

A new species of Patagonian *Stilobezzia* (*Acanthohelea*) and a redescription of *S. (A.) nigerrima* Ingram and Macfie (Diptera: Ceratopogonidae)

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ABSTRACT

A new species, *Stilobezzia* (*Acanthohelea*) *curvistyla* from Argentinean and Chilean Patagonia is described and illustrated, and compared with the similar species *S. (A.) nigerrima* Ingram and Macfie. The latter species is redescribed, including the first description of the male, and for the first time recorded from Chile.

Key Words: *Stilobezzia* (*Acanthohelea*), new species, new records, Patagonia.

INTRODUCTION

Stilobezzia Kieffer is a large and diverse genus of Ceratopogonidae, world-wide in distribution. The adult females are important predators on other small insects. Immatures stages are found in a wide variety of aquatic and semiaquatic habitats, including streams, lakes and ponds margins, puddles, swamps, rice fields, rock pools, and tree holes (De Meillon and Wirth, 1991; Cazorla et al., 2004).

Ingram and Macfie (1931) stated that *Stilobezzia* appears to be the dominant genus of the family in the area of Patagonia surveyed by F. W. Edwards and R. C. Shannon in 1926-27, in which they describe 10 new species: *S. bicinctipes*, *S. edwarsi*, *S. furva*, *S. hirsuta*, *S. nigerrima*, *S. ornaticrus*, *S. patagonica*, *S. rava*, *S. succinea* and *S. varia*. All species were included by Wirth (1974) in the subgenus *Neostilobezzia* Goetghebuer, which was subsequently recognized as a junior synonym of *Acanthohelea* Kieffer by Wirth and Grogan (1988). The subgenus is represented in the Neotropical region by 18 species (Borkent and Spinelli, 2000), and the above mentioned Patagonian species are known only from the type-locality, except *S. (A.) succinea* and *S. (A.) varia*, which were reported from Tierra del Fuego and neighboring islands by Spinelli and Grogan (1999).

During the past 15 years, several collecting trips to Argentinean and Chilean Patagonia were undertaken, resulting in a large collection of adults of the subgenus *Stilobezzia* (*Acanthohelea*) deposited in the Museo de La Plata, Argentina (MLP). The purpose of this paper is to give the first results on the taxonomic revision mainly based on the above mentioned material, describing and illustrating a new species and redescribing *S. (A.) nigerrima*.

MATERIAL AND METHODS

Specimens were slide-mounted in Canada balsam and examined, measured and drawn using a binocular compound microscope with attached camera lucida. The type of the new species is deposited in the entomological collection of the Museo de La Plata, Argentina (MLP). During the present study material was also

examined from the Canadian National Collection (CNC) and the collection of the Natural History Museum, London (BMNH), were paratypes will be deposited.

For terms of structures see the Manual of Nearctic Diptera (McAlpine et al., 1981), with the modifications proposed by Szadziewski (1996) for wing terminology.

RESULTS

Stilobezzia (Acanthohelea) curvistyla n. sp.

Figs. 1-9

Diagnosis.— The only species of Neotropical *Stilobezzia (Acanthohelea)* with abruptly curved gonostylus.

Description.— Female. Head dark brown. Eyes separated for length of 2 ommatidia. Flagellum (Fig. 1) entirely dark brown, 2-8 short, 9-13 elongated; antennal ratio 1.78 (1.75-1.81, $n=2$). Palpus (Fig. 2) brown; segment 3 with shallow sensory pit on beginning of distal 1/3; palpal ratio 2.74 (2.66-2.83, $n=2$). Mandible with 7 teeth.

Thorax. Scutum dark brown, humeral areas, prescutellar depression paler; scutellum pale brown, with 6 setae, 5 smaller hairs; postscutellum dark brown. Legs dark brown, hairy, hindleg slightly darker; hind tibial comb with 8 spines; tarsomere 1 of midleg with basal spine, tarsomeres 1-3 in all legs with pair of apical spines; ventral palisade setae conspicuous on tarsomeres 1-3 of hindleg; prothoracic TR 1.95 (1.80-2.11, $n=2$), mesothoracic TR 2.18 (1.92-2.25, $n=2$), metathoracic TR 2.02 (1.83-2.22, $n=2$); claws large with basal inner tooth. Wing (Fig. 3) length 1.84 (1.82-1.86, $n=2$) mm; width 0.67 (0.56-0.79, $n=2$) mm; CR 0.73 (0.69-0.77, $n=2$); membrane slightly infuscated; second radial cell 3.4 times longer than first; cubital fork at same level of beginning of r-m crossvein; macrotrichia on costa, R_1 , R_2 , R_3 , M_1 , M_2 , CuA_2 abundant on distal 2/3 of wing. Halter whitish.

Abdomen. Dark brown; anterior margin of sternite 8 slightly convex, lateral margins rounded, distal margin slightly notched (Fig. 4); sclerites of sternite 9 stout (Fig. 5); sternite 10 not in position to describe, with 5 pairs of setae; cerci stout, tip rounded. Two ovoid spermathecae (Fig. 6) measuring 0.085 by 0.059 mm, 0.070 by 0.059 mm, larger with 0.011 mm neck; rudimentary third present.

Male.— Similar to female with usual sexual differences. Flagellum with plume moderately developed, flagellomeres as in Fig. 7. Scutum entirely dark brown; prothoracic TR 1.85 (1.73-1.91, $n=11$), mesothoracic TR 2.13 (2.00-2.18, $n=10$), metathoracic TR 1.89 (1.80-2.00, $n=12$); wing length 1.43 (1.30-1.68, $n=12$) mm, width 0.48 (0.45-0.51, $n=12$) mm; CR 0.66 (0.62-0.69, $n=12$); veins without macrotrichia; second radial cell twice longer than first. Genitalia (Fig. 8): tergite 9 short, progressively narrowing distad, with posteromedian pointed projection, cerci slender; sternite 9 4.3 times wider than long, with shallow, broad posteromedian excavation. Gonocoxite elongated, 4.7 times longer than greatest breadth, proximal inner margin with sclerotized anteromesal protuberance; gonostylus slender, abruptly curved on mid portion, tip pointed. Parameres (Fig. 9) separate, subparallel, each with basal portion folded, articulated to strong basal apodeme; posteromedian process stout, broader distally, abruptly narrowing to apex, narrow portion of inner margin recurved ventrad. Aedeagus represented by

two convergent, sinuate, slender sclerites, each with hook-shaped tip.

Distribution.— Argentina (Neuquen, Rio Negro and Chubut provinces), Chile (Llanquihue).

Types.— Holotype male, Argentina, Chubut, Los Alerces National Park, eastern shore lake Futalaufquen, 20-I-1998, G. Spinelli (MLP); allotype female, Argentina, Neuquen, Quechu-Quina stream, 16-XI-1994, G. Spinelli, sweep net (MLP). Paratypes, 11 males, 1 female as follows: same data as holotype, 1 male; same data as allotype, 2 males; Neuquen, San Martín de los Andes, 23-IV-1982, M. Gentili, 1 female, light trap (MLP); Rio Negro, Lago Gutierrez, I-2003, J. Liotta, 1 male, light trap (MLP); Chile, Llanquihue, Las Cascadas, 13 km N Ensenada, Valdivian rain forest, 1/2- XII-1994, L. Quate, Malaise trap 6 males (4 males in MLP, one in CNC, one in BMNH); same data except Yerbas Buenas, 1/6-XII-1994, 150 m, 1 male, light trap (MLP).

Discussion.— Males and females were collected at the same locality and date in Quechu-Quina stream, in the province of Neuquen, Argentina.

The female of *Stilobezzia* (*A.*) *curvistyla* strongly resembles the female of *S.* (*A.*) *nigerrima* by virtue of the dark brown coloration, but the later species is smaller and shows the following differences: the sensory pit in the third palpal segment is subapical, the thorax entirely dark brown, the scutellum bears 5 setae, the first radial cell is longer and the cubital fork begins distad to the beginning of r-m crossvein. The male genitalia of *S.* (*A.*) *nigerrima* exhibits several differences, as follows: the ninth tergite lacks the posteromedian projection, the posteromedian excavation of ninth sternite is deep and narrow, the gonocoxite is larger and lacks the anteromesal protuberance, the gonostylus is stouter and nearly straight, the parameres are slender and rod-like and the tip of the aedeagus is truncate.

Stilobezzia (*Acanthohelea*) *nigerrima* Ingram and Macfie

Figs. 10-15

Stilobezzia nigerrima Ingram and Macfie, 1931: 196 (female, Argentina).

Stilobezzia (*Neostilobezzia*) *nigerrima*: Wirth, 1974: 43 (catalogue of Neotropical species).

Stilobezzia (*Acanthohelea*) *nigerrima*: Spinelli and Wirth, 1993: 51 (in list; Argentina); Borkent and Wirth, 1997: 233 (catalogue of World species); Borkent and Spinelli, 2000: 52 (catalogue of Neotropical species).

Diagnosis.— A dark brown species of the subgenus *Stilobezzia* (*Acanthohelea*) distinguished by the following combination of characters: scutum uniformly dark brown; scutellum with 5 setae and 2-3 smaller hairs; cubital fork slightly distad to beginning of r-m crossvein; posteromedian excavation of male sternite 9 deep and narrow.

Redescription of female.— Head dark brown. Eyes separated for length of 1/2 ommatidia. Flagellum (Fig. 10) entirely dark brown; flagellomeres 2-8 short, 9 vasiform, 10-13 elongated; antennal ratio 1.34 (1.17-1.63, $n=3$). Palpus (Fig. 11) brown; third segment with subapical shallow sensory pit; PR 2.33 (2.00-2.50, $n=3$). Mandible with 7 ($n=3$) teeth.

Thorax. Scutum uniformly dark brown; scutellum dark brown, with 5 setae, 2-3 smaller hairs; postscutellum dark brown. Legs dark brown, hindleg darker; extreme base of fore and midfemora slightly paler, hind tibial comb with 8 spines;

tarsomere 1 of midleg with basal spine, tarsomeres 1-3 in all legs with pair of apical spines; ventral palisade setae conspicuous on tarsomeres 1-3 of hindleg; prothoracic TR 1.87 (1.75-2.00, $n=2$), mesothoracic TR 2.25 (2.11-2.40, $n=2$), metathoracic TR 2.12 (2.10-2.14, $n=2$); claws large with basal inner tooth. Wing (Fig. 12) length 1.25 (1.22-1.29, $n=3$) mm; width 0.50 (0.49-0.52, $n=3$) mm; CR 0.71 (0.69-0.72, $n=3$); membrane slightly infuscated; second radial cell 2.4 times longer than first; cubital fork slightly distad to beginning of r-m crossvein; macrotrichia on costa, R_1 , R_2 , R_3 , M_1 and M_2 , marginal on r_3 , few on m_1 and m_2 . Halter withish.

Abdomen. (Fig. 13). Dark brown; anterior margin of sternite 8 convex, lateral margins convergent, distal margin deeply notched; sclerites of sternite 9 sinuate each with inner margin sclerotized, sternite 10 stout, elongate with 4 pairs of setae; cerci stout, tip rounded. Two ovoid spermathecae with short necks, measuring 0.072 by 0.048 mm, 0.060 by 0.046 mm; rudimentary third present.

Description of male.— Similar to female with usual sexual differences. Flagellum with plume moderately developed, flagellomeres 1-10 as in Fig. 14, 11-13 elongated, collapsed in the available material; scutellum with 8 setae; prothoracic TR 1.79 (1.71-1.87, $n=2$), mesothoracic TR 2.325 (2.25-2.40, $n=2$), metathoracic TR 2.00 ($n=2$); wing length 1.23 (1.18-1.29, $n=2$) mm; width 0.41 (0.40-0.43, $n=2$) mm; CR 0.66 (0.63-0.69, $n=2$); one macrotrichia on R_3 ; second radial cell twice longer than first. Genitalia (Fig. 15): tergite 9 short, progressively narrowing, posterior margin rounded; cerci short; sternite 9 short, 3 times wider than long with narrow, deep posteromedial excavation. Gonocoxite stout 1.3 times longer than greatest breadth; gonostylus stout, slightly curved at proximal 1/3 of its length, spoon-like tip. Parameres separate, lightly sclerotized, subparallel, basal apodemes strong, posteromedian process rods like, tip blunt. Aedeagus represented by two convergent, almost straight, slender sclerites, basal arms recurved, tip truncate.

Distribution.— Argentina (west of Rio Negro province), Chile (Ñuble, Valdivia).

Specimens examined.— Argentina, Río Negro, Bariloche, 1-XII-1926, P. and M. Edwards, female holotype (BMNH); Chile, Nuble, 40 km E San Carlos, 23-XII-1950, Ross and Michelbacher, 1 male (MLP); Valdivia, Isla Teja, 1-XII-1984, J. A. Downes, 1 male, 1 female, swept net (CNC); same data except 12-XII-1984, 1 female (CNC).

Discussion.— Males and females were collected at the same locality and date in Isla Teja, Valdivia, Chile.

Characters for distinguishing *Stilobezzia* (*Acanthohelea*) *nigerrima* from its similar congener *S. (A.) curvistyla* may be found in the discussion under the later species.

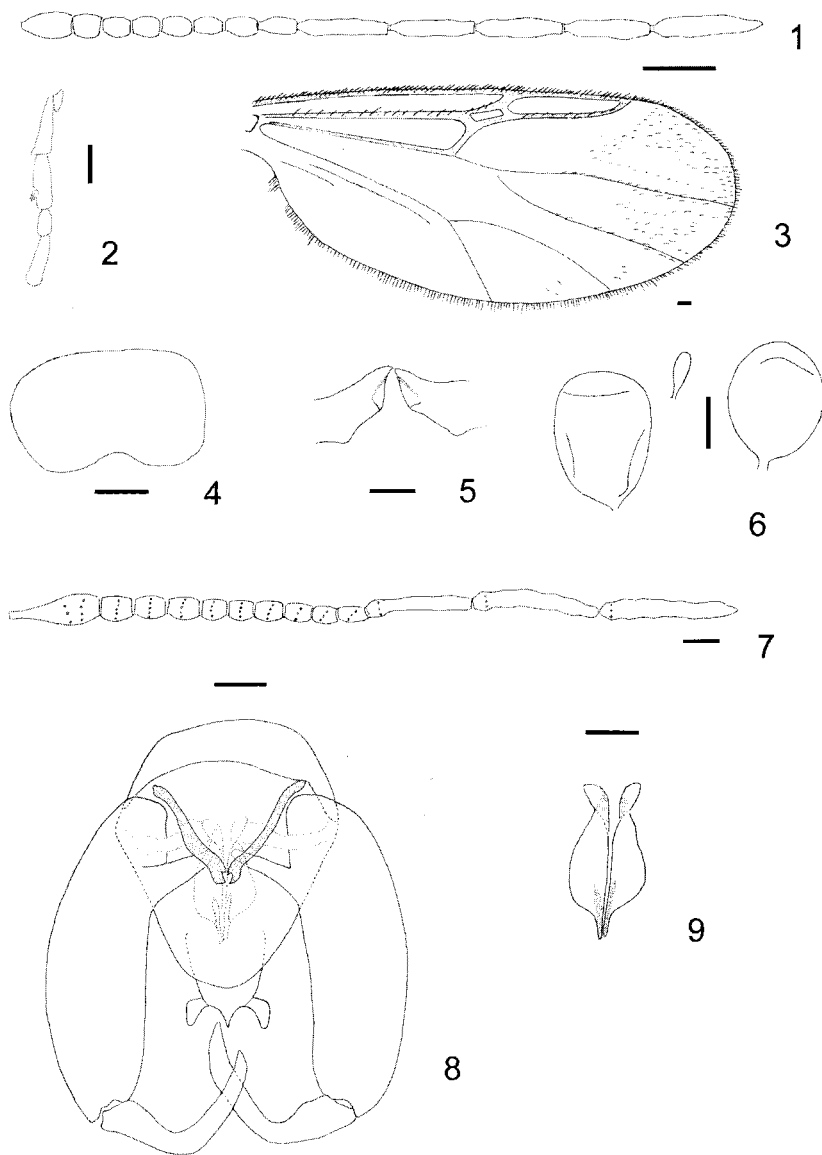
This is the first record of *S. (A.) nigerrima* from Chile, and the first description of the male of this species.

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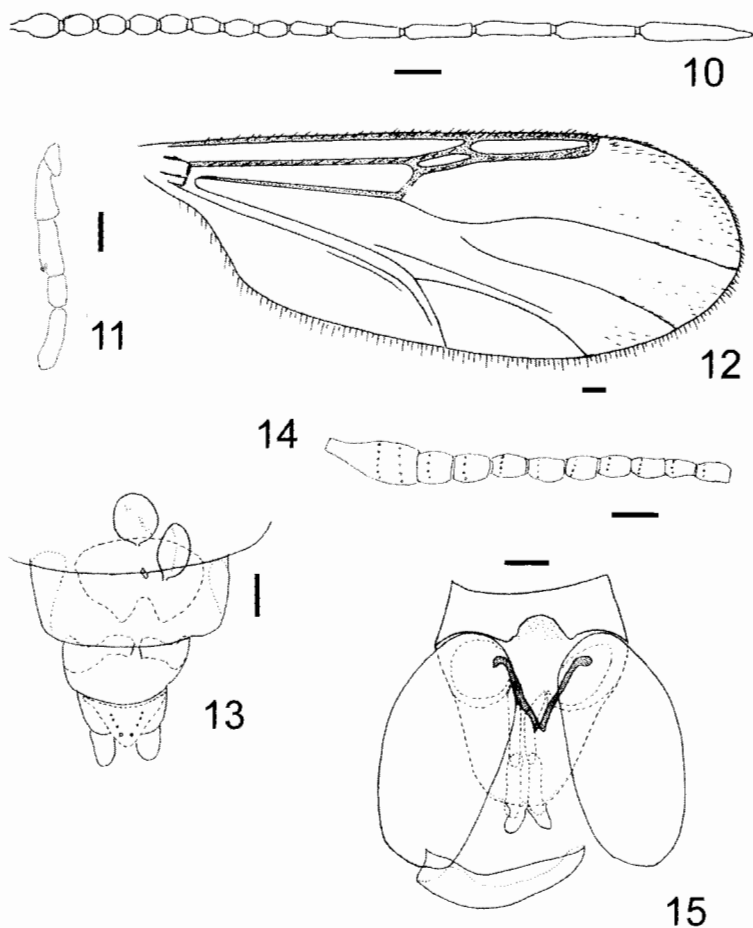
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Figs. 1-9. *Stilobezzia curvistyla*. 1-6, female; 7-9, male. 1, 7, flagellum; 2, palpus; 3, wing; 4, esternite 8; 5, esternite 9; 6, spermathecae; 8, genitalia; 9, parameres.



Figs. 10-15. *Stilobezzia nigerrima*. 10-13, female; 14-15, male. 10, flagellum; 11, palpus; 12, wing; 13, tip of abdomen; 14, flagellomeres 1-10. 15, genitalia.