

# Alberta Wildlife Animal Care Committee Class Protocol #009

Wildlife Research Permits and Collection Licence

Adopted 11 February, 2005

## Class Activity: Canid Capture, Handling, Immobilization<sup>1</sup>, and Release

### Specific Activities

Foot-hold trapping, neck snaring<sup>2</sup>, helicopter net-gunning, helicopter darting

### Objectives

- Humane capture and handling of live wolves, primarily for research and management purposes.
- Safety to humans and wolves.
- Limited trauma and stress to wolves.

### Primary Contact/Authority

Director of Fish and Wildlife Policy

### Applicable Personnel

- **Project leads** must be Wildlife Biologists, NR 9 or equivalent, Fish and Wildlife officers designated as Regional Problem Wildlife Specialists, or persons with appropriate experience.
- **Project team** must include persons trained in general wildlife capture and handling as per an approved wildlife capture/immobilization course.
- **Capture crews** will include persons with experience in capturing and handling wild canids.
- Input from a veterinarian must be provided as a member of the capture crew or within direct contact during field operations. Preferably the veterinarian has experience with wildlife handling and capture.
- All members of the capture team must be trained in first aid and CPR.
- All members of teams involved with chemical immobilization should be educated on the safe handling of drugs to be used, their effects, and emergency human treatment.
- When a firearm is carried, all members of the team should be familiar with the specific firearm being used.
- Before the capture program commences, a Regional Problem Wildlife Specialist, Provincial Problem Wildlife Coordinator, Provincial Carnivore Specialist, or the District Fish and Wildlife officer must be contacted and the project discussed in detail. An emergency contact and contingency plan should be identified for dealing with capture of dangerous non-target species such as grizzly bears, black bears, or cougars.

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<sup>1</sup>If using immobilization drugs, applicants should refer to Appendix A – Drug Dosages from the Chemical Immobilization of Wildlife – 3rd Edition (2009) Canadian Association of Zoo and Wildlife Veterinarians

<sup>2</sup> Use in wolves is provisional, pending field testing, review, and evaluation

## **Species**

Canids

## **Applicable Geographic Range**

Provincial

## **Capture Methods**

### **Foot Hold Trapping**

- Modified steel foot-hold traps are approved. Modifications include reduced steel spring strength, thickly padded trap jaws with vulcanized rubber and may have small interlocking rubber teeth, and a minimum offset between steel jaws that meet the agreement of international humane trapping standards. Steel jawed traps with teeth may be modified so that the points of the teeth are filed down to small protrusions that will hold a foot in place but will not puncture the skin.
  - A strong swivel attaches traps to a steel chain (approximately 3.5 m in length), at the end of which is a splayed drag hook. Generally, traps are not staked as this could increase the risk of shoulder dislocation.
  - The pan tension device should be adjusted to minimize the capture of small non-target animals (approximately 3.5 kg).
- Avoid trapping when weather conditions threaten the survival or well-being of trapped animals, unless steps can be taken to mitigate these risks. In general, trapping should occur between late April and October or when nightly temperatures are  $> -8^{\circ}\text{C}$ . In ambient temperatures above  $25^{\circ}\text{C}$ , traps should be checked every 4 to 5 hours OR the traps should all be closed.
- Avoid capture of pups or nursing females.
- Traps will not be set near potential safety risks to humans or canids.
- Use species-specific lures such as urine, gland lure, and scats from the target species to minimize the risk of capturing non-target species. Generally, bait piles are NOT approved for trapping wolves due to the potential risk of attracting non-target species, but their use may be justified on an individual case basis.
- Conduct on-site ground checks at least once every 24 hours, preferably in the morning to avoid higher daytime temperatures.
- Trap transmitters may be used to avoid leaving human scent in areas that cannot be checked visually from a distance. However, traps with transmitters must be checked every 24 hours to determine if the trap has been dislodged from the set and checked visually at least every 48-72 hours.
- Close or remove traps when not in use.
- Physically subdue captured animals using a forked stick or snare pole and, if necessary, chemically immobilize as described in IMMOBILIZATION and HANDLING IMMOBILIZED CANIDS sections below.

## **Exceptions**

Do not use immobilization drugs on canids under the age of 5 months or lactating females captured during the denning season.

### **Non-target captures**

- Contact a Wildlife Biologist or the District Fish and Wildlife officer before trapping is initiated to see if non-target species can be used for other purposes.
- Non-target animals should be physically restrained, inspected for injuries, and in the absence of severe injury, released on site. If severe injuries are found, contact a veterinarian or consider euthanasia, if appropriate.
- Dangerous non-targets such as grizzly bears, black bears, or cougars require a different approach. If the permit does not cover capture of these species, the Regional Problem Wildlife Specialist, Provincial Problem Wildlife Coordinator, Provincial carnivore Specialist, or the District Fish and Wildlife officer must be contacted for further direction. Minimize disturbance of the animal until it is processed.
- All non-target animal captures must be reported to Fish and Wildlife.

### **Neck Snaring**

#### **1) Wolves**

The use of neck snaring in wolves is not permitted by this Class Protocol. Those interested in using this technique must submit a detailed proposal/methods to the Fish and Wildlife Policy Branch.

#### **2) Foxes and Coyotes**

- Avoid capture of pups or nursing females.
- Do not set traps in areas with potential safety risks to humans or canids.
- Conduct on-site ground checks at least once every 24 hours, preferably in the morning to avoid higher daytime temperatures during summer periods.
- Modified neck snares with lock stops or breakaway snares with transmitters may be used. Trap size and settings must be appropriate for the target species.
- Tranquilizer tablets (e.g. diazepam) may be used as appropriate for intended target species.

### **Helicopter Darting and Net-Gunning**

Capture of animals will not be attempted if temperatures fall below  $-20^{\circ}\text{C}$ , when extended exertion may cause lung damage. Capture attempts also will be suspended if temperatures rise to greater than  $+20^{\circ}\text{C}$  when extended exertion may cause hyperthermia and/or trigger capture myopathy.

- Net gunning is the preferred capture method.
- Only people experienced with specialized helicopter wildlife capture should perform net-gun captures.
- Pilots and shooters with significant and relevant experience specifically with canids (since they provide relatively small targets) will conduct aerial dart captures.
- Activities should occur primarily during winter months (Nov-early Mar). Avoid capturing alpha females in late March.
- Limit capture attempts to large open areas, preferably with deep snow to inhibit movement.
- Limit helicopter chase time to  $\leq 10$  minutes to reduce the risk of capture myopathy.
- If the canid is missed and the chase length is already 10 minutes, resume chase only if immediate capture seems likely.
- Track each darted canid by helicopter until it succumbs to the immobilization or it is evident the drugs were not successful ( $\geq 15$  min).

### **Immobilization**

Drug doses will be based on body weight and deliver an adequate single-dose volume to ensure rapid, effective immobilization within the maximum safe dosage margins.

The use of supplemental oxygen for immobilized canids has been shown to be extremely beneficial and is strongly recommended, but is not mandatory in field situations at this time.

#### **1) Foot-hold trapping**

- Use known, recommended drugs (and drug combinations), reversal agents, and dosages, included in the attached species specific reference charts, see Appendix A – Drug dosages (Canadian Association of Zoo and Wildlife Veterinarians, Chemical Immobilization of Wildlife Course manual, 2005).
- Administer intramuscularly to the outer surface of the hind leg by hand-injection. Record the time of injection.
- Back away once the injection is given, preferably out of sight. Remain quiet to reduce stress on the canid and increase the chance of successful immobilization.
- Allow adequate induction time before further handling.
- If the canid is not immobilized, administer additional drug as required.

#### **2) Helicopter darting**

- Use known, recommended drugs (and drug combinations), reversal agents, and dosages, included in the attached species reference charts. See Appendix A – Drug dosages (Canadian Association of Zoo and Wildlife Veterinarians, Chemical Immobilization of Wildlife Course Manual, 2005).
- Deliver drugs using Cap-Chur™ or Pneu-Dart™ wildlife darts using the lowest possible gunpowder charge to reduce risk of injury.
- The barb location should be marked on the dart prior to darting. Darts with barbs should be removed with a sterile scalpel and the dart entrance wound should be covered with hibitane.
- Make all reasonable efforts to collect unsuccessful darts.

### **Handling Drugs**

**NOTE – All scheduled drugs (e.g., Ketamine) must be properly secured at all times, including under field conditions.**

- Storage - Refrigerate reconstituted drugs; store all other drugs at room temperature and out of direct sunlight.
- Transporting - Carry drugs in a leak proof, uncrushable container. Carry a 'sharps' container for used needles.
- Labelling, handling, and documentation - Label all drugs accordingly.
- Avoid cross-contaminating drugs and sterile water. i.e., one needle for one task.
- Document and account for all used or unused drugs or vials.

### **Handling Immobilized Canids**

- Minimize the number of people to those needed for safe and efficient handling of the animal.
- Minimize sudden movements, as well as auditory, visual, and touch stimuli throughout the procedure, especially in the recovery phase.

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- Ensure safety and comfort of the animal at all times, and personal safety of all people involved.
- Use gloves when reasonable to reduce potential risks to humans.
- Move immobilized canid out of direct sunlight and wind, and away from natural hazards.
- Lay canid in lateral recumbency, and for trapped canids, with the injured leg rose.
- Monitor and record temperature, pulse, and respiration rate immediately and continue at five to ten minute intervals throughout the handling period.
  - Monitor mucus membrane colour for oxygenation. A pulse oxymeter should be included as part of the handling kit.
  - Be prepared to counter hypothermia/hyperthermia with appropriate mitigations.
  - Address veterinary emergencies by personnel with appropriate training.
  - Develop protocols beforehand for injuries that result in extended care.
- Apply ophthalmic ointment to the eyelids to prevent drying; use a blindfold to reduce sensory stimuli.
- Complete a thorough physical examination to determine general health and trap-related injuries pay particular attention to the mouth (broken teeth, lodged sticks), legs, and feet. Treat open and superficial wounds appropriately; consider topical antibiotics. Consider a long-lasting antibiotic if there are extensive lacerations or injuries. If major injuries are involved, consult a veterinarian before euthanasia is considered.
- Record injuries following Kuehn et al. 1986<sup>3</sup>; this will allow consistent comparisons of injury rates using different trapping protocols.
- Conduct painful (e.g., ear tag) or manipulative (e.g., weighing) procedures first while canid is still deeply anaesthetized.
- Complete handling within 30 minutes (See PROCEDURES below) and then monitor the animal from a safe distance until it is fully ambulatory.
- If anesthesia continues beyond 45 minutes, turn the animal over to prevent settling of fluids and congestion.

### **Handling Non-Immobilized Canids**

Generally the same as HANDLING IMMOBILIZED CANIDS except:

- Use a muzzle and hobbles.
- Avoid painful procedures since no analgesia is involved.
- Total handling time should not exceed 20 minutes, with an absolute maximum of 30 minutes.

### **Procedures**

This handling protocol is appropriate for taking basic body morphometrics, collecting faecal samples, taking hair samples, drawing blood, attaching radio collars, attaching ear tags, taking tissue samples or biopsies, and tattooing under authority of a Fish and Wildlife Research Permit or Collection Licence.

**For all noted procedures, previous training and experience is necessary.**

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<sup>3</sup> Kuehn, D.W., T.K. Fuller, L.D. Mech, W.J. Paul, S.H. Fritts, and W.E. Berg. 1986. Trap-related injuries to gray wolves in Minnesota. *Journal of Wildlife Management* 50:90-91.

### **Taking hair samples**

- Take 20-30 hairs with roots; avoid sensitive regions like the groin.

**Use of the following more invasive procedures should be limited to those necessary for the objectives of the study. Anesthesia is necessary if undue stress or pain is anticipated.**

### **Drawing blood**

- No more than 10-20% blood volume or 1.5-2.5% of lean body mass should be collected.
- Draw blood from the saphenous or cephalic vein using aseptic technique.
- Ensure bleeding has stopped before releasing the animal.

### **Attaching radio collars**

- Combined weight of transmitter and neck collar should not exceed 2-3% body weight.
- Collar width must be appropriate for the age of animal captured.
- Make appropriate modifications to radio collars for young animals that are still growing. If not possible, consider not radio-collaring the animal.
- Generally, animals in poor condition should not be radio-collared. Similarly, recaptured animals negatively affected by radio collars should not be re-collared.
- All radio collars should be equipped with one or more breakaway devices that will release the collar at the end of the project.

### **Attaching ear tags**

- The size, shape, material, color, and placement should allow for normal behaviour and minimal potential entanglement on vegetation.
- Use sterile technique.

### **Taking tissue samples or biopsies**

- Take only the minimum tissue necessary to satisfy research goals.
- Minimize stress and pain while obtaining adequate samples for study purposes.
- Use sterile technique.

**If other more invasive procedures are proposed, specific details must be included in the research application.**

### **Evaluation**

**If severe injury (extensive deep, penetrating wounds, severe bleeding, or any major limb bone fracture) or mortality is associated with capture and release projects, halt the operation and review all activities. However, even extensive superficial wounds, eye injuries, and/or severe tooth damage should be cause for review. If corrective factors cannot be identified, discontinue the operation.**

## **Euthanasia**

**In the event of unforeseen irreversible injury or intolerable pain to a captured individual, euthanasia must be performed safely and humanely.**

The preferred method for field euthanasia of canids is gunshot to the brainstem of immobilized canids or to the heart/lung area of non-immobilized canids<sup>4</sup>. If other methods are used, the researcher must provide details in the research permit application and receive approval of the proposed method.

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

## **Communications and Medical Emergencies**

- All members of the capture team must be aware of risks associated with fieldwork and with using specified immobilization drugs. MSD sheets on the drugs being used should be provided to all team members.
- Establish an emergency medical plan, including evacuation to the nearest medical facility.
- Medical facilities in the area of the project should be provided with Medical Alert Information Sheets on the types of drugs being used for wildlife capture and handling.
- If appropriate, notify the local community officials regarding general location of trapping, net-gunning, or darting activities.

## **Acknowledgements and References**

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### **The following documents also were consulted**

- 1) Canadian Council on Animal Care. 2003. Guidelines on: the care and use of wildlife.
- 2) Cattet, M., T. Shury, and R. Patenaude. 2005. The Chemical Immobilization of Wildlife – 2nd Edition. Canadian Association of Zoo and Wildlife Veterinarians. 231 pp.
- 3) Resources Inventory Branch for the Terrestrial Ecosystems Task Force. 1998. Live animal capture and handling guidelines for wild mammals, birds, amphibians & reptiles.
- 4) Resources Inventory Branch for the Terrestrial Ecosystems Task Force. 1998. Wildlife radio-telemetry. Standards for components of British Columbia's biodiversity No. 5.
- 5) 2000 Report of the AVMA (American Veterinary Medical Association) on Euthanasia. JAVMA Vol. 218, no. 5, March 1, 2001.

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<sup>4</sup> Based on the Canadian Council on Animal Care (CCAC) guidelines and the Report of the American Veterinary Medical Association on Euthanasia.