Environmental Enrichment For Nonhuman Primates

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- Purpose
- Responsibilities
- Definitions
- Procedures
  - Social Housing
  - Animals that Require Special Considerations
  - Environmental Enrichment Items and Strategies:
  - Administration of the Enrichment Plan:
  - Animal Concerns
- Related Documents
- Appendices
  - Appendix A: Nonhuman Primate Enrichment and Husbandry Log

1. Purpose

This document outlines the Primate Environmental Enrichment Program (PEEP) developed for the University of Michigan. The program is designed to promote the psychological well-being of nonhuman primates (NHP) used in research and to provide opportunities for NHPs to engage in non-injurious species-typical activities.

2. Responsibilities

   a. **Principal Investigator:** Determines enrichment strategies consistent with the scientific aims of their research.
   b. **PEEP Coordinator:** Oversees the overall Primate Environmental Enrichment Program.
   c. **Enrichment Coordinator:** Recommends and evaluates enrichment items for primate use.
   d. **ULAM Husbandry Personnel:** Responsible for the daily provision and documentation of enrichment to the animals.

3. Definitions

   a. **Non-human primate (NHP):** Rhesus macaque, baboon, marmoset
   b. **Enrichment:** Food, manipulanda, sensory devices used by NHP's to allow for display of natural behaviors.
   c. **Special Treatment or Procedure (SToP) Forms:** Any exception to the standard animal care guidelines or SOPs.

4. Procedures

   a. **Social Housing**
      
      i. Social species must be housed in social groups or pairs.
      ii. Principal investigators scientifically justify in the Animal Use Protocol if animals cannot be paired or group housed. Some reasons for which animals should not be socially housed include the following:
         1. If use of social housing would invalidate the research project undertaken.
      iii. Additional provisions must be made to allow for the social needs of the animal if animals cannot be paired or group housed. These include the following:
         1. The ability to see other animals of the same species. Positioning cages such that animals can see each other or providing mirrors. In all cases, animals should have the ability to hide from the view of other animals.
         2. The ability to smell and hear other animals of the same species.
         3. Physical contact through a partition inserted between the cages for compatible animals.

   b. **Animals that Require Special Considerations**
      
      i. SToP forms can be initiated by investigative personnel, the area supervisor, veterinary personnel or the PEEP coordinator.
      ii. Submit completed SToP forms to the area supervisor for approval.
      iii. Veterinary personnel and the PEEP coordinator may exempt participation in the environmental enrichment plan because of the animal's health or physical condition.
         1. The basis for the exemption must be recorded by veterinary personnel for each animal on an Animal Treatment Report (ATR).
            a. Place a yellow acetate on the animal's cage card for animals exempt from the enrichment program.
         2. A veterinarian reviews exemptions to the enrichment program every 30 days unless the condition is permanent.
         3. UCUCA approved SToP forms to the enrichment or social housing program must be reviewed annually by the UCUCA committee.
      iv. Consult veterinarians regarding enhancement of an enrichment program for NHPs; which may include:
         1. Infants and young juveniles.
         2. NHPs in psychological distress.
         3. If a NHP exhibits vicious or overly aggressive behavior or is debilitated as a result of age or other conditions (e.g., arthritis).
         4. If a NHP has or is suspected to have a contagious disease and therefore must be isolated from healthy animals.
         5. Those used in research for which the UCUCA-approved protocol requires restricted activity.
         6. Individually housed NHPs that are unable to see and hear other NHPs.
c. Environmental Enrichment Items and Strategies:
   i. Principal investigators must indicate in their UCUCA animal use protocol describing which enrichment items and strategies can be provided to primates involved in the research project. The investigator must scientifically justify if providing enrichment would not be compatible with the nature of the research.
   ii. Provide an equal level of enrichment to animals housed both in quarantine and in non-quarantine housing areas.
   iii. Provide perches within the primary enclosure of all NHPs.
   iv. Singly housed primates must be provided additional enrichment above and beyond what is provided to socially housed primates, the code for additional enrichment should be noted on the Primate Enrichment Husbandry Log, and can be provided in any of the means described below or in the NHP approved enrichment database.

d. Administration of the Enrichment Plan:
   i. Personnel provide enrichment records each time enrichment is provided on the Primate Enrichment and Husbandry Log for each animal.
      1. Approved food treats and enrichment items can be obtained from the area supervisor.
   ii. Selection and Provision of Appropriate Enrichment Items:
      1. In the Animal Use Protocol, the Principal Investigator must specify the enrichment devices or approaches that are compatible with the research.
         a. Recharge consumable supplies to the investigator. However, if an investigator requests more enrichment than that selected by the PEEP coordinator, the investigator may recharge for the supplementary time and materials.
         b. Specific enrichment items are selected and provided by the husbandry or veterinary personnel. Selection of items may be made using the Animal Enrichment Database or via consultation with the area faculty veterinarian or PEEP coordinator.
     c. Present enrichment devices or activities in the middle of the workday. Present novel enrichment devices or activities when there is adequate time to observe the animal with them throughout the day.
   d. If an animal has a particular adverse reaction to an item or activity, this item or activity must be recorded on the Primate Enrichment and Husbandry Log within the animal room. Report these reactions to the PEEP Coordinator and the faculty veterinarian.

iii. Environmental Enrichment Items and Approaches
   1. Manipulanda
      a. Selection of items to be provided must take into account the size, strength, and behavioral tendencies inherent in the specific species of nonhuman primate.
         i. Any items which could pose a strangulation or choking hazard should not be given. Chains must be no longer than 3 chain lengths. See section 4.d.iv.2 below.
      b. Frequency of rotating items
         i. Loose items provided within the cage must be replaced at a minimum, every 2 weeks.
         ii. Items affixed to the outside of the cage must be replaced every 2 weeks provided that there is a safe way to do so.
            1. Care must be taken to ensure that the animal care personnel are not at risk for bites and scratches while removing and replacing the items.
         iii. Destructable items such as clean cardboard boxes can be provided. When a given animal is provided a destructable item for the first time, they should be observed to ensure they do not consume the item.
   2. Food-based treats
      a. Husbandry personnel must receive approval by investigative personnel prior to introduction of novel food items. Investigative personnel may wish to restrict the amount or types of food if it will interfere with the study.
      b. The appropriate amount of each food-based treat for each species will be determined by the PEEP coordinator, area faculty veterinarian, or area husbandry supervisor.
         i. The quantity of food provided should not be such that it results in the animal becoming overweight.
         ii. Husbandry personnel should consult with the area supervisor regarding the appropriate amount of food to be provided in the form of enrichment.
      c. Provide approved food treats at a minimum of once a day excluding weekend and holidays (unless the lab requests additional treats otherwise).
         i. Fruit regularly provided to an animal can be considered a food treat.
      d. Provide animal's normal diet as well as treats in a foraging device or puzzle, whenever possible.
   3. Interaction (without direct contact) with husbandry personnel or other familiar persons should be encouraged.
   4. Room level enrichment in the form of auditory (music) or visual (mural, bubble machine), or both (video, popcorn machine) should be encouraged

iv. Enrichment Items Not to be Provided
   1. Those items indicated by the lab or that are not consistent with caging requirements.
      a. For example, items should not be placed in the cage if they will impede the ability to immobilize the animal (e.g. large items placed in squeeze-back cages).
   2. Any items which could pose a strangulation hazard should not be given.
      a. For example, no circular devices should be provided which are large enough to be placed over the animal's head. No chains, cables, or ropes should be provided which are long enough to encircle the animal's neck. Chains must be no longer than 3 chain lengths.
   3. No items containing batteries should be provided within reach of any nonhuman primate.
   4. Any item that could pose a choking hazard or whose ingestion could harm the animal.

e. Animal Concerns
i. Any concerns regarding the Primate Environmental Enrichment Program can be addressed to any of the following individuals or groups involved in the care of the animals:
   1. ULAM husbandry supervisor or manager
   2. Veterinary personnel
   3. The PEEP Coordinator
   4. The ACU office
   5. The IACUC sponsored anonymous Animal Concern Hotline (734.763.8028).

5. Related Documents
   a. Environmental Enrichment for Animals SOP
   b. Approved Non-human Primate Enrichment Items
   c. Procedures for Nonhuman Primate Socialization
   d. Request for Special Treatment or Procedure (STOP) Form and Form Completion Instructions

6. Appendices
   a. Appendix A: Nonhuman Primate Enrichment and Husbandry Log