A) RESPONSIBILITIES

It is the responsibility of all investigators housing rodents at UTEP and the animal care staff to abide by and enforce this policy. Exceptions to this Policy must be approved by the IACUC.

B) APPLICATION

The purpose of this policy is to ensure compliance with the “Guide for Care and Use of Laboratory Animals” and UTEP’s IACUC requirements, as they apply to the breeding and overcrowding of rodents. This policy is based on a standard cage size of 77 in² for mice and 140 in² for rats (Tecniplast Green Line GM500 and GR900, respectively). If cages of alternate models or sizes are needed, please consult Veterinary Services for housing requirements.

C) DEFINITIONS:

1) **VS**: Veterinary Services
2) **DOB**: Date of birth
3) **ACT**: Animal Care Technician
4) **OC**: Overcrowded Cage
5) **OO**: Overcrowding occurrence. The discovery by VS staff of one or more OCs belonging to a particular PI at any one given time
6) **Monogamous breeding**: 1 male and 1 female breeder per cage
7) **Pair or Trio breeding**: 1 male and no more than 2 female breeders per cage
8) **Other Harem breeding**: a cage will house no more than 5 breeders (3 females and 2 males OR 4 females and 1 male)
9) **Continuous breeding**: Breeders kept together after litter is born to allow breeding during the immediate post-partum estrus
10) **Non-continuous breeding**: Breeding pair separated when female is visibly pregnant

11) **Standard weaning**: Weaning by 21 days post-partum

12) **Extended weaning**: Weaning beyond 21 days of age

13) **Symbols**:  
- ♂ = male  
- ♀ = female  
- ♡ = pregnant  
- ♀♀ = female with litter

D) REFERENCES

1) Guide for the Care and Use of Laboratory Animals, 2011, Table 3.2

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### TABLE 3.2 Recommended Minimum Space for Commonly Used Laboratory Rodents Housed in Groups*

<table>
<thead>
<tr>
<th>Animals</th>
<th>Weight, g</th>
<th>Floor Area/Animal, in² (cm²)</th>
<th>Height, in. (cm)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mice in groups</td>
<td>&lt;10</td>
<td>6 (38.7)</td>
<td>5 (12.7)</td>
<td>Larger animals may require more space to meet the performance standards.</td>
</tr>
<tr>
<td></td>
<td>Up to 15</td>
<td>8 (51.6)</td>
<td>5 (12.7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 25</td>
<td>12 (77.4)</td>
<td>5 (12.7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;25</td>
<td>≥15 (99.7)</td>
<td>5 (12.7)</td>
<td></td>
</tr>
<tr>
<td>Female + litter</td>
<td></td>
<td>51 (330)</td>
<td>5 (12.7)</td>
<td>Other breeding configurations may require more space and will depend on considerations such as number of adults and litters, and size and age of litters.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(recommended space for the housing group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rats in groups</td>
<td>&lt;100</td>
<td>17 (109.6)</td>
<td>7 (17.8)</td>
<td>Larger animals may require more space to meet the performance standards.</td>
</tr>
<tr>
<td></td>
<td>Up to 200</td>
<td>23 (148.35)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 300</td>
<td>29 (187.05)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 400</td>
<td>40 (258.0)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 500</td>
<td>60 (387.0)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;500</td>
<td>≥70 (451.5)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
<tr>
<td>Female + litter</td>
<td></td>
<td>124 (800)</td>
<td>7 (17.8)</td>
<td>Other breeding configurations may require more space and will depend on considerations such as number of adults and litters, and size and age of litters.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(recommended space for the housing group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamsters</td>
<td>&lt;60</td>
<td>10 (64.5)</td>
<td>6 (15.2)</td>
<td>Larger animals may require more space to meet the performance standards.</td>
</tr>
<tr>
<td></td>
<td>Up to 80</td>
<td>13 (83.8)</td>
<td>6 (15.2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 100</td>
<td>16 (103.2)</td>
<td>6 (15.2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;100</td>
<td>≥15 (122.5)</td>
<td>6 (15.2)</td>
<td></td>
</tr>
<tr>
<td>Guinea pigs</td>
<td>Up to 350</td>
<td>60 (387.0)</td>
<td>7 (17.8)</td>
<td>Larger animals may require more space to meet the performance standards.</td>
</tr>
<tr>
<td></td>
<td>&gt;350</td>
<td>≥101 (851.5)</td>
<td>7 (17.8)</td>
<td></td>
</tr>
</tbody>
</table>

*The interpretation of this table should take into consideration the performance indices described in the text beginning on page 55.

*Singly housed animals and small groups may require more than the applicable multiple of the indicated floor space per animal.

*From cage floor to cage top.

*Consideration should be given to the growth characteristics of the stock or strain as well as the sex of the animal. Weight gain may be sufficiently rapid that it may be preferable to provide greater space in anticipation of the animal’s future size. In addition, juvenile rodents are highly active and show increased play behavior.

*Other considerations may include culling of litters or separation of litters from the breeding group, as well as other methods of more intensive management of available space to allow for the safety and well-being of the breeding group. Sufficient space should be allocated for mothers with litters to allow the pups to develop to weaning without detrimental effects for the mother or the litter.
E) PROCEDURES

1) The housing of rodents must not exceed a density greater than what is recommended by the “Guide” unless approved by the IACUC in the protocol.

2) All breeding schemes and practices must be described in the protocol. A stand-alone breeding protocol is suggested if there is a need to supply multiple protocols. UTEP’s standard for breeding mice and rats is the monogamous non-continuous scheme.

3) Other possible MOUSE breeding schemes, which must be justified to, and approved by, the IACUC are:
   a) Monogamous continuous.
   b) Monogamous continuous with extended weaning. When weaning beyond 21 days of age is necessary (if pup size is the criteria for weaning), pups must be weighed at a minimum two times per week and weight records provided to the Attending Veterinarian or designee upon request. Other criteria for extended weaning will be considered by the IACUC.
   c) Pair or Trio breeding. No more than 1 breeding male and 1 or 2 breeding females are permitted per cage.
      (1) A visibly pregnant female must be separated. This leaves the 2\textsuperscript{nd} female and male in one cage. This cage can now be treated in one of two ways:
         (a) As a monogamous breeding pair (continuous breeding and extended weaning may be permitted with IACUC approval), or
         (b) Another female may be introduced into the cage (the first female that is found visibly pregnant must be separated).
   d) Other harem breeding schemes. A cage will house no more than 5 breeders (3 females and 2 males OR 4 females and 1 male).
      (1) As with other schemes, any visibly pregnant female must be separated so that no more than one pregnant female and one other adult (a male or a NON-pregnant female) are together in the same cage.
4) Overcrowding in a **MOUSE** cage is defined as:
   a) More than 5 mice over 21 days of age are present, unless extended weaning has been approved by the IACUC, and the cages have been identified as a breeder cage with weanlings.
   b) Any of the following breeding conditions occur in any given cage:
      (1) ♀ + ♂ - Two pregnant females
          (a) **Action required**: Separate each into individual cages.
      (2) ♀ + ♂ - A pregnant female + a female with litter.
          (a) **Action required**: Separate pregnant female into individual cage.
      (3) ♀ + ♂ + ♂ - Non-pregnant female + female with litter + male
          (a) **Action required**:
              (i) Separate male ♂ and non-pregnant female ♀ (they may continue breeding in a separate cage) or:
              (ii) Separate male ♂ only (if 2nd female ♀ is not visibly pregnant)
      (4) ♀ + ♂ + ♂ - Non-pregnant female + pregnant female + male
          (a) **Action Required**: Separate non-pregnant female ♀ only (if approved for continuous breeding).

5) Overcrowding in a **RAT** cage is defined as:
   a) More than 3 rats over 21 days of age per cage, and the total weight of the animals in the cage exceeds the maximum allowed by the “Guide,” as indicated in the table above. It is the PI’s responsibility to document the weights (in grams) every 3-4 days on the pertinent cage card.
   b) More than one rat in a cage when one of the rats weighs >500 grams.
   c) Multiple litters in a single cage.
   d) A male housed with a visibly pregnant female. Pregnant females must be single housed until the litter is weaned.

6) Investigators are responsible for checking their colonies and cage densities daily as well as recording the date of birth (DOB) for new pups. If the VS ACT discovers a litter with no recorded DOB, they will estimate the date to the best of
their knowledge and record it on the back of the cage card or the PI’s indicated area. VS is not responsible for miscalculated DOB’s.

7) When an overcrowded cage (OC) is found, the VS will take appropriate action to correct the overcrowding problem.
   a) Cages that contain situations that, under the judgment of the Attending Veterinarian or designee, may be detrimental to the health and welfare of the rodents may be separated immediately. A technician service fee may apply in this case.

8) The number of animals separated into newly generated cages to remedy overcrowding will be added to the applicable protocol’s census at the time new cages are generated.
   a) If the new cages (actual number of animals) cause the protocol to exceed its IACUC approved animal use number, the excess animals will be transferred to the VS Holding Protocol until the Investigator remedies this situation.
   b) Animals transferred to the VS Holding Protocol may not be used, handled or manipulated without the consent of the Attending Veterinarian or VS Facility Manager, and VS will not assume responsibility for procuring or recording experimental data. Per diems are still charged to the PI during this holding period.

9) PI notification
   a) VS personnel notifies PI/lab personnel if overcrowded cages are identified and sets a three-calendar-day grace period for lab staff to correct the overcrowding. VS notifies PI/lab personnel by placing a tag on overcrowded cages.
   b) The three-day grace period for separating the animals begins at the time notification is made.

10) VS actions
   a) If research staff fails to correct the overcrowded cage(s) by the end of the grace period, VS personnel will separate the animals from overcrowded cage(s), remove the card(s) indicating overcrowding, and the PI will be
charged for this service based on established VS services rates for technician time.

b) VS tags overcrowded cages to notify investigators. PI/lab personnel are required to visit their animals on a daily basis, so no other form of PI/lab personnel notification is needed.

c) While every effort will be made by the VS staff to identify separated animals correctly, their only goal in this instance is correction of overcrowding. If VS staff separates animals from overcrowded cages upon expiration of the three-calendar-day grace period, VS assumes no liability in the maintenance of research data.

11) IACUC intervention

a) Failure by the PI to correct three or more Overcrowding Occurrences (OOs) within a 30-day period will result in appropriate action by the IACUC which may include, but is not limited to:
   (1) A formal warning letter
   (2) Remedial training
   (3) Reassignment of the investigator’s animals in part or in whole to the VS holding protocol for management or to help investigator with colony breeding. Fees for special services will apply.
   (4) Suspension of research activities in part or in whole.