

Short Communication**The Geranium Bronze Butterfly, *Cacyreus marshalli* (Butler, 1898) (Lycaenidae: Lepidoptera), A New Invasive Species and Additional Records to the Butterfly Fauna of the Palestinian Territories - West Bank**

Elias Nabil Handal

Palestine Institute for Biodiversity and Sustainability, Palestine Museum of Natural History, Bethlehem University, Bethlehem, Palestine

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This is the first report on the Geranium Bronze Butterfly, *Cacyreus marshalli* from the Palestinian Territories. This invasive species was collected from Bethlehem city from two locations in house gardens feeding on *Pelargonium* sp. and *Geranium* sp.

Keywords: Invasive, *Cacyreus marshalli*, Geranium Bronze, West Bank, Palestine.

Introduction

Cacyreus marshalli Butler, 1898 (Lycaenidae: Lepidoptera) commonly known as the Geranium Bronze, Pelargonium Butterfly, or Sardinian Zebra, is a native species to South Africa, and is considered the first non-indigenous species introduced to the Mediterranean region (John *et al.*, 2018). It was initially documented by Eitschberger and Stamer (1990) from the Islands of Mallorca, Spain, from western Turkey (Başbay and John, 2021) and Crete, Greece (John *et al.*, 2018) as a result of imported food plants and *Geraniums* sp. to these countries. *Cacyreus marshalli* could be a serious destructive pest to its geranium hostplant (John *et al.*, 2018).

According to the European and Mediterranean Plant Protection Organization (EPPO) database, it is distributed in several African countries (Algeria, Botswana, Egypt, Eswatini, Lesotho, Morocco, Mozambique, and Zimbabwe. In Asia, it was recorded from

historic Palestine (not including the West Bank), Turkey and Uzbekistan. In Europe, the insect was observed in many countries including Albania, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Guernsey, Italy, Latvia, Malta, Montenegro, Netherlands, North Macedonia, Norway, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Switzerland, Ukraine, and the United Kingdom.

In historic Palestine, over 120 species of butterflies belonging to five families (Papilionidae, Pieridae, Lycaenidae, Hesperidae, and Nymphalidae) have been reported (Comay *et al.*, 2021; Benyamini, 1990). Few studies were carried out on the butterfly fauna from the West Bank area, including fifty-five species reported (Abu Sarhan *et al.*, 2016; Qumsiyeh, 2016; PIBS, 2017). The butterflies of Gaza consist of twenty-five species (Dardona *et al.*, 2015). Benyamini and Kurman (2020) recorded this species for the first time from Jerusalem, which was the first record of this invasive species in the East Mediterranean.

Cacyreus marshalli (Figure 1) was collected from Bethlehem city (in the Mediterranean region) from two different locations; two specimens were collected on the 5th of June 2022 from a house garden (31°42'48.7"N 35°12'13.9"E) flying around ornamental



Figure 1. Dorsal and ventral views of the Geranium Bronze, *Cacyreus marshalli*. (Wing span: 21.3 mm).

plants, and further three specimen were collected on the 7th of June 2022 from the Palestine Museum of Natural History (PMNH) Botanical Garden (31°43'04.4"N 35°12'20.0"E) in Bethlehem on *Pelargonium* sp. ornamental Plants. The distribution and host plants of *C. marshalli* should be intensively studied to understand its effect on the Palestinian environment.

Cacyreus marshalli biology was not well-studied over the years due to the lack of serious damage in its native area in South Africa (Eitschberger U, Stamer P, 1990). After it was recorded in Italy, some studies started to appear (Favilli and Manganelli, 2006; Trematerra and Parenzan, 2003). According to Tawfeek *et al.* (2021) *Cacyreus marshalli* larvae feed on the host plant leaves, flower and nectar then borrow in the host plant stem, so this butterfly pest can feed on plant parts. The female is larger than the male. The average length of the male is 12 mm with an average wingspan of 19 mm, and the female average length is 13 mm and with average wingspan of 23 mm. The larvae need thirty days to reach the pupal stage which lasts for seventeen days before emergence to the adult (Sarto i Monteys and Masó, 1991).

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