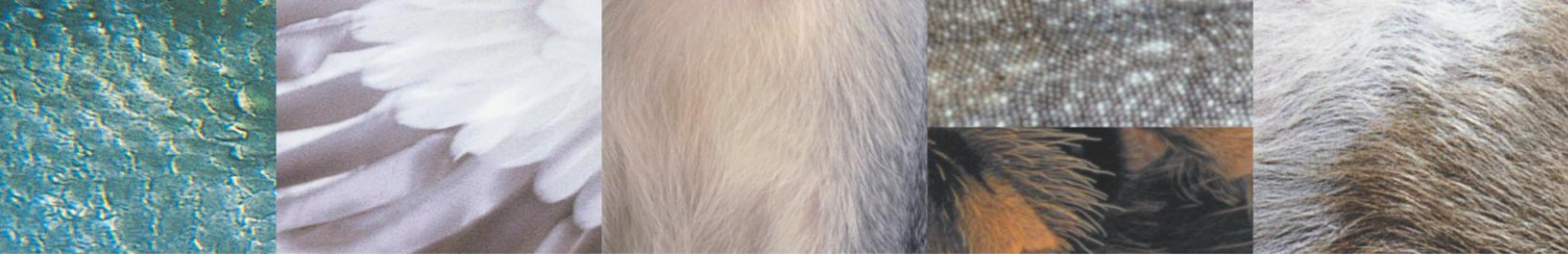

Supplementary resources for members of local ethical review processes

Rabbits: Good practice for housing and care

Research Animals Department, RSPCA
3rd edition - April 2011

Before using these guidance notes, please read the introductory sheet that accompanies this series:
Supplementary resources for lay members: an introduction

Natural history

Domestic rabbits, including the laboratory rabbit, are descended from the European wild rabbit, *Oryctolagus cuniculus*. Wild rabbits are large, conspicuous prey animals and this has played a major role in shaping their behaviour and physiology.

Rabbits have highly developed senses of smell, hearing and sight. Smell is most important and the rabbit's ever-twitching nose is continually sampling the air for signs of predators. The large ears can detect sounds at very low levels and can move independently to locate sounds quickly and accurately. The eyes are positioned so as to give a very wide field of vision and rabbits often sit bolt upright, scanning the horizon.

Rabbits are highly alert, easily frightened and are largely nocturnal, usually emerging from their burrows in late afternoon and returning soon after dawn. They are extremely wary when out in the open and will instinctively flee to their burrows when startled. If there is nowhere to run, rabbits may "freeze". Rabbits may also become immobile when being handled by humans (a behaviour known as "tonic immobility") which can lead to assumptions that animals are motionless because they are relaxed, whereas research has shown that they are actually distressed.

Unlike some other domesticated animals, rabbits have been selected more for their fur and meat than for desirable behaviours such as tractability towards humans. This means that "domestic" rabbits retain many wild-type behaviours and will express these whenever they are given the opportunity. It is essential to bear this in mind when housing and handling rabbits, taking account of the nature of the species and its over-riding instinct to avoid predation.

What rabbits need

The following list of requirements has been defined by researching the literature on rabbit behaviour and welfare. More information on rabbit welfare, housing and care can be found in the resources listed at the end of this document.

- **Social housing**

The rabbit is a social animal and group or pair housing is the ideal. Pairs or groups must always be formed at the right time and with appropriate composition so as to avoid fighting. For females, pairs or groups should be formed as soon as young rabbits are acquired (or at, or before, weaning if animals are bred in-house). New animals should not be subsequently introduced to established pairs or groups, as this can lead to aggression. Male rabbits can be pair or group housed as juveniles but will start to fight when they reach sexual maturity. There are two

possible solutions to this, both of which have advantages and disadvantages. Males can either be singly housed (it may be better to do this from the time they are acquired rather than splitting them later) or left in pairs/groups and castrated 3 to 4 weeks after weaning. Both options need to be carefully evaluated, since single housing causes distress and surgery can lead to discomfort or pain (see page 9 of reference [1] for a discussion on castration).

If there is compelling veterinary or scientific justification for single housing, animals should always be able to see, hear and smell others of the same sex. Males and females should not be able to smell one another, as this will stress the males.

- **Plenty of structured space and adequate enclosure height**

Rabbits need enough space for exercise, including taking sequences of hopping steps, otherwise they can suffer bone weakness and skeletal abnormalities. They also prefer to perform different behaviours, such as feeding, resting and excretion, in different places. The ideal is an enclosure that can be divided into separate areas using partitions, platforms and shelters. For cage housed rabbits, it is often possible to link cages together to provide extra space and include cage furniture to encourage different activities in different areas. If it is really not possible to provide the space that rabbits need, a shared exercise area can be provided for the rabbits to use individually or in their pairs or groups. For example, a spare pen or a large, rigid, plastic children's paddling pool can be adapted for this purpose.

The height of the enclosure is very important. Rabbits like to be able to sit upright in a "look out" posture with the ears erect, which requires an enclosure height of at least 75 cm.

- **Solid floor with litter material**

Many studies in a range of species have shown that animals, including rabbits, prefer solid flooring. Solid floors are more comfortable to walk and rest on, and they allow litter to be provided for digging, gnawing, shredding and foraging activity. Rabbits prefer to have dust-free straw or shredded paper litter, but have less of a preference for sawdust or wood shavings. Nesting material should be provided for breeding does.

If there is a genuine scientific justification for housing on grid floors, a solid resting area (such as a shelf) should be provided.

- **Raised areas**

Rabbits need access to raised areas as 'look out' points and for jumping exercise, which helps to prevent osteoporosis. Sufficient platforms, shelves, or refuges with non-slip roofs should be provided for all the rabbits to use at the same time to prevent aggressive competition. The enclosure should be high enough for rabbits to sit upright, with ears erect, on the raised areas.

- **Gnawing objects and dietary enrichment**

Rabbits' incisor teeth grow continuously, so materials to gnaw such as wooden chew blocks or sticks must be provided to wear them down. Wild rabbits spend almost half of their time eating so providing different foods, in different ways, is an appropriate way to occupy domestic rabbits' time.

Suitable dietary enrichment includes hay, alfalfa grass cubes, fresh fruit and vegetables, flaked maize and commercially available foraging mixes. Some of these foods can be irradiated to overcome concerns about hygiene and introducing disease. Supplementary foods can be scattered onto the floor to encourage foraging. Hay can be scattered on the enclosure roof to be pulled through, or stuffed inside a dry water bottle to increase feeding time.

- **Refuge**

Refuges or 'bolt holes' to run to when afraid are absolutely essential for good rabbit well-being. PVC tubing, rectangular cardboard boxes or commercially available 'houses' can be used to provide refuges for escaping from other rabbits, hiding or sleeping. Rabbits also like to rest alongside solid objects such as refuges. There should be at least one for each rabbit, to avoid competition. Refuges with two entry/exit holes should be provided for group housed rabbits to provide escape routes in case of aggressive encounters.

- **Gentle and empathetic handling and husbandry**

Rabbits can discriminate between different humans and positive contact in the form of gentle handling, grooming and habituation to interactions with humans will reduce stress and provide interest (for both rabbits and people). Daily handling has been found to reduce fearfulness and increase the readiness with which rabbits approach people.

Being lifted up can be quite alarming for rabbits (although they may not struggle or vocalise) and using a cue word, such as "lift", to warn them will help to reduce stress. Restraint is also a stressor and it may be possible to avoid it altogether by changing aspects of a technique, or habituating rabbits to some procedures.

- **Enrichment devices**

A range of enrichment devices is available for rabbits including stainless steel mirrors, Kong™ toys, mirrors, stainless steel rattles and balls (*e.g.* 'Jingle' balls). These can encourage exploratory and play behaviour and many rabbits make good use of them, especially if the objects are rotated weekly or fortnightly between pens or cages to prevent boredom. Toys should be carefully researched and their use should be monitored and evaluated to ensure that the rabbits benefit from them.

- **Special needs of breeding does**

Wild rabbits have an "absentee" parenting style in which does nurse their pups for just 3 to 5 minutes, once a day, and cover the nest entrance securely when they leave. This minimal contact is an anti-predation strategy and it is likely that domestic does will become stressed if they cannot break visual and olfactory contact with their pups when they are not nursing them. The pups also need to be left alone because they interpret any vibrations as their mother coming to nurse them and become very active as they prepare to feed, so they will be stressed if she does not appear.

For the sake of both the mother and the pups, it is best if the doe is able to completely get away from the pups when she is not nursing them. This can be achieved by siting the nest box right outside the enclosure, so that the doe cannot jump onto the roof, and restricting access by (in order of preference) removing the nest box altogether, fitting a sliding door that is operated by care staff or fitting a "cat flap" that is operated by the doe.

Potential husbandry related welfare problems and how to resolve them

Stereotypic behaviour such as repetitive pushing hoppers with the head, pawing or head-swaying can indicate that the rabbits are unable to cope with their environment. There should always be an immediate review of housing and care, addressing all of the topics in this checklist, if any such behaviours occur.

Boredom may be evidenced by restlessness, that is, bouts of activity that have no function and include disconnected elements of feeding, comfort, resting, alertness and withdrawal behaviour alternating with locomotion. Restlessness will upset normal behaviour patterns and time budgets and can make rabbits more liable to panic. Other indicators of boredom resemble clinical signs of ill health, such as hunched posture, apathy, a staring coat or over- or under-eating. As with stereotypies, signs of boredom should prompt a full review of housing and care, especially with respect to the provision of environmental enrichment. Providing an exercise area and encouraging foraging may help.

Aggression can occur if husbandry is not appropriate or for no apparent reason in a previously harmonious colony. The first signs can range from observations of aggressive circling or scuffling, to tufts of pulled out fur in the enclosure, to an individual with fight wounds. Monitoring should be increased if any such signs are seen, and if fight wounds occur, the aggressor or victim should be immediately removed, temporarily or permanently. However, it is also essential to try to address the fundamental cause of the bullying by reviewing housing to see whether (for example) more space, partitions or refuges are necessary, or whether groups are appropriate and compatible. Aggression and fighting can cause serious welfare problems, which is clearly a significant concern, but it is important to try to solve the problem and retain group housing rather than deny social animals the company of their own kind. See references [1], [2] and [3] for further guidance on dealing with aggression and monitoring rabbits.

Rabbit housing and care: ERP aide-memoire

- ❖ Social housing in stable groups appropriate to age and sex ❑
- ❖ Plenty of structured space with an adequate height to allow animals to sit upright with ears erect ❑
- ❖ Solid floors with litter that allows for digging, gnawing, shredding and foraging activity ❑
- ❖ Raised areas (platforms and shelves) ❑
- ❖ Suitably designed refuges or bolt holes ❑
- ❖ Gnawing objects and dietary enrichment which encourages foraging ❑
- ❖ Enrichment devices to encourage exploratory and play behaviour ❑
- ❖ Gentle and empathetic handling and husbandry ❑
- ❖ Nesting material provided for breeding does along with the opportunity to get away from their pups ❑

Notes

Recommended references

1. Hawkins P, Hubrecht R, Buckwell A, Cubitt S, Howard B, Jackson A & Poirier GM (2008) *Refining Rabbit Care - A Resource for Those Working With Rabbits in Research.* Southwater: UFAW/RSPCA. Download at www.rspca.org.uk/researchrabbits

2. Lidfors L & Edström T (2010) The laboratory rabbit. Chapter 28 in: *The UFAW Handbook on the Care and Management of Laboratory and Other Research Animals*, 8th edn (ed by R Hubrecht and J Kirkwood), pp 399-417. Oxford: Wiley-Blackwell.

3. Morton DB, Jennings M, Batchelor GR, Bell D, Birke L, Davies K, Eveleigh JR, Gunn D, Heath M, Howard B, Koder P, Phillips J, Poole T, Sainsbury AW, Sales GD, Smith DJA, Stauffacher M & Turner RJ (1993). Refinements in rabbit husbandry *Laboratory Animals* 27: 301-329, available at: http://tinyurl.com/6bc8dmg

4. Animal Research Review Panel (2003) *Guidelines for the Housing of Rabbits in Scientific Institutions*. Orange NSW, Australia: Animal Welfare Branch NSW Department of Primary Industries. http://tinyurl.com/5tmtxkf

5. Boers K, Gray G, Love J, Mahmutovic Z, McCormick S, Turcotte N & Zhang Y (2002) Comfortable quarters for rabbits in research institutions In: *Comfortable Quarters for Laboratory Animals,* 9th edition (V & A Reinhardt eds), pp 43-49. Washington DC: Animal Welfare Institute, http://www.awionline.org/
NOTE: the 10th edition of *Comfortable Quarters* is under production at the time of writing.

6. FELASA (2007) *Euroguide on the Accommodation and Care of Animals Used for Experimental and Other Scientific Purposes: Based on the Revised Appendix A of the European Convention ETS123.* London: FELASA. Available for purchase at www.rsmpress.co.uk/bkfelasa.htm

7. Lidfors L, Edström T & Lindberg L (2004) The welfare of laboratory rabbits. Ch. 10 in: *The Welfare of Laboratory Animals* (E Kaliste ed.), pp 211-243. Dordrecht, The Netherlands: Kluwer.

8. McBride A (2000) *Why does my rabbit…?* London: Souvenir Press.

9. NC3Rs (2008) *Rabbits*. www.nc3rs.org.uk/informationportal click on “Rabbits”.

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