Methods in herpetological forensic work — post-mortem techniques

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Abstract. Post-mortem examination (necropsy) of reptiles and amphibians plays an important part in certain forensic investigations, especially where there is a need for information about the circumstances of death or whether an animal was in poor health, suffered, or was abused during life. Necropsy needs to be carried out properly, following standard protocols and using appropriate equipment. Supporting laboratory tests may be required and it is important that material is maintained, both for production in court and as part of a forensic research and teaching collection.

Key words: Diagnosis; documentation; equipment; facilities; health and safety; lesions; necropsy; post-mortem examination; retention of material; post-mortem interval.

Record that which you have seen; make a note at the time; do not wait
Sir William Osler

Introduction

Post-mortem examination (necropsy) plays an important part in animal forensic work (Wobeser, 1996; Munro, 1998), including that relating to reptiles and amphibians (Cooper and Cooper, 2007). A properly performed necropsy can provide information on:

– the cause of death of the animal and the circumstances of its death;
– the cause of ill-health during the animal’s life;
– background pathology, including presence of developmental abnormalities;
– answers to specific questions about the structure and health/pathology of that animal;
– reference data on, for example, organ weight ratios, appearances and morphometrics.
In this paper post-mortem examination of reptiles and amphibians will be discussed, with particular reference to legal application. Forensic necropsies may need to be performed by persons from a wide range of backgrounds and disciplines — veterinarians, zoologists, museum prossectors and field workers — and therefore the emphasis here will be on principles rather than details. Anyone embarking upon such examinations who feels that s/he has limited experience should be prepared to seek guidance from others. Careful record-keeping (see later), coupled with the taking of relevant photographic images (see Frye, this volume), is always advisable.

Facilities and Equipment

Facilities for necropsy examination of reptiles and amphibians can range from those of a purpose-built post-mortem room (fig. 1) to a simple “operating” area in the bush or by the side of a river. Field necropsies require careful planning and often the use of a specially devised field kit (Frye et al., 2001). Essential and desirable items of equipment, together with precautions that may need to be taken, are listed in table 1.

Figure 1. A standard post-mortem room that can easily be adapted for work on reptiles and amphibians. This room is spacious and well-lit, with working surfaces that can be easily cleaned. A “clean and dirty” system, that is colour-coded, helps to minimize the dissemination of pathogens, toxic chemicals and other potential hazards to health.