

New records and annotations for better knowledge of the Lycaenidae fauna in Bolivia

(Lepidoptera)

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Data of the eumaeine material (n=194) originated from Bolivia kept in the Zoologische Staatssammlung München (Munich, Germany) are given. In the material there are 69 species, amongst them, 23 are recorded as new for the fauna of Bolivia: *Arawacus ellida* (Hewitson, 1867), *Arumecla aruma* (Hewitson, 1877), *Brangas caranus* (Cramer, 1775), *Calycopis atnius* (Godart, 1824), *Calycopis calus* (Godart, 1824), *Calycopis centoripa* (Hewitson, 1868), *Chalybs janias* (Cramer, 1779), *Electrostrymon joya* (Dognin, 1895), *Gargina thyesta* (Hewitson, 1869), *Hypostrymon asa* (Hewitson, 1868), *Kisutam syllis* (Godman & Salvin, 1887), *Laothus phydela* (Hewitson, 1867), *Lathecla mimula* (Draudt, 1920), *Nesiostrymon calchinia* (Hewitson, 1868), *Ocaria ocrisia* (Hewitson, 1868), *Panthiades bitias* (Cramer, 1777), *Penaincisalia astillero* (Johnson, 1992), *Rekoa meton* (Cramer, 1779), *Rhamma aurugo* (Draudt, 1919), *Rhamma lorena* (Johnson, 1992), *Strephonota cyllarissus* (Herbst, 1801), *Strymon bubastus* (Stoll, 1780), and *Theclopsis gargara* (Hewitson, 1868). The nominal species *Thecloxurina astillero* Johnson, 1992 is reinstated from the synonymy of *Penaincisalia luxurina* (C. Felder & R. Felder, 1865) Robbins, 2004.

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Introduction

After participating in two expeditions in Bolivia, Dr. Walter Forster (1910–1986), who was the curator of Lepidoptera in the Zoologische Staatssammlung München (ZSM) (Munich, Germany), elaborated the material in two monographs (Forster 1955, 1964). Although Dr. Forster was a specialist of Lycaenidae (Witt 1988), the Bolivian specimens representing this family remained unidentified. Most probably the reason was that in the middle of the 20th century the only compendium for South American lycaenids was the American volume of the Seitz series “Die Großschmetterlinge der Erde” (Draudt 1919–1921). The book provided descriptions and colour plates, but did not offer any key or a system, which could help the reader to maneuver in the “*Thecla* labyrinth”.

Besides Paraguay, Bolivia is one of the two landlocked countries in South America. Many parts of

the country are still unexplored, difficult to access even today. But Bolivia is similar to the other Latin American countries in respect of lepidopterology: in general, the Lycaenidae fauna is the least known amongst the butterfly families. The checklist of the Lycaenidae fauna of Bolivia has been compiled just ten years ago by Gareca et al. (2009). It was estimated that in the country there should occur 330 species, but in the mentioned paper only 152 species were properly recorded. With the folio book of D’Abrera (1995) documenting many types, plus the internet site “Butterflies of America” (Warren et al. 2020) based on the checklist of Robbins (2004b), now there is a better foundation for the identification of any South American Lycaenidae material.

In a previous paper I published all data of the Bolivian polyommatine lycaenid specimens I found in the Zoologische Staatssammlung München; altogether 213 specimens of the species *Hemiargus*

hanno (Stoll, 1790) (n=13), *Itylos titicaca* (Weymer, 1890) (n=83), *Leptotes callanga* (Butler, 1896) (n=1), *L. cassius* (Cramer, 1775) (n=1), *Madeleinea koa* (Druce, 1896) (n=30), *M. moza* (Staudinger, 1894) (n=5), *M. pacis* (Draudt, 1921) (n=8) and *Paralycaides vava* (Staudinger, 1894) (n=72) were recorded (Bálint 1995). The present paper has the aim to publish the data of all the eumaeine Lycaenidae specimens collected by Dr. Forster or other people in Bolivia, and kept in the Lepidoptera collections of the Zoologische Staatssammlung München. With this publication, we will have somewhat better knowledge of the Bolivian Lycaenidae fauna of one of the most unexplored countries in South America.

Material and methods

Eumaeini hairstreak specimens originated from Bolivia and kept in the Lepidoptera collection of the Zoologische Staatssammlung München (Munich, Germany) were inspected, identified, and databased in a Microsoft Excel worksheet. For identifications, the two compendia of Neotropical Lycaenidae (Draudt 1919–1921 and D’Abrera 1995) were consulted along with the internet media “Butterflies of America” (Warren et al. 2020).

The species are listed in alphabetical order according to genus- and species-group names following Robbins (2004b). The reference number of the species in the list of Gareca et al. (2009) is given, and when the species is not listed there, it is indicated as “new” (for the fauna of Bolivia). Under the material entry, the specimen’s full data are given (with the indication of the total number of the material, and also for the sex of the specimens). For species indicated as “new” or in interesting cases a short note is presented.

Table 1 lists all the identified species categorized in four distribution types as (1) Amazonian (distributed in the Amazonas basin, often also in the Guianas), (2) Atlantic-Amazonian (distributed from the Atlantic region of Brazil distributed to the Amazonas basin), (3) Andean (distributed in the chain of the Andes), and (4) Panamerican (distributed from the southern border of the USA or Mexico in Mesoamerica via the Amazon Basin to the Atlantic region of Brazil) (see Brown 1993).

Results with notes

Arawacus dolyllas (Cramer, 1777)

Gareca et al. 2009: no. 45.

Material (n=3): Yungas del Palmar, 1000 m, 1950. III.10, Forster (male); La Paz, 1500–2000 m, no date, Schulze (male, female).

Arawacus ellida (Hewitson, 1867)

New.

Material (n=6): Rio Yacuma, Espiritu, 250 m, 1950.VIII.4, Forster (female); Rio Yacuma, Espiritu, 250 m, 1954.IV.29, Forster (male); La Paz, 1500–2000 m, no data, Schulze (male); Yungas, Chulumani, 1200 m, 1950.XI.6–18, Forster (3 males).

Note. The species is widely distributed in lowland forests of the Amazonian Basin (cf. D’Abrera 1995: 1137, Robbins 2004b: no. 328).

Arawacus tarania (Hewitson, 1868)

Gareca et al. 2009: no. 46.

Material (n=1): Rio Yacuma, Santa Rosa, 250 m, 8.VII.1950, Forster (female).

Arumecla aruma (Hewitson, 1877)

New.

Material (n=1): no data, Erhardt (female).

Note. Although the distribution of the species is indicated as “Amazonas, Guianas” by D’Abrera (1995: 1214), it also occurs in the Atlantic forest region of Brazil, because the type material of *Thecla aruma* originates from the state Espírito Santo.

Atlides polybe (Linnaeus, 1753)

Gareca et al. 2009: no. 12.

Material (n=2): La Paz, 1500–2000 m, no data, Schulze (2 females).

Aubergina vanessoides (Prittwitz, 1865)

Gareca et al. 2009: no. 133.

Material (n=1): Yungas, Coroico, 1900 m, 14.V.1950, Forster (female).

Brangas caranus (Cramer, 1775)

New.

Material (n=2): Reg. Chapara, 400 m, 1949. IV.12, Zischka (female); no locality, no data, Erhardt (female).

Note. The identity of the species was clarified by Bálint (2005).

Brangas dydimaon (Cramer, 1777)

Gareca et al. 2009: no. 7.

Material (n=1): Songo, Garlepp (female).

Note. The almost patternless phenotype is curious, probably represents an undescribed species.

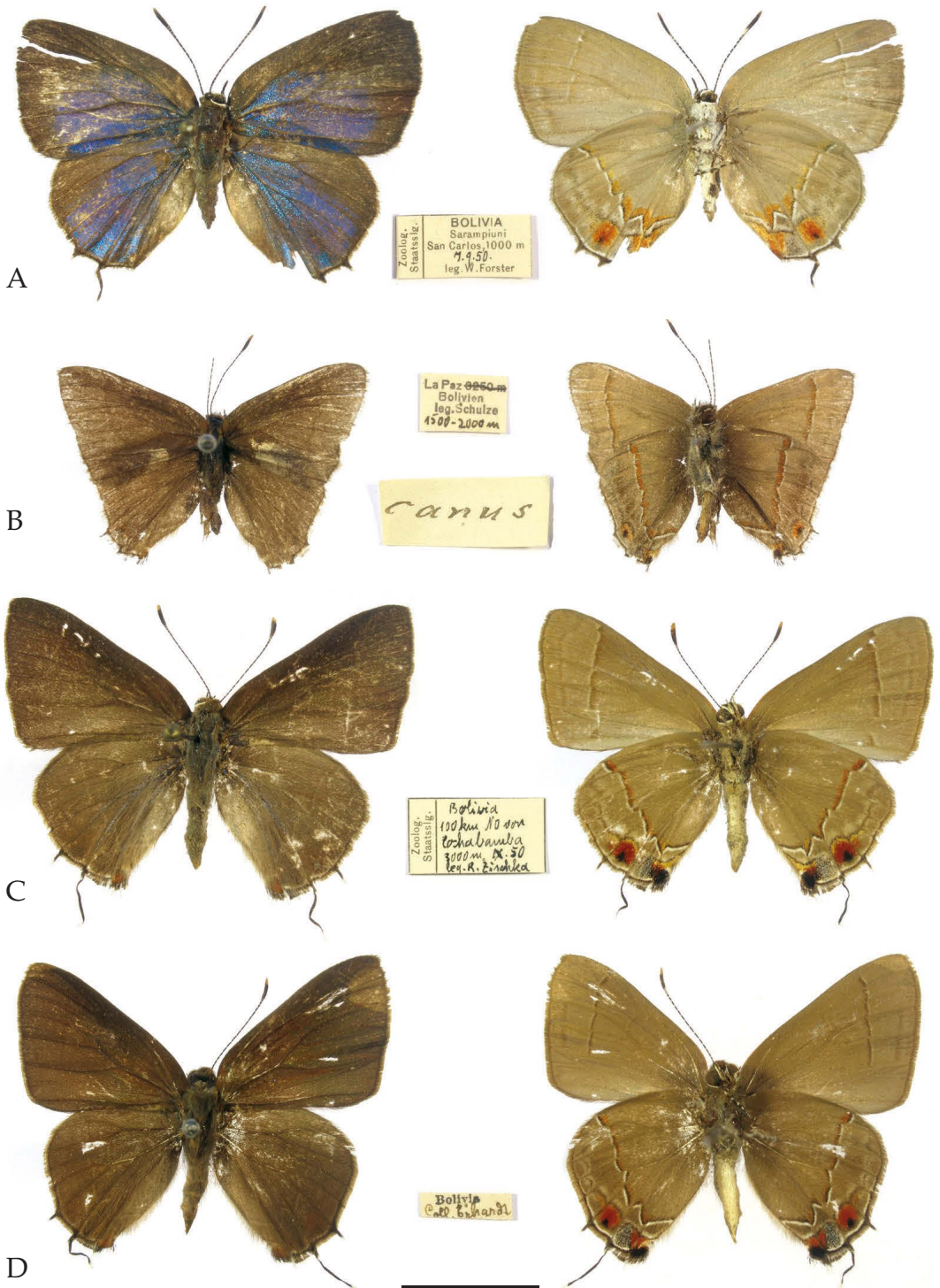


Fig. 1. A. *Camissecla vesper* (Druce, 1919), female. B. *Electrostrymon joya* (Dognin, 1895), male. C. *Kisutam syllis* (Godman & Salvin, 1887), male. D. *Ziegleria ceromia* (Hewitson, 1877), male. Scale bar: 10 mm.

***Calycopis atrius* (Godart, 1824)**

New.

Material (n=1): Chiquitos, Robore, 300 m, 17.X.1953, Forster (male).

Note. D'Abbrera (1995) lists the species under the name "*Thecla (Calycopis) atrius*" and gives the distribution as "Guatemala to the Amazonas, ? Guianas". The type material of the specimens originates from the Guianas.

***Calycopis calus* (Godart, 1824)**

New.

Material (n=2): La Paz, no date, Fassl (male); Prov. Chapare, 400 m, 15.X.1951, Zischka (male).

Note. D'Abbrera (1995) indicates the distribution as "Guatemala to Amazonas, northeastern Brazil".

***Calycopis caulonia* (Hewitson, 1877)**

Gareca et al. 2009: no. 78.

Material (n=4): Chiquitos, Robore, 300 m, 20.XII.1953, Forster (male); ditto, 21.XII. (female); Santa Cruz, 500 m, 28.V.1955, R. Zischka (male, female).

***Calycopis centoripa* (Hewitson, 1868)**

New.

Material (n=1): Chapara Gebiet, Obere Rio Chipiriri, 400 m, 1.XI.1953, Forster (male).

Note. D'Abbrera (1995) indicates the distribution as "Western Amazonas (Colombia to Bolivia)", and figures the ventral wing surface of a male specimen collected in "eastern Bolivia, Sta Cruz de la Sierra".

***Camissecla vesper* (Druce, 1909) (Fig. 1A)**

Gareca et al. 2009: no. 72.

Material (n=1): Sarampiuni, San Carlos, 1000 m, 1950.IX.7, Forster (female).

***Celmia celmus* (Cramer, 1775)**

Gareca et al. 2009: no. 134.

Material (n=2): Sarampiuni, Rio San Paulo, 400 m, 17.IX.1950, Forster (female); Chapare Gebiet, Oberer Rio Chipiriri, 400 m, 8.XI.1953, Forster (male).

***Chalybs janius* (Cramer, 1779)**

New.

Material (n=1): Rio Yacuma, Espiritu, 250 m, 1950.VIII.6, Forster (male).

Note. The taxonomy of the genus *Chalybs* has been clarified recently by Faynel (2019), who recorded the species from Bolivia (2019: 17).

***Chlorostrymon simaethis* (Drury, 1773)**

Gareca et al. 2009: no. 53.

Material (n=2): Cochabamba, 2600 m, 4.III.1950, R. Zischka (female); Yungas, Chulumani, 1200 m, 6-18.XI.1950, Harjes (male).

***Contrafacia imma* (Prittowitz, 1865)**

Gareca et al. 2009: no. 47.

Material (n=1): Sarampiuni, Rio San Paulo, 400 m, 1.IX.1950, Forster (female).

***Cupathecla cupentus* (Stoll, 1780)**

Gareca et al. 2009: no. 57.

Material (n=2): Yungas de Palmar, "km 114", 700 m, 23.X.1953, Forster (2 males).

Note. The species is listed under the name "*Megathecla cupentus*" by Gareca et al (l.c.). *Megathecla* Robbins, 2002 is a replacement name for *Guliveria* D'Abbrera & Bálint, 2001, unethical under the Code of Ethics of the International Commission of Zoological Nomenclature (1999) (ethically replaced by *Gullicaena* Bálint, 2002). The genus *Megathecla* comprises the type species (*Thecla gigantea* Hewitson, 1867) and *Megathecla corentini* Faynel, 2009. There is no evidence to classify these two species with *Papilio cupentus* Stoll, 1790 in the same genus as a monophyly. The correct generic placement of *P. cupentus* is in the genus *Cupathecla* Bálint, 2009. This is followed also in the "Butterflies of America" checklist (Warren et al. 2020).

***Cyanophrys herodotus* (Fabricius, 1793)**

Gareca et al. 2009: no. 55.

Material (n=4): Reg. Chapara, 400 m, 1949.IV.12, Zischka (female); Santa Cruz, 1955.V.15, Zischka (male); La Paz, 1500-2000 m, no date, Schulze (male, female).

***Cyanophrys pseudolongula* (Clench, 1944)**

Gareca et al. 2009: no. 56.

Material (n=2): La Paz, 1500-2000 m, no date, Schulze (male, female).

***Electrostrymon joya* (Dognin, 1895) (Fig. 1B)**

New.

Material (n=1): La Paz, 1500-2000 m, Schulze (male).

Note. Robbins (2004b: no. 542) indicates that the nominal species *Thecla rugatus* Druce, 1907 (type locality: Vina, Peru) is a synonym of *Thecla joya* (type locality: Ecuador, Loja). The phenotypes of these two taxa are somewhat different, most probably they rep-

resent two biological species. D'Abbrera (1995: 1218) figures both, and indicates the distribution of "*Thecla* (*Electrostrymon*) *rugatus*" as "Peru to Argentina".

***Erora biblia* (Hewitson, 1868)**

Gareca et al. 2009: no. 138.

Material (n=1): Rio Yacuma, Espiritu, 250 m, 6.VIII.1950, W. Forster (female).

***Eumaeus minyas* (Hübner, [1819])**

Gareca et al. 2009: no. 1.

Material (n=30): La Morita Sta., Cruz, 1926. VI, Linder (female); Magdalena, 250 m, 1950.VI.15, Zischka (3 males, female); Magdalena, 250 m, 1950. VI.19, Zischka (female); Rio Yacuma, Santa Rosa, 250 m, 1950.VII.9, Forster (female); Rio Yacuma, Santa Rosa, 250 m, 1950.VIII.11, Forster (male, 3 females); Santa Cruz, San Ignacio, 330 m, 1951.VIII.26, Fötl (3 males); Santa Cruz, Manomo, 1951.IX.23, Fötl (male); Totacito, no data, Linder (7 males, female); no locality, no data, Erhardt (3 males, 3 females).

***Gargina thyesta* (Hewitson, 1869)**

New.

Material (n=1): Yungas, Chulumani, 1200 m, 1950.XI.6-18, Harjes (female).

Note. The distribution for the species is indicated as "Amazonas to Rio de Janeiro" by D'Abbrera (1995: 1166).

***Hypostrymon asa* (Hewitson, 1868)**

New.

Material (n=1): no data, no locality, coll. Erhardt (male).

Note. D'Abbrera (1995) indicates the distribution as "Colombia, Venezuela", but Warren et al. (2020) give the wider distribution "Guatemala to Brazil". The type material originates from "Ega" in the upper Amazonas (Brazil).

***Kisutam syllis* (Godman & Salvin, 1887) (Fig. 1C)**

New.

Material (n=2): Bolivia, 100 km NO von Cochabamba, 3000 m, 1950.IX, Zischka (male); Dept. Santa Cruz, San Martin, ca. 300 m, 13.X.1951, leg. K. Ertl (female).

Note. It is recorded from Mexico to Amazonas, Venezuela, Trinidad and the Guianas (D'Abbrera 1995: 1238). Robbins (2004b) lists the nominal species *Thecla politus* Druce, 1907 and *Gigantorubra simplicia* Johnson, 1993, both described from state Pará (Brazil), as synonyms.

***Laothus gibberosa* (Hewitson, 1867)**

Gareca et al. 2009: no. 60.

Material (n=3): Sarampiuni, San Carlos, 1000 m, 1950.VIII.30, Forster (female); Sarampiuni, San Carlos, 1000 m, 1950.IX.14, Forster (female); Yungas de Palmar, "Km 114", 700 m, 1953.X.23, Forster (female).

***Laothus phydela* (Hewitson, 1867)**

New.

Material (n=1): Chapare, 400 m, 1950.V.6, Zischka (male).

Note. Widely distributed in the Atlantic forest region, but the records from Paraguay and Argentina were questioned (D'Abbrera 1995: 1127).

***Lathecla mimula* (Draudt, 1920)**

New.

Material (n=1): Yungas de Palmar, "km 114" 700 m, 24.X.1953, Forster (male).

Note. It is listed as *Lathecla latagus* (Godman & Salvin, 1887) as species no. 59 in Gareca et al. (2009). According to Robbins & Busby (2015), *L. latagus* is a Mesoamerican species and does not occur in the Amazonian Basin, where *L. mimula* is widely distributed. The nominal species *Thecla mimula* was first recorded from Bolivia via the documentation of the female phenotype with the data "E. Bolivia, Buena Vista" by D'Abbrera (1995: 1212).

***Micandra dignota* (Draudt, 1919)**

Gareca et al. 2009: no. 25.

Material (n=1): Yungas de Corani, 2500 m, 1953.X.2, Forster (female).

***Micandra sylvana* (Jørgensen, 1934)**

Gareca et al. 2009: no. 26.

Material (n=3): Yungas de Palmar, 1000 m, 1948. IX.3, Zischka (female); Cordillera Real, Tola-San Pedro Barrancos, 1800 m, 1950.IX.29, Forster (female); Yungas de Corani, 2500 m, 1953.X.2, Forster (female).

***Ministrymon megacles* (Stoll, 1780)**

Gareca et al. 2009: no. 110.

Material (n=3): Rio Yacuma, Espiritu 250 m, 24.VII.1950, Forster (female); ditto, 4.VIII. (male); ditto, 1.VIII. (male).

***Ministrymon una* (Hewitson, 1873)**

Gareca et al. 2009: no. 114.

Material (n=1): Beri Gebiet, Guayarameria, 150 m, 14.VI.1954, Forster (female).

***Nesiostrymon calchinia* (Hewitson, 1868)**

New.

Material (n=1): Chapara Gebiet, Oberer Rio Chipiriri, 400 m, 1.XI.1953, Forster (female).

***Ocaria ocrisia* (Hewitson, 1868)**

New.

Material (n=3): Sarampiuni, San Carlos, 1000 m, 1.IX.1950, Forster (male); Chiquitos, Robore, 300 m, 12.XII.1953, Forster (female); La Paz, no date, Fassl (male).

***Ocaria thales* (Fabricius, 1793)**

Gareca et al. 2009: no. 52.

Material (n=1): Sarampiuni, San Carlos, 1000 m, 14.IX.1950, Forster (male).

***Patwarria venulius* (Cramer, 1775)**

Gareca et al. 2009: no. 4.

Material (n=1): Rio Yacuma, Espiritu, 250 m, 1950.VIII.6, Forster (female).

***Panthiades bitias* (Cramer, 1777)**

New.

Material (n=3): Rio Yacuma, Espiritu, 250 m, ditto, 29.VII.1950, Forster (female); ditto, 6.VIII, (male); no locality, no date, coll. Erhardt (female).

***Panthiades phaleros* (Linnaeus, 1767)**

Gareca et al. 2009: no. 125.

Material (n=2): Yungas, Coroico, 1900 m, 1950.V.15, Forster (female); Sarampiuni, Rio San Paolo, 400 m, 1950.IX.6, Forster (female).

***Paraspiculatus orobia* (Hewitson, 1867)**

Gareca et al. 2009: no. 5.

Material (n=1): Songo, no date, Garlepp (female).

Note. The species is listed under the name "*Mithras orobia*" by Gareca et al. (l. c.). The nominal species *Thecla orobia* is the type of the genus *Paraspiculatus* Johnson & Constantino, 1997. Some members of the genus were revised by Bálint & Moser (2001), Bálint (2002, 2004). These results were overlooked by Robbins (2004b). More recently Busby et al. (2017) revised the whole genus and *Mithras* was kept for *Papilio nautes* Cramer, 1779 and its relatives.

***Parrhasius orgia* (Hewitson, 1867)**

Gareca et al. 2009: no. 127.

Material (n=1): Chapare Gebiet, Oberer Rio Chipiriri, 400 m, 1. XI. 1953, Forster (male).

***Parrhasius selika* (Hewitson, 1874)**

Gareca et al. 2009: no. 126.

Material (n=1): Yungas, Chulumani, 1200 m, 1950.XI.6-11, Harjes (female).

***Penaincisalia culminicola* (Staudinger, 1894)**

Gareca et al. 2009: no. 39.

Material (n=13): Illimani, Westhang, 4500-5000 m, 1950.IV.1, Forster (male); Illimani, Westhang, 4500-5000 m, 1950.IV.13, Forster (female); Illimani, Westhang, 4500-5000 m, 1950.IV.14, Forster (2 males); Illimani, Westhang, 4500-5000 m 1950.VII.4, Forster (male); Illimani, Westhang, 4500-5000 m, 1950.VII.26, Forster (2 males); Cordillera Real, Yani-Tola, 4800 m, 1950.VIII.28, Forster (male); Songotal, Santa Rosa, 3800 m, 1953.VIII.23, Forster (male); La Paz, 3250 m, no data, Schulze (2 males); Songotal, Cuticucho, ca. 3700 m, 1954.II.1, Forster (female); no locality, no data, Staudinger (female).

Note. Forster (1955: 86) reported the not-so-rare occurrence of "*Thecla culminicola*" at a wet rocky wall. I had the same experience in the Llanganuco valley in 1995 where "*P. culminicola*" was abundant along a road where waterfalls of the melting glacier snow were abundant along the rocky walls bordering the road (Bálint 1997).

***Penaincisalia astillero* (Johnson, 1992), reinstated status**

New.

Material (n=1): La Paz, 3500 m, no data, Schulze (male).

Note. Robbins lumped nine nominal species under *P. loxurina* (2004b: no. 266) because he "generally treat montane taxa with geographically variable wing patterns, such as *Penaincisalia loxurina* (C. Felder & R. Felder), as one geographically variable species unless it has been shown that this arrangement is incorrect" (Robbins 2004a: XXV). Evidence was presented that *Thecla loxurina* and its relatives represent the monophyly of *Thecloxurina* Johnson, 1992 and it is distributed from Mesoamerica to Argentina via several species (Bálint & Wojtusiak 2006, Bálint et al. 2008). The species "*P. loxurina*" was not recorded by Gareca et al. (2009), and was neither found in the La Paz Valley (Guerra Serrudo et al. 2013). The specimen is identical with the type of *Thecloxurina astillero* Johnson, 1992 (type locality: Cucho, Jujuy, Argentina), which was placed in the synonymy of *P. loxurina* by Robbins (l. c.). In comparison to *P. loxurina* the species has a characteristic forewing shape (somewhat longer outer margin), colouration (darker blue) and dorsal wing surface pattern (black border

wider, tornal area and tail covered by a mixture of grey and red scales).

***Pseudolycaena marysas* (Linnaeus, 1758)**

Gareca et al. 2009: no. 21.

Material (n=4): Rio Yacuma, Espiritu, 250 m, 1950.VII.20, Forster (male); Rio Yacuma, Espiritu, 250 m, 1950.VII.25, Forster (male); Rio Yacuma, Espiritu, 250 m, 1950.VIII.4, Forster (male); Santa Cruz, 500 m, 1955.IV.16, Zischka (male).

***Rekoa meton* (Cramer, 1779)**

New.

Material (n=1): Rio Yacuma, Espiritu, 250 m, 25.VII.1950, Forster (female).

Note. D'Abbrera (1995) indicates the distribution as "Mexico to Paraguay, the Guianas, Trinidad". According to Warren et al. (2020), the range of the species is "E & W Mexico to Bolivia, Paraguay, S Brazil, Venezuela to Guianas, Trinidad".

***Rekoa palaegon* (Cramer, 1780)**

Gareca et al. 2009: no. 41.

Material (n=15): Rio Yacuma, Espiritu, 250 m, 1950.VII.11, Forster (female); Rio Yacuma, Espiritu, 250 m, 1950.VII.20, Forster (female); Rio Yacuma, Espiritu, 250 m, 1950.VII.25, Forster (2 males, female); Rio Yacuma, Espiritu, 250 m, 1950.VII.26, Forster (male); Rio Yacuma, Espiritu, 250 m, 1950.VII.27, Forster (2 males, female); Rio Yacuma, Espiritu, 250 m, 1950.VII.28, Forster (2 males); Rio Yacuma, Espiritu, 250 m, 1950.VII.29, Forster (female); Rio Yacuma, Espiritu, 250 m, 1950.IX.15, Forster (male); distr. Chapare, 400 m, 1954.V.20, Zischka (female); no locality, no data, Erhardt (male).

***Rhamma amethystina* (Hayward, 1849)**

Gareca et al. 2009: no. 31.

Material (n=1): Songotal, Santa Rosa, 3600 m, 1953.VIII.23, Forster (female).

***Rhamma aurugo* (Draudt, 1919)**

New.

Material (n=1): Yungas de Arepuchio, Sihuencas, 2200–2500 m, 1953.IX.21, Forster (female).

Note. Described on the basis of two male specimens collected in Cuzco (Peru), but subsequently, Johnson described the species twice (Robbins 2004b: no. 188). The type material of one of his nominal species, *Rhamma sabula*, contains a paratype female from Bolivia with the data: "Chisa to Astillero, 2500 m, leg. Simons, January 1901" (Johnson 1992: 54).

***Rhamma familiaris* (Johnson, 1991)**

Gareca et al. 2009: no. 30.

Material (n=1): La Paz, 1500–2000 m, no data, Schulze (female).

***Rhamma lapazensis* (Johnson, 1992)**

Gareca et al. 2009: no. 33.

Material (n=2): Cochabamba, 3100 m, 1953.IV.4, Forster (male, female).

***Rhamma lorena* (Johnson, 1992)**

New.

Material (n=2): Songotal, Cuticucho, ca. 3700 m, 1953.XII.5, Forster (female); La Paz Umgebung, 3600–4000 m, 1954.I.24, Forster (male).

Note. The species was described based on the dorsally brown holotype female. One of the ZSM specimens is a male. The species-group name *lorena* was placed under *Rhamma arria* (Hewitson, 1870) as a junior synonym by Robbins (2004b: no. 194). *Thecla arria* was described on the basis of an unstated number of male specimens from Ecuador ("Canelos", see Hewitson 1870: appendix ii). The male is blue dorsally with ventral forewing reflector along the basis of the cubital vein. The female is similarly patterned but without reflector. The ZSM male specimen shares the scalloped fore wing postmedian ventral pattern with the *P. lorena* holotype and they have identical hind wing ventral pattern and colouration. Guerra Serrudo et al. (2013) documented the life history of the species under the name *Rhamma lorena*, reinstating unintentionally the status of the nominal species.

***Strephonota cyllarissus* (Herbst, 1801)**

New.

Material (n=1): Sarampiuni, San Carlos, 1000 m, 7.IX.1950, Forster (male).

Note. D'Abbrera (1995) lists the species under the name "*Thecla cyllarus* Cramer, 1775" and indicates the distribution as "Amazonas". The name of *Papilio cyllarus* Cramer, 1775 is a junior primary homonym of *Papilio cyllarus* Rottentburg, 1775, and the next available name is *Papilio cyllarissus* Herbst, 1800. Robbins (2004b) considers the following nominal taxa as *S. cyllarissus* synonyms: *Thecla deliciae* Druce, 1907 (type locality: Maranhão, Brazil); *Th. phoster* Druce, 1907 (type locality: Surinam); *Th. reducta* Lathy, 1926 (type locality: Rio Tono, Central Peru); *Th. xanthica* Lathy, 1926 (type locality: Bas Maroni, French Guiana) suggesting a wide distribution.

***Strymon astiocha* (Prittwitz, 1865)**

Gareca et al. 2009: no. 96.

Material (n=2): no locality, date, Erhardt (male, female).

***Strymon bazochii* (Godart, 1824)**

Gareca et al. 2009: no. 97.

Material (n=2): Rio Yacuma, Espiritu, 250 m, 17.VII.1950, Forster (female); distr. Chapare, 400 m, 3.IV.1951, Zischka (female).

***Strymon bubastus* (Stoll, 1780)**

New.

Material (n=1): Cochabamba, 2000 m, 20.XII.1950, Zischka (male).

Note. D'Abbrera (1995) remarks that the species has a wide distribution that also involves Amazonia.

***Strymon cestri* (Reakirt, 1867)**

Gareca et al. 2009: no. 33.

Material (n=8): Rio Yacuma, Santa Rosa, 250 m, 8.VII.1950, Forster (male); Rio Yacuma, Espiritu, 250 m, 20.VII.1950, Forster (female); Yungas, Chulumani, 1200 m, 6-18.IX.1950, Forster (female); La Paz, 1500-2000 m, no date, Schulze (male); no locality, no date, Erhardt (3 males, female).

***Strymon crambusa* (Hewitson, 1877)**

Gareca et al. 2009: no. 95.

Material (n=1): Chiquitos, Robore, 300 m, 1953. XII.15, Forster (female).

***Strymon erytulus* (Hübner, 1819)**

Gareca et al. 2009: no. 98.

Material (n=3): Rio Yacuma, Espiritu, 250 m, 29.VII.1950, Forster (female); Rio Yacuma, Espiritu, 250 m, 4.VIII.1950, Forster (male); Cochabamba Umg., Laguna Angustrea, 2600 m, 14.IX.1953, Forster (male).

***Strymon megarus* (Godart, 1824)**

Gareca et al. 2009: no. 103.

Material (n=3): Reg. Chapara, 400 m, V.1951, Zischka (male); Rio Yacuma, Espiritu, 250 m, 19.IV.1954, Forster (female); ditto, 20. IV (female).

***Strymon mulucha* (Hewitson, 1867)**

Gareca et al. 2009: no. 92.

Material (n=7): Yungas, Chulumani, 1200 m, 6.V.1950, F. Michel (female); Rio Yacuma, Espiritu, 250 m, 18.VII.1950, Forster (female); ditto, 17.VII. (female); Chiquitos Robore, 300 m, 14.XII.1953,

Forster (female); no locality, no date, Erhardt (male, 2 females).

***Strymon rufofusca* (Hewitson, 1877)**

Gareca et al. 2009: no. 90.

Material (n=9): Rio Yacuma, Espiritu, 250 m, 1950.VII.14, Forster (female); Rio Yacuma, Espiritu, 250 m, 1950.VII.21, Forster (female); Rio Yacuma, Espiritu, 250 m, 1950.VII.24, Forster (male, 4 females); Rio Yacuma, Espiritu, 250 m, 1950.VIII.3, Forster (male, female).

***Strymon ziba* (Hewitson, 1868)**

Gareca et al. 2009: no. 104.

Material (n=1): Yungas, Coroico, 1900 m, 19.V.1950, Forster (male).

***Theclopsis gargara* (Hewitson, 1868)**

New.

Material (n=2): Chapare-Gebiet, oberer Rio Chipiriri, 400 m, 1953.X.29, Forster (female); no locality, no date, Erhardt (female).

Note. D'Abbrera (1995) mentions the species under the name "*Theclopsis doryasa* Hewitson, 1874", which is a junior subjective synonym of *Thecla doryasa* Hewitson, 1868 (Robbins 2004b). D'Abbrera (l.c.) indicates the distribution as "Amazonas" and also figures a male specimen from "Bolivia, Buena Vista".

***Theclopsis lydus* (Hübner, 1809)**

Gareca et al. 2009: no. 117.

Material (n=1): Sarampiuni, Rio San Carlos, 1000 m, 12.IX.1950, Forster (male).

Note. The species was mentioned from Bolivia by D'Abbrera (1995: 1176), who documented a male specimen with data "Bolivia, Buena Vista".

***Theritas harrietta* (Weeks, 1901)**

Gareca et al. 2009: no. 22.

Material (n=1): Yungas del Palmar, 1950.XI.1, Zischka (male).

***Thestius meridionalis* (Draudt, 1920)**

Gareca et al. 2009: no. 58.

Material (n=2): Yungas del Palmar, 1.XI.1950, Zischka (male); Chapare Gebiet, Oberer Rio Chipiriri, 400 m, 1. XI. 1953, Forster (male).

***Tmolus echion* (Linnaeus, 1758)**

Gareca et al. 2009: no 105.

Material (n=1): no locality, no date, Erhardt (female).

Gareca et al. 2009: no. 73.

Material (n=6): Yungas, Coroico, 1900 m, 18.V.1950, Forster (male); ditto, 15.V.1950. (2 females); Yungas de Palmar, "km 114", 700 m, 23.X.1953, Forster (female); no data, Erhardt (male, female).

Collectors or origin of the specimens

194 hairstreak specimens collected in Bolivia were found in the Lepidoptera collections of the Zoologische Staatssammlung München. They represent 69 species, ~23 % of the Lycaenidae fauna estimated for Bolivia, and in the light of the most up-to-date checklist of Lycaenidae (by Gareca et al. 2009), 23 of them proved new. Slightly more than half of the specimens (n=110; 55 %) were collected by the late Walter Forster, former Lepidoptera curator, during the two expeditions in Bolivia he participated. On these expeditions, he collected in the Amazonian

Table 1. Bolivian eumaeine hairstreaks (Lycaenidae) species categorized based on their general distribution.

Species	Distribution	Species	Distribution
<i>Arawacus ellida</i> (Hewitson, 1867)	Amazonian	<i>Theclopsis gargara</i> (Hewitson, 1868)	Atlantic-Am.
<i>Calycopis atnius</i> (Godart, 1824)	Amazonian	<i>Arawacus dolylas</i> (Cramer, 1777)	Panamerican
<i>Camissecla vesper</i> (Druce, 1909)	Amazonian	<i>Atlides polybe</i> (Linnaeus, 1753)	Panamerican
<i>Erora biblia</i> (Hewitson, 1868)	Amazonian	<i>Calycopis calus</i> (Godart, 1824)	Panamerican
<i>Eumaeus minyas</i> (Hübner, [1819])	Amazonian	<i>Celmia celmus</i> (Cramer, 1775)	Panamerican
<i>Laothus gibberosa</i> (Hewitson, 1867)	Amazonian	<i>Chalybs jantias</i> (Cramer, 1779)	Panamerican
<i>Ministrymon megacles</i> (Stoll, 1780)	Amazonian	<i>Chlorostrymon simaethis</i> (Drury, 1773)	Panamerican
<i>Paraspiculatus orobia</i> (Hewitson, 1867)	Amazonian	<i>Contrafacia inma</i> (Prittwitz, 1865)	Panamerican
<i>Thestius meridionalis</i> (Draudt, 1920)	Amazonian	<i>Cupathecla cupentus</i> (Stoll, 1780)	Panamerican
<i>Micandra dignota</i> (Draudt, 1919)	Andean	<i>Cyanophrys herodotus</i> (Fabricius, 1793)	Panamerican
<i>Micandra sylvana</i> (Jørgensen, 1934)	Andean	<i>Electrostrymon joya</i> (Dognin, 1895)	Panamerican
<i>Penaincisalia culminicola</i> (Staudinger, 1894)	Andean	<i>Gargina thyesta</i> (Hewitson, 1869)	Panamerican
<i>Penaincisalia astillero</i> (Johnson, 1992)	Andean	<i>Hypostrymon asa</i> (Hewitson, 1868)	Panamerican
<i>Rhamma amethystina</i> (Hayward, 1849)	Andean	<i>Kisutam syllis</i> (Godman & Salvin, 1887)	Panamerican
<i>Rhamma aurugo</i> (Draudt, 1919)	Andean	<i>Nesiostrymon calchinia</i> (Hewitson, 1868)	Panamerican
<i>Rhamma familiaris</i> (Johnson, 1991)	Andean	<i>Ocaria ocrisia</i> (Hewitson, 1868)	Panamerican
<i>Rhamma lapazensis</i> (Johnson, 1992)	Andean	<i>Ocaria thales</i> (Fabricius, 1793)	Panamerican
<i>Rhamma lorena</i> (Johnson, 1992)	Andean	<i>Panthiades bitias</i> (Cramer, 1777)	Panamerican
<i>Strymon erytulus</i> (Hübner, 1819)	Andean	<i>Panthiades phaleros</i> (Linnaeus, 1767)	Panamerican
<i>Theritas harrietta</i> (Weeks, 1901)	Andean	<i>Parrhasius orgia</i> (Hewitson, 1867)	Panamerican
<i>Arawacus tarania</i> (Hewitson, 1868)	Atlantic-Am.	<i>Pseudolycaena marysas</i> (Linnaeus, 1758)	Panamerican
<i>Arumecla aruma</i> (Hewitson, 1877)	Atlantic-Am.	<i>Rekoa meton</i> (Cramer, 1779)	Panamerican
<i>Aubergina vanessoides</i> (Prittwitz, 1865)	Atlantic-Am.	<i>Rekoa palaegon</i> (Cramer, 1780)	Panamerican
<i>Brangas caranus</i> (Cramer, 1775)	Atlantic-Am.	<i>Strymon astiocha</i> (Prittwitz, 1865)	Panamerican
<i>Brangas dydimaeon</i> (Cramer, 1777)	Atlantic-Am.	<i>Strymon bazochii</i> (Godart, 1824)	Panamerican
<i>Calycopis caulonia</i> (Hewitson, 1877)	Atlantic-Am.	<i>Strymon istapa</i> (Reakirt, [1867])	Panamerican
<i>Calycopis centoripa</i> (Hewitson, 1868)	Atlantic-Am.	<i>Strymon cestri</i> (Reakirt, 1867)	Panamerican
<i>Cyanophrys pseudolongula</i> (Clench, 1944)	Atlantic-Am.	<i>Strymon megarus</i> (Godart, 1824)	Panamerican
<i>Laothus phydela</i> (Hewitson, 1867)	Atlantic-Am.	<i>Strymon mulucha</i> (Hewitson, 1867)	Panamerican
<i>Lathecla mimula</i> (Draudt, 1920)	Atlantic-Am.	<i>Strymon rufofusca</i> (Hewitson, 1877)	Panamerican
<i>Ministrymon una</i> (Hewitson, 1873)	Atlantic-Am.	<i>Strymon ziba</i> (Hewitson, 1868)	Panamerican
<i>Paivarria venulius</i> (Cramer, 1775)	Atlantic-Am.	<i>Theclopsis lydus</i> (Hübner, 1809)	Panamerican
<i>Parrhasius selika</i> (Hewitson, 1874)	Atlantic-Am.	<i>Tmolus echion</i> (Linnaeus, 1758)	Panamerican
<i>Strephonota cyllarissus</i> (Herbst, 1801)	Atlantic-Am.	<i>Ziegleria ceromia</i> (Hewitson, 1877)	Panamerican
<i>Strymon crambusa</i> (Hewitson, 1877)	Atlantic-Am.		

Basin (Forster 1955: pl.32, fig. 1: Rio Chipiriri), in the Chaco region (Forster 1955: pl.32, fig. 2: Roboré), and also in the high Andes (Forster 1955: pl.30, fig. 1: Cordillera Real, fig. 2: Cochabamba region).

The rest of the specimens originated from various people as the labels indicate: Erhardt (n=24), Ertl (n=1), Fassl (n=2), Fötl (n=4), Garlepp (n=2), Harjes (n=3), Linder (n=9), Michel (n=1), Schulze (n=15), Staudinger (n=1) and Zischka (n=22). The collectors Ertl, Fötl, Harjes, Linder and Michel belonged most probably to the circle of Rudolf Zischka (1895–1980), and collected for Forster (cf. 1955: 84). In 1936 Zischka emigrated to Bolivia and lived there until 1962, when he returned to Germany (Hahn & Hahn 2010). The specimens they collected in Bolivia most probably were sent to Munich and had been labelled there, or Forster took the material with himself to Germany.

Anton Hermann Fassl (†1922) was a professional collector, and Otto Garlepp was his partner on his first Bolivian trip (Taut 1923). The Garlepp brothers (Gustav: †1907 and Otto: †1959) were also professional collectors who pioneered Lepidoptera in Bolivia (Niethammer 1972). Otto Staudinger (†1900: Lucerne) was a well-known insect dealer. He acquired the material collected by the Garlepp brothers in Bolivia, as well as the Fassl's. The type series of his *Thecla culminicola* was also captured by them (Staudinger 1894). Supposedly the single specimen examined originates from their lot.

Robert Erhardt (†1908: Munich) was an active member of the Münchner Entomologische Gesellschaft, and one of his favorite butterfly families was Lycaenidae ("K" (Anonymus) 1908). His specimens are poorly labelled, as for provenance there is only the indication "Bolivia" (Fig. 1). Paul Schulze (†1949: Rostock) was a professor in zoology of Rostock University, and the editor of the influential book series "Biologie der Tiere Deutschlands" published between 1922 and 1937 in 42 issues, subsequently bounded in six volumes (Schulze 1938). All his specimens are from the La Paz region, on the labels, there is no date of collecting, nor the collector's name. Most probably these specimens were purchased (Fig. 1B).

Composition of the species

As Table 1 demonstrates almost half of the species (n=33, ~48 %) recorded as new for the fauna of Bolivia has a Panamerican distribution. Many of these species have versatile life histories adapted to often changing environmental factors. Therefore they can be found often in human settlements. This statement suggests that the Lycaenidae fauna of Bolivia is grossly unexplored.

The far lesser numbers of other distributional

types (Amazonian: 9, Andean: 12 and Atlantic-Amazonian: 16) implicate the same. Regarding Bolivian Lycaenidae specialized ecosystems in the Amazonian and Andean regions are grossly undersampled, therefore the picture of the 175 species hitherto recorded does not mirror the reality. Gareca et al. (2009) estimated 330 as the number of the Lycaenidae species occurring in Bolivia. Consequently, slightly less than half of the Lycaenidae species occurring in Bolivia is waiting for a proper recording and identification. There is no doubt that amongst them there are several species new to science.

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