AWFN NEWS UPDATES

NEWSLETTER OF THE AFRICAN WILDLIFE FORENSICS NETWORK

VOL. 1 **May 2021**

Welcome from the AWFN Coordinator

Dear AWFN members,

Welcome to the first edition of the AWFN newsletter.

We hope that you will enjoy the news from other members of the network in these times of isolation.

The sixth annual meeting of the AWFN was planned to be a joint, in-person meeting with the Society for Wildlife Forensic Science (SWFS) in Kruger National Park (KNP), South Africa, in July 2021. However, the SWFS board of directors made the decision early this year to postpone the SWFS 2021 meeting to July 2022 because of the ongoing COVID-19 pandemic. This decision also affected the AWFN 2021 meeting. We had to reconsider our options and cancel the KNP plan. Although a final decision on AWFN 2021 meeting has not yet been taken, it is likely that this year's meeting will also be held online, because of health risks associated with an in-person meeting and potential international and regional travel restrictions.

On this basis we have decided to create new channels of communications between the members of the network, to keep the network active and connected between annual meetings. It is in this context that we are pleased to start a network newsletter that will be a channel through which members of the network can showcase their work in wildlife forensics and any news that they would like to share with the network. It is envisaged that this newsletter will grow into a periodical that is produced once or twice a year. We hope that this will allow for better interaction of members between the annual meetings.

We have also been working on developing a five-year strategic plan for the network, to provide a roadmap for its growth and for the potential involvement of more stakeholders relevant to its sustainability and impact. This strategic plan will include an operational structure for the network to align it with its vision and mission. We hope that the first draft of the strategic plan will be available in the coming weeks, so that you can all be consulted on the matter before a final plan is agreed.

I would like to use this opportunity to extend my gratitude and thanks to all of you who have contributed to this first AWFN news update, as well as to the TRACE team that put this wonderful work together. The newsletter relies on contributions from the network members – so please share interesting news updates with us, if you would like to keep the AWFN newsletter format alive.

Best regards,
Armand A. Biko'o
Coordinator of AWFN

WILDLIFE LAB ANALYSIS - NEWS UPDATES: PUBLICATIONS

SNP array developed for individual identification and parentage verification in cheetah

By Antoinette Kotze

South African National Biodiversity Institute; Genetics Department, University of the Free State, South Africa

The need to monitor national and international legal trade of cheetahs born in captivity in South Africa under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), necessitated the development of a molecular tool with adequate power to identify individuals and their parents. The last decade saw microsatellites (STRs) being successfully used for animal genetic identification, traceability and parentage verification. However, in recent years single nucleotide polymorphisms (SNPs) has become an accurate method of choice. An efficient SNP identification system (218 SNPs with an DNA input concentration ranging from 10-30 ng/µl) was developed from ddRAD sequencing data using an Applied Biosystems™ QuantStudio™ 12K Flex Real-Time PCR System.

Magliolo, Michelle, Stefan Prost, Pablo Orozco-terWengel, Pamela Burger, Anna S. Kropff, Antoinette Kotze, J. Paul Grobler, and Desire Lee Dalton. (2021). Unlocking the potential of a validated single nucleotide polymorphism array for genomic monitoring of trade in cheetahs (*Acinonyx jubatus*). *Molecular Biology Reports* **48**, 171-181. https://doi.org/10.1007/s11033-020-06030-0.

Developmental validation of Oxford Nanopore Technology MinION sequence data and the NGSpeciesID bioinformatic pipeline for forensic genetic species identification

By Rob Ogden

TRACE Wildlife Forensics Network, UK

The availability of small, relatively low-cost, sequencing devices is broadening access to in-house DNA sequencing for many research laboratories in Africa, but the sequencing accuracy of these devices has restricted their application to forensic investigation. This paper describes a formal validation study of the ONT MinION and downstream bioinformatic pipeline, which demonstrates how nanopore sequence data can be reliably used for forensic genetic species identification.

N. Vasiljevic, M. Lim, E. Humble, A. Seah, A. Kratzer, N. V. Morf, S. Prost and R. Ogden. 2021. Developmental validation of Oxford Nanopore Technology MinION sequence data and the NGSpeciesID bioinformatic pipeline for forensic genetic species identification. *Forensic Science International: Genetics*, **Volume 53**:102493. https://doi.org/10.1016/j.fsigen.2021.102493.

A simple sexing test for elephant species and its application to faecal DNA

By Stéphanie Bourgeois

Agence Nationale des Parcs Nationaux, Gabon

A novel a real-time PCR assay is available for DNA sexing in all three extant elephant species. The assay amplifies small fragments of the orthologous sexual chromosome zinc finger protein genes ZFX/ZFY (65 bp) and is suitable for degraded DNA samples. Having been designed as standard allelic discrimination assays, this sex determining assay is fast and inexpensive and can be incorporated into larger nuclear SNP panels.

Bourgeois, S., Ouitavon, K., Kongmee, P., Veeramaethaphan, T., Kaden, J., and McEwing, R. (2021). A simple sexing test for elephant species and its application to faecal DNA. *Journal of Applied Genetics*, 1-3. https://doi.org/10.1007/s13353-021-00627-2.

DART mass spectrometry as a potential tool for the differentiation of captive-bred and wild lion bones

By Rob Ogden

TRACE Wildlife Forensics Network, UK

Standard morphological and DNA-based approaches are often unable to distinguish captive-bred from wild-caught animals. The use of chemical markers to classify wildlife products based on their origin has been previously demonstrated for timber and other IWT products. This paper evaluates DART mass spectrometry for assessing the source of traded lion bones, indicating its potential for future use in wildlife trade regulation and law enforcement.

P. Coals, A. Loveridge, D. Kurian, V.L. Williams, D.W. Macdonald and R. Ogden. 2021. DART mass spectrometry as a potential tool for the differentiation of captive-bred and wild lion bones. *Biodiversity Conservation* **30,** 1825–1854. https://doi.org/10.1007/s10531-021-02170-2.

Other relevant publications

Kelly I. Morgan, Kyle M. Ewart, Truong Q. Nguyen, Frankie T. Sitam, Kanita Ouitavon, Amanda L. Lightson, Antoinette Kotze and Ross McEwing. 2021. Avoiding common numts to provide reliable species identification for tiger parts. *Forensic Science International: Reports*, **Volume 3**, 100166. https://doi.org/10.1016/j.fsir.2020.100166.

WILDLIFE LAB ANALYSIS - NEWS UPDATES: TRAINING

Starting wildlife laboratory analysis in Senegal

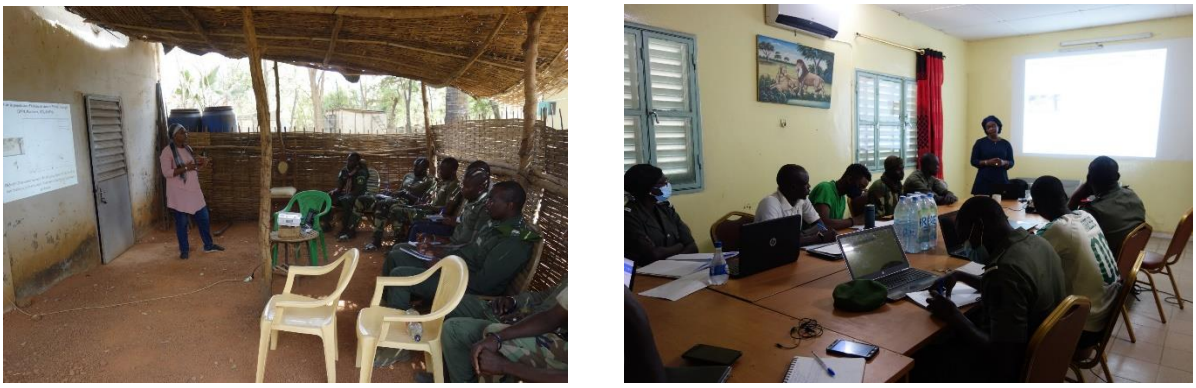
By Arame Ndiaye

Cabinet d'Etudes pour la Génétique et la Conservation (CEGEC)

I am happy to say that I have started genetic wildlife lab work in Senegal in two fields: biodiversity conservation and combatting wildlife crime.

The former includes the reappearance of elephants in Niokolo-Koba National Park (Figure 1) after more than 10 years, prompting the need to analyze fecal samples collected by field officers to whom I recently offered training in sample collection and storage to strengthen their capacity.

The latter field is based on items that are regularly seized by wildlife authorities and conservation NGOs and for which there is a need to trace the geographic origin. For example, in 2021, I have already received 15 lion and leopard samples that are currently being analyzed.



Dr Arame Ndiaye sample collection and storage training to national parks field officials in Senegal

Launch of a new wildlife genetic lab in Gabon

By Stéphanie Bourgeois

Agence Nationale des Parcs Nationaux, Gabon

The National Parks Agency of Gabon (ANPN) has just inaugurated the first wildlife DNA forensics laboratory in Central Africa. This new laboratory fits within Gabon's strategy to combat wildlife crime, along with the creation of a specialized court coupled with increased penalties. Strong evidence is now

required to support prosecutions. ANPN is getting support from TRACE Wildlife Forensics network and UNODC to implement a Quality Management System.

The laboratory is available to assist Central and West African countries in wildlife DNA analyses and already provided support to Cameroon to investigate the geographical origin of a recent 800 kg ivory seizure.

Interior view of the newly inaugurated wildlife genetics lab in Libreville, Gabon

WILDLIFE CRIME SCENE INVESTIGATIONS - NEWS UPDATES: PUBLICATIONS

Instructor manual

By Simon Dures

TRACE Wildlife Forensics Network, UK

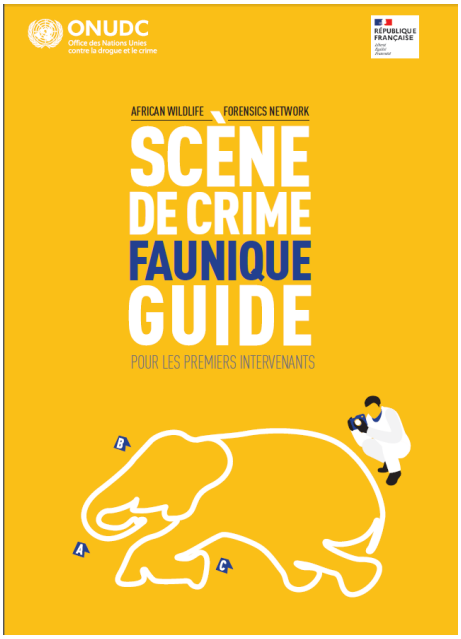
In order to help facilitate high quality WCSI responder training, TRACE has been working on an 'Instructor's Manual' to accompany the *AWFN Wildlife Crime Scene Guide for First Responders*. This manual is being produced by the UNODC and has had considerable input from members of the AWFN, particularly those instrumental in writing the first guide. The teaching methodology was reviewed by teaching experts from the University of Edinburgh. The Manual is in the final stages of production and should soon be available. It will gradually be translated into a number of languages to facilitate widespread use by appropriate WCSI instructors.

French Translation of the Wildlife Crime Scene Guide for First Responders

By Sinead Brophy

United Nations Office on Drugs and Crime (UNODC)

We are pleased to announce that the French translation of the *AWFN Wildlife Crime Scene Guide for First Responders* (Scène de Crime Faunique Guide pour les Premiers Intervenants) has now been printed! Copies are available from the UNODC office in Libreville, Gabon and will be used to support a wildlife crime scene training later this month. We hope this tool will provide useful guidance to first responders in West and Central Africa. To request copies, please contact AWFN coordinator Armand Biko'o or email unodc-wlfc@un.org.



Cover page of the French translation of the wildlife crime scene guide

WILDLIFE CRIME SCENE INVESTIGATIONS - NEWS UPDATES: TRAINING

Tanzania training

By Simon Dures

TRACE Wildlife Forensics Network, UK

In an endeavour to institutionalise basic wildlife crime scene responder training for all wildlife officers in Tanzania, the College of African Wildlife Management (CAWM) at Mweka, Tanzania, has been receiving a train-the-trainer programme from TRACE. The first part of the programme was completed in November 2020, at which lecturers undertook a training programme, based on the *AWFN Wildlife Crime Scene Guide for First Responders* with some additional teacher training material. In March, the lecturers ran a small training programme under the guidance of TRACE staff to assess how well the material was delivered. All the CAWM staff performed exceedingly well. The programme will finish later this year with the CAWM lecturers undertaking more training before incorporating WCSI into the college curriculum. This initiative is supported by UNODC through the International Consortium on Combating Wildlife Crime.

Dr Simon Dures and the attendees (left) and demonstration by an attendee (right) of the recent WCSI training offered to Mweka Staff, Tanzania

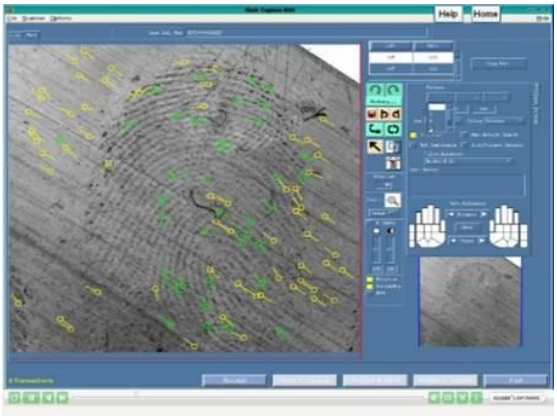
Training on Crime Scene Protocols in Zimbabwe

By Tracy Alexander

Director of Forensic Services, City of London Police

The City of London Police and King's College, London, have continued to support their initiative to tackle wildlife crime in Zimbabwe despite a very challenging year for all. In 2019 we trained police officers in crime scene protocols, particularly the development of fingermarks from illegally traded goods such as ivory and pangolin scales. We had planned a follow up visit in 2020 which has had to be postponed but we

hope to get back out there soon. We have sent replacement crime scene equipment to Zimbabwe and have continued to support their investigative development from London – but we are very much looking forward to the next stage in Zimbabwe asap.



Training of Zimbabwean police officers in crime scene protocols by the City of London Police and King's College

First Responder Wildlife Crime Scene Training

Namibia, 28 March – 1 April 2021

By Rod Potter

Independent Consultant, South Africa

The course was attended by 20 managers and staff of black rhino Custodian properties in Namibia. The focus was on appropriate actions to be undertaken by the first person on a crime scene, and participants were expected to convey the knowledge to other relevant staff at their property.

The course was very well received, despite the volume of theory and practical work covered. The *AWFN Wildlife Crime Scene Guide for First Responders* was also used during the training. The training course was arranged by Ms. Birgit Kötting, and presented by Rod Potter and Cobus Steyl.

First responder training offered by MM Rod Potter and Cobus Steyl to managers and staff of black rhino custodian properties in Namibia.