

Alberta Wildlife Animal Care Committee Class Protocol #003

Wildlife Research Permits and Collection Licences

Adopted 11 February 2005

Class Activity: Capture and Handling of Amphibians

Specific Activities

Handling, trapping and marking of adult and/or larval amphibians

Objectives

To ensure safe and humane handling of captured wild amphibians

Primary Contact/Authority

Director of Wildlife

Applicable Personnel

Project leads must have appropriate experience with amphibians, established search images of the species intended for census, and familiarity with the species' biology, behaviours, and preferred habitat.

Species

Various frogs, toads, and salamanders

Applicable Geographic Range

Provincial

Methods

Every reasonable effort should be made to avoid unnecessarily disturbing these species or their habitat, in particular endangered leopard frogs.

Trapping

1) **Minnow Traps** - traps are commercially available or can be hand-made to suit the experimental design of the study.

- Avoid using traps with wire mesh of a size in which animals can get stuck.
- Traps should be only partially submerged, to allow access to air, and a stick or other perch should be placed in the trap.
- Traps can be left in the wetland for 24 hours to ensure unbiased sampling of animals with diurnal and nocturnal activity patterns.
- Check at regular time intervals. The amount of time traps are left in the water without being checked should range from 8-12 hours, and never exceed 24 hours

2) **Pitfall Traps (used in combination with drift fences)** - Generally, the traps are set flush with the ground, a lip is left on the top of the trap to prevent amphibians from escaping, and the bottom of the trap is sealed (or a solid material selected) to ensure the trap water level is constant.

- When trapping frogs, a light may be placed over the trap to attract insects to the area and lure frogs into the traps
- Include a sponge or moss (soaked daily in pond water) to prevent desiccation
- Include a rock in the trap to provide a hiding place and perch for adults
- Include a stick in the trap to allow small mammals to escape
- A plastic cover supported by stakes should be placed above each trap to protect amphibians from direct sunlight, which can cause overheating and desiccation. The cover also prevents flooding of the traps during heavy rainfall.
- Traps should be checked each morning to minimize mortality from desiccation and predation. If necessary, traps can be left for two days if procedures to ensure moisture and general protection are followed.
- When traps are not in use, secure a lid on top of each trap

Handling

When handling amphibians, the use of nets, hooks, tongs or handling bags may be required to reduce injury to animals. Minimize the time spent examining and handling captured amphibians.

- To minimize stress to the animals, immediate release is recommended in very hot weather or during breeding.
- A plastic cover supported by stakes should be placed above each trap to protect amphibians from direct sunlight, which can cause overheating and desiccation. The cover also prevents flooding of the traps during heavy rainfall.
- If amphibians are held in bags, it is important to keep them from overheating. The bags should be kept in a cooler, in the shade, or in the water (make sure they do not become completely submerged or float away).
- Do not hold tadpoles or larval salamanders out of the water; examine them in bags or other containers in a small amount of water that is replaced frequently (particularly in hot weather).
- Whenever possible, latex gloves (either talc free or rinsed before use) should be worn. If handling, ensure there is no insect repellent, suntan lotion, perfume, or other potentially noxious substance on your gloves/hands before capturing or handling amphibians. Keep your gloves/hands wet when handling amphibians and rinse hands/gloves between different individuals.
- Because pond amphibians may have microhabitat specificity, captured animals should be released at the site of capture.
- Superficial skin abrasions can be treated by applying Bactine – all other disinfectants and topical anesthetics are NOT appropriate for amphibians.

Physical Restraint

- Frogs should be grasped around the waist with the hind limbs fully extended to prevent kicking
- Salamanders should be grasped around the middle of the body between the forelimbs and the hind limbs

Marking

1) Toe Clipping

- Toe clipping is not a recommended option for long-term studies because of potential toe regeneration. Using cauterizing materials such as phenylmercuric acetate solution after removal of the toe has prevented digit regeneration; however, less painful permanent marking methods are available and are preferred.
- Avoid clipping digit (toe) III or V on the hind legs and digit I ("thumb") on the front legs.

- Remove no more than one digit from one limb and no more than three digits removed from any individual.
- The amphibian should be anesthetized or provided local analgesia (2% lidocaine applied topically to the site)
- The limb should be disinfected and the foot elevated above the vent to avoid possible contamination
- The hinge part of the scissors should be used to sever the toe next to the web. If toe webs extend to the toe tip, then a portion of web may have to be removed.
- Cutting through a joint is recommended whenever possible.
- Sterile steel clips or absorbable monofilament suture can be used as a tourniquet before amputation, and tissue glue should be applied after the procedure.
- Disinfect scissors between individuals.

2) Visible Implant Florescent Elastomer (VIE) - available from Northwest Marine Technology

- This is the recommended marking technique as it is least obtrusive and most effective method, lasting perhaps the entire lifespan of the animal.
 1. To minimize possible negative effects, tags should be injected on the ventral surface of the animal's leg or foot.
 2. Syringes should be sterilized between each use
 3. To minimize errors during injection and injuries during handling, use proper restraint such as placing a salamander in a wet Ziploc bag, which is then clipped to a clipboard.

3) Passive Integrated Transmitter (PIT) Tags or Microchips

- PIT tags should be injected into the abdominal cavity or subcutaneous tissues
- The injection site should be cleaned with 70% ethanol and sealed with tissue glue
- The PIT and canula should be disinfected in 70% ethanol between each animal

Euthanasia

In the event of unforeseen irreversible injury or intolerable pain to a captured individual, euthanasia must be performed safely and humanely. All team members performing euthanasia must be competent in the proper techniques.

Acceptable methods of euthanasia in amphibians include:

- Intravenous or intrapleuroperitoneal injection of pentobarbital.
- Overdose of anesthetic agents - including benzocaine (bath or ointment applied to the top of

the head and dorsum of the body) or buffered tricane methane sulfonate (TMS, MS-222®) bath.

- Pithing of the brain and spinal cord, or decapitation followed immediately by pithing (these are the least preferred choices)

Carcasses euthanized by chemical methods SHALL NOT be left in the field.

Evaluation

If severe injury (limb bone fractures, fractured back) or mortality associated with capture and/or handling occurs, halt the operation and review all activities. If corrective factors cannot be identified, discontinue the activities.

REFERENCES

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- 3) Alberta Fish & Wildlife - Status of Wild Species:
<http://srd.alberta.ca/FishWildlife/SpeciesAtRisk/GeneralStatusOfAlbertaWildSpecies/Default.aspx>
- 4) Green, Earl, D. "Toe-Clipping of Frogs and Toads" Standard Operating Procedure. Amphibian Research & Monitoring Initiative, National Wildlife Health Center. United States Geological Survey 2001.
http://www.nwhc.usgs.gov/publications/amphibian_research_procedures/toe_clipping.jsp
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<http://www.ilmb.gov.bc.ca/risc/pubs/tebiodiv/pond/assets/pond.pdf>
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