

Walk-through aviary at Kanpur Zoological Park, India

Kanpur Zoological Park (KZP) is spread in an area of 76.56 ha of a reserve forest on the right bank of river Ganges having approximately 1,400 wild and domestic animals of around 125 species in its collection. KZP also has a jungle safari of 36 ha in its premises with a natural lake. The park is part of the erstwhile lush green Allen forest. It was opened for the public on 4 February 1974. The zoo is categorized as a 'Large Zoo' by the Central Zoo Authority of India. Many enclosures have been renovated owing to advent of technology and new standards in due course of time. However, since 2013 major changes occurred in the zoo with the construction of serpentarium, pheasantry, aviary, birds of prey, fox, wolf, wild boar enclosures; reptile section for mugger, gharial, & turtles; and a distinctive walk-through aviary.

The KZP lake is home to around 52 types of birds. The common birds of the zoo lake are Black-headed Ibis, White-breasted Waterhen, Black-winged Stilt, Night Heron, Pond Heron, Cattle Egret, Little Egret, Great Egret, darters, Purple Heron, Grey Heron, cormorant, Woolly-necked Stork, Painted Stork, Open-bill Stork, White-breasted Kingfisher, Pied Kingfisher, Moorhen, Jacana and visiting ducks like, Spoonbill Duck & Whistling Duck (Singh et al. 2016). Keeping the above factors in view the KZP authorities decided to display the birds in the walk-through aviary to acquaint and educate the masses about them and their importance for the maintaining the ecological balance.

While designing the walk-through aviary following points were considered.

Space: The bird should not be restricted in movement and should have sufficient flying space.

Spatial familiarity: Moving around objects like trees, water bodies, shrubs, and covered places causes more investigatory behaviour among birds.

Temperature: Variation and gradients of temperature in an enclosure are important to provide choice. Natural heating and cooling sources are considered best for the birds.

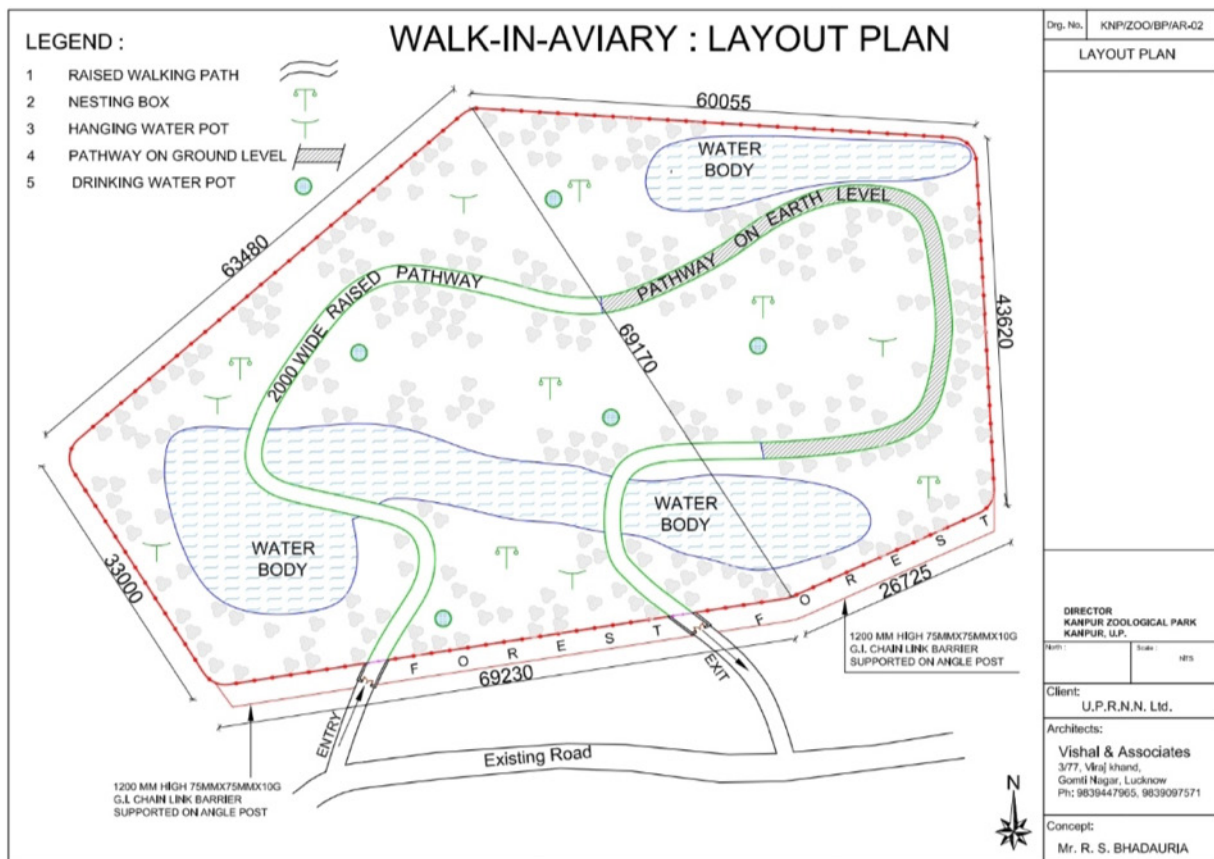
Light: Another key variable that can interact with temperature is light. Captive birds are exposed to a light regime that may include some ambient light.

Water: Water quality, water source and water may need frequent changes because of need for aquatic feeding, aquatic urination, defecation.

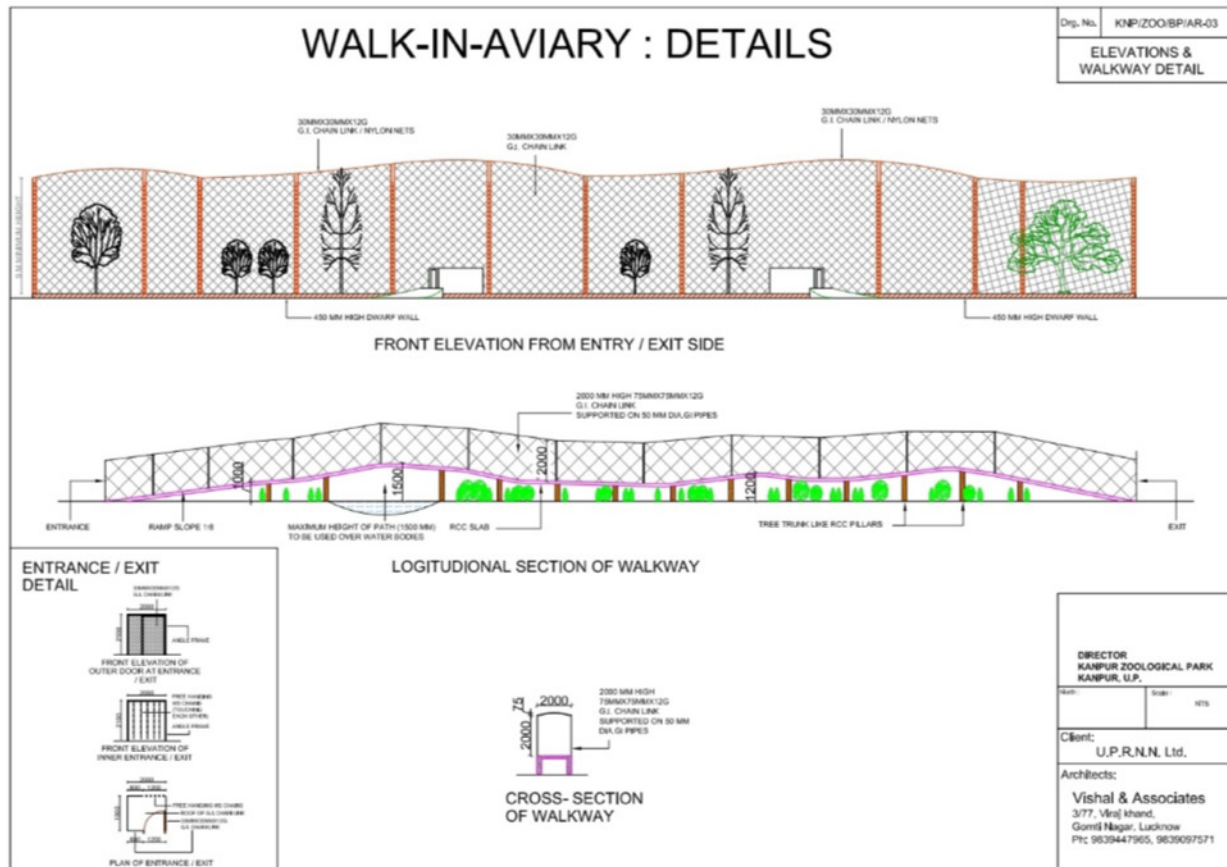
Details of walk-through-aviary

The walk-through-aviary have been designed and constructed according to the norms set by Central Zoo Authority of India. The enclosure is spread through an area of approximately one hectare.

The whole aviary is overall rectangular in shape with little bit pentagonal to hexagonal outers. The dimensions of outer barriers are 3300 x



Layout plan of the Kanpur Zoological Park walk-through aviary.



Walk-through aviary: Front elevation and walkway/pathway details.

63480 x 60055 x 43620 x 26725 x 69230 mm. The widest transverse distance is 69170 mm in the middle of the walk-through-aviary. It is designed in such a way that even large trees which were already there can come inside its upper chain link. Therefore its height has been kept up to about 45 feet with minimum nine meters at some places. The chain link of 30 mm × 30 mm × 12 G supported by GI pipes on a dwarf wall of 450 mm have been used to cover whole aviary. Provision is also made to accommodate old water bird aviary as a separate enclosure of the new walk-through aviary with a door to connect both sections.

The old water bird aviary is being used to house sarus cranes as they used to attack small birds as well as new born chicks of other birds. The walk-through aviary also has especially designed kutchra water body or pond dividing walk-through-aviary transversely in between.

The depth of water body is as low as two feet at water inlet point and in ascending fashion reached up to around seven feet at water outlet point in order to facilitate all types of birds according to their size. The pond is also having a mound of stones for basking in between water body. The water body is continuously supplied with potable water through zoo water pump house. Apart from above a pucca water body or pond of around four to four and half feet depth is also provisioned separately along with different feeding platforms. Water birds prefer to feed near water body therefore three feeding platforms are especially designed near water body. The walk-through aviary is designed for filling of water body and drainage without the access of keeper inside. The walk-through aviary is covered by thick forest from

three sides which provides a natural and calm ambience to birds.

Enrichments: The walk-through-aviary is bird friendly and is having several avian species friendly vegetations, rockery, water troughs, artificial nests and natural nesting materials and hiding places, thus making walk-through-aviary conducive for all types of birds housed.

The walk-through-aviary is presently housing Rosy Pelican, Grey, Painted Storks, Spot-billed Duck, Muscovy Duck, Brahminy Duck or Ruddy Shelduck, Cormorant, Night Heron, and Sarus Cranes.

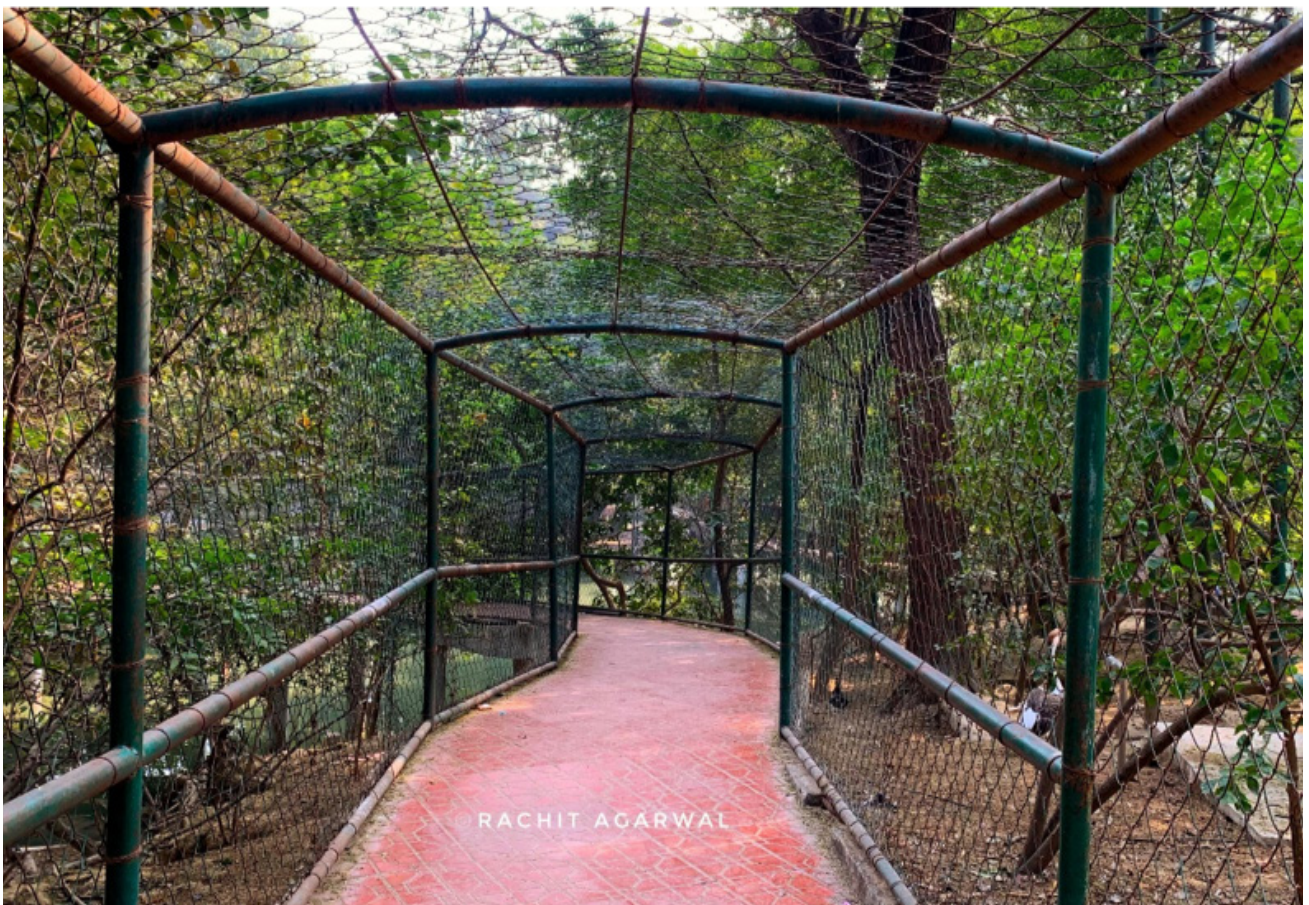
The temperature of Kanpur city ranges 0–45°C. Therefore, to maintain temperature in winters for sensitive birds thatched huts, paddy and tarpaulins are used. The walk-through aviary has ample sunlight to facilitate basking. However, during summer there is sufficient shade available as number of trees especially several Neem (*Azadirachta indica*), Chilbil (*Holoptelea integrifolia*), Tamarind (*Tamarindus indica*) trees of full length with several other small bushy plants and bamboo are available inside the walk-through-aviary. Apart from this water sprinklers also work during extreme summer.

The walk-through aviary has sumptuous wooden and rockery substrate for birds comfort and leisure. Branched woody logs are also placed at several places and are so arranged for visitors to have clear visibility of the birds.

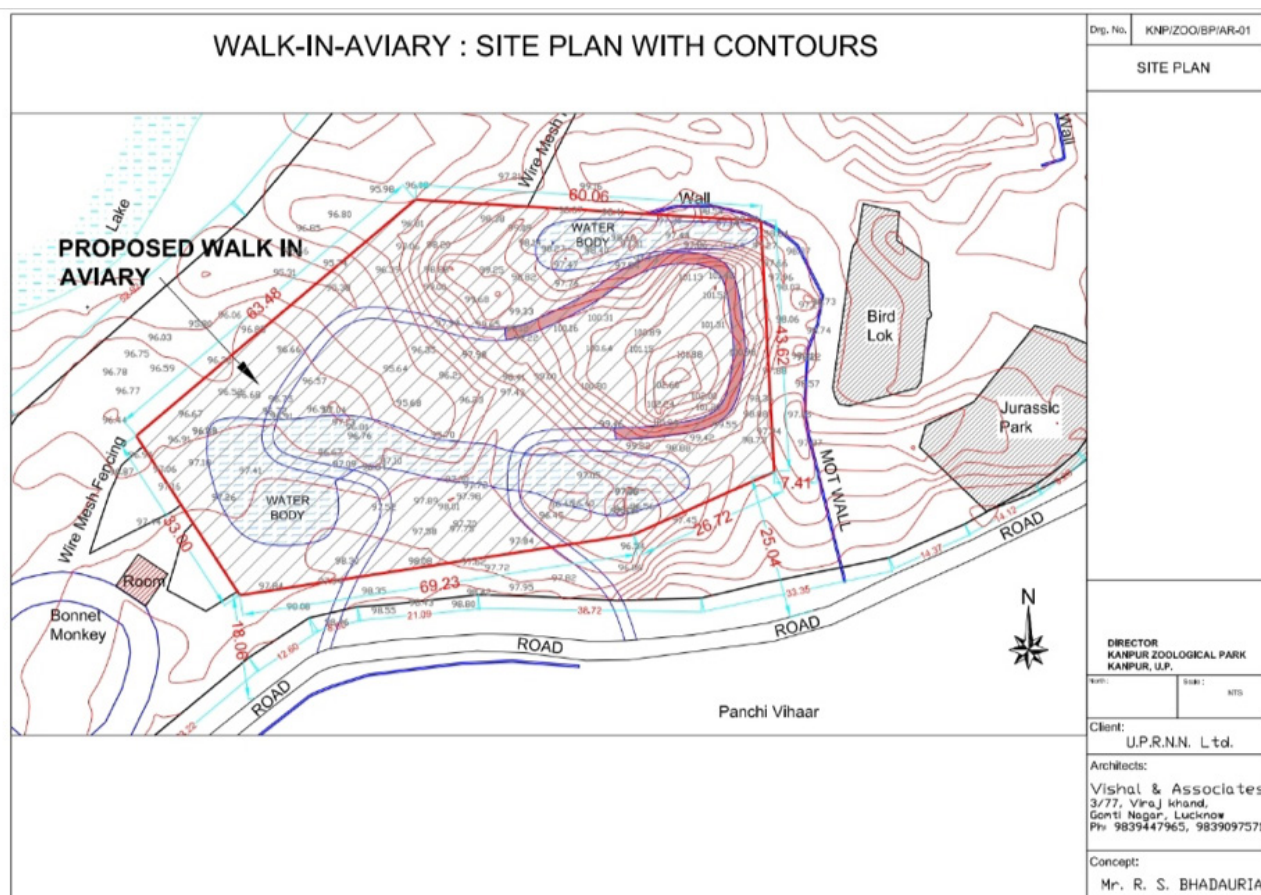
Keepers enrichment: The walk-through aviary is approached by four full length MS angle framed chain link doors by keepers. Two keepers door



Pucca pond. © Rachit Agarwal.



Visitors pathway/walkway. ©Rachit Agarwal.



Walk-through aviary: Site plan with contours.

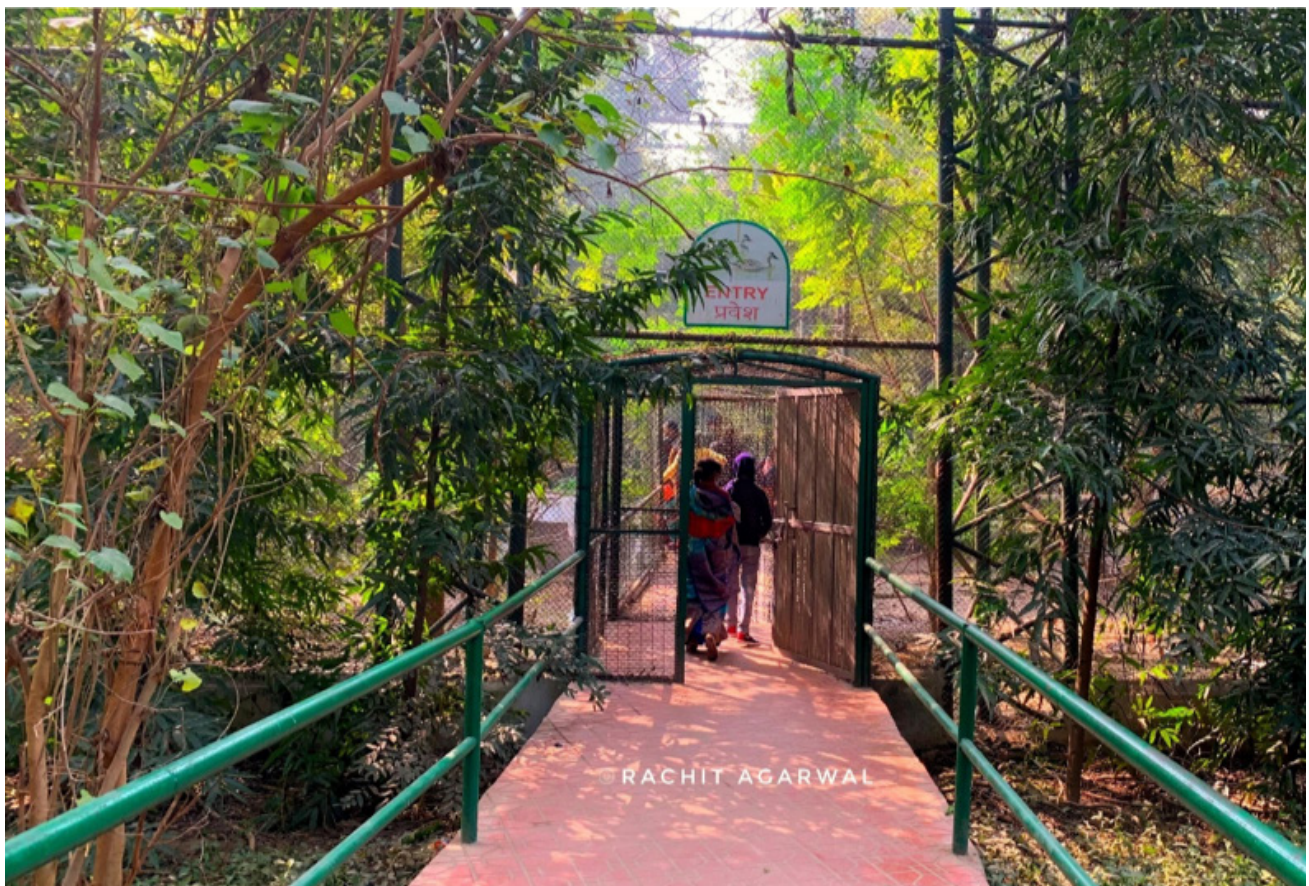
are at visitors entry and exit point while two others are in between walk-through aviary at sides of visitors path. Aviary has sufficient specific space provided to keep equipments. The zoo administration has provided gum boots, cap, uniform, buckets, mugs, and trays to keepers. One keeper and one assistant keeper along with a sweeper take care of routine services of walk-through aviary.

Visitors enrichment: Visitors enter walk-through aviary through a full length iron framed GI chain link door followed by another door of free hanging MS chains touching each other to prevent bird escape. Visitors are allowed entry only after putting their shoes in a lime foot bath tray in order to minimize any contamination. The visitors path or walkway is raised at entrance and moves through water

body twice in the form of two small bridges with maximum height being 1200 mm and 1500 mm over water body. However, due to undulating terrain visitors pathway is also at earth level at few places. The whole length of visitors path is fully covered with chain link of 75 mm × 75 mm × 12 G supported by 50 mm dia. GI pipes, which helps to reduce the chances of any disturbance by unruly visitor, if any. The width of the path is 2000 mm with 2000 to 2075 mm height. The signages are displayed for the visitors with detailed information about the birds. The lower part of the chain link of visitors path is further covered with welded mesh so that the birds can't pierce their thin neck through the small holes of the chain link. It also prevents inadvertently falling of someone's feet on bird's neck or beak.



Visitors pathway over kutchra pond. ©Rachit Agarwal.



Walk-through aviary visitors entrance. ©Rachit Agarwal.

Cleaning schedule: As discussed earlier the water body of walk-through aviary is continuously supplied with potable water through zoo water pump house in order to provide regular fresh water and to prevent stagnancy of water. Apart from this the water body is dredged twice a year with water treatment by any certified aqua/bird expert firms (Singh et al. 2018), if required.

The walk-through aviary and visitors path are broomed daily, the water troughs, feeding platforms and feeding trays are cleaned strictly on daily basis. From time to time pruning of branches of trees is also done before winter in order to facilitate entry of sunlight inside the walk-through-aviary. Whenever needed Kohrsolin-Th, Virkon-S or Sokrena-WS are also used for sanitization of walk-through aviary.

References

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