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Press Release

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Outbreak of Red-base Jezebel Across Hong Kong
Especially Long-lasting, Unusually Abundant - A Rare Phenomenon

In recent months, many citizens have taken to social media to share their sightings of large numbers of colourful butterflies across various areas, sparking discussions about why there were so many butterflies emerging in the midst of winter. Based on the online photos, **Assistant Senior Education & Project Manager of Green Power, Ms. Helen Yau**, identified the butterflies as the Red-base Jezebel (*Delias pasithoe*), a butterfly species native to and highly common in Hong Kong. Known for their vibrant yellow and red patterns with black wing veins, these colourful butterflies typically become active around the onset of spring, as if to herald the joyous news of the arrival of springtime. She also mentioned that a large number of Red-base Jezebel have been observed in many locations during recent field surveys.

Through the "Solar Terms Butterfly Phenological Survey" conducted by Green Power, **Ms. Helen Yau** compared data spanning 19 years, and found that there were actually traces of the recent huge Red-base Jezebel outbreaks.

A Record-Breaking Cyclical Outbreak

The "Solar Terms Butterfly Phenological Survey" uses the 24 solar terms as the basis for studying local butterfly ecology, analysing the relationship between species and climate. **Ms. Helen Yau** stated that the survey began in 2005, and since then, huge outbreaks of the Red-base Jezebel (Figure 1) have occurred every three to four years. The last one occurred in 2020, so 2023 was prime for another cyclical outbreak, which extended from last year to this year.

However, **Ms. Helen Yau** also mentioned that this current outbreak has been especially long-lasting and unusually abundant, which was considered rare, when compared to previous cyclical outbreaks. She explained that the Red-base Jezebel would lay a maximum of 50 eggs each time, with a mature Red-base Jezebel having an average lifespan of about ten days, so previous huge outbreaks only lasted for about a month. On the other hand, the current huge outbreak began in November last year (Winter Commences) and lasted until February this year (Spring showers), spanning over three months. Moreover, the numbers recorded during the recent three solar terms (Severe Cold, Spring Commences, Spring Showers) reached new highs since the survey began. The highest number recorded in a single day was 580, which is approximately twice as many as the highest number recorded in previous years, ranging from 150 to 350 in a single day.

Climate Change May Have Boosted Huge Outbreak

Ms. Helen Yau pointed out that there were no major changes in the environment and flora of the surveyed locations during the same period, and inferred that this unusually long and abundant Red-base Jezebel outbreak was related to climate change.

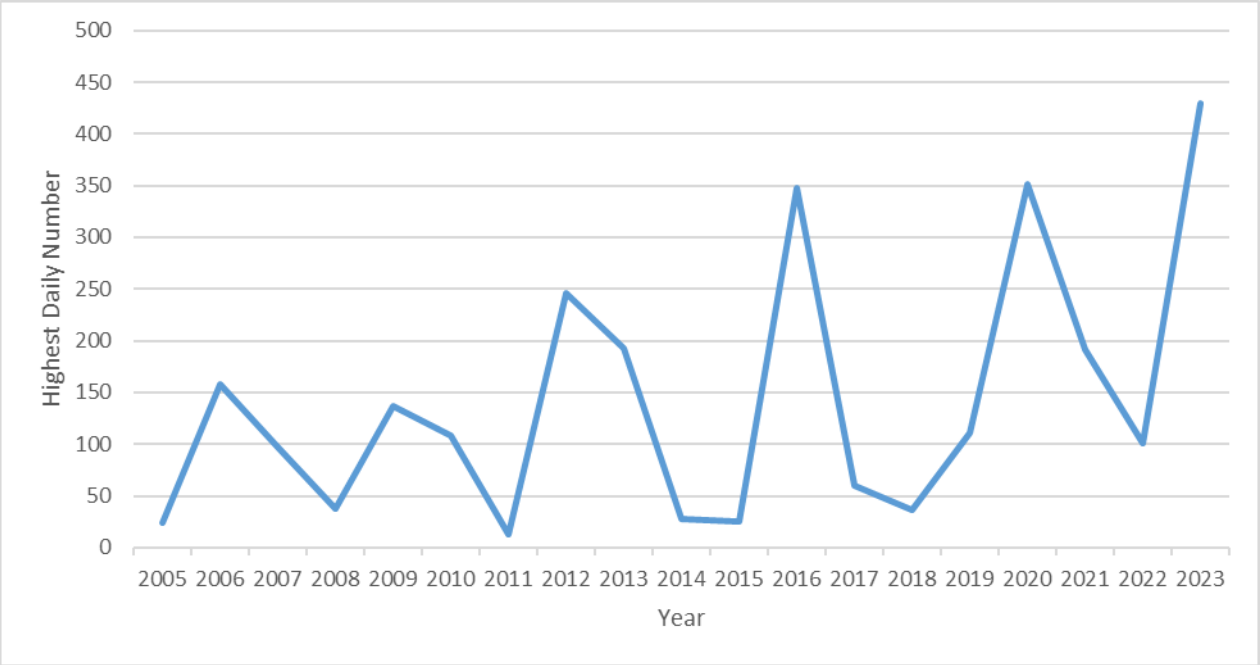
The number of butterflies is primarily affected by two environmental factors. The first one is the predators that prey on them. The severe drought in mainland China in 2022 and heavy rainfall in the summer of 2023 could have reduced the population of forest birds migrating to Hong Kong for the winter, resulting in fewer birds preying on butterflies, which indirectly benefited the growth of the Red-base Jezebel. The second factor is the quantity of flora. Hong Kong had a warm winter in 2023 with less rainfall, and this was already conducive to butterfly reproduction. In addition to these weather conditions, plants that butterflies feed on for nectar, such as the Ivy Tree (*Schefflera heptaphylla*), bloomed in abundant numbers, providing sufficient food for butterflies and further facilitating the growth of the Red-base Jezebel.

Ms. Helen Yau specifically highlighted that based on her observations, this year's Ivy Tree wilted in the wilds, and Lopez Root (*Toddalia asiatica*) bloomed abundantly in its place; both are important sources of nectar for butterflies in winter and spring. In the past, there was a time gap between the blooming periods of the two plants, but this year, they bloomed one after the other, providing food for the Red-base Jezebel, which was one of the reasons behind the huge Red-base Jezebel outbreak.

At the same time, **Ms. Helen Yau** also suggested that the huge Red-base Jezebel outbreak could be due to a migration of these butterflies from mainland China, as there was also a major outbreak of Red-base Jezebel in the Mainland recently. There have been past studies highlighting the migratory behaviour of the Red-base Jezebel. For example, Kinmen experienced a migration of Red-base Jezebel due to a major outbreak of the species in mainland China, leading to sightings of a large number of these butterflies in the area where they had not been recorded before.

As we enter into March, **Ms. Helen Yau** estimates that this Red-base Jezebel wave will reach near the end of its lifespan, which means there will be a significant decrease in the overall numbers of the butterfly.

[Figure 1] Highest Daily Numbers of the Red-base Jezebel Recorded in the 2005 – 2023 "Solar Terms Butterfly Phenological Survey" by Green Power



About Solar Terms Butterfly Phenological Survey

Green Power launched the first of its kind Solar Terms Butterfly Phenological Survey in 2005. The survey covers Shing Mun Country Park and Tai Po Kau Nature Reserve and collects butterfly data in the long term for analysis and comparison. The butterfly survey is carried out during the solar terms to record the number of butterfly species and investigate any changes and correlation.