



BEHAVIOUR & ENRICHMENT

Captive animal husbandry and welfare practice related to animal behaviour

ANIMAL BEHAVIOUR

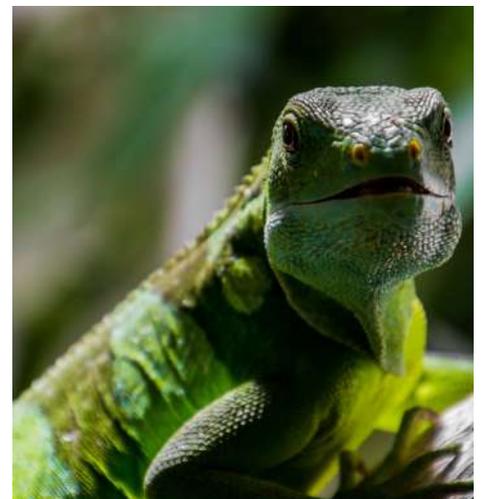
AIMS

To gain knowledge and understanding of:

- What natural, normal and rewarding behaviours are for animals.
- How the expression of normal, natural and rewarding behaviours supports good animal welfare and how this can be encouraged through the provision of species appropriate enrichment.
- How a lack of appropriate environmental and behavioural choices can lead to poor welfare.
- What an abnormal behaviour is, how it can lead to stereotypical behaviours and poor animal welfare.
- How enrichment provision can be planned, undertaken and assessed as part of a programme to promote good animal welfare standards.

OBJECTIVES

- Understand the importance of being able to identify species-specific behaviours.
- Recognise abnormal behaviours and understand their causes.
- Recognise stereotypical behaviours and understand what they tell us about an animal's welfare.
- Understand what good enrichment is and why we provide it in captivity.
- Understand how to provide practical enrichment solutions that encourage normal behavioural expression.
- Understand how a range of internal and external mechanisms help to shape how an animal responds and behaves



REASONING

- To truly provide for good animal welfare, we must understand species specific behavioural needs, why they exist and how to meet them.
- Understanding that behaviour is linked to a species' biology.
- To understand how to recognise abnormal behaviours that indicate poor welfare.
- To understand how to provide for behavioural needs through simple environmental infrastructure and management.

ANIMAL BEHAVIOUR, MANAGEMENT AND ENRICHMENT

How an animal 'behaves' is how it acts or interacts with itself, its environment and others around it. Managing an animal's behaviour and encouraging it to behave in a natural and normal way is vital for both good physical and mental health. Good behavioural management is providing an animal with the space, environment and resources that allow appropriate movement and stimulation to express behaviours as well as giving animals choice so that they can feel in control of their own environment.

Behaviours can be species specific such as brachiation in gibbons to help them move around easily in trees. Some behaviours are more generalist such as digging or climbing which can be seen across a wide range of species. A behaviour is often the result of strong internal motivation and the animal will find the behaviour rewarding to express. If the animal is unable to perform that behaviour it can often lead to frustration and stress. Animals should be able to perform their entire natural behavioural repertoire to prevent poor mental well-being.



More complex social behaviours must also be provided for by housing social species in appropriate groupings. Elephants have a highly complex social hierarchy and thrive from social interaction with other elephants. Elephants housed alone in zoos will undergo boredom, stress and depression. Highly intelligent species such as primates also need a high degree of social interaction and mental stimulation that will encourage natural and rewarding behaviours.



An animal's behaviour can be a good indicator of its mental state (how it's feeling). Abnormal behaviours usually indicate that an animal is not happy or is unhealthy.

Behaviour is how animals express their internal motivations and emotional states, and how they react and respond to their environment. It is always meaningful.

Heather Bacon

WHAT SHAPES BEHAVIOUR?

Behaviour is influenced by a variety of different factors. These factors may be within the animal (internal) or outside the animal (external). These factors include:

Internal factors influencing behaviour	External factors influencing behaviour
Genetics and breeding	Natural history
Anatomy and physiology	Current environment
Health status and biological functioning	Previous environment
Emotional state	Peri-natal environment (the time during gestation and after birth)
Personality	Social structure
Previous learning experiences	
Motivational state	

Genes influence animal morphology, physiology and personality, therefore they will influence how an animal behaves. Health status will influence behaviour because animals that are not physically fit may be unable to express all of their behavioural repertoire. Similarly, if they are experiencing health problems which are painful, they be more irritable or aggressive. Genes will also influence how an animal learns, which will then have an impact on their behaviour in terms of being able to cope with new challenges.

How an animal feels (the emotional state) will also affect how the animal reacts and behaves in any situation. Animals that are experiencing feelings of depression or frustration will react and respond differently to those experiencing feelings of contentment or pleasure. Motivational state also impacts animal behaviour and this can then influence how the animal feels. For example an animal that is highly motivated to perform food-finding behaviour or exploratory behaviour will try to do these things, but if the environment does not allow these behaviours to be expressed, the animal may feel frustrated. This shows that behaviours and emotions are linked and that how the animal behaves and how it feels, and thus its welfare, is dependent upon the interaction of different internal and external factors.



THE NATURAL BEHAVIOURAL REPERTOIRE

A natural behavioural repertoire is a comprehensive compilation of all the behaviours that can normally be seen (and described) for a particular species of animal in the wild. These behaviours will encompass every aspect of the animal's life from breeding behaviours, to food acquisition and social interactions. Repertoires can be useful tools to assess welfare in captivity. The more behavioural activities that can be seen means that more motivational needs are being met in that animal or species. In general, the higher the percentage of the natural behavioural repertoire being expressed will reflect on the standards of animal welfare being experienced.

WHAT SHAPES BEHAVIOUR?

The environment, and especially the peri-natal environment, can influence animal development, physiology and health and have long-term impacts on animal behaviour. Different species will be genetically motivated to behave in a certain way, depending on the environment they have evolved to survive in. These behaviours will persist, even in a captive setting. An animal will behave differently in a static, limited enclosure that lacks opportunities to express meaningful behaviours than in an environment that allows these highly motivated and evolve behaviours to be expressed. Social situations will also impact animal behaviour – for example in situations where there is social conflict, animals may show more aggressive or fearful behaviours, whereas in compatible social groups we may see behaviours such as social grooming or co-sleeping.



The immediate environment (i.e. the surrounding environment) will affect how an animal feels and reacts. For example, loud noises during peak visitor time can cause stress. How the animal reacts and responds to that environment is also dependent on its genetics and mental state.

When we consider an animal's behaviour, we should always focus on the interaction between both the internal and external mechanisms, and how they influence how an animal behaves and reacts.

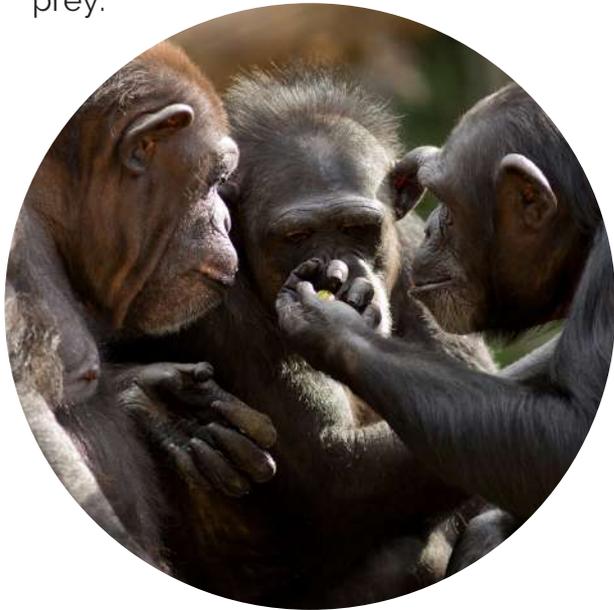
Q: What environmental external factors do you think might be shaping an animal's behaviour within your facility?



EXAMPLES OF ADAPTIVE BEHAVIOURS

Just like humans, animals have evolved to perform certain behaviours that help them cope and thrive in specific environments. This is called behavioural adaptation.

Cuttlefish have the ability to change their colour and pattern in order to blend into their surroundings. They can detect the light and colour within their surroundings then use that information to mimic it with their own pigments. They have 3 skin layers which can be stretched in different ways to make unique colours and patterns. Together, these features allow cuttlefish to escape predators, as well as sneak up on unsuspecting prey.



Chimpanzees evolved in complex environments that require cooperation and the evolution of large brains to avoid predators and find food. As a result, they live in complex communities with intricate communication techniques that allow them to live both a ground and tree dwelling lifestyle in large groups.

Kangaroo rats have adapted to survive in the desert by getting all the water they need from the seeds that they eat. With few places to hide in the desert, they also have incredible hearing and can jump up to nine feet, which helps them avoid predators.



Photo by Alan Hill



Crocodilians are semi-aquatic and exhibit a range of behaviours, including investing large amounts of energy in parental care. They create a nest from soil and vegetation and guard the eggs during the incubation period. Mothers then move babies from the nest to the water when they hatch and guard them in the water for weeks and sometimes months.

DEFINING BEHAVIOURS

Natural behaviour has been defined as a behaviour that is:

"Typically observed in the wild; it is adaptive in the evolutionary sense...(i.e.) has evolved by natural selection which allows an individual to survive more easily in its particular environment and so gives it a better chance of leaving offspring than an animal not so adapted" (Poole, 1988, p. 3).

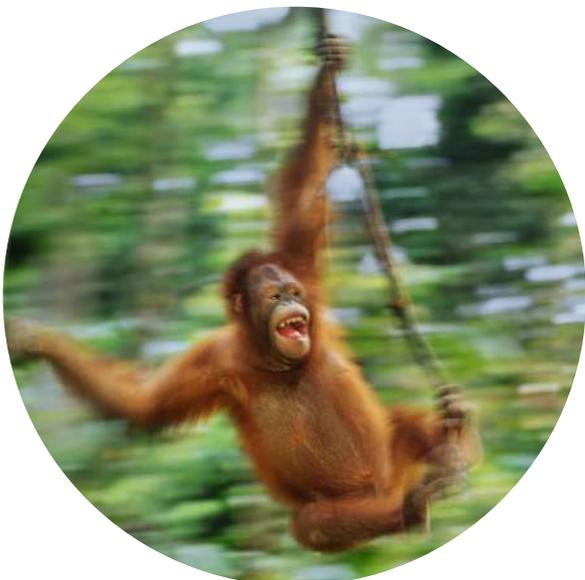


Unnatural behaviour is defined as a behaviour that is:

"Not seen in the wild. Not all unnatural behaviours are regarded as abnormal, however, as they may promote success within the captive environment" (Poole, 1988 p. 3-4).

Normal behaviour will:

"Promote the success and survival of the individual and its genetic contribution to the population" and is "clearly appropriate to the particular situation". It may also "be either natural or unnatural" (Poole, 1988, p. 4).



Abnormal behaviour is defined as a behaviour that is:

"Rarely seen in wild populations and does not promote the success and the survival of the individual or its close relatives (i.e. it does not increase fitness). It appears not to be goal oriented, so that its function is not apparent." It "may include elements of normal activities, but they are performed in an inappropriate fashion" (Poole, 1988, p. 4).

ANIMAL BEHAVIOURS AND THE CAPTIVE ENVIRONMENT

FRUSTRATION

Animals evolve specific skills and behaviours to survive in the wild. If the zoo environment does not allow these natural behaviours to be expressed, an animal may become frustrated.



STRESS

Animals are kept in zoos where the environment is different to the environment the animal has evolved and adapted to. This different environment can be stressful for the animal because it does not have the necessary behaviour or physiology to cope with a new environment.



THRIVING

If the zoo environment offers environmental choices that allow the animal to express its natural and normal evolutionary behaviours in an environment design for species specific needs, an animal can thrive.



GOOD BEHAVIOURS TO ENCOURAGE

Strongly motivated behaviours should **always** be encouraged. These can be encouraged through appropriate enclosure design, food presentation and diet, social interactions and environmental and behavioural enrichment. Some examples of behaviours that should be encouraged include relaxation, exploration, care-seeking and giving, grooming, foraging, nesting, digging, climbing and play.

Q: Can you recognise natural behaviours in the animals you care for? Which behaviours do you think are the most important to the animal?



If an animal is maintained in an unsuitable environment it will be frustrated and stressed.

*This can often lead to behaviours called
STEREOTYPIES*

ABNORMAL BEHAVIOURS

Abnormal behaviours usually evolve from normal behavioural patterns, becoming abnormal. A stereotypical behaviour is an example of an abnormal behaviour and described as a **repetitive** or ritualistic movement, posture or even vocalisation.

A stereotype is usually recognised as being less flexible than a normal behavioural pattern, more rigid and carried out even when there is no stimulus for it. A stereotype is a symptom. It demonstrates that the animal is **not coping** with its environment. To improve conditions, an animal carer must address the underlying cause.

Rays and sharks in aquaria often demonstrate abnormal behaviours, the most common of which is surface breaking behaviour (see photo). The individual will repeatedly lift the front of its body out of the water. This behaviour is not seen in the wild. In some fish species, abnormal behaviours can be symptomatic of diseases being present in the individual demonstrating the abnormal behaviour.



As an animal carer you need to be able to recognise abnormal behaviours by first understanding what natural and normal behaviours are for that species. Using this knowledge and assessing what the motivations of that animal are, you can understand if a particular behaviour is not normal for that species or individual and is possibly a stereotypical behaviour.

Examples of abnormal behaviours

- Repetitive hair pulling
- Repetitive body scratching
- Repetitive bar licking
- Frantic activity levels (may be indicative of stress as well)
- Lethargy (for unusually long periods of time)
- Fence pacing (with no end goal)
- Head weaving
- Body rocking



Tigers have a large territory in the wild. In captivity they will naturally spend a large part of their day walking around their enclosure to mark their territory. However, if this behaviour is repetitive and without a purpose, it can be considered a stereotype. Animals perform abnormal repetitive behaviours due to changes in their brains that occur as a response to chronic stress, frustration or pain. These experiences lead to the release of chemicals in the brain to help the animal cope. In an attempt to generate more of the chemical, the animal will perform the behaviour more. Because of this, it is important to prioritise prevention of abnormal behaviours instead of cures.

Q: Can you recognise stereotypical behaviours in the animals you care for?

Why do you think this abnormal behaviour is occurring?



HOW CAN WE ENCOURAGE NATURAL AND REWARDING BEHAVIOURS IN CAPTIVITY?

In captivity, a happy animal will exhibit a range of normal, natural and rewarding behaviours. An unhappy animal will consistently exhibit abnormal and stereotypical behaviours. Knowing what is normal and natural for the species you care for is very important. Many species, including humans, have the same basic needs. Eating, sleeping, locomotion, appropriate socialisation and appropriate environment are all basic behavioural needs. Ensuring these, and the more species specific needs are consistently being met will help promote good welfare.

Remember!

Different Species can have different behavioural needs based on their internal and external mechanisms. For example, different species of snakes will interact with their environments differently depending on their morphology, where they evolved and their current mental state (how they're feeling). Some species of snake are arboreal whereas some live in sand. Both behave differently due to their environment.

We must consistently provide opportunities for the animals to be able to carry out natural and rewarding behaviours whilst ensuring they remain free from injury and in good physical health.



EXAMPLES OF BEHAVIOURS TO ENCOURAGE IN DIFFERENT SPECIES



- Group socialising
- Trunk manipulation
- Dust and water bathing
- Foraging
- Cognitive use



- Foraging/investigating
- Nesting
- Climbing
- Olfactory use (smelling and marking)
- Grooming/rubbing



- Partner socialising
- Flight and bipedal movement
- Foraging
- Cognitive Use

COMFORT, CHOICE & CONTROL

We should provide environments that promote positive feelings, including contentment and satisfaction, that are derived from opportunities to express behaviours. A good environment is not an environment that looks natural but one that promotes natural and rewarding animal behaviours.



COMFORT

Ensuring an environment is comfortable means you are creating a satisfying social and physical environment. This includes:

- Rewarding social interactions.
- Providing secure places for the animals to hide.
- Appropriate temperatures and humidity.
- Comfortable spaces using soft substrates.
- Rewarding eating and drinking opportunities.

By providing a comfortable environment, you will be able to meet an animal's basic behavioural needs. However it is also important to allow the animal to have choice and control over its environment.



THE IMPORTANCE OF CHOICE

Imagine only ever having one choice of food to eat, or one room to live in, or only one friend to interact with. Just like us, animals enjoy having choices and the ability to choose what they eat, when they eat, where to live and who to interact with. Traditionally, humans control all these aspects of an animal's life in captivity. Removing the ability to choose how to behave can be detrimental to an animal's well-being and it is up to animal carers to ensure as many choices as possible are available to each individual.

WHAT CAN REDUCE CHOICE IN CAPTIVITY?

- A lack of enriching and species appropriate environment (social and physical)
- An unvaried diet fed at the same time
- Animal Restraint such as tethering or public handling
- Animal Shows
- Lack of appropriate social interactions

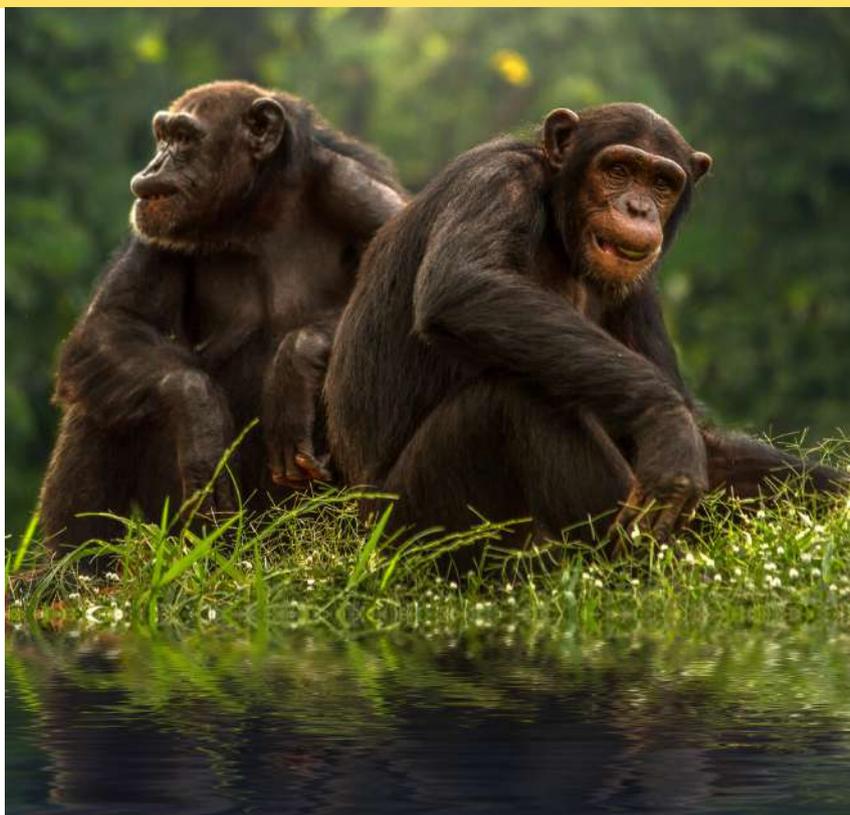
Example: Fennec Foxes are from the Sahara. They are nocturnal and live in burrows or dens during the day. An environment that lacks good denning choices during the day (such as in the photo), can result in chronic stress for the animals



Research has shown that giving animals choice is more important than them using it.

There have been studies that show chimpanzees, gorillas and bears responding positively to being given the choice to be inside or outside. Even if they decide to stay in one place, having the option to choose where they want to be is important to ensure good welfare standards.

Other studies found panda stress levels were reduced when they were given the choice to use an indoor space away from the public view, even when they did not use that space.



Q: How can you offer the animals in your care more choice, comfort and control over their environment?



HOW CAN WE PROVIDE ANIMALS WITH CHOICE?

Below are just a few factors you might want to consider when thinking about how you can provide an animal with more behavioural choices:

Consider how and what you feed them? Do you provide different food options regularly and note which ones they prefer? Do you offer the food in a manner that encourages rewarding feeding behaviours?

Consider whether your animals can move freely around their enclosure (both indoors and outdoors at all times)? Do you provide access to indoor areas (if they exist) all the time? Do you provide opportunities for the animals to hide from each other or the public?

Consider the enclosure complexity? Does the enclosure environment encourage a range of behaviours that the animals can choose from? For example digging in a range of substrate or climbing in different spaces - can they do this at all times?

Consider whether your animals have a range of of temperatures/humidity to choose from? Is there a temperature gradient offered to the animals, i.e. do you provide cool or hot areas which they can choose from depending on how they feel?

Consider if they can appropriately socialise with con-specifics? Can the animals choose who to interact with, do they have a choice who to make friends with and does the environment allow for positive interactions?

CHOICE AND CONTROL

Choice lets an animal react to its environment, whilst control allows the animal to proactively change its environment (Buchan-Smith 2012; Melvin, 2014; Ross 2006).

It is very important for an animal to be able to react to its environment in a manner that feels comfortable. Having control over their environment helps to ensure this.

We can provide control by ensuring there are plenty of species appropriate choices.

We can also provide control by creating environments that can be manipulated by animals - for example automated water sprinklers that only turn on if the animal chooses to walk under it.



Remember, from an octopus to an elephant, all species will benefit from having choice and control over how they can act and react to the environment.

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 that will ideally receive a piece of enrichment each to prevent aggression and promote a stimulating experience for the entire group.



REASONS FOR ENRICHMENT

- Prevents boredom.
- Stimulates investigative activities.
- Encourages natural behaviours.
- Improves visitor experience.
- A rewarding experience for the animal.
- Gives the animal choices.
- Can be used to promote natural feeding behaviours.

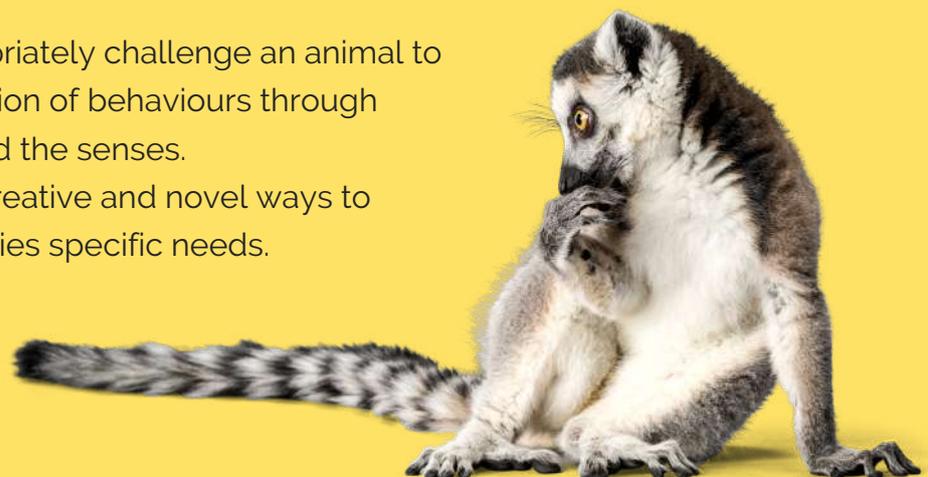
Most enrichment needs to be regularly changed and adapted (some enrichment, such as substrate should be permanent but choices of substrate changed). With this in mind, it is important to consider the following four points.

Choice – enrichment is about creating choices for animals which encourages exploration and provides 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.



UNDERSTANDING SPECIFIC BEHAVIOURAL & PHYSICAL NEEDS

Good animal enrichment requires a thorough understanding of species specific, behavioural and physical needs. **The objective 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 that would be undertaken in the wild



For example, gibbons are arboreal, 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 repertoire.

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

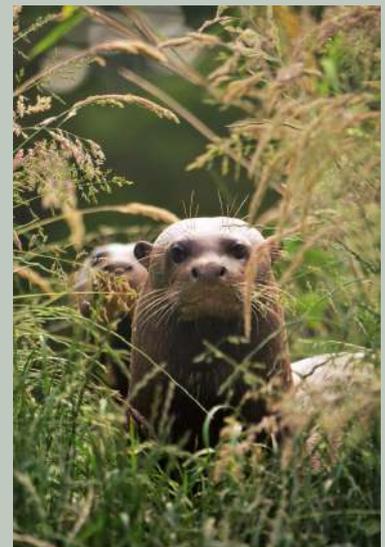


All enrichment items should be changed frequently to maintain novelty.

ENVIRONMENT

A stimulating environment should provide choices and mimic the animals 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 encourages 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 maintain 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?

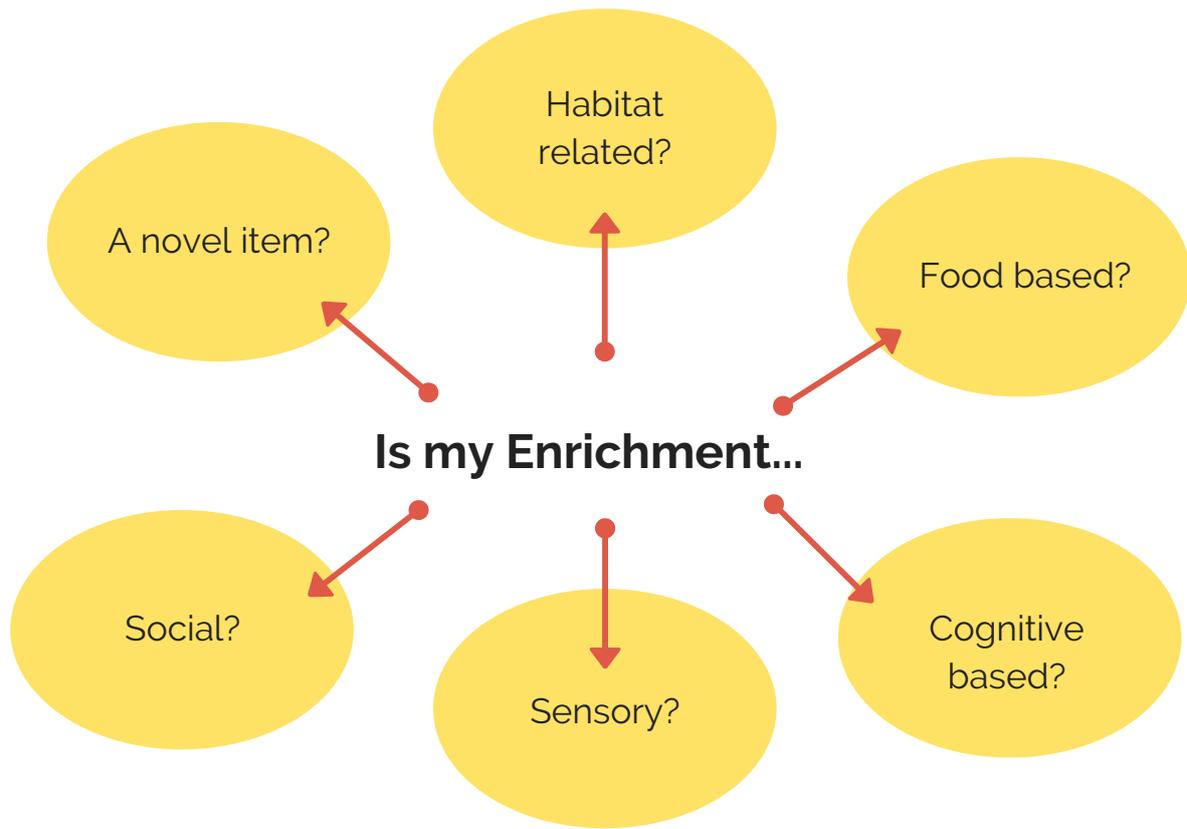
Enrichment is not a substitute for poor enclosure design, a poor diet, lack of health care or any other poor management activities. **It should not be designed to distract the animal for a short period of time, which can result in short periods of interest interspersed with long periods of boredom.**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



Q. What are the 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 tools 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 your enrichment tools, making them more accessible and encouraging their use.



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. Only remove if it is uneaten or becomes too soiled. 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 program 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 change 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 rope, kebab feeds, scatter feeds, food hidden in substrate.

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.

In some cases you will need to consider social 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 is being successful.

RHINO ENRICHMENT TIMETABLE

RATING AT END OF DAY
 1- NOT USED (DEVICE NOT TOUCHED/MOVED)
 2
 3- SOME INTERACTION (SOME FOOD TAKEN/MOVED LOCATION)
 4
 5- FREQUENT USE (DEVICE EMPTY/ MOVED LOCATION)

TYPE OF ENRICHMENT	DATE	WHAT WAS GIVEN	RATING 1-5	COMMENTS (WHICH ANIMAL INTERACTED, W OBSERVED INTERACTION)
FOOD	S			
NOTHING	S			
NOTHING	M			
NOTHING	T			
MANIPULATIVE	W			
NOTHING	T			
NOTHING	F			
MANIPULATIVE	S			
NOTHING	S			
SENSORY	M			
NOTHING	T			
NOTHING	W			

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, potential toxic plants

SUMMARY

Encouraging natural behaviours that animals feel motivated to express is extremely important for good animal welfare. Behaviour is how animals express their internal motivations and emotional states and how they react and respond to their environment – it is always meaningful. 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. Abnormal and stereotypical behaviours are a result of poor management and care, and can lead to very poor welfare, as well as frustration and suffering.

Species appropriate stimuli and 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

- Natural, highly motivated behaviours are species specific and are important for a happy and healthy animal.
- Choice and control of an environment is very important to an animal.
- Social interaction is not only enriching for social species but necessary to ensure good welfare.
- Highly intelligent 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 behaviour.
- 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

QUICK QUESTIONS

Behaviour Basics

- **What is animal behaviour?** Create a short statement you would use to describe animal behaviour to your colleagues or team
- **Define natural, unnatural, normal and abnormal animal behaviours.**
- **Do you understand what natural behaviours should be being expressed in the different animals you care for?** Consider two different species in your zoo and list at least 5 different natural behaviours you would expect to observe in these species.
- **What are the internal and external mechanisms that shape an animal's behaviour?** Choose one species and consider what behaviours evolved as a result of the natural environment.
- **Choose an animal you care for and list possible natural behaviours that you should observe in that individual.** Consider whether they have opportunities to express these natural behaviours in their current environment at ALL times?

Abnormal or Stereotypical Behaviours

- **Can you recognise unnatural or abnormal behaviours in any of the animals you care for?** Name the species and list the possible reasons why those behaviours are being expressed. Does the current enclosure restrict these behaviours and how?
- **What can abnormal behaviours in animals indicate?** Consider what different abnormal behaviours observed in the animals might be telling us.
- **What is a stereotypical behaviour and what can it tell us about the animal?** Choose one example of a stereotypical behaviour in a species and describe why you think this behaviour arose.

Enrichment

- **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?**
- **What are the four C's in enrichment?**
- **Describe a way you can provide food orientated enrichment for two species within your zoo.**
- **Could you think of any other enrichment ideas 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



CHOOSE AN ANIMAL (OR GO TO AN ENCLOSURE) AND WRITE A LIST OF BOTH THE NORMAL BEHAVIOURS AND ABNORMAL BEHAVIOURS YOU OBSERVE. WRITE DOWN 5 SHORT-TERM CHANGES AND 5 LONG-TERM CHANGES YOU WOULD MAKE TO THE ENCLOSURE TO ENCOURAGE MORE NATURAL BEHAVIOURS. THINGS TO CONSIDER:

- **WHAT SPECIFIC BEHAVIOURAL NEEDS DOES THIS SPECIES OR INDIVIDUAL REQUIRE? HOW DO YOU KNOW? CONSIDER WHAT YOU WOULD OBSERVE IN THE WILD.**
- **ARE THE ABNORMAL BEHAVIOURS DUE TO ENCLOSURE DESIGN/FOOD/INFRASTRUCTURE OR ALL THREE?**
- **HOW WOULD YOU ENSURE THE SAFETY OF THE ANIMALS AND STAFF WHEN MAKING THE CHANGES?**
- **REMEMBER BOTH INDOOR AND OUTDOOR AREAS SHOULD BE CONSIDERED.**
- **WHAT MAINTENANCE WOULD BE REQUIRED TO THE CHANGES MADE?**
- **HOW DO YOU THINK YOU COULD PRESENT THESE IDEAS TO YOUR SUPERVISOR?**



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

- **WHAT SPECIES SPECIFIC NEEDS DO SUN 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?**

ACTIVITIES



CHOOSE ONE SPECIES IN YOUR ZOO AND CONSIDER BOTH THE INTERNAL AND EXTERNAL MECHANISMS THAT SHAPE THE ANIMALS BEHAVIOURS. LIST 1) SOCIAL NEEDS, 2) FEEDING NEEDS, 3) SLEEPING/RESTING NEEDS, 4) HOW NEEDS DIFFER DEPENDING ON AGE AND SEX OF THE SPECIES. DISCUSS IN A GROUP IF THESE NEEDS ARE BEING MET WITHIN YOUR ZOO AND WHAT IMPROVEMENTS COULD BE MADE?

- **WHAT ENVIRONMENT DID THIS SPECIES EVOLVE IN? CONSIDER FACTORS SUCH AS THE TEMPERATURE, HUMIDITY, COMPETITION, PREY/PREDATOR INTERACTIONS, STABILITY OF THE ECOSYSTEM**
- **AS A RESULT OF THE ENVIRONMENT, WHAT, IF ANY, ARE THE SPECIES SOCIAL NEEDS?**
- **HOW LONG DOES THE SPECIES SPEND FINDING FOOD IN THE WILD?**
- **WHAT DOES THE ANIMAL USE TO LOCATE AND CONSUME FOOD IN THE WILD?**
- **IS THE SPECIES PREY, PREDATOR OR BOTH? HOW DOES THIS IMPACT ITS BEHAVIOURS?**
- **WHAT COGNITIVE ABILITIES DOES THIS SPECIES HAVE? HOW CAN YOU APPROPRIATELY CHALLENGE THESE IN CAPTIVITY?**



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 TIGERS, 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 THEIR 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?**