

ZOO LEX goes to Woodland Park Zoo's Asian Elephant Forest

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The Asian Elephant Forest at Woodland Park Zoo was started in 1985 and was opened in 1986 at a cost USD 6,000,000 including 30 % for design. The firm Jones & Jones, Seattle, Washington, USA created the design. Woodland Park Zoo is located at 601 North 59th Street , Seattle, WA 98103-5858, USA. Have a look at their website, URL: <http://www.zoo.org>

The construction of phases 1 - 3 (March, 1986 - February, 1988) cost \$1.87 million which included site preparation, fencing, and the barn. Construction of phases 4 and 5 (November 1987 - May 1989) cost \$2.25 million. These phases were the building of the paddock, pools, and demonstration area, as well as the landscaping.

Two species of elephants inhabit the enclosure, e.g. Elephantidae *Elephas maximus* or Asian elephant 4 (females) and Elephantidae *Loxodonta africana* African elephant 1 (female). The exhibit won the 1990 AZA Exhibit award.

Elephant Forest is part of the zoo's Tropical Asia exhibit zone, which also includes the "Trail of Vines". In the early stages of design, a designer, a project manager, and a keeper traveled to Thailand for inspiration and to gain knowledge of how elephants have become integral to Thai life and culture. The results represent an early application of "cultural resonance" in exhibit design, or presenting the animals in a culturally-themed environment. For example, the temple-like barn (over 50 feet - 17 meters - high) and support structures reflect the steeply sloped roofs and heavy beams of traditional Thai buildings. The animal barriers were designed after those at the royal elephant stockade in Thailand. Two main outdoor spaces, designed as a logging camp and a clearing in a tropical forest, showcase the elephant in two important roles. One of the goals of the logging camp was to enable the animals to interact with logs in proximity of saddles, tack and bells, emphasizing the unique history shared by the people of Thailand and elephants. The heavily planted forest surrounding a clearing is meant to show how the animals are adapted for life in the wild. A working elephant gate separates animals from the logging demonstration area.

The visitor area is introduced by strong entrances. Inside the building, barrier posts terminate in a traditional form evoking a lotus bud, an important icon in Thai art and architecture. The covered visitor viewing areas and an interpretive veranda comprise elements of a Thai village. The use of cultural resonance with large, elaborate architecture, while different from the idea of immersing visitors and animals in naturalistic surroundings, provided a solution to the need for a large on-view holding facility for the animals and viewing shelters for visitors. Building designs were inspired by Thai architecture with the goal that they wouldn't detract from the overall setting or overpower the appreciation of elephants in a respectful context.

Plants : Twelve thousand plants of 322 different species were planted. The exhibit contains one of the largest public collections of bamboo in the region. 2,000 cubic meters of soil were amended on the site. It was decided to do plant selection, purchasing, and planting in-house to ensure greater control over the process, eliminate middleman surcharging, and utilize knowledgeable zoo staff. The plant list specifies the Latin names of the plants used for this exhibit.

Features for Animals : The animals have open-door access between their barn and outdoor area all year round. High-rate mechanical ventilation controls the climate inside the barn, while radiant heat warms the animals, without wasting energy by heating the entire indoor area. Floors are covered with aircraft carrier flight deck surfacing, which cushions the elephants' feet and helps to reduce foot and joint problems. Soil in the paddock consists of finer-textured soils, so that it can pass through elephants' digestive systems when ingested during hay and grass eating.

Features for keepers : The doors in the barn are hydraulically operated. There are multiple escape routes for keepers and high-security door locks to prevent accidental entry by keepers into the animal area. The floor surfaces are low-maintenance and sloped to facilitate drainage. An efficient hay handling system with a loading dock and storage space for an entire truckload of hay makes accessing food materials more efficient. There is a staff restroom with showers and lockers on site, as well as tool storage next to the work area. Significant changes were made in 2002-2003 to implement protected contact elephant management procedures.

Features for visitors : Visitors enjoy covered viewing spaces and are surrounded by Thai architecture. An advanced HVAC system circulates the air inside the barn at a rate of 10 changes per hour, removing strong odors. The air flows out above viewing windows to prevent fogging due to condensation.

Interpretation and education

The logging camp area shows the connection between elephants and the development of logging culture in Northern Thailand. Visitors watch elephants carry logs. Authentic saddles and harnesses are on display. In the forest clearing area, interpretation signs use auditory, tactile, and written means to explain the animals' social structure, physical adaptations, endangered status, and their role in Thai culture.

Management

Four separate holding areas provide maximum flexibility in moving and grouping animals. An improved method for handling manure was devised. A change in keeping philosophy at Woodland Park Zoo caused later renovations to be done on the exhibit. Previously, the zoo operated under "free contact" between its keepers and elephants, meaning

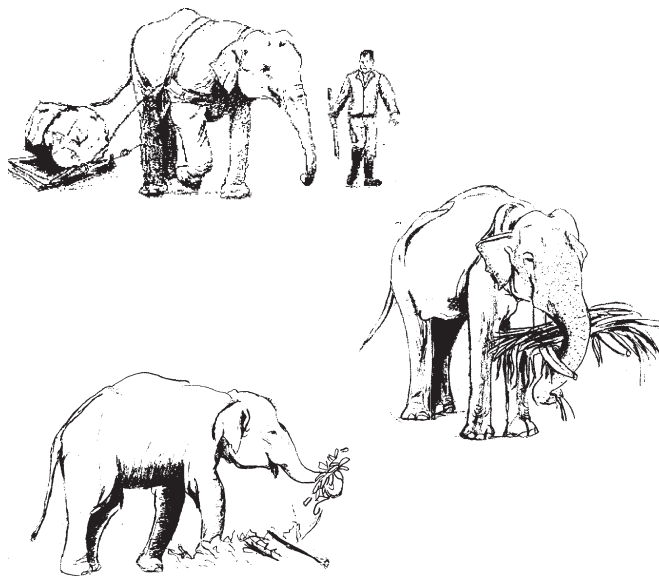
that keepers could have immediate contact with the animals at all times. Now, keepers work under "protected contact", meaning that there will be some form of barrier between them and the animals at all times. The change required that the facility be modified to add gates, a protective wall, modified posts in the barn, and a re-located water supply. The exhibit remained open to the public while modifications were underway.

Protected contact helps ensure keeper safety since keepers no longer have to assert their dominance physically over the animals because they no longer occupy the same space. This means that behavior management occurs almost entirely through positive motivation.

Research : Research is ongoing; University of Washington students enrolled in the psychology 419 course have been particularly active contributors of data.

Conservation : Between 1992 and 1998, the zoo conducted artificial insemination (AI) procedures with two of its Asian elephants. Because of a dwindling North American elephant population and unsuccessful AI efforts, the zoo opted to bolster the population's reproduction efforts by sending a female to breed naturally with a male at Dickerson Park Zoo in Springfield, Missouri. This breeding loan began in September of 1998. The pregnant female returned safely to Woodland Park Zoo, and a female calf was born on November 3, 2000.

This marked the first-ever elephant birth at the zoo and in Washington state. The calf has remained in good health in the Elephant Forest exhibit for more than three years (2004). The Woodland Park Zoo herd is entirely female * four Asian and one African. In addition, Woodland Park Zoo's Conservation Fund benefits elephant conservation programs and other conservation efforts. Conservation messages, including warnings related to the purchase of ivory, appear throughout the exhibit.



Breeding of Zebra in Sanjay Gandhi Biological Park, Patna

Samir Kumar Sinha*

With the birth of a healthy male foal on March 18, 2004, the Sanjay Gandhi Biological Park, Patna made its inclusion in captive breeding centers of Zebra in India. At present Kanpur, Lucknow, Mysore, Thiruvananthapuram, Chennai, Kolkata, Nandankanan and Patna zoos have zebras, but breeding of the species is going on in few of them.

In Patna Zoo, a pair of zebras was brought from Kanpur Zoo on 23rd April 1997, but unfortunately the female died on 1st December 1997 due to internal casualty as she dashed into the steel mesh of the enclosure. This made the male lead a solitary life for almost four years till one female was brought to the zoo on 23rd October 2001 from Lucknow Zoo. When this female was included in the Park, she was only one year old (date of birth 25th October 2000) so, the park management decided to keep her in a separate enclosure close to the enclosure of the male. "This helped in developing familiarity among the two individuals on one hand and gave enough time for the female to mature", says Ranvir Singh, Director of Sanjay Gandhi Biological Park. During first estrus, in early 2003 the female zebra was brought in contact with male and mated. The first mating became unsuccessful but both the individuals were left in the same enclosure. After twenty one days the female again came to estrus on 21st March 2003 and mating on the occasion became successful giving the park a gift of the new born foal.

As soon as it became apparent that the female had conceived, special feeding care was taken for the animal. Food was supplemented with mineral mixture, vitamins, iron, and calcium. The pair during the period was not disturbed and was left to lead a natural life. "The best part of the whole success was that the birth took place at 20:00 hrs. without any human interference", adds Mr. Singh.

Acknowledgement

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