

HUMANE EUTHANASIA/KILLING METHODS FOR CROCODILIANS

In 2011, the Swiss Government established an Expert Panel to assess humane methods of killing reptiles in trade (Expert Panel 2013). Several CSG members, including Paolo Martelli, Charlie Manolis, Javier Nevarez, Tomas Waller and Don Ashley, served on the Expert Panel. The Panel reviewed published scientific and gray literature, rated the literature with respect to its relevance, and derived a final list of publications on which recommendations could be based.

The resulting document “Analysis on Humane Killing Methods for Reptiles in the Skin Trade” (Expert Panel 2013) outlines a variety of methods for killing reptiles, based on the state of current knowledge. The methods for crocodilians reflected those contained in the few Codes of Practice (or similar publications) that specifically deal with the killing/slaughter of crocodilians [eg Australia (NRMMC 2009), Zimbabwe (CFAZ 2012), Louisiana, USA (LDWF and LSU 2011) and South Africa (SABS Standards Division 2014) have Codes of Practice or guidelines that include methods of killing/euthanasia/slaughter].

In response to interest from some crocodile farming industry members, the CSG Veterinary Science Group examined the Expert Panel report, and extracted relevant information relevant to crocodilians. The methods outlined here are thus based on current knowledge, and are considered to apply to crocodilians in zoos and farms. They are not intended to override the national legislation of different countries, and are not relevant to traditional harvesting and hunting, etc.

The Veterinary Science group recognizes that research may lead to the development of new and/or improved methods, and that each country may establish different guidelines depending on its particular circumstances (eg restrictions on use of firearms).

Glossary

Pithing - the physical destruction of the brain using a rigid implement (eg stiff wire).

Double pithing - physical destruction of the brain and part of the spinal cord.

Acceptable Methods

1. **Captive-bolt pistol (penetrating or non-penetrating):** This is the preferred method, alone or with a subsequent method to ensure death (eg pithing or double pithing) if the brain is not immediately destroyed. See diagram of correct location to place bolt to maximize brain destruction (see Fig. 1). There are ongoing studies to develop crocodile stunners and in some countries regulations are already in place.



Figure 1. Correct placement of stunning device (Nevarez 2014).

2. **Shooting:** Use appropriate caliber bullet for the size of the animal and in line with relevant legislation, training and safety protocols (effective, quick and humane). Minimizing the distance between the animal and the shooter will reduce margin for error for “missing” the brain. See diagram of correct location to place shot for brain destruction (below). If there is any doubt as to the accuracy of the shot, the crocodile should immediately be pithed.

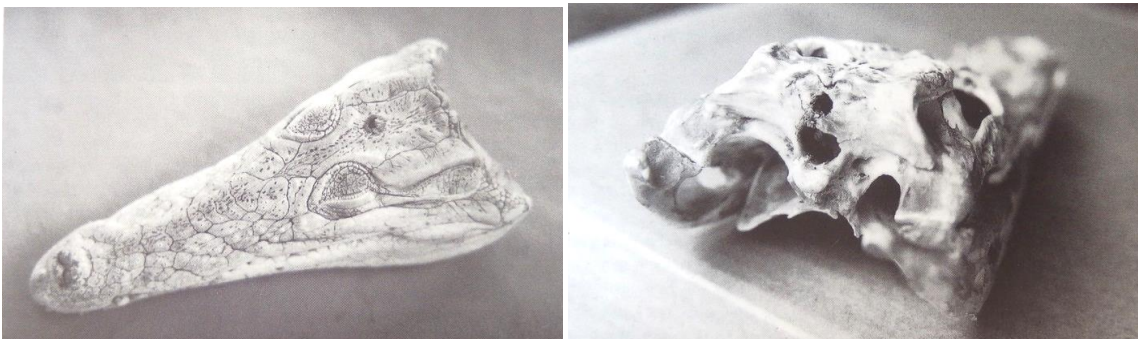


Figure 2. Correct spots to aim for when killing a crocodile with a small caliber firearm (Huchzermeyer 2003).

3. **Injection of pentobarbital:** Contingent on the context and appropriate experience/training of the person (eg veterinarian, researchers). The meat should not be allowed to enter the

animal or human food chain. And carcass should not be disposed in landfills. If there is any uncertainty as to death by injection (eg low body temperature affecting metabolism of drug or slow uptake of intraperitoneal/extravascular injection) subsequent pithing is recommended.

4. **Pithing:** Should only be undertaken after anesthesia or stunning (captive-bolt, blow or electrical stunning) or as a procedure following any other method to ensure complete brain destruction.
5. **Blow to the head with a hard implement:** Must cause instantaneous destruction of the brain in combination with a subsequent method to ensure death (pithing) if the animal is only stunned. This technique is difficult to perform in crocodylians due to the thickness of the braincase and must be reserved only for situations where circumstances necessitate it.
6. **Cervical severance (transection):** If cervical severance is used, it should be followed immediately by pithing.

Unacceptable Methods

Exsanguination, freezing, heating, suffocation, drowning or inhalation of toxic gases, are all considered unacceptable methods for killing crocodylians in captivity.

Literature Cited

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SABS

Standards

Division:

Pretoria.

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