**Title:** Trapping, Decontamination, and Field Euthanasia of Wild Rodents
**SOP Number:** 027
**Purpose:** This SOP provides general guidance regarding the responsibilities for risk assessment, guidance on decontamination and disease prevention, as well as procedures for trapping, handling, and field euthanasia for field caught wild rodents.

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## Responsibilities

1. PIs and Instructors of Record must have the appropriate permits and permissions before beginning any sampling (e.g. Federal, state and/or international permits, University IACUC protocol approval, etc.).
2. There are risks associated with fieldwork on rodents. While it is not possible to identify all risks in advance, it is the responsibility of the PI or the Instructor of Record to show due diligence in identifying and communicating those risks and ways to mitigate the risks. The PI or Instructor of record is responsible for the following:
   a. Prior to fieldwork in a location or region, showing due diligence in identifying species likely to be captured and known to harbor pathogens or parasites that place humans at risk (e.g. hantaviruses, plague, other zoonotic diseases, ticks) and ensuring all personnel are familiar with the symptoms of rodent- and associated vector-borne diseases present in the area. Species known to harbor diseases or parasites with the potential to impact humans are termed “species of special concern”.
   b. Insuring all personnel (student, staff, and faculty) are made aware of the risks associated with the planned fieldwork, that everyone reads the protocols, SOPs, and amendments associated with the work, and everyone follows university procedures for training from Occupational Health and Safety (OH&S).
   c. Advising all personnel to seek medical consultation and baseline physical examinations (including titer checks and/or serotyping) if they have any personal concerns about health-related issues.
3. The university, via OH&S, should advise personnel that inoculation against tetanus is recommended (if due) and that special care should be taken to avoid ticks, and other biting parasites (through clothing choices, campsite selection, chemical barriers [DEET], and personal body checks). Under some circumstances such as working with species known to harbor plague, field workers should be advised to use special caution and consider vaccination if possible (e.g. plague) or enhanced biosecurity as appropriate.
4. It is the responsibility of all personnel to participate in university OH&S programs, follow approved procedures, and use the required PPE. Additionally, personnel should be familiar with the common species in the area and risks from those species before trapping before trapping. If personnel are not experienced (e.g. beginning students), then they should be supervised by a trained individual, who can provide direction and corrections.

**Risk Management**

A. Personnel
   1. Will wear field gear appropriate to the environment (e.g. boots and socks, long pants, and long-sleeve shirts). Depending on location, project, and likelihood of disease, disposable coverings or other personal protective equipment might be advisable. The PI or Instructor of Record is responsible for deciding the circumstances (such as extremely hot weather) under which the protective advantage of the recommended clothing is outweighed by other health risk factors (e.g., dehydration, heat stress).
   2. Gloves (e.g. nitrile, latex) are essential in processing specimens and double-gloving is suggested when handling species of special concern during disease outbreaks. Individuals should change gloves frequently, especially when gloves become damaged.
   3. Workers should not use their hands (gloved or otherwise) to wipe their faces during fieldwork when handling rodents or dirty traps or equipment.
   4. Application of cosmetics, tobacco use and vaping are not allowed during animal handling.
   5. Hands must be washed with soap after processing animals or handling dirty traps or gear and before handling food for human consumption.
   6. Although not always possible under field conditions, daily showers and laundering of field clothes are strongly recommended for persons in contact with rodent species of special concern.
   7. Respirators should be available for use in situations determined by Environmental Health &Safety (EH&S) to be high risk (i.e., deliberate, as opposed to incidental collecting and extensive handling of animals known to harbor zoonotic pathogens). Fieldwork of this type is not routine for typical class field projects or training exercises.
      a. Respirator use requires prior fit-testing and a physical. PIs planning to collect species of special concern in geographic regions or at localities or in habitats documented to have zoonotic outbreaks, should consider options to maximize human health.

B. Traps and Equipment
   1. Dirty traps should not be stored in tents or other human living quarters. While in the field, traps should be kept in a central storage area prior to being disinfected.
   2. Traps should be disinfected before storing or before moving them to new sites. Gloves should be worn when cleaning and disinfecting traps. Disinfection includes:
      a. Washing to remove all debris and organic material
      b. Disinfecting in 10% chlorine bleach with a minimum of 10 minutes of contact time or other hospital grade disinfectant used according to the manufacturer's instructions.
   3. Tables, work areas, and instruments should be cleaned daily.
   4. Cloth bags used for trap transport and other gear should be cleaned with suitable disinfectant before being stored or moved to new sites.

C. Animals and animal handling
    1. An open-air environment (i.e., no confinement) at or close to the trap site is the best place to check traps and process animals if possible. If specimens are to be taken elsewhere for processing, traps containing species documented to be carriers of pathogens should be segregated from other traps and animals.
    2. Species of special concern that will be kept in captivity in the field or transported, should be isolated from human contact. Suitable barrier caging is recommended.

D. Disposal
    1. Used gloves should be bagged and disposed through normal trash.
    2. As appropriate, disposal of contaminated waste, including sharps, should be coordinated with EH&S (806) 742-3876.
        a. When working in areas with zoonotic disease outbreaks, biohazardous waste should be brought to campus, autoclaved, and disposed of according to TTU policy (EH&S SOP 6.1). Those items which cannot be rendered harmless through autoclaving or other means must be placed in properly labeled containers and picked up by EH&S.
        b. All used sharps should be placed in approved sharps containers as required by OP 60.10, and picked up by EH&S.

**Trapping procedures**

1. The type(s) of traps selected should be based on the target species, types of analyses, and number of animals needed to meet the study objectives. Kill traps such as snap traps of appropriate size for the species are acceptable for humane killing and collecting small mammals. Box traps or pitfall traps can be used for small mammal capture and release. Use a trap size appropriate for the animal to be able to move comfortably (approximately burrow size). These are examples, not an exhaustive list of the types of traps appropriate for rodents.
2. The number of traps set should be balanced with what the personnel can check before risks to animal health and welfare become an issue.
3. Weather and other environmental conditions that might influence animal health and welfare must be considered and addressed before setting traps such as:
    a. Not setting traps during rain or storms or using coverboards during rain if other conditions permit (e.g. little chance of sheet flow)
    b. Not opening pitfall traps during rain to avoid animals drowning.
    c. Protecting traps from temperature extremes using insulation, shade/cover, or timing of open traps.
    d. Moving trap lines/grids or providing trap enclosures to protect the traps if bears or raccoons (or humans) become a persistent problem.
4. Potential hazards should be considered and avoided when placing traps (e.g. avoiding ant mounds).
5. We strongly recommend counting all traps before setting traps, marking all trap locations (e.g. flagging), and counting all traps when they are retrieved from the field to avoid mortality caused by missing traps.

6. Traps should be set with bedding and baited according to the species being trapped. Bedding and food should be replaced when resetting the trap if it becomes wet and soiled.
7. Check traps often enough to endure that animals remain in good condition and can be promptly released with no ill effects caused by capture. Frequency depends on target species, type of trap, weather, season, terrain, and number and experience of personnel. For most species, traps should not be left for longer than 10 hours during the day, and 16 hours at night or during the winter. Traps should be set close to dusk and checked as soon as practical after dawn. If trapping nocturnal species, only open traps during the night.
8. Handling techniques will vary depending on species, study objective, and experience level of personnel. In all cases the methods used must control body movements of the animal without restricting breathing.

**Euthanasia**

1. Sometimes euthanasia or humane killing is necessary in the field. Field euthanasia should be as quick and painless as possible, minimizing stress to the animal while being compatible with project design and the biology, size and behavior of the species.
    a. Administering anesthesia before euthanasia to wild caught rodents can add additional pain and distress and prolong suffering to the animal (AAALAC International 2015, Sikes et al. 2016, Leary et al 2020). Small-bodied rodents (< 200 g, pg 44 from Leary et al. 2020) can be euthanized quickly and efficiently in the field by trained personnel using cervical dislocation without anesthesia.
    b. For larger rodents (> 200 g), an inhaled anesthetic such as isoflurane must be used first. We recommend using the bell jar method for field situations (TTU IACUC Policy 19). This requires a small container such as a plastic box with lid. Cotton balls or other absorbent material is saturated in isoflurane and placed in the container in such a way that the animal will not come in direct contact with the agent (e.g. in a tea infuser). The animal should be placed into the container with the isoflurane and the container closed until the animal is unresponsive to toe pinch or lack or response to touching the eye. This primary method of euthanasia must be followed with a secondary method such as cervical dislocation, or pithing.

**Helpful resources from the Center for Disease Control**

1) Tickborne diseases of the United States: https://www.cdc.gov/ticks/diseases/index.html
2) Mosquito-borne diseases: https://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/default.html
3) Diseases directly transmitted by rodents:
    A. https://www.cdc.gov/rodents/diseases/direct.html
    B. https://www.cdc.gov/rodents/diseases/indirect.html

**Reference List**

AAALAC International. 2015. Reference resources: wild animals. https://www.aaalac.org/pub/?id=E9018E7B-F482-C1E4-934B-A415AE4ED86B. Accessed 6 February 2020.

Leary et al. 2020. AVMA Guidelines for the euthanasia of animals: 2020 edition. American Veterinary Medical Association. Schaumburg, IL. https://www.avma.org/sites/default/files/2020-01/2020-Euthanasia-Final-1-17-20.pdf. Accessed 7 February 2020.

Sikes and ACUC of the American Society of Mammalogists. 2016. Guidelines of the American Society of Mammologists for the use of wild mammals in research and education. Journal of Mammalogy 97(3): 663-688. https://www.mammalsociety.org/uploads/committee_files/CurrentGuidelines.pdf