

Accepted Manuscript

Title: Disrupting wildlife crime: The benefits of meaningful collaboration

Authors: P.A. Smith, N. Pamment, C. Cox, J. Reed, B. Chappell, C. Plowman



PII: S0379-0738(19)30147-1
DOI: <https://doi.org/10.1016/j.forsciint.2019.04.021>
Reference: FSI 9765

To appear in: *FSI*

Please cite this article as: Smith PA, Pamment N, Cox C, Reed J, Chappell B, Plowman C, Disrupting wildlife crime: The benefits of meaningful collaboration, *Forensic Science International* (2019), <https://doi.org/10.1016/j.forsciint.2019.04.021>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Disrupting Wildlife Crime: The benefits of Meaningful Collaboration

*Smith, P.A. *, Pamment, N. *, Cox, C. *, Reed, J. *, Chappell, B. *, Plowman, C+*

* University of Portsmouth

* Zoological Society London

On the 5th July 2018, a host of news agencies and media outlets ran a story about a technique for lifting finger marks from Pangolin scales using gelatine lifters. The story gained substantial international airtime and demonstrated the novel application of an established process for tackling and disrupting illegal wildlife trade (IWT) activities. In fact, the Pangolin story, though a great step forward, was a small part of a larger collaborative project, and to focus on the finger mark lifting technique in isolation would underplay the extensive work carried out by multiple agencies confronting IWT. Developing the technique is a relatively small part of the process. As important, is integrating the forensic science methods into operational practice. This is achieved by identifying the effectiveness of methods through consultation and collaboration with practitioners in order to gain a contextual understanding of the environment in which the process must operate. We would argue that the development of the technique is redundant unless there is underpinning meaningful research, firstly, to embed it into practice and, secondly, to evaluate its benefits to the system within which it is being integrated. Our work shows that to appraise the broader issues and operational constraints, there is need for an interdisciplinary and a joined-up approach in which researchers, conservationists, and 'local' practitioners may collaborate in order to embed workable techniques into specific wildlife crime investigative contexts. This starts with an appreciation of the criminology of wildlife crime by understanding the profile of individual offenders, organised criminal networks (OCN), and the crimes themselves. From here, a collaborative methodology can be developed to test research hypotheses in the field.

Developing Methods that Work

Disruption of the criminal activity through intelligence, identification, or good investigative practice, will only go so far. There is a fundamental need to educate people in order to reduce the demand for wildlife and wildlife products. To achieve this, local communities need support to prosper by legal

means and thus protect local ecosystems in the process. The authors consider that solutions are achievable through meaningful collaboration and appropriate action. This was the approach taken with our practitioner partners: initial consultation, committed collaboration, and research being put into action.

The authors' approach was grounded in human factors and ergonomics. The premise for this sociotechnical approach was:

- (a) to design and develop methods at the site where the work takes place
- (b) to observe and engage with the 'expert'; appraise the process by which they undertake their role
- (c) to consider the supporting infra-structures
- (d) to design and develop the most appropriate methods for coping with the encountered variables

We visited several African states, but the process was started by meetings with key stakeholders and committed partners for consultation and coordination.

Elephants and Pangolins – A Case Study on Collaboration

The research was initiated in 2016 with a meeting of an interdisciplinary panel of experts establishing an ongoing commitment by meeting two or three times a year to discuss and develop ideas. The group included experienced wildlife crime law enforcement officers, zoologists / conservationists, a lawyer, an experienced criminologist, a forensic scientist, and two crime scene investigators. Panel members benefitted from the work of two of the authors (Cox and Pamment) who had formed the Ivory Project in November 2015. This had been set up to investigate the sale of ivory in the UK. The purpose of the panel was to apply the diverse expertise of its membership to the assessment of key issues, and to tackle and disrupt wildlife crimes in specific contexts.

Taking the 'socio-technical' approach discussed above, the forensic and crime scene investigators travelled to Africa and worked with local wildlife enforcement officers. Whilst there, they undertook trials to assess the suitability and survivability of the gelatine lifters, they trialled the lifting methods in pertinent environments, and they introduced the technique to local users. There was crossfertilisation of ideas, and an exchange of information through each stakeholder and their network, and methods were proposed for gathering evidence quickly and easily.

The main aim in this phase was developing techniques that were functional in the field, easy to apply, and quick to deploy and process. The methods had to be relatively inexpensive, transportable, and be able to protect the evidence against contamination and spoilage in the field. With some modification,

gelatine lifters met these requirements. Best practice and optimal methods were identified through the shared experiences of the group, and it was realised that often well- established techniques that were previously taken for granted, had the potential to meet new opportunities and challenges.

There is a plethora of useful information to help with species identification, and for provenancing, and obtaining more intrinsic scientific detail, on any recovered samples. However, there is little research on the optimisation of usable and deployable methods to link suspects to contraband wildlife specimens by obtaining trace from their surfaces (for example, scales, fur, or feathers). McMorris *et al.* (2015) and Weston-Ford *et al.* (2016) presented laudable techniques, but others sometimes assume that wildlife crime forensic techniques are the same as those used in standard forensic investigation. To a certain extent, perhaps this is true, but the intricacies of the context of the crime and the investigation has to be understood.

The research in the countries visited allowed researchers to adapt the method to fit the environment, as well as to meet and engage with local enforcement officers to facilitate the adaptation of the methods to the specific requirements. Through an understanding of the local infrastructure, and through providing training for the local officers, it was possible to see what was achievable in these under-resourced areas. The utilisation of gelatine lifters in wildlife crime is an example of an established forensic method being used in an innovative way. Black gelatine lifters have been utilised for many years at crime scenes in the UK for capturing marks and traces from various surfaces, but they had not been encountered by the enforcement officers visited by the authors in the areas being subjected to the criminal activity. The gelatine lifters have a low tack adhesive surface and, when the clear plastic cover is removed, the gelatine can be pressed against dry surfaces and lifted, potentially lifting marks left by objects having had contact with the surface.

Often, no powder, chemical, or other treatment, is required, and using a specialised scanner, or a lightsource / torch and camera, an image of a mark or print can be captured. The authors are working with other researchers to determine whether DNA, palynomorphs, other kinds of particulate, or other types of trace evidence, can be trapped on the gelatine, then recovered, and characterised. Such information may provide useful intelligence for locating centres of criminal activity.

We developed a neat gelatine lifting pack for use and local officers were able to see that its value and potential in wildlife crime was ground-breaking. The system was adapted to their requirements and, by introducing experienced forensic investigators to these dedicated enforcement officers, techniques were able to be optimised for the officers' specific requirements. As a result of this work, the gelatine lifters were trialled on Pangolin scales; the results will be reported elsewhere.

The Future

The use of gelatine lifters is a novel application of an existing method and, based on communication with primary users, and the establishment of a collaborative approach to its integration into existing practice, its value has been considerable. The key message is that disrupting and prosecuting wildlife crime is complex, and subject to a myriad of causal factors, but by introducing and, sometimes modifying, relatively simple and already-existing techniques, there is great potential for making a significant difference in solving wildlife crime.