

Guidelines on Minimum Dimensions of Enclosures for Housing Exotic Animals of Different Species



Central Zoo Authority

केन्द्रीय चिड़ियाघर प्राधिकरण

(A Statutory Body under the Ministry of Environment and Forests, Government of India)

2012

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PREFACE

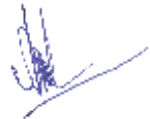
The Central Zoo Authority is a statutory body constituted under the Ministry of Environment and Forests, Government of India, in 1992 to oversee the functioning of zoos in India and provide technical and other assistance to zoos.

The Recognition of Zoo Rules, 1992, were formulated to fix standards and norms for the management of zoos. They were repealed and replaced by the Recognition of Zoo Rules, 2009.

According to the Recognition of Zoo Rules, 2009, every zoo shall endeavour to display the animals in nature immersing enclosures. It has also been made mandatory that all animal enclosures in a zoo to be so designed as to meet the biological requirements of the animals housed therein. The enclosures shall be of such size as to ensure that the animals get space for free movement and exercise and that animals in herds and groups are not unduly dominated by individuals. In the case of species, which cannot be kept in groups due to behavioural or biological reasons, separate enclosures shall be provided for each animal. The enclosures shall not be of dimensions less than those prescribed.

The present publication provides guidelines regarding the minimum dimensions of enclosures for housing exotic animals of different species. These guidelines have been developed in consultation with the experts. The guidelines on the minimum prescribed sizes of feeding/ retiring cubicles as well as outdoor enclosures for important mammalian species, already specified in the Recognition of Zoo Rules, 2009, are also provided in an annexe for ready reference.

I hope that these guidelines, relating to the minimum dimensions of enclosures, will be useful to zoo operators, and zoo directors/ curators. I am confident that by following these guidelines the zoo operators simulate the conditions of the natural habitats of the animals in the enclosures as closely as possible and that each cubicle or cell can be provided resting, feeding, drinking water and exercising facilities according to the biological needs of the species.



(B. S. Bonal)
Member Secretary
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INTRODUCTION

The Central Government has, through amendment of the Wild Life (Protection) Act, 1972 and notification of Recognition of Zoo Rules, 2009, prescribed the minimum standards and norms for the housing, upkeep and health care of Indian animals housed in the different zoos of the country (Annexure II-V). However, guidelines have not yet been prescribed regarding the minimum dimensions of the housing to be used for various exotic species of animal and bird. A total of 137 species of exotic animal and bird are currently housed in various Indian zoos.

Dimensions and sizes of animal enclosures

In the light of the foregoing, a sub-committee was constituted to develop and prescribe the minimum standards for housing exotic animals and birds. The following recommendations were prescribed by the committee:

- (1) As per the Recognition of Zoo Rules, 2009, the land area to be given to any animal exhibit enclosure should be decided after giving due regard to the maximum number of animals that can be displayed in the animal enclosure. Often, multiple species can be housed together for display. However, the maximum number of animals that can be displayed in a single enclosure varies from species to species.
- (2) The enclosure should have adequate space for the animals to enjoy free movement and exercise, to rest in shade and bask in the sun, to have a safe refuge from dominant animals and to exhibit their natural, social and reproductive behaviour.
- (3) Animal exhibit enclosures should not be given geometrical shapes as the presence of corners is not conducive to the smooth and unrestricted movement of animals. Enclosures with greater depth permit animals to keep a safe distance from the visitors and are always preferable.



- (4) The dimensions and the area of any enclosure should be decided after considering the various factors mentioned above as well as the topography and naturalistic features of the site identified for constructing the enclosure. Indicative sizes of outdoor enclosures and feeding cubicles/night shelters of exotic animals are given in Annexure I. These are the minimum sizes, and zoo operators should always try to provide for the largest possible outdoor enclosures.



Animals in a zoo should be displayed in enclosures with natural components as described in the following:

- (i) The landscape around every animal exhibit/enclosure should comprise plantations of appropriate tree and shrub species of adequate extent and of such shapes that the enclosure is not visible to the visitors from any place other than the animal viewing areas.
- (ii) All the hard exteriors of the enclosure, namely the barrier of the enclosure and the frontage of the feeding cells and feeding kraals, should be effectively camouflaged through planting of bamboo, dwarf tree species and shrubs.
- (iii) Planting of appropriate trees and shrubs should be done around the animal viewing areas to break up the groups of visitors into smaller units.
- (iv) Visitors should be made to move through the green landscape around the enclosure for reasonable distances.
- (v) Planting of appropriate trees species should be done in the enclosure to ensure that the entire animal enclosure is not visible to the visitors from any of the viewing points. The animal should be seen by the visitors in near-natural settings.
- (vi) -The barrier of every enclosure should be of a design, dimensions and material that can effectively contain the animals housed within the enclosure and prevent any animal from escaping from the enclosure. Due care should



also be taken to ensure that the shutters and doors of the enclosure, kraal and feeding cell are of such materials and designs that these cannot be broken/opened by the animals housed in the enclosure. The barriers of all the enclosures, except the animal viewing area, could comprise natural cliffs (if any), walls, glass panels, power fences or chain-link fences of prescribed dimensions. However, in animal exhibit enclosures, a moat could be provided in the animal viewing area to permit visitors to have an unobstructed view of the animals without getting close to them. Wet moats should normally not be used as enclosure barriers for the viewing area except in the case of water-loving animals. The total area of the moat should not exceed 20% of the area of the enclosure.



(vii) Other safeguards:

(a) Due care should be taken to ensure that no power line/power cable passes over any animal enclosure.

(b) The barriers of the enclosure should be erected/ constructed at a safe distance from such trees that can aid the animals in escaping from the enclosure or damage the enclosure barriers.



(c) Where walls are used as enclosure barriers, due care should be taken to plaster the same with such a proportion of cement mix that the plaster does not drop off, leaving gaps that could be used by the animal as holds for escaping from the enclosure.

(d) Live wire overhangs or chain-link fences should be used to prevent the animals from escaping from the enclosure.

(e) Water pipelines and sanitary fittings should be fixed within the enclosure in such a manner that the same cannot be used by an animal to escape from the enclosure.

- (f) A foundation of adequate depth should be provided for barriers of enclosures housing burrowing species.




Annexure I.

Minimum prescribed sizes of feeding/retiring cubicles for important exotic mammals and birds.

S. No.	Species	Minimum size of outdoor enclosure (m ²)	Number of animals/ birds to be housed (M:F)	Size of feeding cubicles/ night shelters (length × breadth × height, each in metres) for each animal or bird	Minimum size of the water body (if any) (m ²)
1.	Flightless birds, emu, cassowary	500 (up to 10 birds)	1:1	3 × 2 × 2.5	-
2.	Exotic pheasants	80 (with the minimum dimensions of the aviary being 3 m × 3 m × 6 m)	1:3		-
3.	Flying birds	80 (with the minimum dimensions of the aviary being 3 m × 3 m × 6 m)	2:2	Height of the aviary should be 6 m	-
4.	Parrots, macaws, cockatoos, conures, rosellas	80 (with the minimum dimensions of the aviary being 3 m × 3 m × 6 m)	2:2	Height of the aviary should be 5 m	-
5.	Baboons, capuchins, lemurs, exotic monkeys	500	1:1	2 × 1.5 × 2.5	-
6.	Marmosets, squirrel monkeys	50	1:1	1 × 1.5 × 2	-
7.	European bear	1000	1:1	2.5 × 1.8 × 2.5	-
8.	Cape buffalo	1500	1:1	3 × 2 × 2.5	-

**GUIDELINES ON MINIMUM DIMENSIONS OF ENCLOSURES FOR
HOUSING EXOTIC ANIMALS OF DIFFERENT SPECIES**

Central Zoo Authority

9.	Chimpanzee, orangutan, gorilla	1000		1:1	2.75 × 1.8 × 3	-
10.	Fallow deer, sika deer and lechwe	1000		2:3	3 × 2 × 2.5	-
11.	African elephant	5000		1:1	8 × 6 × 5.5	-
12.	Giraffe	1500		1:1	8 × 5.5 × 6	-
13.	Hippopotamus	1000		1:1	5 × 3 × 2.5	-
14.	Jaguar	500		1:1	2 × 1.8 × 2.5	-
15.	African lion	1000		1:1	2.75 × 1.8 × 3	-
16.	African rhino/white rhino	2000		1:1	5 × 3 × 2.5	-
17.	Tapirs	500		1:1	2.5 × 1.5 × 2.5	100
18.	Tigers (other than Bengal tiger)	1000		1:1	2.75 × 1.8 × 3	-
19.	Zebras	1500		1:1	3 × 2 × 2.5	-
20.	Wallabies	300		1:1	2.5 × 1.5 × 2.5; the floor should be provided with a ramp	-
21.	Crocodiles/ Alligators: African dwarf alligator, American, alligator, Australian alligator, False gaviel, Morelet's crocodile, Nile crocodile, Siamese crocodile, Slender-snouted crocodile, West African dwarf Crocodile, Spectacled caiman, Yacare caiman and Dwarf caiman	500		1:1	Note: Sufficient amount of sane should be provided for basking.	200 (with a depth of 2 m)
						
22.	Iguana	100 (covered partly by chain link		1:2	1.0 × 0.75 × 1.5	Reptile house/glass terrarium type enclosure may also be provided.
23.	Giant Aldabra tortoise	200		1:1	Area 20 m ² (to provide shelter from rain and heat)	-
24.	Small aviary birds (love birds, finches, lorikeets, Java sparrow, munias, budgerigars	15		2:3	Earthen pots of appropriate size for nesting and shelter should be provided	-



MINIMUM PRESCRIBED SIZE FOR FEEDING/ RETIRING CUBICLE FOR IMPORTANT MAMMALIAN SPECIES OF CAPTIVE ANIMALS

Name of the Species	Size of the feeding cubicle/night shelter for each animal (meters)			Name of the species	Size of the feeding cubicle/ night shelter for each animal (meters)		
	Length	Breadth	Height		Length	Breadth	Height
Tiger, Asiatic lion	2.75	1.80	3.00				
Common leopard, Clouded leopard & Snow leopard	2.00	1.80	2.5	Musk deer, Nilgiri tahr, Chinkara, Four horned antelope, Bharal, Goral, Wild sheep and Markhor	2.5	1.5	2.5
Small Cats	1.8	1.50	2.0	Mouse deer	1.5	1.0	1.5
Sloth bear, Himalayan black bear, Brown bear and Malayan sun bear	2.5	1.8	2.5				
Monkeys and Langurs	2.0	1.5	2.5				
Civets, Binturong, Otters, Retel, Hogbadger, Martens, Red panda, Wolf, Jackal and Wild dog	2.0	1.5	2.5				
Elephant	8.0	6.0	5.5	Slow loris and Slender loris	1.0	1.0	1.5
One-horned Indian Rhinoceros	5.0	3.0	2.5				
Wild buffalo, Yak, Indian gaur and Wild ass	3.0	2.0	2.5				
Brow antlered deer, Hangul & Swamp deer	3.0	2.0	2.5				

**MINIMUM PRESCRIBED SIZES FOR OUTDOOR OPEN ENCLOSURES
FOR IMPORTANT MAMMALIAN SPECIES IN CAPTIVITY**

Animals/ Species	Minimum size of outdoor enclosure (per pair) (Square meters)	Minimum extra area per additional animal (Square meters)
Tiger and Lion	1000	200
Panther, Clouded leopard and Snow leopard	500	100
One-horned Indian Rhinoceros	2000	400
Brow antlered deer, Hangul, Swamp deer	1500	100
Wild buffalo, Indian bison and Wild ass	1500	200
Bharal, Goral, Wild sheep and Serow	500	100
Sloth bear, Himalayan black bear, Brown bear and Malayan sun bear	1000	100
Red panda, Jackal, Wolf and Wild dog	400	100
Monkeys and Langurs	500	100



Annexure – IV

**MINIMUM PRESCRIBED SIZES FOR OUTDOOR
ENCLOSURES FOR IMPORTANT BIRDS IN CAPTIVITY**

Animals/ Species	Minimum size of Aviary (Square meters)	Minimum height of the aviary (meters)	Minimum size of the water body within the aviary (Square meters)
Birds of prey	300	8	10
Pheasant *	80	3	3
Water birds (mixed species enclosure)	300	8	60 (with a depth of 1.5m)
Flying birds (mixed species enclosure)	300	8	20
Flying birds (single species)	80	6	2

* In case of Peafowl the aviary size should be kept 160 sq. m.

**MINIMUM PRESCRIBED SIZES FOR OUTDOOR OPEN
ENCLOSURES FOR IMPORTANT REPTILES AND
AMPHIBIANS IN CAPTIVITY**

Animals/ Species	Minimum size of the enclosure (Square meters)	Minimum size of the water body within the enclosure (Square meters)
Crocodile/ Gharial	400	150 (with a depth of 2 meters)
Python	80	6
Cobra, Rat snake, Vipers	40	4
Sand boas	40	4
Monitor lizards *	80	6
Chameleons and Small lizards	40	4
Tortoises	40	4
Turtles	80	40 (with a depth of 2 meters)
Amphibians	10	4 (with a depth of 0.5 meter)

* In case of Water monitor lizard the size of water body should be kept at 40 sq. meters with a depth of 1.5 meters.

NOTE

1. The dimensions have been given only in respect of the species, which are commonly displayed in zoos.
2. No dimensions for outdoor enclosure have been prescribed for Chinkara and Chowsingha because of the problem of infighting injuries. The enclosure for these species could be a group of small sized enclosures with fewer animals in each. Care should be taken to ensure that there should be no competing mating males in each small enclosure.
3. The designs of enclosures for endangered species, not covered by this Appendix, should be finalized only after approval of the Central Zoo Authority.





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Govt. of India

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