



CMR STANDARD OPERATING PROCEDURE

TITLE: Frog Environmental Enrichment

SOP Category: Enrichment

CMR SOP #: 6.08

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Approval: *Roseann Kehoe*

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SCOPE:

This document describes the procedures to be followed when providing enrichment to frogs. This SOP applies to all Animal Care Staff (ACS), ACS Supervisors (ACSS), Veterinary Staff (VS), and Research Staff members (RS) at the Rutgers University facilities.

OBJECTIVE:

The objective is to summarize frog environmental enrichment. This SOP is concordant with the Rutgers Environmental Enrichment Program, which states that all laboratory animal species used at Rutgers **must** be provided with species-specific environmental enrichment unless scientifically justified.

DEFINITIONS:

Natural Behavior: Frogs are animals of the order *Anura*, which comprises tailless, carnivorous amphibians. Frogs live in a variety of habitats, from aquatic to terrestrial and also underground or completely arboreal. The skin of a frog is smooth and moist, containing two types of glands that secrete protective mucus as well as chemicals that have antibacterial and antifungal properties. The permeability of amphibian skin causes these animals to be extremely susceptible to water loss and dehydration. Virtually all frog species are very secretive and require visual barriers and retreats.

Abnormal Behavior:

Abnormal behaviors in frogs include:

1. Excessive skin secretions
2. Anorexia
3. Frequent startling and jumping
4. Aggression

When these behaviors are observed, VS will evaluate the need for additional environmental enrichment.

PROCEDURES:

1. Social Enrichment

- For all frog species, group housing must be provided wherever possible or appropriate.
- If group housing is not possible, animals will be housed in a manner that allows for as much tactile, auditory, visual, or olfactory contact as possible.
- Exceptions include animals that are not socially compatible with others, whether due to behavioral or health-related reasons.

2. Physical Enrichment

- Terrestrial frogs
 - i. Ramps, platforms, or shelters must be provided to offer the opportunity to exit the water and retreat.
- Aquatic frogs
 - i. Huts or tubes must be provided to offer shelter
 - ii. Ping pong balls or other floating objects may be provided for animals to cling to as they rest on the water's surface.

3. Activity/food

- Terrestrial frogs may be provided live prey (superworms, crickets, etc.) at least biweekly

4. Sanitation of Enrichment Items

- To prevent biofilm buildup on enrichment items placed in tanks (eg: underwater shelters, platforms etc.), these items should be removed from the tank and sanitized either when visibly dirty or when the tank is changed, whichever action comes first.

Considerations:

- Cost, availability of materials, safety issues for the animals and the staff, study constraints, and sanitation requirements must be evaluated for each idea.
- For novel devices or strategies, a group of animals may be selected for a pilot study to evaluate any behavioral changes, extra time needed in animal rooms, and additional steps necessary for sanitation of the devices.
- ACS assist in the environmental enrichment program by placing environmental enrichment devices in cages as directed by supervisor, investigators and veterinary staff. VS or ACS are responsible for removing and replacing damaged or soiled devices, and sanitizing or disposing of devices as appropriate.

REFERENCES:

Chum, Helen, et al. "Biology, behavior, and environmental enrichment for the captive African clawed frog (*Xenopus* spp)." *Applied animal behaviour science* 143.2 (2013): 150-156.

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National Research Council, Guide for the Care and Use of Laboratory Animals, ed 8 available at <http://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-Use-ofLaboratory-Animals.pdf>