

Enrichment Portfolio for Bears

*Supporting Good Animal
Welfare for Bears in Captivity*



The goal of this enrichment portfolio is to provide easy guidance for the development of enrichment ideas that will improve bear welfare in captive situations.

Enrichment can **enhance the zoo environment for an animal**, encouraging them to explore & interact with their surroundings.

Enrichment also **enhances the visitor experience** as the animals show more natural behaviours and are much more active.

Enrichment is not a replacement for a natural exhibit and the best form of enrichment is to house them in a naturalistic environment. The best form of enrichment is a combination of natural features and an intensive enrichment program

Choice – enrichment is about creating choices for animals so they are in greater control of their environment.

Change – while some enrichment requires regular changes, other forms need to be the same every day. Either way, variety is important

Create – enrichment is increasing the complexity of the environment that is meaningful to the animal's genetic & behavioural needs, is species relevant and addresses specific species needs.





Enrichment for Bears Can Be....

Olfactory – About different
SMELLS

Gustatory – About different
TASTES

Manipulative – About
INTERACTIONS with the
environment (within
enclosure)

Exploratory– About
CHANGES to the
environment (within
enclosure)

Why is Enrichment Good? Animals with good mental health will engage with their environment more, be less aggressive, less fearful and more peaceful. They are more exploratory and at ease with their surroundings. Enrichment can support this positive mental welfare and encourages natural behaviours 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.

While enrichment is an important aspect of positive animal welfare, it alone cannot compensate for sub-standard care.



Bear Natural Behaviours

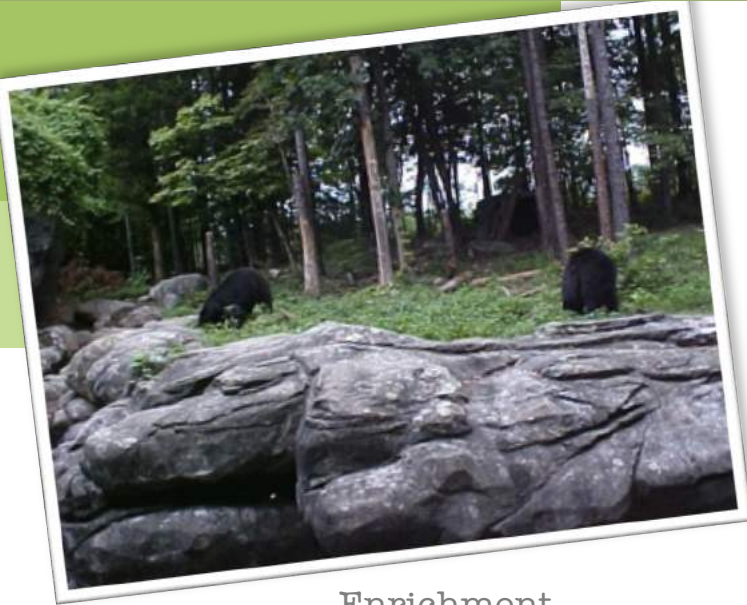
The key behaviors to encourage in bears are:

Exploratory/Foraging

Nesting/Rolling

Olfactory (smelling and marking)

**Grooming/Rubbing/Scratching/
Bathing**



Enrichment encouraging species-specific behaviours. Any enrichment given should have target behaviour(s) in mind. Foraging is the easiest behaviour to encourage and it is the behaviour that bears would spend the most time doing. Making the bears 'work' for all of their diet and not get anything free is the best way to increase natural behaviours throughout the day.

Animals Considered for this Enrichment Portfolio

Brown (Grizzly) Bears (*Ursus arctos*)

Black/Asiatic Bears (*Ursus americanus/thibetanus*)

Polar Bears (*Ursus maritimus*)

Also possible for Sun bears (*Helarctos malayanus*) and Sloth Bears (*Melursus ursinus*)



Always consider the safety of the animals and keeping staff before embarking on an enrichment programme

- Bears can become entangled in ropes, chains and other hanging apparatus – ropes and chain must be covered in smooth tubing such as hose
- Bears can fall while trying to reach enrichment placed high up
- Dietary enrichment consisting of inappropriate bear foods can lead to tooth decay, obesity, allergic reactions, impaction, diarrhoea, choking or aggression from cage mates
- Some items, or pieces of them, may be toxic or hazardous if ingested - bears that have not been exposed to enrichment items before must be slowly introduced to new objects over a few weeks and carefully observed
- Objects, if broken, can produce sharp edges that can cut animals
- Stimulating enrichment may increase aggression or harassment by cage mates if there are not enough enrichment objects for each bear – there must always be enough enrichment objects for each bear so as to reduce competition
- Plants or parts of plants may be toxic to animals. Prior treatment of plants with pesticides or fire retardant chemicals can be toxic – thus all plants must be assessed for natural or man-made toxicity
- Adding enrichment (items) may put a keeper in a compromised situation if the appropriate due diligence isn't followed. Ensuring the safety for both staff and animals is paramount.
- Dietary enrichment may result in the animal not eating important nutritional components of its regular diet – enrichment foods must also be included within the main diet – this avoids the pick and choose feeding leading to a reduction in nutritional main food diets
- Parasites may be transmitted through food – all foods must be assessed for likely parasitic activity





Avoiding aggression is important when providing enrichment. Providing enrichment will stimulate the bears. If not enough enrichment is provided for ALL the bears, this can lead to aggression.

It is important that enough enrichment items are provided for all bears.



How?

Providing enrichment in a number of different areas of the enclosure

Providing enrichment regularly and often

Ensuring different enrichment tools are used simultaneously, for example food and infrastructure enrichment can be used together

Remove any enrichment that causes injuries

When to introduce Enrichment for bears

When first introducing enrichment to bears it needs to be done slowly. New items need to be introduced over several weeks at a time to avoid fights or nervousness. When introducing new items there must be enough for each bear to avoid competition.

Consideration must be given to the age of the bear. Old bears may be arthritic or have tooth problems, while young bears who have been removed from their mothers early will still be relatively unsteady on their feet. Consider enrichment that accommodates age appropriate needs.

Consideration must also be given to social groupings. If bears are held in large groups, enrichment may stimulate aggressive or dominant behaviours. Careful observation can ensure enrichment is given or removed at appropriate times.

Enrichment should be given to ALL bears. Bears not on display or in quarantine will especially benefit from enrichment due to their confinement. All enrichment outlined below can be used for these bears too.



Enclosure Essentials



Three Dimensional Environment - Platforms and logs allow bears to climb, rub and explore

Soft Substrate - allows bears to roll and rest

Sufficient Water - allows bears to cool down, bath and play

Hides - bears like to be able to retreat from public view of the public at times and also from each other. Man-made hides or giant logs and boulders are essential for this purpose.

Multiple Feeding Options - ensures bears explore, reduces boredom and uses of all their enclosure - bears should receive 3 feeds through the day. Scatter feeds can be thrown in regularly.



Above: Bears enjoying natural environments and deep, clean water at Bear Mountain, Hokkaido Kamikawa, Japan



Photo: The North Carolina Zoo



Enrichment Choices

Enrichment choices in order of importance:

Food and Food Presentations

Substrate

Novel Objects (Natural)

Novel Objects (Unnatural)

All of these include NO EXTRA COST choices and can easily be included into a daily routine

Substrates

Behaviours it encourages

Foraging for food

Grooming

Exploratory

Variations

Soil or mulch can be used as a permanent base substrate. Piles of leaves, mulch, shredded paper and straw can be added on a regular basis

Make sure the substrate is deep enough for the bears to roll in and encourage digging by hiding food stuffs.

Notes

Keeping the substrate to a corner of the enclosure means it is easier to clean up

NO COST

Piles of leaves from surrounding forest

Soil dug from surrounding forest

Grass clippings

Types of Substrates:

Grass clippings

Leaves

Mulch

Sand

Soil

Shredded paper

Straw/Hay

Wood shavings/chips



**Above: Bears
investigating piles of
soil at the North
Carolina Zoo. Below:
Polar bear enjoying
man-made snow at the
North Carolina Zoo**



Novel Objects (Natural):

Large logs

Rotting logs

Pine tree

Piles of branches

Ropes

Swings

Log feeders

Hessian sacks

*Natural smells
(urine/droppings
from other
animals)*

NO COST

*Logs from surrounding
forest*

*Pines, branches,
browse, natural smells*

***HOT TIP: Use
decomposing or fresh
logs. Throw in a pile or
strap to climbing frame
for added climbing
infrastructure***

Novel Objects - Natural

Behaviours it encourages

- Foraging for food
- Exploratory
- Grooming/Rubbing/Scratching
- Smelling/Marking

Variations

Decomposing logs with bugs in them can be used to encourage foraging.

Large permanent logs are good for climbing and grooming, while smaller piles of logs work well for hiding foods in them, and can be regularly changed

Hanging ropes, sacks filled with scented straw and food encourages exploration

Notes

Keep an eye out for very sharp branches that may cause injury. Remove if seen.



Large boulders and trees provide a natural environment at Bear Mountain, Japan



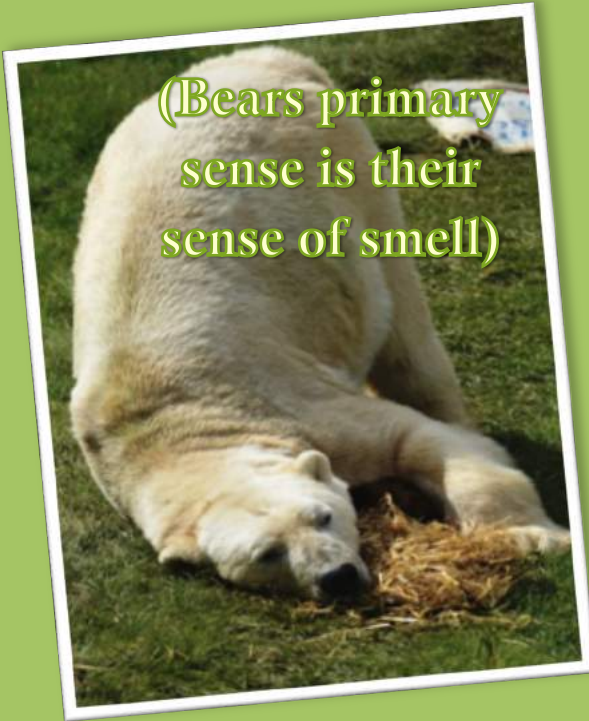
Right: A tree stump with a stone in it, which the bear has to remove to reach food (*Four Paws International*)

Below: Simple piles of logs can encourage exploration and play

Below: Old and rotting tree stumps and logs can be used to enrich an environment, the North Carolina Zoo



Olfactory - Scents sprayed around enclosure



(Bears primary sense is their sense of smell)

Photo: Polar Bear
playing with scented
straw in a bag. Yorkshire

Behaviours it encourages

Manipulation
Reaching/Pulling
Exploratory
Foraging
Rolling

Variations

Open or tied up
On floor or hung up
Containing substrates, scents or food

Notes

Be careful about what is used to tie up the open end of any bags

Behaviours it encourages

Exploration
Scent marking/rubbing
Rolling

Variations

Different smells such as perfume, poo, body sprays, herbs, spicy powders etc can be used
Urine or droppings from other species can be used (check with vet before use)

Notes

Some scents will need watering down – always check for toxicity of products used



Foraging - Paper/Hessian sacks

Use old food sacks and fill with scented straw, and dried fruits – it's fun to watch bears investigating and pulling apart. (Yorkshire Wildlife Park)

Types of Food presentation:

Food in Ice buckets

Food hidden in logs

Food hidden in
cardboard boxes

Spreading food on
logs

Hanging food on rope

Food hidden in
Hessian sacks

Food hidden in
substrate

Kabocha/Pumpkins
hung up

NO Cost

*Donated jars of honey, peanut
butter, yogurt*

Hiding food in holes in logs

Iced food in buckets

Foods and Food Presentation

Behaviours it encourages

Foraging

Exploratory

Playing

Variations

Scatter, hang or hide food to encourage foraging

Use substrates (e.g. pile of leaves) to hide food

Notes

Ensure foods are presented in a number of different places when given to large groups of animals to avoid competition and aggression. There must always be enough for each bear and must be reachable by all bears



A bear investigating a log filled with straw and food at the North Carolina Zoo

Boxes with food substrates



Photo: Yorkshire Wildlife Park (UK)

Fantastic visitor attraction Use old cardboard boxes and fill with straw and small food items hidden in the straw . MUST always include a food source in the lunch boxes and lunch bags – otherwise the bears will eat the paper/cardboard

Variations

Sticks or mesh across the box to restrict ease of exploration

Hung up or on the floor

Add smells to the box

Leaves, straw, shavings (or empty)

Notes

Buckets hung up also work well

Ice Pops



Fantastic visitor attraction – easy to make and particularly good during the summer. Simply place fruits or other foods in water and freeze over night.

Behaviours it encourages

Manipulation

Reaching/Stretching/Gnawing

Cooling Down

Variations

Blood pops for carnivore species (or fish blocks)

Add seeds/fruit pieces or natural flavour such as orange juice or yoghurt

Notes

Freeze with rope in middle to hang up more easily.

To avoid competition make one for each bear within the enclosure

Pumpkins!



All bears love pumpkins. Kabocha can also be used. Cheap and easy to add to the enclosure. Visitors can get involved by carving their own shapes into the pumpkin

Behaviours it encourages

Manipulation

Investigative

Hiding inside

Variations

Can be hung up/used to hide other food inside.

Whole watermelons also very effective

Coconuts can also be used

Notes

Monitor how much is consumed



Drilled Logs, Pit Falls, Honey and Peanut Butter!

NO COST! Dig a shallow hole in your substrate and add food. Cover with leaves/twigs/branches. The bears have to “fish” for the food!

NO COST! Spread honey or peanut butter on logs around the enclosure to encourage foraging and exploration!

NO COST! Drill holes into logs and fill with honey/yogurt/kibble. Place in enclosure and watch the bears lick out the treat!



Drilled holes filled with honey. Wildlife SOS Agra Bear Sanctuary, Bear exploring tire stuffed with straw and treats at the North Carolina Zoo, Top left – Bear exploring hollow log with straw, the North Carolina Zoo

Novel Objects - Unnatural



Behaviours it encourages

Exploratory

Playing

Variations

Scatter, hang or hide food to encourage foraging and climbing

Offer plenty of options to avoid competition

Notes

Ensure objects are removed if being eaten.

NO COST

Empty food bags (Not Plastic)

Donated deodorants

Donated tires

Pre-used barrels, old buckets and used boots

Novel Objects (Unnatural)

Barrels

Tubes

Buckets

Drain covers (heavy duty plastic)

Feathers

Boomer balls

Boots (Steel toe and insoles removed)

Man-made smells (perfume/deodorant

Tires

Drums

Traffic cones

Nylon net

Fire hose toys

Old footballs (Boomer balls are better!)

Simple Platforms



Photo: Bears at
Hanoi Zoo
enjoying multi-
level platforms,
Animals Asia
Foundation

Notes

Ensure they are built well
and are sturdy enough to
hold a number of bears at
one time

Behaviours it encourages

Allows bears to get off the
ground

Gives the bears the ability to
smell their surroundings
Manipulation/Exploratory

Foraging

Rolling/Resting

Variations

Placing food on different
levels

Adding car tyres to swing on

Adding scents to different
levels

Water - Barrels

Behaviours it encourages

Manipulation

Reaching/Stretching

Cooling Down

Variations

Treats that float or sink

Rafts/barrels on water



Photo: Yorkshire
Wildlife Park

Notes for Water Baths

Be careful of the depth of water in relation to
size of animal. Always provide a way out of
water using rocks to create natural ladders.

Tires



Behaviours it encourages

Manipulation

Investigative

Playing

Variations

Just add to enclosure for play or hang by a sturdy rope

Notes

Ensure ropes are secure to avoid breakages. Cover with plastic such as a hose to avoid accidents

Fire Hose Hammocks

Behaviours it encourages

Climbing

Exploratory

Resting/nesting

Variations

Use to hide food in or as climbing/resting equipment

Notes

Clean and check for wear and tear regularly to avoid breakages that may cause injury



Hot Tip!

Hammocks attached to other climbing frames create a 3D moving environment for the bears to explore and fun for visitors to watch!

Bottles/Barrels



Behaviours it encourages

Manipulation

Investigative

Stretching/reaching

Variations

Holes for pellets/browse

Smeared treat at bottom of pot

Notes

Ensure holes are smooth. If made of plastic ALWAYS keep an eye on them to avoid ingestion.



Hanging Water bottles on sturdy chains encourage exploration and movement. Ensure enough are given so that each bear has an opportunity to explore. Visitors love to watch the bears investigate! (Photos: Yorkshire Wildlife Park)

Getting the Visitors Involved

As an alternative to public feeding, getting visitors and children involved in creating the enrichment tools is fun and interesting too! It also means keepers have a ready supply of enrichment opportunities and the visitors understand more about bear welfare.

FUN & INTERACTIVE!

Create Food Logs for the Bears

Provide small logs with pre-drilled holes in them. Give different food options that can be put in the holes by visitors (for example, honey, berries, peanut butter, yogurt, kibble). Show visitors how the logs are used to encourage natural behaviour in the bears. **OR** simple provide logs (without holes) that visitors can paste (Use flour or water paste which is non-toxic) different foods over (see above) for enrichment feeding. Visitors must NOT throw the logs at the bears.





Photo: pouring
honey (Vier-
pfoten)



Create a Pumpkin for the bears

Ask your visitors to draw pictures (using edible dye) on pumpkins that can be fed to the bears for enrichment. **Great way to get visitors involved with the park.**

Buy a Tube for the bears

Visitors can buy a simple cardboard tube and fill it with straw and a chosen food product mixed into the straw. For example grapes, kibble, berries. These tubes can be fed to the bears at specific times so the visitors can see them being used.

FAQ's

The enclosure is quite small, how can I make it interactive?

- Although space is important, there are a lot of easy infrastructures and interactive objects that can be added to an enclosure that will positively stimulate the bears, as well as entertain the visitors watching them. A 3D environment can greatly increase the space of an enclosure immediately.

My enclosure has nothing natural in it, is this bad for the animal?

- Natural vegetation and substrate is important and can be simply added. However bears will also find unnatural objects (for example, fake tree logs, traffic cones, hanging tires) interesting and can be combined with natural products such as logs and piles of soil.

My enclosure is hard to access, how do I introduce enrichment?

- There are many enrichment tools on offer, ranging from different feeding opportunities to more permanent fixtures, such as large logs. Although regular changing of enrichment is important, tools can be rotated and changed when possible. For example when bears are brought in to hibernate, fixed enclosure infrastructure can be changed, while feeding tools can be more regularly changed. Scatter feeding is critical to daily enrichment and can be thrown in from the top of the enclosures.

The bears become more aggressive when enrichment is used – is this bad?

- Aggressive and dominant displays are natural, particularly for large groups of captive bears. However it is a concern and should always be taken seriously.
- All enrichment should be monitored and carefully observed, and different enrichment types will work better with different groups of bears. By offering a selection of different enrichment opportunities, you can limit the amount of aggression observed.
- Quantity is very important, there must be enough enrichment for all the bears as this will greatly reduce competition. Any food enrichment should be given in enough quantity so that all the bears can access it, otherwise aggression will occur.

Bibliography and Useful Resources

Animals Asia Foundation - Enrichment Programme CBRC Photo Library - Non-Food Enrichment Items and Enclosure Fixtures

Bear Enrichment Guidelines 2011 AAZK

Black Bear Enrichment - Abilene zoo

Enrichment at Bear Sanctuary Arbesbach - Four Paws

International Zoo YearBook: Enriching the lives of bears in zoos G.Law, A.Reid

Shape of Enrichment: Supplemental Carcass Feeding for Zoo Carnivores

Shape of Enrichment: The Homemade "Univerzoo" Ball

Shape of Enrichment: An Enriching home for Rescued Asiatic Bears Shape 17

Shape of Enrichment: Sun Bear Training promotes Well-Being Shape 6 (4)

Shape of Enrichment: Fire Hose Hammocks for Bears Shape 6 (3)

Shape of Enrichment: Foraging Encouragement for Bears Shape 2 (2)

Shape of Enrichment: Utilizing Young Visitors for Behaviour Enrichment



Author: Georgina Allen, Wild Welfare georgina@wildwelfare.org

Edited By: Chris Lasher, North Carolina Zoo

The Bear Care Group (www.bearcaregroup.org)

