

ZooLex Zoo Zürich Himalayas Exhibit for Siberian Tigers

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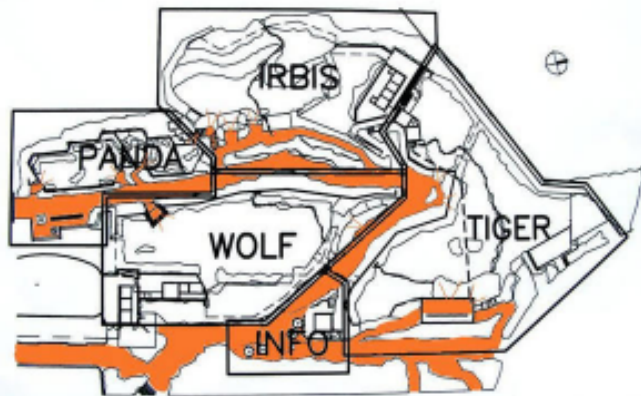


ANIMALS

Family: Felidae; Species: *Panthera tigris altaica*
 Common Name: Siberian Tiger; Capacity: 1.1 with
 offspring or 1.2

DESCRIPTION

The Himalayas serve as the uniting theme for the new exhibits that showcase Siberian tiger, Mongolian wolf, snow leopard, and red panda. The visitors are welcomed at an information plaza which is framed by stacked stone walls. Buddhist prayer flags are attached horizontally between four big stone piles. These symbols connect the exhibit to the culture of the region.



Site plan - The Himalayas exhibit is accessed via an interpretation plaza and circulation around the wolf enclosure. Leaving the red panda enclosure the visitor reaches aviaries with Eurasian birds. ©Zoo Zürich, 2002

On the steep expanse, the enclosures were arranged according to the natural occurrence of these high-mountain animals: Tiger and wolf below, red panda in the middle range, and snow leopard on top. Depending on precipitation, more or less clear water flows through the snow leopard enclosure, crosses the wolf enclosure next, and is finally received by the swimming pool of the tiger. Each enclosure displays a specific character introducing the visitors to the natural habitat of each animal species.

The tiger exhibit shows a section of mountainous, grassy landscape with cloud and deciduous forest. At the lowest part of the enclosure water forms a lake. The design tries to offer the tigers a varied and naturalistic habitat.

The enclosure is bordered by a 4 m-high fence with a 1 m-deep overhang and a 3m-high artificial rock wall with 2 m-high electrical wire on top. Viewing is provided by sections of glass panels, piano wire, and perforated metal.

SIZE

The entire Himalayas area encompasses 7400 m². 3250 m² of this are visitor areas, 3450 m² are outdoor enclosures, 470 m² are service areas, and 230 m² are buildings.

The outdoor enclosure for the Amur tigers has two viewable parts. The bigger exhibit is 1031 m². The smaller part can be used to separate animals. It is 246 m² big. An additional 61 m² separation enclosure is behind the scenes.

The pool in the main enclosure has a volume of 50 m³, and a second one in the behind-the-scenes enclosure is 5.7 m³. The holding building is about 45 m² and a 25 m² separate building holds the life support systems.

Space allocation in square meters:

Use	Indoors		Outdoors		Total exhibit
	Accessible	Total	Accessible	Total	
Animals					
Visitors					
Others					
Total		70		1,338	1,408

COSTS

CHF 7,000,000 including 20% for design. The costs include the entire Himalaya exhibit with all four enclosures for Siberian tiger, Mongolian wolf, snow leopard, and red panda.

OPENING DATE: 22 August 2001

DESIGN: Beginning: March 1997.

- Project Management / Landscape Architect: Vetsch, Nipkow Partner, Zürich.
- Architect: Marc Ryf, Zürich.
- Engineer: Peter Osterwalder, Oberneunforn.
- Media Planner / House Technology: Schudel + Schudel, Kollbrunn.
- Electrical Engineer: Schmidiger + Rosasco AG, Zürich.

CONSTRUCTION: Beginning: 21 April 1999.

- Sanitary, plumbing, roofing: Preisig AG, Zürich.

- Aquaria Planner: Joseph Nieltispach, Aquariumtechnik, Wohlenschwil.
- Metal Construction: Analp Metallbau AG, Zürich.
- Horticulture: A. + D. Berger, Kilchberg.
- Electrical Construction: E. Burkhalter Ing. AG, Zürich.
- Building construction: Diener AG, Zürich.
- Construction: K. Eicher, Bauunternehmung AG, Regensdorf.
- Shotcrete: Laich SA, Avegno TI.

PLANTS

The climatic conditions of Zurich are comparable to certain height and vegetation levels in the Himalayas, which made it possible to use plant species that are related to those at the original location.

The plant selection for the tiger exhibit mirrors the mountainous fringes of the taiga with coniferous and deciduous forest and grasslands with sparse bushes.

FEATURES DEDICATED TO ANIMALS

Great care was taken to include enrichment opportunities into the design. The tigers use the offered stone pedestals as resting and viewing platforms. Logs, living trees and the pool trigger climbing, marking and swimming. A shifting gate to the neighboring exhibit allows the tigers to visit, which enriches the enclosures with new stimuli. Llamas, alpacas, and ponies are led through the zoo several times a week, specifically also near the tigers and lions to incite hunting behavior.



Feeder Box - The tigers have to roam their territory to find prey. These feeder boxes are distributed in the enclosure. The magnetic locks are remotely controlled. Each box only opens for 15 minutes twice each day. Not all the boxes are filled every day. ©Monika Fiby, 2004

A crank in the visitor area moves a rope in the exhibit and "invites" the tiger to play. The current inhabitants of the enclosure have not shown interest in this kind of entertainment yet. Hanging bags with changeable contents offer additional possibilities for behavioral enrichment.



Creek - The artificial creek runs through the separation enclosure. ©Monika Fiby, 2004

Eight automated feeding boxes are filled in irregular intervals. The boxes are programmed to open at arbitrary times, which forces the animals to 'hunt' for their food. This kind of feeding management proved to be very effective in preventing stereotypical behaviour. Big meat portions are hung in the exhibit from time to time.

FEATURES DEDICATED TO KEEPERS

The animals can be separated or shifted by confining them into the smaller part of the exhibit or into the holding cages. They spend day and night throughout the whole year outside and are only confined to the inside holding cages while work is done in the outside enclosures. The shifting doors and the handles are marked by corresponding colors to prevent mistakes. A transportable squeeze chute is located between the indoor cages. The post used to hang big meat portions has a swing arm to facilitate loading from outside of the enclosure.

The filtration system is explained by a list of instructions and graphics.

FEATURES DEDICATED TO VISITORS

A big visitor shelter with glass viewing as well as perforated screens allow the visitors to view the biggest part of the exhibit. The perforated screens allow not only for visual contact but also for an olfactory meeting. An additional viewing point makes the smaller part of the enclosure visible to the visitors.

INTERPRETATION

The signage about the biology of the animals conforms to signage used in the entire zoo. Additionally, special signs offer information about the threats to tigers, as well as the involvement in conservation efforts by the Zoo Zurich.

Signs with flaps explain the facial expressions of tigers. Along the visitor path, casts show tracks, droppings, and feeding sites left by tigers. By



Visitor view. ©Dirk Petzold, 2002

pressing buttons, the visitors can also listen to different tiger sounds.

MANAGEMENT

Approximately four times a week the food boxes are loaded. Of the eight available boxes not all are filled every time. A soundless magnetic lock is opened by remote control four times each day for 15 minutes. When the animals are hungry, they patrol the enclosure and check the boxes for food availability. They have to open the boxes actively to get to the food.



Boom - The feeding boom can be swung to the outside of the exhibit to hang meat. ©Monika Fiby, 2004

RESEARCH

Saskia Jenny and Hans Schmid examined in a 2001 study if the stereotypical repetitive behaviours at Zoo Zurich are caused by frustrated hunting behaviour. Experiments with the food boxes confirmed this hypothesis. See Zoo Biology 21: 573-584 (2002)

CONSERVATION

Zoo Zurich takes part in the EEP for the conservation of Siberian tigers. The water features in the tiger exhibit are part of a closed circuit. The water is cleaned by pressure sand filters. Evaporation is compensated for through run-off and spring water.



Relaxing Tiger - In an exhibit like this a tiger can relax. ©Zoo Zürich, 2002



Visitor Shelter - The shelter is bordered by wood stacks. ©Monika Fiby, 2004



Overview - The Himalayas area is located in the north eastern part of the zoo. ©Zoo Zürich, 2002



Entrance to the Himalayas Area - The prayer flags welcoming the visitors were imported from Nepal. ©Monika Fiby, 2004



Tiger bathing. ©O. Röthlin, 2002



View of the pools - This glass window allows a view of tigers swimming. ©Monika Fiby, 2004



Tiger swimming. ©Zoo Zürich, 2002



Visitor view - The other view options at this shelter are through a narrow glass window and through perforated metal panels. ©Zoo Zürich, 2002



Water Recycling - The water of the tiger pool is filtered and circulates through an artificial creek. ©Monika Fiby, 2004



Place at the water - The tigers like to rest in this rock niche at the water. ©Monika Fiby, 2004



Tiger couple - From this window a favorite elevated resting place is visible. ©Zoo Zürich, 2002



Dusk -The tigers are outside also at night. ©Zoo Zürich, 2002



Pool shore- In contrast to many other cats, tiger love water. ©Zoo Zürich, 2002



Big pool - Water is an important element for tigers. ©O. Röthlin, 2002



Sounds - Here the visitors can hear tigers roar when they mark their territory, are courting, or threatening. ©Monika Fiby, 2004



Perforated Screen - The perforated metal panel makes it possible for the visitors to see, hear and smell the tigers close up. The holes are so small that no tiger claw or child finger fits through. ©Monika Fiby, 2004



Creek - The artificial creek runs through the separation enclosure. ©Monika Fiby, 2004



Drinker - These drinkers are not visible for the visitors and can be heated in winter to prevent freezing. ©Monika Fiby, 2004



Tiger - The drive to hunt prey can be frustrated by feedings at the same place and time everyday. ©Zoo Zürich, 2002



Enjoy - With the big meat portions hung from a feeding post, the tigers are occupied for a long time. ©Zoo Zürich, 2002



Squeeze Chute - In the holding building are two night cages and a breeding den. The cages are connected by a squeeze chute, which can be used for veterinarian procedures and transport. The bedding in the cages is 30 cm bark shavings. Elevated shelves are mounted on the walls. The shifting doors and handles are painted in the same colors. The animals are only kept inside when work is done in the exhibits.

©Monika Fiby, 2004



Plant Protection - The plants at the enclosure fence are protected by three lines of hot wire. This prevents a path of trampled plants along the fence from forming. ©Monika Fiby, 2004



Screen - Where the plantings around the enclosure are not filled in yet, camouflage nets are mounted to keep the visitors from viewing certain parts of the exhibit. ©Monika Fiby, 2004