



Johns Hopkins University Animal Care and Use Committee

Social Housing Guidelines

Social housing is considered as the default method of housing typical social nonhuman animal species by the Johns Hopkins University (JHU).

When introducing animals together, some groupmate-directed wounding may be observed and mild to moderate wounding represents a typical element of nonhuman animal social introductions – both during the formation and maintenance of social bonds. Therefore, wounding *per se* does not indicate that animals are incompatible and should be separated. All social introductions are carefully planned, taking into consideration factors including, but not limited to, the animals' temperament, sex, breeding requirements, and protocol assignment. For larger species (including nonhuman primates, swine, dogs, cats, and ferrets), introduction plans and goals are typically developed by the behavioral management team in consultation with veterinary staff, with the introduction process typically run by members of the behavioral management team, but in some cases such introductions may be administered by care staff, veterinary staff, or lab members. When animals are introduced to one another, RAR staff (including members of the behavioral management team, veterinarians, and care staff), as well as lab members, monitor the animals' social interactions to determine the compatibility of the introduced animals. Any wounding observed is reported to veterinarians and behavioral management staff for evaluation. Species-specific behavioral indicators of compatibility are monitored during the introduction process and monitoring is continued through daily area checks by care staff and, for certain large species, weekly area checks are also conducted by members of the behavioral management team.

Social Housing Exemptions

While social housing is the default method of housing for many species, some animals may be exempted from social housing (i.e., being co-housed in the same primary enclosure with other animals) due to a number of different reasons.

1. If an animal is not socially housed due to a scientifically justified exemption described in an IACUC-approved protocol, they will be classed as "Singly Housed: Experimental" and their social housing status will not require further review or approval.
2. Animals that are singly housed, but *not* due to an IACUC-approved protocol, may be given a social housing exemption by the Attending Veterinarian (AV) or their delegate for one or more of the following reasons:

2a. Veterinary: Animals that are under veterinary care may be exempt from social housing. Depending on their health status, and following approval from the AV, such animals may require to be housed without visual, auditory, or olfactory access to conspecifics.

2b. Quarantine: Animals in quarantine may be singly housed so the animal can be monitored for any disease before (re)joining the population, however social housing should be promoted. Specifically, animals that arrive with known social histories may be socially housed to reduce risk of stress and the aggression that may occur upon reintroduction after an extended period apart. Depending on the health status of such animals, and following approval from the AV, animals may require to be housed without visual, auditory, or olfactory access to conspecifics while being quarantined.

2c. Age: Animals not eligible for social housing due to age.

2d. Behavioral: Animals deemed to be overly aggressive through behavioral observations and/or interactions with conspecifics may be exempt from social housing, as will individuals that show other behaviors that make them inappropriate for social housing (e.g., they demonstrate inappropriate social interactions with cagemates, or abnormal behaviors that are exacerbated by social housing).

2e. Partner Availability: No compatible social partners are available at the facility. Compatibility may be determined by protocol requirements, breeding requirements, viral status, immune status, or behavioral interactions. Animals that were previously socially housed may also become singly housed due to the death, experimental use, or other status change of their social partner(s).

2f. Timing or Moves: Animals that are about to be transferred to a different facility or enclosure type may be singly housed in that interim period. This includes moves related to internal and external sales.

2g. Breeding: Due to breeding-related requirements animals may need to be singly housed. This includes animals (stud males, pregnant females) that are being rotated between social groups and animals that are required to be singly housed between introductions to new social groups.

All such exemption reasons are either marked cage side, in a log, or in the animal's health records.

3. Animals may be singly housed without an exemption status approved by the AV or their delegate because they are considered to be eligible for social housing and are currently undergoing social housing introductions. These animals will be classed as “**Singly Housed: Social Status Pending**.” Animals can only be categorized as “Singly Housed: Social Status Pending” while active attempts at socialization are being made. Typically, this would be for a period of no more than three months. In cases where the active socialization process takes more than three months, the AV or their delegate must review the status of the animals at that three-month mark to determine if an exemption category is required.

Note about Attrition

As described above, animals may become singly housed due to the death, experimental use, or other status change of their social partner(s). In such cases, the reason of single housing as “attrition” is either marked cage side, in a log, or in the animal’s health records. For species in which unrelated, unfamiliar adults are unlikely to be socialized successfully (e.g., rodents, rabbits), further social housing attempts are not required, though in some circumstances further attempts at socialization may be made. For animals in which socialization with a new partner(s) is likely to be successful (e.g., pigs, dogs, cats, ferrets, and nonhuman primates), further socialization attempts should be made unless the animal qualifies for one of the above-mentioned exemptions.

Note about Nonhuman Primates

As per JHU SOP’s HM-28 and HM-71, all nonhuman primates (NHP) at JHU are socially housed by default, unless an exemption applies. The reason for single housing for every NHP is listed in the animal’s medical record. All singly housed NHP without a social housing exemption approved by the IACUC (i.e. excluding those animals classed as “Experimental”) or in the process of being socially housed (i.e., excluding those animals classed as or “Social Status Pending”) will have their exemption status reviewed by the AV every 30 days. To document this, the AV signs the “NHP Social Housing Exemption Log” for all NHPs with an exemption status reason (i.e., “Veterinary,” “Quarantine,” “Age,” “Behavioral,” “Partner Availability,” “Timing or Moves,” or “Breeding”) every 30 days.

Note about Dogs

As per JHU SOP HM-30, by default, dogs are pair-housed with a compatible social partner. Dogs are pair-housed when (1) they are compatible as defined by AWR Section 3.7, (2) the pen in which they are housed can hold multiple animals in the amount of space required by Section 3.6(c) for the particular animals, and (3) there is no protocol, medical, or other temporary or permanent exemption (e.g., behavioral) prohibiting the animal from being socially-housed.

Socially Housed Animals Exceeding Cage Size Requirements

Occasionally, animals may arrive at, or grow to, a weight where socially housing pairs or groups of animals in the same primary enclosure falls beyond space requirements as per *The Guide*. To maintain compatible pairs, and to promote psychological well-being, animals that exceed the size requirements of currently available enclosures may be housed together in the same primary enclosure with the review and approval of the AV or their delegate. The AV or delegate must provide initial confirmation that the animals have enough space to express their natural postures and postural adjustments without touching the enclosure walls or ceiling, are able to turn around, and have ready access to food and water.

Such animals will be classed as “**Socially Housed: Enclosure Size Reviewed.**” Such pairs or groups of animals can be maintained in such housing until either 1) an enclosure of a required size is available or 2) the animals show behavioral signs of negative wellbeing

and/or limited freedom of movement¹. At which time, animals must be transferred to an appropriately sized enclosure (per *The Guide*), even if this requires disbanding the pair or social group and housing animals separately.

Animals classed as “Socially Housed: Enclosure Size Reviewed” must have signage indicating their status posted either in the room or on the primary enclosure. Such animals must be monitored daily by staff to ensure space is not negatively affecting the animals’ well-being² or freedom of movement or leading to increased wounding. Additionally, a weekly log will be created that members of the veterinary or behavioral management team must sign to confirm the animals’ wellbeing is maintained (i.e., they are not showing behavioral indicators of stress or social incompatibility). Any concerns raised by veterinary staff or members of the behavioral management team about the animals’ wellbeing will trigger a review of the case to determine if the social pair or group should be disbanded or transferred to a different primary enclosure.

As per social housing exemptions, all such cases will be reviewed and approved by the AV every 30 days who will sign the “Socially Housed: Enclosure Size Reviewed Case Log.”

For associated SOPs, please reference HM-28, HM-30, HM-71, and HM-72 found on the Research Animal Resources website at <https://researchanimalresources.jhu.edu/sops-guidelines/>

¹ As per *The Guide* “at a minimum, animals must have enough space to express their natural postures and postural adjustments without touching the enclosure walls or ceiling, be able to turn around, and have ready access to food and water. In addition, there must be sufficient space to comfortably rest away from areas soiled by urine and feces” (p.56).

² Species-specific behavioral indicators of stress or poor welfare are listed in HM-28 and HM-71.