



Cornell University
Cornell Center for Animal Resources and Education

CARE308.01 Avian Euthanasia

The intent of this standard operating procedure (SOP) is to describe the acceptable methods for euthanasia of avian species at Cornell University. This SOP is intended for use by any personnel that will perform euthanasia on avian species. This SOP is approved by the Cornell Institutional Animal Care and Use Committee (IACUC) and the Cornell Center for Animal Resources and Education (CARE). Any exemption must be approved by the IACUC prior to its application.

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1. Introduction

Cornell University bases the practices for euthanasia of avian species on the recommendations of the *AVMA Guidelines on Euthanasia (Formerly Report of the AVMA Panel on Euthanasia)*, and the NIH Guide for the Care and Use of Laboratory Animals.

2. Materials

Materials needed depends on euthanasia technique being used

- a. Injectable: injectable agent, needles and syringes
- b. Inhalant: Inhalant agents and clear chamber
- c. Physical: Decapitation device or shotgun

3. Procedures

- a. Ensure that all individuals responsible for euthanasia:
 - i. Receive appropriate training to perform the euthanasia method to be utilized.
 - ii. Adhere to IACUC-approved protocols and institutional policies.
 - iii. Select the method of euthanasia based on the species, location and the objectives of the protocol.

- b. Minimize distress to the animal as well as to the operator by handling the bird gently and carefully.
- c. Avoid the euthanasia of birds in the presence of other birds and/or animals.
- d. Verify death prior to disposal of the body by:
 - i. Observing for the absence of movement.
 - ii. Observing for the absence of respiratory and heartbeat activity for at least 3 minutes.
 - iii. Testing for corneal and toe pinch reflexes.
- e. Non-Physical Methods
 - i. Barbiturate overdose
 - Inject Sodium pentobarbital, or commercially available euthanasia solution, IP or IV into the bird at a dose of 100-150 mg/kg.
 - Maintain appropriate records for the use of all controlled substances.

Note: When the IP route of administration is used, place the bird in a small cage in a quiet area to minimize excitement and trauma, as birds may be slow to become sedated.
 - ii. Inhalant overdose
 - CO₂
 - Use compressed CO₂ from cylinders: dry ice is not permitted as a CO₂ source.
 - Use the CO₂ in a chamber that is clear so that the bird can be observed.
 - Do not overcrowd the chamber or mix species within the chamber.
 - Set a flow rate that displaces 20% of the chamber volume per minute.
 - Sanitize the chamber after each session.

Note: Neonatal and diving birds are tolerant of high concentrations of CO₂. Prolonged exposure to high concentrations of CO₂ will be required to produce death (e.g., up to 5 minutes in 60–70% CO₂ for 1-day old chicks).
 - Inhalant anesthetics; Isoflurane and sevoflurane
 - Should be followed by another method (ie. cervical dislocation) to ensure death.
- f. Physical methods

Important: Except in field situations, away from syringes, anesthesia or sedation must be given prior to the use of any of the following physical techniques (except shotgun) unless scientifically justified by the user and approved by the IACUC.

 - i. Use cervical dislocation (dislocation of the neck) for birds less than 200 g.
 - ii. Perform decapitation with clean sharp equipment that will ensure that the head is separated from the body rapidly and completely.
 - iii. Use thoracic compression only as a last choice for small to medium size free ranging birds when a preferred method is not possible (e.g., field work).

- iv. Use shotgun for wild animals only in areas where discharge of firearms is lawful and permission of landowner and all necessary state and federal permits are obtained.
 - g. Embryos, Eggs
 - i. For embryos, eggs > 50% gestation, use methods appropriate for hatched birds (ie. decapitation, overdose of anesthetic.)
 - ii. For embryos, eggs < 50% gestation, (under field conditions), destroy the viability of eggs by one of the following methods: shaking, puncturing, freezing, or coating eggs with oil.
- NOTE:** Appropriate permits must be obtained and requirements must be strictly followed.

4. Safety

- a. Gas anesthesia – see CARE SOP 712: [Waste Anesthetic Gas Scavenging Systems](#)
- b. Injectable Drugs – see CARE SOP 711: [Sharp Precautions](#)
- c. Shotgun – practitioners must have taken a hunter's safety course before using this method: see <http://homestudy.ihea.com>
- d. See references below concerning animal related injury, allergy prevention and zoonosis

5. Contingencies

- a. Gas anesthesia – contact EHS for questions concerning waste anesthetic gas (<http://www.ehs.cornell.edu/>)
- b. Controlled drugs – contact DEA for further information (<http://www.usdoj.gov/dea/>)
- c. Emergency veterinary care is available at all times through CARE (pager 1-800-349-2456).

6. References

- a. *AVMA Guidelines on Euthanasia* (Formerly *Report of the AVMA Panel on Euthanasia*). June 2007.
<http://www.avma.org/resources/euthanasia.pdf>
- b. *Guide for the Care and Use of Laboratory Animals*. National Research Council; National Academy Press, Washington, DC, 1996.
- c. *Guidelines for Euthanasia of Nondomestic Animals*. American Association of Zoo Veterinarians, 2006.
- d. CARE SOP 712: [Waste Anesthetic Gas Scavenging Systems](#):
<http://www.research.cornell.edu/care/documents/SOPs/CARE712.pdf>
- e. CARE SOP 711: [Sharp Precautions](#):
<http://www.research.cornell.edu/care/documents/SOPs/CARE711.pdf>
- f. CARE SOP 707.01 [Animal Related Injury](#):
<http://www.research.cornell.edu/care/documents/SOPs/CARE707.pdf>
- g. CARE Zoonosis web page:
<http://www.research.cornell.edu/care/zoonoses.html>

h. Allergens prevention:

<http://www.research.cornell.edu/Care/documents/OHS/AllergyPreventionFactSheet.pdf>

7. Appendix Summary Table

Method of Euthanasia	
Barbiturates	Acceptable method
Inhalant Anesthetics	Acceptable method
Carbon dioxide	Acceptable method
Cervical dislocation in <u>anesthetized</u> or <u>sedated</u> animal	Conditionally acceptable
Decapitation in <u>sedated</u> or <u>anesthetized</u> animal	Conditionally acceptable
Decapitation in <u>awake</u> animal	Acceptable only with scientific justification in writing on the <i>Animal Care and Use Review Form</i>
Cervical dislocation in <u>awake</u> animal	Acceptable only with scientific justification in writing on the <i>Animal Care and Use Review Form</i>
Thoracic compression on awake animal	Acceptable only with scientific justification in writing on the <i>Animal Care and Use Review Form</i>
Shotgun on awake animals	Acceptable with proper training and permits

Embryos, eggs (<50% gestation)	Shaking, puncturing, freezing, or coating eggs with oil
Embryos, eggs (>50% gestation)	Methods appropriate for hatched birds ie. decapitation, anesthesia overdose

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