

Exotic Companion Mammal Enrichment

Have you heard about environmental enrichment but are wondering what it really means and how to implement it to benefit your pets? In this short paper I will discuss what enrichment is, what its benefits are and finally practical suggestions on how to implement it. Enrichment can be fun as you get to create an array of fun interactive enclosures and toys for your pet.

What is enrichment?

Enrichment simply means to enhance the quality or value of something. For the case of our exotic companion animals, it means to improve the quality of care by providing stimuli for their mental and physical well-being. The goal is to provide an environment that will encourage our pets to express species-appropriate behaviours as well as mental activities.

Types of enrichment

Types of enrichment can be divided into two broad categories: social and non-social enrichment.

Social enrichment refers to either conspecific interactions or interactions with owners or other animals. Prior to introducing a new animal, it is important to consider the species' social preferences in the wild. Many different species such as rabbits, rats and chinchillas are very social and enjoy living with conspecifics, but individual preferences should be observed. On the other hand, species such as hamsters are not social and problems can arise when kept in groups. If keeping animals together is not an option, it can be beneficial to have animals close together but in separate cages. Animals can then safely interact (visually and vocally) at a distance.

Interactions with the owner or other caretakers can include time spent petting, grooming, holding or playing with your pet. These types of interactions are based on trust from your pet and need to be built slowly.

Non-social enrichment refers to the environment and all items a pet is exposed to within its enclosures or general living space and includes things like toys, beds, substrates, sound and light.

General enrichment concepts

Any enrichment program created should take into consideration the natural history of the exotic companion mammal of interest and the range of normal behaviours that they exhibit.

Enclosure

Consider obtaining the largest sized enclosure you are able to. Consider adding vertical space in the enclosure when possible and if appropriate for your particular species. This can be done by including ropes, hammocks and extra floors.

The substrate you use will depend on the species you have. Many species like to dig so providing a deep enough substrate to allow for this behaviour is recommended. Research has shown that animals prefer hard surfaces over wire surfaces, plus wire flooring is not typically recommended as it can cause pain and wounds on the pet's feet.

Benefits of enrichment

Research has been able to show that there are multiple benefits of providing enrichment to not just our exotic companion mammals, but all animals. Some of those benefits include increased behavioural diversity, decreased abnormal behaviours, decreased anxiety, improved learning abilities and reducing depression. Even small changes such as scattering or hiding food can have a positive impact on the behavioural expression of our exotic mammal companions. Not only does enrichment enhance an animal's quality of life, but it is also a tool an owner can use to monitor the health of their animal. An animal that is not interested in interacting with any of the provided stimuli might be indicating that it is not feeling well or is in pain.

Potential negatives

- Time to create the initial enrichment plan
- Cost of the materials or the enrichment items
- Trial and error to find the most suitable enrichment for a particular species
- Time to monitor the pets during the introduction phase of new enrichment item
- Injury to pets due to accidents or inadvertent use of toxic materials
- Use of materials that are not easy to clean or disinfect
- Frustration if the pet does not enjoy the enrichment item selected

Bedding

The amount of bedding provided can be enriching for animals such as rodents by providing a deep enough layer to allow for digging. One research paper showed a preference for about 10 cm of soft bedding. Note that having a deeper layer does not seem to have a greater impact since it can come into contact with the water bottle and get wet and potentially lead to hypothermia.

The ideal bedding material should be: dust free, non-palatable, absorbent and free of toxic components. Different species and different medical conditions might require you to switch up the type of bedding that you use.

Toys or huts

Providing different toys with different functions and different materials can encourage your pet to play in the enclosure. Many rodents like to gnaw on things, so providing safe sticks or wooden blocks to encourage this behaviour is recommended. Rabbits like to toss toys around so providing stacking cups or other plastic toys can keep them entertained. Huts of different sizes and materials are also enjoyed by many species to hide during the day when they are resting or if they are stressed out. You also want to make sure you can easily clean the toys and huts provided.

Light and Sound

Some exotic animal companions such as rodents and rabbits are usually more active during dusk and dawn so they benefit from decreased light levels to encourage activity. A constant background noise can help reduce stress and the impact of sudden loud noises.

Training

Training is another great strategy to provide enrichment by stimulating your pet and also increases the owner-pet bond. Find a high reward treat for your pet and start slowly by conducting short training sessions and slowly creating the behaviour you want. This can be a fun experience and you can also train your pet to be comfortable with things such as regular nail trims and accepting medication via syringe.

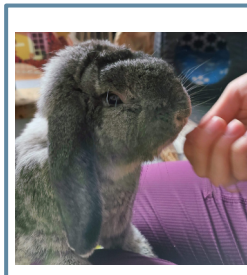


Figure 2: Training of a rabbit with pellets as a reward to accept medication given via syringe

Species specific enrichment suggestions

Each species will require different tactics to provide enrichment in their lives and the following are examples of easy items to incorporate but it is not meant to be an all-inclusive list.

Species	Enrichment examples
Ferrets	<ul style="list-style-type: none"> Multilevel cage connected with ladders and ramps Appropriately sized tubes to run in Boxes with shredded paper
Rabbits	<ul style="list-style-type: none"> Supervised yard time for exercise Plastic toddler toys and chew sticks Box filled with shredded paper and hay for digging
Guinea Pigs	<ul style="list-style-type: none"> Hiding food in bedding Multiple homes to hide in Brushing
Chinchillas	<ul style="list-style-type: none"> Use of rope perches in the cage Dust baths Compressed hay cubes
Rodents	<ul style="list-style-type: none"> Tube maze within cage Objects to chew



Figure 1: Stacking cups that can be used as toys for exotic companion mammals

Exercise

While having species appropriate items in the cage can encourage exercise, placing animals in a separate pen for exercise can further stimulate this by encouraging exploration. This exercise pen can be kept indoors or even outside, weather permitting.

Certain species such as ferrets and rabbits can be trained to wear a harness and be taken out into the backyard for extra exercise while kept safe. Always monitor your pet while being outside (whether in a pen or on a harness) to ensure it does not get injured or manages to escape.

Puzzle feeders or foraging toys

When we look at the natural history of the wild counterparts of our exotic companion mammal research has found that they spend most of their waking time searching and foraging for food. We can encourage the natural behaviour of foraging easily by spreading the food out into the enclosure instead of placing it all in a bowl. This encourages animals to move around and explore to find the food instead of going directly to the bowl.

You can further challenge your pet by making some easy homemade toys. Simple strategies for this are using paper bags or egg cartons to hide food in them. Using an empty toilet paper roll and filling it with hay and treats is another great alternative.

There is also the option of acquiring commercially made puzzle feeders and adapting them to your particular pet by using their regular food or treats to encourage them to use it. The ball treat dispensers are great for our larger exotic mammal companions to use to get their pellets. They have the benefit that you can adjust the opening and therefore the difficulty.

The possibilities are endless and you can combine pellets, a variety of safe treats (freeze dried fruit, cheerios, hay based treats, etc), as well as different kinds of hay, dried herbs or flower petals.

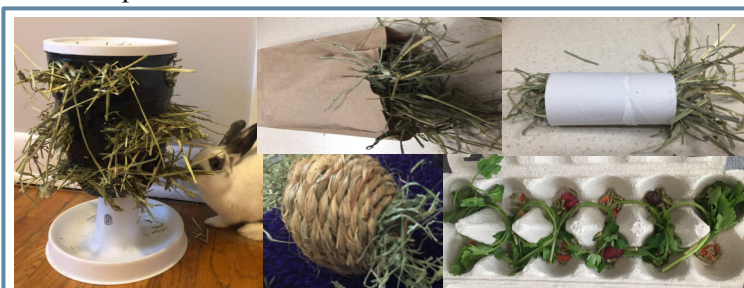


Figure 3: Examples of commercial and homemade foraging toys you can use for your exotic companion mammals.

As this paper has discussed, environmental enrichment is a necessity for all our exotic animal companions to ensure they can express their normal behaviours and are able to cope with any changes in their life without too much added stress. Many different options are available and it is important to work around your selected species to be able to encourage them to express their normal behaviours.

References

- Banks R.E., Sharp J.M., Doss S.D., Vanderford D.A. 2010. Chapter 2: Enrichment. In: Exotic Small Mammal Care and Husbandry. JohnWiley & Sons Incorporated. Pp 11-19.
- Belz E.E., Jamilyn S., Kennell R., Czambel R.K., Rubin R.T., Rhodes M.E. 2003. Environmental Enrichment Lowers Stress-Responsive Hormones in Singly Housed Male and Female Rats. *Pharmacology, Biochemistry and Behaviour*. 76: 481-486.
- Brandao J., Mayer J. 2011. Behaviour of Rodents with and Emphasis on Enrichment. *Journal of Exotic Pet Medicine*. 20(4):256-269.
- Harris L.M. 2015. Ferret Wellness Management and Environmental Enrichment. *Veterinary Clinics: Exotic Animal Practice*. 18:233-244.
- Lidfors L. 1997. Behavioural Effects of Environmental Enrichment for Individually Caged Rabbits. *Applied Animal Behaviour Science*. 52:157-169.
- Morris C.L., Grandin T., Irlbeck N.A. 2011. Companion Animal Symposium: Environmental Enrichment for Companion, Exotic, and Laboratory Animals. 89:4227-4238.
- Oxbow Animal Health. 2017. All About Enrichment. <https://www.oxbowanimalhealth.com/blog/all-about-enrichment-handout>. Accessed March 2021.
- Oxbow Animal Health. 2017. The Importance of Physical Enrichment. <https://www.oxbowanimalhealth.com/blog/the-importance-of-physical-enrichment>. Accessed March 2021.
- Pilny A.A. 2015. Small Exotic Companion Mammal Wellness Management and Environmental Enrichment. *Veterinary Clinics: Exotic Animal Practice*. 18:245-254.
- Rommers J.M., Bracke M.B.M., Reuvekamp B., Gunnink H., De Jong I.C. 2014. Cage Enrichment: Rabbit does Prefer Straw or a Compressed Wood Block. *World Rabbit Science*. 22:301-309.
- Verga M., Luzi F., Carezzi C. 2007. Effects of Husbandry and Management Systems on Physiology and Behaviour of Farmed and Laboratory Rabbits. *Hormones and Behaviour*. 52:122-129.