

Wildlife crime scene investigation: techniques, tools and technology

John E. Cooper^{1,3*}, Margaret E. Cooper¹, Paul Budgen²

¹School of Veterinary Medicine, The University of the West Indies, St. Augustine, Trinidad and Tobago

²Fairview Crescent, Broadstone, Poole, Dorset BH18 9AL, UK

³Present address: Department of Veterinary Medicine, University of Cambridge, Cambridge CB3 0ES, UK

*Email: ngagi2@gmail.com

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Table S1. Equipment required for any wildlife crime scene investigation

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| <ul style="list-style-type: none">• Protective clothing including boiler suits (coveralls), gloves (surgical, thick kitchen, long rubber, etc.), masks, goggles, boots and overshoes• Barrier tape, flags, markers, cones and other crime-scene security items• Protective gloves and clothing, barrier-tape, and tools, such as tongs and hooks for handling hazardous materials• Disinfectant and deodoriser to neutralise smells from carcasses, etc. (both used with caution at crime scenes as they may destroy trace evidence)• Collection kits (prepacked) for taking samples for laboratory investigation, including toxicology, DNA, haematology, etc.• Appropriate labels, tamper-proof tags, evidence seals, etc., plus marking pens• Scales/balances, callipers and micrometer for weighing animals, tissues and samples rules, tapes, cm scales, etc. for measuring• Equipment for taking casts of dentition, imprints in bones, animal tracks, etc. — to include plaster-of-Paris, other powders, silicone-based materials and waxes together with retention frames or stiff cardboard | <ul style="list-style-type: none">• Trace-evidence collection equipment, including sieves to separate soil, ashes, etc.• Evidence packing, e.g. bags, boxes, tubes, envelopes and other supplies for packaging and storing evidence• Photographic kit, including (as appropriate) digital/still cameras, video cameras, magnifier, night vision equipment, aerial camera system, camcorder• Binoculars/field glasses• Torches (flashlights)• Blue-light kits and supplies• Magnifying glasses/hand lenses, magnifying loupe or dissecting microscope• Clipboards and record sheets, plus pens and pencils, chalk and crayons• Elastic bands and string• Tape-recorder and tapes• Evidence seals/tape• Computer — preferably hand-held, and appropriate software, e.g. bar-code tracking systems for property, evidence, and crime-scene reconstruction• Maps and GPS equipment• Means of communication, cell phones or radio• First-aid kit |
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Table S2. Special equipment required for any wildlife crime scene investigation in the field

The following items are recommended in the field for work involving (1) live animals (2) dead animals and/or their derivatives, and (3) laboratory investigations. In each case the list should be supplemented with general items, as in Supplement 1, above.

(1) Live animals

- Auriscope (otoscope) (lightweight)
- Stethoscope (lightweight)
- Ophthalmoscope (lightweight)
- Rigid endoscope (battery-operated)
- Pen torch (flashlight)
- Spare bulbs and batteries
- Syringes and needles (disposable)
- At least one boilable, re-usable syringe and needle
- Disinfectant(s), including ethanol
- Camping (gas cylinder-operated) stove— for sterilising, lighting and cooking
- Pressure cooker for sterilising
- Selected medicines, including local analgesics, sedatives and agents for euthanasia (plus captive bolt/gun if large animals may need to be killed)
- Immobilisation kit— blow-pipe/pistol/rifle with appropriate darts and drugs
- Cotton wool and dressings
- Basic surgical ('cut-down') set and other instruments as necessary, plus suture materials and cautery (battery-operated)
- Clippers for claws, talons, beaks and ring (band) remover
- Spring balance(s) or battery-operated scales
- Cloth bags, towels and other devices for restraining small animals
- Gloves, surgical and for handling
- Mouth gag/wooden spatulae and oesophageal and other tubes
- Aluminium foil
- Sampling and other equipment for laboratory work (see List 3 below).

(2) Dead animals and their derivatives

- Standard necropsy items— portable/folding, lightweight/plastic where appropriate
- Saw(s), scalpels and blades, knives, scissors and forceps
- Probes, solid and flexible (rubber)
- Pen torch (flashlight), spare bulbs and batteries
- Syringes and needles (disposable)

- 'Sharps boxes' for used needles, scalpel blades, etc.
- Disinfectant(s), including ethanol/methanol/industrial methylated spirits
- Camping (gas cylinder-operated) stove, for sterilising, lighting and cooking
- Pressure cooker for sterilising
- Spring balance(s) or battery-operated scales
- Small ventilated plastic vials, lined with mesh, filled with filter paper (to reduce condensation) for holding live invertebrates
- Relevant identification keys and texts
- Sampling and other equipment for laboratory work (see List 3 below).

(3) Laboratory investigations

- Microscope (solar or battery-operated) and lens tissues
- Immersion oil with swabs and xylene for cleaning lenses
- Pre-cleaned, frosted, microscope slides and slide box or tray, coverslips
- Pencils and diamond-tipped pen for marking glass slides
- Worm-egg counting slide
- Saline, saturated NaCl solution and other reagents for parasitology
- Fixatives— alcohol, formalin
- Selected stains for cytology with lightweight (plastic) staining jar or staining rack
- Urine and blood chemistry test strips
- Portable centrifuge
- Polypropylene capillary tubes, some coated with heparin or EDTA, plus commercial haemoglobin and PCV reader
- Hand-held refractometer
- Various transport media for bacteria, viruses, mycoplasmas and *Trichomonas*
- DNA kits
- Vacuum flask and cool box
- Scalpel, scissors, forceps
- Lightweight pots for specimens
- Disinfectant(s), including ethanol/methanol/methylated spirits
- Camping (gas cylinder-operated) stove— for sterilising, lighting and cooking
- Pressure cooker for sterilising
- Other items, as for live animals and dead animals (as per Lists 1 & 2 above)