綠色力量 GREEN POWER Press Release

30 September 2007

2-year Butterfly Survey found Shing Mun as butterfly corridor in Hong Kong

Blue-spotted Crow (*Euploea midamus*) accounts for the major butterfly

Green Power launched a butterfly biodiversity survey in February, 2005. With a timeframe based on the solar terms, surveys were conducted at Shing Mun Reservoir (Shing Mun for short) and Tai Po Kau Nature Reserve (Tai Po Kau for short) on the days around the two solar terms of each month, to record species diversity, individual number and behaviours of butterflies. The butterfly survey cycle was from Spring Commences (the first solar term) in February to Severe Cold (the last solar term) in January 2006. The survey revealed that butterflies became active by Spring Commences (early February) and the species and individual numbers both subsequently increased. An obvious increase was observed around Bright & Clear (early April). Butterflies of different families have their respective ecological periods. For example, Swallowtail (*Papilionidae*) populations peaked at Moderate Heat (early July) and Great Heat (late July); Nymphs (*Nymphalidae*), Metalmarks (*Riodinidae*) and Blues (*Lycaenidae*) were mainly seen in early summer and autumn; while the Browns (*Satyridae*) population was relatively even throughout the year.

Ceylon Blue Glassy Tiger (*Ideopsis similis*)

The most noteworthy phenomenon in the survey was the change in the numbers of Tigers or Crows (*Danaidae*). The 2005 survey showed that the number of Tigers or Crows at Shing Mun increased after Autumn Equinox (late September); the rise was even more apparent during Frost (late October) and Winter Commences (early November). The rise was almost four-fold (from 23 recorded on Frost to the peak of 104 on Winter Commences). The main species included: Blue-spotted Crow (*Euploea midamus*), Ceylon Blue Glassy Tiger (*Ideopsis similis*) and Common Tiger (*Danaus genutia*). But their populations plummeted after Winter Commences (early November), and were reduced by half to 55 on Light Snow (late November) (Fig. 1).

A 2006 survey recorded similar results (Fig. 2). The numbers of Tigers and Crows started to

increase after Autumn Equinox (late September) and peaked on Winter Commences. The number again decreased after Winter Commences (early November). This indicated the pattern of appearance of Tigers and Crows at Shing Mun. It is expected that early November of 2007 will be the peak period for Tigers and Crows at Shing Mun.

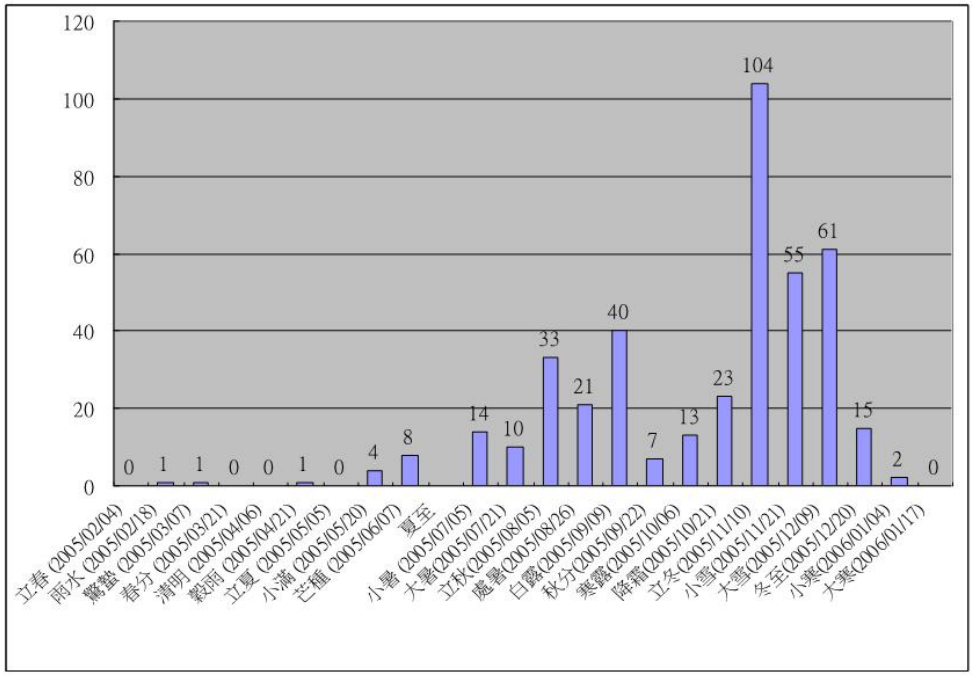

Fig. 1 No. of Tigers and Crows in Shing Mun in 2005 (Jie Qi in chinese)

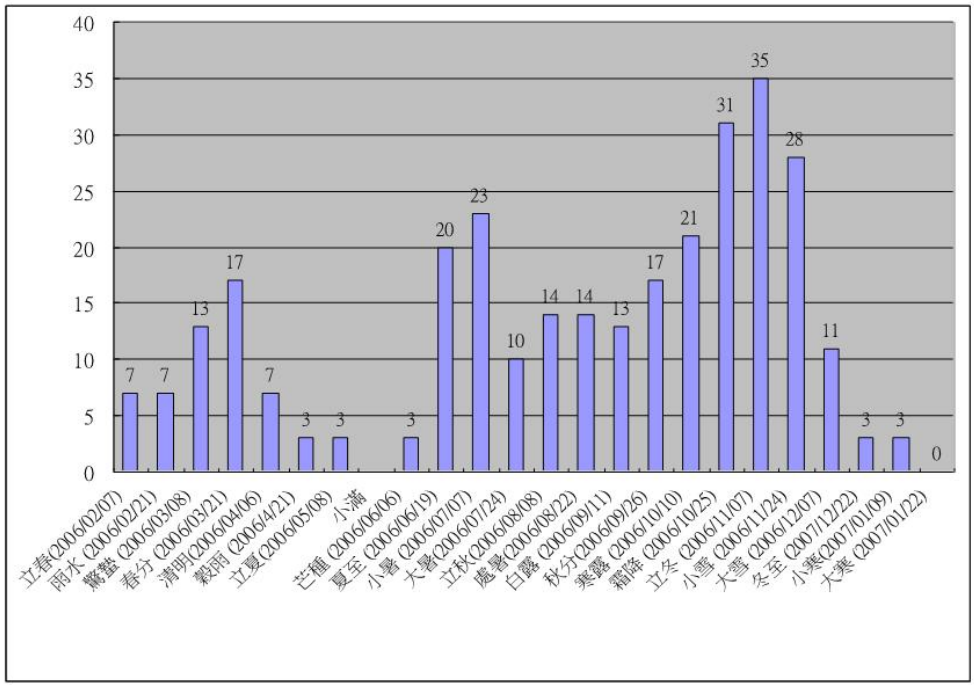

Fig. 2 ***No. of Tigers and Crows in Shing Mun in 2006*** (Jie Qi in chinese)

Species	Abundance (%) except unidentified individuals			
----	2005 Frost	2005 Winter Commences	2006 Frost	2006 Winter Commences
Blue Tiger	2 (11.11)	11 (11.96)	4 (12.90)	3 (11.11)
Lassy Tiger	4 (22.22)	10 (10.87)	3 (9.68)	7 (25.93)
Common Tiger	5 (27.78)	19 (20.65)	8 (25.81)	4 (14.81)
Common Indian Crow	1 (5.56)	5 (5.43)	2 (6.45)	0 (0)
Ceylon Blue Glassy Tiger	3 (16.67)	21 (22.83)	8 (25.81)	6 (22.22)
Striped Blue Crow	0 (0)	2 (2.18)	1 (3.23)	1 (3.70)
Blue-spotted Crow	3 (16.67)	24 (26.09)	5 (16.13)	6 (22.22)
Total	18 (100)	92 (100)	31 (100)	27 (100)

Numbers of Tigers or Crows during Frost (late October) and Winter Commences (early November) in 2005 and 2006

Shing Mun as late autumn roosting stopover for butterflies

The population changes of Tigers and Crows we observed during the survey provide information and data for the late autumn migration of these species in Hong Kong. From the surveys, we can predict that Shing Mun was located on the path along which Danainid butterflies arrive at their winter roosts in Hong Kong – i.e. Shing Mun is one of the locations on their migration routes.

Winter-roosting Tigers and Crows (Photograph taken at Siu Lang Shui, Tuen Mun)

Tigers and Crows differ from other local butterflies in that they can pass the winter in adult form. The butterflies gather in autumn, or migrate to warmer regions to spend the winter. Each year in autumn and winter, Tiger and Crow populations in Hong Kong rise considerably. The large numbers show that not all are from local populations. As these species can fly long distances, they may come from regions north of Hong Kong. A few over-wintering sites have been discovered in Hong Kong, including Siu Lang Shui and Tai Lam Chung of Tuen Mun, Deepwater Bay and Fan Lau of Lantau. Here, Tigers or Crows stay for two to three months, and begin mating as the weather warms in spring the next year.

The butterfly species recorded at Shing Mun are similar to those at the over-wintering sites in Hong Kong. Tigers or Crows begin to arrive at Shing Mun on Autumn Equinox (late September)

and numbers peak by Winter Commences (early November). After this, their populations decrease. In November, 2005 the lowest temperature in Hong Kong was about 15˚C, while in 2006 it was 18˚C. This would not have caused problem for Tigers or Crows. The reduction in their number might be due to them migrating to other places.

Tigers and Crows disappear from Shing Mun after Severe Cold (late January). This should be the time when large numbers of Tigers and Crows gathered at different over-wintering sites in Hong Kong. Previously the Agriculture, Fisheries and Conservation Department conducted a "capture-mark-recapture*" of late autumn and over-wintering Tigers and Crows in Shing Mun and Tai Lam Country Parks. Some of the marked butterflies were later found at Siu Lang Shui, showing that Shing Mun and Tai Lam could be on the migration routes of Tigers or Crows that over-winter elsewhere in Hong Kong. Our survey further demonstrated that Shing Mun is a stopover for migratory butterflies, where they will stay and feed for some weeks.

* To capture several butterflies, put marks on their wings, and set the butterflies free