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**Latest Results of Solar Terms Butterfly Survey
Number of Butterflies Surges with Hot Weather
Local Butterfly Community Structure has Changed**

Green Power started the Solar Terms Butterfly Survey in 2005 to gain understanding of butterfly species and population in different solar terms. Summarizing the results from the latest period (covering 24 solar terms from “Spring Commences” in February 2020 to “Severe Cold” in January 2021), a total of 125 butterfly species and over 6,600 individuals were recorded, ranking second highest in 15 years since the survey began. In addition, five species were first reported in our Solar Terms survey, they were the “Very Rare” White Royal (*Pratapa deva*), “Rare” Painted Lady (*Vanessa cardui*) and Dark Palm Dart (*Telicota ohara*), ungraded Common Line Blue (*Prosotas nora*) and “Common” Lime Butterfly (*Papilio demoleus*).

Matthew Sin, Senior Environment Affairs Manager of Green Power, remarked that it was quite extraordinary to record five butterfly species addition within a single year. Lime Butterfly (*Papilio demoleus*) is a common species, but it is mostly found in the outlying islands of Hong Kong. Hence it has never been reported in the past decade of Solar Terms Butterfly Survey. On the other hand, 2020 and 2019 were the two hottest years in record, with temperature of 1.1 and 1.2 degree Celsius respectively above the normal between the period 1981 – 2010. Reported butterfly species and number also ranked second highest and highest in 2020 and 2019 respectively in our survey. The data suggested that a warming climate may have increased the butterfly population, **Sin** said.

However, **Sin** pointed out that while the overall number of species and butterfly population have increased—including more new species reported, some common species are decreasing in number in recent years. A new norm of local butterflies appears as the weather gets hot. In the long run, the community structure of local butterfly species may be altered.

Sin illustrated with the example of the new butterfly species addition in recent years. Common Archduke (*Lexias pardalis*) and Tailless Line Blue (*Prosotas dubiosa*) were first recorded in the Solar Term Butterfly Survey in 2018 and 2019 respectively. Numerous sightings

were recorded afterwards. In 2019, 38 and 8 individuals of the two butterfly species were recorded in 10 and 6 surveys respectively. In 2020, the figures were 29 and 25 again in 10 and 6 surveys respectively.

On the contrary, common species such as Blue Admiral (*Kaniska canace*) and Chinese Peacock (*Papilio bianor*) which have been on the record since 2005 showed declining trend in number of record and individuals. In 2019, the two species were reported 12 and 2 times respectively totaling 22 and 2 individuals. In 2020, only 3 and 2 times of sighting were reported with one individual in each sighting. The average number of sighting from the most recent five years dropped 45% and 63% respectively as compared to the period 2005-2009 while the number of individuals reported dropped 63% and 73% respectively.

Sin pointed out that Common Archduke (*Lexias pardalis*) and Tailless Line Blue (*Prosotas dubiosa*) are mostly distributed in tropical regions such as Thailand and Malaysia. The local record of the two species in Hong Kong in the recent decade may be due to human or accidental factors that bring them here. The warmer weather of the past two years favored their reproduction. On the contrary, local butterflies may become less active in the hotter weather. “Our survey shows that butterfly numbers are increasing as temperature rises. People are glad to see more butterflies in the countryside. However, the community structure of the butterflies may be changing. We are seeing less of the common butterflies in the past but more of the new comers in recent years. We have yet to monitor what the ecological impacts are in the long term.” Sin concluded.