



## Formosan Black Bear Paradise

■ Ying-Ying Dong, Chien-Jen Yang, Taipei Zoo

To help the Formosan black bear cub in the Formosan Animal Area adapt and enrich their environment: 1. Interior enclosures that respect bear cub's choice: two interior enclosures are provided, one with climbing facility, tires and wooden toys where zoo keepers interact with bear cub. But interaction stops when bears enter the other enclosure so cub has a choice on human interaction. 2. A varied outdoor enclosure: as black bears are very sensitive in the wild and hide with slightest commotion, logs are placed upright and crisscross to create climbing space that's suitable for hiding or escape. Several branches are placed

higher than visitor area to give bears assurance. 3. Food diversity: black bear cub needs to learn what can be eaten, so different kind of food is fed so they won't turn picky in the future. 4. Toy enrichment design: in the wild, bears face many trials which develop their hunting abilities, so at the zoo, apparatus such as floating ball or bouncy basketball are used to simulate small animals breakaway and counter-attack, or flexible ropes tied to tires or teething bone for pull and drag, are used instead to train the bears, and these games have now become black bear cub's favorite.



## Environmental Enrichment for the South American Coati

■ Text: Shi-Jia Cheng, Siu-Er Pan, Chien-Jen Yang, Taipei Zoo  
 ■ Photo: Siu-Er Pan, Taipei Zoo

In July 2009, a pair of South American coati was brought to the Children's Zoo, the male named "Huan-Xiong", the female "Huan-Xing". The challenge was using limited space to create a 3D discovery environment to satisfy animal's natural behaviors, and based on this concept the following behavior enrichment apparatus were developed: 1. Set up climbable rest stand, terrace for hiding and nesting box; 2. sandbox, rocks, bird nests and bamboo tubes for digging and discovery; 3. hiding spots where animals feel safe; 4. obstructing measures done according to the animal's field of vision and habitual behavior; 5. management methods were adjusted according to animal's habits, so they feel safe and comfortable, and has a good relationship with the keeper. This pair of South American coati reproduced for the first time on January 10, 2009 at the Taipei Zoo, come and see how cute they are when visiting the Children's Zoo!



## Feeding Method and Environmental Enrichment of the Chimpanzee

■ Ying-Wei Su, Chinese Culture University;  
 Xuan-Yi Wu, National Pingtung University of Science and Technology;  
 Chien-Jen Yang, Taipei Zoo

Chimpanzee is the most well-known primate, and genetically most similar to human. Adult chimpanzee has intelligence equivalent to a 5-7 years old first grade student, thus they are more complex psychologically than other animals. Chimpanzees under captivity need many interesting facilities and

suitable management to enrich their behaviors. They are omnivorous, so variations and hiding of food are used to extend their foraging time. To create more activities for them, aside from common climbable apparatus, man-made equipments such as ant tomb, rocking horse, spring mattress, hollow wall, tire tunnels, etc. are used to turn the exhibit into a small playground.



# 抱 動物園 報



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Read more about "Animal Behavior Enrichment" special coverage in the No.115 issue of the Taipei Zoo Magazine!

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# ZOO PAPER 《2009-2》



## Give animals a loving home ( II )

Win their hearts-environmental enrichment that looks after animal's body and mind

■ Chien-Jen Yang, Taipei Zoo

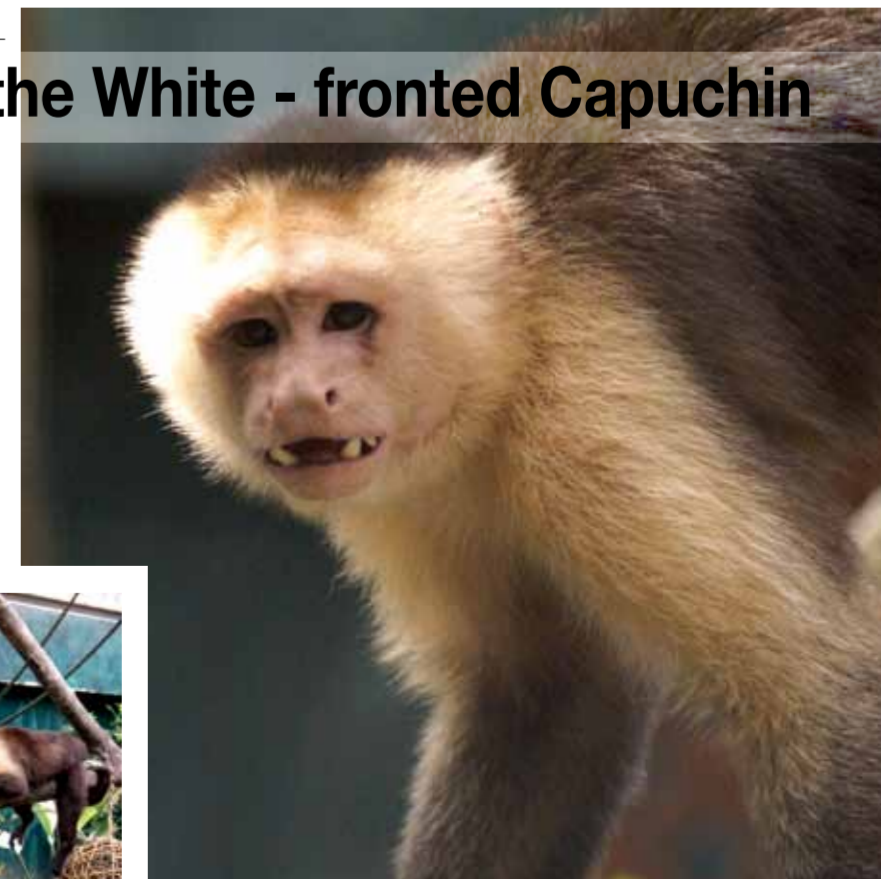
The modern zoo places much importance on animal welfare on the raising of wild animals. Rather than be scrupulous about duplicating animal's wild habitat, how to satisfy animal's psychological feelings is even more important, so zoo exhibitions take advantage of animal intelligence to provide a broad learning environment. The three important aspects on how to create environmental enrichment for the animals: 1. Understand animal's psychological world; 2. Create an environment that is secure, complex, achieving and novel; 3. Establish a friendly human-animal relationship. As zoo keepers play the most important role in human-animal relationship, a good keeper that understands animal's psychological needs is critical and reflected in the animal's growth and breeding.



## Environmental Enrichment for the White - fronted Capuchin

■ Ying-Ying Dong, Chien-Jen Yang, Taipei Zoo

In the popular pirate movie series, the audience is always taken by the agile capuchin that timely rescues its master. Researches show capuchin has high intelligence, and knows how to use tools to open food or make weapon. The Taipei Zoo has installed many enrichment facilities for the white-fronted capuchin, such as stainless steel mirror, re-equipped drawbridge, acrylic IQ box, etc. These interesting apparatus and toys make capuchins work their brain and gain satisfaction, transform the boring enclosure into a funhouse and let visitors have the good fortune of seeing animal's marvelous behaviors.



# Fun with Toys

Using Floating Balls and Fire Hoses to Enrich Facilities

Text: Hsiao-Wei, Kuo, Taipei Zoo  
Photo: Hsiao-Wei, Kuo, Song-Lin Wu, Taipei Zoo



In order to provide animals a comfortable and pleasant living space at the zoo, the enrichment of the breeding environment has always been an important challenge. Because space was limited, small changes in habitats, addition of hiding apparatus and feeding enrichment props were used to bring fun to the animals! For example, in order to entice the brown bears to search for food and prolong their feeding time, food is stuffed into a floating ball for them to play with. We have discovered that brown bears, Asiatic black bears, sun bears and

giant pandas play ball differently! We also tried hanging fruits on natural vines, making it look easy but actually hard for animals to grab a bite. Discarded fire hoses which are strong and durable were transformed into hanging ropes for orangutans as an exercise tool! For lemurs, "hammocks" made of jute sacks were used to hold food to avoid fecal contamination, yet have become a "forest" where lemurs jump, bask in the sun and nap. Using such simple apparatus to display enriched animal behaviors is just the effect we desire!

## The Diverse Dining Table of the Formosan Rock Macaque

Text & Photo by Hwei-Qun Yeh, Taipei Zoo

The Formosan rock macaque island at the Formosan Animal Area is the most popular spot among visitors. Macaque's shelter is hidden behind the waterfall, where their favorite dinner is kept. To minimize placing food directly on the ground and accommodate more macaques inside the interior, multi-levelled seating facilities were designed, and this helps lower precedence macaques have dinner faster too. Due to limited manpower, decorations must be simple and easy to make, so taking advantage of available discarded materials, small chairs, beds, bamboo snack tubes, hanging ropes, etc. were designed and constructed. After completion of macaque's shelter, Formosan macaques have a larger habitat, and more place to hold dinners, such as large-size food may be jammed onto diamond-shaped nets, or halved bananas and cucumbers and wheat toast slices can be stuffed into bags hanging on walls, making macaques move around and have fun searching for food during dinner time.

## Summer Fruit Popsicle for the Animals!

Text: Yu-Fei Chu, National Taiwan University; Ci-Wen Yang, Taipei Zoo

In the extremely hot summer, Taipei Zoo take extra care to design special diets meals for the brown bears and Asiatic black bears, African elephants, Formosan black bears and Formosan rock macaques — fruit popsicle! For the carnivorous grey wolves, juicy meatslice is provided. It is discovered that animals enjoy their food differently. The two female brown bears "Da Qiao" and "Xiao Qiao" don't mind eating in front

of visitors, but the male bear "Elvis" prefers to roll its ice to a secluded corner. Formosan black bears would wait for the ice to melt and eat the fruit pieces inside, while Formosan rock macaques eat and play simultaneously. The African elephants often use their long nose to sweep the popsicle like playing hockey, before finally smashing the popsicles onto the ground to win the fruit inside.



## A Tour of the Veterinary Medical Center, San Diego Wild Animal Park

Yen-Hsueh Sera Lai, Taipei Zoo

Much was gained from the visitation to the Veterinary Medical Center, San Diego Wild Animal Park, as its various flexible and convenient technological medical facilities were created according to operational needs. The simplistic yet well-designed administration building is decorated by large animals and artistic works, exuding a serene feeling. The main medical operation area has fixed elevating platform for easy transport of animals and equipments, with shop traveler rail at the entrance to easily move animals into X-ray and consulting room. Advanced digital X-ray equipments were used to reduce pollution caused by chemicals such as

developer solutions while producing digital medical images quickly, not to mention radioactive filming reduces risks from transporting animals under anesthesia. All pipelines, including oxygen pipes, air-extracting apparatus and electrical lines, are air borne to prevent obstruction. The temperate SPA water trough brought envy as it is the magical therapy tool for injured long-legged bird species. What's more, floors and walls were padded with cushion to prevent secondary damage to animals. Much was also learned from the professional space design of the experimental room and research units.



## Created for Sustainability — Installation Art That Inspires Reflection and Encourage Participation

Chun-Lan Lin, Taipei Zoo

Prior to the opening of the Formosan Animal Area, the Taipei Zoo has planned a series of images - the conservation wall. Its purpose is to display zoo's distinguishing features through animal images on one hand; and emphasize zoo's mission on specie preservation and environmental education on the other. The wall is divided into two parts, a moveable stage and clay-plate installation. The moveable stage is decorated with vertical

garden, animal sculptures and wood platform, hoping more conservation promotions can be held regularly. The exquisite explanatory wall shows a collapsed eco system vs. nature in harmony on the right side to signify the problem of "Species Extinction-Mostly by Human", and the left side depicts how conservation work can carry on Earth's flourishing life, conveying the spirit of "Species Preservation-You Can Do It Too".

Human have the power to change landforms, yet unable to bring back any extinct specie. If specie extinction does not slow down, the next might be us. Action is valuable in conservation. The wall expresses the importance of diverse living things, and calls for a natural lifestyle so that earth can have a sustainable future.



## Sentiments through Flowers and Plants Plant Conversations at the Taipei Zoo

Heui-Ru Wu, Taipei Zoo

Winter time is the growing season of abundant and various bedding flowers in Taiwan, a beautiful sub-tropic sea island. That's why floral shows are put on during Christmas and Chinese New Year at Taipei City Zoo. The floral show, "Animal Trail" was threw in Christmas 2008, many bedding flower such as purple sage, yellow Argyranthemum, pink Begonia were used in association with existing sculptures of spotted deer, Formosan black bear and snow leopard nearby the entrance of the Formosan Animal Area. In 2009, "Family Reunion Dinner — Tuan-Yuan Fan in Chinese word" which symbolize the reunion of the family on Chinese New Year Eve was used as the theme for the floral show

for Chinese New Year. Besides illustrating the sense of "Family Reunion Dinner" with topiary, the show also served as a welcome to the zoo's new comers, giant panda Tuan-tuan and Yuan-yuan, as well. There were four sets of topiary dinner tables and rattan chairs in the front of the stage hanged with Staghorn ferns. Flowers were planted on the topiary dinner tables with hand-made topiary animals. Visitors could even sit on rattan chairs to take photos and "reunion" with little topiary animals!