

# Foraging Strategy of Birds of Prey in Taiwan

Lee, Jing-Hong · Hsiao, Ching-Liang · Huang, Kuang-Ying



Birds of prey are carnivorous with strong and powerful beaks that form a curve at the tip, in different lengths according to their type of prey. The shape and tenacity of the beak is related to the food eaten. Those feeding on carrion have large and stout beak, less sharp to conveniently tear preys apart. Snake-eating birds have sharp sturdy beaks with unapparent hook. Falcon species are weaker in comparison, with ragged evident hook to kill prey with one blow and quickly tear prey apart. There are rectal bristles around the mouth.

The talons of birds of prey have evolved to a sharp curve, with powerful toes for easy prey on small animals. Accipiter's toes have protrusion at the joint to enhance friction to prevent prey escape.

Birds of prey can secrete stronger gastric juice to digest food quickly, and their vision is utmost acute. The different types of built signify different status, the larger birds with strong muscles are able to catch larger prey.

In addition, in order to fly fast to catch prey or soar for long period of time to search for food, different type of wings has been evolved. The differences evolved from body built, habitat and distribution has caused birds of prey to develop different foraging strategies.

# Conservation Conflicts Resulted from Eagle catching chicks

Lin, Wen-Loung · Tseng, Yi-Shuo

From 2003 to 2006 using questionnaire designed in advance along with photos, a survey via oral interview was conducted on 58 chicken farms in Central Taiwan, including Sinshe, Taiping, Wufong and Puli Townships. Data collected reveals that crested goshawks account for the main attacking species, occurring mainly during the winter season (Nov-Jan, 47.1%). Attacks by juvenile birds are higher than that of adult, and the larger-size female accounts for more attacks than male regardless adult or subadults birds.

It was suggested to chicken farmers to rear chicks in pens during Autumn-Winter, set them free range when grown to maturity to reduce losses and conservation conflicts. However, cooperative inclination is low, and without any incentive it is hard to persuade chicken farmers to give up existing economic income (more costs to rear in pens). At the current phase, related researches and conservation promotions are limited in Taiwan, many seemingly feasible improvement measures and concepts still need to be validated as reliable solutions.



# Birds of Prey of Taiwan

Lin, Wen-Hong

Selected in this article are birds of prey more likely to be seen. They are divided by habitat with recommended known locations to look for them.

Coastline, ports, fish farms—Black Kite

Black kite is widely distributed in Taiwan, often called "eagle" by lowland residents. Black kites like to be near water, and are agile flyers that often glide low across the water to snatch prey with their legs.

Low-altitude forest, semi-cultivated mountain forest—Crested Serpent Eagle

Crested serpent eagles are commonly seen in the suburb foothills. This large bird of prey can easily be found, their slow flight make observation easy, and are very poised and not scared of men. They like to perch on branches to watch for prey.

Mid-low altitude forest, city parks—Crested Goshawk

Of all the birds of prey in Taiwan, crested goshawk is the one that are highly adaptable, almost able to survive in any altitude and any forest environment. It is the only bird of prey that is able to nest and reproduce in metropolis parks.

Two important figures during migration—Gray-faced Buzzard, Chinese Sparrowhawk

Among the birds of prey during fall migration passing through Kenting, Chinese Sparrow Hawk is largest in numbers, with most number in September. The Gray-faced Buzzard with great reputation is second, with most number in October.



TAIPEI ZOO  
2010-4

# 抱動物園報



● Digest From Taipei Zoo Quarterly Vol.121

## Birds of Prey column

- The Taxonomy, Distribution and Conservation of World's Birds of Prey
- Birds of Prey of Taiwan
- Foraging Strategy of Birds of Prey in Taiwan
- A Pair of City Chivalry – Observation Records on Birds of Prey in the Urban Concrete Forest
- Conservation Conflicts Resulted from Eagle catching chicks
- Feeding and Diet of Birds of Prey at the Taipei Zoo

Read more about "Birds of Prey column" special coverage in the No.121 issue of the Taipei Zoo Magazine!

Publisher : Jason Yeh  
Editor in Chief : Chih-Hua Chang  
Managing Editor : Shih-Chia Cheng  
Executive Editor : Yu-Chieh Lin  
Published By : Taipei Zoo  
Address : 30, Sec. 2, Hsing-Kuang Rd, Taipei 116  
Tel : 886-2-29382300 # 534 . 528  
Fax : 886-2-29382316  
1999 Citizen Hotline  
( For callers outside of Taipei City please dial (02) 2720-8889 )  
( Toll-free, 1999 provides 24-hour operator service. )  
Published in 2009  
http : //www.zoo.gov.tw  
E-mail : zoo@zoo.gov.tw  
Printed : Tiger Advertising Design 886-2-23211894  
※All rights reserved.  
No texts can be reproduced without authorization.

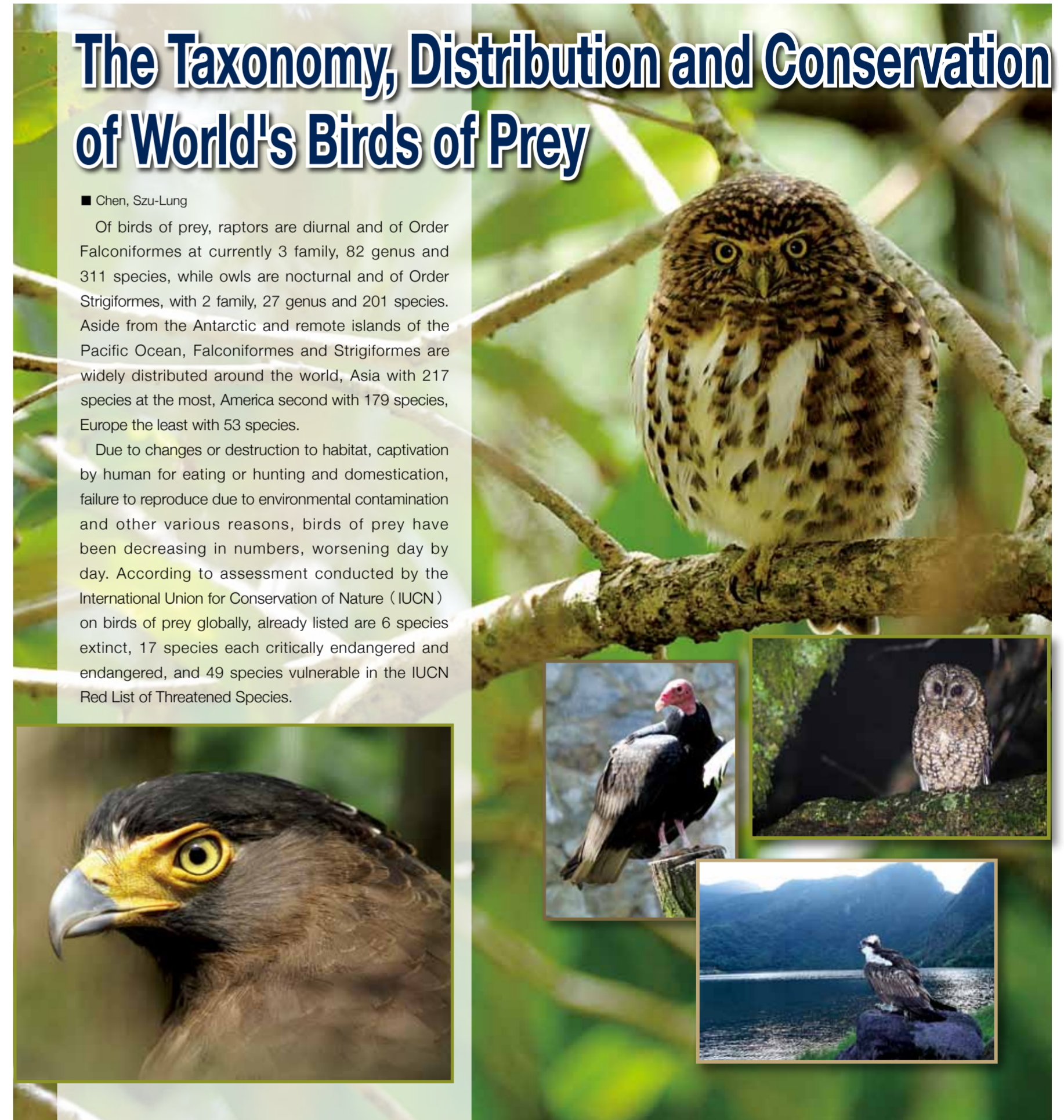
# TAIPEI ZOO PAPER

# The Taxonomy, Distribution and Conservation of World's Birds of Prey

Chen, Szu-Lung

Of birds of prey, raptors are diurnal and of Order Falconiformes at currently 3 family, 82 genus and 311 species, while owls are nocturnal and of Order Strigiformes, with 2 family, 27 genus and 201 species. Aside from the Antarctic and remote islands of the Pacific Ocean, Falconiformes and Strigiformes are widely distributed around the world, Asia with 217 species at the most, America second with 179 species, Europe the least with 53 species.

Due to changes or destruction to habitat, captivity by human for eating or hunting and domestication, failure to reproduce due to environmental contamination and other various reasons, birds of prey have been decreasing in numbers, worsening day by day. According to assessment conducted by the International Union for Conservation of Nature (IUCN) on birds of prey globally, already listed are 6 species extinct, 17 species each critically endangered and endangered, and 49 species vulnerable in the IUCN Red List of Threatened Species.



# Challenges faced on Taiwan's Biodiversity

■ Chao, Jung-Tai

This year is the International Year of Biodiversity, also a time for the world to examine whether the 2010 Target has been met. Although biodiversity has gradually sprouted and rooted in Taiwan, this fragile seedling still needs nourishing in order to become a sustainable tree. Inadequate concept or methodology on sustainable use of biodiversity, lack of case study sharing on successful conservation and uses, CHM that await to be launched, and underdevelopment of NGOs all may corrode Taiwan's biodiversity.

It has been confirmed in the Convention on Biological Diversity-COP10 that no country has met the 2010 Target, i.e. there is no evident decrease in the speed biodiversity disappears. Thus an even more ambitious target has been set for the next ten years to ensure biodiversity will not continue to deteriorate, such as taking biodiversity into the mainstream so that everyone can take action on conservation and sustainable use.

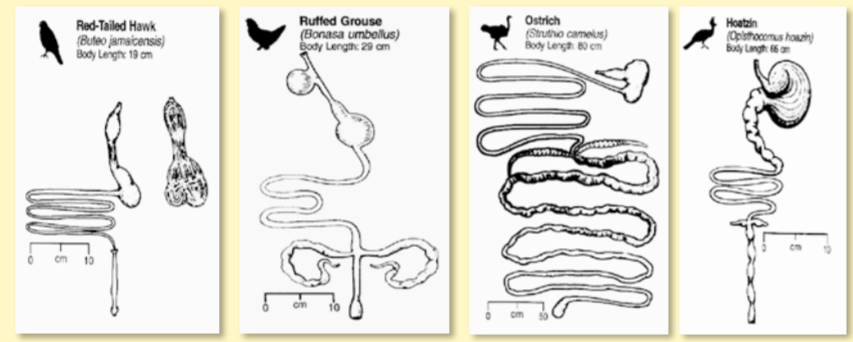


# Feeding and Diet of Birds of Prey at the Taipei Zoo

■ Yang, Ci-Wen

The foremost on feeding and diet of birds of prey is diversity, to allow animals reared to obtain required nutrients from food while also attaining behavioral enrichment. Base on the above principle, the food Taipei Zoo provides for birds of prey include raw tendon cubes, chicken breasts, chicken necks, live animals, Ephepan-M (multiple vitamin and mineral supplement), vitamin E and calcium powder, with adjustments made giving considerations to each species' need and differences. Attention should be paid whether food includes enough calcium, the optimal calcium phosphorous ratio is 1.5 : 1.

Every week the Zoo also adds to the diet of birds of prey slaughtered whole small vertebrates and living animals such as mice, chickens, rabbits, Chinese bullfrogs, goldfish, carps, etc. This is because indigestible bones and hair are formed into "pellets" in the birds' stomach and spit out, thereby promoting the proper functioning of birds of prey's digestive tracts. The hair, internal organs and bones of whole slaughtered animals also offer a more balanced source of nutrition, beneficial to the feather and bone growth of birds of prey.



# Observation Records on Birds of Prey in the Urban Concrete Forest

■ Lin, Wen-Loung · Tseng, Yi-Shuo

## The city sky overlord – Crested Goshawk

The Crested Goshawk is a medium-sized hawk. Female birds weigh about 500-600 grams while males weigh 350-450 grams. An endemic species of Taiwan and also a CITES II species, the Crested Goshawk are distributed from plains to mid-altitude mountain regions, highly adaptable to habitat, frequently seen in the city, fruit farm, secondary and virgin forest. In recent years, Crested Goshawks even appear in densely populated metropolitan areas in Taiwan, such as campus and parks in Taipei, Taichung, Tainan, Kaohsiung and Pingtung, with a stable reproduction.

## Night killers - Collared Scops Owl

Collared Scops Owl is a small nocturnal bird of prey of Order Strigiformes, Family Strigidae, Genus Otus. An endemic species of Taiwan and also a CITES II species, the female birds weigh about 180-200 grams and males 150-180 grams. Widely distributed most commonly seen in the low-altitude mountain region, the Collared Scops Owl has strong ability to adapt, appearing not only in virgin, secondary and planted forests but also military land, schools and parks of the city.



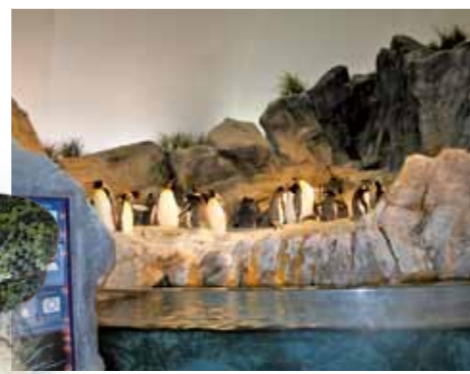
# St. Louis Zoological Park

■ Chen, Jun-Fu · Lin, Hua-Ching

The St. Louis Zoological Park is the oldest and largest zoo in the United States, with over 3 million visitors annually, also one of the few zoos with free admission, praised to be the best zoo in the United States. The zoo is divided into six zones, respectively River's Edge, The Wild, Discovery Corner, Historic Hill, Red Rocks and Lakeside Crossing.

The St. Louis Zoological Park is most well-known for its WildCare Institute. Total 8 international wild animal conservation programs including insects, reptiles, birds and mammals, and there's also a Center for Conservation in the Horn of Africa. The long term devotion to conservation has achieved fruitful results.

Overall, the St. Louis Zoological Park is no different from traditional zoos on the surface, yet it is famous for its work on conservation researches. Zoo volunteers revealed that the zoo and St. Louis city residents have a close and harmonious relationship, and residents are proud of the zoo for the zoo's efforts on wildlife conservation has won residents' respect and approval.



Zoolloween ~ animals are scared too  
In the world of fish nets, traps and grease, can you escape?

■ Cai, Dai-hua

When the Taipei Zoo held its first costume party for Halloween in 2009, many friends responded with elaborate costumes and left with a smile. This year not only a costume party is held, the Educational Center also launched a special exhibition with Halloween atmosphere – the Scary Animal House. Why didn't we just name it the Haunted House? Because this special exhibition is not only to scare people and celebrate Halloween but through the theme Halloween, express to the public the dangers faced by wild animals.

