

OUR ANIMALS, PLANTS AND PHYSICAL ASSETS



PRINCIPAL AREAS OF ACTIVITY

- Collection Management and Display
- Animal Records and Identification
- Veterinary Services
- Wildlife Rehabilitation
- Australian Registry of Wildlife Health
- Collection-based Research
- Animal Watch and Behavioural Enrichment
- Asset Management
- Capital Works and Planning
- Contract Maintenance
- Horticulture

GOALS

ANIMAL COLLECTION

To ensure that our animals receive the very best care and are displayed to provide stimulating experiences that promote learning and empathy with wildlife and the environment.

PHYSICAL ASSETS

To achieve the highest design, construction and maintenance standards in order to enhance visitor experiences and safeguard the wellbeing of animals, visitors and staff.

HORTICULTURE

To develop the Zoos' landscapes and botanic displays, interpreting ecological relationships between plants and animals and contributing to the conservation of plants.

Taronga Zoo celebrated the historic first birth of two Snow Leopard cubs in October. 'Kamala' and 'Sabu' were born to parents 'Leon' and 'Samarra', both first-time parents. The parents were brought to Taronga Zoo in 2003 in the hope of breeding this endangered species.

PHOTO COURTESY JAMES ALCOCK

OBJECTIVES

ANIMAL COLLECTION

- To maintain best-practice in animal care and husbandry
- To present the world's premier display of Australian native fauna
- To display a stimulating and diverse representation of wildlife that is also used as a conservation resource
- To apply the World Zoo Conservation Strategy and the ZPB Mission Statement
- To informatively and thoughtfully present the animals to visitors
- To cooperate with other conservation, education and research organisations

PHYSICAL ASSETS

- To achieve exhibit design excellence and world best-practice in animal presentation and welfare as well as visitor and staff amenities and safety
- To ensure a holistic and consistent approach to overall site design, exhibits and logistics for visitors
- To implement best practice in asset procurement, operation and maintenance

HORTICULTURE

- To provide a stimulating and diverse botanic experience in line with exhibits that showcase bio-geographic regions
- To conserve and restore plant communities
- To help provide dietary and enrichment browse for the animals

PERFORMANCE INDICATORS

	05	06
Collection species which are classified as threatened		
Taronga Zoo	26%	25.6%
Western Plains Zoo	41%	43.9%
Threatened species in conservation programs		
Taronga Zoo	48%	46%
Western Plains Zoo	44%	47%
Collection in conservation programs		
Taronga Zoo	13%	12%
Western Plains Zoo	18%	20%

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LIFE SCIENCES ACTIVITIES AT TARONGA ZOO

Herpetofauna

The reptile and amphibian keeping staff at Taronga see their daily Keeper Talk to Zoo visitors as important as their core work – the animal displays. Through these daily interactions, visitors learn more about these fascinating animals and are able to change many of the misconceptions they have.

This year, Taronga has become an active member of the 'Corroboree Frog Recovery Group' and in May opened the Corroboree Frog Facility at the entrance to Reptile World. This tiny, colourful, frog has been rapidly disappearing from the Kosciusko high country due to a combination of global warming and the arrival of the killer chytrid frog fungus. Taronga will be holding and ultimately releasing hundreds of Corroboree Frogs each year in an effort to bolster wild populations by 'head-starting' frogs in the refrigerated display. Eggs collected from the Snowy Mountains will be hatched and reared in this new facility and frogs will be released at two and three years of age, after they have passed through the

tadpole-to-frog stage when they are most vulnerable to the fungus.

This year saw the unfortunate deaths of two of the largest reptiles at Taronga – a 190 kg female Aldabran Tortoise died from egg peritonitis, and the Zoo's 250kg, four-metre Saltwater Crocodile died suddenly from pneumonia.

Animal Presentation

Bird Show

The Bird Show is bigger, brighter and noisier than ever thanks to the addition of six Sulphur-crested Cockatoos which make a spectacular ending to each presentation. Since the show was launched in 1997, more birds and numerous educational and entertaining routines have been added each year.

An Andean Condor called Leslie – now two years old and with a three metre wing span – will shortly make her show debut. On 28 February, media attended a training session with Leslie at Clifton Gardens. Over 20 cameras were present, jostling for prime positions, along with the condor's local fan club of Mosman residents. Fortunately, she took it all in her stride (or flight!) and performed brilliantly. She

was in news reports from Cairns to Adelaide to London.

The most recent acquisition is a Wedge-tail Eagle called Gabby. She is 17 years old and a former show bird from Healesville Sanctuary in Victoria. She is probably the largest eagle on display in Australia, weighing in at 5kg.

In July, the Bird Show team joined the 'Backyard to Bush' and Herpetofauna teams to present an Aboriginal-themed show to celebrate NAIDOC week. The show was a huge success and, for the first time, incorporated animals other than birds.

Marine Mammals

The Marine Mammals team is eagerly awaiting the opening of the new Great Southern Oceans exhibit and Seal Theatre. Major efforts are being made to develop a new and exciting show and closer encounters with marine mammals for Zoo visitors. In preparation, the seals are regularly swimming in the 'Wild Asia' elephant moat and taking walks with the keepers in the Zoo grounds. The new encounters and show will be a unique experience that will also educate and inspire visitors about marine conservation.

The current show has been evolving at Seal Theatre over the last year and training has included more “wow” behaviours displaying the seals’ natural abilities. Several seals can now execute aerial behaviours such as high bows where they jump three metres above the water and do impressive, quick double back flips.

The Marine Mammals Department has also been training the Leopard Seal and the fur seals as part of a research program the Australian Marine Mammal Research Centre (AMMRC) is conducting on the Foraging Behaviour of Southern pinnipeds.

Birds

The Rainforest Aviary is now home to 123 individual rainforest gems of 23 species ranging from common Sydney species such as the King Parrot to the beautiful Noisy Pitta and spectacular Paradise Riflebird (an Australian Bird of Paradise). Additionally, a number of Taronga-bred Regent Bowerbirds were added to the exhibit, including one male that has moulted into his magnificent adult plumage of bright yellow and black velvet.

Last year’s spring breeding season saw 50 Wandering Whistling Ducks hatched in the Wetlands exhibit. The ducklings and their parents will be displayed in the ‘Platypus Pools’ until the youngsters are big enough to return to the Wetlands. Exotic Red Lorries and Luzon Bleeding-heart Pigeons were bred and transferred to ‘Wild Asia’ for the walk-through aviary. Eastern Whipbirds, Sun Conures, Top-knot Pigeons, Noisy Pittas and Regent Bowerbirds continue to produce young, which are distributed to various aviaries at Taronga and to other Australian Zoos.

Some of the Zoo’s oldest residents, the Chilean Flamingos, have been moved to the ‘African Waterhole’ to make way for the Asian Dhole exhibit.

Exotic Animals

The past 12 months has presented a number of exciting challenges for the Exotic Animals team. The greatest



achievement was the opening of ‘Wild Asia’, which involved one of the largest translocations of animals ever undertaken in the Zoo.

‘Wild Asia’ displays a number of species never before presented to visitors, in world-class facilities that create the feel of a South-east Asian rainforest right in the heart of Sydney. Important species that support regional and global conservation initiatives, like the Francois Langur and Silvery Gibbon, as well some of the world’s most stunning birds, such as the Golden Pheasant and rare Green Peafowl, can now be seen in ‘Wild Asia’. Spotted Deer have proved to be an extremely effective display under the historic fig trees and the ever-popular Oriental Small-clawed Otters, not seen at Taronga for a while, have made a welcome return.

A newly arrived pair of Asiatic Dhole or Wild Dog, captive-bred in Cambodia, will form part of the basis for a regional management program for these threatened Asian canids.

The most significant individual breeding event was the birth of twin Snow Leopards, following two years

of intensive management aimed at integrating the Zoo’s resident pair of animals. The cubs created a huge level of interest through very positive media coverage for the Zoo.

The sudden death of a female Squirrel Monkey required the hand-rearing of her orphaned infant. The baby, ‘Loki’, continues to thrive under the watchful eye of Primate Unit staff during his integration back into the group. He currently lives with two surrogate “aunties” who are teaching him the necessary Squirrel Monkey etiquette.

Opposite: Keepers at Taronga’s QBE Free Flight Bird Show commenced training this year with ‘Leslie’ the two year old Andean Condor. With an impressive three-metre wing-span, ‘Leslie’ is sure to be a highlight of the show.

PHOTO COURTESY ROBERT PEARCE – THE SYDNEY MORNING HERALD

Above: Australian Sea Lion ‘Miya’ shows visitors some of her natural abilities by leaping up to three meters out of the water. In the wild, seals have been known to exhibit such high jumping behaviours during play and when avoiding a predator like a Killer Whale.

PHOTO COURTESY JEFF DARMANIN – THE DAILY TELEGRAPH

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Australian Mammals

Highlights this year include yet another offspring being produced by the Platypus in the 'Platypus Pools'. A young male emerged from the burrow in February, following two previous sets of twins in the last three years. Taronga's success with this species is unparalleled and has enabled the Zoo to send Platypus to other institutions, thus forming the foundations of a future regional breeding program. Already one of the first-born females has been relocated to Healesville Sanctuary in Victoria and a male from the second breeding, along with an

Above: Chris Hibbard, Exotic Species Manager, Taronga Zoo

"Involvement in the development of 'Wild Asia' has been one of the highlights of my career with the Zoo. It's brought together such an exciting collection of plants and animals while creating exciting opportunities for our team of dedicated staff".

Opposite: Western Plains Zoo's most vocal couple, Siamang apes 'Puteri' and 'Saudara', became parents for the fourth time with the arrival of 'Chanee'. Breeding and display of animals like the Siamang Ape helps raise visitor awareness of the issues facing this species in the wild.

PHOTO COURTESY MARILYN CHENAULT

older male, has moved to Australia Zoo, Queensland. A newly arrived, captive-bred male from Healesville Sanctuary has been paired with the latest female offspring in an attempt to breed an all-important, second-generation, young.

The Nocturnal Unit has again had a productive year, proving the staff's ability to satisfy complex husbandry requirements of vulnerable species, whilst providing aesthetically pleasing displays. A new pair of Black-footed Tree Rats has produced two offspring and the Ghost bats, Brush-tailed Bettongs and Yellow-bellied Gliders have also bred.

Staff have been busy with numerous animal transportations, including the relocation of two female Koalas to Los Angeles Zoo, participation in the Northern Hairy-nosed Wombat population surveys at Epping Forest and lecturing for TAFE, university and local community groups. The Australian Mammals Division also hosted a visiting delegation of Thai veterinarians and keeping staff from Chiang Mai Night Safari and Chiang Mai Zoo during October and November. These Thai zoo personnel worked alongside Taronga and Western Plains Zoos' staff to study and practise the husbandry of Australian fauna, especially that of Koalas and macropods.

'Backyard to Bush'

'Backyard to Bush' played a significant role in delivering the ZPB educational messages through school workshops, keeper presentations, Zoo Adventures school holiday program, Youth at the Zoo and the new 'Fearless at Taronga' program. Workshop attendance numbers showed a significant increase on last year.

New exhibits were developed for reptiles, including the Red-bellied Black Snake, Bearded Dragon and Diamond Python. The invertebrate focus in 'Backyard to Bush' continues to be enhanced through new signage and displays such as a Golden Orb-weaving Spider and Australian native land snails.

A trial amalgamation with the Education Centre keepers and animals has provided an opportunity for a consistent approach to husbandry for all education animals.

LIFE SCIENCES ACTIVITIES AT WESTERN PLAINS ZOO

Major animal news at Western Plains Zoo included:

- release of 38 Malleefowl chicks to Nombinnie Nature Reserve, in conjunction with the Department of Environment and Conservation and Charles Sturt University (Griffith). 12 chicks were radio-tracked for up to two months,
- arrival of two male Sumatran Tigers, 'Sendiri' and 'Dumai' from Taronga Zoo on temporary loan prior to transfer to New Zealand as part of the global captive management plan for Sumatran Tigers,
- birth of a male Brazilian Tapir 'Arturo' in April – the first tapir birth for eight years and a valuable addition to the region's tapir population,
- birth of a male Southern White Rhinoceros 'Kei' to dam 'Umqali' in February – her second calf since arriving from South Africa in 2003, the first male calf for the group and the first male calf sired by 'Khulu',
- transfer of a female Cheetah 'Kifani' to Victoria Open Range Zoo as part of a regional breeding recommendation,
- transfer of four Przewalski's Horse to Altina Wildlife Park, Griffith to assist with the regional species management program,
- transfer of female Zebra foal 'Shani' to Taronga Zoo in March,
- export of six Common Wombats to Duisburg Zoo, Germany in October to enhance the European wombat population and their breeding program,
- a male Bongo 'Ekundu' born in November,
- death of nine-year-old female Dingo 'Narra' due to age-related illness,
- unfortunate deaths of two Scimitar Horned Oryx when a four year old female was fatally injured by the adult male and a seven month old male died during a veterinary procedure,
- birth of a male Giraffe, 'Jimiyu', in February,

- expansion of the elephant conditioning program to include the Asian Elephants 'Heman' and 'Burma' – 'Heman' has made excellent progress, has proved to be an eager and responsive student and he is reaping continual benefits from this training and conditioning,
- installation of a mechanised cloth "lure" in the Cheetah exhibit which provides a swift target for the Cheetah cubs, born last year, on which to practice their hunting and capture skills,
- unfortunate death of six Meerkats, who died when a storm collapsed a section of their tunnel,
- transfer of a male Ring-tailed Lemur to Mogo Zoo to form a new breeding pair,
- arrival of two male Regent Honeyeaters from Taronga Zoo in July as part of the Australasian breeding program,
- birth of Siamang 'Chanee' to 'Saudara' and 'Puteri' in July – the Zoo's third successful Siamang birth,
- two female Patagonian Cavy were sent to Adelaide in early December to join a breeding program, and
- death of Onager 'Dolly' in March, aged 24 years – Dolly originally came to the Zoo in May 1982 with three other Onager, and produced eight offspring in her lifetime, with three still at Western Plains Zoo.

Animal Records and Identification

Since 1985, Taronga and Western Plains Zoos' animal collection records have been maintained on an internationally available computer database known as Animal Records Keeping System (ARKS), which is administered by the International Species Information System (ISIS).

From 2000, zoos worldwide have been working towards replacing ARKS with a new web-based application, the Zoological Information Management System (ZIMS) which will be available in 2007. Several staff members from the ZPB have been involved in the



development of this important software. ZIMS' significant improvements include:

- increased functionality, analysis and reporting of data,
- incorporation of a wider range of animal collection types including aquariums, museums and scientific materials,
- enhancement and integration of the veterinary management of zoological collections,
- use of global instead of national standards,
- use of the most up to date technology, and
- access to the global sharing of real-time, web-based animal collection information, in a single database system.

Veterinary Services at Taronga Zoo

Taronga Zoo's Veterinary and Quarantine Centre (VQC) prides itself on providing the highest standard of health care to the Zoo's collection animals. This is accomplished through a stringent, preventative medicine program, humane, efficient and effective restraint and immobilisation, reproductive management and clinical medicine.

This high standard is achieved and maintained by continuing education and training of Zoo staff, as well as drawing on the expertise of local and international veterinary and medical specialists.

This year specialist assistance helped bring about successful outcomes in a number of significant cases. These included:

- Snow Leopard cubs with congenital malformations of their upper eyelids were surgically repaired by veterinary ophthalmologist, Dr Jeff Smith,
- Dr Jeff Smith also assisted with an Australian Fur Seal that had a severe ocular infection, requiring removal of the eye and replacement with a prosthesis,
- attempted artificial insemination of a Giraffe using an endoscope passed into her uterus via the cervix carried out by Dr Warwick Lamb, a veterinary internal medicine specialist and Dr Justine O'Brien, a reproductive biologist,
- an old Kodiak Bear with chronic inflammation of her eyelids was investigated by veterinary ophthalmologist, Dr Cameron Whitaker,

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- a Sun Bear, Dhole and a Binturong had root canal therapy performed by veterinary dentist, Dr David Clarke,
- a New Zealand Fur Seal with chronic blood in her urine was investigated via ultrasound conducted by veterinary sonologist, Dr Karon Hoffman, and cystoscopy by internal medicine specialist, Dr Liz Dill-Macky,
- an aged Orang-utan with persistent and heavy menstruation caused by a uterine fibroid, underwent an ovariectomy performed by obstetrician and gynaecologist, Professor Ian Fraser, and
- assistance was provided by avian medicine specialists, Drs Bob Doneley and David Phalen, in the investigation of birds infected with Psittacid herpesvirus.

All of this work is provided *pro bono* for which we are extremely grateful.

The activities of the VQC extend well beyond providing a service to the Zoo. There is extensive collaboration through consultancies and research with other agencies such as universities, wildlife and agriculture authorities, other zoos and fauna parks and private veterinary practitioners.

As specialists ourselves, we provide consultancies in the form of veterinary expertise and training to other organisations such as Sydney Aquarium, Manly Oceanworld, Australia Zoo, NSW Department of Environment and Conservation, Department of Primary Industries, Water and Environment (Tasmania), Macquarie University, Centennial Parklands, Sydney Olympic Park Authority, University of Sydney, Waratah Park Earth Sanctuary, University of NSW, Department of Agriculture (WA), Department of Primary Industries (NSW), Sea World (Gold Coast) and Canley Heights Veterinary Clinic.

Collaborating with researchers is a vital VQC role and significant collaborative research projects this year included:

- Telomeres (repeated DNA sequences found at the ends of linear chromosomes) as a possible estimator of age in wombats – Monash University,
- Devil Facial Tumour Disease: Cytogenetic Clues to Transmission and Development – Australian National University,
- investigation of the health and ecology of Common Brushtail Possums – Macquarie University,

- monitoring of the Jenolan Caves captive and remnant population of Brush-tailed Rock-wallabies – Dept. of Environment and Conservation and Jenolan Caves Trust; and
- investigation of the immune responses, epidemiology and pathogenesis of chlamydial disease in free-ranging and captive Koalas – University of Sydney investigation.

Veterinary Services at Western Plains Zoo

Western Plains Zoo's animal collection presented diverse clinical challenges this year, including a bone growth abnormality in a Cheetah and a testicular tumour in a Black Rhinoceros. Both of these problems required surgical solutions which were applied with successful outcomes.

Interesting medical challenges included the management of an outbreak of aspergillosis in the Malleefowl group and an unusual type of anaemia in a group of Maned Wolf pups.

The Veterinary and Quarantine Centre staff also contributed significantly to the social management of the Zoo's animals, particularly with considerable involvement in the integration of a hand-reared White Rhinoceros calf, 'Amira', to the rhino group.

The contribution of Western Plains Zoo's Reproductive Laboratory to wildlife reproductive management and research in the Australasian region continued to grow. This year the laboratory initiated a commercial service offering access to specialised hormone monitoring assays to the region's zoo and wildlife workers. Significant achievements included the implementation of an elephant luteinising hormone (LH) assay, which was used by Perth Zoo in their planning for Australasia's first elephant artificial insemination attempt.

Captive elephant reproduction will become a significant area of focus for the region's zoos over the next few years and will require considerable input from zoo veterinarians. Fertility testing of Western Plains Zoo's Asian

elephant 'Heman' was undertaken this year which revealed that 'Heman' is a potential semen donor for a regional elephant artificial insemination program.

Wildlife Rehabilitation

The Wildlife Rehabilitation Clinic at Taronga Zoo treated in excess of 800 native animals, providing a vital service to the community, wildlife groups and the NSW Department of Environment and Conservation.

In conjunction with the Australian Bird and Bat Banding Scheme and the Federal Department of Environment and Heritage, birds were permanently identified with metal bands to provide data on survival and movement of rehabilitated birds. Adjustments were made to the Wildlife Rehabilitation Database to further facilitate information gathering and provide information to the Department of Environment and Conservation Threatened Species Unit and other wildlife agencies.

Media covered the treatment of many wildlife cases such as the endangered Wandering Albatross release at sea, Australasian Gannets and Southern Giant Petrels.

Other threatened species treated included three Powerful Owls and two Yellow-bellied Gliders. Fifteen endangered sea turtles were treated, including nine Green Turtles, two Hawksbill Turtles, two Flatback Turtles and one Loggerhead Turtle.

The Unit Supervisor umpired and reported on an Oiled Wildlife Exercise at Airlie Beach, Queensland at the request of the Great Barrier Reef Marine Park Authority. Queensland Parks and Wildlife rangers were trained and their preparedness tested for a major oil spill in Australian waters in conjunction with the National Plan to Combat Pollution of the Sea by Oil. Involvement in other oiled wildlife issues included presentations at the National Plan Workshop in Perth, Western Australia and maintenance of the veterinary component of the Oiled Wildlife Emergency Kit funded by the Australian Maritime Safety Authority.

Community involvement in wildlife rescue and release continued with increased public focus on the Little Penguin colony at Manly and the Long-nosed Bandicoot population at North Head. Twenty-eight Little Penguins were treated and rehabilitated at Taronga Zoo during the past twelve months.

Australian Registry of Wildlife Health

The Australian Registry of Wildlife Health, which contributes to the field of wildlife health surveillance for the benefit of human health, domestic animal health, the agro-economy, biodiversity conservation and wildlife welfare and management in Australia, has celebrated its 20th anniversary this year.

The Registry is a resource centre containing information relating to healthy and diseased native fauna and zoo animals. It is also a diagnostic centre, investigating outbreaks of sudden death or disease on behalf of wildlife managers, conservation departments, threatened species programs, wildlife rehabilitation groups, the RSPCA and zoos.

Achievements of the Registry over the last year include:

- an additional print run of 300 copies of the Wildlife Health Investigation Manual for wildlife carers, veterinarians, wildlife managers and bulk orders for the field veterinarians of many of the state agriculture departments. The reprint was funded through the financial support of the Commonwealth Department of Agriculture, Fisheries and Forestry,
- digitisation of the Registry's 35 mm photographic archive for access and linking to the related case information in the Registry's archival software. This was funded through the financial support of the Commonwealth Department of Agriculture, Fisheries and Forestry.
- disease investigations included:
 - on-going investigations into snake viral diseases,



- on-going investigation of *Angiostrongylus cantonensis* infection in Tawny Frogmouths in the Sydney region,
- investigation of an outbreak of concurrent chlamydiosis, circovirus infection, and possible polyomavirus infection in Sulphur-crested Cockatoos from the western NSW region,
- investigation into the outbreak of sudden deaths of Pelicans and a Black Swan from Sydney's Centennial Park,
- investigation into the paralysis of five Sacred Ibis from the Southern Sydney Region,

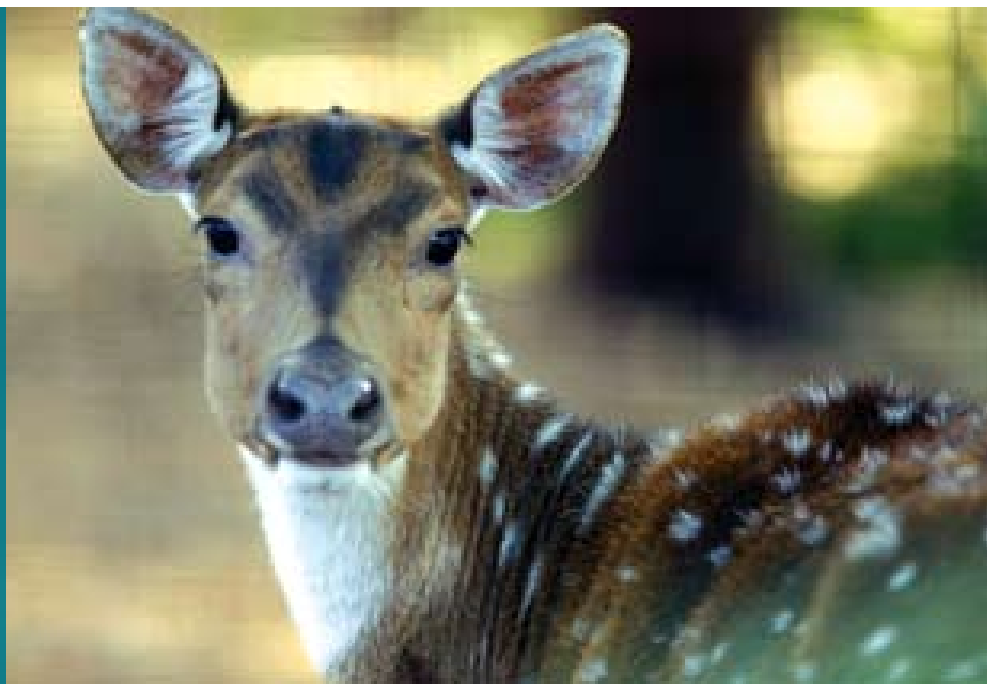
Opposite: Taronga Zoo's Wildlife Clinic treated and rehabilitated 28 Little Penguins during the year. The penguins were released on beaches close to where they were rescued.

PHOTO COURTESY HELEN PANTENBURG

Above: Evelyn Weston, Unit Supervisor, Nocturnal Unit, Australian Fauna Precinct

"I feel very privileged to be working with such wonderful Australian animals and to be involved in the Platypus breeding program. Hopefully we will be successful in breeding the second generation of platypus at Taronga Zoo in the near future. A world first! Very exciting!"

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Left: The Chital Deer family can be seen by visitors to Taronga in their new home in 'Wild Asia', underneath the large Morton Bay Figs.

PHOTO COURTESY JAMES ALCOCK

Opposite: Taronga Zoo's Chimpanzees receive regular enrichment treats including a carved-out pumpkin on Halloween.

PHOTO COURTESY MARK BAKER – AP

- investigation into the mass mortality of Magpies, Currawongs, Ravens, a smaller number of other species (between February and April), predominantly along the Central Coast and greater Sydney region of NSW and other possible related cases occurred in Healesville – Victoria, Byron Bay, Coffs Harbour, Lismore, Bateman's Bay, and southern Queensland,
- assisting Department of Primary Industries Water and Environment, Tasmania, with the investigation of high nestling mortality among captive Orange-bellied Parrots,
- assisting the Department of Environment and Heritage in the investigation of the presence of viral pathogens in a group of confiscated Conures and Ruppell's Parrots; and
- attempting to confirm the presence of polyoma virus infection among finches and other species, using molecular diagnostic techniques.
- Preparation of a Sick and Dead Bird Health Surveillance Protocol to assist in occupational health and safety relating to handling sick birds,

triggers for the initiation of a disease investigation, contact details for disease notification and methods to collect appropriate information and samples to aid an investigation. The document is being employed by the Registry, the Florida Department of Fish and Game, and the United Nations Food and Agriculture Organisation. (See Appendix 10)

Animal Watch and Behavioural Enrichment Program

This program aims to monitor and maintain psychological well-being in the Zoos' animal collection by collecting behavioural data and implementing a zoo-wide environmental enrichment program.

The highlights this year include monitoring the move of the Asian Elephants to Western Plains Zoo, the completion of a post-occupancy study of seven mammal species moving into 'Wild Asia' and involvement in the third successful captive-breeding of Platypus, only a year after the previous success.

The increased use of monthly enrichment schedules by keeping staff and the continued employment of work

experience volunteers in behavioural enrichment activities has increased the impact of enrichment on exotic mammals.

Significant projects undertaken this year include:

- post-occupancy studies of activity, enclosure use and visitor reactions were carried out from August to October for seven mammal species including the François Langur, Silvery Gibbon, Fishing Cat, Oriental Small-clawed Otter, Binturong, Malayan Tapir and Spotted Deer, as they settled into 'Wild Asia'. The François Langur study was carried out by a Sydney University post graduate student, Lydia Gaskell.
- the monitoring of Platypus breeding in the 'Platypus Pools' culminated in a third successful birth, this time a single male. Successful breeding two years in succession in a captive environment is a first. The juvenile was left in the 'Platypus Pools' with his mother for a month after emergence, increasing knowledge of maternal and juvenile activity and interactions. One scientific paper has been completed from the data and a second is currently being written.



- two stages of monitoring the effects of the move of two Asian Elephants from Taronga Zoo to Western Plains have been completed and the third stage will be carried out by the Western Plains Zoo volunteers. The elephants were successfully introduced and are now exhibited together during the day. A formal training and conditioning program has been initiated,
- a captive-bred male Platypus from Healesville Sanctuary, Victoria was introduced to two Taronga females, one of which was Taronga-bred. Their introduction in the exhibit tank and their on-going activity and interactions are being monitored by Animal Watch. The two captive-bred animals will be introduced to the 'Platypus Pools' during 2006 as our future breeding pair,
- the relocation of all the seals from the lower pools to the main seal pool and theatre area involved Animal Watch observers in an on-going series of projects, initially monitoring the effects of the move and continuing with the monitoring of introductions,
- an extended project has been the reintroduction of a hand-raised Squirrel Monkey juvenile to the group after the death of his mother; and
- the Behavioural Biologist presented a talk on "Environmental Enrichment for Australian Mammals" at the 7th International Conference on Environmental Enrichment in New York in August and was invited to coordinate an enrichment workshop, "There is much more to feeding than just food", at the International Conference of Zookeeping in May.

CAPITAL WORKS AND INFRASTRUCTURE (CWI)

Capital Works and Planning at Taronga Zoo

Capital works continued to be undertaken in accordance with Taronga Zoo's Master Plan Implementation Strategy and the NSW Government Procurement Policy Reform. The Zoological Parks Board has been accredited by the Treasury to carry out planning activities. In the construction procurement, contractors working on

major capital works projects are drawn from the NSW Contractor Best Practice Scheme. The ZPB was supported by the Department of Commerce as part of procurement risk management and in March, the ZPB was invited to join the NSW Government Construction Procurement Reference Group.

Major projects undertaken in this year include:

'Wild Asia'

The \$38 million 'Wild Asia' was opened in July following a 30 month construction and commissioning period. This themed habitat comprises 10 individual exhibits and support facilities to care for and display a wide range of animals. The new Hillside Link Building adjacent to 'Wild Asia' accommodates the water treatment equipment and services for 'Wild Asia' and is an essential part of the access route between the lower and the upper areas of the Zoo. The construction of this project by the contractor won the 2005 Excellence in Construction Award in environmental management by the Master Builders Association of NSW.

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'Great Southern Oceans'

The construction of the 'Great Southern Oceans' exhibit and research facility commenced in July. This \$54 million exhibit contains numerous enclosures for marine animals including seals and penguins, a new seal theatre, marine life support systems for the animals and the Australian Marine Mammal Research Centre building. Completion is planned for late 2007. Substantial planning is being undertaken for the seal theatre fit out, which will allow for a seated audience of up to 900 visitors.

Above: Over 6,000 eucalyptus seedlings were planted in June at the John Morony Correctional Centre. This specially-developed eucalypt plantation will help provide a reliable browse resource for the Zoo's koalas.

PHOTO COURTESY DANIELLE MCGILL

Opposite: Taronga Zoo's fifth Master Plan project, the \$38 million 'Wild Asia', opened to the public in August. One of the new exhibits in 'Wild Asia' is home to the charismatic Oriental Small-clawed Otter family.

PHOTO COURTESY JAMES ALCOCK

Taronga Food Market

In October, the Taronga Food Market project contractor was awarded the 2005 Excellence in Construction Award in 'Best use of Timber' and in 'Hospitality Buildings' by the Master Builders Association of NSW.

High Voltage Network Upgrade

The implementation of the many Master Plan projects has resulted in the need for an upgrade of the 11kV high voltage electricity supply at Taronga Zoo. Most of the planning and the network switchgear work were completed this year. The remaining work relating to the relocation of the main switch room will be completed in late 2006 when the high voltage cabling work in Mosman region is expected to be ready.

Taronga Zoo Upper and Lower Entrance Precincts and Car Park

Consent for the Development Application (DA) for the Lower Entrance Precinct was granted in 2005. The planning and design of the upper entrance precinct and the car park has progressed substantially this year, but the final determination of the DA for the upper entrance precinct and the car park is expected in the near future.

Koala Browse Plantations

Forestry Rights Agreements on two plantation sites were made with University of Western Sydney (UWS) in late 2005. The scheme provides part of the Koala browse feed for the Zoo's Koalas, macropods and Giraffes, and is also part of the UWS Sydney Hawkesbury Campus Water Recycling Scheme and the Sydney Water's Richmond Water Re-use Project.

Another plantation site at John Moroney Correctional Centre (JMCC) has been negotiated with the Department of Corrective Services. The JMCC inmates will undertake various plant care activities with technical guidance provided by the ZPB. In June, the Local Member for Londonderry, Allan Shearan MP, held a Koala browse plantation inauguration to commemorate the joint initiative between the ZPB and the JMCC.

Capital Works and Planning at Western Plains Zoo

The majority of the Capital Works Program at Western Plains Zoo this year focussed on the planning of the Greater One-horned Rhinoceros exhibit and the plans to expand the area to include an off display breeding facility. This will complement the existing, successful Black Rhinoceros and White Rhinoceros breeding facilities and programs running at Western Plains Zoo. The project included the re-fitting of the existing night den to include larger roof structure and rubberised floor in the anticipation of it being used as a birthing and rest area in the future. A new night den will then be built as part of the expansion.

With 'Dora', the Greater One-horned Rhino, being off-display during the re-fit of the night yard, the opportunity was taken to carry out soil and turf maintenance and remediation, with the assistance of labour provided by the Yetta Dhinnakkal Correctional Centre. The whole exhibit was given new turf and substrate.

ASSET MAINTENANCE SERVICES

In line with the NSW Government Total Asset Management Policy, the ZPB continued to develop the Asset Maintenance Strategic Plan with the assistance of the Department of Commerce and a specialist consultant. The plan, with full asset register and routine maintenance prioritised according to risk exposure, will be submitted to Treasury in late 2006.

Asset maintenance works to the value of \$3.4M were completed this year. The work was categorised into animal welfare, occupational health and safety, routine services, visitor facilities enhancement and other miscellaneous maintenance.

Projects completed at Taronga Zoo included:

- repair and upgrade of directional and interpretive signage,
- upgrade of selected roadwork and paths,
- exhibit maintenance including the Saltwater Crocodile exhibit, and the Leopard Seal pool,

- facilities repair and maintenance, including the VQC dens, lower Sky Safari terminal roof, the Harbour Foreshore walking track, the old Elephant Temple and the Taronga Centre,
- structured maintenance at 'Wild Asia' and the Taronga Food Market,
- various OHS&E maintenance,
- review of closed circuit television system,
- routine service contracts for various machinery and appliances; and
- preparation of Heritage Asset Management Plan.

Projects completed at Western Plain Zoo included:

- 'African Savannah' shade structures,
- 'South America' moat repairs,
- exhibit maintenance,
- main toilet block repair and upgrade,
- irrigation upgrade and maintenance; and
- repairs and renewal of sections of the circuit road.

Heritage Management

As a site of cultural significance, a Heritage Asset Management Strategy (HAMS) was prepared by the Capital Works and Infrastructure (CWI) Division in January, for the Taronga Zoo site in accordance with the Heritage Act 1977 requirement for NSW government agencies. This report provides the ZPB with a strategy to integrate its cultural management initiatives into the existing maintenance systems and has been endorsed by Heritage Council of NSW.

As an urban zoo dating from 1916, Taronga is recognised as a cultural landscape, evidenced in the site's unique layout, natural landforms, the composition of gardens, mature trees, the circulation system, pathways, staircases, seating, its world-famous harbour vistas, the buildings and animal enclosures, archaeological resources, Aboriginal sites and items of moveable heritage, archives and records. The HAMS provides the framework within which the Zoo will manage, conserve and maintain its heritage portfolio.



Major heritage projects completed this year include the restoration works to the Elephant Temple, the heritage perimeter walls, the sandstone seats at Taronga Zoo and a schedule of maintenance works to heritage assets.

HORTICULTURE

The Horticultural group in the CWI Division met the challenges related to the drought and water restrictions throughout the Sydney area by looking at alternative ways to maintain Taronga's gardens.

With new exhibits being developed at Taronga Zoo, the Horticulture group has worked closely with other divisions to ensure the presentation and environments have been maintained to meet the needs of visitors and animals.

The Horticulture group is also involved in the bush regeneration program in conjunction with the local Mosman community. This work ensures that the area vested in the ZPB is maintained properly and the Sydney Harbour foreshore areas have the natural habitats restored.

This year the Horticultural group had assistance of several volunteer groups

with projects around the Zoo. These volunteers included several corporate groups and personnel from HMAS Kuttabul.

The collection and development of browse for animal food and enrichment is a major undertaking. The on-going need to have a sustainable supply has been addressed by developing two additional browse plantations; one at UWS Richmond and the second at JMCC at Windsor under the Capital Works program. These new arrangements will increase the plantation size to approximately 9 ha with an additional 10000 eucalypt trees including *Eucalyptus punctata* and *Eucalyptus tereticornis*.

At Western Plains Zoo, horticultural work undertaken included:

- various landscape works around the Ibis Room, Zoofari Lodge and the Sanctuary,
- extensive weed control on Zoo property 'Cootha', along the river and in and around the browse plantation; and
- upgrade around the nursery and throughout Zoo grounds.