

Possible hybrids between *Lysandra bellargus* ROTT. and *L. hispana* H.-S. (Lepidoptera, Lycaenidae)

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Summary

The authors describe two possible hybrids of *Lysandra bellargus* ROTT. × *Lysandra hispana* H.-S.

In 1845, ZELLER described a new species of lycaenid butterfly, *Polyommatus polonus*, of which he had received three specimens collected near Poznan (Posen) in Poland (at that time East Prussia). SEITZ (1906) included *polonus* among the aberrations of *Lysandra bellargus* "found only in certain districts in East Prussia, Russia, Syria and Spain". Form *polonus* was subsequently reported from various parts of the Alps (VERITY, 1943 ; DE LESSE, 1961), Pyrénées (DE LESSE, 1961) and central Italy (VERITY, 1943). A specimen from central Germany is shown in FORSTER and WOHLFAHRT (1955). The following named taxa are considered to correspond to the form *polonus*: *Polyommatus corydon* SCHIFF. ab. *calydonius* (LOWE) (WHEELER, 1903), *Lycaena coridon* PODA ab. *hafneri* (PREISSECKER, 1908), both attributed by VERITY to the species *bellargus*, and *Agriades coridon* PODA, form *samsoni* (VERITY, 1920), described as an "ancestral" form of *coridon*, and perhaps one of the two insects described by VERITY (1920) as *Agriades thetis* ROTT. ab. *petri*.

DE LESSE (1960, 1961) concluded from his chromosome analyses that these forms, like others ascribed to the genus *Lysandra* as new species, "ancestral forms", aberrations or varieties, are in fact hybrids of *L. bellargus* × *L. coridon* (as had been suggested in the past). DE LESSE also ascertained that the form reported relatively frequently and regularly from central Italy and the Abruzzi region (ZANGHERI, 1971 ; TEOBALDELLI, 1976), which VERITY (1939, 1943) had erroneously classified as a race (*italglauca*) of the Middle Eastern species *L. syriaca* TUTT, is actually also a hybrid of *L. bellargus* × *L. coridon*. DE LESSE (1960, 1961) found identical variations of the chromosome pattern in a specimen of *polonus* and five *italglauca*, with chromosome number ranging from 51 to 72, therefore intermediate between *bellargus* (n = 45) and *coridon* (n = 87-92 ; n = 87-88 in the Italian populations (HIGGINS, 1975),

but closer to *bellargus*, and in any case very different from *syriaca* ($n = 24$). This variability of the genetic material, together with the spontaneous local morphological variations that are so common in *L. coridon*, especially in Spain, independently of the chromosome number, explains the variability of the phenotype and the virtually continuous range of intermediate taxa.

Generally speaking, the colour of the upper wing surface is intermediate between *bellargus* and *coridon*, and is often described as similar to that of *Agrodiaetus damon* SCHIFF., with a more or less well-marked greenish tinge. There is a dark marginal border of variable width and a number of premarginal dots of variable size, more or less merged with the dark border. The underside may be more similar to *bellargus* (*polonus*, *calydonius*) or to *coridon* (*hafneri*, *samsoni*). The identification of possible female hybrids is very uncertain, as the colour of the upperside is not distinctive in this sex. TUTT (1910) reported what he claimed to be a female of *polonus* and VERITY (1943) a female of *italglauca*.

Most known cases were captured from mid-June to mid-July, between the flight period of the first brood of *bellargus* and that of the single brood of *coridon*.

A last problem to consider is that of the possible occurrence of natural hybrids between *L. bellargus* and *L. hispana* H.-S. and how they could be differentiated from hybrids *bellargus* \times *coridon*. On account of the close resemblance between *hispana* and *coridon*, no distinguishing character can be expected in the external features of these hybrids, although the appearance of the underside may be suggestive. Dissection of the genitalia is also of no help, on account of the similarities between the two species, nor can chromosome studies be expected to offer any valuable clue because the chromosome number is very similar in *coridon* ($n = 87-92$) and *hispana* ($n = 84$). For want of finer diagnostic procedures, the only possibility for deducing the other parent of apparent *bellargus* hybrids is to check for the absence of either *coridon* or *hispana* in the locality where the specimen was taken. With this criterion in mind, it can be concluded that one of the two specimens of *petri* (the one collected at low altitude) described by VERITY (1920, 1943) and the one described by DE LESSE (1949, 1961) are probably hybrids of *bellargus* \times *hispana*.

In 1980 we described two apparent hybrids of *L. bellargus*: *bellargus* \times *coridon*, now in the G. LEIGHEB collection, Novara, Italy, and *bellargus* \times *hispana*, now in the V. CAMERON-CURRY collection, Turin, Italy (CAMERON-CURRY, V., LEIGHEB, G. and CAMERON-CURRY, P., 1980).

The apparently greater rarity of *bellargus* \times *hispana* as compared with *bellargus* \times *coridon* hybrids seems hard to explain: *bellargus* and *hispana* are

both bivoltine and the two generations fly together. The chance of intra-specific pairings would therefore reasonably be expected to be greater in the case of *bellargus* and *hispana* than in the case of *bellargus* and *coridon*. Hybrids between the latter two species are believed to result from pairings between the second generation of *bellargus* and the only generation of *coridon*.

That natural hybrids of *bellargus* × *hispana* may not be quite so exceptional as formerly believed is suggested by the capture of two further possible hybrids (STELLANELLO, Savona, 9.VI.1979, leg. V. CAMERON-CURRY).

1st. specimen

Forewing 18 mm. Upperside colour dullish "demon blue". Marginal black line thin (0.2 mm). Fringes white, faintly chequered (thin striae of black hairs at the ends of veins 2, 3, 4, 5 and 6 on forewing and of veins 3, 4, 5 and 6 on hindwing). Upper hindwing antemarginal dark spots well separated from black border, large in spaces 2, 3, 4, 5 and 6, small in spaces 1b and 1c. Underside forewing general ground colour greyish. Underside hindwing general ground colour greyish brown. All usual underside markings, faintly white-ringed.

2nd. specimen

Forewing 16 mm. Upperside colour dullish "demon blue". Marginal black line thin (0.2 mm). Fringes white, faintly chequered (very thin striae of black hairs at the ends of veins 2, 3, 4, 5 and 6 on forewing and of veins 2, 3 and 5 on hindwing). Upper forewing indistinct antemarginal dark spots in spaces 2, 3, 4, 5 and 6. Upper hindwing antemarginal dark spots well separated from black border, large in spaces 2, 3, 4, 5 and 6, small in spaces 1b and 1c. Underside forewing general ground colour greyish. Underside hindwing general ground colour greyish brown. All usual underside markings, white ringed.

It is interesting to note that the colour of the hybrid described in 1980, which at the time of capture showed a rather metallic sheen, has now dulled and is indistinguishable from that of the two hybrids described here.

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