

Issue No. 1 February 2002

Guest Editorial

Welcome to the inauguration issue of *Hong Kong Biodiversity*. *Hong Kong Biodiversity* is intended to serve as a channel of communication for all those who are involved in the Biodiversity Survey or are interested in what we are doing. It is an AFCD newsletter to be published regularly on the Biodiversity Survey programme. It will also publish feature articles and columns on the news, findings and issues (e.g. new publications, internet sites, new species records, etc.) of biodiversity interest.

I understand that you are developing survey strategies and methodologies since 10 December 2001. Some may have already made progress and at least one "unknown" freshwater fish has been recorded. I am confident that we will continue to make progress in improving our understanding of Hong Kong's biodiversity and facilitating our conservation and country park management work.

Please contact me or PM So if you have any views or suggestions. The Biodiversity Survey programme is one of the priority projects of the department. I hope this will also be one of your most enjoyable tasks in AFCD.

CC Lay

Biodiversity Seminar Series

So far, three Biodiversity Seminars had been arranged:

- (1) *The Use of Auto-trigger Camera for Land Mammal Survey and GIS* by K Pei and YC Lai on 21 December 2001;
- (2) *Dragonflies and South China Rainforests* by K Wilson on 25 January 2002; and
- (3) *Hong Kong Butterflies* by V Yiu on 20 February 2002.

We will continue to invite speakers to talk on Hong Kong Biodiversity. The seminars, depending on the speakers, will be conducted in either Chinese or English, and both professional and field staff are welcome.

If you have any speaker in mind (or would like to give a seminar yourself), please let me know.

PM So

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Who's Who in Biodiversity Survey

Interested to know who is going to do what in the Biodiversity Survey?

Check the faces in the photo and see if you know which working groups they belong to (*answers on page 2*). And who are missing from the photo?

Feature Article

陸上哺乳類動物調查

香港的地方雖然細小，卻擁有不少於46種的陸上哺乳類動物。由於香港高度城市化，所以這些哺乳類動物的生境日漸減少。要有效地存護牠們，必須先要知道牠們的分佈、現有數量等資料。早前一項有關陸上哺乳類動物的初步調查，錄得25種陸上哺乳類動物，與及牠們的分佈及數量。其後，為了得到更全面的資料，本署於2001年11月至12月期間亦進行了一次調查。是次調查分別在27個郊野公園內裝置了100部專門用來拍攝這些哺乳類動物相片的攝影機，只要牠們進入拍攝範圍內，感應器便會啟動，並即時拍下照片。根據這些記錄，能對牠們的數量、分佈、行為模式等作出評估。同時，調查亦利用了先進的『地理資訊系統』，通過這項系統，能獲得更確切的野生動物分佈資料，使管理野生動物時更有效率。

Auto-trigger Camera for Terrestrial Mammal Survey

INTRODUCTION

In spite of the small territorial area and long history of human uses, Hong Kong is still maintaining a rich wildlife fauna. At least 46 terrestrial mammal species, including 22 Chiroptera (bats) species and 24 non-flying species, can be found in Hong Kong today.

Many nature reserves, country parks and protected areas established within this century, which provide forest habitat and function as refuges to wildlife, are the most important factor in maintaining a diverse fauna in Hong Kong. However, the fragmented forests in Hong Kong might cause many mammalian species to live in small populations or maintain as metapopulation (i.e. a group of small sub-populations with various levels of interaction), which potentially can decrease mammal diversity in the future. It is therefore important not only to know the present status, such as distribution and abundance, of different mammalian species, but also to study the impacts of habitat fragmentation on the survival of the wild mammals, especially those that are

rare. Such information can be valuable both to the preservation of the present mammalian fauna of Hong Kong and habitat management (such as restoring destroyed habitats and creating ecological corridors connecting existing fragmented forests) for further conservation efforts.

During a preliminary survey of the non-flying terrestrial mammals in Hong Kong conducted between August 2000 and July 2001, Wildlife Conservation Foundation Limited (unpublished data) recorded 25 species (including stray dogs, feral cats and feral cattle) with different distribution range and abundance. The preliminary survey used more than 80 auto-trigger cameras in 24 major country parks and nature reserves, and the distribution and relative abundance of mammals recorded are shown in Table 1. The preliminary survey also revealed that the population of stray dogs and feral cats might have negative impact on the Leopard Cats, Muntjacs and other small- to medium-sized mammals.

The present project is to expand the coverage and intensity of the above preliminary survey so that more complete and detailed information on the present status of the existing mammalian species in the country parks of Hong Kong can be collected, and their population ecology can be studied. Based on the results of data collection, a long-term mammalian diversity and population trend-monitoring framework will also be developed.

METHODOLOGIES

A total of 100 auto-trigger cameras had been installed in 27 country parks in November and December 2001. Auto-trigger cameras have been used successfully in mammal survey worldwide. It has also been used to estimate population density, generate activity patterns and spatial distribution patterns in wildlife studies. Auto-trigger cameras have the advantages of recording secretive animals, especially those that do not leave prominent signs, and collecting data day and night in a more standardized and consistent way than most traditional methods (e. g., trapping, sign-searching, transect line, etc.) The device also avoids possible inconsistency induced by weather, different investigators, limiting detective

Working Group Column

11 Working Groups have been formed to cover different aspects of the Biodiversity Survey programme. Working Groups and Memberships are shown in the table. Working groups will contribute to regular columns on their progress and findings.

PM So

Working Group	Member
Mammals	CL Wong, YM Lee, CT Shek
Birds	CS Cheung, WH Lee, Raymond Ma, ST Tsim
Amphibians and Reptiles	Simon Chan, KS Cheung, CY Ho
Freshwater Fish	KT Chan, Samuel Lam, Franco Ng, Maria Young
Butterflies	Eric Wong, PC Leung, Phoebe Sze, Alfred Wong
Dragonflies	TW Tam, Boris Kwan, Karrie Wu
Coastal Community	Winnie Kwok, Pauline Tong, KY Yang
Habitat and Land	Simon Tang, FM Yuen, Eric Liu
Cover Mapping	
Plant Community	YN Ngar, KL Yip, Eric Liu
Rare Plants	Patrick Lai, KL Yip, Eric Liu
Unusual Trees	TW Chan, MW Lui, Alice Tang, KL Yip

Table 1 Present Status of Terrestrial Mammals in Hong Kong

Common Name	Chinese	Distribution	Relative Abundance
Brown Rat	褐家鼠	Widely Distributed	Abundant
Stray Dog	野狗	Widely Distributed	Many
Chestnut Spiny Rat	針毛鼠	Common	Many
Chinese Ferret Badger	鼬獾	Common	Many
Indian Muntjac	赤麂	Common	Many
Small Indian Civet	小靈貓	Common	Many
Chinese Porcupine	豪豬	Less Common	Many
Masked Palm Civet	果子狸	Less Common	Many
Chinese Leopard Cat	豹貓	Less Common	Not Many
Feral Cat	野貓	Less Common	Not Many
Wild Boar	野豬	Uncommon	Not Many
Feral Cattle	黃牛	Uncommon	Not Many
Musk Shrew	臭鼩	Uncommon	Not Many
Ship or Roof Rat	屋頂鼠	Uncommon	Not Many
Small Asian Mongoose	紅頰蒙	Uncommon	Not Many
Rhesus Macaque	獼猴	Uncommon	Not Many
Red-bellied Tree Squirrel	赤腹松鼠	Uncommon	Rare
Bandicoot Rat	鬼鼠	Uncommon	Rare
Chinese Otter	水獺	Restrictive	Not Many
Grey Shrew	灰鼩麝	Restrictive	Rare
Crab-eating Mongoose	食蟹蒙	Restrictive	Rare
Chinese Pangolin	穿山甲	Restrictive	Very Rare
Yellow-throated Marten	青鼬	Restrictive	Very Rare
Yellow-bellied Weasel	黃腹鼬	Restrictive	Very Rare
House Mouse	小家鼠	Restrictive	Unknown

abilities of researchers at night, etc.

Each auto-trigger camera was set 1.5 to 2.5 meters above the ground and their locations were arranged to cover different types of habitats and terrain in the country parks. Film collection and battery replacement are conducted every 2 to 4 weeks for each camera, depending on the abundance of the local wild mammals. The relative abundance, distribution pattern, and activity pattern for each species will be calculated from the information collected by these cameras.

Additionally, for wildlife management, the ability to model spatial distribution and changes in wildlife distribution is of considerable importance. Therefore, using Geographic Information System (GIS) has become an evitable trend in ecological studies and wildlife habitat modeling. The functions of spatial analysis and spatial display of GIS not only provide an efficient way of data collection, storage, processing and analysis, they also enable mapping of wildlife distribution, identification of patterns, and generation of habitat spatial characteristics. It is thus a useful tool in decision making for conservation and wildlife management.

GIS will be used in this study for: 1) species mapping, including mapping for habitat areas and identifying habitat characteristics of individual species; 2) habitat structural features generation, including calculation of spatial variables and identification of different habitat types; and 3) providing micro-habitat scale results that can be used to identify potential/ suitable habitats by managers.

Relative abundance and spatial distribution pattern

The Occurrence Index (OI = the number of photos taken in 1000 camera working hours) will be calculated

for each species in different habitats separately, which will be used to represent the relative abundance of each species in the present study. Comparison will be made both among species in the same habitat and within species in different habitats. The relative abundance in different locations (or habitats) will be used to construct the spatial distribution pattern for each species in Hong Kong.

Daily activity pattern

When taking pictures, the camera will print the date and time onto the film. Accumulating large number of such pictures will help understand the activity pattern of wild animals without disturbing them. The hourly or half-hourly OI will be calculated for each species for a 24-hour cycle and the daily activity pattern can then be constructed. Daily activity pattern for each species will be compared

among different locations and different seasons to detect possible variations and the causes.

GIS mapping and modeling

The data from this survey will be mapped to examine the spatial distribution and identify high density areas. Land cover/ land use maps and aerial photographs will be used to associate environmental attributes and the frequency distribution of mammal records. Satellite image and digital terrain model (DTM) may also be classified using data from the mammal survey to produce a detailed distribution map at the spatial resolution of the satellite image. Multivariate statistics will be used to analyze the influence of environmental variables, including spatial relationships, vegetation condition and vegetation structure, on species distribution in the area, and further to predict/ identify potential or suitable conservation areas.

(Adapted from the Inception Report: Survey and Long-term Monitoring of Non-flying Terrestrial Mammals in Country Parks of Hong Kong prepared by the Wildlife Conservation Foundation Limited.)

What's Coming

Future issues will include **Highlights** of recent events and issues, reviews and lists of **New Publications, Web Links** on internet sites of interest, **Tools and Tips** on survey techniques, and **Feedback** on your responses and views.

STOP PRESS!

Black-faced Spoonbills in the Philippines

According to Simba Chan of the Wild Bird Society of Japan, 3 Black-faced Spoonbills were seen at the Batanes Islands in northern Philippines from October to December 2001. This was the first report of this species from the Philippines since 1914, and probably the first confirmed report.

Batanes has been listed as an Important Bird Area in the Philippines.

Last year (i.e. 2000-2001) there were about 870 Black-faced Spoonbills recorded at the wintering grounds in eastern Asia (Mainland China, Taiwan, Hong Kong, Macao, Vietnam, South Korea and Japan).

A record high of 252 Black-faced Spoonbills was recorded at Mai Po last winter.

Issue No. 2 May 2002

Guest Editorial

This issue of the *Hong Kong Biodiversity* covers exclusively topics on our Country Parks.

Some people think that our Country Parks were designated mainly to protect Hong Kong's water-gathering grounds and to provide venues for outdoor recreation. In the Feature Article *A short history of Hong Kong's country parks* you will find out that nature conservation was one of the major considerations in formulating policy on country parks as early as 1960's.

Most of the early conservation works in our country parks involved afforestation and fire prevention to stop habitat destruction. Afforestation was primarily aiming at water and soil conservation with a view to re-establish the original sub-tropical broad-leaf forests in the long run. At present, country parks cover over 60% of the territory's forests, about 55% of shrubland, 40% of grassland, all the fresh water reservoirs and most of the origins of stream courses, and hence the animals and plants associated with these habitats. Preliminary surveys, as shown in the article *Freshwater fish in country parks*, have revealed new locations of two rare freshwater fish of ecological interest in our country parks. Also in this issue is a short note on a new butterfly record for Hong Kong which describes a specimen caught in Tai Po Kau.

As more re-established forests are maturing in our country parks, it is time for us to do more on active nature conservation. An important step is to take inventory of what we have already protected in the country parks. In this aspect, I am relying on your participation and effort in the Biodiversity Survey Programme. I am also looking forward to your contribution in preparing conservation plans for specific fauna and flora.

We have already successfully established an image that country parks serve as a green retreat for our citizens. It is time for us to work together to make our country parks also a model of active conservation. Ideas and proposals to enhance the conservation value of our country parks are most welcome.

Dr FY Wong

Feature Article**香港郊野公園歷史**

郊野公園條例於1976年8月正式執行，在過去的25年，郊野公園系統發展越趨成熟，並為大眾市民提供自然保育、環境教育及休憩的好地方。雖然香港發展迅速，但全港還有約四成的土地被列為郊野公園。香港郊野公園的成立和發展，共可分為七個階段：戰後重整期、管理改革期、預備期、制定政策期、成立初期、加速發展期和持續擴展期。

A Short History of Hong Kong Country Parks

Dr FY Wong

The Country Parks Ordinance was enacted in August 1976. In the past 25 years, the Country Parks (CP) system has been well developed and successfully performing its functions in nature conservation, outdoor recreation and countryside education. Despite the development pressure, Hong Kong is able to set aside about 38% of its land resources as protected areas under the Country

Parks Ordinance. This is a tremendous achievement in a highly populated place like Hong Kong.

This article provides a brief outline on the development of Hong Kong CPs in the socio-economic and environmental context. The evolution of the CP system can roughly be divided into 7 periods.

1. The Post-war Period (1945-58)

After the war the territory was almost entirely deforested. The urgent task then was to carry out a fast afforestation programme. In 1953, Mr. A.F. Robertson, the Forestry Officer, recommended to proceed with a positive and vigorous policy of high rate of afforestation (Robertson 1953). This included the planting of 1,000 acres (405 ha) of new plantations each year to conserve soil and water, and to provide fuel, poles and timber to improve the village economy. This plantation orientated forestry policy was adopted by the Legislative Council on 1st November 1953.

2. The Need for Change Period (1959-64)

In 1959 a new Forestry Officer Mr. P.A. Daley arrived. At that time, the rapid increase in population and the rate of urbanization convinced Mr. Daley that forestry should

be managed for better community services. As a result, he advocated the concepts of social and community forestry, i.e. forestry should be managed for public recreation, nature conservation, scientific research and education. In August 1962, Mr. Daley put forward an internal proposal with an outline for policy revision which included the establishment of national parks.

In April 1964 an Ad-hoc Working Party was set up by the Director of Agriculture and Fisheries to look into the question of nature conservation. Its report *Scientific Aspects of Nature Conservation in Hong Kong* (AFD, 1965) recommended to set up a "National Parks and Nature Conservancy Council" and to seek outside professional guidance.

In October 1964, Commander Peter Scott of U.K. Wildfowl Trust and Vice President of the World Wildlife Fund visited Hong Kong. He approached government officials in an unofficial capacity in support of a conservation programme. He also advocated active measures to conserve nature in the Colony and the formulation of a Colony Conservation Policy (Scott, 1964).

All these efforts paved the way for a more authoritative review of the situation of countryside in Hong Kong.

3. The Preparation Period (1965-66)

Developments in 1960s finally led to the invitation of Dr. and Mrs. L.M. Talbot of the International Union for the Conservation of Nature and Natural Resources (IUCN) to carry out a consultancy survey for the Department of Agriculture & Fisheries in 1965. They endorsed the policy prepared by the Working Party and also *"very strongly recommended that the proposal to establish a National Parks and Nature Conservancy Council be implemented as soon as possible"* (Talbot, 1965). In December 1965, Mr. P.A. Daley finalized his recommendation for a revision of forestry policy in which he re-emphasized that the role of forestry should be oriented towards recreation, education and scientific studies (Daley, 1965).

In 1966-67, there were riots and disturbances in the territory. The Government recognized the need for the provision of more recreational outlets, in particular outdoor recreation, for the youth to reduce their anti-social behaviour (HKG, 1966). These led to the first forestry work camps in 1967, and this marked the beginning of successful recreational use of forestry areas (AFD, 1966-67).

4. The Establishment of Pre-Policy Commissions (1967-70)

In March 1967, the Governor, Sir David Trench, created the "Provisional Council for the Use and Conservation of the Countryside" to investigate the proposal of establishing CPs and to make a comprehensive study of the policy issue. It consisted of 19 members representing different interests.

In June 1968, the Provisional Council presented a comprehensive review of the need for recreation and nature conservation (HKG, 1968) and recommended that *"it should be the Government's stated policy*

to preserve and enhance the natural beauty of Hong Kong and to preserve the natural flora and fauna and the geological and physiographical features of educational, scientific and scenic interest. It should also be Government's policy to encourage and facilitate the enjoyment by the public of the opportunities which the countryside offers for recreation and the study of natural environment." (HKG, 1968:13)

In July 1970, Sir David Trench appointed 2 more Advisory Committees to advise on matters related to recreation development and nature conservation on Hong Kong Island and in the New Territories. The Committees also had to prepare a five-year programme with estimates of cost.

5. The Formative Period (1971-76)

In 1971 a miniature pilot "Country Park" scheme was initiated in the proposed Shing Mun CP. A few trials of benches, tables, and barbecue pits were constructed and were extremely popular among the public. The demand for more facilities gradually grew up. Meanwhile, the increasing recreational use of countryside without proper management had caused substantial loss of vegetation and degradation of amenity due to fire, litter and pollution.

In 1971, Sir Murray MacLehose was appointed as the Governor. Sir Murray and Lady MacLehose were keen conservationists. He gave personal support to the establishment of CPs (Hong Kong Standard 5.9.1972). And after nearly 10 years of consultation and study, the concept, operation, costs and resource requirements relating to the establishment of CPs in Hong Kong were ever clearer than before.

In June 1972, the Government approved the first five-year development programme to develop 4 CPs in the New Territories and a series of picnic areas on Hong Kong Island.

At this time, the Government's policy agenda also showed a priority of recreation and leisure (e.g. establishment of Council for Recreation and Sport in 1973). In October 1973, the Governor, Sir Murray MacLehose told the Legislative Council that he considered the five-year recreation programme to be "central" rather than peripheral. In August 1976 the Country Parks Ordinance was enacted, and a statutory advisory body, the Country Parks Board, was established. The Director of Agriculture and Fisheries became the Country Parks Authority.

6. The Period of Crash Programme (1977-81)

In August 1977, the Governor decided that by 1st April 1981 approximately 150 square miles (388.6 km²) of the countryside should be protected and managed under the Country Parks Ordinance. To achieve this, an accelerated (crash) programme was prepared. At the recommendation of the Country Parks Board, the Finance Committee of the Legislative Council approved this crash programme with a total cost of about \$71 million, (\$46.6 million non-recurrent expenditure over 5 years and \$24.5 million recurrent on full development).

By 21 September 1979, 21 Country Parks and 13 Special Areas (2 of which located outside country parks) occupying a total area of 159.45 square miles (about 41,310 ha) were designated. These together with 41 SSSIs formed the conservation framework of the Hong Kong Countryside.

7. The Development Period (1981-2001)

Since the successful implementation of the crash programme, there had been no major CP extensions until 1995 when 40 ha of land were added to Tai Lam CP. In 1996 a new CP at Wan Tsai in Sai Kung was designated (123 ha), and in 1998 Lung Fu Shan CP (47 ha) was designated. In 1999 a new SA (61 ha) at Ma Shi Chau and nearby islands was designated. At the end of 2001, there are a total of 23 CPs and 15 SAs among which 4 are located outside CPs occupying a total area of 41,582 ha.

There are plans to extend CPs to cover more areas of high conservation value, recreational potential and education significance. An extension of about 2,300 ha of Lantau North CP is being actively planned and it is expected to be designated in 2002.

Conclusions

The history of Hong Kong CPs indicates that the success of the programme depends upon timely designation, strong government commitment, public support and proper management. In 2001, there were over 11 million visitors to CPs and about 250,000 citizens took part in the education programmes. CPs and SAs are well protected and maintained with a vision of creating "an island of stability in the storm of change" for the present and future generations.

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[Adapted from Wong, F.Y. (2001) *A Short History of Hong Kong Country Parks*. In Hodgkiss, J. (ed.) (2001) *Challenges of Nature Conservation in the face of Development Pressure. Proceedings of the 2001 IUCN World Commission on Protected Areas, East Asia Conference, June 2001 in Hong Kong*.]

Working Group Column

郊野公園淡水魚

由2001年7月至2001年9月，郊野公園管理科舉行了一次淡水魚生態調查，目的是希望知道在郊野公園範圍內淡水魚的品種數目及分佈。在是次調查中，總共考察了48條河流，結果錄得18種淡水魚，其中北江光唇魚及黑岐尾鬥魚甚具生態價值。原本只在東涌的河流找到的北江光唇魚，今次也可在大潭的河流中找到。而被認為只棲息於淡水沼澤的黑岐尾鬥魚，亦可在急湍的河流中找到。

Freshwater Fish in Country Parks

Freshwater Fish Working Group – Tony Chan, Samuel Lam, Franco Ng and Maria Young

A fish survey inside country parks (CPs) was conducted from July to September 2001. The survey aimed at collecting baseline information, especially species composition and distribution, on freshwater fish in streams inside CPs.

All the 24 CP Management Centres (MCs) under the Country and Marine Parks Branch participated in the

survey to form 24 survey teams. Each survey team surveyed 2 streams within CPs during the survey period. A total of 48 streams were surveyed.

18 fish species were found during the survey (Table 2), of which 2 of them are of ecological interest – *Acrossocheilus beijiangensis* (Fig. 1) and *Macropodus hongkongensis* (Fig. 2). New localities of these 2 species were also found.

Tung Chung stream was previously considered the only locality of *A. beijiangensis* (Chong & Dudgeon, 1992) but a new locality in a stream near Tai Tam Nature Centre was discovered. On the other hand, *M. hongkongensis*, known to be found in freshwater marshes (e.g. Sham Chung and Sha Lo Tung), was found in a fast-flowing stream near Luk Keng MC. Other fish species recorded are relatively common throughout the territory.

We have extended the survey to further assess the ecological value of freshwater fish resources in our CPs. Streams that are likely to have high freshwater fish diversity have been selected as new survey sites. Special effort will also be made to survey those fish species with high ecological value. We anticipate that valuable information on our freshwater fish resources will be obtained in the near future.

Table 2 Fish Species Recorded in the 6 Country Park Management Regions

Scientific Name	Chinese Name	Country Park Management Regions					
		C	HK	L	N	SK	W
<i>Acrossocheilus beijiangensis</i>	北江光唇魚		•	•			
<i>Gambusia affinis</i>	食蚊魚				•		•
<i>Liniparhomaloptera disparis disparis</i>	擬平鰈	•		•	•	•	
<i>Macropodus concolor</i>	黑岐尾鬥魚				•		
<i>Misgurnus anguillicaudatus</i>	泥鰍					•	•
<i>Mugilogobius abei</i>	阿部鱔鰍虎魚		•	•			
<i>Nicholsicypris normalis</i>	擬細鯽	•				•	
<i>Oreonectes platycephalus</i>	平頭嶺鰈	•	•	•	•		•
<i>Parazacco spilurus</i>	異鱔	•	•	•	•	•	•
<i>Poecilia reticulata</i>	孔雀魚	•	•	•	•		
<i>Pseudogastromyzon myersi</i>	麥氏擬腹吸鰈	•		•	•	•	•
<i>Puntius semifasciolatus</i>	五線無鬚鰍 (七星)	•		•	•		•
<i>Rhinogobius duospilus</i>	溪吻鰍虎魚	•	•	•	•	•	•
<i>Rhinogobius giurinus</i>	子陵吻鰍虎魚	•		•			•
<i>Schistura fasciolata</i>	橫紋南鰈	•	•	•	•	•	
<i>Silurus cochinchinensis</i>	越南鯰 (坑鯰)	•		•		•	•
<i>Xiphopodus variatus</i>	金鴛鴦	•	•		•		
<i>Zacco platypus</i>	寬鰭鱔	•					
Total		13	8	12	11	8	9

Notes:

Country Park Management Regions: - C: Central; HK: Hong Kong; L: Lantau; N: North; SK: Sai Kung; W: West



Fig. 1 *Acrossocheilus beijiangensis*



Fig. 2 *Macropodus hongkongensis*

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香港新蝴蝶記錄 — 褐斑鳳蝶

在二零零二年三月十二日，褐斑鳳蝶首次在香港被發現。自然護理科的一名農林助理於大埔滘瞭望台發現這個品種，它是鳳蝶科的第二十一位成員。褐斑鳳蝶外形模仿有毒的大絹斑蝶，令天敵不敢捕食。天然分佈範圍由台灣向西伸展至印度地區。在中國有兩個亞種，香港發現的個體應該為大陸亞種。幼蟲食料為樟科植物。

A New Butterfly Record for Hong Kong — *Chilasa agestor restricta*

Butterfly Working Group – Eric Wong, PC Leung, Phoebe Sze and Alfred Wong

On 12 March 2002, a butterfly was caught by Mr. Lin Yue Shun (FA/NC4) near Tai Po Kau Fire Lookout, where a number of butterfly species performed hill-topping. Upon examination back at the headquarters, it was found to be a new butterfly record for Hong Kong, a male *Chilasa agestor* (Gray, 1831) *restricta* (Leech, 1893). The species is the 21st member of the family Papilionidae (Swallowtails) and the second *Chilasa* species recorded in Hong Kong. The specimen is now kept at AFCD headquarters.

All *Chilasa* species mimic members of the family

Danainae (Corbet & Pendlebury, 1992), which are unpalatable and toxic to most predators (Bascombe et al, 1999). There are several sub-species of *Chilasa agestor* in the world and all of them are known from Asia, ranging from north India to China (Corbet & Pendlebury, 1992). *Chilasa agestor restricta* is a typical Chinese race occurring in Southeast China, Sichuan and Zhejiang (Chou, 1999). It resembles *Parantica sita*, a rare Danainae

Chilasa agestor restricta (褐斑鳳蝶)



Upperside



Underside

Parantica sita (大絹斑蝶)



Upperside



Underside

in Hong Kong. The upperside of its wings are bluish gray, with heavily blackened veins, and the distal half of the hindwing is reddish brown. The underside of the wings are similar in pattern to the upperside but the tip and coastal margin of the forewing and the whole hindwing are reddish brown. Females are similar to males in wing pattern but duller in colour.

The species has only one generation a year and appears in early April in Guangdong region. Their larvae feed on *Cinnamomum* species (Lauraceae). They mimic bird's dropping but have numerous spiny tubercles and are showily marked at the later stage. Pupae are stick-like and truncated.

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What's Coming

Joint Field Survey to Lai Chi Wo

On 14 May 2002, a joint field survey to Lai Chi Wo was organised to collect more ecological information of the site with a view to comprehensively evaluate its ecological value. Participating working groups include amphibians and reptiles, butterflies, dragonflies, freshwater fish, plant community and rare plants. Survey results and past ecological information will be compiled and published in a coming issue.

Eric Liu



Biodiversity Seminar Series

3 Biodiversity Seminars were organised in April and May:

- Management and Related Studies of Hong Kong Macaques* by WONG Che-lok;
- Fish of Hong Kong Reservoirs* by Stephen LAI.
- Diversity of Amphibians in South China* by Dr XIE Feng and Dr JIANG Jianping.

On 26 June, Mr Fox WONG will give us a seminar on Bird Ringing in Hong Kong. Both professional and field staffs are welcome.

If you have any speaker in mind (or if you would like to give a seminar yourself), please let me know.

Eric Liu

Issue No. 3 September 2002

Few Words from the Editor

This issue reports some preliminary findings of our biodiversity survey. The Bird Working Group is leading in the number of submissions, with a feature article on egrettries in Hong Kong, a short note on the winter bird survey by the Hong Kong Bird Watching Society, and notes on the Greater Painted-snipe and Red-throated Diver.

Also included in this issue are a report on a new butterfly record by Mr. Y.F. Lo (NEA3) of the Ranger Services Division, short notes on Hong Kong Croton (香港巴豆), and the proposed listing of some birds, including the Black-faced Spoonbill, in Appendix 1 to the Bonn Convention.

We have committed ourselves to survey our bio-diversity and develop an ecological database. While progress has been made in field survey, species identification and data collection, it is time for us to devote more time to data compilation, analysis and production of deliverables.

In my latest round of meetings with individual groups, members have agreed to submit interim reports on progress and findings. They will also review the conservation status of selected species / habitats, and draft action plans for species of conservation concern. I am looking forward to receiving them, and am sure that they would enrich our knowledge on Hong Kong biodiversity as well as future issues of this newsletter.

P.M. So

What's New

List of Threatened Species of Hong Kong

Thanks to the effort of many working groups, a list of threatened species of amphibians and reptiles, birds, freshwater fish, insects, mammals, gastropoda and bivalvia, and vascular plants has been compiled. The list summarizes the status of the species as recorded in the IUCN Red Data List, the China Red Data Book, the State Protected Species List (China), specific references for particular taxa groups (e.g. Bird Watching Society's own listing), and the protection status in Cap. 96 or Cap. 170. A copy of the list is attached.

Eric Liu

A Short Note on the Proposed Addition to Appendix 1 to the Bonn Convention

Eric Liu

14 bird species have been added to Appendix I to the Convention on Migratory Species of Wild Animals (Bonn Convention) at the 7th meeting of the Conference of the Parties in September 2002. Five of them can be found in Hong Kong (see Table below).

The Bonn Convention sets up agreements between countries where certain migratory species occur. By the end of the meeting, 37 species were added to Appendices I and II; 20 on

Species Name	Common Name	Chinese Name	Proposed by
<i>Anas formosa</i>	Baikal Teal	花臉鴨	Mongolia
<i>Eurynorhynchus pygmeus</i>	Spoon-billed Sandpiper	勺嘴鷸	Philippines
<i>Gorsachius goisagi</i>	Japanese Night Heron	栗頭虎斑鵞	Philippines
<i>Platalea minor</i>	Black-faced Spoonbill	黑臉琵鷺	Philippines
<i>Tringa guttifer</i>	Nordmann's Greenshank	小青腳鷸	Philippines

Appendix I and 21 on Appendix II. The Fin, Sei and Sperm whales, and the Great White Shark were listed on both.

A full list of species added to Appendices I and II to the Convention can be obtained from http://www.wcmc.org.uk/cms/listing_proposals1.pdf

Feature Article

二零零二年全港鷺林調查

五種在本港繁殖的鷺鳥，分別是小白鷺、大白鷺、牛背鷺、夜鷺和蒼鷺。牠們的繁殖期一般都會在三月至八月。今次的全港鷺林調查於2002年4月19日至2002年7月11日進行，大部份的記錄會由2個調查員一同進行記錄。調查結果顯示，2002年鷺鳥巢的數量比2001年多出約三成。而鴉洲的鷺林仍然是本港最大的鷺林。而在錄得的鷺鳥中，以小白鷺的數量最多及分佈最為廣闊。

Egretty Survey in Hong Kong 2002

S.T. Tsim, Bird Working Group

Introduction

Five species of Ardeids breed in Hong Kong, namely Little Egret *Egretta garzetta* (小白鷺), Great Egret *Egretta alba* (大白鷺), Cattle Egret *Bubulcus ibis* (牛背鷺), Black-crowned Night Heron *Nycticorax nycticorax* (夜鷺), and Chinese Pond Heron *Ardeola bacchus* (池鷺). There were also occasional breeding records of the Grey Heron *Ardea cinerea* (蒼鷺) in the early 1990's, but there were no such record in the last 8 years (Young and Cha, 1995).

In Hong Kong, egrets breed between the middle of March to the end of August. However, breeding periods vary between different egrettries and species. Moreover, poor weather conditions (i.e. heavy rainfall and high frequency of typhoon) of a particular year may lengthen the breeding period to September or October (pers. observation).

Methodology

All active egrettries in Hong Kong (n=19) were surveyed once between 19 April 2002 and 11 July 2002. For most egrettries, the number of nests/ breeding pairs for every egret species was recorded simultaneously by two surveyors walking into the egretty. For the egrettries located in Penfold Park, Centre Island and To Kau Wan,

the number of nests/nesting pairs were counted simultaneously by two surveyors using telescopes or binoculars from vantage points at a distance of not more than 200 meters. Nest counts presented in the result section were the average count by the two surveyors. The egretty on Stonecutters Island was visited in 2002 but the birds/nests could not be counted. The data of Stonecutters Island presented in Table 3 was adopted from Wong and Kwok (2002).

Results

Table 3 summarises the results of the survey in 2002. Compared to the counts in 2001 (Wong and Kwok, 2002), the total number of egret nests in 2002 has increased by 32.5% to 1,109. Nest counts for individual species have increased by 20%-60%. The number of nests in 2002 was similar to the 10-year peak at 1,106 in 1994 (Fig. 3).

A Chau egretty at Starling Inlet is still the largest, supporting 36.1% of egret nests in Hong Kong. Two new egrettries, namely To Kau Wan and Ha Che, have been identified, and the Shui Mei egretty was abandoned in 2002. Movement of nesting sites within the same woodland was observed in the egrettries at Mai Po Village, Tai Po Market, and the Stonecutters Island in 2002. It seems that such short distance movement of breeding site is common in egrets (Map A on page 16).

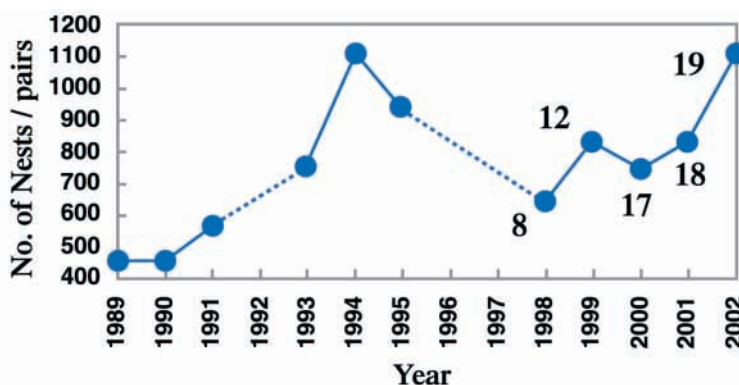


Figure 3 Number of egret nests / pairs in Hong Kong from 1989 to 2002. Numbers shown in the graph represent the number of egretty surveyed in that year. Sources: Data before 1998: Young & Cha (1995); 1998: Carey (1998); 1999: Wong et al (2000); 2000: Kwok et al (2001); 2001: Wong and Kwok (2002).

Table 3 Number of nests/breeding pairs at surveyed egrettries in Hong Kong in 2002 summer

Location of Egrettry (Date of Survey)	No. of Nests or Breeding Pairs (% of nests/nesting pairs)					H#	
	LE	GE	CE	NH	CPH		Total
A Chau (Starling Inlet) (7.5.2002)	120 (27.8%)	40 (39.2%)	40 (48.8%)	200 (74.6%)	0	400 (36.1%)	1.17
Centre Island (Tai Po) (10.6.2002)	35 (8.1%)	29 (28.4%)	2 (2.4%)	31 (11.6%)	0	97 (8.7%)	1.17
Ho Sheung Heung (Sheung Shui) (22.4.2002)	10 (2.3%)	2 (2.0%)	5 (6.1%)	0	75 (33.2%)	92 (8.3%)	0.65
Mai Po Village (Mai Po) (7.5.2002)	63 (14.6%)	15 (14.7%)	6 (7.3%)	7 (2.6%)	0	91 (8.2%)	0.93
Tung Shing Lei (Yuen Long) (7.5.2002)	47 (10.9%)	0	0	0	5 (2.2%)	52 (4.7%)	0.32
Stonecutters Island (Kowloon) (23.6.2002*)	26 (6.0%)	0	0	18 (6.7%)	2 (0.9%)	46 (4.1%)	0.83
Ha Pak Nai (Deep Bay) (19.4.2002)	40 (9.3%)	0	0	2 (0.7%)	2 (0.9%)	44 (4.0%)	0.37
Mai Po Lung Tsuen (Shek Wu Wai) (19.4.2002)	3 (0.7%)	0	0	0	41 (18.1%)	44 (4.0%)	0.25
Tam Kon Chau (Mai Po) (7.5.2002)	0	0	0	0	42 (18.6%)	42 (3.8%)	0.00
Lam Tsuen San Tsuen (Tai Po) (11.5.2002)	3 (0.7%)	0	0	0	37 (16.4%)	40 (3.6%)	0.27
To Kau Wan (Lantau) (14.5.2002)	30 (7.0%)	2 (2.0%)	2 (2.4%)	5 (1.9%)	0	39 (3.5%)	0.77
Tai O (Lantau) (24.5.2002)	21 (4.9%)	0	0	2 (0.7%)	0	23 (2.1%)	0.30
Shing Uk Tsuen (Tin Shui Wai) (19.4.2002)	10 (2.3%)	0	10 (12.2%)	0	2 (0.9%)	22 (2.0%)	0.94
Tai Po Market (Tai Po) (14.6.2002)	6 (1.4%)	10 (9.8%)	0	3 (1.1%)	0	19 (1.7%)	0.99
Ma On Kong (Kam Tin) (22.4.2002)	2 (0.5%)	0	11 (13.4%)	0	4 (1.8%)	17 (1.5%)	0.87
Ngau Hom Shek (Deep Bay) (19.4.2002)	10 (2.3%)	0	0	0	5 (2.2%)	15 (1.4%)	0.64
Penfold Park (Shatin) (14.6.2002)	5 (1.2%)	4 (3.9%)	0	0	2 (0.9%)	11 (1.0%)	1.04
Ha Che (Kam Tin) (11.7.2002)	0	0	0	0	9 (3.4%)	9 (0.8%)	0.00
Ho Pui (Kam Tin) (22.4.2002)	0	0	6 (7.3%)	0	0	6 (0.5%)	0.00
Total in 2002 = (% nests/nesting pairs)	431 (38.9%)	102 (9.2%)	82 (7.4%)	268 (24.2%)	226 (20.4%)	1,109 (100%)	
Total in 2001 = (% nests/nesting pairs)	268 (32.2%)	82 (9.9%)	59 (7.1%)	222 (26.7%)	188 (22.7%)	830 (100%)	
Difference (2001 vs. 2002)	+60%	+24.3%	+39.0%	+20.7%	+20.2%	+32.5%	

Abbreviations: LE - Little Egret; GE - Great Egret; CE - Cattle Egret; NH - Black-crowned Night Heron; CPH - Chinese Pond Heron.

Shannon's Diversity Index (H) = $-\sum_{i=1}^s p_i \ln p_i$ where p_i is the proportion in the population belonging to the i th of s species.

* Stonecutters Island was visited to confirm the utilization of this site by egrets, but the egret nests could not be counted. Data shown here are adopted from Wong and Kwok (2002).

Discussion

Important sites

The top 4 largest egrettries (in terms of the number of nests/breeding pairs) supported 61.3% of the nests/breeding pairs of egrets in Hong Kong (Table 4). The egrettry on A Chau was about 4 times larger than those on Centre Island, in Mai Po Village and Ho Sheung Heung, indicating the ecological importance of A Chau egrettry. Six of the egrettries, which supported 62.3% of the nests, are located on government land or within designated protected areas i.e. Special Area or SSSI.

None of the egrettries supported all 5 breeding species. In terms of egret diversity, the egrettries on A Chau and Centre Island ranked top ($H = 1.17$), supporting 4 and 3 species respectively. Mai Po Village, Shing Uk Tsuen, Tai Po Market and Penfold Park egrettries also have a high egret diversity (H between 0.93 and 1.04).

Table 4 The top 4 largest egrettries in Hong Kong

Rank In abundance	Egrettry	% of nests in HK	Cumulative % of nests in HK	H value
1	A Chau	36.1%	36.1%	1.17
2	Centre Island	8.7%	44.8%	1.17
3	Ho Sheung Heung	8.3%	53.0%	0.65
4	Mai Po Village	8.2%	61.3%	0.93

Egrettries supporting only 1 - 2 species have low H values. For example, the H values of Tam Kon Chau, Ho Pui, Ha Che, Tai O, Lam Tsuen San Tsuen, and Tung Shing Lei egrettries vary from 0 to 0.32 (Table 3).

Little Egret was the most abundant and widely distributed species. They were found in 16 out of 19 egrettries. Great Egret, Cattle Egret and Black-crowned Night Heron, in contrast, were found in 7 - 8 egrettries.

Over 90% of the nests of Great Egret and Black-crowned Night Heron fall within government land or designated protected areas. For the Little Egret and Cattle Egret, about 60% of their nests also fall within such areas. In contrast, only 2, i.e. 0.9% of all nests of Chinese Pond Heron are within government land or designated protected areas (Table 5).

Tolerance to Disturbance (traffic and human activities)

13 of the 19 egrettries were subject to potential disturbances caused by traffic and/or the presence of human nearby. The total number of nests of these 13 egrettries remained relatively constant but in some cases

Table 5 Nests at sites which fall within government land or designated protected areas

Species	Total Number of Nests in Hong Kong	Nests on Government land / Designated Protected Areas	
		No.	%
Little Egret	431	280	64.9%
Great Egret	102	96	94.1%
Cattle Egret	82	50	60.9%
Black-crowned Night Heron	268	264	98.5%
Chinese Pond Heron	226	2	0.9%
Total	1109	692	62.4%

increased slightly over the last 4 years (Table 6). The Tung Shing Lei egrettry, which was near a construction site, seemed not affected by the disturbance. Nest counts in the 6 sites without disturbance shown fluctuation in total numbers in the last 4 years (Table 6). The results reflected the egret's high tolerance to disturbance as prolonged non-willful disturbances caused by traffic and/or the presence of human nearby did not result in abandonment of an egrettry.

Conservation

The major challenge of egrettry conservation in Hong Kong is the uncertain movement of egrettry as egrets may move their nesting sites for unknown reasons. To protect

Table 6 Susceptibility of breeding egrets to potential disturbance and the numbers of nests in the last 4 years

Egrettries	Type of potential disturbance	Distance to nearest source of potential disturbance (m)	No. of nests in 2002	No. of nests in 2001 ¹	No. of nests in 2000 ²	No. of nests in 1999 ³
Ha Che	Human	2	9	No data	No data	No data
Ha Pak Nai	Traffic / Human	5 - 10	44	54	44	25
Ho Pui / Ma On Kong ⁴	Human	5	23	14	19	29
Ho Sheung Heung	Traffic / Human	5	92	75	60	78
Lam Tsuen San Tsuen	Human	2	40	15	12	No data
Mai Po Lung Tsuen	Traffic / Human	15	44	44	15	No data
Mai Po Village	Traffic/ Human	5	91	109	108	105
Ngau Hom Shek	Traffic / Human	5 - 10	15	7	15	10
Penfold Park	Human	20	11	12	22	13
Tai Po Market	Traffic / Human	5 - 10	19	46	17	30
Tam Kon Chau	Traffic / Human	5	42	22	13	No data
Tung Shing Lei	Traffic / Human	5 - 50	52	9	No data	No data
		Sub-total	482	407	325	290
A Chau SSSI	Nil	200	400	257	251	392
Centre Island SA	Nil	1500	97	34	69	46
Shing Uk Tsuen	Nil	> 100	22	50	No data	No data
Stonecutters Island	Nil	100	46*	46	51	80
Tai O	Nil	50	23	19	6	22
To Kau Wan	Nil	200	39	No data	No data	No data
		Sub-total	627	406	377	540

¹ Wong and Kwok (2002) ² Kwok et al. (2001) ³Wong et al. (2000)

⁴ The figures of the Ho Pui and Ma On Kong egrettries were combined.

the breeding populations of egrets, a more pragmatic approach may be taken to provide them with more potential nesting sites to encourage movement of egret to existing protected areas. Hence, the nesting requirements for egrets should be characterized for identification of potential sites. In this connection, studies including tree survey in egrettries and foraging range and habitats of egrets in breeding season are being carried out in collaboration with the Hong Kong Herbarium and the Hong Kong Bird Watching Society respectively. The results will be reported in a coming issue of the *Hong Kong Biodiversity*.

In summary, conservation actions for breeding egrets may include:

1. To identify potential breeding sites by the planting of suitable tree species within protected areas such as Country Parks, Ramsar site, and ecological mitigation areas;
2. To manage the growth of climbers in existing egrettries to prevent degradation of nesting conditions (on-going by Nature Conservation (Central) Division);
3. To manage foraging habitats especially during the breeding period in the Mai Po Nature Reserve (on-going by WWF, HK);
4. To patrol the egrettries regularly especially during the breeding season from March to September (on-going by Wetland and Fauna Conservation Division (WFCD));
5. To promote conservation education and publicity programme (on-going by WFCD, Wetland Park

- Division and Country Parks Ranger Services Division);
6. To provide rescue / rehabilitation services if sick or injured birds are found (on-going by Kadoorie Farm and Botanic Garden);
7. To regularly monitor existing egrettries (on going by WFCD and Hong Kong Bird Watching Society).

Acknowledgement

The author would like to thank Mr Choi Ip-chun (FO (WF)3) for his excellent field work in this survey.

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Working Group Column

香港觀鳥會冬候鳥初步調查結果

香港觀鳥會進行了一個為期三年的冬候鳥調查，目的是記錄冬候鳥的分佈及數量。從2001年11月中至2002年2月的調查結果顯示，后海灣及林村擁有最多數量的雀鳥，而沿海地區則擁有最多冬候鳥品種。同時，調查亦有瀕危雀鳥的記錄，如：黑臉琵鷺、鳥鵲及白肩鵲。

A short note on preliminary findings of the winter bird survey undertaken by Hong Kong Bird Watching Society in 2001/02

W.H. Lee, Bird Working Group

The Hong Kong Bird Watching Society has been conducting a 3-year winter bird survey since the winter of 2001/02.

The survey methodology mainly follows Carey *et al* (2001) for summer bird survey. The territory was equally divided into 96 5 x 5km² grids and each of them subdivided into 25 1 x 1km² grids. Voluntary bird watchers surveyed birds in each of the 1km² grid, recording the species present and the number of birds of each species.

Each 1km grid was surveyed for a minimum of 1 hour, and a maximum of 2 hours, using standardized transect counting method.

The survey aims to record the distribution and numbers of wintering birds in different areas/habitats in Hong Kong, providing information on the ornithological importance of different areas.

The first-year survey was conducted from mid November 2001 to February 2002, covering 276 1km² grids. Average species diversity was 9.36 per 1km² grid and average bird abundance was 148.85 per 1km² grid. The Deep Bay area (mainly Ramsar site and adjacent fishponds) and Lam Tsuen area had the highest bird abundance (1,177 and 439 per 1km² respectively). On the other hand, areas with high species diversity concentrated mainly along the coastal areas such as Grass Island (29 per 1km² grid), west Hong Kong Island (26 per 1km² grid), south Lantau (22 per 1km² grid) and west Lamma (23 per 1km² grid).

Chinese Bulbul *Pycnonotus sinensis* (白頭鵲) and Japanese White-eye *Zosterops japonicus* (暗綠繡眼鳥) were the most widespread species in the territory during the 2001/02 survey period, followed by Eurasian Tree Sparrow *Passer montanus* (麻雀) and Red-whiskered Bulbul *Pycnonotus jocosus* (紅耳鵲) (Table 7). Nonetheless, the most abundant bird species of the survey were the waterbirds, such as Northern Pintail *Anas acuta* (針尾鵲), Eurasian Wigeon *Anas Penelope*

Table 7 Hong Kong's most common bird species recorded in the 2001/02 winter

Rank	Species	Abundance (per 1km ² grid)	Number of 1km ² grid recorded
1	Chinese Bulbul (<i>Pycnonotus sinensis</i>)	25	243
2	Japanese White-eye (<i>Zosterops japonicus</i>)	23	218
3	Eurasian Tree Sparrow (<i>Passer montanus</i>)	22	121
4	Red-whiskered Bulbul (<i>Pycnonotus jocosus</i>)	19	199

Table 8 Examples of the most abundant waterbirds in the 2001/02 winter

Species	Abundance (no. per 1km ² grid)	Number of 1km ² grid recorded	Highest 1km ² grid count
Northern Pintail (<i>Anas acuta</i>)	617	5	2,565
Eurasian Wigeon (<i>Anas penelope</i>)	399	6	2,000
Great Cormorant (<i>Phalacrocorax carbo</i>)	121	23	1,545

(赤頸鴨) and Great Cormorant *Phalacrocorax carbo* (鸕鶿), and they were recorded mainly in the Deep Bay area (Table 8). The results indicated that the Deep Bay area, in particular the Ramsar site, is the most important area in the territory for wintering and migrating bird species.

A number of globally threatened species such as Black-faced Spoonbill *Platalea minor* (黑臉琵鷺), Greater Spotted Eagle *Aquila clanga* (烏鵂) and Imperial Eagle *Aquila heliaca* (白肩鵂) were also recorded during the survey.

The survey will be continued in the coming winters.

發現罕見的彩鷺

近期，在上水一塊加工濕地上發現了正值繁殖的彩鷺，並於2002年4月24日及29日記錄到15隻不同成長階段的彩鷺。這反映出該片加工後的濕地是一個適合彩鷺棲息、覓食及繁殖的地方。

Greater Painted-snipe in ecological mitigation areas of the channelized River Beas

Samuel Lam and W.H. Lee

The Greater Painted-snipe *Rostratula benghalensis* (彩鷺), a locally rare species, was found breeding in a created wetland in Sheung Shui.

Ecological enhancement works were carried out in 8 meanders and a pond along River Beas (雙魚河) near Long Valley as mitigation measures of the Main Drainage Channels for Fanling, Sheung Shui and Hinterland project. The works was started in October 2001 and completed in January 2002. Works included re-contouring the sites, modifying the hydrology and planting of wetland species (Maunsell Consultants Asia Ltd, 1997).

The created wetland is the first of its kind in Hong Kong.

In addition to some common wetland dependent birds (e.g., White-breasted Waterhen *Amaurornis phoenicurus* (白胸苦惡鳥) and Little Egret *Egretta garzetta* (小白鷺), 15 Greater Painted-snipes at different life stages were recorded there on 24 and 29 April 2002 (Figures 4 and 5). This suggests that the enhanced wetland provides suitable feeding, sheltering, roosting and breeding habitats for the species.

More about Greater Painted-snipe

Greater Painted-snipe prefers low, swampy areas, with patches of open water interspersed with dense vegetation, paddy fields and active/inactive wet agricultural land, and freshly flooded land. It feeds on a range of freshwater aquatic invertebrates as well as seeds, earthworms and aquatic vegetation. It may leave shelter at dawn and dusk to forage on grassland and ploughed fields (ERM, 2001; Leader, 1999).

The bird is unobtrusive and has a polyandrous breeding strategy. Females are larger and have brighter plumage than males. After laying her eggs, the female

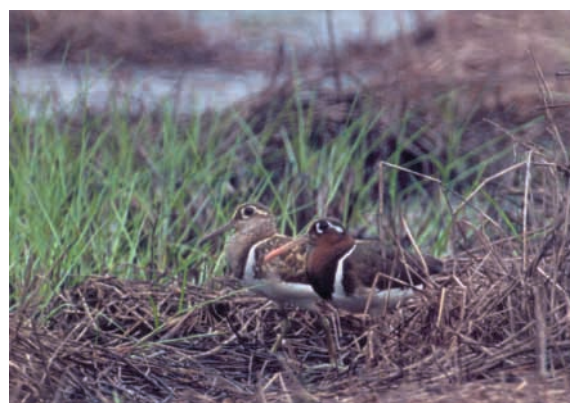


Figure 4 (upper) Greater Painted-snipe - Juvenile

Figure 5 (middle) Greater Painted-snipe - Male and chicks

Figure 6 (right) A pair of Greater Painted-snipes - photo taken at Mai Po (May 2002)

leaves the nest and her mate and courts with another male. The male incubates the eggs and rears the young alone (Campbell and Lack, 1997).

The species is widely distributed in Africa, Asia (including India, China, Japan and the Philippines) and Australia (Campbell and Lack, 1997; ERM 2001). In Mainland China, it is a common resident and seasonal migrant (MacKinnon and Phillipps, 2000).

Greater Painted-snipe is locally rare in Hong Kong. Most of the breeding records were confined to two areas, namely Long Valley and Kam Tin. Both sites comprise extensive wet agricultural land mixed with abandoned fields with dense aquatic vegetation (Leader, 1999).

Greater Painted-snipe at Mai Po

In 2002, Greater Painted-snipers with different life

stages have frequently been observed at Mai Po (Figure 6), and there was at least one confirmed breeding record there in May 2002. Before that, there have been no confirmed breeding records of the bird at Mai Po.

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紅喉潛鳥

2002年2月18日，一隻紅喉潛鳥在鹿頸泥灘被發現，這次是香港的首次記錄。

Red-throated Diver — First Record in Hong Kong

S.T. Tsim, Bird Working Group

In a sunny morning on 18 February 2002, a Red-throated Diver stained with oil was found at Luk Keng mudflat, Starling Inlet by Mr. WAN Yip-fat (FO(WF)1) during his regular patrol. The diver was rescued, cleaned carefully by detergent, and fed with small fishes. After 2 days of observation, the recovered diver was released. This Red-throated Diver is the first record in HK (pers. comm. with Geoff Carey).

Red-throated Diver *Gavia stellata* is the smallest and lightest diver among the 4 diver species in the world. Still numerous globally, it usually inhabits in the Arctic in summers and mainly along the north coasts of Atlantic and Pacific in winters. It feeds mainly on small fishes and occasionally on crustaceans, molluscs, frogs, insects and sometimes plant matter (del Hoyo *et al.*, 1992). There was



Figure 7 (left) Body length: 57cm. Small head, thick neck. Adult plumage in winter: upper parts blackish with white spots; white below extends to chin, sides of neck and face. Sexes are alike. Bill slender, uptilted and greenish-black.



Figure 8 (right) Riding low in the water. Neck is extended and elongated to the front

recorded migration from Heilong River in northeast China to Guangdong, Hainan and north Taiwan (MacKinnon and Phillipps, 2000).

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香港巴豆 (漢斯巴豆) *Croton hancei* Bentham

植物標本室葉國樑

在1997年，香港植物標本室職員林英偉先生，在青衣島採集到一種大戟科灌木，與常見的林下植物種類不同。當時香港植物標本室正與華南植物研究所的專家合作，全面審定所有本港植物標本。經該科專家鑑定，確認是一個半世紀以來未再有發現的香港巴豆 (*Croton hancei* Bentham)。

香港巴豆是香港特有植物，早在1850年代在港島(地點不詳)由漢斯(Hance)發現，植物分類學家邊林(Bentham)在《香港植物誌》(1861)首次正式發表及描述了這種植物。

香港巴豆是大戟科的灌木，高達2米，除嫩枝和花序密披星狀鱗毛外 (Fig. 9)，其他部分甚光滑。葉呈長圓狀，邊緣有小鋸齒 (Fig. 10)，葉脈羽狀，葉柄短，葉密集地聚生於小枝的頂端。總狀花序頂生，花柱上部二裂但中部以下聚合，夏季開花，朔果球形 (Fig. 11)。香港巴豆的葉片基部兩側，各有一枚呈杯狀的腺體 (Fig.12)。此外，香港巴豆的花柱上部是分叉的。相對地，曾被誤認為香港巴豆的斑籽烏柏 *Sapium atrobadiomaculatum* Metc. 的花柱卻是不分叉的。

在本港生長的巴豆屬植物之中，只有香港巴豆的葉片基部無三出脈，也只有它的嫩枝和花序，才披密密的星狀鱗毛，在放大鏡下，一叢叢的鱗毛仿如釘在長衫上的珠片，而其他品種則長較幼的毛或絨毛。

香港巴豆生於林下，因花果細小，不易被察覺。自

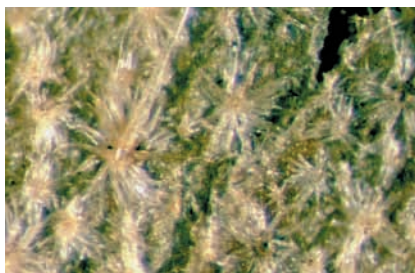


Figure 9 星狀鱗毛

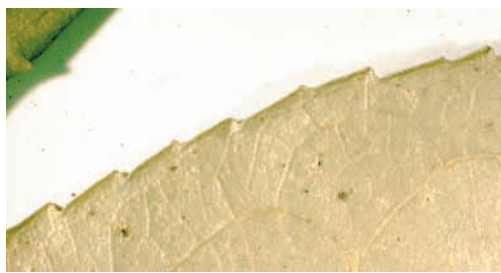


Figure 10 葉緣有鋸齒



Figure 11 野外生長情況 (小圖：果)

從漢斯的模式標本存放在英國的博物館內，鮮有人再採集到香港巴豆，更遑論與模式標本對証。雖然後來有些文獻聲稱發現香港巴豆，但經鑑定後該等標本實為斑籽烏柏。

本署植物護理組已展開保護香港巴豆的行動，包括就地保護、異地保護及試驗人工種植。



Figure 12 葉基部腺體

香港蝴蝶的新記錄科和種 —— 珍蝶科，苧麻珍蝶

2002年8月17日，郊野公園護理員捕獲一隻香港從未有記錄的蝴蝶——苧麻珍蝶。這種蝴蝶亦是珍蝶科在香港的第一個記錄。該樣本是隻雄蝶。發現地點為一廢棄的水田，田邊長有大量糯米團，附近亦有大量馬纓丹叢生。據初步觀察所得，苧麻珍蝶在當地有一定的數量。

A New Butterfly Record for Hong Kong — *Acraea issoria* (The Yellow Coster)

Y.F. Lo

On 17 August 2002, a live *Acraea issoria* (苧麻珍蝶) was collected in an abandoned paddy field near Plover Cove Country Park by Hui Wing-leung, AFCD Park Warden. Many authors listed this species under the family Nymphalidae (蛺蝶科), sub-family Acraeinae (e.g. Ackery, 1984) but Chou (1996) classified it under a separate family Acraeidae (珍蝶科).

The specimen is a male. The length of forewing is about 3cm and the wingspan is about 6.2cm. The

upperside of its wings is yellowish brown, with black wing margin and yellowish brown spots. Each forewings has a black cell-end bar. Patterns on the underside of the wings are similar to the upperside but paler in colour. The underside has more prominent black veins, the marginal area of the hindwings has orange spots and a black zigzag bar. The body is dark in colour with yellow spots on the lateral side of the thorax. There are two orange spots on the dorsal side of the prothorax.

AFCD country park staff visited the same site again on 18 August 2002. A total of five adults, a dozen of larvae, a pupa and an empty pupa of *Acraea issoria* were found. Larvae were found on *Gonostegia hirta* (糯米團) (Urticaceae), one of its recorded foodplants (Lee, 2000).

The last instar is about 4cm in body length. It has brown and creamy yellow stripes running from head to anus, with black-branched spines on each segment. The pupa was found suspended from the larval foodplants without a girdle. It was about 2cm in length, creamy in colour, with orange and brown markings. The pupa was found parasitized by *Brachymeria* sp. (Chalcididae). No egg or female adult were found at the site.

Adults of the Acraeinae can be distinguished from that of other Nymphalidae butterflies by having a perfectly flat hindwing and closed wing cells on both wings (Corbet & Pendlebury, 1992). The Acraeinae are medium-sized butterflies, having narrow and elongated forewings and much reduced forelegs (Chou, 1996). Most species are brightly decorated with red, orange and yellow, which are typical warning colours to predators. Also, they fly weakly and low, which are the behaviour of distasteful butterflies (Parsons, 1999). When disturbed, the thorax secretes yellowish distasteful fluid to protect it from predation. Cyanide has been found in the secretion of *Acraea issoria* (Hsu, 1999). Eggs are laid in clusters on the underside of foodplant leaves. Larvae have six or more rows of branched spines (Devries, 1987). When disturbed, larvae of *Acraea issoria* usually drop

Figure 13 *Acraea issoria* - Adult



Figure 14 *Acraea issoria* - larva



Figure 15 *Acraea issoria* - Pupa

from leaves and curl into a circle (Lee, 2000). Pupae are colourful (Parsons, 1999).

The Acraeinae contains about 200 species worldwide with the majority being distributed in the Afrotropical and Neotropical regions. Five species occur in the Indo-Australian Region (Parsons, 1999), two of them in China (Chou, 1996). *Acraea issoria* are found in areas across Southern China, India, Burma, Thailand, Vietnam, Indonesia and the Philippines (Chou, 1996).

With the addition of this species, a total of 233 species of butterflies are now recorded in Hong Kong.

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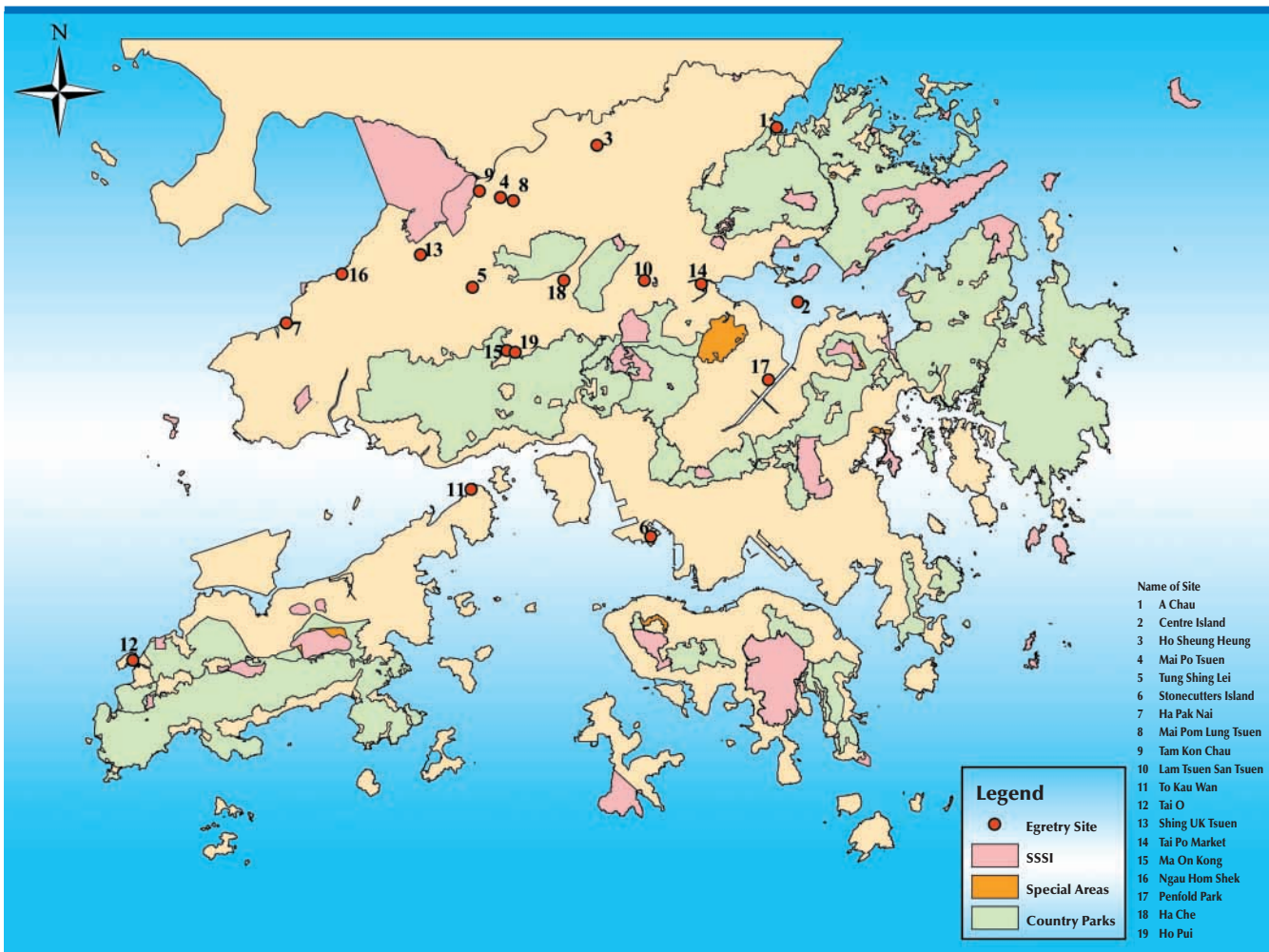
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Map A Location of egrettries in Hong Kong

Do you have any views, findings, and observations to share with your colleagues on the Biodiversity Survey programme? Write to us! Articles should be prepared in Word format and sent as attachment files by email to the Article Editor.

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