

ICARE



Interagency Collaborative Animal Research Education

OLAW CONVERSATIONS

Refinements to Promote Social Housing While on Study

Friday, September 10, 2021



National Institutes of Health
Office of Laboratory Animal Welfare

Today's Session: Framework

Benefits of social housing

Regulatory requirements

Barriers to social housing

Potential solutions

We will share our experiences and observations but also want to hear from you!

Refinements to Promote Social Housing While on Study

Our Team

Robyn Engel, DVM, DAACLAM, DACAW

Animal Welfare Program Specialist, Division of Assurances,
Office of Laboratory Animal Welfare, NIH

Gwendalyn M. Maginnis, DVM

Nonhuman Primate Specialist,
APHIS Center for Animal Welfare, USDA APHIS Animal Care

Eric Hutchinson, DVM, DAACLAM

Attending Veterinarian and Assistant Vice Provost for Animal
Research, Director, Research Animal Resources,
Assistant Professor, Molecular and Comparative Pathobiology,
Johns Hopkins University





Welfare Benefits
of Social Housing

Regulatory
Requirements

Promoting Social Housing on Study – PHS Policy and the *Guide*

ROBYN M. ENGEL, DVM, DACLAM, DACAW

ANIMAL WELFARE PROGRAM SPECIALIST

DIVISION OF ASSURANCES

OFFICE OF LABORATORY ANIMAL WELFARE

Welfare Benefits of Social Housing

Decreased abnormal behaviors

Increased species-typical behaviors

Increased cognitive stimulation

Acts as a buffer for stress

Essential for normal development

PHS Policy on Humane Care and Use of Laboratory Animals

U.S. Government Principles
for the Utilization and Care
of Vertebrate Animals Used
in Testing, Research, and
Training

*Guide for the Care and Use
of Laboratory Animals,*
8th Edition

Animal Welfare Act and
Animal Welfare
Regulations

U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training

- IV. Avoidance or minimization of discomfort, distress, and pain when consistent with sound scientific practices, is imperative.

- VII. The living conditions of animals should be appropriate for their species and contribute to their health and comfort.

- IX. Where exceptions are required in relation to the provisions of these Principles, the decisions should not rest with the investigators directly concerned but should be made by an appropriate review group such as an institutional animal care and use committee.

*The Guide for
the Care and
Use of
Laboratory
Animals,
8th Edition*

“Social animals should be housed in stable pairs or groups of compatible individuals unless they must be housed alone for experimental reasons or because of social incompatibility.” (*Guide* p. 51)



[This Photo](#) by Unknown Author is licensed under [CC BY](#)

The *Guide for the Care and Use of Laboratory Animals*, 8th Edition

An understanding of species-typical natural social behavior is key to successful social housing.

- Species-specific factors such as age, behavioral repertoire, sex, natural social organization, breeding requirements, and health status (*Guide* p. 59)
- For some species, developing a stable social hierarchy will entail antagonistic interactions between pair or group members, particularly for animals introduced as adults (*Guide* p. 64).



*The Guide for
the Care and
Use of
Laboratory
Animals,
8th Edition*

An appropriate housing space should account for the animals' social needs.

- Structural adjustments are frequently required for social housing (e.g., perches, visual barriers, refuges), and
- Important resources (e.g., food, water, and shelter) should be provided in such a way that they cannot be monopolized by dominant animals (*Guide* p. 51).

*The Guide for
the Care and
Use of
Laboratory
Animals,
8th Edition*

Not all members of a social species are necessarily socially compatible. Social housing of incompatible animals can induce chronic stress, injury, and even death (*Guide* p. 64).

Risks of social incompatibility are greatly reduced if the animals to be grouped are raised together from a young age, if group composition remains stable, and if the design of the animals' enclosure and their environmental enrichment facilitate the avoidance of social conflicts (*Guide* p. 64).

*The Guide for
the Care and
Use of
Laboratory
Animals,
8th Edition*

Single housing of social species should be the exception and justified based on experimental requirements or veterinary-related concerns about animal well-being.

- Single housing should be limited to the minimum period necessary.
- Where possible, visual, auditory, olfactory, and tactile contact with compatible conspecifics should be provided.
- In the absence of other animals, enrichment should be offered such as positive interaction with the animal care staff and additional enrichment items or addition of a companion animal in the room or housing area.
- The need for single housing should be reviewed on a regular basis by the IACUC and veterinarian (*Guide* p. 64).

Additional OLAW Resources

OLAW FAQ F.14: “Is social housing required for nonhuman primates when housed in a research setting?” (<https://olaw.nih.gov/faqs#/guidance/faqs?anchor=question51331>)

OLAW Enrichment and Social Housing Resources webpage
(<https://olaw.nih.gov/resources/primate-enrichment-social-housing.htm>)

[Lab Animal. 2020; 49\(11\)](#). Should a primate pair put asunder be reunited?

OLAW Online Seminar: [AC and OLAW Perspective on Nonhuman Primate Enrichment and Social Housing - June 11, 2010](#)



Social Housing: USDA Regulatory Requirements



New “Blue Book”

Published July 2020



General requirements for social housing

Animal housed together must be:

- Compatible
- Not vicious or overly aggressive
- Free of communicable disease
- Provided with sufficient space
 - Typically, the sum of the minimum space requirement for each animal

No mixing allowed for some animals

- Hamsters may ONLY be housed with hamsters
- Guinea pigs may ONLY be housed with guinea pigs
- Rabbits may ONLY be housed with rabbits*

* *Unless for scientific purpose approved by IACUC*



Dogs & Cats

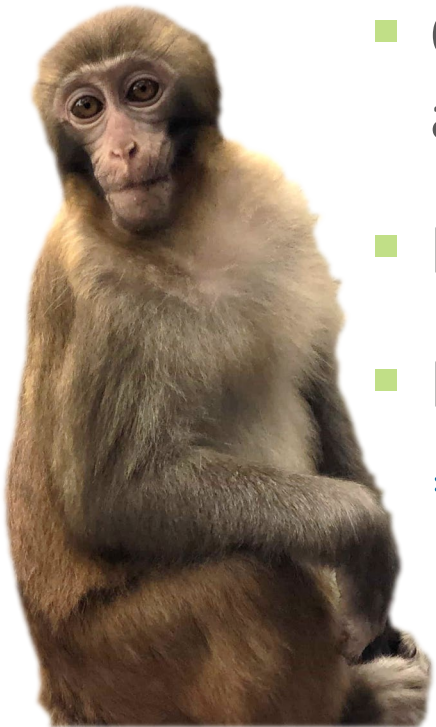


- Additional details for breeding colonies
- Exercise plan for dogs incentivizes social housing
 - Plan must be approved by the attending veterinarian
 - Dogs may be exempted by the attending veterinarian or the IACUC
- Dogs without canine social contact must be provided with daily positive human contact



Nonhuman primates

- Environment enhancement plan must include provisions to meet the social needs of social primates
 - Plan must be as directed by the attending veterinarian
- Compatibility determined by professional standards, actual observations, and attending veterinarian
- May be housed with other species
- Must be able to see and hear other NHPs*
 - * *Unless* attending veterinarian determines it is harmful



Nonhuman primate exemptions

- May be issued by the attending veterinarian or IACUC
 - Exemptions for individual primates
 - Veterinary exemptions must be reviewed every 30 days*
 - **unless permanent*
 - IACUC exemptions must be documented in the protocol and reviewed annually
 - Records of exemptions must be maintained and available to USDA





Barriers to Social
Housing

Potential Solutions

Scenario 1

“We tried housing rabbits together once and they fought like crazy, so we don’t do that anymore. And it’s a shame because we had 4” x 4” doors cut into all our rabbit caging.”

Scenario 2

“Most of our pigs are used in the first week after they’re here, so I’m not sure it’s worth all the effort to pair them.”



Scenario 3

“Our dogs have a bunch of exemptions from social housing after surgery and procedures, and we get males and females, and it’s all just too complicated to track who should be with who, and when.”



Scenario 4

“Our macaques are on SIV studies, and we are worried that if we put them together, they will pass virus to each other.”



Scenario 5

“We’ve been running our rat behavioral study for 30 years and we can’t start pair housing now or all our longitudinal data could be ruined.”



Scenario 6

“Sometimes we have to pull a monkey out of its social group to diagnose or treat diarrhea, so they have to be housed singly.”



Scenario 7

“Our animals have head caps or jackets sometimes and their partners would mess with them.”



Scenario 8

“We need to access our animals for treatments and blood collection and the partners get in the way.”





Rabbit Group Housing Scenario

- Four adult female rabbits, long-term residents of the facility, historically individually housed.
- Investigator would like to group house the animals in a floor pen.
- Each rabbit will be removed from the group for study on a rotating schedule every two weeks. On study days, one rabbit is removed from the group in the morning and reintroduced in the afternoon.

Considerations

VETERINARY

- What are some ways to make the introduction safer?
- Will individuals be able to reintegrate safely after they are removed from the group for procedures?
- How can we make sure all animals have access to food and water?
- How much scuffling is tolerable while the rabbits are getting to know each other?
- How can we tell if floor housing is beneficial to the rabbits?

HUSBANDRY

- What are essential design elements for the floor pen?
- Additional cleaning time of floor pen vs. individual cages.
- Where will the rabbits go while their enclosure is sanitized?
- How can we protect the floor from damage (scratches, urine damage)?
- How can we keep the drains from becoming clogged with litter?



<https://www.nc3rs.org.uk/housing-and-husbandry-rabbits>

Take Home Summary

