

THE LIVING ANIMAL AND ITS EXHIBIT AS INTERPRETOR : EXHIBITION TECHNIQUES IN MODERN ZOOS

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The Role of Conservation in Zoos

The captive breeding of endangered species is important but not the primary function of conservation in zoos. Zoos should use the endangered species displays as a 'spring board' to educate visitors or guests about the plight of their wild counterparts. Often interpretive graphics and animal demonstrations can achieve this.

Animals in zoos can thus be considered as ambassadors of their wild counterparts. Zoos are for people and not for animals. Animals did not ask to be placed in captivity. However, since we are using them for conservation education, it is our duty to ensure that we treat them with respect, compassion and accord them the dignity they rightfully deserve.

The Purpose of Naturalistic Animal Exhibits

Even without any formal interpretation, a lot can be imparted to the viewer about the animal by the surroundings in which it is displayed. This is where exhibit design plays an important role.

Animal exhibits should replicate nature and the ecological niche of the species as closely as possible. Mixed exhibits, display of mammals, birds, reptiles, fishes and invertebrates are ideal as they convey the message to viewers that animals and plants live together in ecological balance in nature.

Animal Exhibit Design Principles

The ultimate objective in the design of an animal exhibit is to give the viewer the 'illusion' that they have 'encountered' a group of animals in the wild. It is only an illusion and of this the visitors are aware - but the use of illusion, even for 5 seconds makes the experience more enriching.

An animal exhibit has a foreground, middle ground and a rear ground. The barriers in the foreground and rear ground should be invisible. The barriers on the sides of the middle ground should also be invisible.

Foreground

The foreground is where the viewer stands on a path and where the front barrier is located.

Vegetation and natural features like rocks and fallen trees should be the same as the viewers side and in the animal exhibit to create 'landscape immersion, or 'visual integration'.

The front barrier should be invisible, preferably a moat or sheet of glass. In a moat, careful attention should be given to the sight lines.

Middle Ground

The middle ground is where the animal will be displayed to the viewer. This is where necessary features of its ecological niche both functional and aesthetic are located. There should be pools, rock features, trees, vegetation, grass areas, sand patches, mud wallows, salt licks etc.

Although the animals should be offered security and comfort away from the viewer, the ultimate challenge for the designer is to ensure that animals are on display anytime a viewer wishes to see them.

Preferably the side barriers should be invisible. Moats can be used or else heavy planting be considered behind and through fences.

Rear Ground

The rear ground addresses the rear barrier and the 'feeling' of depth of the exhibit.

An ideal exhibit should have an invisible moat as a rear barrier and planting beyond the moat to give the feeling of depth and space to the scene. If a fence is used, it should be heavily planted in front and behind to conceal it. Remember it is an illusion that we are creating.

Psychological Restraints

Most barriers for non-dangerous species can be narrower than their jumping distance. There are loosely referred to as psychological barriers. For example, water is a deterrent for some species of primates like the gibbons.

In the wild, many species set up a territory. They are confined to this territory and defend it against intrusion from other animals of the same species. In captivity, the concept of territory can be used to 'confine' animals. Because the territory is for gathering/hunting - as long as food is provided - the size of the territory can be shrunk considerably.

Confining species such as tamarins to a tree using no barriers can be achieved, using this principle of psychological restraint. Attention should be paid to providing a centrally placed den for security and the appropriate ecological niche, i.e. trees and food, water, mates companionship etc.

The animals are confined to the den for one/two weeks. The least dominant animal is released first. After a few days, it is confined and the dominant animal released. Eventually, all the animals are released and hopefully, they stay and set up their territory around the den.

Barrier Types

There are many different types of barriers - some of which are illustrated in the diagrams below. The viewing types are self explanatory and include no text, but only a name, such as "boardwalk viewing", "edge viewing", etc.

With these seven examples of different types of views and thirteen different types of barriers in hand, even a new director or designer may have a set of tools which would allow the creation of a diverse set of enclosure types. It should be remembered that the enclosure style and design should be appropriate for the behaviour and biology of the animal. Taking the advice of field biologists or forest rangers and officers who have spent time observing wild animals can be invaluable for planning and checking exhibit designs.

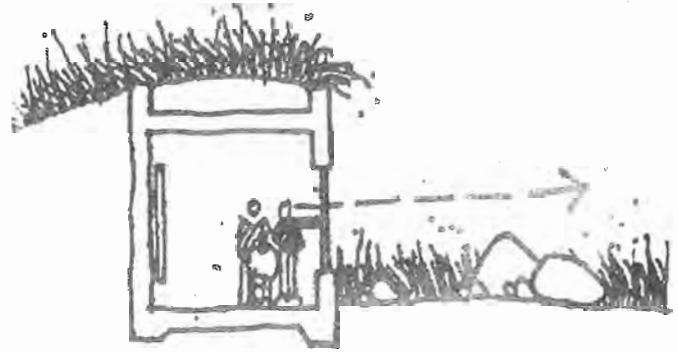
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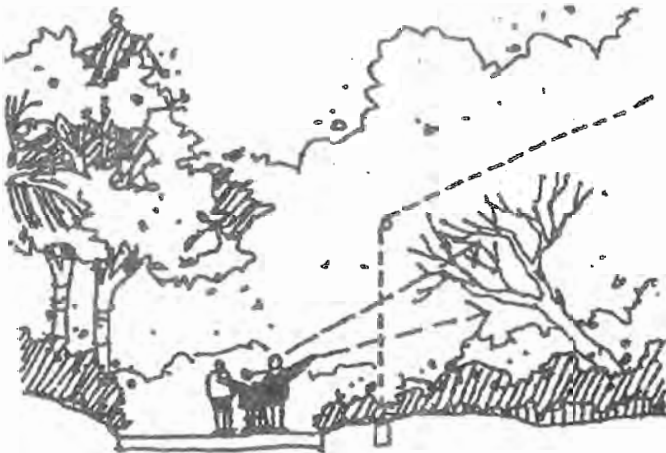
EXHIBIT VIEWING TYPES FOR ZOO DESIGNERS



VIEWING WITH STRUCTURE



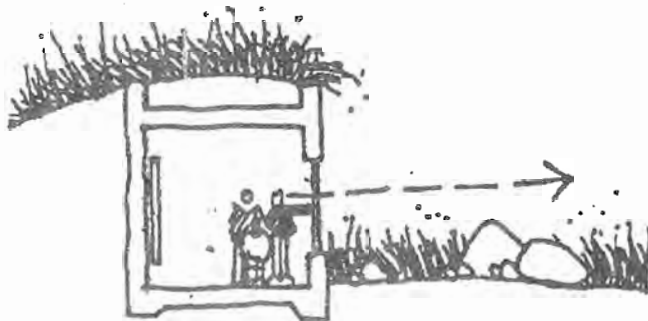
BOARDWALK VIEWING



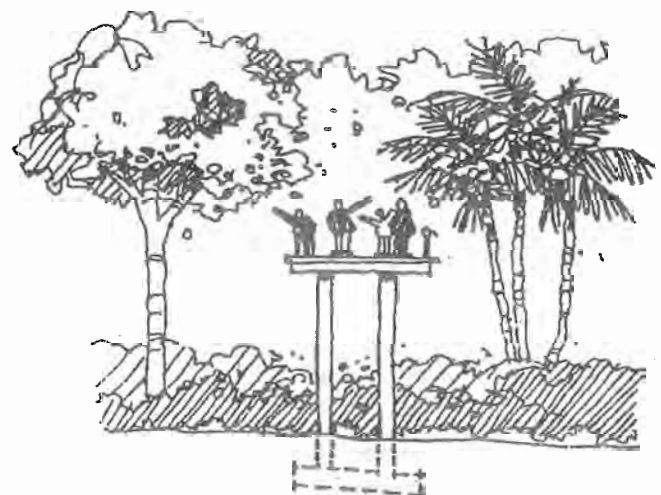
VIEWING THROUGH MESH



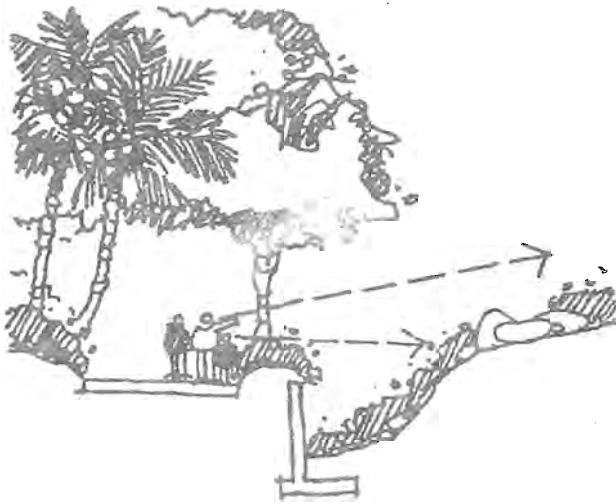
BOARDWALK VIEWING



BUNKER VIEWING



ELEVATED BOARDWALK VIEWING

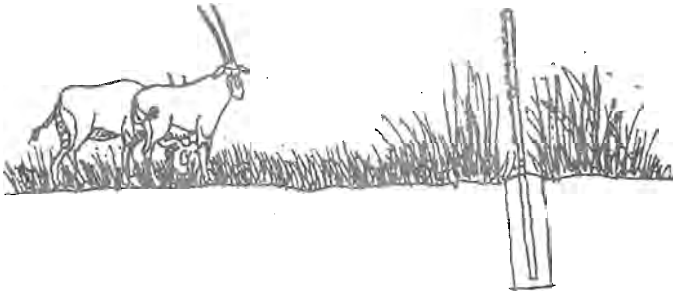


EDGE VIEWING



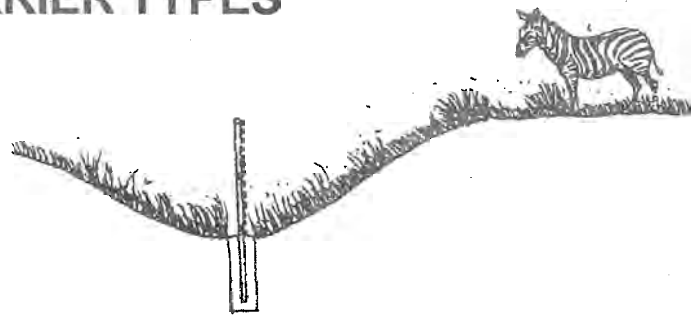
UNDERWATER VIEWING

EXHIBIT BARRIER TYPES



1. Vertical Fence Barrier.

The fence is primarily used as a side/rear barrier. It is an efficient method of containment but can be damaged by animals, storms, falling trees. The footing depth should be one-third the fence height. The colour should be matte black to counter disadvantage of visibility-or it should be concealed in other ways (see 3 below). A good anti-corrosion system is essential in the tropics.



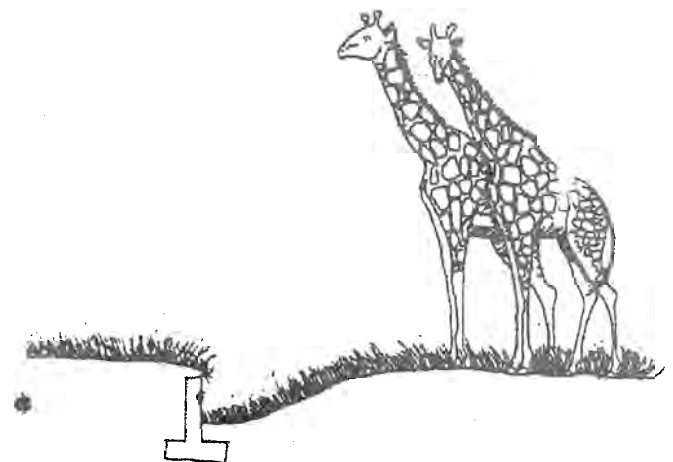
3. Depressed Vertical Fence Barrier.

As noted in above, a variation that allows the use of fences where there is little other concealment (e.g. vegetation) available or the scenery beyond is part of the display.



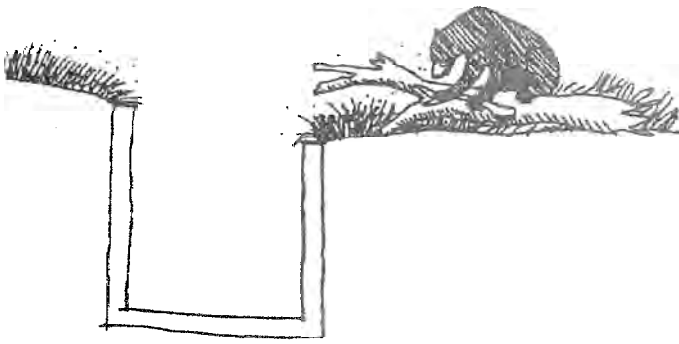
2. Vertical Fence Barrier with return.

In addition to the comments above, the top return permits use with some climbing animals and animals able to scramble up vertical surfaces. This capability is further improved by using metal sheet, fibreglass or other smooth materials on all or part of the fence height and return.



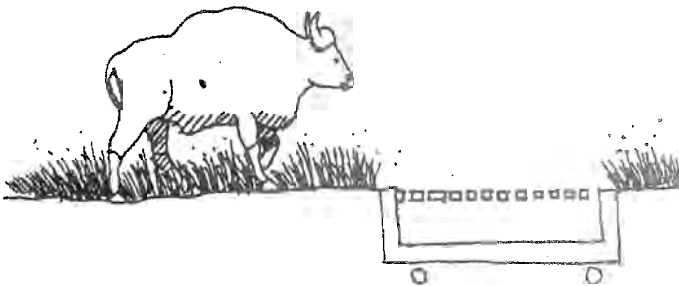
4. Ha-ha Barrier.

Achieves a similar visual effect (i.e. concealment) as the depressed vertical fence. The correct choice between these two barriers depends on the jumping or climbing abilities of the animal. This sunken wall is more restricted in use and will be lower than most fences. The wall, however, takes up less area.



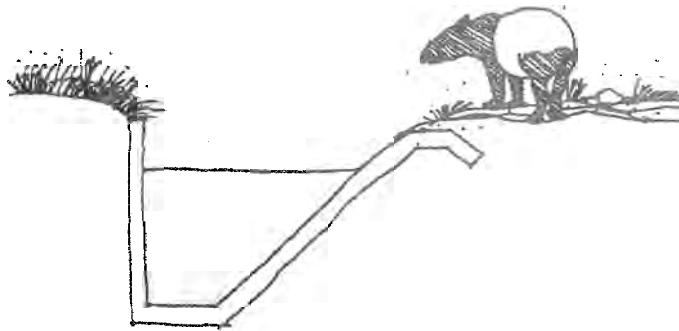
5. Two-sided Dry Moat

Views into this moat-type should not be permitted. Achieving this entails control of the relative levels of the viewer and exhibit and, or where not possible, use of berms or planting outside the exhibit to raise the foreground. The inner vertical wall acts to deter animals from getting into the moat. The depth and width has to be proportioned to suit each species and its abilities.



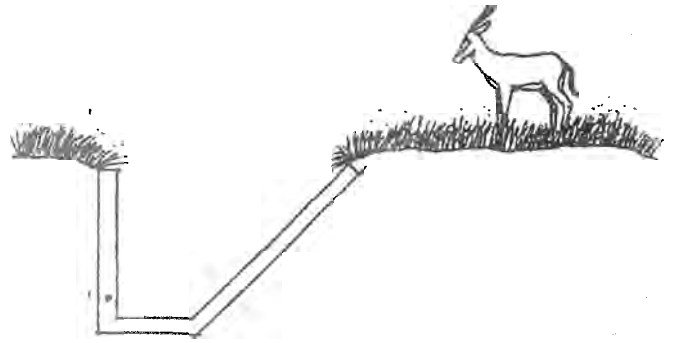
6. Cattle Grid Barrier

Often used for domestic live stock, this barrier can be adapted for wild animals including deer. Spacing of the bars, the initial depth and overall width need to take into account the temperament and physical abilities of the animals. Works best if it psychologically deters the animals. The dimensions also need to be considered in relation to the road vehicles that will cross the grid.



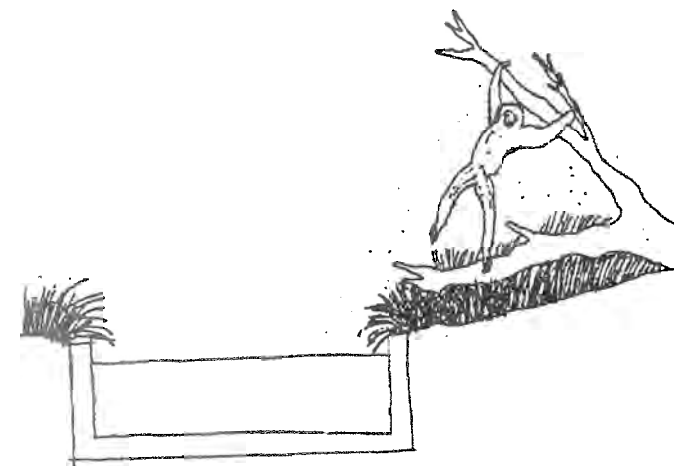
7. One-sided Wet Moat

As a rule, wet moats should not be two sided, unless very shallow. The initial slope is necessary to forewarn the animal of the increasing depth when visual clues are not available. Gradient and texture of the slope need to be considered for each species. Extra height above water and top returns are optional variations. Note the buried edge for aquatic and heavy animals likely to cause erosion.



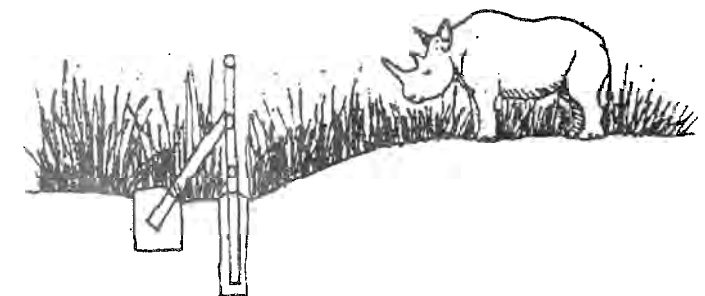
8. One-sided Dry Moat

Suitable for more flighty animals or where visibility of the moat is unavoidable or ven desired. In this case, further hardscape treatment (simulated habitat) of the visible surfaces is required. Alternatively, the slope can be left as earth (with suitable planting). Erosion is then a risk, however.



9. Shallow Wet Moat

Suitable for animals with a positive fear of water (that may even deter jumping over the water), and/or strongly territorial animals. Water depth should be shallow to reduce the risk of accidental drowning.



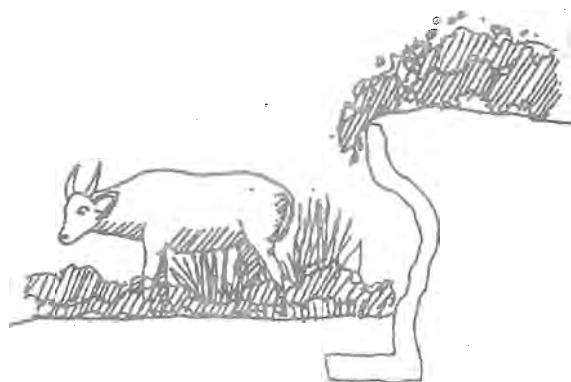
10. Reinforced Pipe Barrier

Suitable for rhinoceros or large ungulates such as banteng or Water buffalo. Height may vary depending on shoulder height of animal. Reinforcing consists of support strut and deadman at each vertical post, or alternating post to prevent animal from pushing barrier out of plumb.



11. Horizontal Fence

This consists of a shallow trench moat with a horizontal covering of welded mesh on a metal frame. It works with animals as diverse as suids (pigs), tapirs and hyaenas, but not with cats. The principal is identical to cattle grids except that it is not for vehicular traffic.



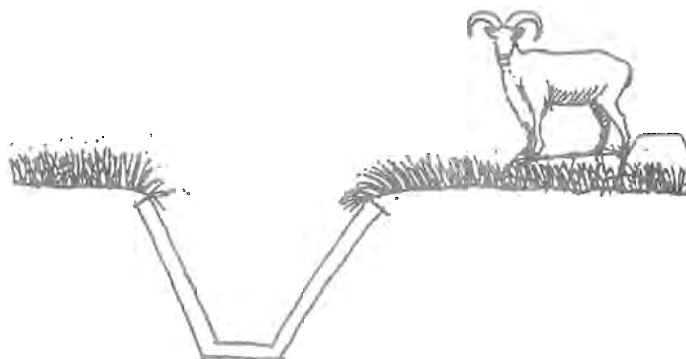
14. Wall Barrier

Mainly a rear barrier, it should always be treated as a simulated habitat feature, such as an eroded earth bank. This is because of its obvious visual prominence. If used as a front barrier, it will be in place of a one sided dry moat (see 8 above). Care must be taken with the lowered ground plane in respect to the viewer it implies. There will also be potential blind spots at the base of the wall.



12. Hot Wire

This should only be used as a secondary barrier, i.e. in case it fails, there will be a primary containment envelope beyond (and before animals can contact visitors). Hot wire can reinforce the primary barrier, especially during introductions and initial conditioning of animals. It is used to protect vegetation and trees and to separate incompatible groups within the same exhibit. The consequences of power failure must always be considered.



15. V-Shaped Dry Moat

For animals with poor agility such as rhinos, a compromise on the two-sided moat can be achieved. The main advantage is ease of construction and non-structural retaining walls. The reclining walls serve to allow a steep earth cutting without the risks of erosion or collapse. It, however, relies on the natural slope capacity of the soil.



13. Mesh Enclosure

Used for extremely dangerous and able animals, such as leopards, or small animals and birds that would not display well in open enclosures. A variety of structural systems (framed, tensile, etc.) viewing methods and other techniques (visual integration) can be used to reduce the impact of mesh and the impression of being caged.



16. Free Range Behavioural Barrier

Extremely territorial animals such as marmosets can be conditioned to stay in one place without straying provided the right conditions are maintained. These are food, shelter, security, the right social groupings and a good arboreal environment (for marmosets). It also helps if the patch of habitat is relatively isolated from similar environments.