ZooLex

Dallas Zoo Otter Outpost

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Asian small-clawed otter / Asian clawless otter 5 (plus litters)

The Asian Otter Outpost is sited in the northern part of the zoo to complement the existing Asian-themed exhibits including the ExxonMobil Endangered Tiger Habitat. Initial concepts attempted to illustrate the interface between the natural habitat of this otter species and human settlement. This connection evolved into a concept with buildings designed to suggest the architectural style of northern Thailand which reinforces and complements the existing adjacent Thai architecture. The planting scheme further suggests the otter's natural habitat, albeit a modified version that accounts for the extreme heat and dryness prevelant in Texas summers.

In addition to the lush landscape, the most notable feature of the exhibit is the water system. Two artificial concrete pools and streams traverse the foreground of the exhibit emphasizing the importance of water in the lives of the otters. Natural stones within the streams create movement. Full-length acrylic viewing windows afford visitors the opportunity to observe the playful nature of this species and their adaptation to the water environment. A favorite visitor viewing spot is at the deeper pool near the high end of the exhibit. Elevated within a small berm at one side of the exhibit, this pool allows underwater viewing without a subterranean visitor pathway. This arrangement while convenient for the visitor causes some challenges for the life support water system pumps due to the elevation difference.

Otter at Dallas Zoo exhibit ©Dallas Zoo, 2006

To increase the illusion of an actual stream and pond area, planting pockets are located within the rockwork. The planting pockets allow potted water plants to be easily installed and / or removed without creating any major disturbances to the water feature. Elastic bands stretch over the top of the pot and attach to steel rings on two sides of the pockets to hold the pot in place.

Additional rock outcroppings and fallen logs are located within the exhibit. The rock outcroppings are a mix of both natural and artificial rockwork and are generally incorporated in the planting areas and around the water feature. With the exception of one log, all fallen logs are natural.

Because this otter species is known to raid flooded rice paddies for crustaceans that live in the soft mud, a concrete rice paddie 'mud bank' is located toward the back of the exhibit to further create an authentic look. The paddie is grass-filled versus rice-filled to provide permanent coverage but is not water logged in order to minimize digging by the otters. The enclosure while open on the top, has five foot high vertical wall surfaces with non-climbing finishes and a cantilevered top portion because of the agility of these animals.

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Shading from the hot Texas sun was an important design consideration both for the animals and for the visitors. The themed shade structure provides a large resting station for zoo visitors while they enjoy the frolicking of the animals.

SIZE: The total area of the exhibit site including support buildings is 600 m² (6500 square feet) including an area for the holding building and life support water system of 110 m² (1,192 square feet), an area for animal holding and staff of 65 m² (704 square feet), an area for the life support water system of 45 m² (488 square feet), an area for outdoor holding support of 38 m² (408 square feet), an area for a visitors outdoor shelter of 52 m² (560 square feet), and an area for outdoor life support water system equipment of 20 m² (210 square feet).

Design and construction was funded by a $2 million (US) gift from the Betty Moroney Norsworthy Charitable Trust. An additional $300,000 (US) was donated by the trust to provide for the perpetual care of the otters and their habitat, and to support conservation efforts for the Asian otter in the wild.

PLANTS:
A plant palette was selected that would best suggest the natural habitat of this species - the tropical rainforests of southern India, southern China, Southeast Asia, Indonesia, and the Philippines – while coping with the hot, dry summers and the cold, wet winters of north Texas. The plant list specifies the Latin names of the plants used for this exhibit.

Outdoors: Radiant heated hot spots within visitor view are provided and encourage animal napping near the visitors. The two streams provide varied swimming opportunites: one stream has rapidly flowing water and the other has shallow slow flowing water. The streams connect two pools: one with a 1.5 meter (60 inch) depth for diving and one with a 0.5 meter (18 inch) depth for swimming. Shallow shelves are incorporated on at least one side of each pond for baby otter entry and exit. Water temperature is held between 24 and 27 degrees Celsius (75 to 80 degrees Fahrenheit) year round. The water feature is a closed system which requires treatment of the water before it enters the system to - among other things - help remove chlorine that would break down the necessary oils in the otter's coat. Water in the system is kept clean by an elaborated water filtration and purification system.

Visitors observe otters at Dallas Zoo ©Barbara Brem, 2006

Pockets in the streams and pools allow keepers to hide food / enrichment tidbits and serve as hiding spots for live fish and crustaceans. Sunning shelves allow the otters to take advantage of sun angles. Poop mounds within the exhibit provide (controlled) high spots for territorial marking and defecation.

Indoors: Two sets of enclosures contain three pens, a play room with a skylight and a 30 cm shallow recessed pool (12-inch depth) each. An additional above-grade swimming pool is located in an adjacent pen. Holding area floors are warmed with radiant heating. A holt (resting place) can be accessed by the otters directly from one of the holding enclosures. The holt has radiant heating and an overhead lamp. Non-fixed crates filled with bedding material serve as sleeping quarters for the otters in each holding area. The holding building temperature is maintained between 26 and 29 degrees Celsius (78 to 84 degrees F.)

Features dedicated to keepers
Poop mounds are provided in the exhibit, each with sanitary drains for easier clean-up. The drains used for the poop mounds have a hinged cover due to their small size. Other exhibit drains are not locked or screwed down, in order to minimize problems for the keepers. Covered electrical outlets and hose bibs are provided within the outdoor exhibit area. Interior walls of the holding building are glazed surface concrete block with epoxy grout for ease of cleaning. Walls have coved bases at intersections with floors. Floors are smooth hardened concrete. Various gates including guillotine and sliding styles are used to separate the pens. Pools are hose filled. The recessed pool has a drain. Individual drains for separation of cleaning water are in each holding pen. Temperature controlled mixing valves are provided at the keeper wash down hose. Keepers have a concealed view window into the outdoor exhibit. Crates in the holding area are moveable, so they can easily be cleaned by the keeper staff.
A deep stainless steel sink with below sink drain control is provided. A drain board and open wire shelves directly above the sink and drainboard allow for air drying of utensils. Large movable open wire shelves provide storage. A lift in the service area allows keepers to traverse the grade change between the service drive and the holding building floor level with heavy items. The lift also provides special access into the holding area.

Pipes and components in the pump room are all clearly labelled. Pipes that are located outdoors are electrically heat-traced. Three tanks located in the outdoor service area adjacent to the holding entry doors allow fish and crustaceans to be quarantined and monitored before being fed to the otters.

Features dedicated to visitors
All glass visitor viewing barriers are to-grade including the underwater viewing windows into the deep otter pool to allow maximum viewing. The viewing windows at the deep pool are located under the shade structure and are slanted to reduce reflections in the visitors line of view. Additionally, an eye-level window at approximately 1.5 meter (five foot in height) allows visitors to view into a lighted otter holt: a video monitor allows additional viewing. Fans in the visitor shade structure provide a cool respite during the summer months. The shade structure complements the Asian-inspired theme and the adjacent tiger exhibit.

A grade level glass feeler box for environmental enrichment items allows the visitor to observe the otter's agil front paws. A graphic box for changeable messages provides information on day-to-day otter activities. Maintenance items such as outlets and skimmers are hidden from view.

Interpretation :
Graphic panels were designed and provided by the zoo's graphic department in cooperation with animal staff researchers to provide no more information than a typical visitor will absorb quickly. Information provided is limited to unusual facts and features of the otter species. Graphics include large panels and the updatable box. Photos convey engaging personalities of the individual otters. The changeable blackboard allows for daily updates of otter activities.

Management:
The keepers must undergo an extensive training program covering the water filtration system. Monitoring and adjusting of the flow rate is important to minimize excess pushing of the water plants. The otter groups may be out and alternated variably from 2 to 6 hours depending on the day. They are brought in during the night hours unless they are requested for display during an evening event.

Research:
A video takes live images of otters in the exhibit, in the holding area and in the den. The images are transfered into the zoo-wide computer system, so that researchers can observe otter's activities without being present. The Research Department is conducting a study on the otters' social behavior and vocalizations.

Attractive Otter graphics at Dallas Zoo ©Barbara Brem, 2006

Underwater viewing the otter ©Dallas Zoo, 2006

Conservation:
The project's location was chosen to conserve existing trees and to utilize existing topography to the greatest extent possible. The large exhibit pool is partly shaded to help reduce heat load on the pool water. Water heaters are demand type.

The zoo participates in the American Zoo and Aquarium Association (AZA) Otter Species Survival Plan (SSP). The zoo supports otter research and conservation. The education department uses the exhibit to teach children (and adults) about the importance of water conservation, habitat preservation, and food chains as well as social organization and play behavior.

About ZOO LEX
The ZooLex Zoo Design Organization is a non-profit organization, registered in Vienna (ZVR-Zahl IV-SD-1193/VVM/2000), independent from companies and organizations. It relies on the support of subscribers, members, sponsors and well-wishers to fund its activities.

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