

STANDARD OPERATING PROCEDURES
DIVISION OF COMPARATIVE MEDICINE
UNIVERSITY OF SOUTH FLORIDA

SOP#: 405.2

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TITLE:	Spiny Mice (<i>Acomys spp</i>) Husbandry
SCOPE:	Animal Care Personnel
RESPONSIBILITY:	Facility Manager, Technical Staff, Veterinary Staff
PURPOSE:	To Outline the Proper Procedures for Receiving, Physical Examination, Evaluating Health Status, Handling, Care and Husbandry Practices Related to African Spiny Mice (<i>Acomys spp.</i>)

I. PURPOSE

1. To ensure the highest quality of animal health and preclude the development of spontaneous diseases or disorders, which could compromise the integrity of studies and the interpretation of results.
2. To ensure personnel handling spiny mice perform their duties in a manner that complies with all current governing laws, regulations and guidelines.

II. RESPONSIBILITY

1. The Veterinarians oversee all aspects of animal health and are assisted by all program staff.
2. Facility Managers ensure implementation of all procedures.

III. PROCEDURES

1. Receipt

- a. Individual cage cards are prepared for each animal and include the following information:
 1. Investigator
 2. IACUC #
 3. Species
 4. Sex
 5. DOB (or age on arrival if unavailable)
 6. Body Weight
 7. Arrival Date
 8. Source
 9. Animal Number

Note: Ear notching is not an effective method of identification because of their regenerative capacity. The ear notch will close. Alternative careful tail marking with a semi-permanent nontoxic marker or microchipping is recommended.

- b. Animal Medical Records are required for all animals, and can be maintained as either individual medical records or as colony records: (**see SOP #012** entitled, ***Animal Medical Records***)
- c. Shipping crates are inspected for signs of damage and shipment accuracy.

- d. Technician will notify the Facility Manager regarding any damage to crate or contents.
- e. Facility Manager will notify the Fiscal and Business Specialist of damaged or rejected shipments, or orders improperly filled (i.e., weight, age, number requested).
- f. Clinical Veterinarian will be immediately notified of health concerns or deaths occurring in transit.
- g. Shipping containers are lightly sprayed with Oxivir Tb™ and taken to the housing room. Upon opening, an environmental swab is taken and pooled feces from the shipping container collected for diagnostics.
- h. Spiny mice are very social animals and should be housed at least in pairs.
- i. Animals are placed in a wire cage with a galvanized steel, solid bottom, approximately 24" wide x 18" high x 16" deep (Quality Cage Company, Portland, OR) and are housed at a density of ~10 related adult mice per large cage. Alternatively, rat Static Caging may be used with a minimum floor space of 140in² and 7 inches in height, with up to 3 adult females or up to 2 adult males per cage, since males are slightly larger than females.
- j. **Spiny mouse cages will contain either Alpha-Dri or Sani-chips as primary bedding with a sanitizable bowl for enrichment, Nyla bone and at least one wood chew item.**
- k. Breeding groups may be created with one male with up to 3-4 females. Males do not need to be separated from pregnant females or litters, provided there is enough space for the number of adults present.
- l. Animals are observed for signs of illness or any abnormality.
- m. Number of new animals and new cages are recorded on the *Per Diem Sheet* and *Progress Notes* located in the *Room Log Book*. Notation in the *Progress Notes* will include the vendor source and a statement reflecting general appearance on arrival.

2. Handling and Restraint

- a. Spiny mice have **very weak skin that can tear easily** when handling
- b. When handling spiny mice, always cup them with both hands or scoop the spiny mouse into a PVC pipe or inverted large plastic cup
- c. **Never** try to lift it by its tail, not even the base as spiny mice have a defense mechanism to help them evade predation. If they are grabbed by the tail, the skin will shred off revealing the bone and muscle structure of the tail. The spiny mouse will then gnaw the tail off at the base and it will never regenerate.

3. Feeding and Watering

- a. Refer to **SOP #022** entitled, *Feed and Bedding* for approved diets **NOTE: procedures below are not for animals on special diets or water**. Special diets must be described in an approved IACUC protocol (e.g., type, amount, and form).
- b. Feeding
 1. Spiny mice are susceptible to diabetes and items high in sugar and fat should be limited
 2. Spiny mice will be maintained on a prepared feed purchased from regional pet stores
 - a. Stock recipe: 10 lbs finch seed + 3 lbs insectivorous diet (<https://mazuri.com/products/mazuri-insectivore-diets>) + 1 lb grass seed

- b. This diet can be supplemented with Envigo Tekland Global 2014 rodent chow (or other comparable low fat, low protein rodent chow), but quantities should be limited and should not be provided *ad libitum*
 3. Food enrichment is **offered 4 times per week**, from an approved list of items which include:
 - a. Dried Mealworms <http://www.bio-serv.com/product/9264.html>
 - b. Black oil sunflower Seeds <http://www.bio-serv.com/product/SFS.html>
 - c. Veggie Bites http://www.bio-serv.com/Guinea_Pig_Enrichment_Treats/F5158.html
 - d. Low sugar fresh fruits and vegetables
 - c. Water is provided *ad libitum* by way of water bottles
 1. Water bottles are replaced weekly. When water bottle levels are low or water is contaminated with feed, water bottles are to be replaced.
 2. All water bottles must have the **long sipper tubes**. Spiny mice cannot access the shorter length sipper tubes.

4. Enrichment

- a. Spiny mice are highly social, but adult females can be aggressive. Large cages with ample environmental enrichment provide hiding opportunities and decreases fighting.
- b. Large cages should have several hideaway structures, such as:
 1. Igloos http://www.bio-serv.com/product/Mouse_Igloo.html
 2. Fat rat hut <http://www.bio-serv.com/product/K3365.html>
 3. Shelters with multiple openings (Bio-huts) http://www.bio-serv.com/Rodent_Enrichment_Devices/Bio-Homes.html
- c. Nyla bones and wood blocks should also be provided for gnawing

5. Health Surveillance

- a. Each housing room is assigned to an Animal Care Technician. Daily observations of the Animal Care Technician are recorded on the **Room Status Sheet** within the **Room Log Book**.
- b. Surveillance frequency:
 1. On weekdays health surveillance will occur twice per day, prior to 9:30 AM, and again about mid afternoon.
 2. On weekends and holidays the initial health surveillance should take place upon the arrival of the Animal Care Technician, and again just prior to completing their assigned shift.
- c. Observations and communications must be noted on the **Room Status Sheet** and the Facility Manager's **Animal Health and Environmental Concern Form**.
- d. Performance of daily observations and general health surveillance
 1. Each animal/cage is observed to evaluate:
 - a. Food and water intake
 - b. Urine and fecal output
 - c. Assurance of water/food supply and patency
 - d. General appearance (presence of lesions/injuries, coat condition, disposition)

NOTE: If at any time there is a medical emergency, the Clinical Veterinarian must be notified immediately.

- e. Colony medical records must include, at a minimum, weekly entries made by the research staff in the **Progress Notes**, which at least summarize the following for the colony:
 1. An impression of overall condition
 2. Food and water intake and voidings
 3. Any clinical abnormalities or complications
 4. Any treatments administered in response to observed abnormalities
 5. Any experimental procedures
 6. Refer to **SOP #006** entitled, **Animal Health and Environmental Surveillance** for specific procedures of reporting and recording health concerns.

Note: Whenever health status/observations for an individual animal differ from colony animal's health status/observations, an entry specific to that animal must be made in the colony records.

6. Cage Changing

- a. The large, wire caging and absorbable bedding are changed every 3-4 weeks, with spot or complete change-outs more frequently as necessary.
- b. Cages will be disassembled and run through cage wash.
- c. Any caging excessively soiled will be changed as often as necessary to maintain an acceptable level of sanitation.
- d. Environmental enrichment items will be replaced on a rotating basis every 2-3 weeks.
- e. All cage changes will be noted on the **Room Status Sheet**.

7. Room Duties

- a. Upon completion of cage changing, feed and watering, and daily health surveillance, the following tasks are to be performed: (Room duties described below are minimal requirements, additional duties and frequencies are at the Facility Manager's discretion).
 1. **Daily** - complete **Room Status Sheet** by recording:
 - a. Minimum and maximum **room temperature** and **humidity** (measurements out of the acceptable range are described under the **Health and Environmental Concern** column of the **Room Status sheet** and reported to the Facility Manager via the **Health and Environmental Concern Form**).
 - b. **Feed** and **water** are available.
 - c. **Husbandry duties** (e.g., caging/equipment changes/procedures performed).
 - d. **Housekeeping duties** (e.g., room duties/procedures performed).
 - e. Significant **health or environmental concerns**.
 - f. **Time** of observation and the **initials** of technician.
 2. Assure no investigator's supplies or trash is left in the room.
 3. **Check and replenish supplies** as needed.

4. Wipe down counter/sink areas with Oxivir Tb™.
 5. Assure any new arrivals are recorded on ***Per Diem Sheet***.
- b. Floors are to be **swept and mopped** Monday, Wednesday, Friday or when soiled.
- c. **Weekly room duties** include:
1. Sanitize mop head.
 2. Sanitize enrichment items.
 3. Wipe down door and doorframe with Oxivir Tb™.
 4. Physically count animals within the room.
- d. **Semi-monthly room duties** include:
1. Sanitize all room cleaning equipment (e.g., mop, mop bucket, broom, dust pan, feed pan, etc.).
 2. Check/clean HVAC vents and replace air filters as needed.
- e. **Monthly room duties** include:
1. Confirm diurnal light timers are accurately controlling animal room lights (HOBO) and record.
 2. Wash walls with Oxivir Tb™ as needed.

Approved:

Date: