

A new species of *Spurostigma* Eertmoed (Psocodea: 'Psocoptera': Spurostigmatidae), from Bolivia

Alfonso N. García Aldrete

Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, Apartado Postal 70-153, 04510 México, D. F. anga@ibiologia.unam.mx

ABSTRACT

Spurostigma boliviana n. sp., is here described and illustrated, it presents forewing venation autapomorphic characters that make it different from the 11 other described species in the genus. The types are deposited in the National Insect Collection, Instituto de Biología, UNAM, Mexico City.

Key words: Epipsocetae, *Spurostigma*, new species, Bolivia.

RESUMEN

Spurostigma boliviana n. sp., es aquí descrita e ilustrada; presenta caracteres de venación autapomórficos que la hacen claramente diferente de las otras 11 especies descritas en el género. Los tipos están depositados en la Colección Nacional de Insectos, Instituto de Biología, UNAM, México, D. F.

Palabras clave: Epipsocetae, *Spurostigma*, nueva especie, Bolivia.

INTRODUCTION

The species of *Spurostigma* are predominantly Caribbean, one species each occur in Mexico and in Panama, and two species have been recorded in northeastern South America (Guyana and Suriname) (Badonnel 1977, Eertmoed 1973). They are known to occur also in Napo, Ecuador (personal observation). I here describe a peculiar species of *Spurostigma*, clearly different from the described ones, collected in Santa Cruz, Bolivia.

MATERIAL AND METHODS

Four female specimens were available for study, one of them was dissected in 80% ethyl alcohol, and its parts (head, right legs and wings, and genitalia), were mounted on a slide in Canada balsam. Measurements, in μm , of parts mounted, were taken with a filar micrometer with a measuring unit of 1.36 μm for wings, and 0.53 μm for other parts. Color was recorded by placing the whole specimens in 80% ethyl alcohol under the dissecting microscope, illuminated with white cold light at 80X.

Abbreviations of parts measured are as follows: FW, HW: length of right fore- and hind- wings, F, T, t1, t2: lengths of femur, tibia and tarsomeres 1 and 2 of right hind leg, ctt1: number of ctenidobothria on t1, fl...fn: length of flagellomeres 1...n of right antenna, IO, D and d: minimum distance between compound eyes, antero-posterior diameter and transverse diameter of right compound eye, respectively, PO: d/D. The types are deposited in the Colección Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México, México City (Codon: CNIN).

Suborder Psocomorpha
Infraorder Epipsocetae
Family Spurostigmatidae
Spurostigma boliviana n. sp. (Female)
(Figs. 1- 6)

Color. Body reddish brown. Compound eyes black, ocelli hyaline, with ochre centripetal crescents; a slender brown band on each side, from each upper ocellus towards antennal fossae, not reaching them. Postclypeus with brown, irregular bands as illustrated (Fig. 3). Scape and pedicel pale brown, flagellum white. Maxillary palps reddish brown. Tergal lobes of meso- and metathorax deeply pigmented; thoracic pleura with dark brown irregular spots. Legs whitish. Wings hyaline, with dark brown areas and spots as illustrated (Fig. 1). Abdomen pale brown, with ochre, transverse subcuticular rings.

Morphology. Forewing with distal ends of veins R2+3, R4+5, M1, M2, M3, and posterior end of areola postica decidedly angulate as illustrated (Fig. 1). Hindwing Rs-M joined for a distance. Lacinia broadening distally, outer cusp with six denticles (Fig. 4). Subgenital plate (Fig. 6), broad, setose, with apex pointed, slightly projected; pigmented area concave anteriorly. Gonapophyses (Fig. 5): v1 slender, unpigmented, v2 a distinct, setose lobe on side of v3, distal process wide at base, narrowing distally, covered with microspines. Paraprocts (Fig. 2), broad, with setae as illustrated; sensory fields almost circular, with 20-22 trichobothria issuing from basal rosettes. Epiproct (Fig. 2) trapeziform, with one mesal setae near anterior border, and a field of setae on distal third, along sides and posterior border.

Measurements (Holotype). FW: 3,837, HW: 2,862, F: 805, T: 1,434, t1: 557, t2: 149, ctt1: 25, fl: 384, f2: 282, f3: 247, IO: 440, D: 301, d: 200, IO/D: .46, PO: 0.66.

Type locality. BOLIVIA. Santa Cruz. 2 km W La Angostura (28 km SW El Torno, on road to Samaipata). 24.IV.2005. Beating branches of trees and shrubs with dead leaves. Holotype female, 3 female paratypes. A. N. García Aldrete.

Etymology. The specific name refers to the country of origin of this species.

Key to the species of Spurostigma Eertmoed

- 1. Forewing Rs-M joined by a crossvein..... 2
- Forewing Rs-M diverging from a point or fused for a distance..... 6

- 2. Forewing with a pigmented pattern, veins from R2+3 to Cu1a distinctly angulate distally. Distribution: central Bolivia..... *S. boliviana* García Aldrete
- Forewing without a pigmented pattern, veins not angulate distally .
..... 3

- 3. Forewing areola postica with a pigmented spot on apex..... 4
- Forewing areola postica without a pigmented spot on apex..... 5

- 4. Brown areolae at the base of setae on veins R, M-Cu, Cu1, A1, and A2; female epiproct with a black spot at each antero-lateral corner and at the distal tip. Distribution: Puerto Rico..... *S. nesiotis* Eertmoed
- Without brown areolae at the base of setae on veins indicated above, female epiproct without black spots as above. Distribution: Cuba..... *S. cuba* Eertmoed

- 5. A light brown spot on proximal angle of areola postica. Distribution: southern Mexico..... *S. epirotica* Eertmoed
- Without a light brown spot on areola postica as above. Distribution: Suriname..... *S. mesembria* Eertmoed

- 6. Forewing with a pigmented pattern..... 7
- Forewing without a pigmented pattern..... 8

- 7. With brown areola on setal bases on R1 to distal end of pterostigma, cell Cu1 with a large brown spot, distal half of cell A1 with a brown spot and a faint spot in the proximal half. Distribution: Puerto Rico..... *S. portoricensis* Eertmoed
- Without brown areola on R1 as above, cell Cu1 without a pigmented spot, a large spot on cell A1 proximally. Distribution: Cuba..... *S. jimenezi* Badonnel

- 8. Forewing veins Rs-M diverging from a point..... 9
- Forewing veins Rs-M fused for a distance; without a brown spot at apex of areola postica and at proximal angle. Distribution: Canal Zone, Panama..... *S. panamensis* Eertmoed

- 9. Forewing M veins unbranched..... 10
- Forewing M3 five branched, a crossvein between areola postica and anterior branch of M3. Distribution: Dominican Republic..... *S. hispaniola* Eertmoed

- 10. Brown areola at setal bases on R, M-Cu, Cu1, A1, and A2. Distribution: Dominica..... *S. insula* Eertmoed
- Without brown areola at setal bases on veins indicated above.... 11

- 11. Frontal sutures distinct, frons uniformly brown; subgenital plate brown, not bordered posteriorly with black. Distribution: Dominica..... *S. dominica* Eertmoed
- Frontal sutures indistinct, frons markings indistinct; subgenital

plate brown, bordered posteriorly with black. Distribution: Guyana..... *S. guyana* Eertmoed

DISCUSSION

Spurostigma Eertmoed is strictly neotropical, ranging in the continent from southern Mexico to central Bolivia, and occurring in the Greater and the Lesser Antilles; its species occur in the Gulf of Mexico, East of Central America, Cuba, Hispaniola, Puerto Rico and Lesser Antilles provinces (Caribbean subregion), in the Guyana and Moist Guyana provinces (Amazonian subregion), and in the Chaco province (Chaco subregion) (Morrone 2001).

The 12 presently known species of *Spurostigma* (Table 1), can be grouped in two sections, on basis of the nature of the forewing Rs-M connection, as follows:

Section A. Forewing Rs-M joined by a crossvein. Included species: *S. boliviana*, *S. cuba*, *S. epirotica*, *S. mesembria* and *S. nesiotis*.

Section B. Forewing Rs-M diverging from a point or fused for a distance. Included species: *S. dominica*, *S. guyana*, *S. hispaniola*, *S. insula*, *S. jimenezi*, *S. panamensis*, and *S. portoricensis*.

Section A includes four homogeneous species (the latter four), and a contrasting one (*S. boliviana*); likewise, Section B includes five homogeneous species and two contrasting ones (*S. jimenezi* and *S. portoricensis*).

The “contrasting” species in the paragraph above are those with a forewing pigmentation pattern, as opposed to those with forewing almost hyaline, without a pigmentation pattern. As yet I have not found a relation with the species distribution, both the “homogeneous” and the contrasting ones occur in the continent and in the Caribbean islands.

With respect to *S. boliviana*, it has a forewing with a defined pattern, a character shared with *S. jimenezi* and *S. portoricensis*, of Section B. In addition, it shows autapomorphic characters in the forewing that make it unique in the genus (veins from R2+3 to posterior end of areola postica distinctly angulate). Its distribution in central Bolivia is worth mentioning, as it is isolated from the main area of distribution of the genus, and some 2,800 km from the closest ones, in Guyana and Suriname.

ACKNOWLEDGMENTS

Felipe Villegas (Instituto de Biología, UNAM), prepared the plate of illustrations. Psocoptera collecting in Bolivia in 2005 was possible through partial financing from Instituto de Biología, UNAM, México City.

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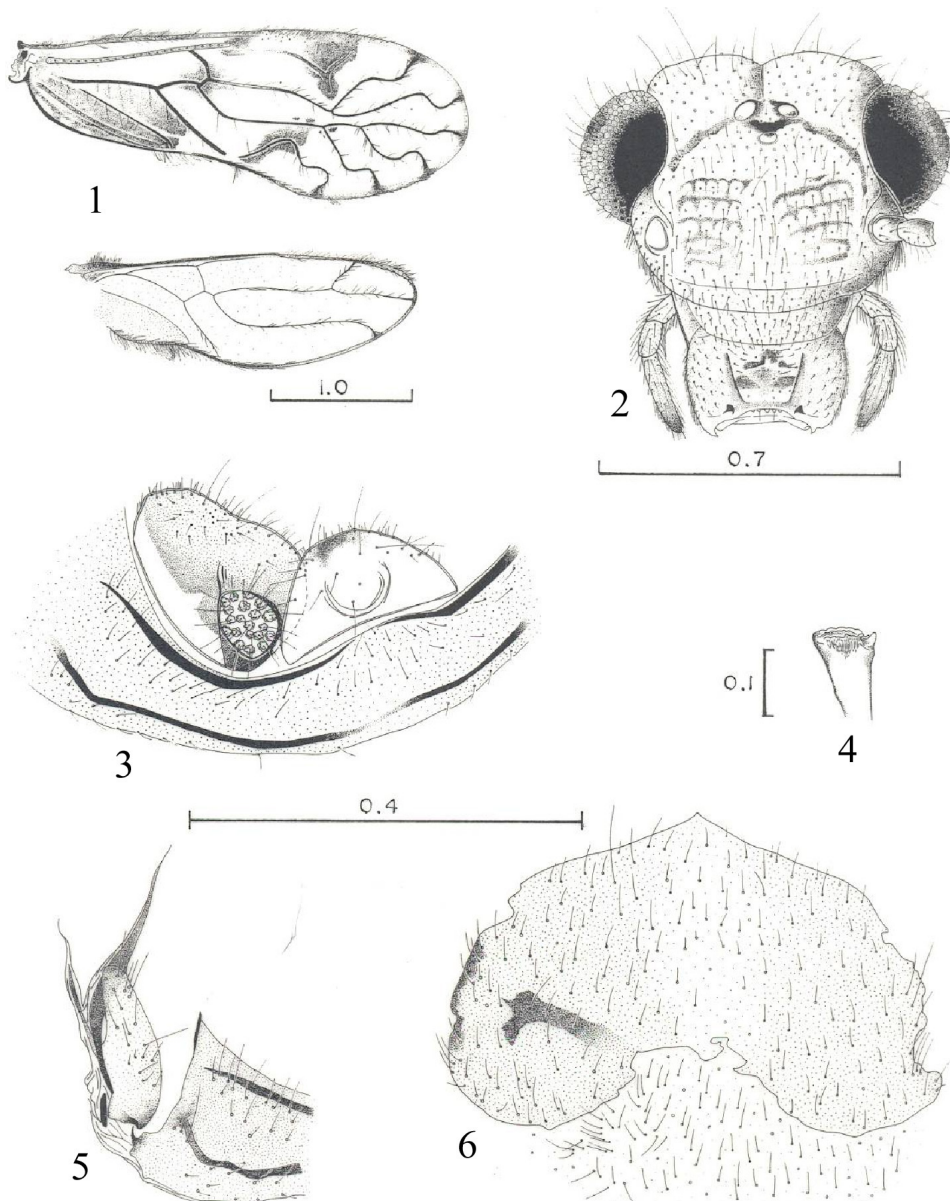
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Species	Distribution
<i>Spurostigma boliviana</i> García Aldrete, 2009	Bolivia
<i>S. cuba</i> Eertmoed, 1973	Cuba
<i>S. dominica</i> Eertmoed, 1973	Dominica
<i>S. epirotica</i> Eertmoed, 1973	Mexico
<i>S. guyana</i> Eertmoed, 1973	Guyana
<i>S. hispaniola</i> Eertmoed, 1973	Dominican Republic
<i>S. insula</i> Eertmoed, 1973	Dominica
<i>S. jimenezi</i> Badonnel, 1977	Cuba
<i>S. mesembria</i> Eertmoed, 1973	Suriname
<i>S. nesiotis</i> Eertmoed, 1973	Puerto Rico
<i>S. panamense</i> Eertmoed, 1973	Panama
<i>S. portoricense</i> Eertmoed, 1973	Puerto Rico

Table 1. Species of *Spurostigma* and distribution.

Recibido: 20 de octubre de 2008
Aceptado: 26 de febrero de 2009



Figures 1-6. *Spurostigma boliviana* n. sp. (♀). 1. Fore- and hind-wings. 2. Front view of head. 3. Clunium, right paraproct and epiproct. 4. Lacinial tip. 5. Right gonapophyses and clunium. 6. Subgenital plate. Scales in mm. Figs. 3, 5 and 6 to common scale.



“Pulgones II”. Fotografía: J.L. Navarrete-Heredia.