

Guidelines to Promote the Psychological Well-Being of Non-Human Primates

The University of Texas at Austin
Institutional Animal Care and Use Committee (IACUC)

These guidelines have been written to assist faculty, staff, and students in performing vertebrate animal procedures in a humane manner and complying with pertinent regulatory requirements. Under some circumstances deviations from these procedures may be indicated but such variances must be approved in advance by the IACUC.

Version 1.1

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This document provides information to be used when planning and performing procedures utilizing the use of non-human primates to be used for research, teaching, or other purposes at The University of Texas at Austin. It is organized into three sections:

Section A – Background

Section B – Implementation: General Objectives

Section C – Implementation: Species Specific

Section A – Background

The existing USDA regulations on the care and use of non-human primates state that "...research facilities must develop, document, and follow an appropriate plan for environmental enhancement to promote psychological well-being of non-human primates." In addition, the plan must:

- "Be in accordance with the currently accepted professional standards as cited in appropriate professional journals or reference guides, as directed by the attending veterinarian";
- Be available upon request to the Animal and Plant Health Inspection Service (APHIS);
- Be available to appropriate Federal agencies if the institution receives federal funds.

At a minimum, the plan must address each of the following: 1) social grouping; 2) environmental enrichment; 3) special considerations; 4) restraint devices; and 5) exemptions.

1. Social Groupings

The regulations require that the enrichment plan must include specific provisions to address the social needs of non-human primates of species known to exist in social groups in nature. Provisions must be in accordance with currently accepted professional standards, as cited in professional journals and reference guides. Compatibility of non-human primates must be determined in accordance with generally accepted professional practices and actual observations, as directed by the Attending Veterinarian, to ensure that the animals are in fact compatible. Individually housed non-human primates must be able to hear and see primates of their own or compatible species unless the Attending Veterinarian determines that it would endanger their health, safety, and well-being.

Non-human primates exempt from social grouping requirements in the regulations include the following:

- Primates exhibiting vicious or abusive behavior.
- Primates that are debilitated as a result of age or other conditions (e.g., arthritis).
- Primates that have or are suspected to have contagious diseases.
- Primates that may be incompatible when housed together.
- Primates on research protocols in which exemptions from social grouping have been scientifically justified and approved by the Institutional Animal Care and Use Committee (IACUC).

2. Environmental Enrichment

The regulations require that the physical environment in the primary enclosure must be enriched by providing means of expressing noninjurious species-typical activities. Species should be considered when selecting type of methods of enrichment. Examples of environmental enrichment include: perches, swings, mirrors, objects for food foraging, task oriented feeding methods, interaction with caretaker or other familiar individuals.

3. Special Considerations

The regulations require that special environment enrichment considerations should be given to the following groups of non-human primates:

- a) Infants and young juveniles.
- b) Primates showing signs of being in psychological distress through behavior or appearance.
- c) Primates used in research for which IACUC approved protocols require restricted activity.
- d) Individually housed primates that cannot see or hear other non-human primates of their own species.
- e) Great apes weighing over 110 lbs.

The ARC staff and Attending Veterinarian will monitor the colonies to identify animals in category “b” during routine health observation rounds. As monkeys are imported or room transfers occur, the ARC managers will watch for situations triggering the situations listed in “d”. It is unlikely that categories “a, c, or e” will occur, but these triggers will be monitored as part of the IACUC’s protocol review as new or modified studies are proposed.

4. Restraint devices

The regulations state that non-human primates must not be maintained in restraint devices unless required: 1) for health reasons as determined by the Attending Veterinarian; or 2) by an approved protocol. Primates in restraint devices must be kept for the shortest duration possible. For long-term restraint (more than 12 hours), the animal must receive the opportunity of one continuous hour of unrestrained activity during the time period of the restraint.

5. Exemptions

The Attending Veterinarian and the IACUC may exempt an individual non-human primate from the environmental enrichment plan because of health or condition, or in consideration of its well-being, or for scientific reasons. In the case of scientific reasons, exemption to the plan will be documented in the research protocol. Full documentation must be provided in the animal's personal record by the Attending Veterinarian for each non-human primate exempt due to health or condition or in consideration of its well-being. Unless the basis for exemption is permanent, the Attending Veterinarian or their designee must review the exemption every 30 days.

Section B – Implementation: General Objectives

The goal is to provide an optimum environment for its research animals. The University (acting through the IACUC and Attending Veterinarian) will continue to periodically modify this plan in response to the evolving best practices in the field based on what has been scientifically demonstrated to benefit the animals.

This written plan has been prepared to document our program for meeting the requirements contained in 9 CFR Part 3, Section 3.8.1 which was published in the Federal Register on February 15, 1991.

Each use of non-human primates must be reviewed and approved by the IACUC. The IACUC will assure that each use of non-human primates complies with the provisions of this plan as part of protocol review and the semi-annual inspection process. Investigators proposing to utilize non-human primates in the conduct of their research are provided with a copy of the "Plan to Promote the Psychological Well-Being of Non-human Primates" and must agree to abide by the plan and provide scientific justification in their research protocols for any special considerations, use of restraint devices, or exemptions from the program.

Upon arrival at UT-Austin, non-human primates are subject to health status verification screening. Depending upon the source, primates may be isolated and quarantined for a 30-60 day period. The Attending Veterinarian has determined that it is necessary to singly house non-human primates during quarantine in order to perform daily individual health assessments, observation, and treatments.

For safety related reasons, non-human primates that have been surgically implanted for experimental purposes with exposed instrumentation (e.g., catheters) would be considered poor candidates for social housing and should be individually housed. Exceptions to this policy should be reviewed and approved by the Attending Veterinarian prior to pairing attempts.

Non-human primates are housed such that they will have olfactory, visual, and auditory contact with other non-human primates. The ARC and the primate research labs maintain an inventory of environment enhancement devices and provides for the training of animal care staff that have daily contact with non-human primates. Please refer to the Section C, below for further details with regard to the implementation of UT's plan.

Non-human primates housed at UT are not to be maintained in restraint devices unless scientifically justified in an approved research protocol that specifies, at a minimum, type of restraint device utilized, need for use of restraint device, and average and maximum duration of stay in the restraint device.

The Attending Veterinarian and/or the IACUC may exempt an individual non-human primate from the enrichment plan because of health or condition, or in consideration of its well-being, or for scientific reasons. In the case of scientific reasons, exemption to the plan will be documented in the research protocol. Full documentation must be provided in the animal's personal record by the attending veterinarian or their designee for each non-human primate exempt due to health or condition or in consideration of its well-being. Unless the basis for exemption is permanent, the Attending Veterinarian or their designee must review the exemption every 30 days.

Section C – Implementation: Species Specific

Old World Monkeys - Macaques

1. **Housing.** Social interaction is an important factor influencing the psychological well-being of non-human primates. However, forming stable pairs or groups of animals must be done carefully to avoid injurious aggression. Various published strategies have been used to identify compatible pairs or groups of monkeys. The PI is encouraged to review these publications with the goal of increasing social interaction within the group. Attempts should be made to identify and establish compatible pairs or groups where such efforts appear to

have a chance for success. The IACUC will review the social housing status of subcolonies during semi-annual inspections of primate areas to assure that good faith efforts have been made. Even if full pairing is not possible, social-type caging can be used to allow social contact across grooming grids, etc. so investigators should specify this type of caging when new equipment is obtained.

PLEASE NOTE: The probability of being able to identify and establish a compatible, long-lasting pair bond is highest when the subcolony in question is composed of a large primate group of various ages and sexes that are being kept on long-term studies. Most subcolonies at UT-Austin are either relatively small or are composed of predominately mature male animals. It is unlikely that a high percentage of macaques will ever be pair-housed on campus. However, the University has been able to establish a relationship with the nearby M.D. Anderson primate center, and our investigators have been successful in obtaining known-compatible pairs from those colonies. This is one of the reasons that the Bastrop primate center should be the first choice source for those obtaining macaques. Alternatives would include comparable centers that can provide pre-socialized monkeys whenever possible.

2. **Caging.** The ARC will provide a minimum of one durable manipulatable cage enhancement device per cage. These are sanitized and replaced during routine and non-routine cage exchange, which normally occurs a minimum of once every two weeks. Examples of cage enhancement devices may include:

- Mirrors
- Knobby Dummies®
- Nylaball Wolf®
- Gumaball Wolf®
- Space Ball®
- Other toys as approved by ARC veterinarians.

The PI will provide at least one additional durable or novel cage enhancement device. Novel cage enhancement devices include products that are designed to be used once (e.g. cardboard/paper products) or for short periods of time (< 2 weeks). The same kind or style of cage enhancement device may be introduced at alternating time points (e.g. every month) and still be considered novel. In the latter case the devices must be sanitized between uses.

The PI will provide one perch or perch-equivalent per cage.

3. **Room environment.** All animals are housed such that non-human primates will have olfactory, visual, and auditory contact with other monkeys of the same species. If only one animal is received as part of an import shipment, and if quarantine isolation is required, then additional cage enhancement devices shall be placed in the animal's cage.

The ARC will coordinate audio or visual enrichment within each room in the form of audio or video media at least once a week, with the specific schedule arranged to avoid interference with research activities.

4. **Feed.** Animals are fed a standard nutritionally balanced non-human primate diet, and are offered a variety of food treats including fruits (dried or fresh), vegetables, and grains to promote their psychological well-being. These supplemental foods are provided a minimum of two times per week by the ARC. If the PI needs to control when food supplement are provided because of experimental reasons, then his or her laboratory shall provide these supplemental foods with the same frequency (2x per week) unless an exemption has been approved by the IACUC. Additionally, the PI is expected to provide food treats delivered using devices that are manipulated to expose food (e.g. puzzle feeders or foraging devices) to each animal at least once per week. During quarantine isolation, novel food presentation will be provided by the ARC, but at every other week intervals.

5. **Human Contact.** Animals receive routine, daily contact with trained animal care personnel from both the research group and the ARC. Training for animal care personnel includes general biology and behavior of macaques, intent of regulations with regard to the "psychological well-being" of non-human primates, and implementation of the institutional environmental enrichment program.
6. **Documentation.** The provision of environmental enrichment will be captured as part of the room logs (ARC) or study records (research labs) so that routine documentation of these activities takes place.