



ENRICHMENT PROVISION

Captive animal husbandry and welfare practice related to enrichment provision.

ENRICHMENT PROVISION

AIMS

To gain knowledge and understanding of:

- How the expression of normal, natural and rewarding behaviours can be encouraged through the provision of species-appropriate enrichment.
- How enrichment provision can be planned, undertaken and assessed as part of a programme to promote good animal welfare standards.
- The different types of enrichment and their uses as part of a holistic approach to the improvement of animal welfare.

OBJECTIVES

- Identify the different types of enrichment and how this relates to species-specific behaviours.
- Recognise appropriate and inappropriate ways of providing enrichment to encourage a natural behavioural repertoire.
- Gain inspiration for enrichment ideas that can be utilised within a captive facility.



REASONING

- To understand how to provide for behavioural needs through simple environmental infrastructure and management.
- To be able to promote rewarding animal experiences through appropriate enrichment provision.
- To increase knowledge and understanding of the use of enrichment so that it can be utilised in the appropriate manner.

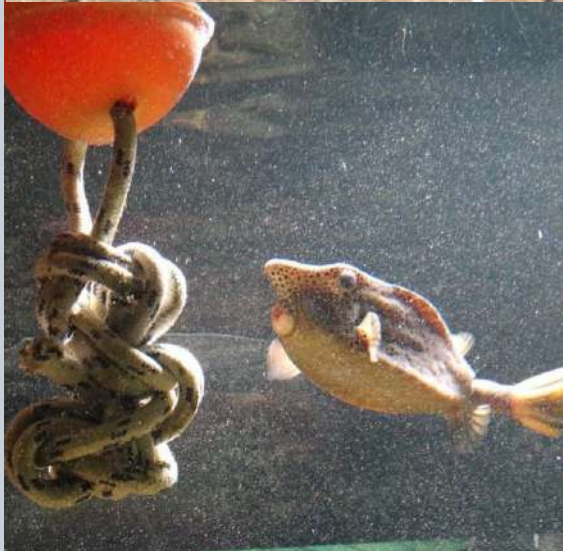


WHAT IS ENRICHMENT?

Environmental enrichment, often also referred to as behavioural enrichment is the act of providing a physical and social environment that encourages species appropriate challenges and optimal mental and physical well-being. Environmental infrastructure such as climbing frames, dens or substrate type and daily practices such as food presentation can all contribute towards these optimal conditions that promote rewarding behaviours. Changes which create improvements within a relatively static environment will encourage rewarding experiences for the animal such as investigative or manipulative behaviours. These changes are often sensory based and it is important to consider which senses are most utilised by a species. For example, olfactory enrichment (laying scent trails or providing smelly objects) are very effective in feline species because of their powerful sense of smell.

Enrichment devices such as boomer balls, fire hose hammocks, trickle feeders or dynamic furniture are all examples of commonly used objects which can provide stimulation and promote a diverse selection of behaviours for an animal. Although devices can be broadly used across multiple taxonomic groups, each device should be assessed for species-specificity and suitability. If devices are to be used within multiple enclosures, thorough cleaning and disinfecting should be undertaken to prevent cross contamination. Safety when using enrichment devices is also paramount to reduce the risk of injury.

Photo by Peter Bonser



Enrichment is not necessarily a concept in which an activity is stimulated but rather behavioural diversity (the number of behaviours an animal can express) and choice is promoted. It is important that the animal has a choice as to whether the animal wants to interact with a device or not.

Assessing the effectiveness of an enrichment device is important to ascertain whether its addition promoted behavioural diversity and whether interactions were beneficial to that animal. Devising an enrichment rota can help to ensure that each animal within your care will have a multitude of stimulating experiences within a set period of time to ensure a good standard of welfare.

Q. Do you use any enrichment devices with your animals? What behaviours are you hoping to encourage through their use?



HOW CAN ENRICHMENT SUPPORT ANIMAL WELFARE?

Enrichment can enhance the zoo environment for an animal, encouraging them to explore & interact with their environment. Enrichment also enhances the visitor experience as the animals show more natural behaviours and are much more active.

The goal of any enrichment programme should be to develop enrichment ideas that will improve animal welfare for every animal. This is especially important for a group of animals. Ideally each individual should receive an enrichment device to prevent aggression and promote a stimulating experience for the entire group.



REASONS FOR ENRICHMENT

- Prevents boredom.
- Stimulates investigative activities.
- Encourages natural behaviours.
- Provides opportunities to demonstrate natural and active behaviours to visitors.
- Generates a rewarding experience for the animal.
- Gives the animal choices.
- Can be used to promote natural feeding behaviours.

Most enrichment needs to be regularly changed and adapted (some enrichment, such as substrate should be permanent but choices of substrate changed). With this in mind, it is important to consider the choices, changes, challenges and opportunities for creation within an environment.

Choice – enrichment is about creating choices for animals which encourage exploration and provide an interesting environment. Enrichment provision can help an animal to feel more in control of their environment.

Change – enrichment is more successful when it is changed on a regular basis, to encourage new challenges and fresh stimulation. Variety is important to prevent boredom and frustration.

Challenge – enrichment should appropriately challenge an animal to encourage natural and normal expression of behaviours through stimulation of movement, cognition and the senses.

Create – enrichment is about finding creative and novel ways to challenge an animal relative to its species-specific needs. It is important that each new creation is tested for safety.



UNDERSTANDING SPECIFIC BEHAVIOURAL & PHYSICAL NEEDS

Good animal enrichment requires a thorough understanding of species-specific, behavioural and physical needs. **The goal is to encourage natural and species-appropriate behaviours.** Different enrichment devices should be given to different species depending on their anatomy, physiology, and natural behaviours which would be undertaken in the wild.



For example, gibbons are arboreal. They swing (or brachiate) on moving branches and live in small family groups. Baboons are mainly terrestrial, forage on the ground and live in large family groups.



ENRICHMENT

The use of enrichment should aim to stimulate behaviours found in the species' natural behavioural repertoire.

- Investigation.
- Manipulation.
- Foraging.
- Socialisation.
- Grooming.
- Climbing.
- Digging.
- Resting.
- Sleeping.
- Swimming.

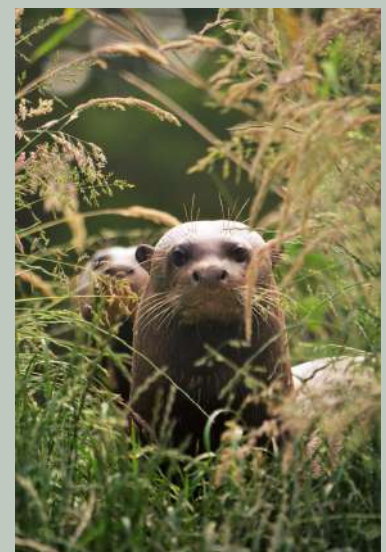


All enrichment items should be changed frequently to maintain novelty.

ENVIRONMENT

A stimulating environment should provide choices and mimic the animal's natural habitat as closely as possible.

- Pools.
- Mature trees.
- Vegetation.
- Rocks.
- Varied landscape.
- Branches.
- Log piles.
- Nest boxes.
- Platforms.
- Substrates.



Enclosure furniture should be safe, species-appropriate and hygienic.

ALL ABOUT ENRICHMENT

Environmental and behavioural enrichment provides species-appropriate challenges, opportunities and stimulation that encourage natural and strongly motivated behaviours to be expressed.

Enrichment includes the regular provision of dynamic environments, cognitive challenges and social opportunities.

An enriched environment should promote a range of normal behaviours that animals find rewarding, as well as allowing animals to positively respond to potential stressors. For example, opportunities to hide or climb away from visitors or more dominant members of a group.

Behavioural enrichment is a way to improve the quality of captive animal care by providing stimulating structures and devices which promote psychological and physiological behaviours and welfare.

Environmental enrichment is the stimulation of the brain by its physical and social surroundings.

Behavioural husbandry is the physical aspects to animal care as a whole that maintains good welfare through husbandry tasks. These will include behavioural and environmental enrichment but also animal training, health checks and enclosure maintenance. All of these activities will encourage species-appropriate behaviours.



WHY IS ENRICHMENT GOOD?

Animals that have good mental health will engage with their environment more, show less aggressive or fearful behaviours and are more content with their surroundings. Enrichment should aim to encourage natural and goal-orientated behaviours which will support consistently positive mental welfare in captive animals.

WHAT IS ENRICHMENT NOT?

Enrichment is not a substitute for poor enclosure design, a poor diet, lack of health care or any other poor management activities. **It should not be designed to distract the animal for a short period of time.** This can result in short periods of interest interspersed with long periods of boredom. Whilst it is an important aspect of positive animal welfare, it alone cannot compensate for sub-standard care that results in poor welfare.



Q. Can you think of 3 different enrichment ideas for one species you care for?



PLANNING ENRICHMENT ACTIVITIES

Planning and evaluating enrichment activities is a process which must be undertaken thoroughly and carefully. Follow the steps in the road map in order to ensure enrichment is planned, evaluated and effective for the intended animals.

Enrichment Road Map



Research Natural History

An understanding of an animal's natural history is the single most important factor to consider when designing successful enrichment items.

1



Establish a Goal Behaviour

Based on previous research and observations of the animal, decide on a natural behaviour you are trying to target. Establish the behavioural outcomes you want to see.

2



Think of Safety Concerns

Is there any risk to the animal from this design? Can they potentially hurt themselves on the device? Mitigate this risk by considering safety concerns within your design.

4



Design Your Device

Now that you have decided on a behaviour you want to encourage the animal to express, think about what design and type of device would be best to solicit this behaviour.



Build the Enrichment Device

Based on your design and safety concerns, build the item using appropriate materials.

5



Create an Introduction Plan

Formulate a plan of action in case there are adverse reactions to the enrichment device. How will adverse reactions be managed?



Evaluate and Add to Rota

Continually evaluate enrichment usage whenever it is given to the animal. If it continues to be successful, add it to your enrichment rota and ensure it is frequently cleaned and assessed for damage.

9



Re-evaluate and Implement Changes

Once you have seen how the animal interacts with the device, you might notice that some modifications are required in order for the device to work more effectively.



Introduce and Monitor

Continually monitor the animal's reactions to the enrichment device. Note the responses based on the behavioural goals set earlier, as well as information such as length of time the device was interacted with.

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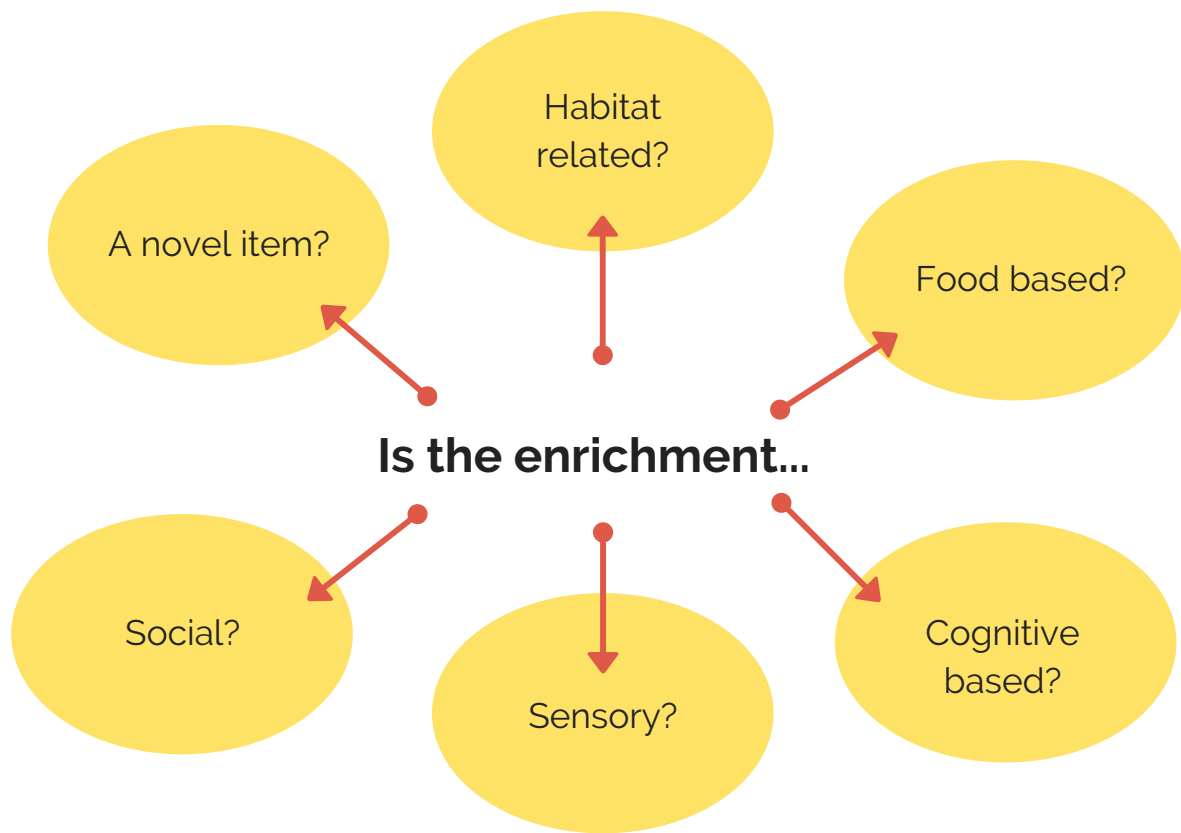
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Q. What are some safety considerations of enrichment provision?



TYPES OF ENRICHMENT TO CONSIDER



Lots of things in the zoo can be used for enrichment. Logs, newspapers, ropes, old clothes - or you could even ask visitors to donate items that could be used. Always remember to check that products are safe for the animals before using them.

Enrichment items don't need to be expensive and can often make use of leftover materials at no extra cost.

Make it easier to organise your enrichment programmes by creating a special area for enrichment tools, making them more accessible for all members of animal care staff.



WHAT IF ENRICHMENT LOOKS MESSY?

Always explain to your visitors why enrichment items are in an animal's enclosure. You might even find that visitors do not mind a little mess as much as you think. Do not immediately clean up food mess as it encourages further exploration. Forage boxes and substrates can generate a small amount of mess but the rewarding behaviours it encourages far outweighs the cost of mess.



ENRICHMENT TYPES

Enrichment is not a replacement for a natural exhibit and the best form of enrichment is to house animals in a naturalistic environment. Enrichment will have the biggest impact on animal welfare when there is a combination of natural features in an enclosure and an enrichment programme of novel objects which is varied and involves rotation of devices.



Novel objects made of unnatural

materials encourage natural behaviours such as playing and investigating. Enrichment objects don't have to look natural to be useful.

Examples include: boomer balls, tyres, barrels, fire hose, old footballs, buckets, scents (e.g. perfume).



Novel objects made of natural materials

encourage similar behaviours but do not alter the naturalistic look of the enclosure.

Examples include: large logs, feathers, piles of branches, ropes, swinging branches, log feeders, hessian sacks, scents (e.g. natural spices).



Substrates should always be used in both indoor and outdoor enclosure spaces. They should be as natural as possible and appropriate for that species. Always check for toxicity and monitor use. Offer a choice of different substrates and be creative with how they are presented.

Examples include: sand, leaves, mulch, soil, shredded paper, grass.



Food Presentation is very important and should encourage natural feeding behaviours such as foraging, social feeding, browsing, grazing, or hunting type behaviours.

Examples include: food in ice buckets, food hidden in logs, food hidden in cardboard boxes, hanging food on ropes, kebab feeds, scatter feeds, food hidden in substrate piles.

FOOD PRESENTATION AS A FORM OF ENRICHMENT

Many species are strongly motivated to explore their environment and will spend a large part of their day finding or consuming food in the wild.

The desire to carry out food orientated behaviours such as foraging, hunting, stalking, digging or grazing is very strong and creates a rewarding feeling when that motivational need is met.



Offering food in a varied and appropriate way can satisfy species-specific natural feeding behaviours and provide mental and physical stimulation. Food given in enrichment devices should be part of the daily diet to prevent overfeeding.

In some cases you will need to consider the social hierarchy or group dynamics as some individuals will be more dominant and take more food, not leaving enough for submissive individuals. Providing food in multiple places can prevent competition, aggression and fighting.



Remember!

If food is simply placed in an animal's enclosure - in a bowl or in the same place every day, the animal can become bored or frustrated because it cannot carry out natural feeding behaviours. Always provide food in a manner that is as close to how the animal would naturally feed in the wild when possible.



Below are some feeding behaviours seen in animals. Which of these feeding behaviours do the animals you look after like to carry out?

Foraging

Stalking

Fishing

Social Feeding

Grazing

Digging

Browsing

Pouncing

Solo Hunting

Cooperative Hunting

Carcass feeding



ENRICHMENT AND RECORDS

The value of an enrichment device can change.

- When first provided, the novelty value of enrichment may be the main reason for investigative behaviours being expressed by the animal.
- After repeated presentation, animals may become habituated and may no longer find the enrichment as stimulating or feel motivated to express the enrichment's goal behaviour.
- Timetables, unpredictable schedules and increasing the complexity of the enrichment, can help to reduce habituation.

Keeping track of what enrichment works for your animals is important. It also ensures you don't repeat one type of enrichment too often which means it is no longer as stimulating. Recording reactions to enrichment can provide useful information such as whether a device caused aggression or abnormal behaviours. Enrichment can't be given every day to every animal, but by regularly recording and rotating what device is given and when, it is easier to ensure all animals experience enriching stimuli as regularly as possible.

CREATING A SIMPLE ENRICHMENT DIARY IS EASY

Examples of what to record:

- Date of when enrichment was provided (seasonality can affect reactions).
- Staff name (recording responses can be subjective).
- Form of enrichment and if it is new or repeated.
- Animal's response to the enrichment (was it positive, negative or both?)
- Length of time the animal interacted with device.

Monitoring enrichment is important. Review your records on a weekly basis to evaluate if the enrichment has been successful.



Enrichment timetable

Rating at end of day: 1- 5

1 = Not used at all, 5 = frequently used/device empty.

Date	Type of enrichment	Rating
Monday	Feeding device	5
Tuesday	Boomer ball	3
Wednesday	Scratching post	4
Thursday	Scent trial	1

What to Include in a diary:

- Behaviours you want to maximise in that species.
- Behaviours you want to minimise in that species.
- Materials that are safe to use, natural, unnatural, substrate, olfactory, foods.
- Materials to avoid or monitor e.g. sharp logs, plastics, potentially toxic plants.

SUMMARY

An animal will thrive in captivity if the zoo environment offers environmental choices that allow the animal to express normal behaviours that it feels motivated to undertake. Species-appropriate stimuli, enclosure design and infrastructure helps animals express their behavioural needs. The way in which food is presented is also very important, based on the natural feeding habits of that species.

Enrichment is extremely important to encourage natural behaviours and good welfare. However, enrichment is not a replacement for a natural exhibit. Enrichment is easy to carry out and should be part of your daily animal care routine. It should help provide choice and control to an animal over its environment and set challenges that stimulate natural and rewarding behaviours. Enrichment should not over stimulate or encourage aggressive behaviour and needs to be carefully monitored at all times.

IMPORTANT POINTS TO REMEMBER

- Choice and control of an environment is very important to an animal.
- All species need challenging stimuli to prevent poor mental states, such as boredom.
- It is easy to implement enrichment into your daily keeping routine at low cost.
- Enrichment is not a substitute for poor enclosure design, a poor diet, lack of health care or any other poor management activities.
- Enrichment should always be carefully monitored to prevent overly aggressive behaviours.
- Always supply enough enrichment to prevent competition.
- Keep track of your enrichment through an enrichment diary that can be shared and used as part of your record keeping.
- Monitoring of enrichment to ensure safety is of paramount importance.
- Enrichment should aim to stimulate natural behaviours.

QUICK QUESTIONS

- **What is animal enrichment?** Define environmental and behavioural enrichment.
- **List 5 reasons why you should carry out environmental and behavioural enrichment.**
- **What is enrichment not?**
- **Describe a way you can provide food orientated enrichment for two species within your zoo.** Would this enrichment item still be effective without the use of food?
- **Can you think of enrichment ideas which you could use for the species you care for?** What factors do you consider when deciding on enrichment tools to use?
- **What activities should you monitor when providing enrichment?**
- **How could you record and evaluate the enrichment you are giving?**

ACTIVITIES



YOU HAVE BEEN ASKED TO DEVELOP AN ENRICHMENT PROGRAMME FOR THREE BEARS. CREATE AN ENRICHMENT DIARY THAT WOULD HELP YOU MONITOR AND EVALUATE THE ENRICHMENT YOU PROVIDE. THINGS TO CONSIDER:

- **WHAT SPECIES-SPECIFIC NEEDS DO THESE BEARS REQUIRE? CONSIDER BOTH THE INTERNAL AND EXTERNAL MECHANISMS THAT DRIVE THIS SPECIES' BEHAVIOURAL NEEDS.**
- **WHAT NATURAL BEHAVIOURS WOULD YOU EXPECT TO SEE FROM THIS SPECIES?**
- **WHAT PERMANENT ENRICHMENT COULD YOU PROVIDE IN THE ENCLOSURE TO ENCOURAGE NATURAL BEHAVIOURS? THINK ABOUT SUBSTRATE, REFUGE, CLIMBING AND TEMPERATURE VARIATIONS**
- **WHAT ENRICHMENT DEVICES COULD YOU PROVIDE IN THE ENCLOSURE TO ENCOURAGE NATURAL BEHAVIOURS AND A CHANGING ENVIRONMENT? THINK ABOUT DIGGING, FORAGING, SOCIAL, EXPLORATORY AND PLAY OPPORTUNITIES**
- **HOW WILL YOU MONITOR THIS ENRICHMENT?**
- **HOW WILL YOU EVALUATE WHETHER THIS ENRICHMENT IS SUCCESSFUL?**
- **CAN YOU APPLY ANY OF THESE ENRICHMENT CONSIDERATIONS TO OTHER ANIMALS?**
- **WHICH ZOO STAFF NEED TO BE INFORMED ABOUT THESE ENRICHMENT TOOLS TO HELP ENSURE THEY ARE USED REGULARLY?**



TIGERS ARE FOCUSED STALKERS, SPENDING HOURS STALKING THEIR PREY AND THEN ACTIVELY HUNTING THEM WITH STRONG MUSCLES, SHARP CLAWS AND STRONG JAWS. TIGERS WILL EAT, ON AVERAGE, ONE LARGE MEAL A WEEK. DEVELOP A FOOD ORIENTATED ENRICHMENT PROGRAMME FOR TIGERS THAT CAN HELP PROVIDE FOR THOSE HUNTING INSTINCTS AND BEHAVIOURS.

- **IF YOUR ZOO HOLDS A LARGE CAT SPECIES, HOW ARE THEY CURRENTLY FED? DO YOU THINK THIS MEETS THEIR SPECIFIC FEEDING BEHAVIOURS? CONSIDER HOW OFTEN AND HOW MUCH THE TIGERS ARE FED AS WELL AS HOW IT IS PRESENTED.**
- **HOW CAN YOU ENCOURAGE HUNTING BEHAVIOURS IN CAPTIVITY?**
- **HOW CAN YOU ENCOURAGE THE USE OF THE TIGER'S MUSCLES WHEN BEING PROVIDED WITH FOOD IN CAPTIVITY?**
- **HOW OFTEN DO YOU THINK YOU SHOULD FEED THE TIGERS AND SHOULD THEY ALWAYS BE FED AT THE SAME TIME OF THE DAY/WEEK?**