

Off the scale: Can forensics save the world's most-trafficked mammal?

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Pangolin, *Phataginus tricuspis*. Credit: Tim Wachter, ZSL

A pioneering new project trials fingerprinting techniques to battle pangolin poaching.

Forensic fingerprinting techniques will now be used in the battle against [illegal wildlife trade](#) as new methods of lifting fingermarks from trafficked animals, are announced today.

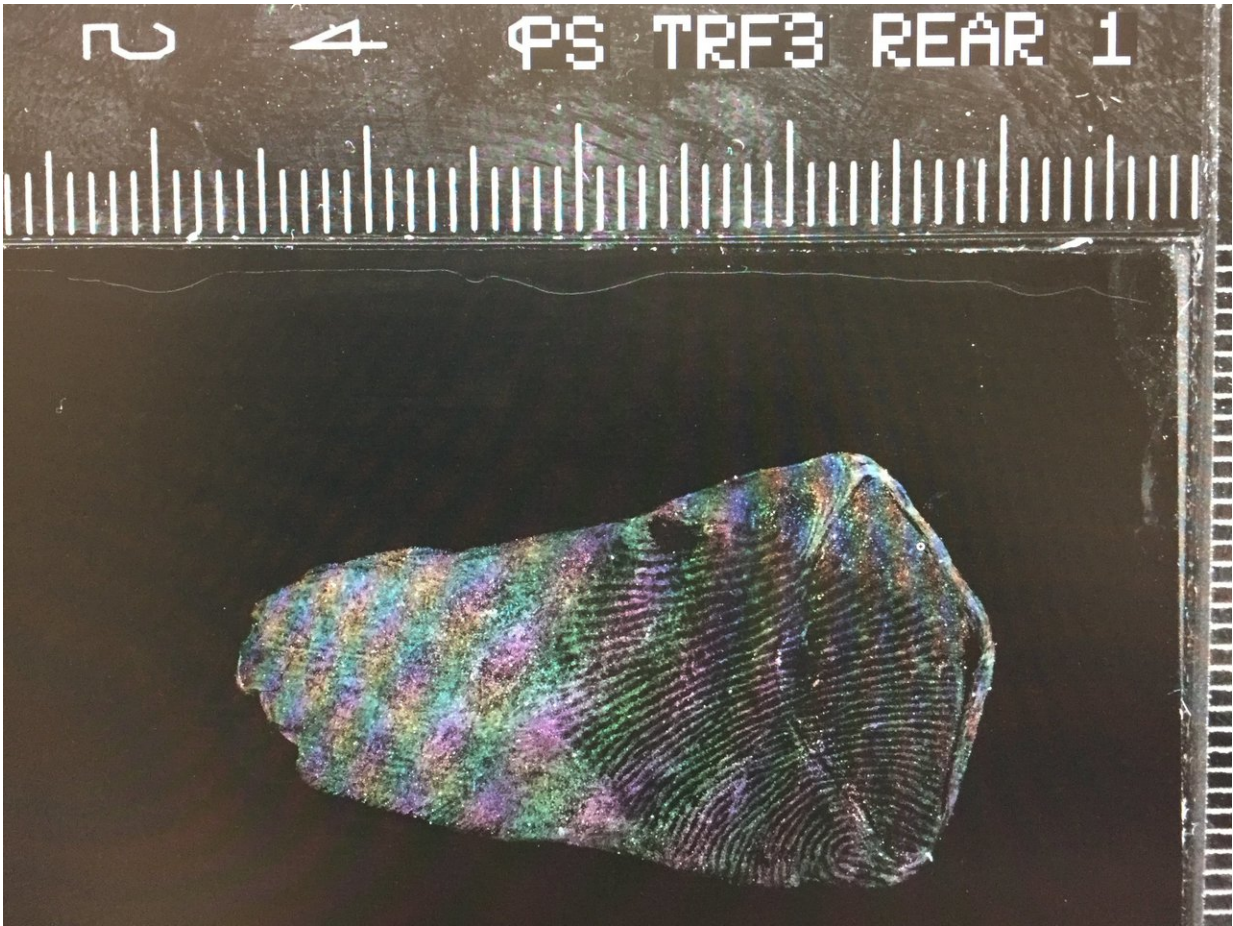
Researchers at the University of Portsmouth and international conservation charity ZSL (Zoological Society of London), with support from the UK Border force, developed the technology with one particular animal in mind—the [pangolin](#).

Pangolins—also known as scaly anteaters because of their appearance—are found throughout Asia and Africa, but their numbers are dwindling as a result of poaching for international trade.

Around 300 pangolins are poached every day, making these unusual animals the most illegally trafficked mammals in the world. Their meat is considered a delicacy in China and Vietnam, while their scales are used in traditional Asian medicine. They are also used in traditional African bush medicine. All trade in pangolin meat and scales is currently outlawed under the international CITES (Convention on International Trade in Endangered Species) agreement.

This new method uses gelatine lifters with a low-adhesive gelatine layer on one side, which are used universally by forensic practitioners for lifting footwear marks, fingermarks and trace materials off various objects in criminal investigations.

In a preliminary trial, the researchers tested the usability of gelatine lifters for visualising finger marks on pangolin scales. Using 10 pangolin scales from several species, supplied by Grant Miller and Tim Luffman of UK Border Force, each [scale](#) was gripped by five participants. A gelatine lifter was applied to the scale, removed and scanned using a BVDA GLScanner system which provided 100 fingermarks (one from the front and one from the back of the scales).



A scanned pangolin scale with a finger-mark visible. Credit: University of Portsmouth

The fingermarks were then graded for the presence of ridge detail on the University's BVDA gel imaging scanner and 89 per cent of the visualised gelatine lifts examined produced clear ridge detail. This means that [law enforcement](#) agencies will, potentially, be able to use the mark to identify persons of interest who have come into contact with the scale.

Dr. Nicholas Pamment, who runs the Wildlife Crime Unit at the University of Portsmouth, said: "This is a significant breakthrough for

[wildlife crime](#) investigation. Wildlife trafficking is a significant factor in the loss of habitats and species. While forensic science techniques are being used as part of the investigation process, there is a lack of research looking at 'what works' in the context, or within the limitations of the [wildlife](#) crime investigation and in the environments where the investigations take place.

"What we have done is to create a quick, easy and usable method for wildlife crime investigation in the field to help protect these critically endangered mammals. It is another tool that we can use to combat the poaching and trafficking of wild animals."

Christian Plowman, Law Enforcement Advisor for ZSL, said: "This project is a great example of how multiple organisations are working together to not only develop methods that work, but to optimise the methods for use in wildlife crime investigations.

"The initial catalyst for this project were Dr. Brian Chappell (University of Portsmouth) and I, both former Scotland Yard detectives, now working in conservation law enforcement for ZSL and the other in academia. This point of uniqueness underlines and enhances credibility for the project and for both organisations."

Grant Miller, Head of the UK's National CITES Enforcement Team, said: "We know how prized pangolins are by those engaged in wildlife crime. I am delighted that Border Force has been able to play its part in the development of this method of lifting fingerprints from pangolin scales, technology which will help bring poachers and smugglers to justice."

The researchers have now developed gelatine lifter packs for Wildlife Rangers in Kenya and Cameroon to help in their fight against illegal poaching of pangolins. Each pack contains 10 gelatine lifters, scissors,

insulating packs, evidence bags, a roller and a simple pictorial guide for the Rangers to follow. The field packs for the Kenyan wildlife service were initially provided for the examination of poached elephant ivory and dead elephants killed by poachers.

Jac Reed, Senior Specialist Forensic Technician at the University of Portsmouth, said: "What is fundamental to this method is its application, it is easy to use and employs low-level technology. This is so important for rangers in the field who need to be able to get good quality fingerprints very quickly to ensure their own safety. It is also important for law enforcement in developing countries who may not have access to more advanced technologies and expensive forensic equipment."

Provided by University of Portsmouth

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