Wildlife crime scene investigation: techniques, tools and technology

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Table S1. Equipment required for any wildlife crime scene investigation

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>Protective clothing including boiler suits (coveralls), gloves</td>
<td>Surgical, thick kitchen, long rubber, etc., masks, goggles, boots and overshoes</td>
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<td>Barrier tape, flags, markers, cones and other crime-scene</td>
<td>Security items</td>
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<td>Protective gloves and clothing, barrier-tape, and tools, such as</td>
<td>Tongs and hooks for handling hazardous materials</td>
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<td>Disinfectant and deodoriser to neutralise smells from carcases, etc.</td>
<td>(both used with caution at crime scenes as they may destroy trace evidence)</td>
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<tr>
<td>Collection kits (prepacked) for taking samples for laboratory</td>
<td>Investigation, including toxicology, DNA, haematology, etc.</td>
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<td>Appropriate labels, tamper-proof tags, evidence seals, etc., plus</td>
<td>Marking pens</td>
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<tr>
<td>Scales/balances, callipers and micrometer for weighing animals,</td>
<td>Tapes, cm scales, etc. for measuring</td>
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<tr>
<td>Equipment for taking casts of dentition, imprints in bones,</td>
<td>Animal tracks, etc. to include plaster-of-Paris, other powders, silicone-based materials and waxes</td>
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<td>Trace-evidence collection equipment, including sieves to separate</td>
<td>Soil, ashes, etc.</td>
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<td>Evidence packing, e.g. bags, boxes, tubes, envelopes and other</td>
<td>Supplies for packaging and storing evidence</td>
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<td>Photographic kit, including (as appropriate) digital/still cameras,</td>
<td>Video cameras, magnifier, night vision equipment, aerial camera system, camcorder</td>
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<td>Binoculars/field glasses</td>
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<td>Torches (flashlights)</td>
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<td>Blue-light kits and supplies</td>
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<tr>
<td>Magnifying glasses/hand lenses, magnifying loupe or dissecting</td>
<td>Microscope</td>
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<tr>
<td>Clipboards and record sheets, plus pens and pencils, chalk and</td>
<td>Crayons</td>
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<tr>
<td>Elastic bands and string</td>
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<tr>
<td>Tape-recorder and tapes</td>
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<tr>
<td>Evidence seals/tape</td>
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<tr>
<td>Computer — preferably hand-held, and appropriate software, e.g.</td>
<td>Barcode tracking systems for property, evidence, and crime-scene reconstruction</td>
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<td>Maps and GPS equipment</td>
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<td>Means of communication, cell phones or radio</td>
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<td>First-aid kit</td>
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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
- 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)