

**A new species of *Madeleinea* (Lepidoptera: Lycaenidae)
from Colombia, with synonymy and notes
for other species occurring in the high Andes**

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Abstract – *Madeleinea malvasa* sp. n. is described from Colombia and a key for distinguishing the taxa of the *koa* species group is given. The synonymy of *Lycaena ludicra* WEYMER, 1890 = *Madeleinea sigal* BENYAMINI, BÁLINT et JOHNSON 1995, syn. n. and *Madeleinea nodo* BÁLINT et JOHNSON, 1995 = *Madeleinea carolityla* BÁLINT et JOHNSON 1995, syn. n. are proposed. The lectotype of *Itylos pacis* DRAUDT, 1921 is designated. With 6 figures.

INTRODUCTION

BÁLINT & JOHNSON (1995b) published a taxonomic survey of the high Andean polyommatine lycaenid genus *Madeleinea* BÁLINT, 1993. But almost right after the publication of the mentioned paper significant newly collected material has been studied (BÁLINT & JOHNSON 1995a, BENYAMINI *et al.* 1995a, BÁLINT & LAMAS 1996 and BÁLINT 1997a). Moreover, I had the opportunity to visit again some museums, which house significant historical material waiting for study or revision. Thus some statement of the mentioned taxonomic survey must be corrected or taxa should be placed into new light. Accordingly the present paper gives unpublished information concerning *Madeleinea*, which originate either from the elaboration of primary type specimens, important historical materials or from the investigation of materials collected by recent expeditions in the high Andean part of Peru and Ecuador (BÁLINT 1997b, PYRCZ & WOJTUSIAK, in prep.).

Historical specimens were received on loan from the Museum für Naturkunde, Humboldt Universität (Berlin, Germany) [MNHU] and the Senckenberg Museum (Frankfurt am Main, Germany) [SMF] or personally examined in the collections of the following institutions: American Museum of Natural History (New York, USA) [AMNH], Natural History Museum (London, United Kingdom) [BMNH], Naturhistorisches Museum (Basel, Switzerland) [NHB], Museum Nationale d'Histoire Naturelle (Paris, France) [MNHN] and Zoologische Staatssammlung des Bayerischen Staates (Mu-

nich, Germany) [ZSM]. Recently collected materials of the Zoological Museum, Institute of Zoology, Jagellonian University (Krakow, Poland) [IZJU] and the Museum de Historia Natural, Universidad Nacional Mayor de San Marcos (Lima, Peru) [MUSM] were also studied *in situ*. Specimens collected by ARTHUR JASINSKY (Warsaw, Poland) were also received for study via Mr. TOMASZ PYRCZ (Warsaw, Poland) or directly from the collector himself. Furthermore, the entire high Andean lycaenid material of Mr. TAMÁS HÁČZ (Hegyhátszentjakab, Hungary) taken in Peru, including also specimens of *Madeleinea* (see BÁLINT & LAMAS 1996), was donated to the Hungarian Natural History Museum (Budapest) [HNHM] and has been identified. The *Madeleinea* material of my Peruvian expedition (BÁLINT 1997b) has also been investigated.

Concerning methods and terminology applied in the descriptive texts refer to one of my previous papers containing *Madeleinea* descriptions (BÁLINT & LAMAS 1996).

DESCRIPTION OF A NEW MADELEINEA SPECIES FROM COLOMBIA

Madeleinea malvasa BÁLINT et PYRCZ, sp. n.

(Figs 1–6)

Diagnosis – DW resembling *M. odon* BÁLINT et JOHNSON, 1995 but with lighter ink blue male DW ground colour, longer FW outer margin and not so pointed apex. VFW discoidal and postdiscal spots present and conspicuous, which suffused and hardly visible in *M. odon*. VHW pattern typical of *koa*-group and most resembling those of *M. odon* but with intensely coloured “pseudovitta” along vein R_2 but without prominent spot near costa and in cell $Sc+R_1$ as presented in *M. odon*.

Description – Male: FW margin slightly convex, outer margin relatively short. DFW, DHW ground ink blue; black margin wide. Fringes long, chequered. VFW ground colour warm reddish brown, suffused with strong greyish scales at base, discoidal spot large, postmedian spots also large, halos white; submarginal and marginal areas somewhat darker. VHW with complex pattern, apical, basal and postbasal spots small and reddish brown, costal area somewhat lighter brown; conspicuous silvery pseudovitta extending along vein R_2 from base to margin; postmedian spots reduced to strongly interrupted, hardly visible wavy black line; large silvery postmedian spot, delicate arrowhead pattern close to margin present in cells M_3 and CuA_2 ; submargin mottled with delicate silvery and brown pattern. FW length: 10.5 mm (holotype). Female: DW ground brown with blue basal suffusion; VW as in male, eighth tergite with short and not pointed apodeme. FW length: 10.5 mm (paratypes $n=2$). Male genitalia (Fig. 5): uncus long with apical spine, gnathos strong but short with large humerulus; aedeagus with slender suprazonal element somewhat shorter than subzonal; valval shape commonplace with relatively high Baird’s angulation and large anal lobe. Female genitalia (Fig. 6): ductus bursae slightly corrugate and eversible; henia elongate with laterally folded, heavily sclerotized and tailed anterior lamella in dorsal view, central tube weak with rectangular apical apophysis.

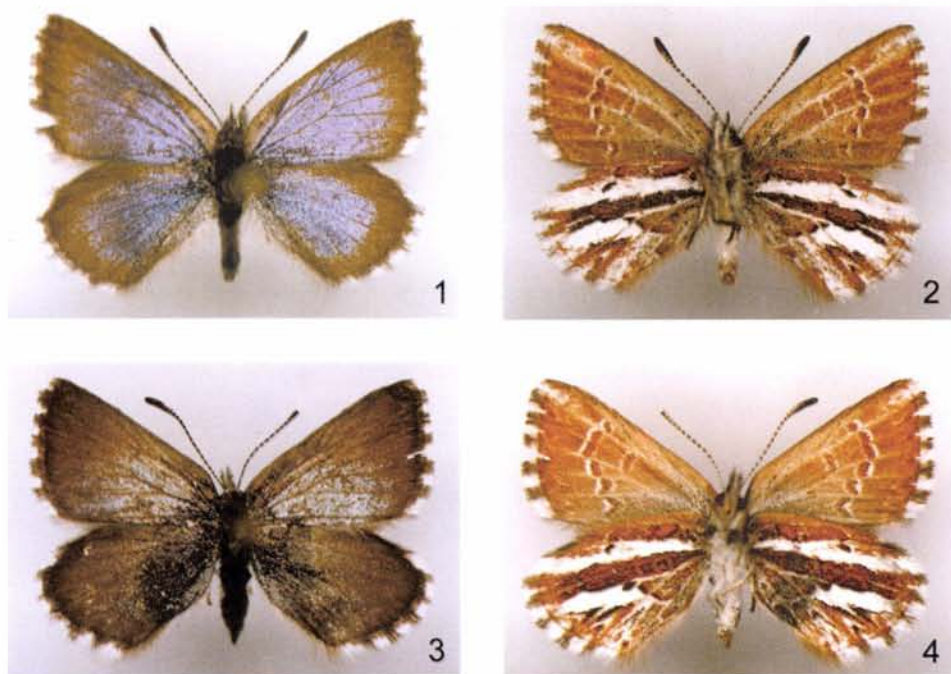
Type material – Holotype, male (Figs 1–2), “Colombia, Dep. Cauca, Malvasá, 3400–3450 m, 15–17.II.1997, J. Wojtusiak & T. Pyrcz leg.; gen. prep. No. 740, Zs. Bálint”, deposited in Museo Historia Naturales de la Universidad de La Salle de la Bogotá, Colombia. Two female paratypes

with the same data as the holotype; one specimen (gen. prep. no. 741), deposited in IZJU; and the other paratype ("allotype") female (Figs 3–4) (gen. prep. no. 794) deposited in HNHN.

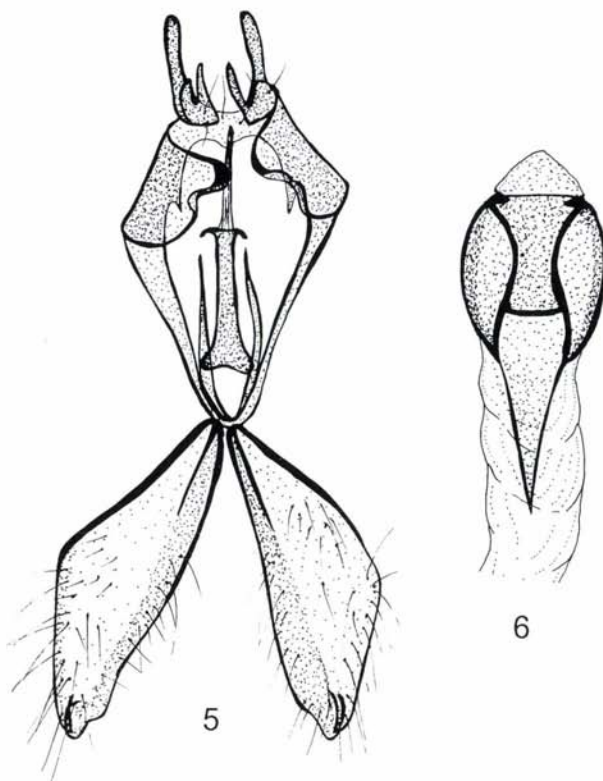
Type locality – Paramo de Malvasá, 3400 m, Sector El Tabaco, Dept. Cauca, Colombia.

Bionomics – Spatial: The type specimens were collected at high elevation between 3400 and 3450 m above sea level. Temporal: Known only from the middle of February. Type locality: El Malvasá, forms a part of the Purace range and is situated in a huge crater of a long extinct volcano. The diameter of the crater is about 30 km. The collecting site is an open rosetal of *Espeletia* and *Calamagrostis* paramo, but within a mosaic of elfin forest and paramo with some forested areas above 3400 m, as well as with fringes of paramo down to 3200 m. Synchronic butterfly species were few, mostly Pronophilini (Satyrinae) were observed: *Altapedaloides reissi flavomaculata* KRUEGER (endemic of Purace), *Pedaloides negreti* PYRCZ, *Pedaliodes* sp. nov., *Lymanapoda melia* (only in the forest-paramo ecotone), two species of Hesperidae, two species of *Catantactis* (also in the ecotone). The only lycaenid occurred simultaneously was *Pons magnifica* JOHNSON (two male specimens were collected).

Etymology – A noun, gender feminine, from the locality, where the type material was collected.



Figs 1–4. *Madeleinea malvasa* sp. n.: 1 = holotype, dorsal (Museo Historia Naturales, Bogotá, Colombia), 2 = ditto, ventral, 3 = paratype ('allotype') female, dorsal (HNHN), 4 = ditto, ventral (photos: T. PYRCZ)



Figs 5–6. Genital structures of *Madeleinea malvasa*, sp. n., dorsal view: 5 = male, 6 = female (without ductus bursae)

Remarks – Phylogenetically *M. odon*, *M. nodo* and *M. malvasa* sp. n. appear to form a tight group of *Madeleinea* within the *koa* species group: the female henia of these taxa possess tailed anterior lamella (Fig. 6). *M. odon* is known to occur only in central Ecuador, but *M. nodo* was also recorded from Southern Colombia. The immediate sister taxa of this assemblage, the remnants of the *koa* species group without tailed lamella, are partly sympatric and synchronic with *M. odon* and *M. nodo*: relatives *M. koa* and *M. vocaban* both were collected by A. JASINSKY in Ecuador very recently. *M. koa*, described from Pozuzo, Peru (lectotype designated in BÁLINT 1993a: 26, Fig. 74), is known to occur also from Southern Ecuador throughout the Andean part of Peru to Bolivia (see BÁLINT 1993a: 26 and BÁLINT & JOHNSON 1995c: 6).

In the following a key based on the most obvious ventral wing patterns is presented to distinguish the taxa of the *koa*-group of *Madeleinea*.

- | | | |
|-----|--|---|
| 1a. | HW with pseudotail | <i>M. lolita</i> |
| 1b. | HW without pseudotail | 2 |
| 2a. | VHW ground colour grey with silvery or golden shade and postmedian row of large spots | <i>huascarana</i> -group and <i>moza</i> -group |
| 2b. | VHW ground colour brown with golden shade, postmedian spots reduced or absent (<i>koa</i> -group) | 3 |
| 3a. | VHW ground unicoloured brown without pseudovitta | <i>M. vocoban</i> |
| 3b. | VHW ground mottled brown with pseudovitta | 4 |
| 4a. | VFW postmedian spots suffused or absent (<i>M. odon</i> and <i>M. nodo</i>) | 5 |
| 4b. | VFW postmedian spots large with conspicuous halos (<i>M. koa</i> and <i>M. malvasa</i> sp. n.) | 6 |
| 5a. | FW apex pointed, VHW silvery pseudovitta reaching margin | <i>M. odon</i> |
| 5b. | FW apex not so pointed, VHW silvery pseudovitta not reaching margin | <i>M. nodo</i> |
| 6a. | VHW with large, conspicuous postmedian spot near costa | <i>M. koa</i> |
| 6b. | VHW with small, suffused postmedian spot near costa | <i>M. malvasa</i> sp. n. |

TWO NEW SYNONYMS

Madeleinea nodo BÁLINT et JOHNSON, 1995

Madeleinea nodo BÁLINT et JOHNSON, 1995a: 28, Figs 7–8.

Madeleinea carolityla BÁLINT et JOHNSON, 1995a: 26, Figs 5–6, **syn. n.**

Madeleinea nodo BÁLINT et JOHNSON, New Species – BÁLINT & JOHNSON 1995b: 6, Pl. I, fig [4, left].

The first diagnosis of *Madeleinea nodo* appeared in a key. The figure of the holotype was also given in the same paper (BÁLINT & JOHNSON 1995a: 28; published in January). Accordingly this publication has to be considered containing the original description of the taxon, and not the paper, which was published with the full description of *Madeleinea nodo* much later in December (BÁLINT & JOHNSON 1995b).

The taxon *carolityla* was described on the basis of a single male specimen from the Pululahua Botanical Reserve, Ecuador (BÁLINT & JOHNSON 1995b: 26). The specimen

had to be restored (the thorax was destroyed by *Anthrenus* in the collector's envelope), but the wings and the abdomen remained intact.

Recently I could examine and revise historical *Madeleinea* material in Munich (ZSM), New York (AMNH) and Paris (MHNP), as well as various specimens collected by Mr. ARTHUR JASINSKY in Ecuador. In these materials I found specimens being identical in wing patterns and genital structures with the holotype of *Madeleinea carolityla* caught together with typical *Madeleinea nodo* individuals. Therefore I could not separate them on the basis of the male genitalia neither on the basis of wing characters. The length of genital aedeagus as taxonomic character seems to be more quantitative than qualitative, thus it cannot be used as diagnostic feature. Consequently, I consider the two taxa as synonyms. In spite of that the name *carolityla* appears two pages before *nodo* (BÁLINT & JOHNSON 1995d: 26 and 28, respectively) as first reviser I keep the name *nodo*, because the holotype of *nodo* is in better condition. Accordingly *Madeleinea carolityla* is a junior subjective synonym of *Madeleinea nodo*.

Studying long series of *M. nodo* I discovered the phenomenon, that the extension of intercellular silvery scaling is very different. It is reduced or absent in the case of certain individuals, but fully developed "pseudovitta" can be found in other cases. This suggests that *M. nodo* is polymorphic. Polymorphism is well known in the case of Palearctic polyommatuses, but it is generally restricted to female wing surfaces. The source of this wide individual variability of hindwing undersides is not known.

Type material examined – Holotype of *Madeleinea nodo*, male, ECUADOR: Prov. Pichincha, Pululahua Geobotanical Reserve, Loma los Monjas, 2700 m, moist montane cloud forest, 22.XII.1993 (G. KAREOFELAS), gen. prep. BÁLINT, no. 442 (AMNH). Holotype of *Madeleinea carolityla*, male, ECUADOR: Prov. Pichincha, Pululahua Geobotanical Reserve, Quillo Turo, 2700 m, 17.I.1992 (G. KAREOFELAS & C. W. WITHAM), gen. prep. BÁLINT, no. 543 (AMNH).

Further material examined – COLOMBIA: 2 females, Pasto, 2300 m, April (W. HOPP) (ZSM); ECUADOR: 1 female, Mirador (G. RIVET), gen. prep. BÁLINT, no. 370 (MHNP); 2 males, Pifo, 1920–1932, (L. & J. DEJOANNIS), gen. prep. BÁLINT, no. 394 (HNHM), 481 (MNHN); 2 males, Quito (BENOIST), gen. prep. BÁLINT, no. 390 and 393 (MNHN); 2 males, 1 female, San Gabriel, 1901 (G. RIVET), gen. prep. BÁLINT, no. 482 (female) (MNHN); 1 male, Caritagua, 3600 m, 1903 (G. RIVET); 2 males, Pululahua crater, 2800 m, 5.VIII.1995. (BENYAMINI) (HNHM); 1 male, Cauca, Azuay, 2500 m, 23.II.1939 (BROWN) (AMNH); 14 males, 9 females, Uyumbiche, 2700 m, 4.XI.1938 (BROWN) (AMNH); 2 males, Hda San Rafael, Rio San Pedro, 2700 m, 8.XI.1939 (BROWN) (AMNH); 2 males, Rio San Pedro, Chillo Valley, 2400 m, 10.XI.1938 (BROWN) (AMNH); Ichubamba, Rio Cebadas, 3500 m, 11.I.1939 (BROWN) (AMNH); 2 males, 1 female, Paramo Pasochoa, Pichincha, 3300 m, 14.XI.1938 (BROWN) (AMNH); Riobamba, 2700 m, 19.IV.1939 (BROWN) (AMNH); 1 male, 2 females, Cuicocha, Imbabura, 3880 m, 31.V.1939 (BROWN) (AMNH); 6 males, South Cerro, Chimborazzo, 4000 m, 12.V.1939 (BROWN) (AMNH); 5 males, 4 females, Urbina, Chimborazzo, 3650 m, 18.IV.1939 (BROWN) (AMNH); 6 males, 2 females, Paramo Tinpullo, Cotopaxi, 3500 m, 6.IX.1938 (BROWN) (AMNH); 1 female, Prov. Pichincha, 3800 m, 13.XI.1938 (BROWN) (AMNH); 1 female, Hda Talahua, Prov. Bolivar, 30.IV.1939 (BROWN) (AMNH); 1 male, 1 female, Cayambé volcano, 3400–4200 m, Prov. Pichincha, 3.IV.1997. (JASINSKY), gen. prep. BÁLINT, nos 743 (male), 744 (female) (coll. JASINSKY); 1 female, Cotopaxi volcano, 4300 m, V.1996. (JASINSKY), gen. prep. BÁLINT, no. 745 (coll. JASINSKY); 1 male, Chimborazzo volcano, 4300 m, Prov. Chimborazzo, 3.VI.1996. (JASINSKY), gen. prep. BÁ-

LINT, no. 746 (coll. JASINSKY); 1 male, Cascada San Fernando, Prov. Azuay, 9.V.1998 (JASINSKY) (coll. JASINSKY); 1 female, 10 km South of Tulcan, 2800 m, Prov. Carchi (JASINSKY) (coll. JASINSKY).

Madeleinea ludicra (WEYMER, 1890)

Lycaena ludicra WEYMER, 1890: 122, Pl 4., f. 3.

L.[tylos] ludicra WEYM. – DRAUDT 1921: 821, Pl 144., Fig. m.

Madeleinea ludicra (WEYMER) – BÁLINT 1993a: 26.

Madeliena ludicra (WEYMER) – BÁLINT & JOHNSON 1995d: 13, Pl I, Fig. [6, left]

Madeleinea sigal Benyamini, BÁLINT et JOHNSON 1995: 2, Pl. VI, Fig. [7, right], **syn. n.**

The taxon *ludicra* was described as a species of *Lycaena* on the basis of a single female (WEYMER 1890). This specimen was considered being related to *Madeleinea pacis* and was associated with a male specimen collected at Puno, which resembled *koa* in its genital structures (BÁLINT & JOHNSON 1995a: 13).

The taxon *sigal* was described as a species of *Madeleinea* on the basis of three males and one female collected in Tarapacá region of NE Chile by Mr. DUBI BENYAMINI (BENYAMINI *et al.* 1995: 3).

In Peru near Incuyo I collected a very long series of a *Madeleinea* species later determined by me as *Madeleinea sigal* (BÁLINT 1997b: 14; see additional material examined). Comparing females of this long series with the holotype of *Lycaena ludicra* I found specimens which were identical in wing patterns and genital structures. Consequently, I consider *Madeleinea sigal* as junior synonym of *Lycaena ludicra*.

The male specimen collected in Puno and determined as the male of *ludicra* (BÁLINT & JOHNSON 1995a: 13; figured by BÁLINT 1993a, Fig. 82, as “*Madeleinea* sp. n.?”) actually represents *Madeleinea koa*, a widely distributed high Andean polyommata species.

Type material examined – Holotype of *Lycaena ludicra*, female, CHILE: Tacora; gen. prep. BÁLINT, no. 346 (MNHU). Holotype of *Madeleinea sigal*, male, CHILE: Tarapacá, Putre, 3400 m, 16. IV.1994, D. BENYAMINI leg.; gen. prep. BÁLINT, no. 495 (HNHM).

Additional material examined – CHILE: 1 male (paratype), 1 female (“allotype”), Tarapacá, Putre, 3400 m, 16.IV.1994 (BENYAMINI), [paratypes of *Madeleinea sigal*] (HNHM). PERU: 27 males, 10 females, Dept. Ayacucho, 3 km S Incuyo, 3300 m, 15°17'S / 73°34'W, 17.II.1995 (BÁLINT & LAMAS) (HNHM); 1 male, Dept. Tacna, Paso de los Vientos, 4500 m, 17°44'S / 69°50'W, 19.II.1995 (BÁLINT & LAMAS) (MUSM); 1 male, 1 female, Dept. Arequipa, 33 km NW Chuquibamba, 3800 m, 15°43'S / 72°46'W, 21.II.1995 (BÁLINT & LAMAS) (HNHM). 1 male, Dept. Ayacucho, 25 km W Puquio, Senal Cerro Palmaderas, 3900 m, 10–12.III.1987 (O. KARSHOLT) (MUSM); 1 male, Dept. Ayacucho, 25 km W Puquio, Senal Cerro Palmaderas, 14.III.1987 (O. KARSHOLT) (MUSM); 4 males, Dept. Ayacucho, 30 km NE Puquio, Laguna Yaurihuri, 4400 m, 12–13.III.1987 (O. KARSHOLT) (MUSM).

LECTOTYPE DESIGNATION OF *ITYLOS PACIS**Madeleinea pacis* (DRAUDT, 1921)

I.[tylos] pacis STGR. i.l. – DRAUDT 1921: 821, Pl. 144, Figs. 1, m.

Itylos pacis (DRAUDT) – NABOKOV 1945: 41, Pl. 6., Figs. PAC 1–4.

Madeleinea pacis (DRAUDT) – BÁLINT 1993a: 27, Figs 84, 85.

Madeleinea pacis (DRAUDT) – BÁLINT & JOHNSON 1995a: 12, Pl. I, Figs [5 left, 5 middle].

The taxon *Itylos pacis* was described by DRAUDT on the basis of an unstated number of male and female specimens from Cuzco (DRAUDT 1921: 821). The original series, which are deposited in SMF, consists two males and one female, located and marked with the round BMNH syntype labels by Dr GERARDO LAMAS (Lima) (pers. comm.). The male specimen, figured as “*pacis* ♂” by DRAUDT (1921: Pl. 144, Fig. m.), is in excellent condition, hereby designated as **lectotype** and has been labelled accordingly. The remaining male and female specimens are similarly designated as paralectotypes.

The taxa *pacis* and *ludicra* seem to be sympatric and synchronic in southern Peru and in northwestern Bolivia, they can be distinguished by the following key.

- 1a. VHW postmedian spot in cell M2 equal in size with spot in M1 *M. ludicra*
- 1b. VHW postmedian spot in cell M2 larger than spot in M1 *M. pacis*

Type material examined – Lectotype of *Itylos pacis*, male: Cuzco, Peru, 3500 m, Coll. Fassl [printed]; syntype [rounded with blue edge, printed]; *pacis* ♂ [handwritten]. Paralectotype of *Itylos pacis*, male: Cuzco, Peru, 3500 m, Coll. Fassl [printed]; syntype [rounded with blue edge, printed]; *pacis* U [handwritten]; *Lycæna pacis* ♀ [handwritten, very similar to W. Forster's]; gen. prep. BÁLINT no. 797 [printed, numbers handwritten]. Paralectotype of *Itylos pacis*, female: Cuzco, Peru, 3500 m, Coll. Fassl [printed]; syntype [rounded with blue edge, printed]; *pacis* ♀ [handwritten]; gen. prep. BÁLINT no. 798 [printed, numbers handwritten].

Additional material examined – PERU: 1 male, Cuzco, 4000 m (ADAMS Bequest) (BMNH); 2 males, Challabamba, Pancartambo, 3000 m, January, 1901 (GARLEPP) (BMNH); 1 male, Oconeque to Aqualni, Carabaya, 6–9000 ft, March 1905 (G. OCKENDEN) (BMNH); 2 males, Palea to Huachastana, 3000 to 2000 m, March, 1900, wet season (SIMONS) (BMNH); 2 males, La Oroya, 23.X.1983 (McPHERSON), gen. prep. BÁLINT, no. 500 (HNHM); 1 male, 1 female, Cuzco, 3500 m (FASSL) (NHB); 3 males, 2 females, Cuzco, 3500 m (FASSL) (ZSM); 2 males, Cuzco, 4000 m (ZSM); 1 female, Dept. Cuzco, Ayachirí, 25. XI. 1994 (HÁ CZ T. & JUHÁ SZ I.) (HNHM); 1 male, 1 female, Dept. Junín, Tarma, 3700 m, IX.1948 (F. BLANCAS) (MUSM); 1 male, Laguna Naticocha (cerca Minas Huarón), 4600 m, 13.XI.1949 (F. BLANCAS) (MUSM); 1 male, Huancavelica, 3700 m, II.1950 (F. BLANCAS) (MUSM); 1 male, Prov. Puno, Umgeb. Titicaca See, Puno, 3810 m, 30.XII.1972 (Gv. ROSEN) (ZSM); 1 female, Dept. Puno, Puno, 3850 m, 26.X.1952 (F. BLANCAS) (MUSM); 1 male, Dept. Junín, 5 km W Tarma, 3200 m, 29.V.1979 (G. LAMAS) (MUSM); 1 male, Dept. Cuzco, Herqueria, 27.IV.1985 (J. L. VENERO.) (MUSM); 1 male, Dept. Junín, Marayinoc, 3500 m, 2.X.1985 (P. HOCKING) (MUSM); 1 female, Dept. Cuzco, Chincheros, 3800 m, 6.VI.1986

(D. SCHWEIZER) (MUSM); 4 males, Dept. Junín, Lago de Junín, Ondores, 4080 m, 29.I.-5.II.1987 (O. KARSHOLT) (MUSM); 1 male, Dept. Junín, 10 km NE La Oroya, Huacapo, 4030 m, 1.II.1987 (O. KARSHOLT) (MUSM); 2 males, Dept. Cuzco, Granja Kayra, 27.V.1989 (G. VALENCIA) (MUSM). BOLIVIA: 1 male, Titicaca, No. 1053 (HUNTINGTON) (AMNH); 1 female, Yungas Valley, 37 mi. NE from La Paz, 10000 ft, 7.VI.1958 (F. WALSH), gen. prep. BÁLINT, no. 372 (AMNH); 3 males, 1 female, La Paz, Umgbg. 3600–4000 m, 22.III.1950 (FORSTER) (ZSM); 1 male, same locality as previous but 15. III.1950 (ZSM); 1 male, same locality as previous but 16. III.1950 (ZSM); 1 male, same locality as previous but 20.III.1950 (ZSM); 1 female, Tiwanaku, 4000 m, 9.II.1994 (BENYAMINI), gen. prep. BÁLINT, no. 498 (HNHM).

REFERENCES

- BÁLINT, ZS. (1993a): A Catalogue of Polyommata Lycaenidae (Lepidoptera) of the Xeromontane Oreal Biome in the Neotropics As Represented in European Collections. – *Rep. Mus. nat. Hist. Univ. Wisc. (Stevens Point)* **29**: 42 pp.
- BÁLINT, ZS. (1993b): Comments and Additions Concerning the Recent "Catalogue" of Neotropical Polyommata Lycaenidae. – *Rep. Mus. nat. Hist. Univ. Wisc. (Stevens Point)* **42**: 4 pp.
- BÁLINT, ZS. (1997a): Appendix. Description of six polyommata lycaenid species. – *Neue ent. Nachr.* **40**: 47–52.
- BÁLINT, ZS. (1997b): A report of an entomological expedition in Peru with special reference to lycaenid butterflies (Lepidoptera: Lycaenidae). – *Folia ent. hung.* **58**: 9–17.
- BÁLINT, ZS. & JOHNSON, K. (1995a): Description of a new *Madeleinea* (Lepidoptera, Lycaenidae) species from Ecuador. – *Acta zool. hung.* **41**: 25–34.
- BÁLINT, ZS. & JOHNSON, K. (1995b): Polyommata Lycaenids of the Oreal Biome in the Neotropics, part V: Synopsis of the High Andean and Austral Genus *Madeleinea* Bálint, 1993 (Lepidoptera, Lycaenidae). – *Rep. Mus. nat. Hist. Univ. Wisc. (Stevens Point)* **43**: 28 pp.
- BÁLINT, ZS. & JOHNSON, K. (1995c): Additional Historical Data for Neotropical Polyommata Lycaenid Butterflies in European Collections (Lepidoptera). – *Rep. Mus. nat. Hist. Univ. Wisc. (Stevens Point)*: **50**: 10 pp.
- BÁLINT, ZS. & LAMAS, G. (1996): On the taxonomy of the Neotropical Polyommata Lycaenids (Lepidoptera: Lycaenidae, Polyommata). – *Annls hist.-nat. Mus. natn. hung.* **88**: 127–144.
- BENYAMINI, D., BÁLINT, ZS. & JOHNSON, K. (1995): Additions to the Diversity of the Polyommata Genus *Madeleinea* (Lepidoptera, Lycaenidae). – *Rep. Mus. nat. Hist. Univ. Wisc. (Stevens Point)* **47**: 5 pp.
- DRAUDT, M. (1921): 15. Gattung *Itylos*. – In: Seitz, A. (ed.): *Die Gross-Schmetterlinge der Erde, Band 5*. Alfred Kernen Verlag, Stuttgart, pp. 821–822.
- NABOKOV, V. (1945): Notes on Neotropical Plebejinae (Lycaenidae). – *Psyche* **51**: 1–15.
- WEYMER, G. (1890): Lepidopteren gesammelt auf einer Reise durch Colombia, Ecuador, Peru, Brasilien, Argentinien und Bolivien in den Jahren 1868–1877 von Alphons Stübel. – In: A. STÜBEL: *Reisen in Südamerika*. A. Asher & Co., Berlin, vi + 182 pp.

The Fauna of the Aggtelek National Park

Volumes I-II

Edited by S. MAHUNKA and L. ZOMBORI

The tenth and eleventh parts of the series *Natural History of the National Park of Hungary* comprise a collection of papers written by fifty-nine Hungarian and foreign experts. The best part of the material presented in the two volumes was collected during a four-year research programme (1987–1990) organized by the Hungarian Natural History Museum, Budapest. A small share that accumulated in earlier years, prior to 1987, was also considered and incorporated.

The first volume opens with a Preface, written by Gábor Salamon, director the Aggtelek National Park, followed by an Introduction of the senior editor pondering over the 25th anniversary of our national park researches, and giving a detailed list of all the administrative locality names large and small, together with a map of the territory. Then a biogeographical outline of the invertebrate fauna is given. The volume proper is divided into three sections: Platyhelminthes, Annelida and Arthropoda. The largest section, as it has always been, the last one of the three has important scientific elaborations of the following orders or higher groups: Cladocera and Copepoda (2 pp), Collembola (11 pp), Odonata (22 pp), orthopteroids (21 pp), Psocoptera (5 pp), Thysanoptera (9 pp), Heteroptera (8 pp), Homoptera (9 pp), Neuropteroidea (7 pp), Coleoptera (177 pp). The book closes with two indexes, one is to authors, the other to species names.

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