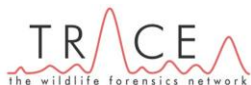


# **WILDLIFE DNA SAMPLING GUIDE**

Instructions for the Wildlife  
DNA Sampling Kit





## **WILDLIFE DNA SAMPLING GUIDE**

### *Instructions for the Wildlife DNA Sampling Kit*

This guide is designed to accompany the Wildlife DNA Sampling Kit, available from TRACE Wildlife Forensics Network.

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## 1. INTRODUCTION

The guidelines contained within this handbook accompany the Wildlife DNA Sampling Kit and should be carefully followed when using the kit to collect DNA samples from a wildlife crime scene.

It is assumed that users of the kit will already have knowledge of evidence gathering, evidence labelling and subsequent chain of custody. When collecting DNA samples, it is important that strict evidential procedure is maintained.

### **When to use the kit**

This kit is designed for use by wildlife enforcement officers. DNA analysis may be appropriate for the identification of species, individuals, sex and relatedness of animals or plants. *Where a DNA sample is required from a live animal, always have the sample taken by a qualified vet.*

As DNA evidence is easily contaminated and degrades rapidly in environmental conditions, it is important to collect DNA samples as soon as possible, following the discovery of a crime scene.

## 2. HEALTH & SAFETY

Due care and attention should be given to health and safety considerations when collecting samples. Certain DNA evidence sources may constitute a health hazard. Basic precautions are outlined below, but it is emphasised that it remains the responsibility of the sample collector to take adequate health and safety precautions when using the kit. Furthermore, please note that forensic laboratories may refuse to accept any items that present an unacceptable risk to their staff.

### **Basic health and safety precautions**

- Always wear the gloves provided in the kit when handling samples
- Do not eat, smoke, drink or touch the facial area when handling samples, or until your hands have been washed.
- Minimise the risk from sharp items by handling carefully and storing in a solid container.

## 3. CONTAMINATION

Contamination of DNA samples is a serious issue when collecting and transporting forensic evidence. Although the problem of human contamination is much reduced in the case of wildlife DNA sample collection, it is nevertheless necessary to prevent contamination from

other biological sources or from any surface that comes into contact with the evidence sample. The following guidelines should be followed to reduce contamination risk:

- Handle items as carefully and as little as possible
- Always record and store individual samples in separate sealed containers, even if they appear to have come from the same source.
- Wherever possible, use disposable single-use items for evidence collection.
- Ensure any non-disposable materials have been sterilised before use.

#### **4. THE KIT**

Each item within the kit is designed for single use only. If the seal on the item is broken and is not submitted for analysis, discard safely. Individual items within the kit may be replenished from a central supply, or from the manufacturer.

**Contents:**

<b>Item</b>	<b>Quantity</b>	<b>Use</b>
1. Gloves	1 pair	Hand protection, minimising contamination
2. Tweezers	1 pair	Sample collection
3. Scalpel	1	Sample removal
4. Swabs	6	Sample collection (wet samples and dry stains)
5. Purified water	1 tube	To moisten swabs prior to dry stain collection
6. Evidence bags	2	Sample storage and security
7. Collection tubes	2	Sample storage
8. Permanent pen	1	Labelling
9. Guide booklet	1	Information

**5. SAMPLE COLLECTION AND STORAGE****Sample Type:**

Before starting, decide what type of sample you are going to take. The following list shows sample types in order of preference for DNA recovery. Collect the best sample type available.

1. Tissue (preferably muscle)
2. Blood
3. Hair
4. Saliva (swabbed from mouth)
5. Teeth
6. Bone
7. Saliva (swabbed from environment)
8. Faeces

**Collection Procedures:**

Decide whether the exhibit can be removed, stored and transported so that evidential integrity is maintained, contamination is avoided and DNA is preserved. Wherever possible, samples should be frozen, therefore freezer space should be considered. Wet samples should be allowed to dry naturally before storing in plastic evidence bags. *Seek advice if you are unsure how best to collect and store DNA evidence.*

If the exhibit can be removed safely :label, preserve correctly and transport the whole exhibit to the laboratory.

If the exhibit cannot be removed safely: take a DNA sample following the collection and storage instructions given below:



<b>DNA source</b>	<b>Sample Collection</b>	<b>Storage</b>
1. Tissue	Wear gloves. Remove a small piece of fresh tissue (1 cm <sup>3</sup> ) using the scalpel and tweezers and place into a collection tube. Snap the lid onto the collection tube and place the tube into an evidence bag. Seal the bag and record sample details using permanent pen.	Freeze
2. Blood	<p>Wear gloves. Use swabs to collect blood. To take one valid sample, three swabs need to be used:</p> <p>Swab 1 = Sample Swab, to recover target DNA  Swab 2 = Background Swab, to test for environmental DNA  Swab 3 = Control Swab</p> <p><i>Swab 1</i>  For wet blood, soak a small volume of blood (1 or 2 drops) onto the swab head.</p> <p>For dried blood, wet the swab head in purified water (orange tube), then rub the swab across the dried blood.</p> <p>Air dry the swab, then replace into swab tube, seal and label.</p>	Freeze

	<p><i>Swab 2 This is a control swab to recover DNA present on the background material, but not in the blood.</i></p> <p>Wet the swab head in purified water and rub the swab away from blood, but on same material.</p> <p>Air dry the swab, then replace into swab tube, seal and label.</p> <p><i>Swab 3 This is a control swab to test for contaminant DNA present on the swab or in the purified water.</i></p> <p>Wet the swab head in purified water, air dry, replace in tube, seal, label.</p>	
3. Hair	<p>Wear gloves, use tweezers. Pluck/collect up to 20 hairs so that the follicle (root) remains attached. Handle hairs by the tip, not the root. Place hairs in a collection tube, press on lid, place the tube in an evidence bag, seal and label.</p>	Freeze or store dry
4. Saliva (swabbed from mouth)	<p>Live animals: a mouth swab must be taken by a vet.</p> <p>Dead animals: do not use a mouth swab, recover tissue or hair instead.</p>	Freeze

5. Teeth	Wear gloves. Place teeth into a collection tube, press on lid, place the tube in an evidence bag, seal and label.	Freeze or store dry
6. Bone	Follow instructions for teeth.	Freeze or store dry
7. Saliva (not swabbed from mouth)	Follow instructions for blood	Freeze
8. Faeces	Wear gloves, place faeces into a collection tube, do not fill more than halfway. The surface layer contains the target DNA, therefore ensure that the outside of the faeces is sampled. Press on lid, place tube in evidence bag, seal and label.	Freeze
9. Vomit	Wear gloves. Place a sample of the stomach contents into a collection tube. Include any obvious items of interest within the vomit, e.g. hairs, body tissue etc.	Freeze

## **6. SAMPLE DELIVERY FOR LABORATORY ANALYSIS**

Prior to delivery of samples, the receiving laboratory should be contacted to discuss the nature of the sample and the exact purpose of the testing. Transfer of samples should follow instructions from the laboratory and include use of appropriate forms.

A list of laboratories offering forensic DNA analysis of wildlife samples in the ASEAN region is provided on the ASEAN Wildlife Forensics Network website: [www.asean-wfn.org](http://www.asean-wfn.org).

## **7. CONTACT DETAILS**

For information on the laboratories in your country or region please visit the ASEAN Wildlife Forensics Network website at: [www.asean-wfn.org](http://www.asean-wfn.org)

For information about this kit you can contact TRACE Wildlife Forensics Network:

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EH12 6TS, UK.

Website: [www.tracenetWORK.org](http://www.tracenetWORK.org)