



# 動物保育與研究 Animal Conservation and Research

## 動物經營管理



### (一) 動物飼養展示與繁殖

園區飼養展示之動物以脊椎動物為主，共約397種、2,626隻。本(100)年度內保育繁殖計畫成果，累計達40種、139隻動物個體，繁殖青鸞、大寶冠鳥、白鸛、藍腹鸛、粗尾侏儒狐猴、侏儒河馬、褐狐猴、斑哥條紋羚、白頸狐猴、長頸鹿、阿氏夜猴、紅猴、白面捲尾猴、馬來獼猴、臺灣長鬃山羊、小懶猴、弓角羚、蒙古野馬、臺灣山羌、東非劍羚等珍貴動物。

另外，對於動物醫療健康照護技術持續精進，許多照養動物個體均已超過其野外生命年限，對該等老齡動物加強觀察照護，並針對動物老齡需求進行場地空間與日糧供給的調整。



## Animal Management

### (I) Animal Exhibition and Breeding

The Taipei Zoo mainly displays about 2,626 vertebrate animals representing 397 species. The number of animals bred under the Animals Breeding Program accumulated to 139 animals in 40 species in 2011, including such precious species as Great Argus (*Argusianus argus*), Great Curassow (*Crax rubra*), Silver Pheasant (*Lophura nycthemera*), Swinhoe's Pheasant (*Lophura swinhoii*), Lesser Dwarf Lemur (*Cheirogaleus medius*), Pygmy Hippopotamus (*Choeropsis liberiensis*), Brown Lemur (*Eulemur fulvus*), Bongo (*Tragelaphus eurycerus*), Black-and-white Ruffed Lemur (*Varecia variegata*), Giraffe (*Giraffa camelopardalis*), Azara's Night Monkey (*Aotus azarae*), Patas Monkey (*Erythrocebus patas*), White-headed Capuchin (*Cebus capucinus*), Crab-eating Macaque (*Macaca fascicularis*), Formosan Serow (*Capricornis swinhoei*), Pygmy Slow Loris (*Nycticebus pygmaeus*), Addax (*Addax nasomaculatus*), Przewalski's Wild Horse (*Equus caballus przewalskii*), Formosan Reeves Muntjac (*Muntiacus reevesi micrurus*), and Beisa (*Oryx beisa*).

Furthermore, our expertise in veterinarian medicine and animal health care continued to advance. Many animals in our care have lived past their life expectancy in the wild, and we have stepped up observation and care for such elderly animals as well as adjusted space and daily provisions according to their needs.





■飼育動物數量統計表

種類 時間	哺乳類		鳥類		爬蟲類		兩棲類		魚類		總計	
	種數	隻數	種數	隻數	種數	隻數	種數	隻數	種數	隻數	種數	隻數
100年底	111	906	123	845	126	595	26	203	11	77	397	2626



水鹿

(二) 動物醫療保健及防疫

在動物醫療保健方面，除執行日常突發性之外傷及內科疾病治療外，且依計畫進行動物的健康檢查及檢測等工作，並協助處理中央農政單位查緝並沒入之保育類動物、國內民眾贈入及國際間交換的動物檢疫工作，計109隻；另救傷動物76隻，協助地方政府照顧收容穿山甲、水鹿、山羌、鼬獾和白鼻心等動物，以及多次協助臺北市鳥會和桃園縣政府治療救傷之鳥類及其他哺乳動物。

年內購置眼壓計，用於動物眼科診療使用，預防動物眼壓過高造成之後續健康問題，並列入例行健康檢查項目。

(三) 保育類野生動物收容

本園野生動物收容中心專責收容保育主管機關查獲之走私與違法獵捕、販售與展示的保育類野生動物。

本年度共計支援查緝8人次，其中協助處理查緝收容種類共10種、17隻。並賡續協助各縣市政府相關單位所委託處理之野生動物救傷，與持續照養歷年所委託收容之各類動物，包含熊科動物、大型貓科動物、鳥類（鸚鵡）、靈長類動物、兩棲爬蟲動物，計116種、951隻；又協助林務局辦理經濟部國貿局CITES列管物種出口繁殖能力查驗，共16個繁殖場；另提供收容動物專業技術研習與教育觀摩活動等解說導覽服務，導覽參觀計47個團體，共1,408人次，該申請團體多為國內生物相關科系師生、動物保護處、動植物防檢局、森林警察隊、大陸野生動物貿易參訪團等單位。

另協助政府機關執行野生動物辨識、捕捉、保定等培訓課程，共7場次，並提供相關單位動物照顧飼養、動物福利增進、野生動物保育觀念與宣導等專業諮詢服務約45次。保育工作成果亦受媒體矚目而予專題報導，如：蘋果日報、臺灣醒報與中廣新聞等3家媒體

■Statistics of Animals

Category Time	Mammals		Birds		Reptiles		Amphibians		Fish		Total	
	Species	Numbers	Species	Numbers	Species	Numbers	Species	Numbers	Species	Numbers	Species	Numbers
End of 2011	111	906	123	845	126	595	26	203	11	77	397	2626

(II) Animal Health Care and Epidemic Prevention

In addition to the treatment of accidental external wounds and illnesses, as well as scheduled animal health inspections, we also treated or examined illegal possessed animals that had been confiscated by the central agricultural authority, animals given to the Zoo by the general public, or animals obtained from inter-zoo exchanges. These came to 109 animals in total. Furthermore, we rescued 76 injured animals, and we helped local governments care for animals in their custody, including Formosan Pangolin (*Manis pentadactyla pentadactyla*), Formosan Sambar (*Rusa unicolor swinhoii*), Formosan Reeves' Muntjac (*Muntiacus reevesi micrurus*), Formosan Ferret-badger (*Melogale moschata subaurantiaca*) and Formosan Masked Palm Civet (*Paguma larvata taiwana*), and on numerous occasions we helped the Wild Bird Society of Taipei and Taoyuan County Government treat injured birds and other mammals.

We purchased an eye pressure meter for the ophthalmologic care of our animals to help prevent health problems resulting from elevated eye pressure. Checking eye pressure is now an item in the routine care of our animals.

(III) Care for Protected Wild Animals

The Zoo's Rescue Center is dedicated to taking in wild animals that conservation authorities confiscates from smuggling, illegal hunting, selling and displaying of wild animals under conservation. In 2011, we helped investigate 8 people, assisted with the handling of 17 animals in 10 species seized from the investigations, and we took them in. We continued to assist with wild animal rescues commissioned by county and municipal government agencies, and we will keep on taking care of the many animals that authorities have entrusted in us over the years, including bears, big cats, birds (parrots), primates, amphibians and reptiles, amounting to 951 animals



representing 116 species. We assisted the Forestry Bureau with inspecting 16 breeding farms of animals controlled by CITES of the Bureau of International Trade, the Ministry of Economic Affairs. Furthermore, we provided guided tour services for animal expertise workshops and educational activities; 47 groups with a total of 1,408 people went on these tours. Most of the tour participants were teachers and students in biology-related departments, or they were employees of the Taipei City Animal Protection Office, the Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ) of the Council of Agriculture, the forest police force, wildlife and trade groups from China.

We also assisted government agencies to conduct training 7 courses in wildlife identification, capture, and conservation and 45 sessions of professional consultation services to relevant organizations on the feeding and care of animals, the promotion of animal welfare, and the conservation of wild animals. Our achievements in conservation also attracted the attention of the press, which provided featured reporting. Apple Daily, Awakening News Networks, and Broadcasting Corporation of China reported the news about the exchange of animals between the Zoo and the Singapore Zoo. Thirteen domestic TV,





報導臺北市立動物園與新加坡動物園進行動物交換之新聞；國內電視台、電子與平面媒體共計13家報導臺北市立動物園保育研究中心緬甸星龜的保育與復育成果；接受公共電視台採訪保育類野生動物的收容情形及保育現況。為多元推廣野生動物保育觀念，本園亦協助媒體節目製作，如：大愛電視小人物大英雄及臺灣藝術大學拍攝保育宣導短片。

#### (四) 動物引進及交換

為更新動物血緣與增加教育展示效益，陸續與國內外動物園或民間飼養者進行動物繁殖合作、交換或互贈，計引進鳥類4種13隻、哺乳類15種33隻、爬蟲類10種28隻，並續與日本釧路動物園、新加坡動物園及俄羅斯莫斯科動物園等洽談中。重要成果如下：

- ◎善牧畜牧場交換案：換入迷你馬及馴化驢各1雄1雌，換出單峰駱駝1雌和查普曼斑馬1雄2雌。
- ◎新加坡動物園交換案：換入犀牛鬚蜥1雄2雌、靴腳陸龜2雄2雌，換出紅腿陸龜4隻、黃腿陸龜2隻及黃頭陸龜4隻。
- ◎俄羅斯莫斯科動物園交換案：換入灰狼1雄1雌，換出黑手長臂猿1雄。
- ◎日本釧路動物園借殖案：輸入丹頂鶴1雄1雌。
- ◎澳洲庫倫賓保護區無尾熊借殖案：借殖輸入無尾熊1雄3雌。
- ◎南投集集特生中心贈與案：贈入大赤鼯鼠1雄、穿山甲1雌、臺灣山羌3雌、斜紋藍舌蜥1隻。
- ◎臺北市動物保護處查緝沒入轉贈入：黑鳶1隻。
- ◎臺灣大學肝炎研究中心贈與案：贈入土撥鼠1雄1雌。
- ◎新北市政府動物救傷中心贈與案：贈入白鼻心4雌、鼯獾1雄1雌。
- ◎民眾收容贈入案：計收容加州王蛇1隻、佛州王蛇2隻、甜甜圈龜1隻、綠水龍1隻。



electronic, and print media organizations reported the conservation and restoration of Burmese Star Tortoise (*Geochelone platynota*) at the Zoo. Furthermore, the public TV interviewed the adoption and conservation of wild animals under conservation. To promote the concept of wild animal conservation, the Zoo also assisted the media in making their programs, including Da Ai TV' Little Guys, Big Heroes and a short film on conservation by National Taiwan University of Arts.

#### (IV) Introduction and Exchange of Animals

To renew animal bloodlines and to enrich the efficacy of educational exhibits, the Taipei Zoo has engaged in exchanges of animals, breeding programs, and gift-giving with other foreign and domestic zoos, and private breeders. The total number of animals received included 13 birds in 4 species, 33 mammals in 15 species, and 28 reptiles in 10 species. We are also negotiating with the Kushiro Zoo in Hokkaido, Japan, Singapore Zoo, and Moscow Zoo, Russia. Major results are as follows.

- ◎Exchanged with the Shanmu Ranch: Swapped in 1 female and 1 male Mini horses (*Equus caballus ferus*) and 1 female and 1 male Domestic Asses (*Equus asinus*). Swapped out 1 female One-humped Camel (*Camelus dromedarius*) and 1 male and 2 female Burchell's Zebras (*Equus burchelli*).
- ◎Exchanged with the Singapore Zoo: Swapped in 1 male and 2 female Rhinoceros Iguanas (*Cyclura cornuta*), 2 male and 2 female Brown Tortoises



(*Manouria emys emys*). Swapped out 4 Red-footed Tortoises (*Chelonoidis carbonaria*), 2 Yellow-footed Tortoises (*Chelonoidis denticulata*), and 4 Elongated Tortoises (*Indotestudo elongata*).

- ◎Exchanged with the Moscow Zoo, Russia: Swapped in 1 male and 1 female Gray Wolves (*Canis lupus*). Swapped out 1 male Agile Gibbon (*Hylobates agilis*).
- ◎The Kushiro Zoo, Japan loaned to the Zoo for breeding: Received 1 male and 1 female Red-crowned Cranes (*Grus japonensis*).
- ◎Currumbin Wildlife Sanctuary, Australia loaned to the Zoo for breeding: Received 1 male and 3 female Koalas (*Phascolarctos cinereus*).
- ◎Gifts from the Endemic Species Research Institute, Council of Agriculture in Jiji, Nantou County: Received 1 male Formosan Giant Flying Squirrel (*Petaurista philippensis grandis*), 1 female Formosan Pangolin (*Manis pentadactyla pentadactyla*), 3 female Formosan Reeves' Muntjac (*Muntiacus reevesi micrurus*), and 1 Common Blue-Tongued Skink (*Tiliqua scincoides*).
- ◎Taipei City Animal Protection Office confiscated and gave to the Zoo as a gift: Received a Black Kite (*Milvus migrans*).
- ◎The Hepatitis Research Center of the National Taiwan University Hospital gave the Zoo 1 male and 1 female Woodchucks (*Marmota monax*).
- ◎New Taipei City Government Animal Injury Rescue Center gave the Zoo 4 female Formosan Masked Palm Civets (*Paguma larvata taivana*) and 1 male and 1 female Formosan Ferret-badgers (*Melogale moschata subaurantiaca*).
- ◎Donations from the general public to the Zoo: 1 California Kingsnake (*Lampropeltis californiae*), 2 Florida Kingsnakes (*Lampropeltis getula floridana*), 1 Eastern River Cooter (*Pseudemys concinna*), and 1 Green Water Dragon (*Physignathus cocincinus*).
- ◎Exchanged with Liugongdao National Forest Park, Weihai City, Shandong Province, China. Swapped out 1 male and 1 female Formosan Serows (*Capricornis swinhoei*) and 1 male and 1 female Formosan Sika for a pair of Giant Pandas (*Ailuropoda melanoleuca*) that the Zoo had received from Liugongdao National Forest Park earlier.
- ◎Gifts to Hsinchu Zoo: 1 each of White-bellied Fish-





無尾熊抵臺及記者會

- ◎中國大陸山東省威海市劉公島動物交換案：輸出臺灣長鬃山羊1雄1雌和梅花鹿1雄1雌。（與大貓熊對等之動物交換案）
- ◎新竹市立動物園贈出案：贈出白腹海鵡及白鳳頭鸚鵡各1隻。
- ◎新竹六福村野生動物園借殖案：借殖輸出大長臂猿1雌。
- ◎福斯影業（李安導演）動物贈入案：法國輸入斑點鬃狗1雄1雌。

### （五）與學術界建教合作及推廣教育

續與臺灣大學等獸醫學院在動物診療技術方面，保持密切建教合作關係，助益本園對動物死亡的病因，建立完整檔案，供作本園動物疾病預防及醫療參考，

及作為獸醫系所學生實習及教學研究之用，並持續提供臺大學生來園進行病理實習。

另與其他相關機構建教合作及教育推廣，或提供國內獸醫師及國內外獸醫系大學生前來實習，包括：3月份香港海洋公園獸醫助理來園觀摩1週；5月份馬來西亞UPM獸醫系學生2名實習2週，美國科羅拉多學生1名實習1個月；7-8月國內各大學獸醫學、生物相關、觀光遊憩管理等科系實習生，共61人進行為期1-2個月實習，提供學生野生動物醫療、生物學、生態學等觀摩學習，其中候鳥計畫實習學生實習成果發表獲生命科學組第一名。

協助各單位辦理之演講及課程有：6月協助財團法人臺灣動物科技研究所辦理動物保護專業教育訓練一動物管制人員進階職能班，共3梯次。

Eagle (*Haliaeetus leucogaster*) and White Cockatoo (*Cacatua alba*).

◎Loaned 1 female Siamang (*Symphalangus syndactylus*) to Leofoo Village Zoo for breeding.

◎Gifts from Fox Movies (Director Ang Lee) of 1 male and 1 female Spotted Hyenas (*Crocuta crocuta*).

### (V) Cooperation with Academia to Promote Animal Education

Taipei Zoo continued to work closely with the Department of Veterinary Medicine of National Taiwan University in exchanging animal clinical techniques. We maintained a good cooperative relationship with academia to construct a complete database on the cause of death of animals in our zoo, which will be used internally for animal disease prevention and medical reference materials and for veterinary students and interns to use for teaching and research purposes. We continued to accept students from National Taiwan University for pathological internships.

Cooperative education and education promotion with other institutions, or internship opportunities for veterinarians or veterinary students in Taiwan and overseas included the following. In March, a veterinarian assistant of Ocean Park Hong Kong studied at the Zoo for a week. In May, two students from the Department of Veterinary

Medicine of Universiti Putra Malaysia interned here for two weeks and a student from Colorado, United States interned for a month. In July and August, 61 students from departments of veterinary medicine, biology-related departments, and leisure and tourism departments of various colleges in the nation interned at the Zoo for one to two months to study medical care of wild animals, biology, and ecology. The end-of-internship presentation of the interns in the International Migratory Bird Project won first prize in life science section.

Assisted organizations in lectures or courses: The Zoo helped the Animal Technology Institute Taiwan conduct professional training in animal protection, Advanced Professional Skills for Animal Control Personnel. Three sessions of the course were conducted in June.





## 國際合作與交流



第3屆亞洲動物園教育者研討會 (AZEC)

本年度國際合作與交流推展重點：因應引進大貓熊後之飼育及繁殖，培訓本園飼養大貓熊之繁殖實務技能，並積極參與大貓熊相關之國際性會議；持續參與緬甸星龜國際保育繁殖工作；因應引進丹頂鶴，培訓本園飼養繁殖丹頂鶴之實務技能；協助中國大陸培訓飼養繁殖臺灣長鬃山羊和梅花鹿之實務技能；辦理相關專業研討會，進行國際專業交流。

透過保育合作協定、合作備忘錄之簽署，與各界建立長期研究合作關係，如：2月28日本園與國際龜類存續聯盟 (Turtle Survival Alliance)，簽定瀕危龜類保育合作協定，且本園與行政院農委會林務局共同致贈贊助款10,000美元，協助國際龜類存續聯盟，用於推動瀕危緬甸星龜保育復育計畫，在緬甸設置緬甸星龜野放中途之家。

### (一) 參加國際性會議

本園在國際事務交流方面，持續參與全球及各區域的動物園相關組織，維繫與世界知名動物園或機構的互動與友誼，暢通動物交換、研究合作、人員訓練與技術交流的管道，鞏固本園在動物專業上及動物外交上的國際地位。本年度外派出席國際會議及研討會計7項24人次。



### (二) 觀摩與交流

繼大貓熊引進，本園臺灣長鬃山羊及梅花鹿於4月16日運送至中國大陸山東威海市劉公島國家森林公園落地生根，為兩岸動物交流之重大事務，除中國大陸派員來本園學習飼養管理之外，年內4度派員赴山東威海市協助中國大陸做好臺灣長鬃山羊及梅花鹿飼養管理。本年度外派參與之觀摩與交流共21梯次58人次。

## International Cooperation and Exchanges

Focuses of international cooperation and exchanges this year included the following. In response to the arrival of the giant pandas, Taipei Zoo directed its efforts to the caring, feeding and breeding, and practical training of breeding techniques of these animals, so it actively participated in international conferences that were related to the Giant Panda. In response to the arrival of the Burmese Star Tortoise at the Zoo, we continued to take part in international conservation and breeding of Burmese Star Tortoises. In response to the arrival of the Red-crowned Cranes, we trained in practical techniques in the feeding and breeding of the species. We helped train China in practical techniques for the feeding and breeding of Formosan Serows and Formosan Sika, and we hosted professional conferences to facilitate international, professional exchange.

Through cooperative conservation agreements and cooperative memorandums of understanding, we have established long-term cooperative research relationships with many organizations. For example, on February 28 we signed a cooperative conservation agreement with the Turtle Survival Alliance (TSA) for the conservation of

endangered turtles. The Zoo and the Forestry Bureau of the Council of Agriculture, the Executive Yuan jointed donated 10,000 United States dollars to the TSA for it to progress its conservation plans for Burmese Star Tortoises and to establish a midway home in Burma for returning Burmese Star Tortoises to the wild.

### (I) Participation in International Conferences

In terms of international exchanges, we continued to participate in zoo-related organizations, both regionally and globally. We kept up exchanges with famous zoos and organizations worldwide, and we sustained smooth channels on animal exchanges, research cooperation, personnel training, and technical exchanges so as to secure our international status in animal know-how and animal diplomacy. In 2011, 24 zoo employees attended 7 international conferences.

### (II) Observational Visits and Exchanges

Following the introduction of Giant Pandas, the Zoo sent 2 Formosan Serows and 2 Formosan Sika to the Liugongdao National Forest Park in Weihai City, Shandong



AZEC工作坊



AZEC海報發表







簽定「第3屆兩岸四地大貓熊保育教育學術研討會倡議書」

### (三) 辦理專業研討會

- 2月假本園辦理「亞洲瀕危龜類保育行動工作坊」，由國際龜類存續聯盟 (Turtle Survival Alliance) 聯盟主席Rick Hudson先生等人發表專題演講。
- 9月假本園辦理「第3屆亞洲動物園教育者研討會」暨「第2屆兩岸三地大貓熊保育教育學術研討會」，共有109個機構、271位專家學者共同參與，發表了71篇報告。
- 12月由本園主辦，臺灣動物園暨水族館協會 (TAZA) 協辦，假本園辦理「臺灣黑熊族群經營管理技術工作坊」，共有16個機構、30位專家學者共同參與。



### (四) 其他專業交流

- 中國大陸大貓熊專家黃炎及周應敏來臺協助及指導大貓熊繁殖工作。
- 新加坡夜間動物園動物管理人員來園進行穿山甲飼養管理與展示學習。
- 山東威海劉公島國家森林公園派飼養員來臺學習梅花鹿和臺灣長鬃山羊飼養管理。
- 日本北海道環境部及釧路動物園派員來訪，討論擬贈予本園之丹頂鶴飼養繁殖計畫。
- 澳洲庫倫賓野生動物保護區之野生動物與環境保護專業經理Jenny Lunny與教育推廣行銷人員Jeffery Chung來園視察無尾熊引進前之準備。
- 德國萊比錫動物園派1位獸醫師及2位飼養員來園學習穿山甲飼養醫療。
- 日本北海道釧路動物園鶴類專家古賀公也博士來園演講一丹頂鶴之人工繁殖、孵化與育雛。
- 俄羅斯海參威水族館派員來園參訪，了解企鵝館之飼育照養。

### 研究發展計畫

本年度本園辦理市府年度研究計畫1項、中央委辦計畫3項。另98年度市府研究計畫3項，其成果報告經本年度市府評審結果，獲優等2件、甲等1件之榮譽。

大貓熊保育教育研討會 (CSGPC) 之工作坊



CSGPC晚宴



CSGPC園內參訪



第2屆兩岸三地大貓熊保育教育學術研討會 (CSGPC)

Province. It was a major cross-strait animal exchange project. Besides personnel being sent from China to the Zoo to learn the caring and management of these animals, this year we sent our personnel to Shandong Weihai City 4 times to help them with the feeding and breeding of these two species. This year in 21 trips we sent our staff 58 person times on observational visits and exchanges.

### (III) Hosting Professional Seminars

- In February, we held a Conservational Action Workshop for Endangered Turtles in Asia. Mr. Rick Hudson, president of the Turtle Survival Alliance, and others delivered keynote speeches.
- In September, we held the Third Conference for Zoo Educators in Asia and the Second Academic Conference on the Education of Panda Conservation in Taiwan, China, and Hong Kong. A total of 271 experts or scholars from 109 organizations attended, and 71 reports were presented.
- In December, with the assistance of Taiwan Association of Zoos and Aquariums, the Zoo held a Workshop on Techniques to Manage Formosan Black Bear Herds. Thirty expert or scholars from 16 organizations participated.

### (IV) Other Professional Exchanges

- Misters Huang Yan and Zhou Ying Min, experts from China, visited the Zoo to help with and instruct on the breeding of Giant Pandas.
- Animal management personnel of the Singapore Night

Safari came to the Zoo to study feeding management and display of Pangolins.

- Liugongdao National Forest Park, Weihai City, Shandong Province sent keepers to the Zoo to learn about feeding management of Formosan Serows and Formosan Sika.
- The Department of Environment of Hokkaido, Japan and Kushiro Zoo sent personnel to the Zoo to discuss the feeding and breeding plan of Red-crowned Cranes that Kushiro Zoo would gift to the Zoo.
- Wild animal and environmental protection manager Jenny Lunny and educational promotion marketer Jeffery Chung from Currumbin Wildlife Sanctuary, Australia visited the Zoo to review its preparatory work for receiving the Koalas.
- One veterinarian and two keepers from Zoo Leipzig, Germany visited the Zoo to learn about the keepers and medical care of Pangolins.
- Crane expert Dr. Kimiya Koga of Kushiro Zoo, Hokkaido, Japan visited the Zoo and lectured on the artificial breeding, incubating, and raising of new-born Red-crowned Cranes.
- Vladivostok Aquarium, Russia personnel visited the Zoo to learn about the feeding and care of penguins.

### Research and Development Projects

In 2011, the Zoo implemented 1 research project for the city government of Taipei and 3 contract projects for the central government. Their end-of-project reports were examined by the city government, and 2 of them were graded as superior and 1 as honorable mention.