CUTTING THE ILLEGAL WILDLIFE TRADE SUPPLY CHAIN

Using the Spatial Monitoring and Reporting Tool (SMART) for Wildlife Law Enforcement Monitoring in Uganda's National Parks
March 2018

SUMMARY

Uganda is a major trafficking route for illegal wildlife trade from neighbouring countries to Asia. For years, Uganda Wildlife Authority (UWA) lacked the capacity to gather intelligence and target middlemen involved in the trade, consequently, an upsurge in poaching particularly in elephants for ivory, pangolins for scales and hippo for teeth began again from 2011. Though a tailor made integrated spatial Management Information SysTem (MIST) had been developed in 1997 for UWA through a collaboration with GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit, it was realized that MIST lacked the robustness and capabilities for analysing data to guide decision making and this led to the development of SMART. Upon transitioning from using Management Information SysTems (MIST) to SMART for law enforcement monitoring, UWA still faced challenges of lack of capacity to efficiently and effectively combat wildlife crime in the protected areas. Wildlife Conservation Society (WCS) teamed up with the University of York (UoY) to enhance UWAs ability to make the most of SMART for better results. New approaches such as patrol planning and ranger deployment have been introduced and a SMART Analysis software and plug-in developed to enable easy and quick analysis to be made for decision making.

Use of SMART over the past two years has significantly improved ranger deployment and the rate of detection of illegal activities in the protected areas. This brief report demonstrates how SMART has been used in UWA and the lessons, challenges and recommendations drawn so far.

COMBATING ILLEGAL WILDLIFE TRADE

WHAT IS SMART?

SMART, a simple yet powerful law enforcement management tool, provides a platform on which to apply a standardized and sufficiently rigorous approach to the collection, management, evaluation and communication of ranger-based law enforcement monitoring data through a user-friendly interface that bypasses the need for complex database and Global Information Systems (GIS) software packages. This conveys an important degree of sustainability to the system. SMART is implemented onsite by field park staff, ensuring rapid feedback of information to where it is needed most urgently and by those who can use it to greatest effect and exert short-term management interventions.

UWA has now adopted the use of SMART across its conservation areas. This necessitated a shift from using paper forms to using Smartphones for data collection. The phones are loaded with a Cyber tracker based data model template that enables field observation to be collected.

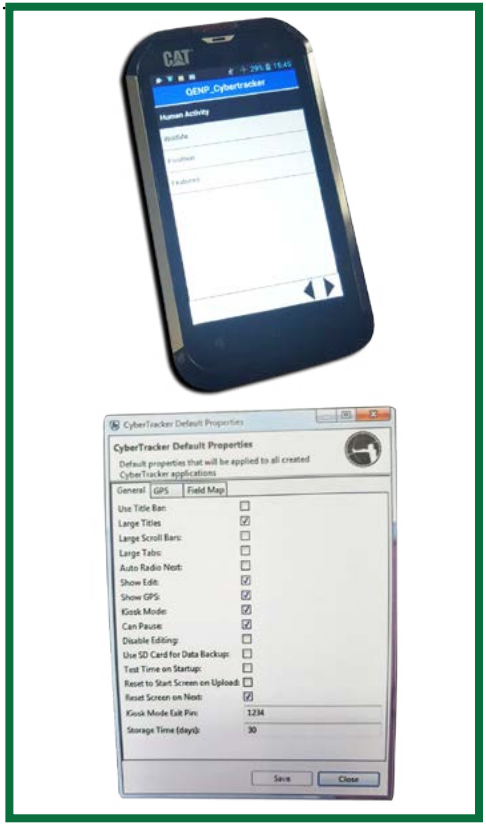
WHY SMART

While UWA was using MIST and had strong law enforcement within its parks, it lacked sufficiently trained staff, intelligence networks, and links with police and military to tackle wildlife trafficking through to its border posts.

Over the past two decades, UWA's effective Protected Area management has led to the increase in many of the large mammal populations within the parks and wildlife reserves. However, an upsurge in poaching began again from 2011 onwards, particularly the poaching of

elephants for ivory, pangolins for scales and hippo for teeth. This became a concern given the limited populations in the region.

To address the above challenge, Wildlife Conservation Society (WCS) partnered with UWA and the University of York (UoY) in a two-year project titled "An integrated, multi-scale approach to combating wildlife trafficking in Uganda" funded by the Illegal Wildlife Trade (IWT) Challenge Fund of the United Kingdom, to improve the capacity of local law enforcement officers in UWA's protected areas; to use new capabilities in SMART to efficiently and effectively conduct ranger patrols (Output 4 of the project). This brief highlights some key achievements and lessons registered in the course of the implementation of this project, specifically based on experiences drawn from Queen Elizabeth and Murchison Falls National Parks.



HOW SMART HAS IMPROVED LAW ENFORCEMENT EFFECTIVENESS

For the past two years, WCS and UoY joined efforts to enhance the capacity of UWA to use SMART to improve law enforcement. This was driven by the realisation that UWA spent 45-75% of its Protected Area budgets on law enforcement, yet little evaluation of the effectiveness of patrolling was done. WCS's work with UoY in Queen Elizabeth NP has shown that patrolling could be made significantly more effective for the same cost if data is used strategically to inform patrol deployment.

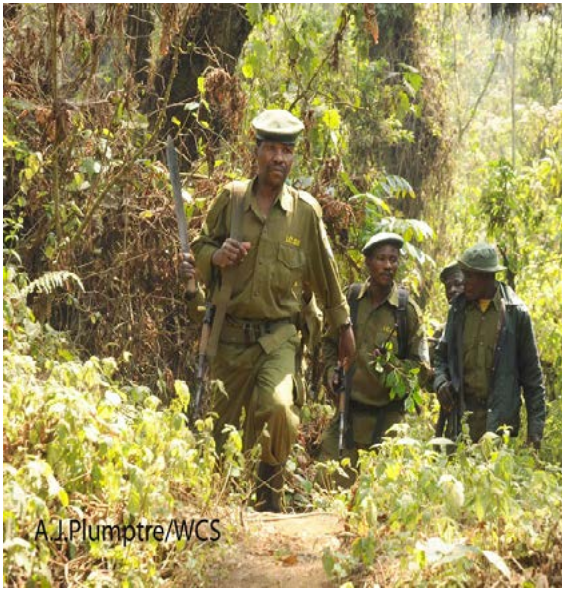
Analysis of SMART data is technically challenging. This project made use of UoY's expertise, led by Dr Colin Beale, to create a software

program that that would integrate with SMART to enable quick and robust analyses of SMART data. To make this practical, this project developed a SMART plug-in which will allow park wardens to analyse SMART data in new ways and then use the results of the analysis to deploy their rangers more effectively. A training manual and other appropriate documentation have also been developed to accompany the software.

This plug-in is capable of identifying parts of protected areas where illegal activities are likely to be prevalent and therefore enables better patrol planning and ranger deployment. This and the associate Smartphone App will also be made freely available to SMART users in 30 countries around the world. Visit https://uganda.wcs.org/Initiatives/IWT-and-CWT.aspx for download instructions.

CONTRIBUTION OF SMART TO PROTECTED AREA TWO YEARS MANAGEMENT OVER THE LAST

Feedback of results to ranger staff for Management planning



SMART has the ability to generate a variety of customizable yet standardized reports and charts of threat Indicators, patrol effort statistics and individual ranger performance summaries. One of the most important aspects to SMART implementation, and law enforcement patrols, is regular feedback of information to the patrol teams for use in strategic patrol planning and deployment. In UWA, the Non Commissioned Officers (NCOs) together with the Wardens usually hold quarterly meeting to evaluate their performance in the different sectors, and

to plan for the subsequent quarter, hence have integrated feedback from SMART in the management cycle for improving patrolling efficiency.

In addition, UWA SMART users are now able to generate integrated reports and maps of patrol data, enabling rapid visual assessment of patrol performance and illegal activity hotspots. This enables the patrol impacts and effects in various periods to be compared. In the following sections, we use SMART outputs to demonstrate the impact of this project on law enforcement in UWA, with a focus on Queen Elizabeth and Murchison Falls National Parks using datasets from March 2014 to February 2016 as baseline and March 2016 and February 2018 as project impact years.

Patrol Effort and Intensity

Consistent collection and storage of SMART data has made it possible for UWA protected area managers to establish the patrol effort and intensity within the protected areas over a given timeframe. The patrol effort and intensity can be visualised in maps directly produced from SMART, making it easier for the users to interpret.
Figure 1 below serves to illustrate this using data from MFNP for two periods: March 2014 to February 2016 and March 2016 to February 2018. From these, it is observed that both patrol effort and intensity increased in the project years compared to the two years before the project. This increase is attributed to the enhanced capacity (training and equipment) given to the park management in the last two years that enabled them to deploy patrol teams more effectively and efficiently.

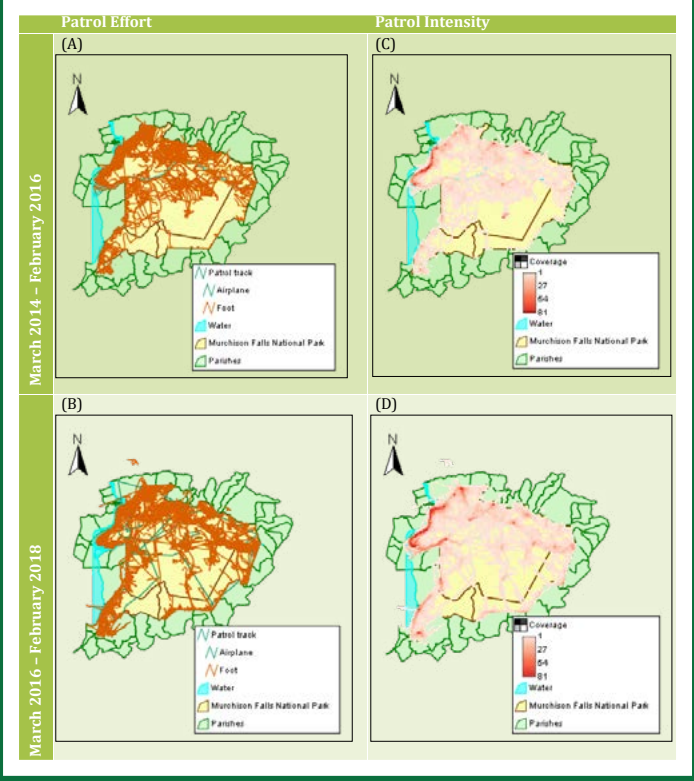


Figure 1: Patrol coverage and intensity in MFPA for the period March 2014 to February 2016 compared to March 2016 to February 2018. The maps generated from SMART data show a general increase in both patrol effort and intensity in the implementation years of the IWT project: (A) and (B) show patrol effort in the periods

Improved illegal activity detection and documentation

UWA has used SMART to establish the distribution and intensity of different illegal activities across the protected areas, providing valuable information to park management. This information has been used to plan patrols meant to remove snares and other traps from the park in order to safeguard wildlife. The maps of Queen Elizabeth National Park and Murchison Falls National Park in Figure 2 and Figure 4 respectively show areas where snares have been found over the years. The picture in Figure 3 shows a ranger removing snare while on patrol and the chart in Figure 5 shows the trend in number of suspects arrested in the park during patrols from the year 2014 to Feb 2018.

Figure 2: Map of QENP showing wire snare locations marked and entered in SMART from March 2016 to February 2018.

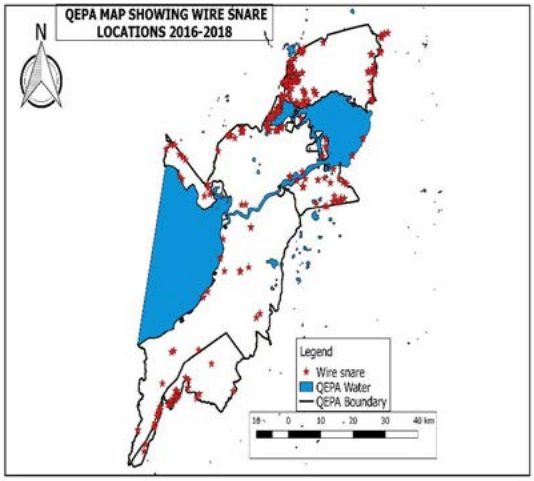


Figure 3: UWA ranger removing a snare from the park. The new method that uses historical data to predict areas prone to illegal activities has improved the level of detection of snares.

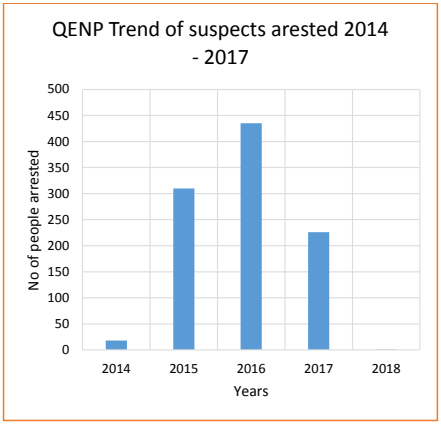
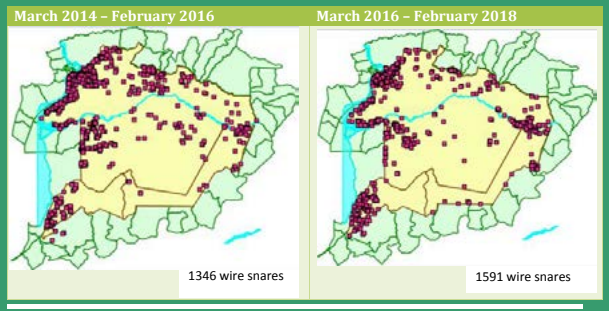


Figure 4: The trend above shows the number of suspects arrested in each year during the implementation of SMART. During the first year 2014, the data was not captured since the SMART program was still new and its implementation was not yet known

Figure 5: Maps of Murchison Falls National Park comparing wire snares detection in the periods February 2014- February 2016 and March 2016 to February 2018 and Project period.



SOME KEY LESSONS

Users of SMART in QENP and MFNP noted the following as some of the key lessons learned from its implementation:

1. Introduction of new systems like SMART needs to be done gradually to allow enough time for adoption by the users and ensure that data collected is accurate and consistent. At the introduction of SMART in these two parks, the existing system (MIST) that used GPS and paper forms was instantly stopped. However, slow adopters continued collecting data using the old system, which data was not entered into the system and was consequently lost.

2. Keeping a record of historical data in paramount and useful for predicting areas prone to illegal activities. Capturing and analysing such data using SMART helps in patrol planning and deployment.

3. Simplifying the language used in data models enhances accuracy of data collection. Not all rangers are conversant with scientific names and the terminology of ecology. For this reason, the previous SMART data model that had scientific species names made it difficult for rangers to identify them. However, upon simplifying this by introducing common names, an improvement in data collection was registered.

4. Deploying rangers, it is always important to remind them to check the dates on their Smartphones before starting a patrol to avoid data loss. Using wrong dates often results in loss of data as the data filters fail to pick up the correct entries. This could lead to inaccurate analysis.

5. To minimise retraining and mistakes in data collection, it is important to adopt uniform standards of equipment for data collection as well as versions of SMART that are used across the protected area network. This calls for centralised management and decision making.

THE KEY CHALLENGES AND PROPOSED ACTION

The table below summarises the key challenges and proposes action for addressing them:

Challenge	Proposed action
1. UWA highly depends on donors and partners for equipment and training consequently, the rate of data capture and entry was registered as high in periods when there was donor/ partner support for equipment and low when support ended. UWA as an institution hardly replaces old equipment and any that breakdown are not repaired.	• UWA should develop and finance an equipment replacement plan.
2. The multiple brands/models of data collection tools (smartphones) donated by partners and multiple versions of SMART used at protected areas made it harder for rangers/users to learn and adapt to the use of smartphones.	• Standardise data collection tools and centralise decision-making regarding the type of equipment and version of SMART to use.
3. Lack of adequate phone charging equipment/ facilities	• Avail more solar panels for charging the Smartphones
4. Poor appreciation of SMART by Managers outside M&R department resulting in the under rating of the value of SMART and lack of harmony between the departments	• Continuously hold sensitization meetings to demonstrate the use and importance of SMART to managers.

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