

**Jagiello molinopampa gen. et sp. n. from Peru
(Lepidoptera: Lycaenidae)**

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Abstract – *Jagiello* gen. n. a new Eumaeiti lycaenid genus is described with the type species *Jagiello molinopampa* sp. n. (type locality: NE Peru, dept. Amazonas, Molinopampa). The phylogenetic relationships of the new genus and its type species are discussed. With 14 figures.

INTRODUCTION

An expedition was carried out by the junior author with his postgraduate student Dr. TOMASZ PYRCZ to study the diversity of Pronophilini butterflies (Nymphalidae: Satyrinae) in montane forests of NE Peru in 1997. Amongst the material they sampled there were three specimens of a unique, putatively undescribed lycaenid taxon. One of the specimens was carried to London by the junior author in March 1998 where the authors of the present paper had met in the Natural History Museum. The uniqueness of the specimen had been immediately confirmed by the senior author. The entire lycaenid material of the Polish Pronophilini expedition taken in Peru was later examined by the senior author in Kraków in 1998, where another unique lycaenid specimen, a female, was found and associated with three males previously recognized as belonging to an undescribed species.

During comparative studies completed in Budapest it became evident that the species in question cannot be placed in any known neotropical Eumaeiti genus, not only because of distinct characters like peculiar wingshape and ventral hindwing markings, but also on the grounds of differences in genital morphology. Contrary

to the misleading tradition of using the generic name "Thecla" for various species groups of South American eumaeites not closely related to Old World *Thecla* FABRICIUS, 1807 (type species: *Papilio betulae* LINNAEUS, 1758), we decided we must erect a new genus for description of this unknown Eumaeiti species in the present paper, which is the first in a planned series of papers entitled "Notes on Neotropical eumaeites".

Jagiello gen. n.

(Figs 1–5)

Type species – *Jagiello molinopampa* sp. n.

Systematic placement – *Jagiello* belongs to the Eumaeiti subtribe of the tribe Theclini (Lycaenidae: Lycaeninae). It has ten forewing veins (Fig. 1), hairy eyes, stubby-tipped foreleg tarsus, commonplace eumaeite male genitalia (cf. ELIOT 1973, Figs 66, 68) characterized by a thick ventral vinculum, narrow aedeagus,

strong manica, ventral process of tegumen, lacking brush organ and juxta (Figs 2–3), typical eumaeite female genitalia (cf. ROBBINS 1991, Fig. 56) with distinctive traits as structurally robust along the terminal lamellae and at the cervix bursae only, with intervening ductus bursae transparent and extremely narrow in the lateral view; lamellae in ventral view sclerotized as two abutting oblong plates separated by a central, narrow and transparent, fissure; cervix bursae with a distinctive, rounded, sclerotized collar which surrounds the anterior tip of the ductus bursae. This collar's "open ends" are tapered to points abutting the seminalis (Figs 4–5). We place the new genus preliminarily in the *Penaincisalia*-genus group (see Discussion).

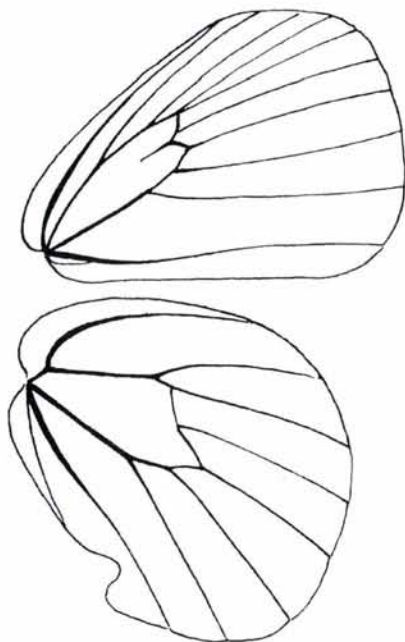


Fig. 1. *Jagiello molinopampa* sp. n., wing venation (male)

Diversity – Monotypic at present (see Discussion).

Specific identification – There is no closely similar genus within the Eumaeiti (see the description of the type species below).

Biology – Specimens of the genus *Jagiello* were collected when hilltopping around shrubs covering the top of a ridge in cloud forest above 2800 m. No larval foodplant is recorded for the genus.

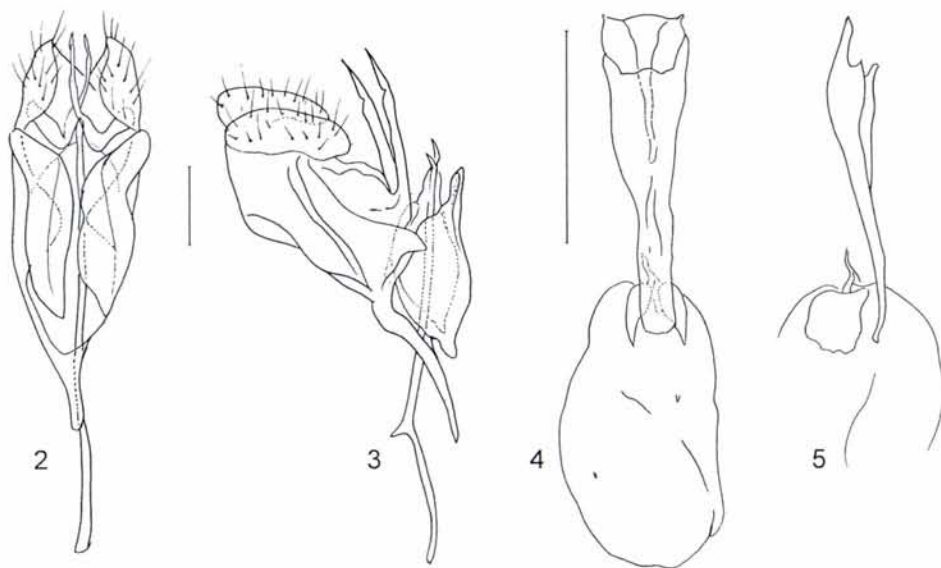
Etymology – *Jagiello*, a noun, treated here as feminine. Originally the name of a medieval family of kings ruling Poland, and also Hungary in certain times, the motherlands of the authors. The ruling family had a great influence on the history of Poland and Hungary. Moreover, the royal family name constitutes the patronym of the mother university of the junior author, where male and female paratype specimens of the type species of the genus have been deposited.

Remarks – Systematic placement: We place the new genus in the *Penaincisalia*-genus group reviewed by JOHNSON (1992) and classified as “infratribe Thecloxurina” by JOHNSON and KROENLEIN (1993). This grouping is at least paraphyletic. We include the following genera, listed in alphabetical order, on the basis of genital characters mentioned above: *Abloxurina* JOHNSON, 1992, *Candora* JOHNSON, 1992, *Lamasa* JOHNSON, 1992, *Penaincisalia* JOHNSON, 1990, *Podanotum* JOHNSON & TORRES, 1996, *Pons* JOHNSON, 1992, *Solanorum* JOHNSON, 1992 and *Thecloxurina* JOHNSON, 1992. There is an other genus, *Lamasa* JOHNSON, 1992 (type species: *Thecla calesia* HEWITSON, [1870]), which was described as “outgroup” of *Thecloxurina*. We consider *Lamasa* as “ingroup”, because the female genital structures qualitatively are identical. The genus *Lamasa* includes the type species plus *Lamasa robbinsi* JOHNSON, 1992 and *Lamasa thales* (FABRICIUS, 1793), **comb. n.** (Figs 6–9). We are removing from this assemblage the genera, listed in alphabetical order, *Galba* JOHNSON, 1992, *Paralustrus* JOHNSON, 1992, *Pontirama* JOHNSON, 1992, *Radissima* JOHNSON, 1992, *Rhamma* JOHNSON, 1992, *Shapiroana* JOHNSON, 1992 and *Variegatta* JOHNSON, 1992. This group called here tentatively as *Rhamma*-genus group (*Rhamma* was described first by JOHNSON), however, it is most probably again not monophyletic but all of them have female genitals with a large and conspicuously structured lamella postvaginalis (the *Variegatta* female is not known).

Distinctive character state: ROBBINS (1987) demonstrated that, even with the help of fine grade morphological comparison, character states of various eumaeite groups are often contradictory and cause difficulties in determination of monophyletic groups or sister assemblages. However, at the present stage of our research, male and female genital structures remain the main source of data concern-

ing the phylogenetic relationships on generic level. ELIOT (1973) based his preliminary lycaenid system almost solely on male genital characters. Most recent studies demonstrated the phylogenetic importance of female genital characters (see JOHNSON 1992, ROBBINS 1986 and 1991), especially the ductus bursae and lamella postvaginal structures. The importance of this phenomenon is underlined again by the discovery of *Jagiello*.

Monotypy: BROWN (1993), giving an overview of Neotropical lycaenid butterflies, characterized the fauna. He wrote, that besides other characteristics, "the large number of monotypic genera" typifies the Neotropical lycaenid fauna (BROWN 1993: 47), but he did not give any examples. BRIDGES (1994, part IX) listed seven Lycaeninae and 26 Riodininae genera as monotypic. However, amongst the "monotypic" Lycaeninae taxa listed by BRIDGES there is only a single monotypic genus: *Iophaus* DRAUDT, 1920 (type species: *Chrysophanus pyrrhias* GODMAN et SALVIN, [1887], Lycaeniti). All the others are more diverse: *Cynus* HÜBNER, [1819] (type species: *Papilio phaleros* LINNAEUS, 1767, Eumaeiti), *Micandra* STAUDINGER, 1888 (type species: *Pseudolycaena platyptera* FELDER et FELDER, 1865, Eumaeiti), *Mithras* HÜBNER, [1819] (type species: *Papilio nautes* CRAMER, [1779], Eumaeiti), *Molus* HÜBNER, [1819] (type species: *Papilio phalanthus* STOLL [1779], Eumaeiti), *Pseudolycaena* WALLENGREN, 1858 (type spe-



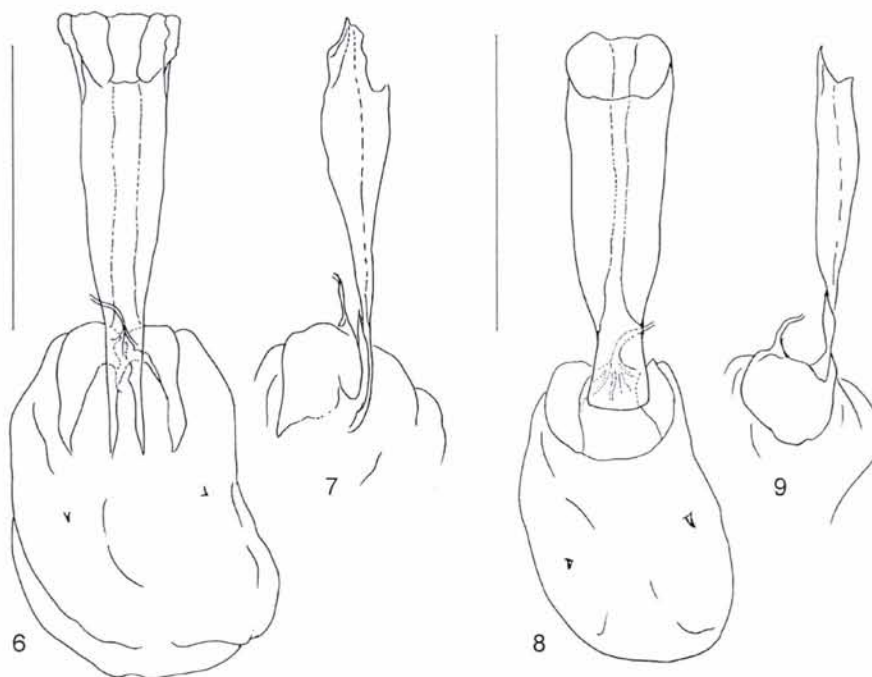
Figs 2–5. *Jagiello molinopampa* sp. n., genitalia, 2–3: male, 2 = ventral view, 3 = lateral view; 4–5: female, 4 = ventral view, 5 = lateral view

cies: *Papilio marsyas* LINNAEUS, 1758, Eumaeiti). Moreover, there are monotypic Lycaeninae genera overlooked by BRIDGES: *Cryptaenota* JOHNSON, 1992 (type species: *Thecla latriellei* HEWITSON, [1865], Eumaeiti), *Elkalyce* BÁLINT et JOHNSON, 1995 (type species: *Lycaena cogina* SCHAU, 1902, Polyommatis) and *Pseudochrysops* NABOKOV, 1945 (type species: *Hemiargus bornoi* COMSTOCK et HUNTINGTON, 1943, Polyommatis). Therefore the genus *Jagiello*, as known today, is exemplary of BROWN's point of view.

***Jagiello molinopampa* sp. n.**

(Figs 10–13)

Diagnosis – There is no closely similar looking species known at present. The peculiar wingshape slightly resembles the taxa of *Micandra* STAUDINGER, 1888, reviewed recently by JOHNSON *et al.* (1997), and *Trochusinus* JOHNSON, SALA-



Figs 6–9. 6–7: *Lamasa calesia* (HEWITSON, 1870), Peru, dept. Mendoza (HNHM), genitalia, female (gen. prep. No. 891, Bálint): 6 = ventral view, 7 = lateral view; 8–9: *Lamasa thales* (FABRICIUS, 1793), Brazil, Rio Grande Sul, Ivoti, (HNHM), female genitalia (gen. prep. No. 892, BÁLINT), 8 = ventral view, 9 = lateral view

ZAR et VÉLEZ, 1995 but the male has a conspicuous hindwing anal lobe and the female is also tailless. Males of *Micandra* and *Trochusinus* have no anal lobe and their females are tailed (cf. JOHNSON *et al.* 1997). The ventral pattern of the hindwing is cryptic. Various cryptically coloured eumaeite taxa are known but none of them have a pattern which would be qualitatively homologous with that of *Jagiello*.

Description – Male (Figs 10–11). Forewing anal margin length = 11–12.5 mm ($n = 3$). Forewing costa and outer margin highly convex, anal margin straight, no androconia, dorsal ground colour gleaming ultramarine blue; apex and submargin with very wide (from tornal 2 mm to apical 5 mm) black border; ventral ground colour bronze brown with light grey apical suffusion, narrow doubled marginal white line, median area with large ultramarine spot and black submedian line; cilia short, basally blackish, apically whitish. Hindwing costa and slightly undulate outer margin highly convex, anal margin undulate with tornal lobe; no androconia; dorsal ground colour ultramarine blue with black costa, anal area and tornal lobe castor brown; ventral hindwing ground colour velvet black with cryptic marking comprised of various castor brown coloured bands and median subspot with delicate white borders, costa with postbasal and submedian vertical band in cell Sc+R1, discal cell with submedian spot pupilled black, median area with vertical submedian band between veins M1 and CuA2, anal area with horizontal castor brown band in cell 3A situated centrally; tornus with minute orange coloured spot; cilia as in forewing.

Female (Figs 12–13). Forewing anal margin length = 11.5 mm ($n = 1$). Forewing costa, anal margin straight, outer margin highly convex; dorsal ground colour gleaming ultramarine blue; apex and submargin with very wide (from tornal 2 mm to apical 5 mm) black border; ventral ground colour cedar brown somewhat paler anally and postmedially, apex with greyish suffusion, margin with narrow doubled marginal greyish line; cilia short, rusty brown basally darker than apically. Hindwing costa and slightly undulate outer margin highly convex, anal margin undulate with tornal lobe; dorsal ground colour ultramarine blue with black costa, anal area grey, tornal lobe cedar brown; ventral hindwing ground dark cedar brown with shade of cryptic markings typifying males, anal area with conspicuous black central spot in cell 3A; cilia as in forewing.

Male genitalia (Figs 2–3). Brush organ lacking, tegumen strong with sclerotized anterior edges and ventral large process; vinculum thick, saccus present, its length equals the length of vinculum; valvae relatively large with strong manica attached to valval inner sides; aedeagus narrow with dorsal and ventral suprazonal cornutus, aedeagus three times longer than the length of the valvae.

Female genitalia (Figs 4–5). Groundplan robust with posterior and anterior sclerotized areas separated by an intervening, narrower, transparent area along the ductus bursae; lamellae in ventral view sclerotized as two oblong and abutting plates separated by a central, narrow and transparent, fissure; in lateral view lamellae extremely robust compared to exceedingly narrow transparent area of the ductus bursae (latter narrowing to one-fifth width of former); anterior of ductus and cervix bursae heavily sclerotized, latter with a distinctive, rounded, sclerotized collar surrounding anterior tip of ductus bursae and with this collar's "open ends" tapered to points abutting the point of attachment of the ductus seminalis; corpus bursae with two, small and blunt, signa.

Type material – Holotype, male, "Peru, dept. Amazonas, Molinopampa, Via Granada, 2800–3100 m, 1997. VIII. 20., leg. Pyrcz-Wojtusiak"; "gen. prep. No. 742, Zs. Bálint", will be deposited in Museo de Historia Natural, Universidad Nacional Mayor de San Marcos (Lima, Peru) (MUSM). Two paratype males with the same data as holotype; one male deposited in Zoological

Museum, Jagiellonian University (Kraków, Poland) (IJM), one male specimen (gen. prep. No. 868) deposited in the Hungarian Natural History Museum (HNHM). The paratype ("allotype") female, with data "Peru, dept. Amazonas, Molinopampa. 2965 m, 29.VI.1997., leg. Pyrcz-Wojtusiak"; "gen. prep. No. 807, Zs. Bálint", deposited in IJM.

Type locality – Via Granada, 2800 m, Molinopampa, dept. Amazonas, Peru (Fig. 14).

Biology – The type specimens were hilltopping at relatively high elevation between 2800–3100 m above sea level on a picacho. The female paratype specimen was collected by the end of June, the male paratypes during the last third of August. Presumably the generation is prolonging through the dry season with low population density. The type locality is on the top part of the ridge joining the path leading from Molinopampa to Granada. The ridge originated at lower part of relatively undisturbed cloud forest and in its upper part emerged as a culmination covered with shrubs and small trees. Associated lycaenids of the transect listed in alphabetic order: *Atlides havila* (HEWITSON, [1865]) (2965 m); *Echinargus martha* (DOGNIN, 1887) (2980 m); *Hemiargus ramon* (DOGNIN, 1887) (2980 m); *John-*



Figs 10–13. *Jagiello molinopampa* sp. n., 10 = holotype (MUSM), dorsum, 11 = ditto, ventrum, 12 = paratype female (IJU), dorsum, 13 = ditto, ventrum (photos: T. WOJTUSIAK)

sonita pardoa (D'ABRERA, 1995) (2965 m); *Madeleinea lolita* BÁLINT, 1993 (3250–3400 m); *M. koa* (DRUCE, 1876) (2965 m); *Ocaria ocrisia* (HEWITSON, [1865]) (3055 m); *Rhamma familiaris* (JOHNSON, 1992) (2800–3100 m); *Rh. prope oxida* sp. n. (2965 m); *Thecloxurina loxurina* (FELDER et FELDER, 1865) (2800–3100 m); *Th. lustra* JOHNSON, 1992 (2900–2965 m) and *Th. amatista* (DOGNIN, 1895) (2800–3100 m).

Etymology – A noun, gender feminine, from the locality of the types.

Discussion – *Sexes*: Numerous neotropical lycaenid taxa were described solely on the basis of a single sex and proved to be conspecific. The reason for that is the extreme sexual dimorphism of eumaeites (cf. ROBBINS 1987: 141–144). *Jagiello* also exemplifies this. In spite of a six week time gap between the collecting dates of a female and the males, we consider the type series conspecific because of the following criteria: 1) hindwings are of similar peculiar shape; 2) basic

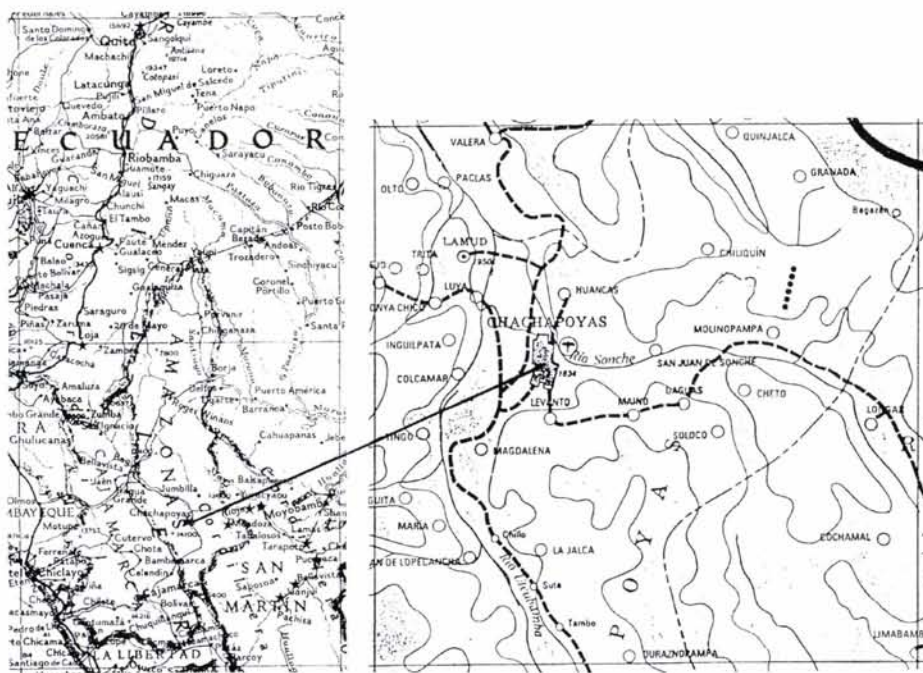


Fig. 14. Geographic situation of *Jagiello molinopampa* sp. n. type locality. The "Pronophilini transect" (= the type locality) is indicated by a row of dots situated NE from Molinopampa, E of Chachapoyas

elements of hindwing ventral pattern are identical as well as unique and 3) collection site and ecotone are also identical.

Identification: As outlined in the diagnosis, at this stage of our research no taxon closely similar to *Jagiello molinopampa* is known. Superficially, *Trochusinus* taxa are similar but the cryptic hindwing ventral margin bears some gleaming scales. These scales are lacking in *Jagiello*. There are also some superficial similarity between *Jagiello molinopampa* and *Lamasa* taxa, but the latter's undulate hindwing is double tailed in both sexes. *Jagiello* has no tails.

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REFERENCES

- BRIDGES, CH. A. (1994): *Catalogue of the family-group, genus-group and species-group names of the Riodinidae & Lycaenidae (Lepidoptera) of the World*. – Urbana, Illinois, Published by Author, [i-xiii], pp ii+3, ii+1, ii+2, ii+48, ii+12, ii+26, ii+7, ii+502, ii+135, ii+172, ii+134, ii+50, ii+16, ii+1, ii+5, ii+1.
- BROWN, K. S. (1993): Neotropical Lycaenidae: an overview. – In: NEW, T. R. (ed.): *Conservation Biology of Lycaenidae (Butterflies)*. – International Union for Conservation of Nature and Natural Resources, Gland, pp. 45-61.
- ELIOT, J. N. (1973): The higher classification of the Lycaenidae (Lepidoptera): a tentative arrangement. – *Bull. Brit. Mus. Nat. Hist. (Ent.)* **28** (6): 373-505.
- JOHNSON, K. (1992): Genera and species of the Neotropical ‘elfin’-like hairstreak butterflies. – *Rep. Mus. Nat. Hist. Univ. Wisc. (Stevens Point)* **22** (1): 1-135, (2): 136-279.
- JOHNSON, K. & KROENLEIN, K. R. (1993): New genera and species of the “gem”-butterflies (Lepidoptera, Lycaenidae, Theclinae). – *Rep. Mus. Nat. Hist. Univ. Wisc. (Stevens Point)* **34**: [i-ii], 1-42.
- JOHNSON, K., SALAZAR, J. & VÉLEZ, J. H. (1997): New species of *Micandra* Staudinger from Colombia with distinction of *Trochusinus*, a new genus of Eumaeini. – *Rev. Theclinae colomb.* **2** (15): [i-ii] + 1-15.
- ROBBINS, K. R. (1987): Evolution and identification of the New World hairstreak butterflies (Lycaenidae: Eumaeini): Eliot's *Trichonis* section and *Trichonus* Hewitson. – *J. Lep. Soc.* **40** (3): 138-157.
- ROBBINS, K. R. (1991): Evolution, comparative morphology, and identification of the eumaeine butterfly genus *Rekoa* Kaye (Lycaenidae: Theclinae). – *Smiths. Contr. Zool.* **498**: i-iii, 1-64.

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