

Wildlife Necropsies – Some Key Points

Why Do Necropsies?

- Find out why the animal died
- Prevent deaths in other animals
- Develop treatment approach for others
- Learn what mistakes were made
- Collect evidence for legal cases—these should really be done by a pathologist
- Learn normal anatomy

General Guidelines

1. Be objective, Be descriptive. Be quantitative (i.e., take measurements) when relevant
2. Photograph to support description (include items for scale!)
3. Record everything... you are painting a picture for the pathologist or anyone else reading the report
 - History of previous morbidity/mortality
 - Affected and unaffected species, plus # of each
 - Sex & age distribution
 - Nutritional condition
 - Timeline – sudden death or prolonged illness? – all mortalities at once? Any behavior if known or observed
 - Carcass condition (fresh, rotten, etc.)
 - Description of area, vegetation, habitat, water, potential food
 - Climate conditions
 - Any human contact?
 - Circumstances of death or method of euthanasia
 - Any recent known disturbance in the area (crop spraying, burns, construction, etc.)

Biosafety & Biosecurity

Biosafety: wear proper PPE (gloves, plastic or Tyvek sleeves, Kevlar glove, mask, face shield, foot covers/boots, etc.)

- Work in a well-ventilated area
- Remove PPE properly, discard, and wash hands when done

Biosecurity: bag and/or clean all items before leaving the site; change foot ware and/or disinfect soles

Field necropsy—when possible, conduct the necropsy on a tarp or an opened body bag to contain fluids/tissues

Biowaste & Sharps

Dispose of all single-use sharps in a labelled sharps container

Properly cover/store all non-disposable sharps

Make sure all biological waste is contained, and dispose of in accordance with local ordinances

Euthanasia

AVMA guidelines: <https://www.avma.org/sites/default/files/2020-02/Guidelines-on-Euthanasia-2020.pdf>

Euthanasia can provide the freshest samples, but technique will either preserve or jeopardize samples.

- CO₂ can cause dark red areas in lungs/collapse of mammalian lungs
- Chemical euthanasia may cause hardening/mineralization of vessels and surrounding organs

Post-Mortem Techniques

1: Ensure proper PPE, be 'ready' with pre-labeled bags, formalin containers, camera and scale, plan for disposal

2: Understand your objective or goal for the necropsy and sample collection; consider calling pathologist before cutting

3: Tips during the procedure:

- Before cutting, palpate and examine entire animal externally from nose/beak to tail including checking the eyes, ears, inside the mouth, legs and feet, and anus/cloaca. This may help you identify key lesions or areas to focus on, including foot wounds, abscesses, fractures, fur/feather condition, diarrhea, etc.
- If possible, wet down fur/feathers with soapy water or alcohol to better access the skin. Skinning as much of the animal as possible may reveal areas of trauma not otherwise obvious and prevents hair/feathers from contaminating viscera
- Use the entire length of the blade (rather than just the point) when making big cuts for efficiency
- Avoid cutting through the hair and skin itself; rather, cut from 'underneath' through the fascia
- Use a scalpel and blade for smaller animals or anything requiring finer dissection
- Pictures for documentation and to aid in diagnosis by others should include both lesions and 'normal' tissues
 - Use a dedicated camera or put camera in a bag for easy cleaning
- Get in the habit of examining every system to avoid missing something

4: Sample collection and storage

- Formalin is for tissues being sent for histopathology
- All tissues in formalin should be less than 1 cm thick (thickness of starburst or life saver candy)
- The overall tissue to formalin ratio should be no more than 1:5. Excessive tissue in little formalin will not preserve and tissue will continue to rot in the container
- 'Fresh' tissue can be placed in Zip-loc® bags, twist-top vials, or Whirl-paks®. This is for 'backup' tissue, tissue to be banked, or tissue being submitted for a specific test or goal (PCR, CWD testing, toxicology, etc.)
- All storage bags and containers should be clearly labeled and wiped free of blood or other organic material

5: Wrap-up:

- Ensure proper disposal of the body or tissues
- Sanitize equipment and tools with Rescue®, diluted bleach, or other disinfectant after cleaning
- Remove any coveralls or other contaminated clothing or PPE; wash hands
- Take notes of your findings on a clean piece of paper, and include a summary of findings, with animal information and history; complete submission form for the lab, if applicable