Sampling and submission guidance for a rhinoceros DNA database in the UK

Science and Advice for Scottish Agriculture (SASA) houses a Wildlife DNA Forensics unit which provides DNA analysis for wildlife crime investigations in the UK and beyond. This facility, in addition to carrying out regular casework, aims to develop and validate methodology to meet the needs of UK wildlife crime enforcement. One of these needs is to have forensic tests available to locate the source of rhinoceros horn recovered in trade.

SASA has been involved in the validation of methods to generate DNA profiles from rhinoceros, alongside a recent pilot study in collaboration with the Museum of Scotland to show that DNA profiles can be produced from museum horns that are over 100 years old. In order for this technique to be of use for horn theft investigations, it is imperative that a horn sample has been collected and shown to produce a sufficient DNA profile *prior* to theft. This project aims to set up a database of DNA profiles at SASA for rhinoceros specimens in zoos and museums. Initial focus will be on the UK, but with the hope to include European specimens if sufficient funding is available in the future.

The purpose of this database is firstly to provide a reference DNA profile for animals / specimens that may be at risk of theft, and to provide intelligence to enforcement agencies investigating rhino horn trade.

It is important that there is complete traceability from the laboratory at SASA back to the person who took the sample. Here is a step by step guide to submission of horn samples from museums:

1. Contact SASA to tell them how many sample kits you require
2. Once you receive the kits, collect a sample (see separate guidance) and take a photograph from each specimen to be included in the submission. Label each sample with a unique reference that is traceable to information on the specimen.
3. Fill out the details for each specimen on the submission form (p2 - multiple submission forms can be completed if many samples are to be submitted at once) and sign the sample agreement (p3 this document). The person identifying the sample should sign the submission form for each specimen.
4. Store the samples in a secure, cool and dry place until courier delivery is arranged. Please do not use the standard postal service as it is not fully traceable, and avoid sending items that may arrive at SASA over the weekend.
5. Contact SASA to let them know when and how the samples will be delivered.
6. Carefully package up samples to avoid breakage in transit. Include the original submission form, sample agreement and CD of photos in the parcel with the samples.
7. Arrange for courier delivery of samples to SASA with the heading “Zoo and Museum Project”.

Rhinoceros Submission form

Species	**International studbook number** (zoo) **or unique reference** (musuem)*****	**Filename of animal / horn photo**	**Sample type** (blood/ horn/ ear punch)	**Sex M / F**	**Date of birth (zoo) or date collected (museum)** (if known)	**Institute name**	**Signature of person identifying sample**

*** Please use this number as a unique reference to label the sample envelope/tube**

Lab use only	Date received	Number of samples	Logged	Notes

Sample agreement

By submitting the samples listed with this form, we agree to the DNA profiles produced from each rhino being included in a rhino DNA profile database to be held at SASA. This database may be used during the investigation of rhino horn theft.

Total number of Submission form sheets included =

Print Name

Signature

Date

The following check-boxes are optional, but they will maximise the use of your precious samples. Please contact Dr Lucy Webster if you require further clarification before opting-in to these.

Checkbox (Initial to approve)

☐ We are happy for a subsample from each submitted sample to be sent for inclusion to other forensic rhino DNA databases

☐ We are happy for the rhinoceros DNA profiles produced for this project to be used in other rhino research projects

Contact details for queries and delivery address

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