

WVU IACUC Guidelines: Environmental Enrichment for Animals

Purpose

This document provides guidelines for species-specific environmental enrichment for animals used in research, teaching and training at WVU.

Background

Humane considerations and current laws, regulations, guidelines, policies and accreditation standards recommend that animals used in research, teaching and training, should have the opportunity to interact with conspecifics (animals of the same species) and to benefit from environmental enrichment as a means to express natural behaviors. Species-typical behaviors should be considered when choosing appropriate environmental enrichment. In addition to enrichment items such as toys, social housing with compatible conspecifics may constitute environmental enrichment for certain species, and is encouraged by the *Guide*², the *Ag Guide*³, and the Animal Welfare Act (AWA). This is an important part of ensuring optimal animal welfare and the quality of scientific data. For more information regarding the social housing of research animals, see WVU IACUC Policy: Social Housing of Research Animals, which can be found on the IACUC Policy webpage. <https://animal.research.wvu.edu/policies-and-guidelines#wvu>

General Information

Enrichment items added to the animal's housing environment should be:

- Disposable or able to be sanitized
- Resistant to destructive animal use
- Autoclavable if used in the WVU barrier facility or immunocompromised animal housing
- Sanitized or replaced when cage/enclosure is changed or cleaned
- Discarded if broken or excessively worn

Enrichment items should NOT:

- Interfere with the research results
- Impede the ability to visually observe animals to assess their health

Food items used for enrichment should be species-appropriate and contaminant-free.

Procedures

- A. Enrichment items should be provided by animal care staff as outlined in the table below, unless alternative items are provided by the Principal Investigator (PI) and written into the PI's IACUC-approved protocol.
- B. Enrichment items should be routinely examined to ensure they do not present risk of injury to animals. *Examples: gnawing behavior of rodents can create sharp edges on items such as PVC piping; items used in aquaria could develop sharp edges*
- C. Any exemption(s) to exclude environmental enrichment **must** be scientifically justified in the IACUC-approved protocol.
- D. Animals housed in the Office of Laboratory Animal Resources (OLAR) vivaria **must** have an OLAR "Special Care Form" approved to describe any changes in environmental enrichment.

- E. Singly housed animals are presumed to need more enrichment than pair or group-housed animals, unless an exception is justified in the IACUC-approved protocol.
- F. Breeding animals and females with offspring **must** always be provided with some form of nesting material, unless an exception is justified in the IACUC-approved protocol.
- G. Enrichment of all USDA-regulated animals (all warm-blooded vertebrates except mice, rats and birds that are specifically bred for research) should be recorded, and records should be available for inspection when requested.
- H. A veterinarian can suspend enrichment when the well-being of an animal is in question. For USDA-regulated species, the veterinarian **must** re-evaluate and re-approve in writing each instance of suspended enrichment every 30 days. A dated notice of the temporary suspension should be posted during such periods.

Table of Standard and Additional Enrichment

Species (common name)	Standard Enrichment for Group Housed Animals (provided by animal care staff)- at least one of the following	Other Approved Enrichment (at least one of the following should be added to Standard Enrichment, for singly housed animals)*
Mice/Rats	<ul style="list-style-type: none"> • Crinkle paper (loose or pre-formed puck) • Nestlet • Paper towels 	<ul style="list-style-type: none"> • Plastic igloo/hut/tunnel • Nylabone® products • Cardboard tube/tunnel/hut • Wood blocks • Contaminant-screened food treats (e.g. Bio-Serv)
Rabbits	<ul style="list-style-type: none"> • Roughage or forage (e.g. timothy hay or fresh greens) • Resting mat/shelf • Visual and auditory contact with conspecifics 	<ul style="list-style-type: none"> • Plastic balls/dumbbells • Hanging toys • Nylabone® products • Hut/hideout • Meaningful human interaction • Contaminant-screened food treats (e.g. Bio-Serv) • Fresh vegetables such as carrots, lettuce
Birds	<ul style="list-style-type: none"> • Plastic hanging interlocking rings • Perch • Visual and auditory contact with conspecifics • Grit offered periodically 	<ul style="list-style-type: none"> • Mirrors, swings, ladders, other types of perches as appropriate for species • Forging materials/toys • Contaminant-screened food treats (e.g. Bio-Serv) • Cuttlebones (or similar) for psittacines • Socially compatible group housing • Positive human interaction • Flight room access

Species (common name)	Standard Enrichment for Group Housed Animals (provided by animal care staff)- <i>at least one of the following</i>	Other Approved Enrichment (at least one of the following <i>should be added to</i> Standard Enrichment, for <i>singly housed</i> animals)*
Amphibians	<ul style="list-style-type: none"> Rocks and small tree branches 	<ul style="list-style-type: none"> Perch/resting pads Plastic plants/plant mats Contaminant-screened food treats Plastic igloo/hut/tunnel Turf pad Hideaways
Fish	<ul style="list-style-type: none"> Social housing Live feed Plastic plants Structures (e.g. rocks, small tree branches) 	<ul style="list-style-type: none"> Hideaways Plastic tunnels (PVC tubing) Contaminant-screened food treats Environmental complexity
Small Ruminants (sheep, goats) kept for biomedical research	<ul style="list-style-type: none"> Social or natural grouping Outdoor housing in pasture, when available Species-appropriate indestructible toys 	<ul style="list-style-type: none"> Positive human interaction Bedding, substrate Climbing structures (for goats)
Pigs kept for biomedical research	<ul style="list-style-type: none"> Food enrichment Indestructible balls, manipulatable objects, other appropriate toys (e.g. Kong®) Straw bedding Visual and auditory contact with conspecifics 	<ul style="list-style-type: none"> Task training with human contact or conspecifics Social grouping with compatible individuals Positive human interaction (e.g. scratching back), if acclimatized to this
Farm Animals- kept for agricultural teaching/research (Ruminants)	<ul style="list-style-type: none"> Social or natural grouping Outdoor housing in pasture, when available Bedding, substrate, foraging material Milking or other routines 	<ul style="list-style-type: none"> Climbing structures (for goats) Food enrichment, treats Positive human interaction Species-appropriate toys
Horses	<ul style="list-style-type: none"> Social housing and/or social interactions Human interactions Pasture or Paddock time Forage material 	<ul style="list-style-type: none"> Toys/Manipulanda
Poultry	<ul style="list-style-type: none"> Social Housing Perches/Elevated Spaces Nest boxes (females) Hay bales Toys/manipulanda Pecking/preening items (e.g. zip ties, string, ribbon) 	<ul style="list-style-type: none"> Pecking substrate Visual Barriers Foraging opportunities

**unless scientifically justified*

References

1. [Animal Welfare Act and Animal Welfare Regulations](#), United States Department of Agriculture, 2017.
2. [Guide for the Care and Use of Laboratory Animals](#), National Research Council, 2011.
3. [Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching](#), Federation of Animal Science Societies, 2020.