

**Advisory Council on the Environment  
Nature Conservation Subcommittee**

**The Proposed Action Plan for the  
Conservation of Butterflies in Hong Kong**

**Purpose**

This paper briefs Members on the proposed action plan for the conservation of butterflies in Hong Kong.

**Background**

2. Butterflies belong to the order of Lepidoptera, which is derived from the Greek words *lepidos* and *pteron*, meaning scale and wing respectively. Members of this order have wings covered with scales. There are approximately 15,000 butterfly species in the world. Butterflies go through a life cycle of complete metamorphosis, i.e. egg, larva (caterpillar), pupa and adult. The adult has one pair of well-developed compound eyes and a siphoning mouthpart. The outer maxilla is specialised into a long rostrum that can roll up or extend to adapt to a feeding habit of sipping nectar at the bottom of floral tubes.

3. Butterflies can be used as indicators of habitat quality because they are (a) widespread, conspicuous, day-flying; (b) reasonably diverse for complete assessment and taxonomic identification; and (c) relatively sensitive to environmental changes because of their specific ecological requirements and short life cycles.

4. With a view to establishing a more comprehensive territory-wide ecological database for Hong Kong, the Agriculture, Fisheries and Conservation Department (AFCD) initiated a survey programme on butterflies in 2002. The main objectives of the programme were to undertake a systematic survey of butterflies in Hong Kong and to advance understanding of the needs for butterfly conservation here. The survey

programme is geographically comprehensive by covering the major sections of the Hong Kong land area, but excluding areas which are expected to be of negligible interest to butterflies, such as the highly urbanized and/or disturbed areas and barren sites.

### **Diversity and Distribution**

5. Biogeographically, Hong Kong is within the Indo-Australian region and it shares its butterfly species assemblages with those of other areas like India and southern China within this region. In spite of Hong Kong's small size (1 103 km<sup>2</sup> land area), the checklist of butterflies in Hong Kong has 240 species in 10 different families. There have also been records of seven vagrant species in the territory.

6. The territory-wide surveys conducted by AFCD during the period from 2002 to 2009 provided essential and updated information on the distribution and relative abundance of butterflies in Hong Kong. A total of 616 surveys were conducted at 244 localities, recording the abundance and distribution of 212 butterfly species, including 6 new species records to Hong Kong, namely Tawny Mime, Yellow Coster, Monastyrskyi' Ace, Rounded 6-line Blue, Common Archduke, Small Yellow Sailer. Some common species such as Common Mormon and Rad-base Jezebel can be found in different habitats throughout the territory, including natural woodlands and urban parks. Some species have specific requirements on habitat and vegetation cover and locally restricted in distribution. For example, Orange Staff Sergeants are only found on Ngau Ngak Shan, and Tawny Mimes only occur in Shing Mun and Tai Po Kau.

### **Species of Conservation Concern**

7. Hong Kong is blessed with great butterfly resources. Among the 240 species, some of them are extremely eye-catching with respect to their sizes and brilliant wing colours such as Common Birdwing, Golden Birdwing, White Dragonail and Red Lacewing. In fact, there has been increasing public concerns on conservation of these flagship species and some rare species. Together with the species which are considered rare in Hong Kong, there is a total of 76 species of conservation concern (Annex 1). These species of conservation concern were identified as

they are either (1) rare or protected species in local context, or (2) vulnerable, or likely to be so, as their larval food plants are rare species of restricted distribution.

### **Sites of Conservation Importance**

8. In August 2004, AFCD organised a workshop with various NGOs, namely the Hong Kong Lepidopterists' Society, Kadoorie Farm and Botanic Garden, Green Power and World Wide Fund for Nature (Hong Kong), to identify sites of conservation importance for local butterflies. Such sites are defined as either of high species richness for butterflies or having unique butterfly interest (e.g. important overwintering site of butterflies). A total of 42 sites were identified as of conservation importance for butterflies. A list of sites of conservation importance for butterflies is given at Annex 2 and a location map of these sites is attached at Annex 3.

### **Threats**

9. The major threats to the survival of butterflies include habitat loss and degradation, pollution and climate change. For example, invasion of exotic plant species such as *Mikania* in local habitats has been observed to reduce the plant diversity therein. Such degradation of habitat quality would affect the survival of butterflies as they have very close relationships with plants in that all butterflies associate with plants in one way or another to complete their life cycles.

### **Conservation Action Plan**

10. Our survey results were used to draw up an action plan for the conservation of the local butterflies. The action plan comprises various components including habitat protection, site monitoring, species action plan, specific study as well as education and publicity to provide for a sustainable long-term conservation programme for the local butterflies.

#### *Habitat Protection and Enhancement*

11. Most of the identified sites of conservation importance for

butterflies are protected against incompatible development and human encroachment since they fall either exclusively or partially within protected areas such as Country Parks, Sites of Special Scientific Interest (SSSI) and Conservation Areas. For example, the Ngau Ngak Shan, which is the sole record site for Orange Staff Sergeants, is exclusively within the Ma On Shan Country Park, as well as being an SSSI. Siu Lang Shui, the largest butterfly overwintering site in Hong Kong, is listed as an SSSI.

12. Efforts have been made to conduct habitat enhancement at various locations for *in-situ* conservation of butterflies, particularly the species of conservation concern identified in the surveys, as well as nature education. Examples of these habitat enhancement work include the establishment of butterfly gardens in the Shing Mun Country Park and the Hong Kong Wetland Park, the Butterfly Valley at the Lions Nature Education Centre in Tsiu Hang Special Area, and the Tai Po Kau Outdoor Study Centre in Tai Po Kau Special Area.

#### *Monitoring of Sites of Conservation Importance*

13. Regular monitoring of the sites of conservation importance for butterflies is conducted to keep track of their condition as suitable habitat for butterflies. During the monitoring visits, particular attention is given to occurrence of any habitat loss or degradation and incompatible human activities. The species richness and abundance of butterflies is also recorded during regular monitoring of these sites. The monitoring to sites of high species richness for butterflies is conducted between March and November each year, and the monitoring to the butterfly overwintering sites and transitional stops is conducted between November and January each year.

#### *Species Action Plan*

14. Species action plans are developed for the specific conservation needs of some butterfly species of conservation concern. A species action plan includes an inventory of biological information, as assessment on conservation status, and the conservation objectives for a target species. At present, draft 5-year species action plans have been

developed for four butterflies namely the Common Birdwing, the Golden Birdwing, the White Dragontail and the Red Lacewing. The major conservation efforts of the species action plans for these species include protection and habitat enhancement of important breeding sites, population monitoring, and exploration of suitable sites for spreading the species.

15. Since 2005, habitat enhancement work have been conducted in Fung Yuen Valley and She Shan, which are the key localities of the Common Birdwing, the Golden Birdwing, the White Dragontail in Hong Kong, to enhance the quality of the habitats for the butterflies. In addition, the larval food plants of these butterflies were planted at various locations within the protected areas, such as Shing Mun Country Park and Tai Po Kau Special Area. Results of the regular monitoring of the sites showed that the populations of these species have successfully established at the locations.

### *Field Study*

16. To better understand the butterfly overwintering in Hong Kong, AFCD undertook a series of capture-mark-recapture experiments in late 2002 and early 2003. The objectives are (1) to trace the migration route of the overwintering butterflies and locate their important transitional stops; and (2) to investigate the population dynamics of the overwintering aggregate in Siu Lang Shui. The results confirmed that Shing Mun Country Park was the transitional stop on the butterfly migration route towards Siu Lang Shui, which is believed to be the largest butterfly overwintering site in Hong Kong with the estimated overwintering population of over 40,000 during the study. Subject to availability of resources, further study on the pattern of dispersal and the final destinations of the butterflies after overwintering would be conducted.

### *Education and Publicity*

17. Education of the public plays an important role in conservation. Various education and publicity programmes have been held on the conservation of butterflies. For example, there are guided education tours on butterflies in the Hong Kong Wetland Park since 2007, and the

responses from the public have been highly favourable; over 5,800 visitors participated in the tours. There were also thematic exhibition, public seminars and origami workshops on butterflies organized at the Park to promotion public awareness of the conservation of butterflies. Besides, AFCD and the Friends of Country Parks published a field guide on local butterflies in 2004 to raise public awareness about the importance of nature conservation. Furthermore, interpretative plates are installed at the butterfly garden in the Shing Mun Country Park and Hong Kong Wetland Park to provide visitors with information about the ecology and conservation of local butterflies. Further education and publicity programmes would be arranged with relevant parties to enhance public understanding of our local butterfly diversity and arouse public awareness of the conservation needs of butterflies.

### **Advice Sought**

18. Members are invited to note and comment on the proposed action plan for the conservation of butterflies in Hong Kong.

**Agriculture, Fisheries and Conservation Department**  
**April 2010**

**List of Butterfly Species of Conservation Concern in Hong Kong**

No.	Common Name	Chinese Name	Scientific Name	Conservation / Protection Status*
1	Yellow Coster	苧麻珍蝶	<i>Acraea issoria</i>	
2	Double-branded Black Crow	雙標紫斑蝶	<i>Euploea sylvester</i>	
3	Chocolate Tiger	史氏絹斑蝶	<i>Parantica swinhoei</i>	
4	-	寬鐐弄蝶	<i>Aeromachus jhora</i>	
5	Pigmy Scrub Hopper	侏儒鐐弄蝶	<i>Aeromachus pygmaeus</i>	Regional Concern
6	Striped Bush Hopper	鉤形黃斑弄蝶	<i>Ampittia virgata</i>	Local Concern
7	Brown Awl	尖翅弄蝶	<i>Badamia exclamationis</i>	Local Concern
8	Colon Swift	無斑珂弄蝶	<i>Caltoris bromus</i>	
9	Spotted Angle	白彩弄蝶	<i>Caprona alida</i>	Local Concern
10	Common Spotted Flat	白觸星弄蝶	<i>Celaenorrhinus leucocera</i>	Local Concern
11	Beggar's Ace	珀酣弄蝶	<i>Halpe paupera walthewi</i>	Endemic subspecies to Hong Kong
12	Dark Brown Ace	雙子酣弄蝶	<i>Halpe porus</i>	Local Concern
13	Slate Awl	無趾弄蝶	<i>Hasora anura</i>	Local Concern
14	White-banded Awl	銀針趾弄蝶	<i>Hasora taminatus</i>	
15	Plain Banded Awl	緯帶趾弄蝶	<i>Hasora vitta</i>	Local Concern
16	Shiny-Spotted Bob	旖弄蝶	<i>Isoteinon lamprospilus</i>	Local Concern
17	Large Branded Swift	近赭穀弄蝶	<i>Pelopidas subochracea</i>	
18	-	鋸紋黃室弄蝶	<i>Potanthus lydia</i>	
19	Common Dart	木黃室弄蝶	<i>Potanthus pseudomaesa</i>	Local Concern
20	Dark Edged Snow Flat	黑邊裙弄蝶	<i>Tagiades menaka</i>	Local Concern
21	Tamil Grass Dart	草黃弄蝶	<i>Taractrocera ceramas</i>	Local Concern
22	Common Grass Dart	薇黃弄蝶	<i>Taractrocer maevius</i>	
23	Monastyrskyi's Ace	黑斑陀弄蝶	<i>Thoessa monastyrskyi</i>	
24	Purple and Gold Flitter	黃裳腫脈弄蝶	<i>Zographetus satwa</i>	Regional Concern
25	Bi-spot Royal	安灰蝶	<i>Ancema ctesia</i>	Local Concern
26	Centaur Oak Blue	銀鏈嬌灰蝶	<i>Arhopala pseudocentaurus</i>	Local Concern
27	Forget-me-not	咖灰蝶	<i>Catochrysops strabo</i>	
28	Silver Forget-me-not	藍咖灰蝶	<i>Catochrysops panormus</i>	Locally extinct
29	Plain Hedge Blue	薰衣琉璃灰蝶	<i>Celastrina lavendularis</i>	Local Concern
30	Broadtail Royal	克灰蝶	<i>Creon cleobis</i>	Local Concern
31	Grass Jewel	普福來灰蝶	<i>Freyeria putli</i>	Local Concern
32	Brown Onyx	白斑灰蝶	<i>Horaga albimacula</i>	Local Concern
33	Metallic Cerulean	素雅灰蝶	<i>Jamides alecto</i>	
34	Oriental Striped Blue	細灰蝶	<i>Leptotes plinius</i>	Local Concern
35	Malayan	美姬灰蝶	<i>Megisba malaya</i>	Local Concern

## Annex 1

No.	Common Name	Chinese Name	Scientific Name	Conservation / Protection Status*
36	Common Brownie	中華雲灰蝶	<i>Miletus chinensis</i>	Local Concern
37	Rounded 6-line Blue	百娜灰蝶	<i>Nacaduba berenice</i>	
38	Forest Quaker	黑丸灰蝶	<i>Pithecops corvus</i>	Local Concern
39	Spotted Royal	豹斑雙尾灰蝶	<i>Tajuria maculata</i>	Local Concern
40	Lesser Forest Blue	蛭灰蝶	<i>Taraka hamada</i>	Local Concern
41	Pale Hedge Blue	珍貴嫵灰蝶	<i>Udara dilectus</i>	
42	Tiny Grass Blue	長腹灰蝶	<i>Zizula hylax</i>	
43	Orange Staff Sergeant	雙色帶蛱蝶	<i>Athyma cama</i>	Local Concern
44	Red Lacewing	紅鋸蛱蝶	<i>Cethosia biblis</i>	
45	Common Yeoman	幸運輻蛱蝶	<i>Cirrochroa tyche</i>	Local Concern
46	Courtesan	芒蛱蝶	<i>Euripus nyctelius</i>	
47	Orange Oakleaf	枯葉蛱蝶	<i>Kallima inachus</i>	Local Concern
48	Common Archduke	小豹律蛱蝶	<i>Lexias pardalis</i>	
49	Commander	穆蛱蝶	<i>Moduza procris</i>	Local Concern
50	Small Yellow Sailer	彌環蛱蝶	<i>Neptis miah</i>	
51	Sullied Sailer	娑環蛱蝶	<i>Neptis soma</i>	Local Concern
52	Eastern Courtier	帥蛱蝶	<i>Sephisa chandra</i>	Local Concern
53	Vagrant	彩蛱蝶	<i>Vagrans egista</i>	Local Concern
54	Australian Lurcher	瑤蛱蝶	<i>Yoma sabina</i>	
55	Chinese Windmill	麝鳳蝶	<i>Byasa alcinous</i>	
56	Tawny Mime	褐斑鳳蝶	<i>Chilasa agestor</i>	
57	Glassy Bluebottle	寬帶青鳳蝶	<i>Graphium cloanthus</i>	Local Concern
58	White Dragontail	燕鳳蝶	<i>Lamproptera curius</i>	Local Concern
59	Southern Chinese Peacock	穹翠鳳蝶	<i>Papilio dialis</i>	Local Concern
60	Golden Birdwing	金裳鳳蝶	<i>Troides aeacus</i>	Local Concern, protected under Cap. 586
61	Common Birdwing	裳鳳蝶	<i>Troides helena</i>	Protected under Cap. 170 and Cap. 586
62	Common Albatross	白翅尖粉蝶	<i>Appias albina</i>	Local Concern
63	Chocolate Albatross	靈奇尖粉蝶	<i>Appias lyncida</i>	Local Concern
64	Orange Emigrant	鏹黃遷粉蝶	<i>Catopsilia scylla</i>	
65	Hill Jezebel	艷婦斑粉蝶	<i>Delias belladonna</i>	Local Concern
66	Psyche	纖粉蝶	<i>Leptosia nina</i>	Local Concern
67	Red-spot Sawtooth	紅肩鋸粉蝶	<i>Prioneris philonome</i>	Local Concern
68	Straight-banded Tree Brown	玉帶黛眼蝶	<i>Lethe verma</i>	
69	False Four-ring	擬四眼矍眼蝶	<i>Ypthima imitans</i>	
70	Small Three-ring	小三矍眼蝶	<i>Ypthima norma</i>	
71	Common Four-ring	前霧矍眼蝶	<i>Ypthima praenubila</i>	Local Concern
72	-	大波矍眼蝶	<i>Ypthima tappana</i>	



## Annex 1

No.	Common Name	Chinese Name	Scientific Name	Conservation / Protection Status*
73	Great Nawab	大二尾蛱蝶	<i>Polyura eudamippus</i>	
74	Malay Baron	暗斑翠蛱蝶	<i>Euthalia monina</i>	
75	Burmese Sailer	娜環蛱蝶	<i>Neptis nata</i>	
76	Dingy Bush Brown	裴斯眉眼蝶	<i>Mycalesis perseus</i>	

\* Notes:

Fellowes, J.R., Lau, M.W. N., Dudgeon, D., Reels, G. T., Ades, G. W. J., Carey, G. J., Chan, B. P. L., Kendrick, R. C., Lee, K. S., Leven, M. R., Wilson, K. D. P. & Yu, Y.T. 2002. Wild animals to watch: terrestrial and freshwater fauna of conservation concern in Hong Kong.

*Memoirs of the Hong Kong Natural History Society.*

Cap. 170 = Cap.170 Wild Animals Protection Ordinance

Cap. 586 = Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance

**List of Sites of Conservation Importance for Butterflies of Hong Kong**

<b>No.</b>	<b>Site</b>	<b>Conservation Importance</b>	<b>Protection Status</b>
1	Chuen Lung	Butterfly hotspot	Partly within Tai Mo Shan CP
2	Cloudy Hill	Butterfly hotspot	Within Pat Sin Leng CP
3	Deep Water Bay Valley	Butterfly hotspot	Partly within Deep Water Bay Valley SSSI
4	Fan Lau	Butterfly overwintering site	Within Lantau South CP
5	Fung Yuen	Butterfly hotspot	Within Fung Yuen Valley SSSI
6	Hok Tau	Butterfly hotspot	Within Pat Sin Leng CP
7	Kadoorie Farm & Botanic Garden	Butterfly hotspot	Within Kadoorie Farm and Botanic Garden
8	Kak Hang Tun	Butterfly hotspot	Within Conservation Area
9	Kap Lung	Butterfly hotspot	Within Tai Lam CP and Conservation Area
10	Kat O	Butterfly hotspot	Within Plover Cove (Extension) CP
11	Kuk Po	Butterfly hotspot	Outside protected areas
12	Lai Chiu Wo	Butterfly hotspot	Within Lai Chi Wo SA
13	Lung Kwu Tan	Butterfly hotspot	Outside protected areas
14	Ma Niu	Butterfly hotspot	Outside protected areas
15	Mount Nicholson	Butterfly hotspot	Outside protected areas
16	Nam Chung	Butterfly hotspot	Partly within Pat Sin Leng CP
17	Ng Tung Chai	Butterfly hotspot	Within Tai Mo Shan CP and Ng Tung Chai SSSI
18	Ngau Ngak Shan	Butterfly hotspot	Within Ma On Shan CP
19	Ngong Ping	Butterfly hotspot	Within Lantau North CP and Ngong Ping SSSI
20	Pak Tam Chung	Butterfly hotspot	Within Sai Kung East and Sai Kung West CP
21	Po Toi	Butterfly hotspot	Outside protected areas but is remote and isolated
22	Pui O	Butterfly hotspot	Within Coastal Protection Area
23	Sam A Tsuen	Butterfly hotspot	Outside protected areas but is remote and isolated
24	San Tau	Butterfly hotspot	Outside protected areas
25	Sha Lo Tung	Butterfly hotspot	Within Sha Lo Tung SSSI and Conservation Area
26	Sha Lo Wan	Butterfly hotspot	Outside protected areas
27	Shan Liu	Butterfly hotspot	Outside protected areas
28	She Shan	Butterfly hotspot	Partly within She Shan Fung Shui Woodland SSSI
29	Shek Mun Kap, Lantau Island	Butterfly hotspot	Outside protected areas
30	Shing Mun	Butterfly hotspot	Within Shing Mun CP
31	Shui Hou	Butterfly hotspot	Within Coastal Protection Area
32	Siu Lang Shui	Butterfly overwintering site	Within Siu Lang Shui SSSI
33	Tai Lam Wu (Ho Chung)	Butterfly hotspot	Within Ho Chung Valley SSSI and Conservation Area
34	Tai Mong Tsai	Butterfly hotspot	Within Sai Kung West CP
35	Tai Po Kau	Butterfly hotspot	Within Tai Po Kau SA

**Annex 2**

<b>No.</b>	<b>Site</b>	<b>Conservation Importance</b>	<b>Protection Status</b>
36	To Kwa Peng	Butterfly hotspot	Outside protected areas but is remote and isolated
37	Tong Fuk	Butterfly hotspot	Within Coastal Protection Area
38	Victoria Peak	Butterfly hotspot	Outside protected areas
39	Wong Lung Hang	Butterfly hotspot	Outside protected areas
40	Wu Kau Tang	Butterfly hotspot	Within Plover Cove CP and Conservation Area
41	Yuen Tun Ha	Butterfly hotspot	Outside protected areas
42	Yung Shue O	Butterfly hotspot	Partly within Sai Kung West CP

CP = Country Park

SA = Special Area

SSSI = Site of Special Scientific Interest

### Location Map of Sites of Conservation Importance for Butterflies of Hong Kong

