

# INDIVIDUAL ABERRATIONS OF THE COMMON BLUEBOTTLE BUTTERFLY *GRAPHIUM SARPEDON* *SARPEDON* (INSECTA: LEPIDOPTERA: PAPILIONIDAE) IN INDIA

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## Introduction

*Graphium sarpedon* (Linnaeus, 1758) is a widespread butterfly, that occurs from Pakistan, along the southern face of the Himalaya to China and Japan, southwards through Thailand and Malaysia to the Philippines and parts of Indonesia (Page & Treadaway, 2013). The facies vary seasonally and geographically and there are several described subspecies along its range. On the Indian subcontinent, the subspecies *G. s. sarpedon* occurs from northern Pakistan, along the Himalaya to N.E. India. Page & Treadaway (2013) proposed a new subspecies, *G. s. sircari*, with a distribution from Meghalaya and Assam in India to Yunnan in China and northern Myanmar, but Tschikolovets & Pages (2016) treated the Himalayan subspecies as *G. s. sarpedon*, apparently ignoring Page & Treadaway (2013). In addition, Page & Treadaway (2013) described a new subspecies of *Graphium adonarensis* (Rothschild, 1896), namely, *G. a. septentrionicolus* Page & Treadaway, 2013 from the Khasi Hills of Meghalaya. Rosseau-Decelle (1947) described two individual forms or aberrations of *G. sarpedon* from India, namely *cellamaculosa* and *punctata* from the Khasi hills (Meghalaya) and Magok, northern West Bengal

respectively, based on a single specimen each in his collection. The form *cellamaculosa* is distinguished by having a small pale blue spot on both surfaces of the wing at the lower angle of the forewing cell, while *punctata* bears, in addition to the cell spot characteristic of *cellamaculosa*, a small pale line in space 8 on both surfaces of the forewing. Recently, the form *cellamaculosa* has been recorded from the Bhimtal valley in Uttarakhand, India. In addition, a form similar to *punctata* but with a much larger cell spot has also been recorded from Assam and Uttarakhand. This is treated under *punctata* in this report. A third, intermediate, form has also been recorded, as described below. The question arose, that since *G. adonarensis septentrionicolus* and *G. sarpedon* f. *cellamaculosa* are both so far only known from the Khasi hills, the possibility that *cellamaculosa* is a form of *G. adonarensis* rather than of *G. sarpedon* cannot be ruled out. To confirm this, two male specimens of both named forms described below were dissected and compared with genitalia of *sarpedon* and *adonarensis* illustrated by Page & Treadaway (2013). Both specimens matched *sarpedon* and not *adonarensis*, confirming that the aberrations described by Rosseau-Decelle

(1947) are correctly placed under *sarpedon*, assuming that *adonarensis* does not have identical aberrations. Although butterflies have been monitored continuously at what is now the Butterfly Research Centre in the Bhimtal valley for around 70 years, the aberrant forms are not among the older material present in the collection. The aberrations only came to notice during the last eight years. They are all from the spring brood, although the butterfly is on the wing from March to October, according to the personal records of PS. This might be because the spring brood is attracted in numbers to buddleia flowers, whereas the summer and autumn broods are found at thistles (*Cirsium* sp.) and occasionally on other flowers, but rarely in numbers. Males gather at wet mud, but, so far, only one individual of *cellamaculosa* has been observed mudpuddling. This is the record from Assam in the present paper. The current records suggest that these aberrations occurs throughout the Indian distribution of the species, from the western Himalaya to N.E. India, which is the type locality for both forms described by Rosseau-Decelle (1947).

#### Material examined

*G. sarpedon sarpedon* forma indiv. *cellamaculosa*: 2 exs.: 21.iii. 2012 male; 1.iv.2017 male. Both from Butterfly Research Centre, Bhimtal, Uttarakhand, India. Coll. Butterfly Research Centre, Bhimtal, Uttarakhand, India. *G. sarpedon sarpedon* forma indiv. *punctata*: 2 exs.: 24.ii.2016, Gangmouthan village, Biswanath district, Assam, Coll. Parixit Kafley, Gangmouthan, Assam; 9. iii.2016, male, Butterfly Research Centre, Bhimtal, Uttarakhand, India, Coll. Butterfly Research Centre, Bhimtal, Uttarakhand, India. A third undescribed form occurs at the Butterfly Research Centre, Bhimtal. This is described below. This form bears a small pale spot on both surfaces of the forewing in space 8, in the same

location as the spot that distinguishes *punctata* from *cellamaculosa*. It differs from both *punctata* and *cellamaculosa* in lacking the pale blue spot at the lower angle of the forewing cell.

The new form confirms that the two extra spots that distinguish all three forms from typical *sarpedon* are independent of each other, so that *cellamaculosa* bears the spot in the forewing cell, the new form bears the spot in space 8 on the forewing, while *punctata* combines both features and has a spot in the forewing cell as well as in space 8 of the forewing.

The size of the spots is variable, ranging from a thin line in the specimen from 21. Iii. 2012 (top right in the plate), to a rather larger cell-spot (1. iv.2017) (right middle in the plate) to a large, prominent cell spot in both specimens of *punctata* (9. Iii.2016) and 24.ii.2016) examined in this study, although Rosseau-Decelle (1947) noted that the spots in both his type specimen are small, *punctata* bearing only a pale line in space 8.

It is interesting that the closely related taxon *Graphium isander isander* (Godman & Salvin, 1888) also bears the pale spot in space 8 of the forewing.

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#### References

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Fig.1: Top right: *G. sarpedon* forma *cellamaculosa* 21.iii.2012; centre right: *G. sarpedon* forma *cellamaculosa* 1.iv.2017; bottom right: *G. sarpedon* forma *punctata* 9.iii.2016; bottom left: *G. sarpedon* typical wet season form female 17.ix.2016; centre left: *G. sarpedon* undescribed form 19.iii.2019; top left *G. sarpedon* undescribed form 26.iii.2019.



Fig.2: *Graphium sarpedon* f. *punctata*,  
Gangmouthan, Assam