and systems) is a crucial foundation for the effectiveness of all wildlife crime intelligence and investigations operations. The following four key aspects have been identified as critical for developing effective intelligence and investigations capacity: 1) the establishment of dedicated units that enable staff to focus on intelligence and investigations activities; 2) ensuring that staff have the skills and attributes the role requires; 3) providing essential equipment and resources for the effective implementation of their duties; and 4) developing inter-agency collaboration mechanisms. These are discussed in the following sections.

4.2.1 Dedicated intelligence and investigations units

Dedicated units focused on carrying out intelligence and investigations operations are essential if the potential benefits to wildlife law enforcement from these activities are to be fully realised. Such units enable staff to focus full time on their activities (rather than as an incidental addition to other duties) and to better develop the skills and attributes required for the work through repeated experience. The existence of a separate unit also builds staff cohesiveness and improves internal visibility (hopefully leading to increased recognition and the improved allocation of resources).

As the value and importance of intelligence and investigations operations is progressively recognized, such units are increasingly

being established in and around many protected areas. This will become more and more important as the variety of skills, techniques and equipment that form an essential part of professional intelligence and investigations operations continues to develop. Unfortunately, many such units remain understaffed and under-resourced, and because many unit staff are posted outside core protected areas, their needs and supervision requirements can more easily be overlooked by senior area management.

However, the actual number of staff and resources required to effectively operate an intelligence and investigations unit is relatively small (see sections 4.2.2 and 4.2.3), especially when the costs and impact are contrasted against that involved in implementing ranger/scout patrols. Ideally, staff focused on intelligence gathering and investigative activities should be distributed in key population centres around a protected area, while other members of the unit should be deployed within the site itself (to facilitate appropriate supervision by and information flow to area senior management, handling of crime scenes, and interrogation of arrested suspects).

For example, in Zimbabwe the intelligence unit closest to Hwange National Park is actually based 42 km away in the nearest large town to the park, with a similar pattern repeated throughout the country. This facilitates a number of aspects of the unit's work, such as intelligence gathering, collaboration with police and giving evidence in court, but does risk weakening the link from intelligence feedback to area operations. However, in other sites, such as North Luangwa National Park in Zambia, this risk has been alleviated through unified reporting lines and close relations between park staff and unit officers.

Dedicated Intelligence and Investigations Units: success factors

- Dedicated units are important for improving the effectiveness of intelligence and investigations operations. They enable the use of specialized staff, techniques and equipment.
- Staff from these units should ideally be distributed in key population centres around an area, as well as within the area itself to ensure appropriate communication with and supervision by area senior management.
- Unified reporting lines (i.e. a common supervisor for protected area managers and intelligence and investigations officers) can help improve feedback to law enforcement operations.
- Personal relationships between unit staff and senior park management are also important for facilitating the rapid flow of information.

4.2.2 Skills and attributes

The work of Intelligence and Investigation Units usually involves three distinct but complementary functions:

- Intelligence information collection
- Intelligence data analysis
- Crime investigation and case preparation.

Whether these responsibilities are fulfilled by generalists, or by specialists with skillsets matching the concerned responsibility,

will largely depend on the size of the PA's Intelligence and Investigations Unit and the resources available to the protected area concerned.

Intelligence information collection

Although they often begin their careers as patrol staff, wildlife intelligence officers require a set of skills and attributes that are significantly different from those needed in an effective ranger/scout. Typical abilities and qualities required for successful intelligence officers include the ability to establish rapport with a variety of people, patience and discretion. Given the autonomy, independence and sensitivity of much of the work, high levels of honesty and integrity are also especially important.

Several wildlife law enforcement managers have suggested that the aptitude of an intelligence officer depends more on the personality, motivation and commitment of the individual concerned rather than any specific skills that can be taught in a formal training environment. Many intelligence officers are effectively 'self-selected' from other positions in a wildlife organization by demonstrating high levels of success in gathering intelligence, which has then prompted senior management to officially change the focus of their role.

Of particular importance is the ability to develop good relations with a wide variety of people, and especially the development of networks with informants (see section 4.3.1), the police and other law enforcement agencies, which can be instrumental in obtaining information and avoiding administrative delays. In addition, personal contacts between the intelligence officers and other staff throughout the wildlife agency itself are also critical for facilitating the rapid reporting and exchange of information.

Intelligence data analysis

As mentioned earlier, where the PA Intelligence and Investigations Unit is relatively small, it may be necessary that the intelligence data collection and analysis functions are rolled into one. However, since the skillsets needed for intelligence data analysis and intelligence information collection are usually quite different, it is preferable to employ specialized intelligence analysts that are able to use intelligence software tools such as those described in section 4.4.1 below. Typical responsibilities of an Intelligence Analyst include:

- building up intelligence pictures, and identifying potential suspects;
- collating and validating intelligence information (often using specialized software), and evaluating the reliability of sources and credibility of information;
- developing relationships with other PA law enforcement managers to understand their intelligence requirements;
- delivering intelligence information in formal reports or presentations to law enforcement managers;
- liaising and collaborating with other law enforcement agencies to gain access to additional complementary intelligence information.

Crime investigation and case preparation

Officers responsible for wildlife crime investigations and case preparation will require an in-depth understanding of the legal standards that must be adhered to throughout all stages of the investigative process to ensure evidence is admissible in court (e.g. techniques for evidence collection, and legal criteria for relevance and reliability). Unfortunately, not all wildlife officers possess this knowledge, and as a result wildlife crime cases are frequently dismissed in court on technicalities.

Fortunately, these technical aspects relating to the legal system and associated standards can be taught. In this respect, some protected areas have provided formal training to investigation officers, with the aim of building on their natural affinities for the position. This has been done in North Luangwa National Park in Zambia, where field-based wildlife investigation officers have been trained in a number of key areas including: crime scene investigation and management; handling of suspects and interviewing; crime report writing and case preparation; court procedures and how to give evidence effectively.

Alternatively, coaching by experienced senior staff can also be effective in overcoming potential problems related to the officer's lack of familiarity with the more technical aspects of the law. For example, in KwaZulu-Natal in South Africa, experienced senior area managers that are familiar with the legal requirements for evidence to be admissible in court have effectively mentored more junior staff on the legal standards they must adhere to while recording statements, and in handling evidence, and also helped them prepare for presenting evidence in court (see section 4.6).

Intelligence and investigations skills and attributes: success factors

- Wildlife intelligence and investigations operations involve several distinct but complementary functions. If resources permit, each of these functions is best fulfilled by specialized officers.
- The personality, motivation and commitment to be a successful intelligence officer is often more important than skills taught in a formal training environment.
- For intelligence information collection, the ability to develop good relations with a wide variety of people, and the development of multiple informal networks of contacts, is especially important.
- Many intelligence officers are 'self-selected' from other positions in a wildlife organization by demonstrating success in gathering intelligence.
- Formal training can be important to strengthen already existing desirable qualities for intelligence collection, but it is unlikely to be able to establish them in a particular individual.
- Training can be helpful for officers responsible for investigations and case preparation, addressing aspects such as managing evidence, recording statements and giving evidence in court.

4.2.3 Equipment and resources

The provision of appropriate equipment and resources is particularly important for effective intelligence and investigations operations. A variety of equipment and resource needs are discussed under the relevant sections of this chapter. This includes details of: equipment required for crime scene management (see section 4.5.1); finances to support reward systems (see section

4.3.2); specialized equipment for utilizing electronic information (see section 4.3.3); and the resources required for the effective implementation of an intelligence database (see section 4.4.1).

However, the nature of intelligence and investigations work is diverse and unpredictable. For example, it can require significant amounts of travel, often unplanned (for example, if an officer is tailing a suspect), and the ability to gather evidence in a variety of circumstances during the course of operations. As such, effective investigative and intelligence operations also require additional equipment and resources that are essential for supporting the regular, day-to-day operational abilities of intelligence and investigations staff.

Unfortunately, due to resource constraints and other institutional priorities in many areas, such equipment and resources are often not available to support investigations or intelligence operations. Most importantly among these needs is a form of transportation, with motorbikes typically being the most cost-effective option for intelligence gathering (with access to a patrol vehicle for any resulting operations), and the ability to access relatively small amounts of cash at short notice, which can cover operational expenses or reimburse staff for costs they have incurred during their duties.

In addition, the provision of basic and simple-to-use surveillance equipment, such as cameras and audio recording devices, has been shown to be effective in helping investigative officers to gather information and add credibility to cases by generating supporting evidence. Such equipment is becoming progressively more available and affordable as technology improves, and, if used appropriately and in accordance with legal requirements, it has the potential to make increasingly important contributions to investigation and intelligence gathering operations and potentially to subsequent court cases.

Intelligence and investigations equipment and resources: success factors

- Access to a means of transportation is essential for intelligence and investigations officers; motorbikes have been highlighted as the most cost-effective option.
- Access to a patrol vehicle and support from a well-disciplined rapidly deployable team of rangers/scouts is essential for follow-up operations.
- A petty cash fund that can be used by officers to cover operational expenses or reimburse staff for costs they have incurred is important for sustaining continued operations.
- Basic and simple-to-use surveillance equipment, such as digital cameras and audio recording devices, can be effective in helping to build a case against suspects.

4.2.4 Inter-agency collaboration

Even if a protected area or wildlife management agency has established its own specialized intelligence and investigations capacity, it is essential that effective collaboration mechanisms are established with other law enforcement agencies, in particular the police (for investigations, intelligence and case preparation)

and prosecutors (for case development and prosecution in court). By bringing knowledge and skills that wildlife managers often lack, collaboration in preparing for and following through on wildlife crime cases can improve the strength of the case being developed, and the likelihood of a successful conviction.

Unfortunately, in many cases collaboration between wildlife managers and other law enforcement agencies has not been strong. This can in part be attributed to wildlife crime being seen as a low priority by other law enforcement agencies, the lack of a historic need for strong collaboration between agencies, and also, because many wildlife crimes take place in rural locations, local police force resources are often limited and in reality they are often unable to provide meaningful assistance in addressing serious, organized wildlife crime.

However, the issues undermining inter-agency collaboration are being addressed in a number of ways in different countries. For example, in Zimbabwe, where the wildlife intelligence and investigations units have only been developed relatively recently, many of the staff have been drawn from the national police service. This, combined with the deployment of staff in towns around protected areas, has enabled many wildlife officers to retain informal contacts with police officers, which has served to increase collaboration and information sharing in many areas (for example, around Hwange National Park).

In other countries, more formal collaboration arrangements have been developed. For example, in KwaZulu-Natal in South Africa, all cases of rhino poaching are now handled by the provincial organized crime squad of the national police service, in collaboration with the provincial wildlife agency. This has resulted in improved operational efficiencies and relationships between both agencies, as rural police stations are no longer burdened with addressing serious crimes, and the wildlife agency is able to collaborate with a single unit to develop cases and identify common patterns in wildlife crimes.

Effective inter-agency collaboration in addressing wildlife crimes requires a clear division of responsibilities of the specific roles and responsibilities of the agencies concerned. In this regard, in KwaZulu-Natal, detailed Standard Operating Procedures (SOPs) guiding inter-agency collaboration in law enforcement operations have been developed. These describe the lead roles of the collaborating agencies, the specific tasks for which they are responsible, and the processes to be followed. These SOPs also serve to formalize the collaboration process and reduce the dependency on informal personal contacts between agencies.

Effective inter-agency collaboration is not only vital for law enforcement operations and investigations, but also for effective prosecutions of wildlife crimes. In this regard, in response to organized wildlife crimes (for example, through the involvement of organized crime gangs targeting species such as elephants and rhinos), several countries have also made efforts to strengthen collaboration between wildlife agencies and the police, prosecutors

and the judiciary in the development of robust wildlife crime cases and in strengthening the prosecution of wildlife cases in court (see section 4.6 below).

Inter-agency collaboration: success factors

- Effective collaboration with other law enforcement agencies is essential for intelligence and investigations, especially when capacity of the wildlife agency itself is weak or restricted.
- Informal contacts between wildlife agency staff and police officers have been shown to help increase collaboration in a number of areas.
- Formal mechanisms for regular inter-agency collaboration that set out a clear division of roles and responsibilities can boost the success of intelligence and investigations operations.
- Depending on the situation, these can either be between agencies at the national level, sub-national level (province or district), or sometimes are best established at the site level.
- Allocating responsibility for all serious wildlife crime to a single unit within the police service can make collaboration easier, facilitate case development and institutionalize collaboration.
- Collaboration with police and prosecutors can significantly improve the strength of wildlife crime cases and consequently the chances of their successful prosecution.

4.3 Comprehensive intelligence gathering

The collection of accurate and reliable information from as many sources as possible is the foundation of any intelligence system. Three key aspects have been identified as critical for achieving this: 1) the use of informers to provide information; 2) the provision of rewards as an incentive for informers; and 3) the collection of electronic information, or 'signals intelligence'. Each of these aspects is discussed in the following sections.

4.3.1 Informants

Despite rapid developments in the use of technology, intelligence provided by human sources (HUMINT) is likely to remain the most commonly used and most important source of intelligence in the majority of protected areas for the foreseeable future. However, although potentially the most useful, HUMINT is also the most difficult to manage, mainly due to the unreliable and untrustworthy nature of many informants who may be motivated by financial rewards or revenge rather than an obligation to report illegal activities.

As such, effective management systems are needed to oversee the use of HUMINT. Although the need for this is increasingly being recognized and addressed in many areas, this has not been a traditional strength of area management, which has more often been focused on preventative law enforcement operations. As a result, guidelines and standards for the recruitment and management of informers, combined with systems to ensure anonymity and track reward payments have only recently been developed, or may still be absent in many areas.

The development of these systems are especially important when linked to informer rewards (see next section), to help ensure that neither the informers nor protected area staff themselves take

advantage of the necessary trust inherent in the implementation of such a system. Box 4.1 below provides a summary of the guidelines provided to all staff from Ezemvelo KZN Wildlife, in South Africa, that are intended to help them effectively recruit and manage informers, while ensuring that the risks to wildlife personnel and informers associated with such activities are minimized.

Box 4.1 Example guidelines on recruiting informers, adapted from Ezemvelo KZN Wildlife

- When first formalizing contact with an informer, obtain a copy of the source's ID. If you meet the source in a remote area, take a camera and photograph the ID.
- Complete the form 'Source Registration'. Ensure the source understands the details properly. The source must sign the form.
- Complete the form 'Source Details' and allocate a number to the source. This is the number that will appear in his/her receipt of payment. The source must sign the form.
- Complete the 'Source Payment Receipt' form when you pay the source. The source must sign that he/she has received payment.
- The source must also sign the receipt in the duplicate receipt book, together with a witness (staff member). Only include the source's unique number, not his/her name.
- Open a dedicated file for each source and keep all records in this file. This file must at all times be kept in a safe that only the handler has access to.
- For day-to-day information, payments can be made if the information leads to successful arrests or is proved accurate, not in advance.
- Mobile phone airtime can be bought at any time for sources to enable them to contact handlers. Strong management is needed to ensure wise use of this resource.

A number of managers that have successfully cultivated a system of informers, including Malilangwe Game Reserve in Zimbabwe

and South Luangwa Conservation Society in Zambia, noted that it is typically a small number of informers that repeatedly provide accurate and important information, but that it is difficult, if not impossible, to identify such informers in advance. Consequently, the development of an informer network is typically time consuming, and significant amounts of staff time and resources have to be expended without any immediate or obvious results.

One key approach for enhancing the quality and quantity of intelligence information gathering from informers is to develop networks with multiple kinds of informers (see Table 4.1 below). This not only exposes handlers to more potential information, but also enables the triangulation of intelligence and improves the ability of officers to assess the quality of the information provided. Using a consistent standardized format for information collection can also aid its incorporation in an intelligence database (see next section) and use alongside RBM data in operational planning (see section 3.4.2).

While it is unsafe to reveal the identity of an informer, intelligence managers have found it useful to map the location and area of operation that informers cover. This enables the development of a comprehensive coverage and allows an agency to identify key gaps in coverage and actively target those areas for the recruitment of additional informers. Ideally more than one informer covers each area to enable validity checking of information received.

Intelligence from poachers is particularly important, and interrogation of suspects in the period after apprehension by patrol staff but before processing or handing over to police has yielded particularly useful information in many areas. Again, ensuring a standard format for interviewing such suspects can help ensure that arresting staff extract all relevant information

Table 4.1 Frequently used sources of HUMINT

Source	Value
Community leaders	Community leaders can assist the investigator to understand the local economic and social frameworks within which poachers operate. However, in order to be effective, a proactive engagement programme with community leaders must often start long before intelligence gathering or an investigation begins, in order to build and establish positive relations that can be capitalized on at a later time.
Community members	Some members of the community in which poachers live will undoubtedly know about their actions. Officers can take advantage of rivalries, revenge or simply opportunities for financial gain through rewards to extract this information. Over the longer-term, intelligence officers can also work more generally to socially isolate poachers from regular community members, making cooperation more acceptable.
Poachers	Upon apprehension, poachers themselves can volunteer a wealth of potentially useful information. The legally grey area between apprehension and processing by the police can be capitalized on to extract useful intelligence. A checklist of questions to ask and topics of questioning can help ensure field staff cover all important areas, and enable the collation of information to help identify trends and patterns.
Co-workers	Ideally any staff member from the wildlife agency or area management authority should be developing a low-key network of informants, or at least remain alert for potentially useful information. This can greatly multiply the amount of information being generated and reported to intelligence officers, which is especially powerful when linked to an intelligence database (see section 4.4).
Other law enforcement staff	Other law enforcement agency staff frequently already know of many wildlife crime suspects through other illegal activities they may be involved in. As such, key staff from other agencies often have important information on wildlife crimes that can be of use to area management. Although formal procedures are important, personal contacts with such agency staff can greatly speed up information flows.

that should be included in an intelligence database. This can lead to the identification of additional suspects and help elucidate trends in the activities of poachers that can be used to inform law enforcement operations and community outreach.

Informants: success factors

- Guidelines and standards for the recruitment and management of informers, combined with systems to ensure anonymity and track reward payments, can make management easier.
- The development of an informer network is time consuming and requires resources without any immediate results; management need to make allowances for this.
- Developing networks with multiple kinds of informers can enhance the quality and quantity of intelligence information, and enable the triangulation of information received.
- Any information must be submitted to a central intelligence database (see section 4.4) to enable the accuracy of information and the identity of informers to be verified and triangulated.
- Using a consistent standardized format for intelligence information collection ensuring that all key topics are covered can also aid in its analysis and incorporation in an intelligence database.
- Over time, using this standardized format can help elucidate trends in the activities of poachers that can inform law enforcement operations and outreach activities.

4.3.2 Rewards

Providing significant and timely rewards for information from informers is critical if the potential benefits of developing a network of informers are to be realized. Many informers seriously risk their personal safety in providing information to wildlife law enforcement officers, and without a financial incentive to offset this threat, they are extremely unlikely to volunteer valuable information. As a result, although potentially difficult to manage, reward systems are an essential part of any intelligence operation.

However, despite the proven benefits of paying rewards, many protected areas have struggled to implement such a system successfully. A major cause of this is the sometimes significant financial backing that an effective system requires, because in order to be effective in preventing serious wildlife crime, rewards must be substantial (some areas pay the equivalent of a ranger/scout annual salary for the most credible information on rhino poaching). Even in areas with external financial assistance, despite the high potential impact, many donor-reporting requirements effectively prevent use of their funds for provision of rewards.

In order to help improve the accountability of reward systems, and make the systems easier to implement, many areas have adopted a standardized, non-negotiable payment system linked to the quality of information and the seriousness of the crime it relates to. Such a system has helped improve the accountability of reward payments made to informers by staff from Ezemvelo KZN Wildlife, in South Africa. This, combined with a simple and efficient administrative system securely recording payments made to informers, has enabled the system to pass internal auditing standards (see Box 4.2).

Box 4.2 Informant and reward payment management, Ezemvelo KZN Wildlife

The following points summarize the key features of the informant and reward management system that has successfully been used and audited by Ezemvelo KZN Wildlife, South Africa.

- All payments are made according to a schedule related to the nature of the information provided; there is no room for negotiation. Payment is made as soon as possible after the arrest/action.
- Informers must be registered in order for payments to be made. Copies of IDs and personal details are taken and stored only in the senior warden's office. Each informer is allocated a code number.
- Original receipts completed in full are signed by the informant and the staff member and are kept on file by the senior warden.
- Copies of the receipts are submitted for accounting with the name and ID of the informer blocked out and their code number added instead.
- For very large rewards, photographic evidence is also used to prove that the reward was handed over to the informant.

Other more autonomous areas, such as Malilangwe Game Reserve, base payments on a case-by-case basis through discussions between intelligence staff and senior management. The amount allocated typically depends on the actual information, the value of cultivating the informant and their track record. However such a system necessitates a high degree of trust between senior management and intelligence staff, which may be difficult to develop in larger areas. In addition, a few informants that have repeatedly proved themselves may be paid a stipend to help maintain a continued relationship.

The vast majority of rewards are paid only on a results basis, which in most cases means the arrest of suspects. However, some wildlife agencies have noted that, as the level of rewards offered increases, so does the risk of 'set-ups'. In response, they are planning in future to base rewards on a combination of arrests and successful prosecution (with a 10%–90% weighting). However, this does run the risk of significant delays between informers providing information and receiving a reward, and linking the reward to aspects of the case other than the quality of information provided (such as the prosecutor competency).

In some countries where the use of informers is more advanced, such as South Africa, the importance of various law enforcement agencies working together to standardize reward payment policies is becoming increasingly important. Currently, private entities in particular are able to offer a far more substantial reward than government agencies for the same type of information. In some cases, this has contributed to state agencies losing their informers to private entities, creating a break in the informer network that is undermining the effectiveness of intelligence gathering.

Informant rewards: success factors

- Rewards for intelligence need to be significant and timely if they are to motivate informers to volunteer information.
- Rewards should only be paid on the basis of results; in most cases this means the arrest of suspects or prevention of illegal activities.

- An effective system requires substantial and sustainable financial backing; more flexible donor-reporting requirements are sometimes needed to enable funds to be used for information payments.
- Many areas have adopted a standardized, non-negotiable reward payment system, which varies depending on the quality and seriousness of the information.
- However, the nature of rewards payments necessitates a high degree of trust between senior management and intelligence staff; proactive steps may be needed to develop this in larger areas.

4.3.3 Electronic information

As the presence and use of technology becomes increasingly ubiquitous in the daily lives of more and more people, the information generated by the use of such technology becomes increasingly important for intelligence purposes. The interception of such 'signals intelligence' (SIGINT) has long been recognized by the military and other security forces, and there is a rapidly expanding range of approaches and equipment that can be used by wildlife law enforcement officers to capitalize on this increasingly valuable source of information.

However, the interception of such information does typically require specialist equipment, which in many cases can be relatively expensive, may need permission from national security agencies and particular skills that are lacking in many protected areas. As such, the potential contributions of SIGINT to inform wildlife crime investigations and law enforcement operational planning has really only just begun to be capitalized on in a limited number of protected areas. There are, however, a number of approaches that are particularly relevant to wildlife law enforcement in the African context.

One of the most useful approaches is the confiscation of mobile phones immediately following the apprehension of poachers. This can enable the direct extraction of all contact data, user history and other information from the phone, using specialist equipment. Although expensive, this equipment is relatively user-friendly, can be used in the field, and the data extracted can easily be added to most intelligence database software (see next section).

This information is especially important when linked with research carried out by intelligence officers to establish a more complete picture of a suspect. This research can take advantage of a variety of publicly available information using public records, the Internet, or potentially with the assistance of private sector companies, such as mobile service providers. Although of limited use in countries with a large informal economy, as is common in most of Africa, this approach has been effective in South Africa and in investigations linked to other countries outside Africa.

Some of these techniques, particularly regarding sources of information that can be used to develop a more complete picture of suspects, are especially useful; and their details are highly sensitive. At present this is one area where wildlife law enforcement efforts and abilities are ahead of poachers and traffickers, and as

such intelligence managers do not currently openly discuss these techniques out of concern that the techniques themselves and the sources of information could become more widely known, thereby undermining their future usefulness. For this reason, this report does not elaborate on the specifics of these intelligence techniques.

One of the key challenges impacting on the use of SIGINT data in wildlife law enforcement are the legal constraints imposed on the collection and use of such data in some countries, which may restrict different data types and sources in different ways. As such, before utilizing any form of SIGINT data for wildlife law enforcement purposes, it is essential that the wildlife agency concerned obtains legal advice on what is and is not permissible, and also consults with other law enforcement agencies using such data (which may provide opportunities for collaboration if other agencies are not subject to the same restrictions).

Electronic information: success factors

- Mobile phones confiscated from poachers can provide a wealth of information; however specialist equipment is needed to maximize the use of this technique.
- Additional research using information from public records, the Internet, and/or with the assistance of private sector companies can be beneficial.
- A range of other sources of information and techniques are utilized by specialist intelligence staff, but open discussion of many of these techniques is not advisable to ensure their continued utility.
- Legal advice should be sought concerning national restrictions imposed on the collection and use of different types of SIGINT data.
- Collaboration with other law enforcement or national security agencies that may not be subject to the same legal limitations is one way to overcome this obstacle.

4.4 Efficient data management and analysis

Once intelligence information has been collected, it then needs to be consolidated and analysed in ways that best inform subsequent investigations as well as law enforcement operations. Two key aspects have been identified as important for addressing these needs. These are: 1) the organization and analysis of intelligence information collected; and 2) ensuring this information is provided to management in a timely and appropriate format. These aspects are discussed in the following sections.

4.4.1 Intelligence data organization and analysis

The full potential value of information collected can only be fully realised if it is possible to assess the full range of intelligence types (i.e. HUMINT and SIGINT) collected from a diversity of sources in a single database. This becomes increasingly important as areas expand their intelligence gathering activities, and the amount and different types of intelligence information collected increases. Without the ability to consolidate and synthesise all the information collected, important linkages may be missed, and the utility of the data gathered can diminish significantly.

Previously, an area's senior management or intelligence officer has typically been the depository of such information. This was perhaps effective when the vast majority of the information provided was from informer networks, but as the overall amount and diversity of information types has increased, this has become ever more difficult and ineffective. While HUMINT remains the bedrock of most intelligence operations, the ability to link it with the increasingly common and valuable SIGINT is becoming ever more important.

This, however, is not a problem unique to protected area managers, and a number of software programmes have been specifically developed to help address this challenge. These are designed to enable investigators to input all formats of raw intelligence into a unified database, to reveal the relationships within the data, and to enable data from different sources to be collated and graded. This gives intelligence staff the ability to share, search, analyse and print relationship diagrams, dramatically improving the ability to understand and communicate linkages and patterns.

A variety of software is available that can be used to meet these needs, which ranges considerably in cost, capacity and usability. Some of the most common options available include:

1. **MEMEX.** The most expensive and elaborate option. It is reportedly more robust and has enhanced intelligence gathering capabilities, but does not present data as well as i2 (see next bullet point). This software has been successfully used in Kruger National Park, South Africa (see Box 4.3).
2. **IBM i2.** A range of integrated software products supporting information storage and analysis. Less costly than MEMEX, but still a significant investment. The most popular option and fast becoming the industry standard. This is being used by KWS, in Kenya, and others, such as EIA and TRAFFIC (who use the software to manage tiger-related intelligence in Asia).
3. **Online Intelligence.** This online intelligence information platform offers similar capability to i2 at less cost and more limited functionality. It is aimed primarily at investigators rather than intelligence analysts. The platform (CiiMS) is being used by some private rhino managers in South Africa, and has a number of corporate clients in other fields such as banking, tourism and the oil and gas industry.

Of the above options, MEMEX provides the most powerful intelligence analysis capability, but is far too expensive for most wildlife management agencies, and requires good Internet connections for effective operation. The general consensus among users and managers (including MEMEX operators) is that i2 strikes the most appropriate balance between cost, capacity and simplicity of use, and depending on availability of funding and skilled intelligence operators, is the optimal solution for most typical protected areas. In this regard, the Rhino and Elephant Security Group/Interpol Environmental Crime Working Group looked at potential options for intelligence analysis software and also concluded that i2 was the best option, followed by the relatively cheaper Online

Intelligence suite. i2 is also widely used by police forces around the world.

It is important to note, however, that all these intelligence software systems are only as good as their operators. Even if an area has staff that are familiar with computers, specialized training will be needed in database management and information analysis using the software selected, and in maintaining any additional hardware that may be required (for example a server if the database is networked). One additional advantage of the i2 software is that there are a relatively large number of organizations offering training courses. To retain effectiveness, multiple staff in each area will be needed with these skills to cover absences and leave, etc., and if funds and resources permit, ideally there should be specialized intelligence analysts recruited to take charge of these activities (see section 4.2.2 above).

Box 4.3 Intelligence management in Kruger National Park

One of the first areas to make use of intelligence analysis software is Kruger National Park, South Africa, which has been incorporating all intelligence information in a single unified database since 2007. Currently (2014) the system includes over 21 million records, and the software is linked to national intelligence databases. The software used (MEMEX) is able to bring together and grade information from all sources and formats (e.g. informants, investigations, ranger observations, and visitor records).

In addition, the programme is also able to develop linkages from individual or even partial records, for example, phone numbers, vehicle registrations, national ID, family names, and photos. Combined with additional research examining court proceedings, media, social media, web searches (including search sites that specialize in collating all publically available data on individuals), and other sources, officers are able to build as complete a picture of each record as possible.

In one case, the registration number of a suspicious vehicle was on record from a previous opportunistic observation, but the owner of the vehicle was not known. Sometime later the car entered the park, and the registration was picked up by the 'room seeker' system (which records all vehicle registrations and individuals entering the park) and its owner was identified. Staff tracked the individual's activities, eventually leading to an arrest. Without a unified system this linkage would have been missed.

While the use of specialised intelligence software such as IBM's i2 suite of programmes is regarded by many wildlife law enforcement professionals as the optimal solution for intelligence data management and analysis, the reality is that few African protected areas currently have adequate human resources, budgets or technical capacity to effectively utilise such systems. Nonetheless these areas are all facing increasingly complex wildlife crime situations that generate increasing diverse and extensive types of intelligence information. This demands at least a minimal ability to compile, organize and interrogate this intelligence information, ideally using simple and readily available software solutions that most protected area managers are familiar with. Box 4.4 opposite summarises some of the basic organizational principles and intelligence analysis options that

Box 4.4 Basic intelligence analysis in the absence of specialist software

Across Africa, many protected areas lack dedicated staff, facilities and funds for undertaking complex intelligence analysis. In such scenarios, the opportunities for specialist intelligence training are typically very limited, and it is advisable to use simple, inexpensive and widely-available alternatives to more expensive and complex professional investigations and intelligence analysis software. For instance, one way to effectively organize simple intelligence information is to set up and maintain a basic wildlife crime incident database using Microsoft Excel.

Such Excel incident databases have been used by law enforcement agencies around the world for many years, along with paper-based incident report forms that are used by patrol officers and investigators for collecting critical data to be entered into the database³⁴. This type of simple incident database should ideally be complemented by regularly updated suspect lists which, depending on site-specific practical considerations relating to access reliable power sources, staffing, etc., can also be maintained in Excel or on simple index cards.

An Excel wildlife crime incident database would typically be laid out with each incident recorded on a separate row, and each column recording a specific aspect of the incident, such as the incident number, date, location, target species, poaching method(s), suspect(s), etc., as illustrated by the screenshots below.

The Excel database can then be interrogated using the following simple built-in analytical tools:

- **Filter:** Filtering is a quick and easy way to find a subset of data in a data range. A filtered range displays only the rows that meet the criteria that are specified for a column. The Excel Filter tool can be used, for example, to view only incidents that have taken place at a specific location or on a specific date. It is also possible to filter by more than one column and filters are additive, so each additional filter is based on the current filter and further reduces the subset of data.

Incident #	Incident Date	Incident location	Target species	Poaching method(s)	Suspect(s)
2015-1	23/01/2015	PA Sector A	Rhino	Large calibre rifle	Mr X, Mr Y
2015-2	14/02/2015	Village X, Ward Y	Buffalo, duiker	Snare	Mr Z
2015-3	05/04/2015	PA Sector D	Elephant	Large calibre rifle	Mr X
2015-4	12/04/2015	PA Sector A	Rhino	Large calibre rifle	Mr X, Mr Y
2015-5	27/07/2015	PA Sector F	Elephant	Unknown	Mr X, Mr Y
2015-6	28/07/2015	Village Y, Ward Z	Duiker, pangolin	Snare, poisoned arrows	Community A
2015-7	09/08/2015	PA Sector A	Rhino	Large calibre rifle	Mr X, Mr Y
2015-8	30/08/2015	PA Sector C	Elephant	Large calibre rifle	Mr A
2015-9	31/08/2015	PA Sector C	Elephant	Large calibre rifle	Mr A
2015-10	01/09/2015	PA Sector B	Lion	Poisoned bait	Community A
2015-11	20/10/2015	Village X, Ward Y	Pangolin	Unknown	Community B
2015-12	31/10/2015	PA Sector D	Rhino	Large calibre rifle	Mr B, Mr C, Mr D
2015-13	04/12/2015	Village X, Ward Y	Duiker	Snare	Unknown
2015-14	15/12/2015	Village X, Ward Y	Buffalo, zebra	Snare	Mr C
2016-1	06/01/2016	PA Sector A	Pangolin	Unknown	Ms X
2016-2	17/01/2016	PA Sector B	Duiker	Snare	Mr Z
2016-3	22/01/2016	PA Sector A	Rhino	Unknown	Mr X, Mr Y
2016-4	29/01/2016	PA Sector C	Buffalo	Snare	Mr Z

- **Sort:** Data in a spreadsheet can be sorted by text (alphabetically A to Z or Z to A), numbers (smallest to largest or largest to smallest), and dates and times (oldest to newest and newest to oldest) in one or more columns. As illustrated below, it is also possible to add multiple levels of sorting, so that for example incident data can be sorted first by date, then by location, target species, poaching method(s), suspect(s), etc.

Incident #	Incident Date	Incident location	Target species	Poaching method(s)	Suspect(s)
2015-1	23/01/2015	PA Sector A	Rhino	Large calibre rifle	Mr X, Mr Y
2015-2	14/02/2015	Village X, Ward Y	Buffalo, duiker	Snare	Mr Z
2015-3	05/04/2015	PA Sector D	Elephant	Large calibre rifle	Mr X
2015-4	12/04/2015	PA Sector A	Rhino	Large calibre rifle	Mr X, Mr Y
2015-5	27/07/2015				
2015-6	28/07/2015				
2015-7	09/08/2015				
2015-8	30/08/2015				
2015-9	31/08/2015				
2015-10	01/09/2015				
2015-11	20/10/2015				
2015-12	31/10/2015				
2015-13	04/12/2015				
2015-14	15/12/2015				
2016-1	06/01/2016				
2016-2	17/01/2016				
2016-3	22/01/2016				
2016-4	29/01/2016	PA Sector C	Buffalo	Snare	Mr Z

Sort

Add Level

Delete Level

Copy Level

Options...

☒ My data has headers

Column	Sort On	Order
Sort by Incident Date	Values	Oldest to Newest
Then by Incident location	Values	A to Z
Then by Target species	Values	A to Z
Then by Poaching method(s)	Values	A to Z
Then by Suspect(s)	Values	A to Z

OK

Cancel

While not as powerful as specialist intelligence softwares such as i2, the Excel database and tools outlined above provide a simple and easy-to-maintain wildlife crime incident database that can be used by law enforcement officers with no specialist intelligence analysis training or software to collate and extract information useful to investigations.

protected areas with limited funds and capacity can potentially use to improve the effectiveness of their law enforcement intelligence and investigations operations.

Intelligence data organization and analysis: success factors

- All intelligence collected needs to be collated in a unified database to reveal the relationships within the data and enable information from different sources to be assessed and graded.
- To achieve this, the use of specialized software is increasingly important; for most areas IBM's i2 suite of programmes has the most suitable balance between cost, capacity and simplicity of use.
- To effectively use and manage such software, specialized training is needed in database management and information analysis, and in maintaining any specialized hardware used.
- Multiple dedicated staff need to be trained in each area that an intelligence database is implemented in order to maintain capacity and cover absences, leave, etc.
- If resources permit, specialized intelligence analysts should ideally be recruited to manage all intelligence data collected.
- In situations where there are insufficient resources to operate specialized intelligence software, much can be achieved with inexpensive and familiar databases such as Microsoft Excel.

4.4.2 Intelligence feedback

Providing management with relevant and accurate information that can be used to inform operational decisions is the ultimate aim of any intelligence system. Experience has shown that if this is done effectively, intelligence can have a huge impact on the effectiveness of law enforcement operations, and enable significant efficiency improvements in the use of wildlife law enforcement resources. There are two key types of feedback that law enforcement managers need from an intelligence system: 1) rapid reporting of urgent issues; and 2) summaries of on-going investigations.

As illustrated throughout this chapter, intelligence information can come from a variety of sources, and ideally any site staff member should be able to collect and submit information to management that may be important. In some cases this information may require urgent action by area management. However, the traditional chain of command reporting lines that exist in many areas do not support the rapid transfer of information, and each time the information is passed between staff, the risks of compromising its security and utility increase.

As such, in some areas intelligence officers are placed outside the traditional chain-of-command, and any staff member has the right to communicate directly with them, which can rapidly speed up information flow and enhance security. It is also essential that the intelligence officers have direct or rapid links with the operations control room (see section 3.5.1) and/or senior management. Some wildlife agencies have also developed shorthand codes that are assigned to information when reported that specify the threat level and actions required in order to streamline responses (Box 4.5 opposite).

In other circumstances, information relevant to management will have emerged from investigations, and while not urgent,

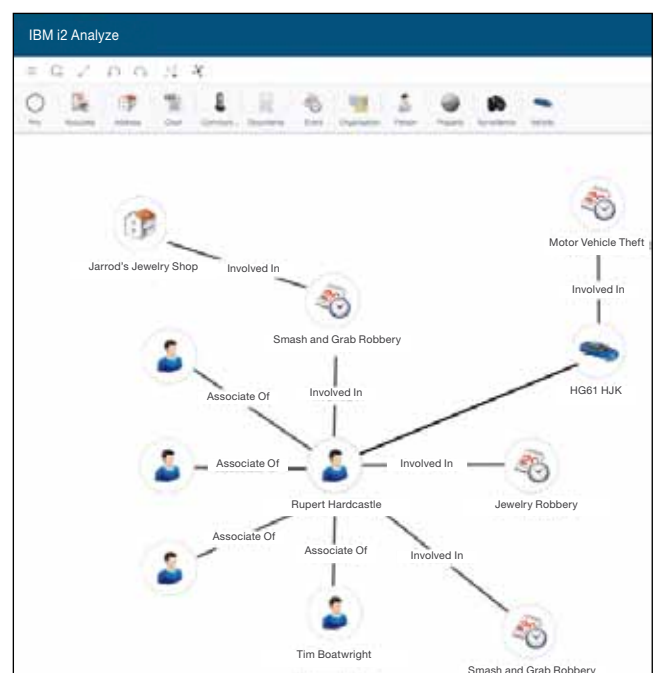
it is nevertheless important that this is communicated to senior staff. Moreover, the information can be the result of an extensive investigation and may require an in-depth explanation to outline potentially complex relationships and links. Unfortunately, while it can be difficult to explain the contents, nuances and process of an investigation to non-specialists, it is essential these are understood to enable the formulation of an appropriate response.

One of the major strengths of intelligence software (discussed in the previous section) is the ability to visually display the process and timeline of an investigation, combined with the linkages and connections that have emerged. The use of graphics illustrating these points can greatly assist senior managers in developing an understanding of the situation, and help them to respond appropriately. The diagram below gives an example of how the i2 Analyze software can be used to illustrate the connections between potential suspects and other factors related to a particular crime (sometimes referred to as a 'Link Chart'). The sample link chart opposite gives an example of the application of this type of analysis to a wildlife crime, with the steps in the investigations across the top and the linkages between suspects illustrated.

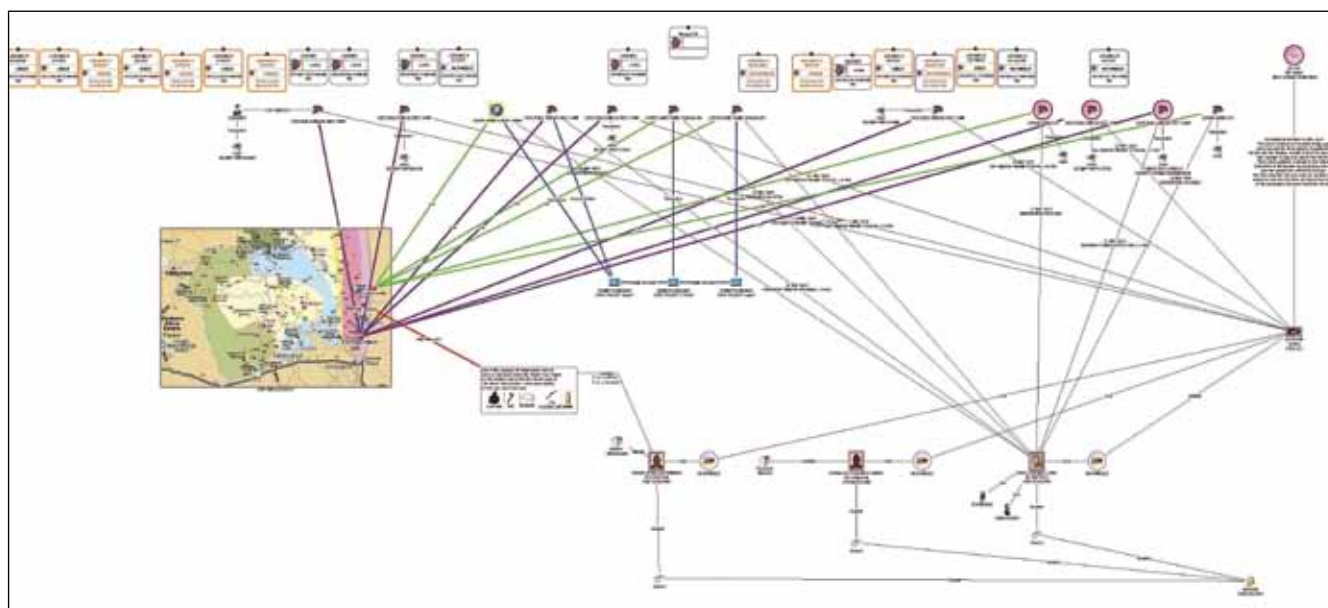
Intelligence feedback: success factors

- Placing intelligence officers outside the traditional chain-of-command can enable any staff member to communicate with them and rapidly speed up information flow.
- It is essential that the intelligence officers have direct or rapid links with the operations control room (see section 3.5.1) and/or senior management.
- Developing shorthand codes that can be assigned to information reported that specify the threat level and actions required can speed up management understanding and response times.
- Using graphics to illustrate the process and timeline of an investigation, combined with the linkages and connections that have emerged, can greatly speed up management understanding.

IBM i2 link chart showing relationships between different intelligence items. Image source: IBM i2 Analyze website



Example of an Intelligence Link Chart prepared with i2 (Kruger National Park). © Kruger National Park Intelligence Unit, South African National Parks.



Box 4.5 Intelligence Information Codes, adapted from Ezemvelo KZN Wildlife, South Africa

The codes below are assigned to intelligence information to clarify the level of threat and speed up management responses.

Code	Threat definition	Actions required
1	Reliable and precise information received that poachers have already entered an area. Location and certainty of source is confirmed.	Immediately alert and strategically deploy all law enforcement staff available. Personnel to remain in field until apprehension or proof that poachers have left the area.
2	Reliable and credible information received that poachers are going to enter a specific protected area at a known location and/or time.	Deploy resources immediately to ambush and intercept poachers. Known entry and exit routes to be covered. Available backup units on standby.
3	Reliable and credible information received describing approximate time and known route poachers will be travelling to a specific protected area.	Deploy roadblocks (in collaboration with police). Put contingencies in place in case of diversion to alternative routes at short notice.
4	Reliable and credible information received that poachers are intent on entering a specific area within the near future.	Alert protected area in question, and any adjacent areas to be ready for immediate mobilization. Alert informers that may be able to clarify situation.
5	Reliable and credible information received that poachers are mobilizing resources with a view to conducting illegal activities in the general area.	Alert protected areas in the area to upgrade surveillance and state of preparedness. Alert informers that may be able to clarify situation.
6	Possibly reliable and credible information received that certain identified individuals may be involved in poaching in a particular area.	Follow up actions by intelligence and investigations unit staff and inform senior management of outcome. Alert informers that may be able to clarify situation.

4.5 Robust evidence handling and management

In the vast majority of wildlife crimes there are no witnesses and the only means of obtaining a conviction may be through physical evidence. Two key aspects have been identified as important for ensuring that all available evidence is collected and that it will be admissible in court. These are: 1) maintaining the integrity of the crime scene; and 2) proper evidence handling combined with effective management systems. Each of these aspects is discussed in the following sections.

Effective collaboration between investigators and prosecutors from the very outset of a wildlife crime investigation can help ensure that the required evidence for successful prosecutions is collected, and that it is handled appropriately. The need for strengthening inter-agency cooperation in all aspects of wildlife crime investigation from evidence collection through apprehending suspects to eventual court proceedings is discussed in section 4.2.4 above, while section 4.6 below outlines some specific approaches that different countries have adopted to ensure that prosecutors are fully engaged in building successful wildlife crime cases, including the appointment of specialist wildlife crime prosecutors.

4.5.1 Crime scene management

Proper crime scene management is an essential component of any effective wildlife crime investigation, and successful follow-on prosecutions. In practice, however, achieving this presents a number of significant challenges. It can be days or even weeks before the crime scene is discovered, evidence can be distributed over a large area, and the scene itself may be in a remote or inaccessible location. If wildlife agencies have to rely on an officer from another agency, their arrival at the scene can take a significant amount of time, and due to the peculiarities of many wildlife crime scenes, their work can even then be ineffective due to a lack of experience working in similar situations.

For this reason, many wildlife agencies and area managers have taken steps to develop their in-house capacity to manage wildlife crime scenes, such as in Kruger National Park (see Box 4.6).

Box 4.6 Environmental Crime Investigation Unit, Kruger National Park

A small but effective Environmental Crime Investigation Unit (ECI) has been established in Kruger National Park, based at the park headquarters, which is responsible for managing all crime scenes and subsequent liaison with the police, as necessary. Once a carcass has been observed, rangers/scouts have been trained to secure the area, minimize interference, and immediately call in the ECI officer to handle the scene. Once on scene, the ECI has authority over the area, and is responsible for collecting and managing all evidence, including DNA samples where possible. They also open the case file (or 'docket') which initiates the formal investigation and will eventually be passed to the prosecution should the case come to court. The ECI officer continues to develop the docket in collaboration with the police throughout the process to help ensure it is of the highest quality. Any intelligence gathered throughout the process is added to a database (see section 4.4.1).

Crime scene contamination and poor evidence handling can often be caused by well-intentioned but ill-informed patrol staff that are first on the scene. While it may be impossible to maintain perfect integrity at every crime scene, developing clear Standard Operating Procedures (SOPs) to guide patrol staff in securing and working a crime scene can help in achieving this (see section 3.6.1). Ideally these SOPs should limit access to the area to the patrol leader only, with other patrol staff remaining beyond the security perimeter established, until investigations staff arrive to take over the scene. If tracker dogs are available (see page 31), these should ideally be immediately given access to the site (along with their handlers).

Even if secured effectively, proper crime scene management that ensures that evidence collected will hold up in court is a significant undertaking, requiring specialized training and equipment. This is best undertaken by dedicated investigations officers who are required to follow very detailed SOPs designed to ensure that the integrity of the crime scene is maintained and that evidence is properly collected and managed. The box opposite gives an example of crime scene management

SOPs from Ezemvelo KZN Wildlife in South Africa. The particular requirements and related SOPs for the handling and management of any physical evidence collected from the crime scene are discussed in the following section.

Increasingly, wildlife crime investigators are being required to apply specific forensics skills, such as the collection of DNA from wildlife specimens to identify their origin. For example, DNA has been used to determine the origin and age of confiscated ivory and rhino horns, and provides evidence that can potentially be used as part of prosecutions in court³⁵. Another method to determine the origin of ivory is based on analysis of stable isotopes from animal tissue which reflect local geology, diet structures and weather conditions ('isotopic profiling/fingerprinting').

The collection of such evidence requires specialized training as well as tools, such as tamper proof collection kits that ensure the chain of evidence is maintained. Currently, there are only very few specialized laboratories which are able to extract and analyse DNA from ivory samples, often far away from the source countries. Further information on the requirements for the collection and handling of forensic evidence can be found in the ICCWC/UNODC Guidelines on Methods and Procedures for Ivory Sampling and Laboratory Analysis³⁶.

Box 4.7 Crime Scene Procedures, from Ezemvelo KZN Wildlife, South Africa

First person on scene:

- First person on scene to contact supervisor immediately, giving locality of crime scene. If radio is used, use pre-planned code. Give GPS points if possible.
- Crime scene to be preserved by not touching anything, not walking into the scene and by keeping all persons and animals well away.
- First person on scene to remain on site until relieved by senior person/investigations team. If necessary, keep staff on site all night to ward off animals and humans.
- Immediately inform: Elite Anti-Poaching Unit; police (organized crime), vet and Dog Unit if fresh tracks are available for follow-up. Do not delay.
- Seal off entire scene with hazard tape, or placing personnel around periphery. Preserve spoor on scene by covering with spoor boxes or anything at hand, e.g. waterproof, poncho, etc.

Investigations Officer:

- Record all details: Date, time, weather conditions, locality, persons first on scene, all details pertaining to actual crime e.g. spoor, number of suspects, estimated time of killing, direction approached and departed, cartridge cases, any other signs that may give information on crime.
- Inspect carcass(es) and note decay, position, wounds, bleeding, etc. Take photographs and measurements. Note presence of blood spoor, which may indicate direction animal had run before dying. Back track to look for clues.
- Use metal detector to look for bullets, cartridge cases and other clues.
- Once investigation is complete, destroy the carcass by burning; salvage as much skin as possible depending on condition; keep skull in safe place for court case (tagged with all relevant details).

Training in the specifics of crime scene handling and evidence collection should ideally be restricted to dedicated investigations officers, as per the examples from Kruger National Park and Ezemvelo KZN Wildlife given in Boxes 4.6 and 4.7. It has been reported that in some areas poachers may have obtained detailed knowledge of crime scene evidence handling, possibly from park management staff that have attended a crime scene handling training course, which has undermined the effectiveness of evidence collection and prosecutions.

The reality in many protected areas, however, is that such specialist investigations officers may not be readily available to process crime scenes. In such cases, training all field staff in basic evidence collection procedures, as well as SOPs that provide guidance in dealing with different types of illegal activity, may be the best option.

Maintaining crime scene integrity: success factors

- If feasible, developing the in-house capacity to manage wildlife crime scenes can speed up response times and improve the quality of crime scene handling.
- The ability of rangers/scouts to initially secure a scene without undue contamination is critical. This requires well-rehearsed SOPs.
- Detailed SOPs are required to ensure proper crime scene management, and the collection and management of all evidence by investigative officers.
- Forensic evidence, including the collection of DNA samples from wildlife specimens, is playing an increasingly important role in wildlife crime investigation, and requires specific training and tools.
- Ideally, the investigative officer should continue to develop the case file in collaboration with the police to help maintain case momentum.
- Any intelligence gathered throughout the process should be added to an intelligence database (see section 4.4.1).

4.5.2 Evidence collection and management

The successful prosecution of a case can hinge on the integrity of physical evidence. Attorneys will often scrutinize the reliability of the evidence presented, and questions are commonly asked in court about the methods used to collect and handle evidence. As such, evidence at a crime scene must be properly collected, stored, and managed for retrieval during a trial or other judicial proceeding (see also previous section). Unfortunately, in some countries, shortfalls in evidence handling have been cited as the single most important factor in losing wildlife crime cases.

Fortunately, maintaining a secure chain of evidence is neither a complicated nor expensive process; however, it does require some basic equipment and facilities (i.e. evidence bags, evidence tags, a secure storage location) and effective management. There are a number of points in the chain of evidence from collection through to storage and retrieval for use in court that need to be well-managed in order to maintain an item's integrity. The major issues to be considered at each stage in the chain of evidence are summarized in the following bullet points:

- **Evidence collection:** Each piece of evidence should be photographed prior to being removed from the crime scene

or before it is destroyed (i.e. spoor). Important evidence can include human tracks, tyre tracks, shell casings, and any items left behind by poachers. Ideally all items should be fingerprinted and tracks should be collected using a plaster mould (see photo below).

- **Evidence tagging:** At the time of removal, every piece of evidence should be given an evidence tag that should be placed inside the evidence bag, but should not be affixed to the evidence itself. The evidence bag should be also clearly marked on the outside to identify it as evidence (see photo below). A tag should show the following information:
 - Case number
 - Unique evidence number
 - Description
 - Location of collection
 - Date/time of collection
 - Name and signature of collecting officer
 - Name and signature of witness.
- **Evidence storage:** Evidence should be stored in a locked and controlled location with a permanent custodian responsible for access, and a strict list of personnel who have access to the area. All entries and exits from the area must be logged, and an additional log should be kept documenting who had physical access to which pieces of evidence.
- **Evidence retrieval:** Evidence should be secured and only retrieved as part of the investigation or for trial. Any movements of evidence outside the evidence room for inspection, testing, or in court should be noted in the evidence log. Evidence rooms should be ideally inspected periodically to verify the accuracy of the inventory.

A cast of a footprint taken from a crime scene. © CDC



Evidence properly collected and labelled in a sealed evidence bag. © P.J. Gerber, Ezemvolvo KZN Wildlife



One increasingly important source of evidence is forensic analysis (for example analysis of DNA, stable isotopes or ballistics; see section 4.5.1). Due to a lack of resources, laboratories and adequately trained staff, the use of forensics remains fragmentary in most countries. Although some regional collaboration exists, for example all SADC countries have access to the South African Police Service Forensic Science Laboratory, the full potential of this approach in assisting wildlife crime investigations has not yet been realised. This is also due to the logistical and administrative challenges of exporting and transferring evidence to and from the forensics facility, especially the constraints on transferring samples across international borders.

Besides physical evidence, successful prosecutions can also benefit from the effective use of testimonial evidence (i.e. oral or written assertions by suspects or witnesses to be presented in court). However, testimonial evidence is generally regarded as more subjective in nature and less reliable than properly analysed and interpreted physical evidence. In addition, witness testimonies are typically rare in wildlife crime cases, as poaching and related offences generally take place at isolated locations and witness collaboration is often limited.

Nevertheless, when wildlife crime suspects are apprehended it is not uncommon in some countries to obtain a confession, particularly if the suspects are caught in the act of committing a crime or in the possession of contraband (although this is in

part due to the fact that they know they will most probably be released on a technicality due to ineffectiveness of the prosecution process). In such cases, effective interrogations are essential, both with the view of obtaining testimonial evidence for prosecution and in order to acquire intelligence on poaching networks (see section 4.3.1).

Strict legal criteria must be adhered to in order to obtain confessions that will hold up in court. In this regard, establishing clear SOPs for staff to follow when conducting interrogations, including standardized formats for recording statements, can help guide staff and improve adherence to legally required standards. In addition, whenever possible, interrogations of suspects aimed at obtaining legally admissible evidence should take place under the supervision of experienced investigators well versed in the technical aspects of the investigative process.

A reliable filing and data management system (preferably including digitised electronic copies of all evidence and documents) integrated with the physical evidence tagging and retrieval systems is critical for effectively assisting prosecutions. This need not be complex or expensive; for example, in Central and West Africa, the EAGLE Network of NGOs have set up interlinked intelligence, investigations and prosecution monitoring databases that has proved effective using basic spreadsheet software (such as Microsoft Excel).

Evidence collection and management: success factors

- Each piece of evidence should be photographed prior to being removed from the crime scene or destroyed (in the case of spoor).
- At the time of removal, every piece of evidence should be given an evidence tag that should be placed inside the evidence bag.
- Evidence should be stored in a locked and controlled location with a permanent custodian responsible for access and a strict list of personnel.
- Any movements of evidence outside the evidence room for inspection, testing, or for use in court should be noted in the evidence log.
- For confessions or witness statements, strict legal criteria must be adhered to in order to obtain statements that will hold up in court. SOPs for conducting interviews can help with this.
- Databases for managing and monitoring evidence, ideally linked to electronic copies of the evidence, can be developed using basic software and used to manage evidence pre-trial.

4.6 Competent case development and charging

The majority of wildlife cases fail to result in successful prosecutions³⁷. In many cases this is due to problems with the administration and management of the case, not a lack of evidence. Three aspects have been identified as key for developing viable cases with appropriate charges. These are: 1) the preparation of a robust arrest or case report; 2) the appropriate and effective charging of suspects, including optimal use of all available legislation; and 3) the monitoring of case progress and repeat offenders. These are elaborated in the following sections.

4.6.1 Arrest or case report preparation

An arrest or case report is a description of the facts surrounding a crime or incident written up by the officer who has led the investigation or was deployed to a crime scene. These reports typically summarize the events leading up to arrests and provide other details, such as dates, time, location, evidence collected, witnesses' names and addresses, and may include any witness statements that support their investigations. The report is compiled after an arrest is made and then quickly forwarded to a prosecutor who will decide if and what charges are to be applied.

A legally-sound and well-written arrest report is an essential part of eventually bringing a case to court. Prosecutors often make charging decisions (see next section) based on little more than a cursory review of the report and a defendant's criminal history, and it is therefore essential that the report is legally robust, accurate and comprehensive. In addition, a well-prepared arrest report can provide important supporting information to enable a judge or magistrate to reach a verdict on the validity of the charges brought against a suspect, and therefore can have a significant impact on the outcome of court cases.

However, these reports are not always well prepared, which has contributed to failures to achieve prosecutions. For example, a recent study from Kenya³⁸ showed that over 15% of wildlife crime cases were withdrawn or dismissed as a result of inconclusive investigations, missing or incomplete case files, missing evidence, or other factors. Unfortunately, another recent survey also carried out in Kenya suggests that this problem is not unique to wildlife crimes, and highlights that 64% of all cases being forwarded for prosecution in court in Kenya fail to meet the minimum evidentiary threshold required to sustain convictions³⁹.

A particular area of weakness appears to be during the transition period from the investigators to the legal system when court proceedings begin (often with the arraignment of the accused and the formal presentation of the charges). In order for the case to proceed effectively, the arrest report and all associated documentation and evidence (see section 4.5.2) needs to be presented properly and in accordance with the legal requirements. Failure to do so can either result in inappropriate charges being brought against the accused, or their case being dismissed on technical grounds.

One way this issue is being addressed in a number of countries in West and Central Africa is through the legal assistance to national wildlife authorities and prosecutors being provided by the EAGLE Network of NGOs, which aims to improve the robustness of wildlife crime case development and prosecution. Their support has included providing legal assistance during arrest report preparation to help to ensure that all evidence and documents are legally sound, enabling complementary briefings of prosecutors on the merits of individual cases, and suggesting prosecution strategies that could be followed for a particular case.

In Zambia, the issue has been addressed by the national wildlife agency (the Zambia Wildlife Authority) through directly employing both investigations officers and prosecutors. This enables constant interaction between the investigating officers and knowledgeable prosecutors as the case develops and helps ensure that all paperwork is properly completed and that appropriate charges are brought against the accused. In addition the staff are based in the same location and report to the same senior warden, further aiding ongoing collaboration.

Arrest report preparation: success factors

- Arrest or case reports and associated documentation need to be presented properly in accordance with the legal requirements to enable prosecutors to assess the case and apply appropriate charges.
- Close collaboration and a good working relationship between the officers putting forward the arrest report and the prosecutors is essential to ensure that case administration is legally sufficient.
- Training of wildlife agency staff in key aspects of legal procedures (see section 4.2.2) is one way to help ensure proper report submission.
- Alternatively, capacity shortfalls can be addressed through the support of specialist organizations with knowledge and experience of the legal process and case requirements.

4.6.2 Prosecution of suspects

A key step in securing a successful wildlife crime conviction is the appropriate and effective charging of suspects, and in particular, the preparation of charge sheets that use the appropriate and optimal legal statute(s) for the crime committed. Depending on the country concerned, the preparation of charge sheets can either be the function of the police prosecutor or, where it exists separately, the prosecution service. In either case, however, the lack of knowledge of wildlife crime offences and/or insufficient prioritization of these cases, can often mean that charge sheets are inappropriately prepared.

For this reason, a number of wildlife services have developed their own capacity to inform and influence the wildlife crime charging process and to assist in the preparation of suitable charge sheets, for example the recruitment of prosecutors as is the case in Zambia (see above), enlisting support from other agencies as is the case with the work of the Eagle Network in Central and West Africa, or simply training investigators or other wildlife officers to have the capacity to assist in charge sheet development.

A charge sheet normally provides a statement of the specific charges brought against the suspect, as well as full particulars of the offence that is alleged to have been committed (the details of which are likely to be drawn from the arrest report discussed in the previous section). A critical aspect of the effectiveness of the charge sheet is to ensure that the charges being brought against the suspect are supported by the most appropriate legislation that can be used, be it wildlife legislation or other relevant statutes.

In this regard, almost all countries have principal legislation that has been designed to cover issues relating to wildlife

crime, and that has traditionally been used to prosecute those involved in poaching or trafficking wildlife. However, in many cases this legislation is now outdated, and was not designed to address issues relating to the recent upsurge in poaching and the increasing organization of wildlife crime (in particular linked to species such as elephant and rhino). As such, the penalties and coverage of wildlife-specific legislation are often insufficient to deter and address all aspects of modern wildlife crime.

However, many countries also have a range of other legislation that addresses the wide range of criminal activities that are increasingly associated with organized wildlife crime (e.g. money laundering, firearms offences, racketeering and fraud, revenue and customs). Much of the legislation covering these offences carries much more severe penalties than many wildlife statutes, and has the potential to provide a more effective deterrent to the use of traditional wildlife legislation alone. Unfortunately, for a variety of reasons, such as legal restrictions or lack of prosecution knowledge, this approach has not been fully capitalized on.

For example, in Kenya, wildlife crime prosecutions initiated by the Kenya Wildlife Service have traditionally mainly been carried out under the Wildlife Conservation and Management Act and have not been able to take advantage of other relevant legislation with potentially more serious penalties (such as the Firearms Act, the Proceeds of Crime and Anti-Money Laundering Act, or Money Laundering Act³⁸). Whereas in Tanzania, wildlife crimes are often treated as minor offences under the Economic Crime Act because of the low economic value attached to wildlife³⁷.

To ensure that wildlife crime charge sheets optimize the charges placed against the suspect requires a broader knowledge of national legislation than only the principal laws relating to wildlife crime, and specialist knowledge of the nature of wildlife crimes and how legislation can be applied to them. As mentioned above, the EAGLE Network has provided assistance in this area, through briefing prosecutors on the merits of individual cases, and suggesting prosecution strategies with regard to the full range of legislation that could be utilized for a particular case.

Contrastingly, in Zimbabwe, a simple guide has been developed to help state prosecutors select the most appropriate legislation to use during the preparation of charge sheets. This guide is designed to assist in ensuring that suspects accused of poaching-related offences face the maximum penalties, and lists the appropriate legislation (e.g. Parks and Wildlife Act, Forest Act, Firearms Act, Trapping of Animals Control Act, Criminal Law Codification and Reform Act) that can be used to prosecute each particular type of offence, specifying relevant sections within the legislation and the maximum penalties.

Similarly, the Kenya Wildlife Service has prepared a Specimen Charges Booklet that details the key elements of wildlife crime charge sheets as well as describing the potential charges that can be brought for wildlife offences under the wildlife

legislation and other statutes. Kenya has also recently initiated a more comprehensive approach to ensuring that wildlife crime cases are prosecuted effectively, and under the most effective legislation, through the establishment of the 'Wildlife Crimes Prosecution Unit', consisting of 35 specialist prosecutors headed by the Deputy Director of Public Prosecutions.

Importantly, alongside providing specialist prosecutorial services, the establishment of a dedicated unit should also improve collaboration with the Kenya Wildlife Service, including joint training of wildlife and prosecution unit staff in prosecution requirements and pertinent legislation for wildlife crimes. Although the unit is new, it is hoped that increased collaboration between the two agencies, combined with the improved specialist knowledge of the prosecutors, should make a significant contribution to reducing the current high failure rate of wildlife crime prosecutions.

Prosecution of suspects: success factors

- The full range of legislation that can be applied to a wildlife crime should be considered to ensure that the most appropriate charge sheets are drawn up against an accused.
- Simple guides can be developed for prosecutors linking different types of crime with all relevant legislation that can help ensure the most appropriate charges.
- Specialist prosecutors focused on wildlife crime can help ensure that the most appropriate charges are applied and that wildlife crime cases are successfully prosecuted.

4.6.3 Monitoring cases and offenders

Wildlife crime cases are often a low priority compared with other cases. As a result the interval between the charging of suspects and court cases being held can often be very lengthy, and many cases end up being postponed indefinitely because of a lack of follow up. As mentioned above, this issue has been addressed in South Africa by ensuring that all serious wildlife crimes are handled by the provincial organized crime squad (rather than individual police stations), in collaboration with the provincial wildlife agency, which has made the monitoring and review of progress of all on-going cases much easier.

In all crimes, judges (and often legislation) view repeat offenders more seriously than first time offenders, and increase the penalties applied accordingly. However, the recognition of a repeat offender requires good court administrative management systems, which are currently lacking in many African countries. In most cases, courts and police still manage their court filings on paper, which can lead to significant inefficiencies. For example, one recent study³⁸ of wildlife cases in Kenya found that over 70% of court files from wildlife crime cases were reported missing or had been misplaced.

The same study confirmed that repeat offenders are not easily detected. In one court the same offender was arraigned on wildlife related matters on two separate occasions in a span of less than a year. On both occasions lenient sentences were handed

out as a 'first' offence. This demonstrates that with the current poor tracking of previous convictions and little exchange of information between courts, it is very challenging to identify repeat offenders, and as such their sentencing in subsequent cases does not reflect the extent of their repeated criminal activities.

In Uganda, the Wildlife Conservation Society and the Uganda Wildlife Authority have addressed this issue by developing an online tool that gives wildlife agency staff and law enforcement officials access to a database that tracks wildlife crime offenders across the country⁴⁰. This database is not only designed to enable better monitoring of arrests but also improve the identification of repeat offenders and their associates. Importantly, it will also

allow park managers to better track prosecutions while enabling the export of data for further analysis of prosecution successes, reasons for failure and other factors.

Monitoring cases and offenders: success factors

- The simple act of tracking case progress can help keep wildlife crime cases as a priority for other law enforcement agencies and the judiciary.
- Centralizing the monitoring of wildlife crime cases on a sub-national or national basis can make it easier to track the progress of prosecutions and improve success rates.
- Maintaining records of wildlife crime perpetrators can help identify repeat offenders and enable the application of more serious penalties.

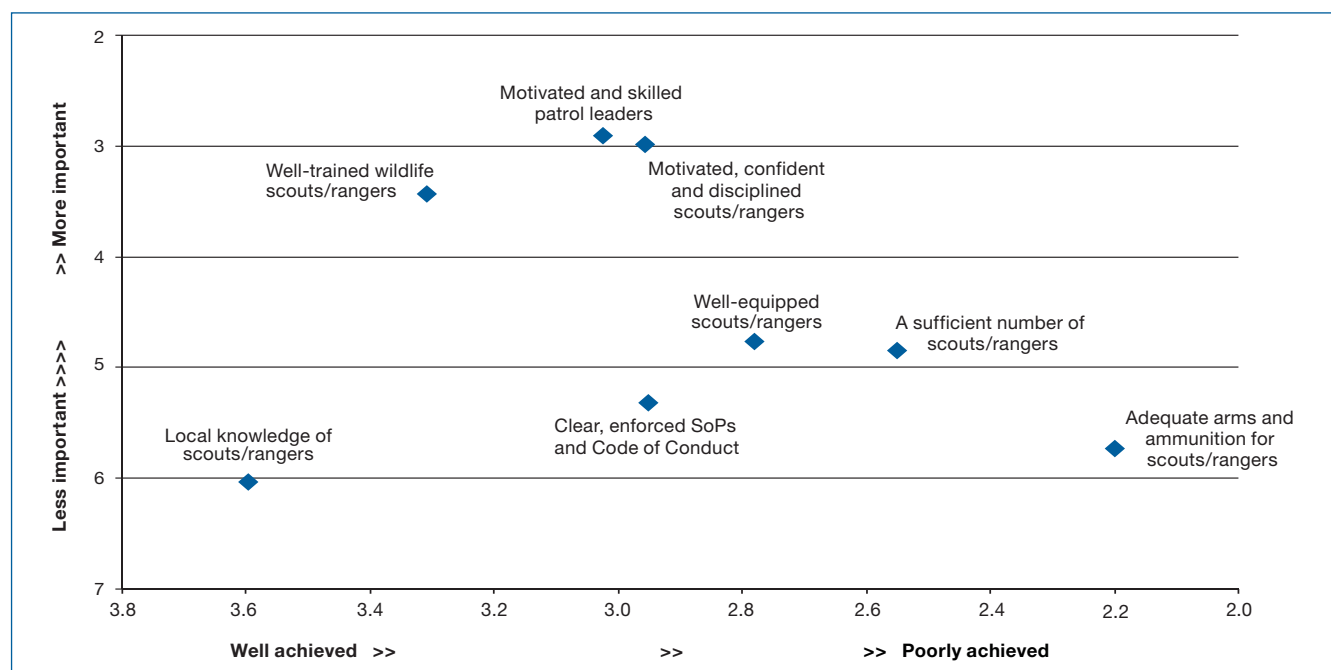
5. Appendices

5.1 Online survey outputs

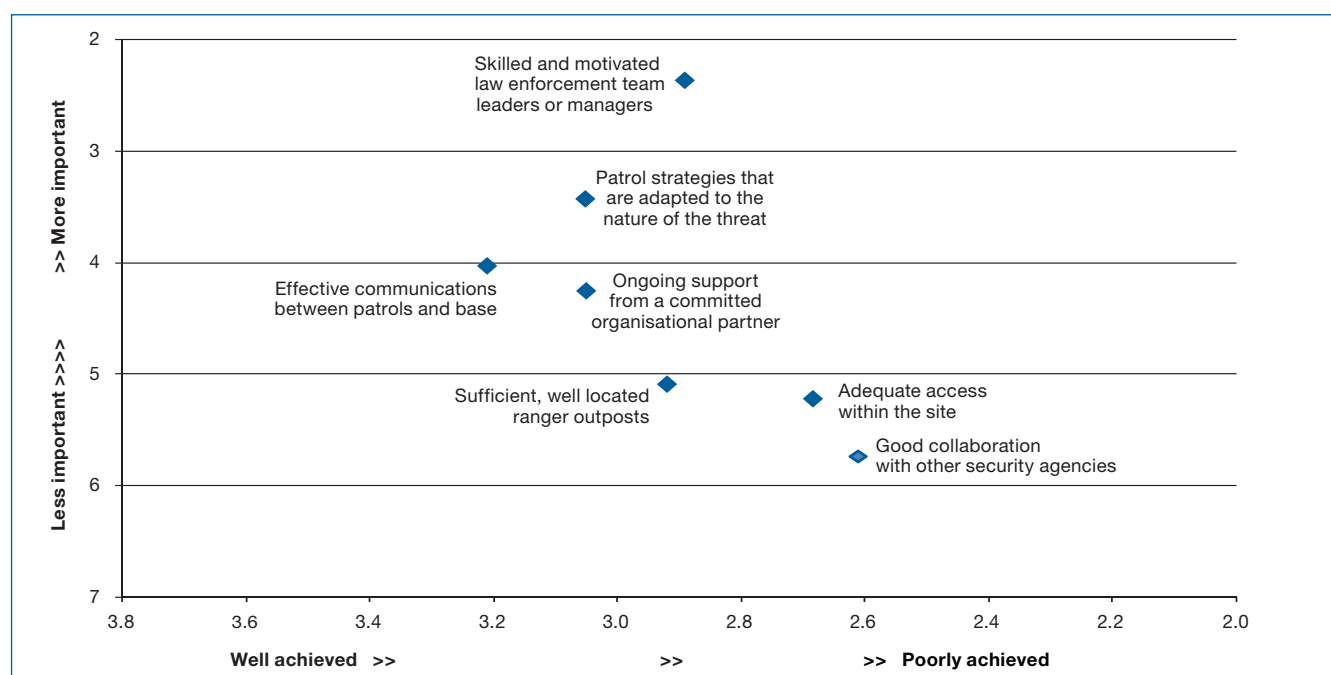
The outputs below provide examples of the quantitative analysis performed on the results of the online survey, which provided the foundations for the stakeholder consultations (see next section).

It should be noted that these refer to an early version of the analytical framework (for example, ranger-based monitoring was originally considered as a separate LE strategy and as such does not feature in the graphs below).

5.1.1 Strategy 1: Law Enforcement Patrols

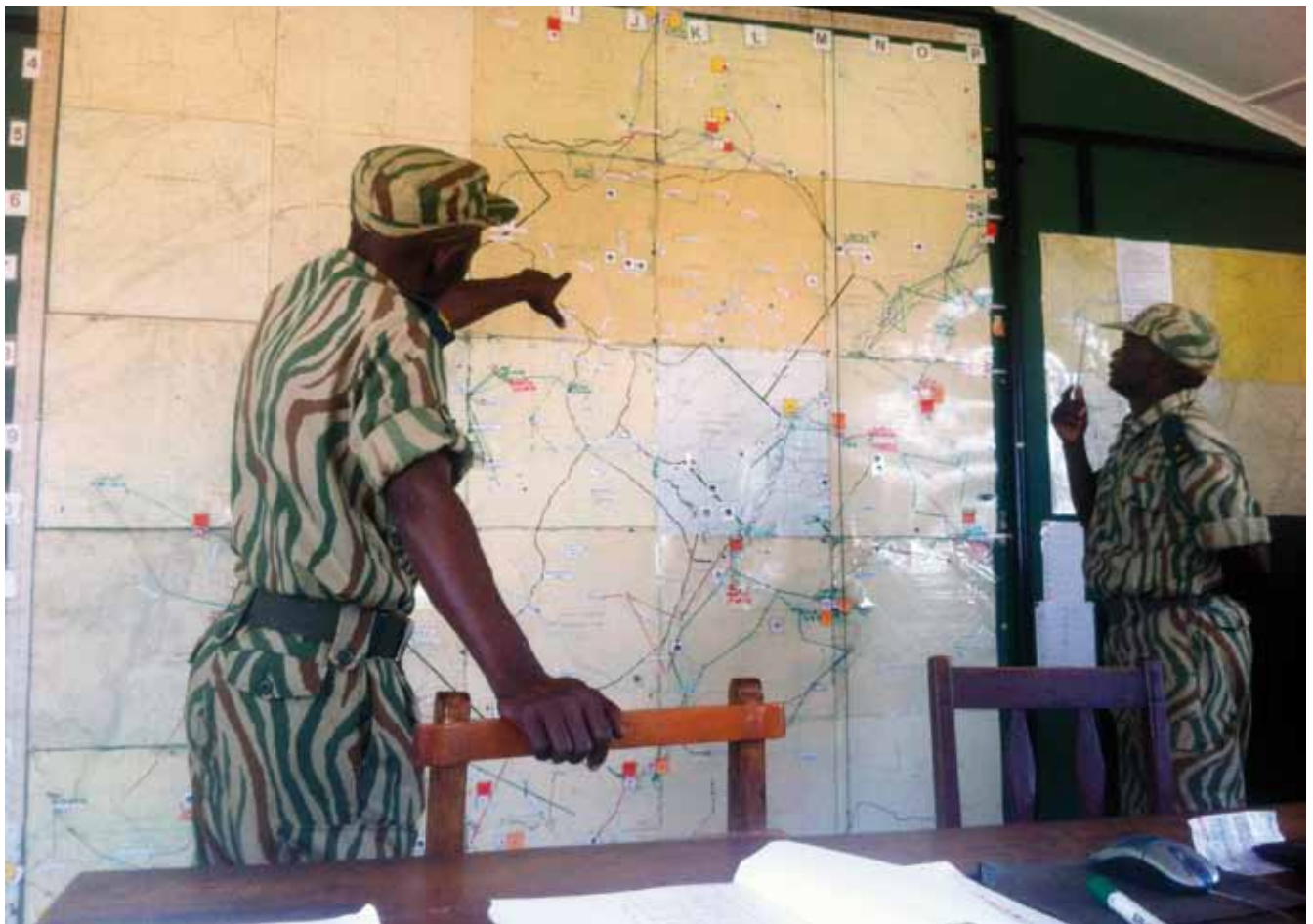


5.1.2 Strategy 2: Law Enforcement Management



5.2 Consultations held

Location	Stakeholders consulted
Combating Poaching and Illegal Trade Elephant and Rhino Workshop, Mozambique	Alistair Nelson, Country Director, Wildlife Conservation Society
	Nigel Morgan, Managing Director, Focus Africa/Pathfinder
	Jo Shaw, Rhino Coordinator, World Wildlife Fund, South Africa
Kruger National Park, South Africa	Ken Maggs, Chief of Staff Special Projects, South African National Parks
	Sandra Snelling, Manager: Environmental Crime Investigation, Information, Analysis & Compliance, South African National Parks
KAZA Law Enforcement and Anti-poaching Workshop, Namibia	Colonel Isaac Kgosi, Central Anti-Poaching Coordination Office, Botswana
	Morgan Saisai, CBNRM Warden, Caprivi NP, Ministry of Environment and Tourism, Namibia
	Amos Gwema, Senior Investigations and Security Officer, Investigations and Security Department, Zimbabwe Parks & Wildlife Authority
	Russell Taylor, Transfrontier Planning Advisor, World Wildlife Fund, Namibia
Isimangalio Wetland Park, South Africa	Tony Conway, Park Manager, KwaZulu-Natal Wildlife
	Johann Gerber, Head: Anti-Poaching Unit, KwaZulu-Natal Wildlife
Mkuzi Game Reserve, South Africa	Carmen Van Ticklen, Specialist Wildlife Data and Rhino Security, KwaZulu-Natal Wildlife
WCS Gabon office, Libreville, Gabon	Gaspard Abitsi, Representant Directeur Général, Wildlife Conservation Society
	Eric Arnhem, Assistant Technique Senior – Paysage Terrestre, Wildlife Conservation Society
	Helene Blanchard, Assistante Technique SIG, Wildlife Conservation Society
	Elise Mazeyrac-Audiger, Assistante Technique Formation CEDAMM, Wildlife Conservation Society
	Emma Stokes, Regional Technical Advisor, Wildlife Conservation Society
ANPN offices, Libreville, Gabon	Hervé Ndong Allogho, Chef de Service chargé des Investigations, de la surveillance et de la Protection, Agence Nationale des Parcs Nationaux
	Omer Ntougou, Directeur de la Communication, Agence Nationale des Parcs Nationaux
	Joseph Vivien Okoui Okoui, Conservateur Sénior chargé des Parcs TRIDOM, Agence Nationale des Parcs Nationaux
Conservation Justice offices, Libreville, Gabon	Luc Mathot, Founding Director of Conservation Justice, EAGLE Co-Founder, Eco Activists for Governance and Law Enforcement
Lopé National Park, Gabon	Benoit Nziengui, Conservateur du Parc National de la Lopé, Agence Nationale des Parcs Nationaux
	Constant Avando, Chef de site WCS Lopé, Wildlife Conservation Society
	Gabin Nzamba, Point Focal LEM/Assistant de Recherche WCS Lopé I, Wildlife Conservation Society
	Jean-Cristophe Mboyi Nzengue, Point Focal LEM/Assistant de Recherche WCS Lopé II, Wildlife Conservation Society
ANCE-Togo Office, Lomé, Togo	Mensah Akomedi, Chargé de Projet, Alliance Nationale des Consommateurs et de l'Environnement
	Hèssouwè Bakenou, Coordinateur Project TALFF, Alliance Nationale des Consommateurs et de l'Environnement
	Fabrice Ebeh, Directeur Executif, Alliance Nationale des Consommateurs et de l'Environnement
	Sonia Akpédzé Mitchikpe, Chargé de Projet, Alliance Nationale des Consommateurs et de l'Environnement
Ministère de la Sécurité et de la Protection Civile, Direction Générale de la Police Nationale, Direction Centrale de la Police Judiciaire, Bureau Central National INTERPOL, Lomé, Togo	Minpame Charles Bolenga, Commissaire Principal de Police, Chef BCN Interpol, Bureau Central National INTERPOL Lomé
Ministère de l'Environnement et des Ressources Forestières, Lomé, Togo	Matchonnawè Hubert Bakai, Conseiller Juridique Advisory Board ECEC Interpol
	Okoumassou Kotchikpa, Direction des Ressources Forestières, Ministère de l'Environnement et des Ressources Forestières
OCTRI, Lomé, Togo	Lt. Essossimna Awi, Chargé de l' Unité Mixte Control des Containers (UMCC), Office Central de Répression du Trafic Illicite des Drogues et du Blanchissement
Ministère de la Justice, Lomé, Togo	Koffi Jean Balouki, Judge d'Instruction, Tribunal de Lomé
Gonarezhou National Park, Zimbabwe	Hugo van der Westhuizen, Project Leader, Gonarezhou Conservation Project, FZS
	Elsbe van der Westhuizen, Project Leader, Gonarezhou Conservation Project, FZS
Malilangwe Wildlife Reserve, Zimbabwe	Mike Ball, Malilangwe Trust
South Luangwa National Park, Zambia	Rachel McRobb, CEO, South Luangwa Conservation Society
	Benson Kanyembo, Operations Manager – Law Enforcement, South Luangwa Conservation Society
North Luangwa National Park, Zambia	Mike Mulena, Senior Investigations Officer, Northern Region, ZAWA
	Ed Sayer, Project Leader, North Luangwa Conservation Project, FZS
	Claire Lewis, Project Leader, North Luangwa Conservation Project, FZS
Lusaka, Zambia	Kerri Rademayer, Operations Manager, Conservation Outcomes



Operations control room in use in North Luangwa National Park, Zambia. © CDC



Field firearm training in Southern National Park, South Sudan. © WCS

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