

SUBJECT: VERTEBRATE HANDLING AND CARE PROCEDURE SAFETY	
DEPARTMENT: LABORATORY	PAGE: 1 OF: 7
APPROVED BY: Rick Ostfeld and Brandt Burgees	EFFECTIVE: 07/21/04 REVISED: 06/01/2013

I. INTRODUCTION:

The policy is an Assurance and training tool for compliance with all applicable occupational health program(s) for personnel working with vertebrate animals which is found in *Biosafety in Microbiological and Biomedical Laboratories* published by the Center for Disease Control and the National Institutes for Health; the Code for Federal Regulations Title 10, Part 20 and Title 29, Part 1910; the Public Health Service Policy on Humane Care and Use of vertebrate animals that codifies the *Guide for the Care and Use of Laboratory Animals* published by the National Research Council; and, the *Occupational Health and Safety in the Care and Use of Research Animals* published by the National Academy of Science.

The CARY INSTITUTE OF ECOSYSTEM STUDIES acknowledges and accepts responsibility for the care and use of animals involved in activities covered by the Institute's Animal Welfare Assurance (A42420-01). As partial fulfillment of this responsibility, the CARY INSTITUTE OF ECOSYSTEM STUDIES and its staff members will make their individual and collective responsibilities to comply with this Assurance and this policy, as well with all other applicable laws and regulations pertaining to the training of individuals who handle and care for vertebrate animals, both terrestrial and aquatic.

All persons using and caring for animals in research or education at the CARY INSTITUTE OF ECOSYSTEM STUDIES must complete and document the specified training as described hereafter.

II. PERSONNEL COVERED IN THE TRAINING:

Those individuals involved in the direct care of animals and their living quarters, tissues, and/or body fluids are covered by the policy.

III. RESPONSIBILITY:

- a. Management's responsibility is identified under Occupational Safety and Health Act of 1970 (OSH Act) – General Duty Clause.
- b. Supervisors have responsibility for activities within their work sites by encouraging safety.
- c. Employee must complete all required training within the amount of time determined by Safety Officer and incorporate the information provided into their daily work habits.

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IV. TYPES OF POTENTIAL RISKS TO EMPLOYEES:

Risk	Due To	Examples
Back Injury	Lifting/bending; pushing; twisting; falling	Cage placement, restraining animals; slipping on wet floors; equipment
Electrical Shock	Faulty electrical wiring	Water on floor; under ground equipment
Puncture Wound	Bite; scratch	Restraining animals
Needle Stick/glass cut	Improper handling of needle or surprise movement of animals; Broken glass	Handling sharps
Exposure	Allergens	Animal hair, dander, serum, animal proteins
Exposure to and illness due to zoonotic pathogens	Interaction with infected animals	Zoonotic agents,
Illness due to chemical exposure	Use of chemicals	Cleaning or decontaminating materials

V. ACCIDENT REPORTING AND REVIEW:

All accidents and injuries must be reported, documented and submitted to the supervisor and the Human Resource Director. All animal bites, scratches, glass cuts and other sharp injuries as well as chemical exposure will be documented and reviewed on a regular basis. This information will then be used to determine the need for additional training or an upgrade to the existing training program. Supervisors will encourage the completion of the accident reports and all employees are required to complete accident reports.

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Many agents responsible for viral, bacterial and parasitic infections in vertebrate animals are capable of infecting humans. Employees are encouraged to report symptoms to their supervisor immediately upon notice.

VI. PERSONAL HYGIENE:

There are a number of personal hygiene issues that apply to all workers who are exposed to animals.

- a. No eating, drinking, smoking or applying cosmetics in areas where animals are housed or used.
- b. Protective clothing (e.g., white coveralls) should be worn over street clothes when working with animals in the field. This will minimize the contamination of street clothes. Protective clothing should be left in the lab and should not be worn when eating or walking in public eating areas. Protective Clothes should be laundered routinely.
- c. All relevant laboratory work surfaces should be decontaminated daily and after any spill of animal related material.
- d. Certain infections are transmitted from animals to humans and special care must be taken to avoid transmission.

VII. TYPICAL SPECIES CAPTURED AT CARY IES:

- | | |
|----------------------------|--------------------------|
| a. Peromyscus leucopus | White-footed mouse |
| b. Tamias striatus | Eastern chipmunk |
| c. Blarina brevicauda | Short-tailed shrew |
| d. Microtus pennsylvanicus | Meadow vole |
| e. Microtus pinetorum | Pine vole |
| f. Myodes gapperi | Southern Red-backed vole |
| g. Sorex cinereus | Masked shrew |
| h. Glaucomys volans | Southern flying squirrel |
| i. Sciurus carolinensis | Grey squirrel |
| j. Tamiasciurus hudsonicus | Red squirrel |
| k. Mustela erminea | Short-tailed weasel |
| l. Mustela frenata | Long-tailed weasel |
| m. Mustela vison | Mink |
| n. Napaeozapus insignis | Woodland jumping mouse |
| o. Condylura cristata | Star-nosed mole |
| p. Didelphis virginiana | Opossum |

*No Veeries (small birds) are housed at the CARY INSTITUTE OF ECOSYSTEM STUDIES facilities, as they are captured and released at site.

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VIII. PROCESS

Trapping of Mammals

1. Setting Sherman Traps

- Project Assistants will first learn how to properly set Sherman traps.
- Debris in the traps is cleaned out, and each trap is filled with approximately 1 tablespoon of whole oats.
- *Project assistants or the Research Support Specialist (RSS) must look at the weather prediction for the overnight low temperature. When the temperature drops below 50°F, black-oil sunflower seed and raw cotton are added to the traps as a fattier food source and warm bedding.*
- The traps are then checked for sensitivity by tapping them. A sharp rap should snap the traps closed. Improperly working traps are fixed or replaced.
- Cover boards on top of each pair of traps keep rain and sun from the animals. PA's replace worn cover boards as needed.
- Traps are opened in the early evening, and checked first thing the next morning.
- Project assistants accompany an RSS for at least a row of traps (22 traps), though usually they work together for an entire day or two.

2. Mouse Handling

- Project Assistant (PA) will then start handling mice by transferring the mouse into a gallon-sized plastic bag from the Sherman trap.
- The trainee will then cup one hand over the mouse without pressing down, and with their other hand, reach into the bag, find the neck (indentation between the shoulder blades and skull) and scruff the animal holding as much skin as possible in grip.
- The PA will then learn how to tag an animal with metal ear tags using the special pliers for this purpose. The ear tag is punched far down into the lobe of the ear to minimize the chance of the tag ripping out.
- The PA then learns to sex the mouse and determines its sexual status.
- The head and ears of the mouse for blacklegged ticks. Ears are moved around with forceps and the chin is lifted up to facilitate this search.
- Lastly, the PA will weigh the mouse by clamping a Pesola spring scale with a padded clip to the base of the tail and hanging upside-down. Weight is recorded to the nearest gram.
- The mouse is double-checked for accuracy by the RSS, and released at the point of capture.
- All data are recorded, the traps are shaken out, and re-baited for the next night.

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3. Chipmunk Handling

- Chipmunks are transferred into a reinforced freezer bag and the same handling methods are applied and the same information taken.
- One difference is that chipmunks are weighed in the freezer bag to protect their fragile tail, and then the weight of the bag is subtracted from the total weight. All data are double checked by the RSS to ensure uniformity of data.
- Chipmunks are released at the point of capture.

4. Squirrel Handling

- Gray squirrels are handled using a plastic mesh cone with fabric sleeve sewn on to the end of it. The fabric sleeve is slipped over the trap, the trap is opened and the squirrel is encouraged to move into the cone (face-first).
- Trainee learns to press down on sides of mesh cone without pressing down on the squirrel.
- Ears (which are accessible through the mesh) area tagged with metal ear tags the same way as tagging a mouse. Cone is flipped over to look for sexual characteristics. Lastly a Pesola scale is clipped to the cone. Weight of the cone will be subtracted from the total weight to determine the weight of the squirrel.
- Squirrel is released at point of capture.

5. Capturing Animals Not Designated for the Study

When animals are captured that are not under study they will be immediately released back into their original environment.

6. Cleaning Process and Room Temperature:

Cleaning details see Section VI(c).

7. Transferring Animals from the Field to the Rearing Facility

Animals captured in the field that are designated for temporary housing in the lab are handled as indicated above. After weighing, however, the animals are returned to the live-trap in which they were captured. The trap is labeled with the species, trap station, tag number, and other pertinent details. Upon finishing the trapping grid, animals are transported in their traps directly to the lab and moved into the wire-mesh cages used for housing. All animals are supplied with ad lib water and food (rat chow and apple slices for rodents, meat, mealworms, and/or cat food for insectivores and carnivores). After the designated time in the laboratory, animals are returned to their (cleaned) traps and transported directly to the trap station of capture for release.

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8. Handling sick or injured animals

Animals that are sick or injured upon capture, where the illness or injury was not caused by research activities, are immediately released at the point of capture without being handled. If illness or injury was caused by research activities, animals are provided with basic care, such as feeding with sugar solution or removal to the lab if hypothermic. In the event of life-threatening injury caused by research activities, animals are euthanized according to approved IACUC protocols.

Trapping of birds (i.e. Veeries)

Birds will be captured in mist nets (12m × 3m) with a ~ 20-45mm mesh. Six to eight mist nest are erected in the early morning either singly or back-to-back when a longer target is desirable. A “banding station” is set up approximately equal distance from the nets and typically no more than a 5 minute walk from the furthest net. Nets are checked at ~ 20 minute intervals for captured birds. Birds are removed from the net only by myself, an assistant who has a Master Bander Permit or is a sub-permittee on a permit, or a novice when under direct supervision by a permit holding bander. Birds are carefully and quickly removed from the net and placed in a cotton bag for transport back to the banding station. Cotton bags are used only once and either thrown away or washed with soapy water containing bleach between reuse. At the station birds are weighed while in the bag. Afterward they are removed from the bag, banded, and processed while retained in the hand. Processing entails: identifying to species, aging and sexing when possible. Sex is determined from plumage characteristic, possession of a cloacal protuberance (male) or brood patch (usually female), or morphometrics (e.g., length of wing chord). Age is determined by plumage, feather wear, or morphometrics. Wing chord and length of beak (culmen) and tibiotarsus are measured to the nearest millimeter using calipers. The bird is placed back in the bag and transported to the site of capture where it is released. The typical turnaround time from removal from net to release is ~ 10 minutes.

IX. ADDITIONAL TRAINING

Employees are required to take these additional safety training programs that are available online via the CARY INSTITUTE OF ECOSYSTEM STUDIES intranet under the Safety section:

- Hazard Communication (Right to Know)
- Blood borne Pathogens
- Back Safety
- Fall Protection
- Personnel Protective Equipment
- Global Harmonization (SDS)
- Field Safety

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FIELD CHECKLIST

- Protective clothing (gloves, white suit)
- Trap Setting
- Animal transfer to bag
- Holding/scruffing animal
- Ear tag application
- Tick check
- Age, sex, reproductive status check
- Weighing
- Other inspections

REARING FACILITY

- Transfer from trap to cage and vice versa
- Add water
- Add food
- Add bedding
- Release several hours later
- Clean cage, water bottle, and general area