Reptile Wildlife Euthanasia Techniques

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Define wildlife rehabilitation:
Wildlife rehabilitation is the act of providing temporary care to injured, sick, or orphaned wildlife with the goal of releasing them back into the wild.¹

Pain?
Reptiles have all the anatomy necessary to feel pain and suffer and therefore should be treated with the same humane standards as other species, which includes providing them with proper analgesics.² Sladky and Mans provide a review of clinical analgesia in reptiles.³

Legality
- If the animal is wild, its "owner" is the State, Federal, or Tribal authority.⁴
- Some endangered or migratory species may require approval by the appropriate federal agency prior to euthanasia, however, if the animal is actively suffering, agencies will usually defer to the veterinarian’s discretion.
  - Migratory birds = U.S. Fish and Wildlife Service (USFW)
  - Marine mammals = National Oceanic and Atmospheric Administration (NOAA)
  - Rest usually = State

Define euthanasia
- Derived from the Greek terms “eu” = well or good and “thanatos” = death.⁵,⁶
- Definition: ending the life of an animal in a way that eliminates or minimizes pain and distress.⁵,⁶ The technique employed should result in rapid loss of consciousness followed by cardiac or respiratory arrest and, ultimately, a loss of brain function.
- Actually determining the pain/distress of a method of euthanasia can be very difficult because as humans we will never fully know/understand the subjective experience of the animal.⁷ We use our best judgement; paddling, vocalizations, convulsions before apparent loss of consciousness is obviously suffering. We also use our knowledge of physiology and assume suffering in the absence of behaviors if a physiological process theoretically leads to suffering.
- Pain, distress and suffering are subjective affective experiences that are perceived in the brain. Therefore, one must be conscious and alive to suffer.
- General rule: a gentle death that takes longer is preferable to a rapid but more distressing death and conversely, if all other methods are equally humane, the quickest method should be chosen.⁸
- Taking a life is abhorrent to many. We often forget this and need to keep it in mind.⁹
- What’s the difference between euthanasia and humane killing?⁶,⁷,⁹
Most veterinary/animal fields define euthanasia simply as “good death”, however, the human field does not. Consider the death penalty—we don’t consider these humans “euthanized” or eligible for “euthanasia”. Applying this to animals, we do not consider healthy cattle going to slaughter to be going for euthanasia. That’s because the decision whether or not to end a life, is central to the euthanasia definition. The decision of whether or not to end a life must be based on the animal’s welfare, that is, to anticipate what the animal would want & and what is in the animal’s best interest. So even though we won’t be discussing today the decision on whether or not to euthanize, we should keep this in mind. And finally, even though humane slaughter and humane depopulation (i.e. with animal disease outbreaks) may not be considered true euthanasia, we can consider these techniques when we are looking for the most humane way to euthanize our patients in wildlife rehabilitation.

Evaluating euthanasia methods:

- **Animal factors:**
  - Ability to induce loss of consciousness and death with a minimum of pain and distress; compatibility with species, age, and health status
  - Minimize exposure to human presence and other animals that could be perceived as predators, loud noises, stress vocalizations that can serve as sources of anxiety.
  - Time required to induce loss of consciousness
  - Reliability/irreversibility

- **Human factors:**
  - Safety of personnel
  - Documented emotional effect on observers or operators
    - Emotional impact: The potential emotional and psychological effects on the people performing the euthanasia, and on observers must be acknowledged
    - “No matter what the situation, the act of performing euthanasia on a wild animal involves emotions. While we can’t remove the emotions, we can develop guidelines which will help make the actual decision a little easier and hopefully remove some of the doubt.”
  - Drug availability, human abuse potential, legal requirements
    - Lay rehabilitators are often left to perform euthanasia without a veterinarian (emergency situations, evenings, weekends, etc.); alternatives need to be available for these situations in which controlled drugs, advanced training or equipment is not available.
  - Ability to maintain equipment in proper working order

- **Remains (carcass) factors:** Compatibility with intended animal use and purpose
  - Intracardiac injections can potentially damage heart tissue both mechanically and chemically
  - Commercial euthanasia solutions are NOT sterile
  - Barbiturates can precipitate in tissues.
  - Environmental impacts of the method or remains, including safety for predators or scavengers should the animal’s remains be consumed; Barbiturates should not be used where carcasses can potentially be consumed.

We must view the above within a practical systems view/process flow:

- Handling/restraint
Euthanasia methods/agents: 2+ phases; multi-stage process recommended.\textsuperscript{2,17,18,19}

- Loss of consciousness (unaware of surroundings, cannot feel pain, fear, distress)
  - Sedation = animal may be aroused to a conscious state with sufficient stimulation\textsuperscript{6}
  - Anesthesia = unconsciousness and cannot be aroused\textsuperscript{6}
- Causing death
- Confirmation of death
- Disposal of remains, necropsy needed (and why)

**Case Examples**

- **Case #1:** Snapping turtle brought to a wildlife rehabilitator, obtunded from trauma, barely alive
  - Sodium pentobarbital
    - Routes of administration
    - Mechanism of action
    - Reptile physiology relevant to sodium pentobarbital administration
  - Confirmation of death in reptiles

- **Case #2:** Painted turtle presents to veterinary clinic bright, alert and feisty but with an obvious carapacial fracture over the caudal spine, rear end paralysis, and no deep pain in the rear limbs.
  - Use of preanesthetic medication
  - Physical methods of euthanasia
  - Unacceptable methods

- **Case #3:** A common garter snake that presents bright, alert, and feisty, but with a spinal fracture and no deep pain in the tail.
  - Recommended techniques for lizards, snakes, chelonians versus crocodilians
  - Guidelines for tiny (<4 gram) patients

**Reptile References**