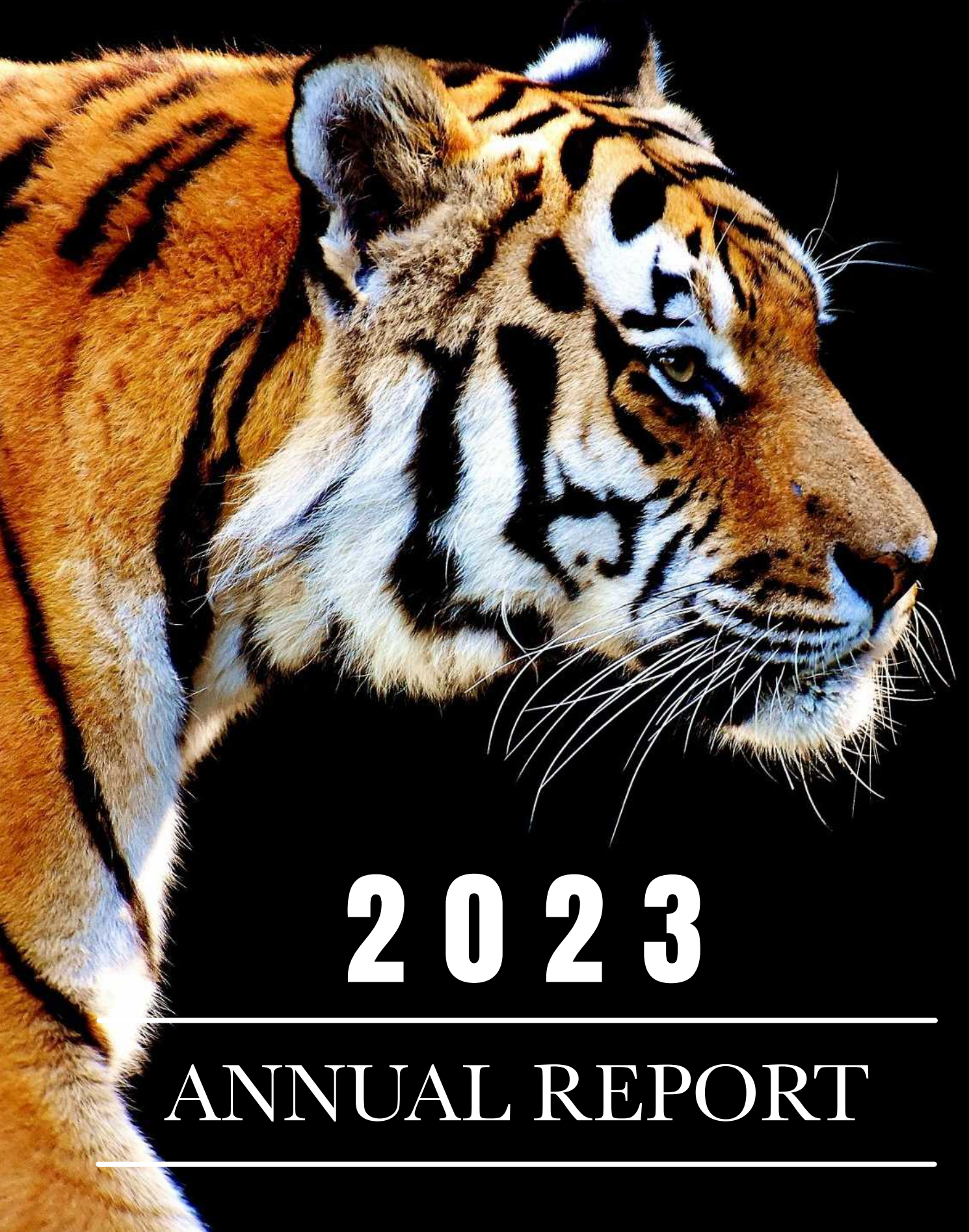


TRICE
the wildlife forensics network



2023

ANNUAL REPORT

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WELCOME

Welcome to this year's TRACE annual report. I always enjoy the opportunity to look back on what's happened during the past twelve months as it provides us with a little time to pause and reflect, before putting our heads down for another busy year.

2023 delivered some real highlights for me across crime scene training and forensic casework.

I was fortunate enough to take part in a collaborative wildlife DNA forensics workshop in Bangkok, where we looked to raise the bar on what can be achieved in regional Southeast Asian laboratories beyond species identification. Meanwhile in Cameroon, I visited Djar National Park where I witnessed the roll-out of a wildlife crime scene course delivered by our newly trained cohort of instructors at Garoua Wildlife School.

Our vision at TRACE is to ensure that every country tackling wildlife crime has

access to forensic evidence to support law enforcement. As the only international organisation dedicated to wildlife forensics, this is a very big task and means that we are continually looking to increase laboratory capacity in different countries. This year included working with government agencies in Sarawak (East Malaysia) and Malawi to help develop their wildlife DNA forensic capacity and continue building a network of global laboratories able to deliver evidence to court.

As an organisation, we continue to enjoy steady growth, thanks to our range of donors and project partners. I've been particularly pleased to see our

collaborations with local NGOs in Africa and Asia strengthen this year, demonstrating that TRACE is being increasingly recognised for adding value to national initiatives and has a role to play as a trusted technical partner.

The 2023 African Wildlife Forensics Network meeting was jointly hosted by the College of African Wildlife Management and the Government Chemistry Laboratory Authority of Tanzania, both of which partner with TRACE through active MOUs. We met in Mweka, on the stunning slopes of Kilimanjaro, and enjoyed an excellent three days of discussions and training. The event was rounded off by the inaugural AWFN sports day which ended up pitching crime scene officers against lab scientists in a tug-of-war; those of us in white coats gracefully giving way to our bulkier field colleagues!

While the focus of our projects is normally to ensure forensic evidence reaches court, that is by no means the end of the story. Effective presentation and explanation of the evidence at trial is crucial to the success of a prosecution. Both crime scene and laboratory

practitioners have responsibilities to provide witness testimony, and this requires additional specialist training. This year TRACE ran an expert witness training workshop in partnership with the Green Law Foundation to prepare AWFN members for their day in court. Feedback was extremely positive and highlighted the need for more work in this area.

As director of TRACE Wildlife Forensics Network, it gives me a huge amount of pleasure to provide this annual update. As ever, many thanks to all of our staff at TRACE for their dedication and enthusiasm to the cause. Thank you too for your interest in our work, please read on for some inspiring examples of wildlife forensic science in action!



Prof. Rob Ogden
TRACE Director

Key Numbers for 2023

45

The number of government institutions we collaborated with

14

The number of countries we worked in

645


The number of people trained


HOW WE BUILD CAPACITY

TRACE specialises in helping countries use forensic evidence in wildlife law enforcement. This involves a combination of training and capacity building throughout the evidential journey, from crime scene to courtroom. In the world of forensics, everything depends on the previous link in the chain: the prosecutor needs an accurate lab report, the lab needs correctly preserved evidence, the evidence needs correct documentation and these records need to link seamlessly back to the crime scene, where the whole process begins. Any breaks in evidence security or gaps in expertise will lead to evidence being rejected and cases potentially lost.


When developing wildlife forensic capability, this means that we have to focus on every aspect of forensic evidence production and management. TRACE employs specialists with years of international experience at each stage of the process, ensuring that all of our trainee crime scene officers, instructors and laboratory analysts are taught by experts in their fields.


Aside from technical support, TRACE is also committed to supporting practitioner networks that promote wildlife forensic community development and ensure that quality assurance standards are shared, implemented and maintained. This overall capacity building model can be tailored to country requirements and promotes sustainable solutions for wildlife forensics in global law enforcement.


 **Crime Scene**
Typically considered the start of the forensic evidence process, wildlife crime scenes can include poaching sites, vehicles, buildings or shipping containers. Crime scene roles vary from the first responder on site, to a crime scene investigator, requiring a range of tailored trainings and equipment provision. TRACE works with partner agencies throughout Africa, Southeast Asia and Latin America to develop national capacity for enforcement agencies to correctly secure and process wildlife crime scenes. In addition to direct officer training, we train instructors and institutionalise crime scene courses through wildlife schools and ranger training facilities.


 **Evidence Management**
Once recovered, evidence items must be fully documented, securely transferred and stored to allow their subsequent analysis and submission to

court. Evidence security and management require organisations to develop and follow robust Standard Operating Procedures (SOPs). TRACE works with a wide range of wildlife enforcement agencies to support the design and implementation of institutional SOPs, including role-specific train-the-trainer programmes and the provision of secure evidence storage facilities.

 **Laboratory**
Wildlife forensic science is focused on addressing key investigative questions concerning the identity of animals, plants, their parts and products. Forensic analysis can include physical, chemical and biological methods, ranging from morphology to DNA testing. TRACE works with laboratories around the world to help local scientists develop and apply forensic science to support wildlife crime investigations. This includes laboratory design, research and development, quality management and casework advice. We have helped establish over fifteen national wildlife DNA forensic laboratories since 2009.

 **Courtroom**
During this final stage of the enforcement process, it is critical that forensic evidence is correctly interpreted and presented in a court of law. As wildlife forensic science is relatively new to many countries, it is important to raise awareness of the science and techniques involved among prosecutors and the judiciary, to ensure evidence is admitted at trial. TRACE partners with experienced wildlife prosecutors to provide training to the legal profession and forensic expert witnesses.

 **Networking**
A key component of our regional capacity building work is the formation of networks of wildlife forensic scientists and crime scene investigators. Establishing partnerships within and among countries promotes knowledge exchange, creates training opportunities, builds communities and advances the development of professional standards. Through initiatives such as the African Wildlife Forensics Network, TRACE supports meetings and activities that link international experts with national practitioners and help maintain the relationships that enable wildlife forensics to impact investigations.

 **Quality Assurance**
Quality is an essential component of forensic science, controlling how it is conducted and also in how it is taught. TRACE helps countries implement quality management systems that comply with international best practice including relevant ISO standards for evidence management and laboratory testing, and the Standards and Guidelines of the Society for Wildlife Forensic Science.



CRIME SCENE

The way evidence is handled at the crime scene and after collection is often heavily scrutinised by defence attorneys as it is commonly the weakest part of any criminal investigation. As such, mistakes at this early stage are frequently the reason for prosecutions to fail.

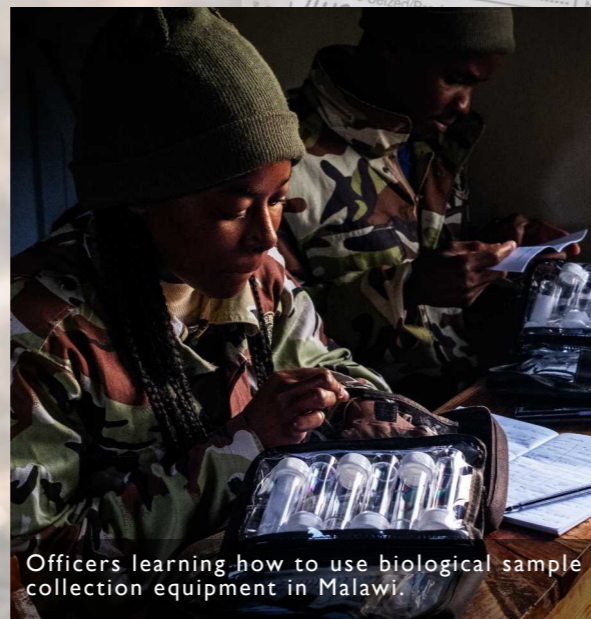
To combat this, TRACE has been training wildlife officers in crime scene awareness across Africa for several years. Such training, including how to secure, collect, and document any evidence found at a crime scene, is crucial if evidence of a crime is to be successfully utilised in a court of law. The goal for our basic 5-day course in Crime Scene Awareness and Evidence Management is to institutionalise the training within national programmes, so that organisations can train their own staff in perpetuity, without reliance on international intervention. To achieve this, we run a tailor-made, 6-week, train-the-trainer programme, delivered in three two-week blocks. By the end of this course, participants are able to confidently train their own staff in Crime Scene Awareness and Evidence Management. To date we have delivered variations of these courses in Cameroon, Malawi, Tanzania, Zambia, and Zimbabwe.

One particular success this year has been the national rollout of the training in Malawi. Over the past few years, we have been working with officers from the Department of National Parks and Wildlife (DNPW) in both Malawi and Zambia to institutionalise crime scene capacity across their shared Transfrontier Conservation Area. This more advanced training has included in-depth coverage of the basic course material and how to teach it, as well as



Malawian trainers delivering their first course following the train-the-trainer programme.

going beyond the material covered by the curriculum so that the future trainers are able to confidently answer student questions. In August of this year, three TRACE staff had the privilege of observing the newly established instructors training their first cohort DNPW-Malawi wildlife officers, resulting in the instructors receiving their final certification as trainers. As of this year, Malawi now has 12 officers, all employees of their national wildlife law enforcement agency, able to train fellow officers in Wildlife Crime Scene Awareness and Evidence Management.



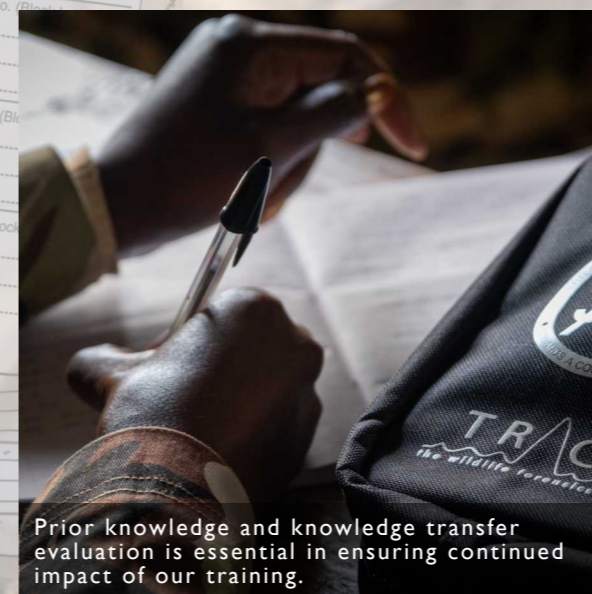
Officers learning how to use biological sample collection equipment in Malawi.

2023 was also the first year that TRACE has run Wildlife Evidence Seizure Management training outside of Africa, taking our proven training model and offering it to agencies across southeast Asia. In October we ran a Wildlife



Wildlife Evidence Management training in Malaysia, the first such course to be run by TRACE outside Africa.

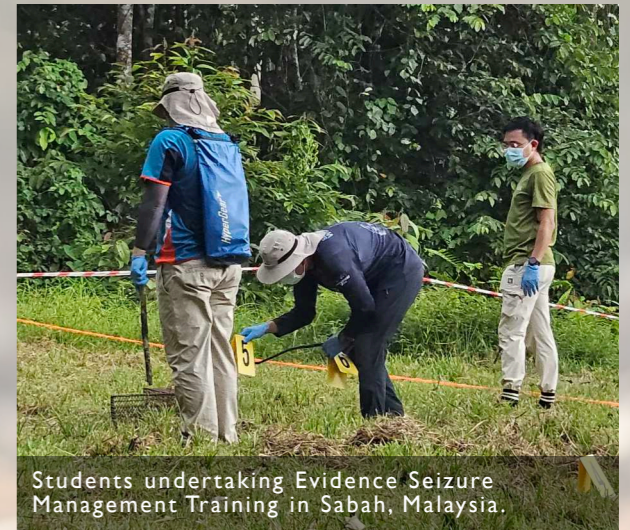
Evidence Seizure Management training course at the Danau Girang Field Centre in Sabah, Malaysia, for twelve wildlife law enforcement officers from the Sabah Wildlife Department and the Sarawak Forestry Commission. Participants were provided with theoretical knowledge and vocational skills for searching and documenting a crime scene, during the Detect and Confirmation phases of wildlife crime seizures, as well as techniques for recovering and handing over evidence into secure storage. This



Prior knowledge and knowledge transfer evaluation is essential in ensuring continued impact of our training.

was followed by a similar course for eight participants from the Royal Malaysian Customs Department, in Sabah.

To maintain quality and assess impact of our training, we conduct assessments at the start and end of all courses to understand prior knowledge and determine knowledge transfer. These joint



Students undertaking Evidence Seizure Management Training in Sabah, Malaysia.

assessments contain the same questions and are designed to identify the change in understanding of the topics covered. A sharp increase in knowledge is consistently observed after all of our courses, indicating their effectiveness.

Cameroon now has national trainers able to train eco-guards in Wildlife Crime Scene and Evidence Management Awareness

Following train-the-trainer training in 2022, a national rollout in 2023 saw 6 trainers train 47 eco-guards, representing 19 protected areas, in just two weeks. The participants were encouraged to apply and share their newly acquired skills with their colleagues once back at their duty stations to ensure that wildlife crime scene management and evidence collection is standardised across the country.

Prior knowledge and knowledge transfer evaluation showed an 80% uplift in knowledge, demonstrating the impact of this training.



EVIDENCE MANAGEMENT

While the way evidence is handled at a crime scene is key to ensuring it can be used for criminal proceedings, if it is not transported, stored and managed correctly it is likely to become inadmissible in court.

Last year, we finalised the development of Standard Operating Procedures (SOPs) to control the management of evidence by the Departments of Wildlife and National Parks in Malawi and Zambia. Such SOPs ensure officers know exactly what is and is not expected of them throughout the Chain of Custody and makes it more difficult for a defence lawyer to create doubt surrounding the integrity of the evidence.

This year, TRACE expanded the SOP programme to Uganda, working with the Uganda Wildlife Authority (UWA), under US government funding. The aim was to establish a similar set of procedures describing evidence management and

security, for UWA officers to follow during their wildlife law enforcement operations. SOP production follows a process of co-design, involving a working group of UWA officials, guided by TRACE staff, to critically evaluate the evidence journey through the organisation and identify the critical pathway along which documentation and security procedures are required.

The result is an SOP that describes a system created by the organisation, based on a deep understanding of its internal structure, maximising the chances of uptake and success. We hope to compliment this work with the manufacture and roll-out of secure evidence storage containers at UWA sites across the country next year.

Back in Malawi and Zambia, we have taken the opportunity to revisit some of the evidence storage facilities previously established last year to review their operation and provide additional

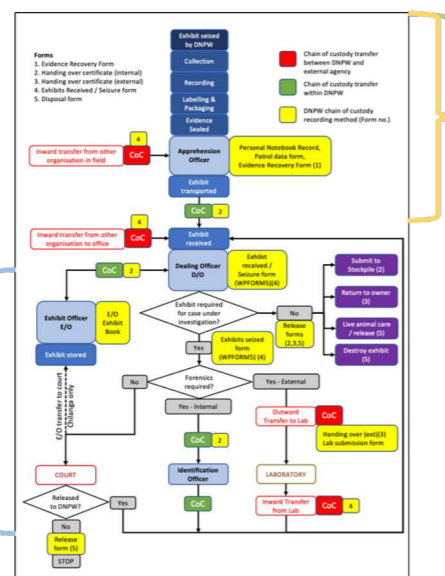
mentoring on site. Evaluating the storerooms also allows a review of SOP implementation upstream of the storerooms, providing a great opportunity to audit the full system. As expected, we encountered a number of teething problems, partly relating to a lack of training coverage in the field affecting evidence documentation, and partly due to issues regarding the practical implementation of the SOPs themselves. These problems were



Newly installed Evidence Storage Container in Kasama, Zambia

Graphical representation of Zambia Standard Operating Procedure for evidence handling.

Exhibit Officers, Armourers & Identification Officers



Apprehension Officers (Field Rangers)

Dealing Officers (Investigating Officers)

rectified, but serve to reinforce the importance of continual engagement to support the effective production of wildlife forensic evidence in both countries.



LABORATORY

When TRACE was established in 2006, wildlife DNA forensics was the full extent of our capacity building efforts. Since then we have expanded to work across the crime scene to courtroom spectrum, but our focus on laboratory work continues.

This year, under a programme of wildlife forensic casework training, scientists from Vietnam and Thailand travelled to join colleagues in Kuala Lumpur, Malaysia for a week-long training on laboratory casework, organised by the TRACE Malaysian team. Participants undertook hands-on, mock forensic cases, following their own laboratory quality management systems, from sub-sampling to sequencing. During the training, participants were encouraged to compare each other's systems to better understand where they might be improved. This exercise promoted knowledge exchange, problem solving and ultimately improvements in the quality of forensic analysis, as well as strengthening international relationships.

Also this year, TRACE conducted a 'Beyond Species Identification' training workshop, in Bangkok, Thailand, where participants learned to identify the geographic origin of different seizures using different DNA mapping techniques. This included instruction in the Loxodonta Localizer and Lion Localizer platforms for ivory and lion traceability. Furthermore, the analysts were introduced to an intelligence report template developed by TRACE to facilitate the laboratory's submission of these origin findings to the relevant investigation agencies.

On Borneo, in East Malaysia, TRACE began a partnership with the Sarawak Forestry Corporation (SFC) on the development of a wildlife DNA forensic

laboratory. The lab, based at the SFC headquarters in Kuching, has been established to identify seized animals and plants originating both from Sarawak and further afield, but intercepted during regional transit. We



provided training and mentoring of laboratory staff in Standard Operation Procedures, Quality Management System development, and technical laboratory skills. This project will be continued into 2024.

In Africa, our support for government laboratories continues to grow. This year in Malawi we have continued working with the Central Veterinary Laboratory in Lilongwe to establish a wildlife DNA forensic laboratory and to train capable Malawian forensic scientists. It is hoped that, following this year's hard work, 2024 will see forensic casework being run in this new laboratory independent of TRACE staff - although we will of course continue to assist as needed!

FEDS DNA sequencing service

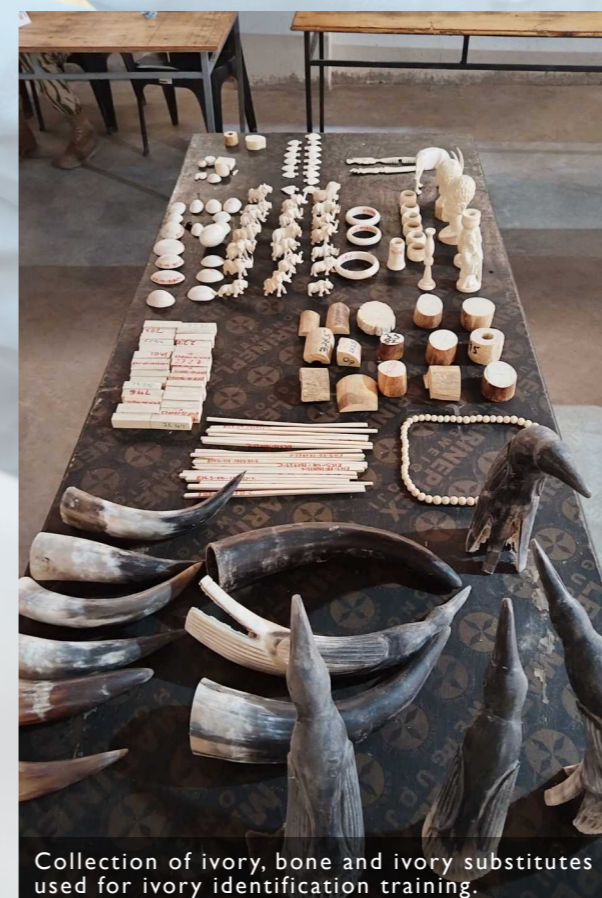
The equipment and infrastructure needed to sequence DNA from evidence is expensive and requires considerable development, often something that is not possible for many countries in the short term. To combat this bottleneck, TRACE provides a service whereby countries

that lack sequencing capacity can still benefit from the technology. The system, known as FEDS, allows laboratories to outsource this critical sequencing step while ensuring evidence security, by accessing an accredited sequencing service in Germany, operated by Eurofins Genomics.

PCR products generated by each national forensics laboratory are barcoded, packed in tamper-evident bags, checked, and securely couriered to Eurofins. This service, started in 2019 for a single country, has expanded over the years to help laboratories in ten countries across Asia and Africa provide national wildlife DNA identification services to law enforcement agencies.

Ivory ID training

In 2022, to address the problem of identifying wildlife products in the absence of DNA analysis, we began training Zambian instructors to deliver courses for morphological, forensic identification of ivory. This year, we extended this programme by facilitating



these instructors to train 23 fellow officers from the Department of National Parks and Wildlife from across Zambia. The course was accompanied by court testimony training with a local prosecutor, magistrate, and counsel, to prepare the trained identification officers to present their evidence in court.

Laboratory Exchange

In the context of global sustainable development, the promotion of south-south knowledge exchange is recognised as a key step towards independence from foreign aid. In the development of wildlife forensic science, in addition to providing direct expertise, TRACE promotes knowledge transfer between African laboratories. This year we have continued our successful laboratory exchange programme, which sees young wildlife forensic scientists who are members of the African Wildlife Forensics Network visit laboratories in different countries to learn from their peers and exchange experiences.

This year, the lab exchanges involved visits by five scientists from four different countries, to two host country labs. Two scientists, from the Central Veterinary Laboratory in Malawi and one from the Victoria Falls Wildlife Trust laboratory in Zimbabwe, visited the Uganda Wildlife Authority laboratory. Meanwhile, one scientist from the Central Veterinary Research Institute in Zambia and two from the Namibian Police Forensic Science Institute in Namibia, visited counterparts in the South African National Biodiversity Institute's forensic laboratory.

This exposure to more-established wildlife forensic laboratories allowed participants to interact with more experienced forensic scientists and to discuss experiences and solutions around complex casework. These laboratory exchanges are incredibly popular with all concerned and help foster vital regional support networks and long-standing scientific relationships.



COURTROOM

The forensic process, regardless of the crime, begins at the crime scene and ends at the courtroom. The actions at each stage of the process are informed by the needs of the courtroom and, conversely, the courtroom must understand what occurs at each step of the forensic process.

Since 2017, TRACE has been coordinating the African Wildlife Forensics Network (AWFN). The AWFN is a collective of practitioners with a mission to develop and facilitate an active network of wildlife forensics stakeholders and support access to wildlife forensic science and crime scene services across the African continent.

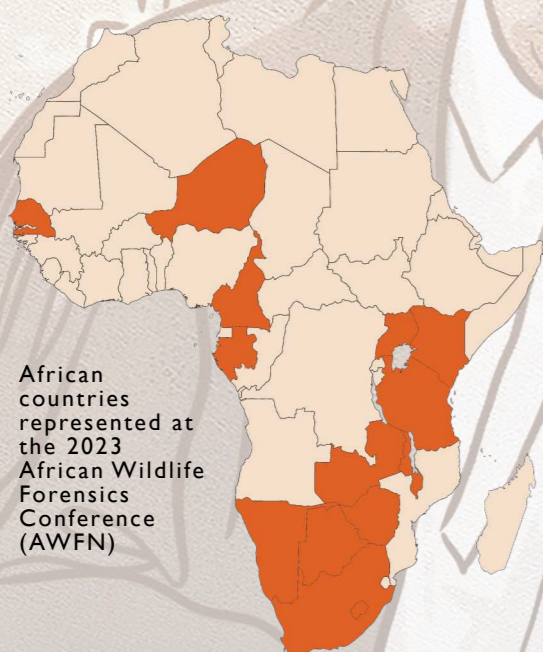
Since its inception, the AWFN has focused on two groups of practitioners: wildlife crime investigators and wildlife laboratory analysts. However, over the past few years, common challenges encountered by these two

groups have emerged, such as how to properly submit evidence to court, issues of evidence inadmissibility, expert court testimony, report writing for the court, and feedback from the courts. Recognising these needs, this year we took steps to actively include prosecutors as a key stakeholder group within AWFN, by creating a Wildlife Prosecutors group within the AWFN work plan, crafted to facilitate meaningful interactions between prosecutors, scientists and investigators.

Court Testimony Training

Building on previous experience in Southeast Asia, TRACE organised court testimony training workshop at this year's African Wildlife Forensics Network meeting in Tanzania. The aim was to equip participants with knowledge of courtroom procedure and to give them the skills required to effectively deliver testimony under direct and cross-examination in court. In total, 16 AWFN members from 11 African countries took part, with invitees selected due to their position as national representatives or technical experts who may be required to testify in court.

The training revolved around several mock court sessions, where a participant had to present evidence as expert witness while being cross-examined by a defence lawyer. This highly realistic (and sometimes stressful!) training provided a controlled and consequence-free environment in which to gain crucial experience in how to deal with this difficult but necessary duty that all forensic scientists are likely to face.



African countries represented at the 2023 African Wildlife Forensics Conference (AWFN)

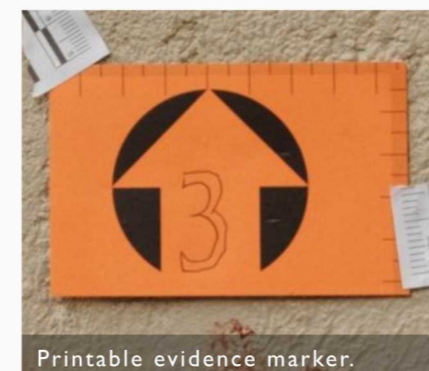


Expert witness being cross-examined during court testimony training.

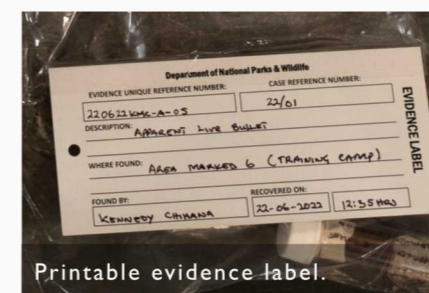
Crime Scene and Evidence Management resources



While much of TRACE's activities involve capacity development and up-skilling of local law enforcement and forensic personnel, we also strive to make crucial resources free to practitioners. In many parts of the world, and especially across much of Africa, dedicated crime scene equipment is difficult to access. For this reason, we are continually developing downloadable and printable resources that are free to use. Such resources include items such as simple crime scene marker templates and evidence labels. These are developed to facilitate compliance with national Standard Operating Procedures and globally recognised standard practice. We have also made freely available resources which can act as teaching aides, aide memoirs, and laboratory protocol guides. Most of this is made available via the African Wildlife Forensic Network website (www.AWFN.org)



Printable evidence marker.



Printable evidence label.



Aide-mémoire for wildlife crime scene first responders translated into French.



NETWORKING

Wildlife forensics is a highly skilled discipline with wide disparities in capacity around the globe. To reduce this disparity, it is essential that there are opportunities for experts to engage with, learn from, and pass their knowledge on to their colleagues around the world.

In Africa, TRACE organises an annual African Wildlife Forensics Network (AWFN) meeting, bringing together crime scene, laboratory and prosecutor practitioners from across the continent. This year, for our 8th annual meeting, we were grateful to our partners in Tanzania, the College for African Wildlife Management (CAWM) and the Government Chemist Laboratory Authority (GCLA), for hosting AWFN at CAWM in Mweka, on the slopes of Kilimanjaro, in northern Tanzania. A total of 67 participants from 14 African



TRACE organised a 'Beyond Species Identification' meeting, hosted by the Wildlife Forensics (WIFOS) Laboratory of Thailand, to facilitate collaboration among wildlife forensics stakeholders across Southeast Asia.

states and 21 countries worldwide attended the 3-day event, enjoying a series of seminars, workshops and social events, all designed to enhance knowledge, skills and relationships within the African wildlife forensics community.

Training workshops focused on the collection of forensic intelligence at crime scenes and the emerging issue of timber forensic needs in laboratory



The 2023 AWFN was hosted by the College of African Wildlife Management at Mweka, Tanzania.

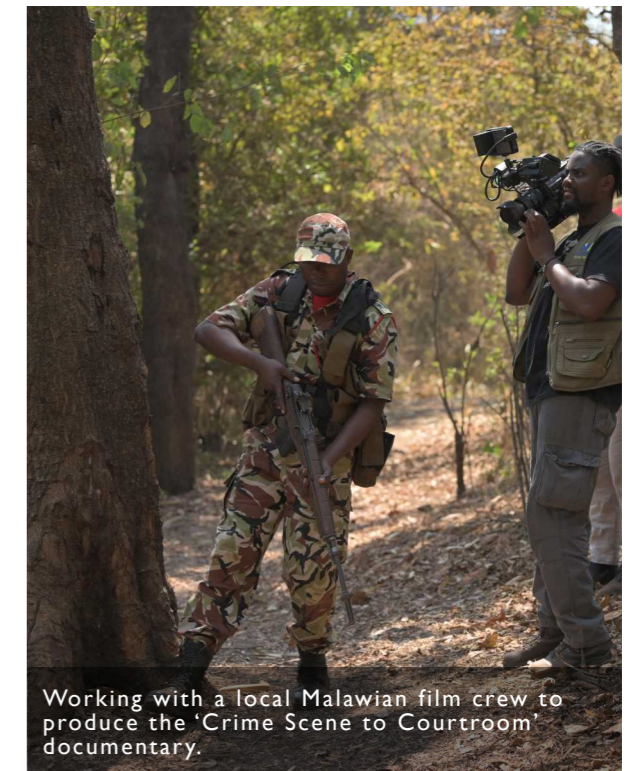
analysis. A series of networking events culminated in the inaugural AWFN sports day, held on the CAWM parade ground, which emphasised team-building and healthy competition, and resulted in only one orthopaedic consultation.

Scholarship Programme

Wildlife forensics is a highly specialised discipline and requires hard-to-acquire skills that are often out of reach to less economically developed regions of the world. To address this deficiency, TRACE offers scholarships to specially selected individuals who are showing commitment and dedication to wildlife forensics but whom lack training opportunities. These individuals are nominated by TRACE, based upon our observations and in negotiation with their employer (often a government department). The scholarship pays for the candidate to undertake a Masters degree in Applied Conservation Genetics with Wildlife Forensics at The University of Edinburgh, a unique online programme that offers current and future wildlife professionals the knowledge, skills and global networks to address modern challenges in conservation management and law enforcement. Scientists from Zambia have already completed the Masters programme, with students from Malawi and Zimbabwe currently enrolled.

Crime scene to Courtroom Film

Following a highly impactful few years working in Malawi developing improved capacity from the crime scene right through to the courtroom, TRACE, alongside our collaborators at TRAFFIC International and Peoples Postcode Lottery, took the opportunity to produce a short, 12-minute documentary about how wildlife forensics has been developed and is being utilised in Malawi. The goal of this film is to educate multiple audiences looking to better understand the role of wildlife forensics, such as international conservation stakeholders, who may never have heard of wildlife forensics and who wish to understand its importance in protecting wildlife, and



Working with a local Malawian film crew to produce the 'Crime Scene to Courtroom' documentary.

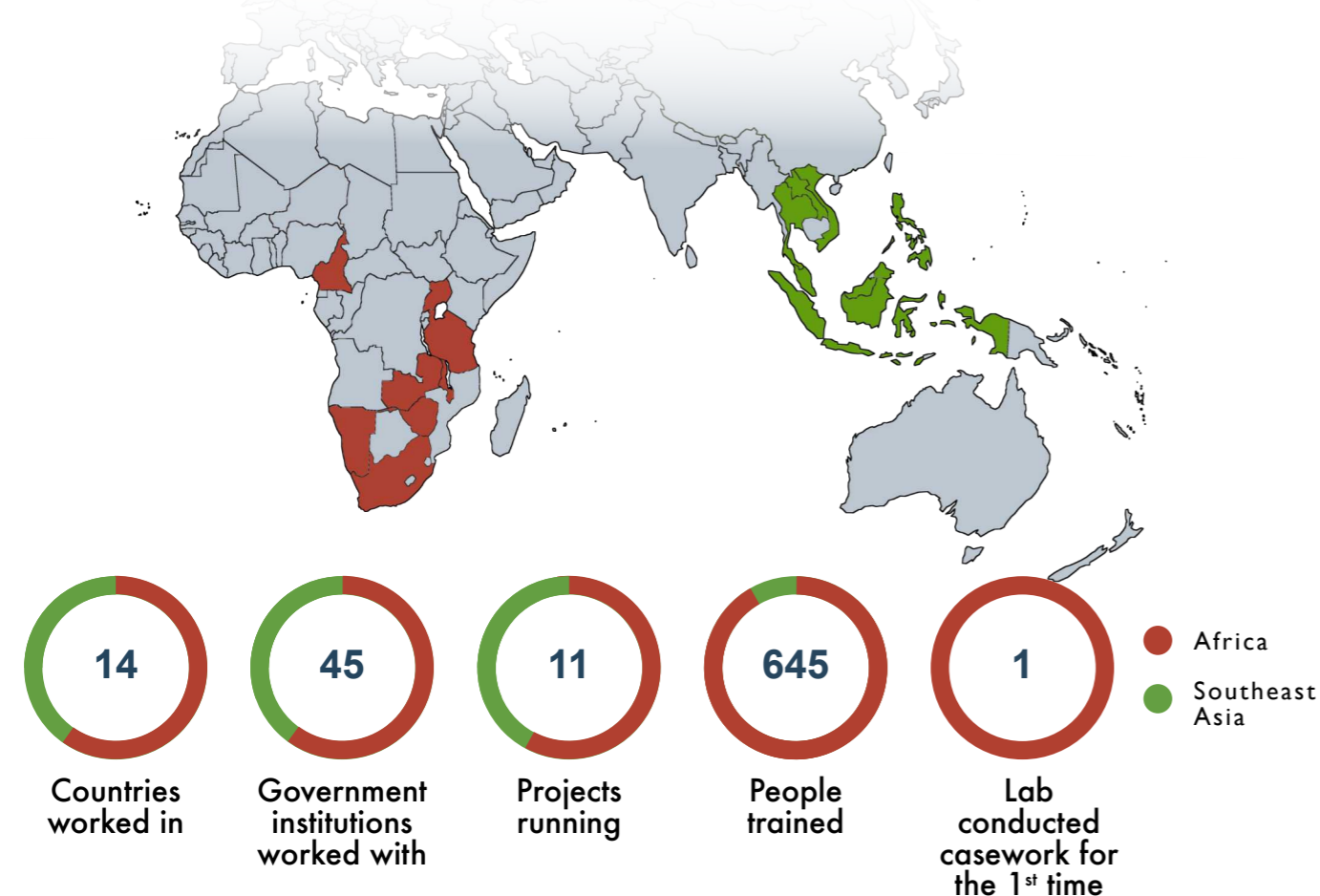
local Malawians who can take pride in their wildlife law enforcement officers and the work they do. For the latter, the film will be screening on Malawian terrestrial television in 2024. The film has been nominated for several



documentary film awards for next year.



THE YEAR IN NUMBERS



By utilising a train-the-trainer approach, along with continued mentorship, TRACE helps countries build institutional capacity, resulting in a massively increased in-country impact per dollar spent. Using this approach **TRACE was able to facilitate the training of 645 people in wildlife forensic disciplines** and, as our training becomes institutionalised within many countries, this number continues to increase beyond our ability to record total number of people being trained.

This is especially evident across Africa, where our initial train the trainer programmes were focussed. **TRACE has overseen trainee numbers grow from 152 in 2022 up to 595 in 2023.**

TRACE has seen the number of government institutions we work with significantly increase with **14 more government institutions collaborating with TRACE this year compared to last**, most of these are across Southeast Asia.

Following assistance from TRACE, **2023 saw a new laboratory in eSwatini complete their first wildlife DNA forensics casework.**



Financial Summary for 2023

All values in GBP (in thousands)	2023	2022
Income	1,706	1,208
Operational costs	935	943
Organisational Costs	359	263
Reserves	873	555

A big thank you to all our funders!



and another big thank you to all our partners!





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