

Species specific requirements for rehoming of dogs and cats

This protocol provides species-specific advice for cats and dogs and should be read in conjunction with the General Protocol.

BACKGROUND

Dogs and cats are by far the most common companion animals in the European Union. In 2018, around 75 million cats and 65 million dogs were living in European households.¹ Emotional attachment to these animals may explain the greater public concern around using dogs and cats for experimental studies, compared to other species, e.g. rodents. The possibility of rehoming may help to improve this view.

Rehoming of cats and dogs will only be successful if co-habitation with humans is successful and if the difference between the laboratory and the rehoming environment is addressed during the rehoming process.

Dogs

The domestic dog (*Canis lupus familiaris*) is a highly sociable animal and well adjusted for living in a group. For intraspecific communication in close proximity, dogs mainly use body language and facial expressions, complemented by vocal signals. Dogs have an acute sense of smell, used for identification and to assess conspecifics.

Dogs are socially flexible and have well-developed socio-cognitive abilities that enable them to live in a variety of living conditions. They form close bonds with humans and are very good at reading human body language. Dogs have coevolved for cooperative work with humans over approximately 20,000-40,000 years and their very early domestication² is thought to have had a major impact on that success. These innate abilities can support progress during rehoming, despite the many differences between the laboratory environment and a private

household, as long as dogs undergo an appropriate socialisation, handling and training process.

Cats

Most felid species are solitary and territorial prey hunters. The domestic cat (*Felis catus*) forms social groups under certain circumstances. If food sources are abundant, female-based cooperative groups are formed to rear kittens.³ Intra-species communication consists of olfactory, visual, vocal and tactile signals.⁴ It is assumed that the domestication of cats started around 4000 to 5000 years ago in northern Africa, as humans discovered the benefits of cats for pest control.³

SOCIALISATION, HANDLING AND TRAINING:

Age-appropriate socialisation of puppies and kittens should begin shortly after birth and continue into adulthood. The most sensitive/primary socialisation period is approximately 3 to 12 weeks in dogs and 2 to 9 weeks in cats.^{5, 6} A program should consist of tactile, auditory and visual stimuli, interaction with people and the environment. This program should be tailored to the individual animal and its coping abilities.^{6, 7} In the research facility a continuous and well-organised training and handling program should be established. Depending on the experimental conditions, different skills and procedures can be trained by operant conditioning with the focus on positive reinforcement (e.g. weighing, clipping, blood collection).⁸⁻¹⁰ The success of socialisation, training and handling should be assessed regularly via objective criteria (e.g. relaxed body posture, absence of stress signals including avoidance behaviour).¹¹ Ideally, these criteria are determined in advance and applied by all staff working with the animals.

During the primary period from birth to approximately 3 weeks of age, puppies mainly rely on their sense of touch. Tactile stimuli like gentle everyday handling have beneficial long-term effects in dogs.¹² A gradual introduction of other sensory stimuli, as the sensory perception develops, should follow.¹² In the socialisation period, the focus shifts gradually from stimulus

exposure to interactions with people, littermates and the environment.^{5, 12} The third developmental period (juvenile period)¹³ is considered to last until sexual maturity (approximately 6 months of age in dogs and 4 months in cats and with variations depending on the sex and breed).¹⁴ By that time, dogs and cats should be less stressed by unfamiliar stimuli and be able to cope with novel situations and experiences.

The implementation of a basic behavioural training program, starting ideally at around 6-8 weeks of age, supports everyday handling, husbandry and experimental procedures, and can be passed on to adopters at rehoming. The trained behaviours support fast acclimatisation and the maintenance of the dog's and cat's welfare in its new home. Also, internalised principles of training will allow an easy connection to more complex training tasks that may be required in a domestic environment (e.g. stay for dogs, recall). Even if research institutions acquire older and untrained animals, a training program can still be very beneficial.

Training approaches that strengthen human-animal bonds and facilitate pleasant experiences of new situations, are extremely helpful for rehoming and should be included where possible. The underlying process is often based on giving the animal choice, control and predictability and providing them with an explanation to a given task.^{10, 15}

SCREENING FOR REHOMING

Animal welfare after rehoming is the main factor to be considered when assessing the suitability for rehoming. Additionally, the animal's age, health, emotional and mental state need to be reviewed carefully by a trained veterinarian, an animal behaviourist and a caretaker or someone else who knows the animal best.

Animals should be carefully observed for spontaneous behaviour in undisturbed situations and in standardised tests. Observation of behavioural expression is a method of assessing the animals' temperament and coping strategies and can help in matching adopters to the animal. However, results of these assessments are likely to be context-specific, and in many cases provides indications of the animal's behaviour in the new environment.

LIVING WITH ADOPTERS

Dogs

The suitability of each dog to be rehomed singly or with a conspecific, needs to be evaluated and depends on for example the degree of socialisation with humans and compatibility in a conspecific group. The dog's socio-cognitive skills and adaptability¹⁶ may lead to several rehoming opportunities with a range of potential adopters. Dogs with deficiencies in this area can still be rehoming candidates, providing that the adopters are skilled in this matter and/or supported by an animal behaviour specialist. Potential adopters must be willing and able to invest the time and effort to support the animal appropriately. Alternatively, institutions can work with a third-party organisation.

It is rare for laboratory dogs to bite or attempt to bite humans. However, if this does happen, trying to identify a cause is recommended. If there has been a bite attempt in the past, a full risk assessment should be completed before looking for potential adopters.¹⁷ Rehoming of laboratory animals must not pose a threat to public safety.

Cats

The suitability of the cat to be rehomed singly, in pairs or even small groups needs to be evaluated, assessing the behaviour of the cat, the housing conditions in the research facility and in the new home. If a cat has formed a social relationship with another cat (tail-up greeting to each other, sleeping together in physical contact, grooming each other, eating out of the same bowl together), these two cats should preferably be rehomed together. If this is not possible, the cat has at least shown the ability to form a social relationship and successful co-habitation with unfamiliar conspecifics is more likely. However, social bonds or aversion can be very individual and therefore the behaviour in the research facility may not be the same post rehoming. In contrary to other species, a social lifestyle in a group is not essential for a cat.¹⁸ Single rehoming can be considered for cats displaying difficulties socialising with other cats.

PREPARATION FOR REHOMING

A preparation phase prior to rehoming will allow the animal's training level and socialisation status to be reviewed. Behaviours to support a successful rehoming outcome can be trained during this stage. This phase should start several weeks prior to rehoming and should consist of one-to-one training at least three times a week. While total housetraining may be difficult to establish in a laboratory environment, introducing dogs to being on their own for short periods of time, to wearing a collar or harness or to house training may be feasible as part of their training routine. If house training is not possible before rehoming, new owners should be instructed how to start and continue this process and owners should be made clear that some accidents with faeces and urine will occur in the beginning.

Medical interventions such as neutering, vaccination, microchipping, blood testing, deworming and dental care need to be completed at rehoming. Adopters should be informed about potential zoonoses (e.g. *Giardia*, *Campylobacter sp.*) and how to avoid them by following standard hygiene practices. For cats, neutering before rehoming is highly recommended to prevent breeding, to take advantage of the health benefits of neutering (e.g. reducing the risk of mammary tumours or pyometra) and to reduce the risk of being given up by the owner due to unacceptable behaviour.¹⁹ It has been shown that neutering in male cats reduces fighting, urine marking and roaming. Neutered cats were found to be less aggressive with conspecifics and to be more affectionate to their owner.¹⁹ Neutering is also recommended for dogs but the decision should always be made by a veterinarian for each individual dog. In male dogs, for example, research has shown that insecure dogs may become more anxious after neutering, thereby complicating the adaptation process in the new home. In such cases, it may be appropriate to consider using an implant for chemical neutering before rehoming.

ADVICE FOR ADOPTERS

Dogs

The careful selection and matching of adopters to a dog has a major impact on the prevention of behavioural problems.¹⁶ The main problems described in the literature post rehoming include: separation problems, destroying objects and difficulties with housetraining.¹⁶ In addition, fear and anxiety are commonly reported.²⁰ It is important the adopter establishes routines as quickly as possible and allows the animal control over potentially frightening stimuli. Adopters should be open to seeking advice from a specialist, particularly when problem/unwanted behaviours occur. Searching for a suitable animal trainer/ animal behaviourist in advance may help to address emerging problems.

Cats

Appropriate environmental enrichment is extremely important for cats because most behavioural problems arise from living in a deprived environment, adopter's misunderstanding of and inappropriate reaction to the natural behaviour of the cat, which result in the cat becoming frustrated due to its inability to express natural behaviour.²¹ When introducing a cat to a resident animal, the welfare of both animals must be considered. If the cat will have outdoor access after rehoming, advice for optimal transition should be given.

Example of advice for outdoor transition:

The cat should be familiar and comfortable with everyday life indoors and all the accessible indoor area, before outdoor training is commenced. It should always be the cat's choice, whether it wants to stay indoors or go outside/move outdoors. If possible, cats can first be given access to an escape-proof balcony for some weeks until the cat feels comfortable in its new environment. The first step is to leave the door open and the curiosity of most cats will help them to assess the new situation. The door should be securely held open (careful with wind and open windows), so that return inside is always possible. Short sessions of PRT, which the cat has been introduced to previously, can help to make the outdoor experience very pleasant. The initial outdoor time might be very short, and some cats will just enjoy sitting on the indoor/outdoor border and observe the environment. The time spent outdoors and distance

from the indoor area will gradually increase but every cat will do it at its own pace. If the cat has to learn to go through a cat flap, this action should be shaped in little steps. Initially, the flap can be held open the whole time so the cat will learn that it can leave and come back through the cat flap. Once the cat is familiar with leaving and returning through the cat flap, the flap itself can be closed. Positive reinforcement training can be used to introduce the cat to touching a target with their forehead. This could help the cat learn how to push the flap open. Generally, forcing the cat to go through the flap by any means should be avoided, as a bad experience may mean the cat will avoid using the cat flap in the future.

A list of potential of expenses that may be incurred after rehoming for cats and dogs and which new owners should be aware of include:

- preventive or curative behavioural training (costs for dog trainers, behavioural specialists)
- cost of extra-care during holidays by third-party organisations (e.g. boarding kennels)

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Species specific requirements for rehoming of Mice, Rats and Rabbits

This protocol provides species-specific advice for rehoming small prey mammals and should be read in conjunction with the General Protocol.

Small Prey Mammals

This section focusses on rehoming rats, mice and rabbits as our survey prior to drafting this text indicated these are the small mammal species most frequently rehomed.¹ Understanding the natural habitats of small mammals and the difference between their natural and captive environments facilitates understanding the environmental needs of the animals and promotes animal welfare.² Most small mammals are prey animals, crepuscular or nocturnal, and light sensitive. Their eyes are located on the side of their heads, enabling a wide field of vision and the ability to detect predators from above and on the ground.² The hearing of small prey mammals extends into the ultrasound range, in which much of their communication takes place. Olfaction is important in communication, detecting predators and foraging. Pheromones, secreted in urine and from sweat glands, used to mark territories and to recognize familiar individuals, can influence aggression between animals.³

Rat Rehoming Protocol

BACKGROUND

Rats in the wild would live in burrows in groups comprising of a dominant male with familiar females and their offspring.^{4, 5} They are social creatures in captivity, working harder to gain access to another rat than to a larger cage, and their most highly valued enrichment is a conspecific.⁶ Rats are nocturnal: foraging during the night and sleeping during the day. They rely on olfaction and touch more than vision and hearing; pheromones are important for sensory input with glands located in the perineal, urinary area (in addition to secretion of pheromones in urine), face and feet, and large vibrissae and whiskers.⁷

SOCIALISATION HANDLING AND TRAINING

It has been shown that gentle stroking and lifting of rats or 'gentling' for 10 minutes a day during the 4th and 5th weeks of life decreases their fear towards humans.^{8, 9} Rats should be socialised to people and accustomed to handling prior to being used in animal procedures and before rehoming. Appropriate handling by caretakers has been shown to reduce fear of humans.¹⁰ Rats are readily trained using operant conditioning methods¹¹ and an introduction to positive reinforcement techniques can assist bonding of the new owner with the rat on rehoming.

SCREENING FOR REHOMING

The age, life expectancy (average 2.5 to 3 years)^{12, 13} and psychological condition of the rats should be considered when selecting for rehoming. The rats should exhibit normal behaviour for the species within their current environment. Excellent reviews of the diseases of ageing rats are available.^{14, 15} Careful consideration of the health of the rats should be undertaken when rehoming rats over 18 months of age.

Examination by a veterinarian with species-specific knowledge of health and behaviour, in conjunction with the primary caretaker, is advised.

Care should be exercised when rehoming a small prey mammal to a home containing a predator to ensure the safety of the new pet and to minimise transfer of odours from the predator, which could induce fear and anxiety.

PREPARATION AND LIVING WITH NEW ADOPTERS

Daily handling and removal from the cage at different times during the day by different caretakers is recommended in preparation for rehoming. Adopters should be aware of the behaviour and temperament of rats and their requirements for daily care and safe handling.

Rats should be rehomed socially in same-sex compatible groups housed in solid-bottomed escape-proof enclosures, preferably on different levels with plenty of space to run, climb and interact with conspecifics and with large sized substrate e.g. Aspen pellets.^{16, 17} Rats benefit from and prefer a complex enclosure with multiple enrichment items.¹⁸ A range of enrichment items should be provided and refreshed regularly, and include objects to gnaw, as the incisor teeth grow continuously, and opportunities to forage.^{18, 19} Opaque, enclosed nest boxes, with soft bedding or long stranded nesting material are recommended.^{17, 20} Cleaning removes pheromonal markers and is disruptive²¹, so some enrichment items should be left in situ.

Rats are sociable, intelligent, inquisitive, easily trained and benefit from frequent handling and regular time outside their enclosure. They are nocturnal, are most active at night between dusk and dawn and sleep during daylight hours, which should be taken into account when interacting with them.

Albino rats require protection from high light intensities and should be handled in low light conditions.²² The hearing range of rats overlaps that of humans, but sound in the 5–20 kHz

ultrasound range can disrupt communication and cause distress²³ so rats should not be housed near household appliances or other equipment which may emit ultrasound.

A sample of the animals' current diet should be transferred to the new owner to facilitate gradual introduction of a new diet and minimise the risk of gastrointestinal disturbance. Rats are omnivores, and new food sources can be gradually introduced into the diet, by the adopter to provide variety and choice, and facilitate foraging. Rats can also be encouraged to work for some of their ration.

If rats have access to the home, electrical wires should be protected and access to house plants must be prevented.

Rats should be transported to the new home in compatible groups in secure transport boxes.

Mouse Rehoming Protocol

BACKGROUND

Mice are nocturnal, highly social animals and in the wild mice would live in family groups with defined territories.²⁴ Olfaction is important in communication, detecting predators and foraging. Pheromones, secreted in urine and from sweat glands on the hind paws, are used to mark territories and to recognize which individuals are familiar, and can affect aggression between males.^{3, 25-27} Mice have poor eyesight, but good peripheral vision to detect movement and use their whiskers to sense their environment. The hearing of mice extends into the ultrasound range, in which most of their communication takes place, with a wide frequency range (20-100 kHz) depending on the social context.^{28, 29}

SOCIALISATION HANDLING AND TRAINING

Information on early socialisation of mice has not been published. Mice should be socialised to people and accustomed to handling prior to being used in animal procedures and rehoming. Lifting a small prey mammal mimics catching by a predator², so training to approach a tunnel or a cupped hand placed in the cage prior to lifting is recommended to reduce anxiety associated with handling^{30, 31} and prospective owners should receive training in these handling techniques. The use of classical conditioning and positive reinforcement training techniques are applicable to mice³² and can help develop a bond between the adopter and the mouse.

SCREENING FOR REHOMING

Genetically altered and immunodeficient mice should not be rehomed although rehoming of wild type animals can be considered.

The age and life expectancy should be considered when selecting mice for rehoming, and animals should exhibit normal behaviour for the species within their current environment. Inbred mice live, on average, between 1.9 and 2.2 years but there are sex & strain differences in life expectancy and cause of death.^{33, 34} Enhanced monitoring of ageing mice has been recommended from 15 months of age³⁵ so depending on knowledge of the strain and sex of the mice, it is not recommended to rehome them after this age. Examination by a veterinarian with species specific knowledge of health and behaviour, in conjunction with the primary caretaker, is advised.

Mice can be housed in compatible same-sex groups where possible in the laboratory, which has been shown to provide social support in stressful situations.³⁶ Female mice should be rehomed in compatible, stable groups. Success has been reported housing stable groups of male mice in a laboratory environment in groups of 3 and transferring nesting material but not dirty bedding during cleaning.³⁷⁻³⁹ Rehoming of groups of male mice is not

recommended, however, but one neutered male can be rehomed with a group of female mice. Rehoming of singly housed male mice should always be avoided.

Care should be exercised when rehoming a small prey mammal to a home containing a predator to ensure the safety of the new pet and to minimise transfer of odours from the predator, which could induce fear and anxiety.

PREPARATION AND LIVING WITH NEW ADOPTERS

After transferring to a new home, mice should be observed closely but not handled for a few days to allow them to adjust to their new environment.² The new owner should understand the behaviour and temperament of mice and their requirements for daily care and safe handling. For example, mice are most active between dusk and dawn and sleep during daylight hours.⁴⁰ All mice, but particularly albino mice, require protection from exposure to high light intensities in their enclosures, with handling taking place in low light conditions.²

Mice should be housed in escape-proof enclosures with enough space to allow exploration including climbing, comfort with provision of bedding, shelter, nesting material, and opportunity to burrow, gnaw and forage.²⁴ Enrichment items and some nesting material should be retained during cleaning routines to minimise the risk of aggression between cage mates, and reduce the disruption caused by the cleaning process. Animals should not be removed from stable groups as reintroduction could lead to aggression.² Mice are sensitive to sounds in the 5–20 kHz ultrasound range⁴¹ so they should not be housed near refrigerators, computers or other equipment which may emit ultrasound.

A sample of the current diet should be transferred with the mice to enable gradual introduction of a new diet and minimise the risk of gastrointestinal disturbance. If mice have access to the home, electrical wires should be protected and access to house plants must be prevented.

Mice should be transported to the new home in compatible groups in secure transport boxes.

Rabbit Rehoming Protocol

BACKGROUND

Wild rabbits live in stable colonies, often within warrens, in complex social groups of 2-8 individuals each with its own hierarchy, with associated large home ranges often shared with other colonies.⁴² Male rabbits will defend their territory within a home range.^{43, 44} and competition between does for resources can occur.⁴⁵ Rabbits are crepuscular, being most active during the dawn and dusk hours.⁴⁶⁻⁴⁸ They see light mainly in the blue and green wavelength range and have limited colour vision.⁴⁹ Their eyes are located on the side of their heads enabling a wide field of vision and ability to detect predators on the ground and from the air.. The hearing range of rabbits overlaps with that of humans but extends into the ultrasound range up to 42 kHz and their whiskers are used in navigation.² Rabbits have scent glands under their chins, anal glands and glands in their groin which are used for scent marking. They are obligate herbivores and spend a large proportion of their time above ground foraging for food.

SOCIALISATION, HANDLING AND TRAINING

A sensitive socialisation period for rabbits exists, in the first six weeks of life. Studies show that handling in the first week of life during the early nursing period, reduces their fear response to people.⁵⁰⁻⁵³ Increased compliance to handling, reduced fear-induced behaviour and improved welfare have been demonstrated by regular handling of rabbits.⁵⁴

The use of classical conditioning and positive reinforcement training techniques are applicable to rabbits and can help develop a bond between the adopter and facilitate choice

and reduced anxiety in the animal.^{55, 56} Rabbits can be trained to recall to a signal, to go into the hutch on command, to enter a transport carrier and to perform conditioned behaviours for food rewards.⁵⁷ Lifting of a rabbit mimics catching by a predator, so training to approach a handler sitting on the floor, or to use a moving box is advised, rather than reaching into a pen and lifting from above. The living environment can also be adapted to minimise the requirement for lifting.^{2, 57}

Rabbits in a research environment prefer, and benefit from, social housing^{58, 59} (and rabbits should be rehomed as compatible, stable same-sex or neutered male/female groups or pairs. In some cases, it may be appropriate to rehome a singly housed rabbit to an experienced adopter with other rabbits. Although mixing rabbits into groups at weaning is preferable, older female rabbits may be successfully introduced to group housing. Prior to rehoming, after initial successful introduction through a perforated or mesh barrier, the rabbits may carefully, with close observation, progress into a large, complex, neutral location containing multiple escape shelters. They may be grouped together for short periods of time initially, building up to full time group housing.⁶⁰⁻⁶² When compatible groups have been established, the rabbits can be released for rehoming.

Rabbits should be introduced to the sounds of the home and the outside environment. CDs with a variety of noises that could be encountered are commercially available for larger animals and can be played in the animal room prior to rehoming. Care must be taken to play these at low levels, to avoid sensitisation.

SCREENING FOR REHOMING

The age and life expectancy of the rabbits should be considered when selecting for rehoming. Rabbits have a lifespan of between 8 and 12 years,⁶³ which could be reduced if the rabbits have been kept in a laboratory environment.⁶⁴ There are excellent reviews of diseases of rabbits and ageing rabbits.^{63, 65, 66} Diseases of particular concern include

neoplasia, chronic renal failure, arthritis/degenerative joint disease amongst others. Careful consideration of the health of the rabbits should be undertaken when rehoming animals over 6 years of age. Examination by a veterinarian with species specific knowledge of health and behaviour, in conjunction with the primary caretaker, is advised. The rabbits should exhibit normal behaviour for the species within their current environment.

Care should be exercised when rehoming a small prey mammal to a home containing a predator to ensure the safety of the new pet and to minimise transfer of odours from the predator, which could induce fear and anxiety.

PREPARATION AND LIVING WITH NEW ADOPTERS

Daily handling, and removal from the pen at different times during the day by different caretakers is recommended. The adopter should be introduced to classical conditioning and reinforcement techniques, which can then be continued in the new home.

A rabbit should never be turned over on its back to 'hypnotise' it as this method of restraint is very stressful. Protection of a rabbit's back when it is being handled is important, as kicking with their strong back legs can cause spinal fractures if the rabbit is held incorrectly.²

Rabbits should be neutered to reduce the risk of health and behavioural issues such as pyometra, uterine, mammary and prostatic tumours, fighting and urine spraying. Neutering may also reduce aggression and help maintain animals in social groups.⁶⁰ Male rabbits can be castrated between 6 months and one year and females from 16-20 weeks.⁶⁷ Vaccination against Myxomatosis and Viral Haemorrhagic Disease are recommended.

Rabbits require a large hutch which enables them to hop, run and to fully rear. They should ideally have access to an additional exercise area, to increase choice and control of their environment. There should be several hiding and escape places, at least one per animal, with visual barriers, so there is choice of visual and physical contact with pen-mates.⁶⁸

Digging boxes and rabbit tunnels, and toys to manipulate are a useful addition to allow natural behaviours and blocks for chewing and gnawing should be provided as rabbits' teeth erupt continuously.⁶⁹ Rabbits are naturally clean animals who prefer to defecate away from where they sleep, so the inclusion of a litter tray is recommended. Rabbits can be trained to use a litter tray by placing the tray, filled with litter (e.g. straw pellets or hemp) and some droppings and urine-stained bedding inside the pen, in the area where elimination takes place. For house rabbits, initially the rabbit can be enclosed in a small area or temporary indoor pen, where the owner would like the litter box to be, until an elimination spot has been chosen, then the litter box can be placed in this location. When the rabbit has been trained to regularly use the litter tray, access to the home can be extended.⁵⁵ Fresh hay should always be available, and a variety of leafy green vegetables can be gradually introduced to the diet, with a long-term goal of reducing the amount of cereal, fat, sugar and protein content and increasing the amount of fibre. A sample of the current diet should be transferred to enable gradual introduction of a new diet and minimise the risk of gastrointestinal disturbance during the transition.

Electrical wires should be protected and access to house plants must be prevented, if rabbits will have access to the home.

If rabbits are to be housed outdoors a gradual acclimatisation to the temperature change from laboratory conditions may be required. If the outside temperature is close to the laboratory range this may not be necessary. Protection from the elements should be provided, along with warmth and cooling opportunities depending on the prevailing climate.

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Species specific requirements for rehoming of Non-Human Primates

This protocol provides species-specific advice for rehoming primates and should be read in conjunction with the General Protocol.

The majority of primates put up for rehoming are macaques and marmosets; in the wild both species live in large social groups with complex social structures. Rhesus and long-tailed macaques are philopatric, with females remaining in their natal group for their whole lives and juvenile males dispersing. They are despotic, with an almost linear dominance hierarchy. Males also live in smaller all-male bands, and only a few will migrate into a breeding group to become alpha-males.^{1, 2}

BACKGROUND

In an experimental setting, macaques usually are housed in compatible pairs or small same-sex groups. Females form the best stable pair with kin, males can best be housed with another male individual with a big difference in age or bodyweight, so a clear dominance relationship exists. Another possibility is to house two macaques in a mixed pair, but then the female should be treated with contraceptives to prevent pregnancy.^{3, 4}

Marmosets are usually monogamous and live in family groups. Males migrate from their natal group when they are adult, trying to find an unrelated female to start a new breeding group.^{1, 5} Marmosets usually give birth to twins. In laboratories, when taken out of their family group, same-sex animals (if possible twins) are housed together.⁶ Another possibility is to house two marmosets in a mixed pair, but then the female should be treated with contraceptives to prevent pregnancy.

SOCIALISATION, HANDLING AND TRAINING:

In order to cope with rehoming, primates need to have spent the majority of their adolescent lives in a social group that mimics the natural group structure, to be able to express complex social behavior.^{2, 4-6} Ideally, primates should be purchased from breeding facilities that adhere to this principle.

Rehomed primates should be familiar with Positive Reinforcement Training. This technique will help establish a bond between the new caretaker and the animal and facilitates animal husbandry and health monitoring. Using Positive Reinforcement Training, several procedures (i.e. moving to a new enclosure, obtaining body weight or even blood collection) can be performed in cooperation with the animal. If primates are rehomed to sanctuaries with access to the public, this is an important change in the environment of the animal. It should be checked if the animal is able to cope with this situation. If not, an appropriate (alternative) enclosure without visual contact with the public has to be available. Furthermore, control and predictability will help an animal when it has to deal with stressful events.⁷

SCREENING FOR REHOMING

Prior to rehoming an animal should have a health examination by a veterinarian, and a (consulting) animal behaviourist should determine that the animal shows adequate normal individual and species-specific behaviour. If animals have been in food or water restriction protocols, their diet has to be adapted. For animals equipped with (brain)implants, careful consideration of whether a rehabilitation operation (removing the implant) should be carried out is required, if permitted in National Legislation or by licensed procedure. The positive aspects of rehoming have to outweigh the discomfort of such an operation.

A welfare record should accompany the animal (it is mandatory to maintain a record with all relevant, including medical history, behaviour, life-threatening events) to be able to assess cumulative suffering or harm.

LIVING WITH ADOPTERS

Primates can only be rehomed to professional institutes or sanctuaries, because a specific license is needed to keep primates. Finding an appropriate facility to rehome a primate is difficult, as there are few professional establishments that rehome and it is often expensive. Governmental or national professional associations can be contacted for assistance.

A suitable companion (preferably a conspecific) must be available to form a compatible pair or a small group. A behaviour specialist should supervise the introduction, to reduce stress and minimise injuries. If it is not possible to introduce the rehomed animal to a compatible partner within reasonable time (several months), the animal should be euthanized.

The new enclosure must be equivalent to or better than its current accommodation preferably with access to an outdoor compartment. It should be spacious 3D accommodation with a variety of environmental enrichment.⁸

For older animals (particularly females) that have been used as breeders, “internal rehoming” should be considered the best option; they can spend the remainder of their lives in their breeding groups. To prevent reproduction, contraceptives can be used, and males can be vasectomized. It must be explicitly documented that these animals can no longer be used in an experimental procedure; these internally rehomed animals must be removed from any scientific protocol.⁹

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Species specific requirements for rehoming of pigs and minipigs

This protocol provides species-specific advice for rehoming of pigs and minipigs and should be read in conjunction with the General Protocol.

BACKGROUND

Pigs and minipigs are clever, curious, and social animals, but can also be shy and wary. Their social activities are not only directed to their pen mates but towards human beings as well. They are easily startled by sudden noise, movements, or changes in their environment, and therefore, should be approached with slow movements and a quiet, calm voice. Unpredictability and novelty can cause stress, the level of which depends on the temperament of the individual animal and the stressor.

Pigs like routine, they are clever and pick-up clues to predict what happens next from their environment and the activities around them. They are very curious and interested in what is going on around them. It is important to let them see the activities they hear and smell; and to let them sniff at new objects in a non-threatening way. Pigs like investigating new objects, but the novelty can wear off quickly and the objects (toys) become boring.¹ Rooting is a specific behaviour pigs need to be able to express to ensure their wellbeing. Pigs are strongly motivated to explore their environment: rooting, chewing, and checking scent are examples of exploratory behaviour and pigs will spend a lot of time on these activities.

Pigs have a linear hierarchy in their group which, once established, is generally quite stable. If regrouping occurs, this can lead to fighting and aggression. Group hierarchy is usually regulated by avoidance, getting out of the way of the dominant animal.

SOCIALISATION HANDLING AND TRAINING

Pigs and minipigs perceive major changes in their environment as stressors, so any changes such as new diet and bedding should be minimized or introduced gradually.² The social hierarchy is important, and any regrouping including rehoming will be stressful if the previous group structure is not maintained.³ Therefore, it is important to give pigs space and visual barriers when regrouping, to allow avoidance in case hierarchical fights occur.

SCREENING FOR REHOMING

Before any rehoming initiatives are considered, it is crucial to ensure compliance with EU and national legislation, e.g. local or national restrictions on the movement of pigs, food safety and disease control, relevant transport legislation and guidance, and local restrictions on housing pigs and other farm animals, e.g. in urban areas. The use of any rehomed pigs as food source must be addressed in the rehoming agreement. Based on the adopter's experience with pigs and depending on the animals' future housing conditions, neutering of both boars and sows before rehoming should be considered, as it may reduce the risk of unwanted behavior and facilitate successful social housing in stable hierarchical groups. In addition, neutering before rehoming of purpose bred pigs or minipigs might be a legal requirement by the original breeder. Apart from breeding boars, pigs and minipigs should always be rehomed in compatible pairs or small groups or it should be ensured pairing or grouping will occur at the adopter, to fulfill the natural need for social contact with conspecifics.

LIVING WITH ADOPTERS

In general, no specific training or habituation to the new housing situation after rehoming are needed for any pigs or minipigs, but adequate knowledge or experience by the adopters should be ensured.

Pigs and minipigs previously being housed under SPF conditions should, to avoid any health and welfare implications, be vaccinated and wormed before rehoming under non-SPF or outdoor conditions or with other non-SPF pigs. It is important to highlight, that both pigs and

minipigs are farm animals and should only be rehomed to a suitable environment, e.g. not be rehomed as pets in a flat.

Pigs should be housed socially in pens with solid flooring and sturdy construction preferable with outdoor access or housed outdoor with access to an appropriate shelter, as they will explore and manipulate anything they can, resulting in destruction and damage.²

Environmental enrichment and appropriate bedding material, like hay or straw, should always be provided to enable a full range of natural behaviour including the opportunity to engage in physical exercise and natural activities such as searching for food and rooting.

Pigs are prey animals, so they will be shy and wary. The adopter should initially concentrate on reducing the pigs natural flight reflexes. Movements should be slow, abrupt movements avoided and a low encouraging voice should be used when talking to the pigs.² Feeding time provides a good opportunity for socialisation as the pigs receive a food reward. A food pellet or treat can be used to encourage approach. Pigs are curious and inquisitive, and offering a hand to sniff can also encourage them to approach. Allowing the pig to approach rather than the opposite is recommended, but once the animal is no longer fearful, it will be possible to touch the animal, progressing to patting and scratching sometimes quite roughly with fingernails behind the ear or on the back. A gentle belly rub or stroking the cheek may be appreciated. Care should be taken, however, as a frightened or frustrated pig may try to bite. It is important to read the body language of the pig during interactions, they are all individuals and may prefer some interactions more than others.^{2, 3}

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Species specific requirements for rehoming of Horses and Camelids

This protocol provides species-specific advice for rehoming horses (including ponies) and camelids and should be read in conjunction with the General Protocol.

These species are both large mammals which in the wild live in herds with complex social relationships. They differ from cattle and sheep as they are used more commonly by humans as companion animals for leisure activities and have been selected for this.

Equine rehoming protocol

BACKGROUND

Horses are social animals that, in the wild, live in small herds governed by hierarchies composed of dominance relationships between individuals.¹ Communication between horses is based mainly on body language. The dominant-subordinate relationship is expressed by the ability of the submissive aggressive behaviour from the dominant.²

SOCIALISATION, HANDLING AND TRAINING:

When used in an experimental context, horses are generally kept in stable groups with outdoor access, an environment well suited to the needs of these species. The learning principles explained in the general protocol are applicable here as well. When rehoming adult animals, it is better to teach them to be handled individually with a halter. The presence of conspecific animals can help animals feel secure during training. Depending on the context, training should include wearing a halter, grooming, foot trimming, and trailer loading. Use of coercive restraint that avoids contact with the animal, such as a chute or twitching, must be avoided in favour of habituation, making

positive associations with specific events (classical conditioning) and positive reinforcement training, to prevent fear of humans or anxiety in their presence.³

SCREENING FOR REHOMING

Horses should be vaccinated at least with mandatory vaccines, wormed (or be subject to a faecal exam) and have dental and foot care before rehoming. Identification with a microchip and the issue of an official identification document by the administrative authority of the country is mandatory before rehoming according to European and UK legislation.^{4, 5 6} Official exclusion of horses from human consumption by the appropriate authority is highly recommended to avoid liability. If horses are not excluded from human consumption, particular attention should be paid to rules regarding drug administration in equines for which the vet is responsible.

Even if stallions are rarely used in experimental context, due to their strong character and the difficulty maintaining them in social groups, castration should be performed before rehoming unless their fertility status justifies the adoption. Adoption of stallions can only be considered with adopters who are aware and ready to handle the behaviour of these animals, and if there is no risk that past experiments may interfere with the animal's fertility and their offspring's welfare. After castration, behaviour assessment should evaluate if male behavioural characteristics have completely disappeared or not before rehoming (particularly for animals that were already adults when castration occurred).

Finally, the ability of a horse to be ridden significantly enhances its chances of being rehomed.⁷ This criterion should, if possible, be evaluated and is an important parameter in matching a horse with an adopter.

LIVING WITH ADOPTERS

The institution should consider what placements are acceptable for rehomed horses, such as rehoming as companion animals, leisure horses in private households, rehoming in riding stables or as competition horses. The institution may consider that riding is not an acceptable option for adopted horses. The Animal Welfare Body should be involved in this discussion as the decision to refuse riding a particular horse after rehoming can significantly limit the outlets for adoption but primarily the welfare of the animal should not be compromised by the use as riding horse.

The future environment of the animal should be evaluated, if possible, through a visit or at least a questionnaire. Horses should be provided with access to social contact with companions (at least visual, preferably also physical) and outdoor access most of the time.⁸ Due to the potential for injury, the presence of barbed wire in the pasture, if not forbidden by law, should be discouraged. Institutions should ensure that the adopter has enough knowledge to safely maintain a horse.

Adopters should be advised of the administrative procedures required to change ownership and, if necessary, declare themselves as a keeper as required by European regulation.⁶

A problem when rehoming horses, is whether to donate or sell the animal. Horses have significant market value, are expensive to keep and can be susceptible to disease or injury that could result in expensive veterinary costs. Rehoming the animal to private adopters free of charge may encourage people who do not have the resources to purchase an animal themselves to adopt instead, taking the risk that they do not have the finances necessary to keep the animal. Conversely, selling horses for a modest sum can limit possible exploitation by professional horse dealers who could see rehoming as an easy way to obtain stock for free.

Camelids rehoming protocol

BACKGROUND

Camelids are gregarious animals that, in their natural environment, live in herds with strong hierarchical relationships. Each herd is led by a male and fights between males can be violent. Unless socialised with them, camelids are usually shy with humans and do not spontaneously seek close contact with them.

SOCIALISATION, HANDLING AND TRAINING:

In experimental conditions, camelids are generally kept in small groups outdoors with shelters. The learning principles explained in the general protocol are applicable here as well. Animals should be trained to the manipulations they will have to undergo after adoption: individual handling with a halter, grooming, vet examination and trailer loading. As they are gregarious animals, it is better to manipulate them in the presence of conspecifics. Positive reinforcement training, will avoid negative behaviours as freezing, lying down or rearing.⁹

SCREENING FOR REHOMING

Animals should be wormed (or be subject to a faecal exam), supplemented with vitamin D during winter if necessary, and have dental and foot care before rehoming. Even if there are no licensed vaccines for camelids, some vaccines (e.g. *Clostridium perfringens/tetani*) can be used on veterinary advice depending on specific risks and environment of the animals. Identification with a microchip and identification in an official database depending of the administrative authority of the country is mandatory before rehoming according to European and UK legislation.^{4, 5 6}

Camelid males can be aggressive with conspecifics and humans, castration must be performed before rehoming apart if adopters are specifically looking for breeding animals. Adoption of males can be considered with experienced breeders and if there is no risk that

past experiments may interfere with the animal's fertility and their offspring's welfare (this condition should be ensured also for females).

Only people with experience caring for and handling these species should be considered as future adopters for camelids.

LIVING WITH ADOPTERS

Even if usually used as companion animals, camelids can be used for production of wool. To date, they are not used for meat production in Europe. The Animal Welfare Body can be consulted to decide if use for production of wool is acceptable for adopted animals. If such use is permitted, the prospective environment of the animals should be even more carefully evaluated. These animals should be provided with shelters and access to a pasture.¹⁰ Camelids should be rehomed in an existing herd or a small group together.

Adopters should be advised of the administrative procedures required to change ownership and, declare themselves as a keeper as required by European regulation.⁶

Similar to horses, the opportunity of selling for a modest price instead of donation can be considered.

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