

Two new cave-dwelling Prionoglarididae from Venezuela and Namibia (Psocodea: 'Psocoptera': Trogiomorpha)

Charles LIENHARD¹, Otakar HOLUŠA² & Guiseppe GRAFITTI³

¹Muséum d'histoire naturelle, c. p. 6434, CH-1211 Genève 6, Switzerland.

Corresponding author. E-mail: charleslienhard@bluewin.ch

²Department of Forest Protection and Game Management, Faculty of Forestry and Wood Technology, Mendel University in Brno, Zemědělská 3, CZ-613 00 Brno, Czech Republic. E-mail: holusao@email.cz

³Dipartimento di Zoologia e Genetica Evoluzionistica dell'Università di Sassari (External collaborator). Via dei Navigatori 7, I-07100 Sassari, Sardinia, Italy. E-mail: giuseppe.grafitti@tiscali.it

Two new cave-dwelling Prionoglarididae from Venezuela and Namibia (Psocodea: 'Psocoptera': Trogiomorpha). - The new genus *Speleopsocus* Lienhard gen. n. is described for a strongly cave-adapted (troglobite) new species from Venezuela, *Speleopsocus chimanta* Lienhard sp. n. This is the first New World representative of the subfamily Prionoglaridinae. A special structure on the foretarsus of this species is described and interpreted as an antenna cleaner. The new species *Sensitibilla etosha* Lienhard & Holuša sp. n., belonging to the subfamily Speleketorinae, is described from a cave in Namibia. This is the fourth species known of this genus which is endemic to southern Africa.

Keywords: New genus - new species - cave fauna - troglobite - antenna cleaner - living fossils.

INTRODUCTION

Within the order Psocodea (*sensu* Yoshizawa & Johnson, 2006) the 'Psocoptera' family Prionoglarididae belongs to the basal suborder Trogiomorpha and has recently been placed in an infraorder of its own, the Prionoglaridetae (see Yoshizawa *et al.*, 2006). Due to their basal position within Trogiomorpha and their similarity to fossils of this suborder, based on a plesiomorphic wing venation, the extant prionoglaridids are considered as "living fossils" (Lienhard, 2007). The family has been subdivided into two subfamilies by Lienhard (2004), Prionoglaridinae and Speleketorinae. The nominate subfamily contains the Palaearctic genus *Prionoglaris* Enderlein (3 species; see Lienhard & Smithers, 2002) and the Oriental genus *Siamoglaris* Lienhard (monotypic; see Lienhard, 2004). The subfamily Speleketorinae has been subdivided into two tribes by Lienhard (2007), the Speleketorini, containing the Nearctic genus *Speleketor* Gurney (3 species; see Lienhard & Smithers, 2002), and the Sensitibillini, containing the Aethiopian genera *Sensitibilla* Lienhard (3 species; see Lienhard, 2007) and *Afrotrogl*a Lienhard (3 species; see Lienhard, 2007). Most of the previously known

prionoglaridids live in caves or similar habitats. However, all of them are macropterous, well pigmented and have fully developed compound eyes (see Fig. 4). Due to this absence of morphological adaptations to cave life, none of these species can be considered as a troglobite, i. e. an obligate inhabitant of caves (Torre-Bueno, 1989).

In the following, a strongly cave-adapted species is described from Venezuela, based on a single female collected by an Italian expedition to the Chimanta Tepuy massif in February 2009 (see: <http://www.laventa.it/eng/catalog/projects/tepui/chimanta-tepuy-2009.html>). The species is apterous and unpigmented, its eyes are reduced to one single ommatidium and the antennae are extremely long. Apically on the first tarsomere of the forelegs an excavation and a spur-shaped process are present, which can be interpreted as an antenna cleaner (Torre-Bueno, 1989). Never before has a similar structure been observed in Psocoptera. A new genus within the subfamily Prionoglaridinae is here established for this species.

Due to the collecting effort of the second author we are also able to describe here both sexes of an interesting new species of the genus *Sensitibilla* from Namibia, which gives us a better understanding of homologies in phallosome structures of the tribe Sensitibillini.

MATERIAL AND METHODS

Dissection and slide-mounting followed the methods described by Lienhard (1998). The material examined is deposited in the collections of the Muséum d'histoire naturelle, Geneva, Switzerland (MHNG) and of the Faculty of Agriculture, Systematic Entomology, Hokkaido University, Sapporo, Japan (SEHU), and in the private collection of Otakar Holuša (Frýdek-Místek, Czech Republic).

The following abbreviations are used in the descriptions: BL = body length (in alcohol); F = hindfemur (length); f1, f2, etc. = antennal flagellomeres (length); FW = forewing (length); HW = hindwing (length); IO/D = shortest distance between compound eyes divided by anteroposterior diameter of compound eye in dorsal view of head; P1-P4 = articles of maxillary palp; T = hindtibia (length); t1, t2, t3 = tarsomeres of hindtarsus (length, measured from condyle to condyle).

Bibliographical references of original taxa descriptions not given in the following can be found in Lienhard & Smithers (2002) and Lienhard (2007).

DESCRIPTIONS AND DISCUSSIONS

Speleopsocus Lienhard gen. n.

DIAGNOSIS: Belonging to the subfamily Prionoglaridinae (as defined by Lienhard, 2004), but different from the other genera there by lacinia well-differentiated in adults (Fig. 2c, d) and mandibles similar to those of nymphs of *Prionoglaris*, i. e. not sickle-shaped and their base with a well-differentiated molar area (see Lienhard, 1988, 1998). Apterous, compound eye strongly reduced, ocelli absent. Bulging postclypeus, epistomal suture, epipharyngeal sclerite, cup-like cibarial sclerite, oval lingual sclerites and hypopharyngeal tubular filaments all not differentiated, thus hypopharynx much simplified compared to other Psocoptera. Head capsule slightly concave near base of anteclypeus (Fig. 1a) and behind antennal sockets, vertex dorsally narrowed in

anterior view (Fig. 2f). P2 without sensory spur. P3 much shorter than P4. Terminal article of labial palp elongate (about twice as long as wide) and slightly curved (Fig. 2g). Distal margin of labrum with a row of 5 placoids (Fig. 2j). Antenna very long (several times length of body), first flagellomere curved, other flagellomeres straight. Legs relatively long (compared to winged species of the family), lacking trichobothria, but tibiae and tarsi with some relatively long external hairs; foretarsus with a modification assumed to be an antenna cleaner (see description of the type species) situated apically on inner side of first tarsomere (Fig. 1e, f). Pretarsal claws of each tarsus slightly asymmetrical (Fig. 1c, d), bearing a pointed basal process and lacking a preapical tooth; anterior claw of each tarsus partly membranous and with a short subbasal hair on inner side. Hindcoxa lacking Pearman's organ, fore- and midcoxa without prominent hyaline tubercle on inner side. Female terminalia (Fig. 3): paraproct lacking anal spine; only external gonapophysis well differentiated, ovals spindle-shaped, uniformly pilose; subgenital plate simple, membranous, its apical lobe broadly triangular; spermapore simple, spermathecal duct short and almost straight, wall of spermathecal sac with an extensive glandular area.

TYPE SPECIES: *Speleopsocus chimanta* Lienhard sp. n.

ETYMOLOGY: The name is masculine in gender and refers to the cave adaptations of this psocid (from Latin "spelaeum" = cave).

DISCUSSION: See discussion of the type species.

***Speleopsocus chimanta* Lienhard sp. n.**

Figs 1-3

TYPE MATERIAL: MHNG, ♀ holotype (on 3 microscopical slides, MHNG 8045), from south eastern Venezuela, Chimanta massif, Churi tepuy, cave Cueva Auchimpe, 11.ii.2009, leg. C. Conca.

DESCRIPTION: *Female* (male unknown): See diagnosis of the genus, with the following additions. Body almost unpigmented, white, with light brown mandibles. Each compound eye reduced to one minute flat ommatidium (its diameter about 15 μm), underlied by a small black pigment patch (Fig. 2e, f). Edge of vertex regularly rounded, vertical and frontal sutures distinct (Fig. 2f). Both antennae heavily damaged, intact antenna probably several times longer than body (extrapolated from length of remaining flagellomeres; see Measurements); flagellomeres with somewhat irregular annular sculpture (Fig. 1g). Scape about twice as long as pedicel (Fig. 1b), obliquely inserted in antennal socket, thus antenna directed backwards in resting position, passing over slightly concave area of vertex posteriorly to antennal socket. Lacinial tip deeply forked, outer tine longer than inner tine, slightly bidenticulate and characteristically hooked due to the presence of an antero-internally directed subapical prolongation of the external denticle (Fig. 2c, d, f). Maxillary palp not particularly long, P4 bearing a globose thin-walled sensillum slightly distally of the middle (Fig. 2a, b). Hypopharynx as in Fig. 2h, its membranous distal half similar to nymphal hypopharynx of *Prionoglaris*, its sclerotized basal half similar to adult hypopharynx of *Prionoglaris* (see Lienhard, 1998: fig. 39a); hypopharyngeal brush reduced (only some small tubercles present distally of subrectangular hypopharyngeal "window"). Mandibles each with a small preapical tooth (Fig. 2i). Anteclypeus well developed;

labrum somewhat bulged in middle, slightly keel-shaped (Fig. 1a), its distal margin with some stout setae and with 5 small and simple placoids medially (Fig. 2j) (*Note*: In other Prionoglaridinae each placoid usually contains a very short conical sensillum, but these sensilla are not visible in the present specimen). Labium as in Fig. 2g, distal segment of the 2-segmented palp bearing a thin-walled sensillum on outer side. Prothorax better developed than meso- and metathorax (Fig. 1a), forefemur thicker than other femora. General pilosity of body, antenna, maxillary palp and legs short and sparse, except for numerous longer erect hairs on outer side of tibiae and tarsi. Forefemur lacking longitudinal row of articulated spines, no internal or apical spines present on tibiae and tarsi. Inner side of apico-internal spur-shaped process of first article of foretarsus and excavation at its base densely covered with fine but relatively long microtrichia (Fig. 1f); width of excavation corresponding to width of antennal flagellum (compare Fig. 1f and Fig. 1g), suggesting the function of this structure as an antenna cleaner, by forming an opening through which the very long and thin antenna may be drawn (similar to the foreleg structure of adult Hymenoptera called "antenna cleaner" by Torre-Bueno, 1989); no such structure present on mid- and hindtarsus. Posterior claw of each pretarsus simple, weakly but regularly sclerotized (Fig. 1c), somewhat smaller than anterior claw, the latter partly membranous, with a slightly sclerotized longitudinal ridge (fold?) on inner side and with a minute hair near base of basal process (Fig. 1d). Surface of both claws largely covered with fine microtrichia.

Female terminalia: Epiproct with a pair of apically enlarged truncate setae in distal half, one such seta also present near posterior margin of paraproct; paraproctal sense cushion not differentiated (Fig. 3a). Genitalia (Fig. 3b, c): External gonapophysis articulated at antero-ventral angle of clunium; apical lobe of subgenital plate slightly covering base of gonapophyses; membranous zone behind spermapore with a small sclerotized patch and a weakly sclerotized longitudinal zone; spermathecal duct with a characteristic transition zone leading to wall of spermathecal sac; spermatheca oval, almost half of its surface covered by a thickened glandular area (see dotted zone in Fig. 3c) bearing numerous volcano-shaped glandular papillae. Spermatheca containing several sperm packets (shape of spermatophores not recognizable).

MEASUREMENTS: *Female holotype*: BL = 2.3 mm; F = 1050 μ m; T = 1340 μ m; t1 = 760 μ m; t2 = 243 μ m; t3 = 204 μ m; flagellomeres (right/left): f1 = 1.6/1.7 mm; f2 = 2.0/2.2 mm; f3 = 1.4/- mm. – *Note*: The intact f1 and f2, which are present in both incomplete antennae, are very similar in length. This indicates that the antennae of this specimen were probably not subjected to significant regenerative length growth after accidental partial antennal amputation during nymphal life. Such regenerative length growth is often observed in the suborders Trogiomorpha and Troctomorpha, resulting in strongly asymmetric antennae (see Seeger, 1975; compare also with the measurements of the following species, where such a regeneration probably did occur). The combined length of the three basal flagellomeres is already more than twice the body length. Thus the intact antenna, with probably at least 10 segments (see Lienhard, 2004: 870), is expected to be several times longer than the body.

ETYMOLOGY: The specific epithet, a noun in apposition, refers to the type locality situated in the Chimanta massif.

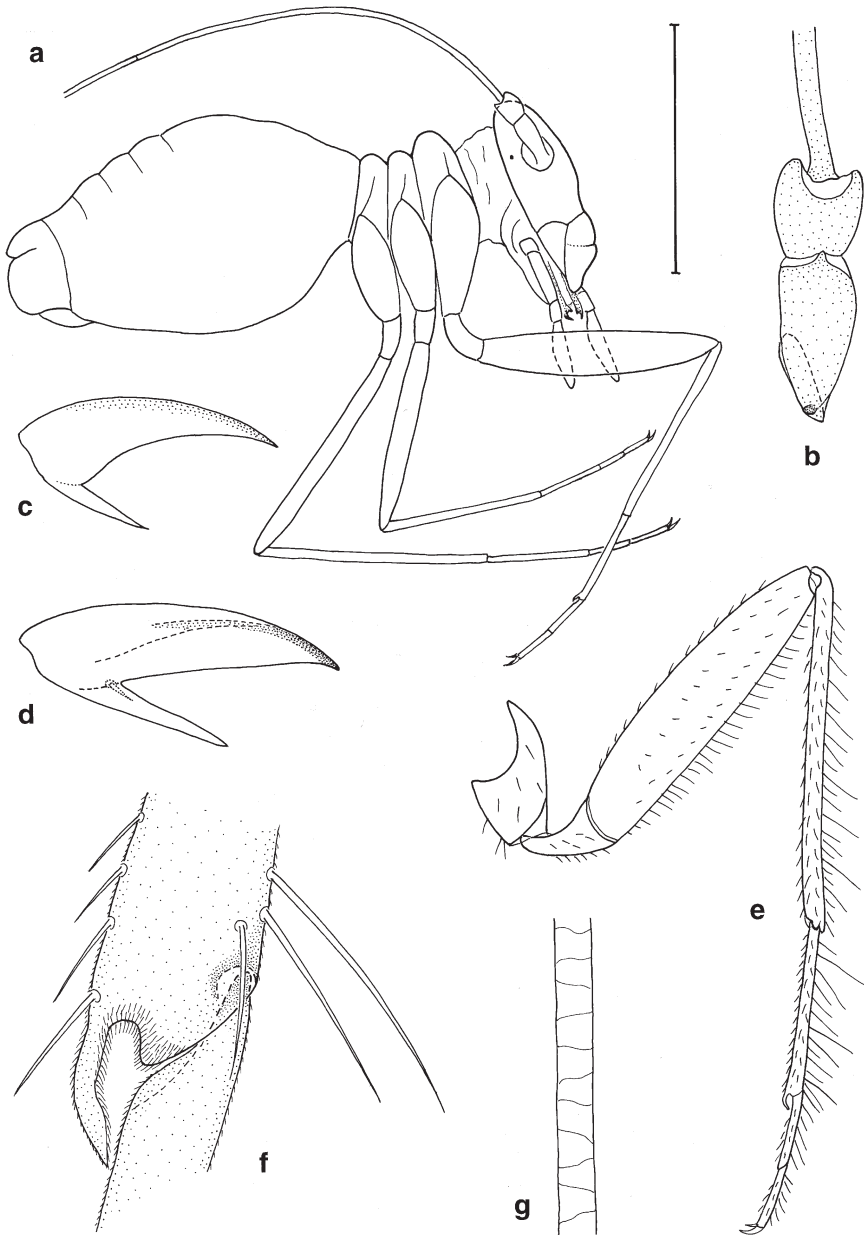


FIG. 1

Speleopsocus chimanta Lienhard gen. n., sp. n., female holotype: (a) Habitus, lateral view; antennal flagellum only shown up to basal fifth of f2 (scale: 1 mm). (b) Scape, pedicel and basal part of first flagellomere. (c) Posterior claw of foretarsus, anterior (= internal) view. (d) Anterior claw of foretarsus, anterior (= external) view. (e) Foreleg. (f) Foretarsus: base of second segment and apex of first segment with antenna cleaner (see also Fig. 1e and text). (g) Part of third antennal flagellomere (same magnification as in Fig. 1f).

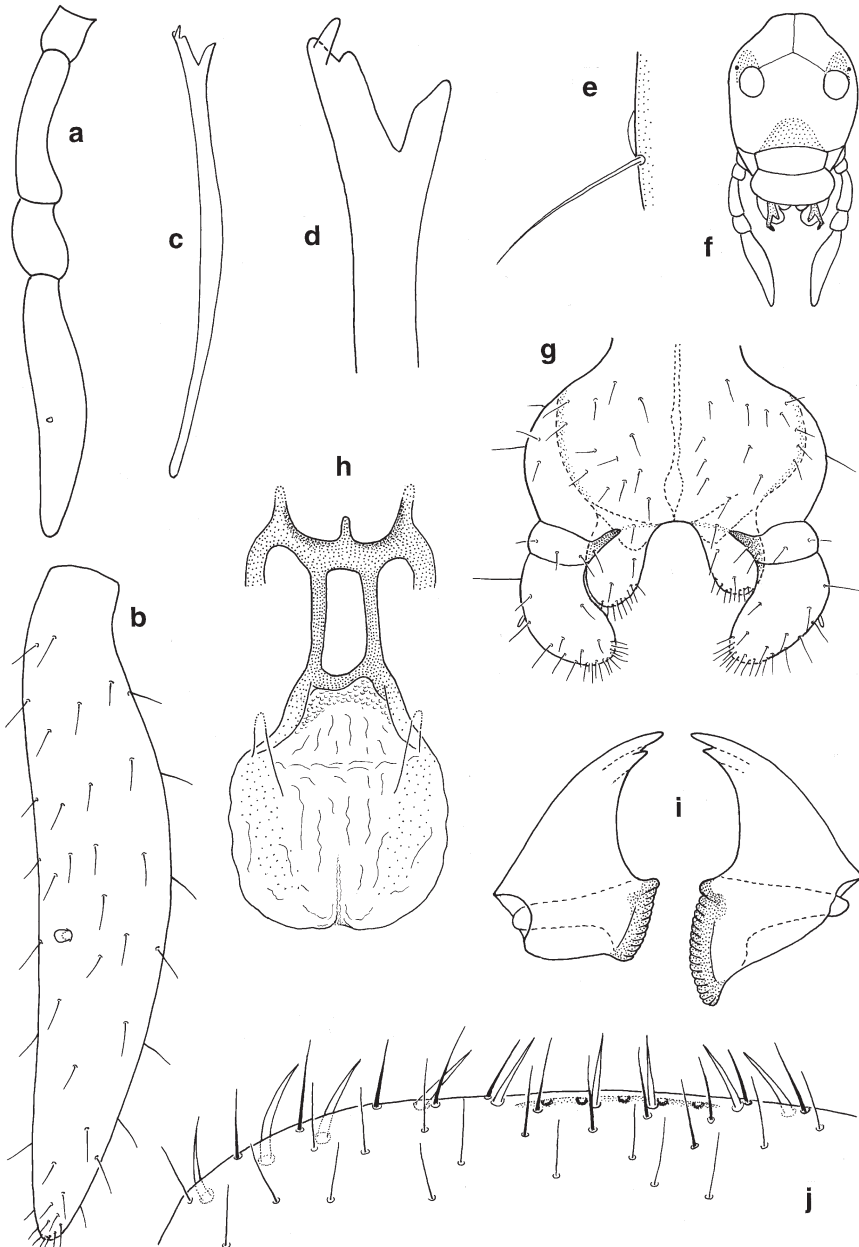


FIG. 2

Speleopsocus chimanta Lienhard gen. n., sp. n., female holotype: (a) Maxillary palp with P4-sensillum (general pilosity not shown). (b) P4 with globular sensillum. (c) Lacinia. (d) Tip of lacinia. (e) Left eye with subocular seta. (f) Head, anterior view, without antennae (dotted surfaces: laciniae and concave parts of head capsule). (g) Labium, posterior view. (h) Hypopharynx. (i) Mandibles, anterior view. (j) Median and left distal margin of labrum, anterior view.

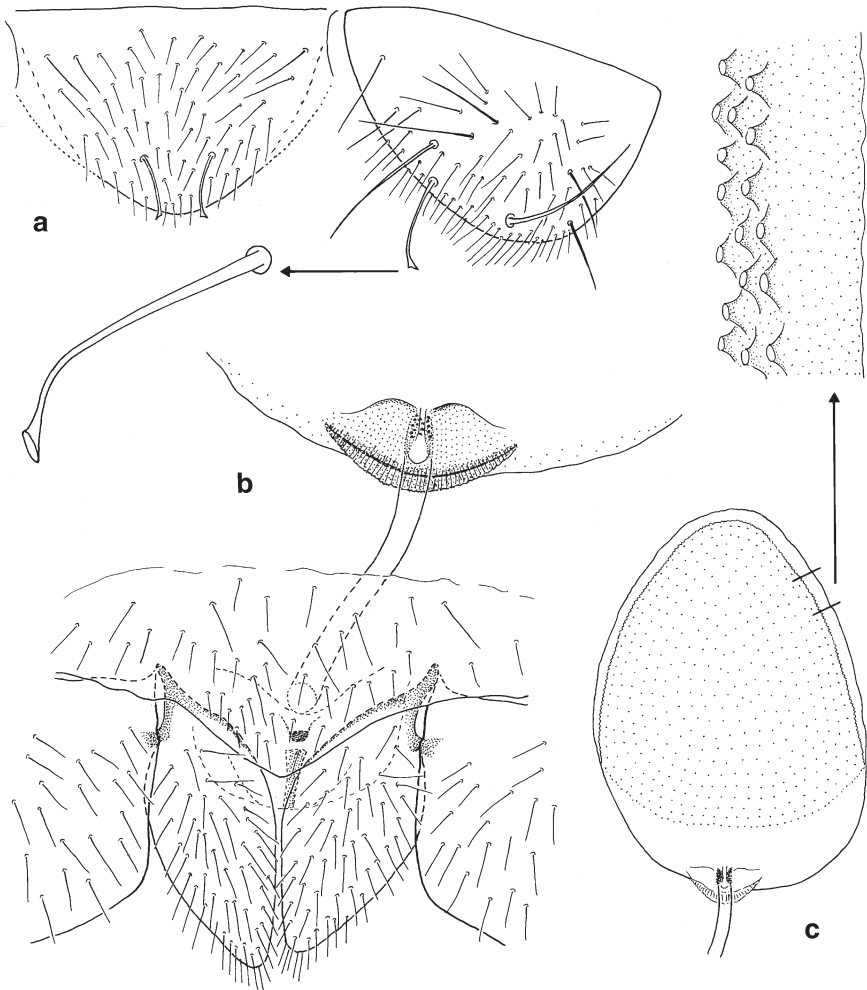


FIG. 3

Speleopsocus chimanta Lienhard gen. n., sp. n., female holotype, terminalia: (a) Epiproct and right paraproct, with detail of apically enlarged truncate seta of paraproct. (b) Genitalia: ovipositor valvulae with ventrolateral parts of clunium, subgenital plate, spermapore and spermathecal duct and its transition area leading to spermathecal wall. (c) Spermatheca, view of side with thickened glandular area (dotted zone) and detail with glandular pores.

DISCUSSION: *Speleopsocus chimanta* is characterized by several autapomorphies, mostly related to cave life: aptery, lack of pigmentation, almost complete reduction of compound eye, relatively long legs, extremely long antenna, presence of a hypothetical antenna cleaner on foretarsus. Therefore *Speleopsocus chimanta* is the first known troglobite in the family Prionoglarididae and one of the rare examples of troglobites known in Psocoptera. Other examples are the completely anophthalmous sphaeropsocid *Sphaeropsocopsis myrtleae* Lienhard & Ashmole from St Helena Island

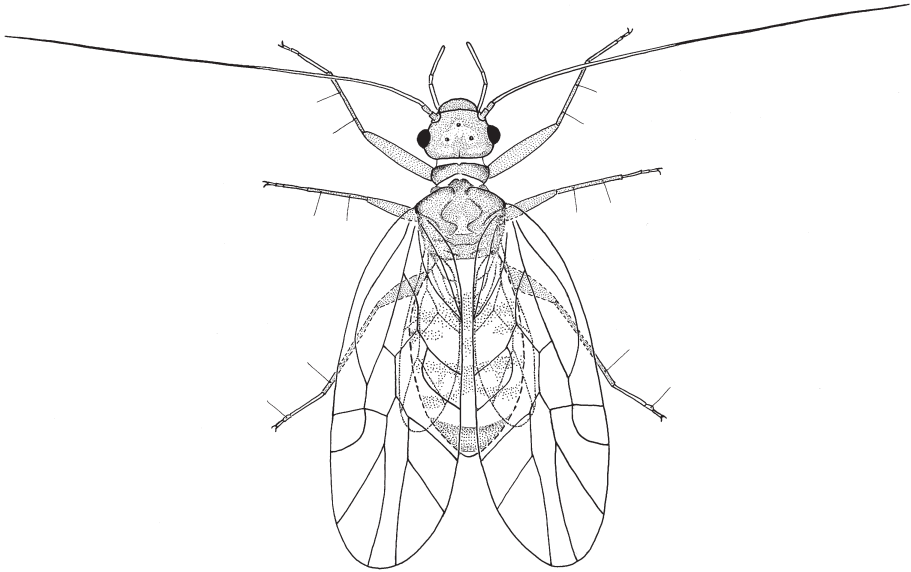


FIG. 4

Sensitibilla strinatii Lienhard, female: Habitus, dorsal view; pilosity, except for leg trichobothria, not shown (body length 2.5 mm).

and the long-legged and almost unpigmented liposcelidid *Troglotroctes ashmoleorum* Lienhard from Ascension Island, both belonging to the suborder Troctomorpha (Lienhard, 1996; Lienhard & Ashmole, 1999; Asmole & Ashmole, 2000).

At first glance these morphological adaptations to cave life, comprising several reductions, and the absence of any information on male genitalia seem to make it difficult to place *Speleopsocus* within Psocodea. However, its structure of the head capsule, the mouthparts and the pretarsal claws are clearly synapomorphic for this genus and the prionoglaridid genera *Prionoglaris* and *Siamoglaris*, which constitute the subfamily Prionoglaridinae (see Lienhard, 2004 and the above generic diagnosis). *Prionoglaris* and *Siamoglaris* are characterized by the synapomorphic transformation of hypopharynx and mandibles during the adult moult and by the almost complete loss of the laciniae which are normally developed in nymphs. In the adult stage of *Speleopsocus* normal laciniae and mandibles are present. This could be interpreted as a plesiomorphic character state but also as an autapomorphic neoteny, correlated with the adaptive reduction of wings and eyes. The fact that the basal part of the hypopharynx of *Speleopsocus* is very similar to the corresponding part in the adults of other Prionoglaridinae (see Lienhard, 1998: fig. 39aA and Lienhard, 2004: fig. 9) and that its distal part is almost identical to the corresponding part in their nymphs (see Lienhard, 1998: fig. 39aL) suggests that some neotenic development may be involved in *Speleopsocus*. In this case the above mentioned transformation of mouth parts, with loss of laciniae in adult stage, could not support a sister group relationship between *Speleopsocus* and the Old World genera *Prionoglaris* and *Siamoglaris*.

The asymmetrical structure of the pretarsal claws in *Prionoglaris* (see Lienhard, 1998: fig. 39e, f) and *Siamoglaris* (see Lienhard, 2004: figs 5, 6) can also be considered as a synapomorphy of Prionoglaridinae, including *Speleopsocus*: all claws lacking preapical tooth; posterior claw of each leg simple, with a relatively short basal process; anterior claw of each leg with an internal hair near base and with some membranous structures (the latter inconspicuous in *Speleopsocus*, developed as an internal membranous vesicle in *Prionoglaris*, enveloping almost the whole anterior claw in *Siamoglaris*).

We hope to be able to complete the molecular systematics of Trogiomorpha (see Yoshizawa *et al.*, 2006) in the near future by adding DNA data for *Speleopsocus*. Only such an analysis (or perhaps also the discovery of the male of *Speleopsocus*) could provide a better understanding of the phylogenetic relationships between the genera of the subfamily Prionoglaridinae.

Sensitibilla Lienhard

Lienhard, 2000: 872. Type species: *Sensitibilla strinatii* Lienhard, 2000: 874 (see Fig. 4). Other species included: *S. brandbergensis* Lienhard, 2007: 459; *S. roessin-gensis* Lienhard, 2007: 463; *S. etosha* Lienhard & Holuša sp. n.

Sensitibilla etosha Lienhard & Holuša sp. n.

Fig. 5

TYPE MATERIAL: MHNG, ♂ holotype (on 2 microscopical slides, MHNG 8034), from northern Namibia, near Outjo, in cave, 29.iv.2007, leg. O. Holuša. – MHNG, paratypes, same data as for holotype: ♀ allotype (on 2 microscopical slides, MHNG 8033); 1 ♀ lacking head (on 1 microscopical slide MHNG 8035, rest in alcohol); 1 nymph lacking abdomen (on 1 microscopical slide MHNG 8036); 2 ♂, 2 nymphs (in alcohol). – SEHU, paratypes, same data as for holotype: 3 nymphs (for DNA extraction). – O. Holuša collection, paratypes, same data as for holotype: 1 ♂, 1 ♀, 1 nymph (in alcohol).

DESCRIPTION: *Male and female*: Habitus very similar to that of *Sensitibilla strinatii* (see Fig. 4). General colouration yellowish white to light brown. Compound eye black. Legs, antenna and terminalia very light brown. Wings transparent, unmarked, veins brown, pterostigma very slightly opaque. Abdomen yellowish, 5-6 tergites dorsally and laterally each with a transversal band of red-brown hypodermal pigment, anterior half of some of these bands dorsally subdivided into several patches.

General morphology as described for *S. strinatii* (see Lienhard, 2000, 2007). Head capsule slightly concave behind ocelli, compound eye relatively small (IO/D: ♂ holotype 2.7, ♀ allotype 2.8). Antenna thin and apparently very long (extrapolated from lengths of basal flagellomeres, see Measurements; all antennae damaged in the specimens available). P4 with two thin-walled conical sensilla in apical half, the more basal sensillum thicker than the distal one and slightly bilobate (Fig. 5c). Wing venation typical for the genus (see Lienhard, 2000, 2007), forewings of all specimens more or less damaged. Spine-like setae on tibiae and tarsi with distinctly rounded tips. Pearman's organ of hindcoxa not differentiated, both midcoxae with a distinctly prominent hyaline tubercle on inner side, forecoxae lacking such tubercles. Trichobothrial pattern on legs typical for Sensitibillini (see Fig. 4 and Lienhard, 2000, 2007).

Female terminalia (Fig. 5d, e): Epiproct and paraproct as in *S. strinatii* (see Lienhard, 2000: fig. 29), circular field of dense and long pilosity on paraproct well

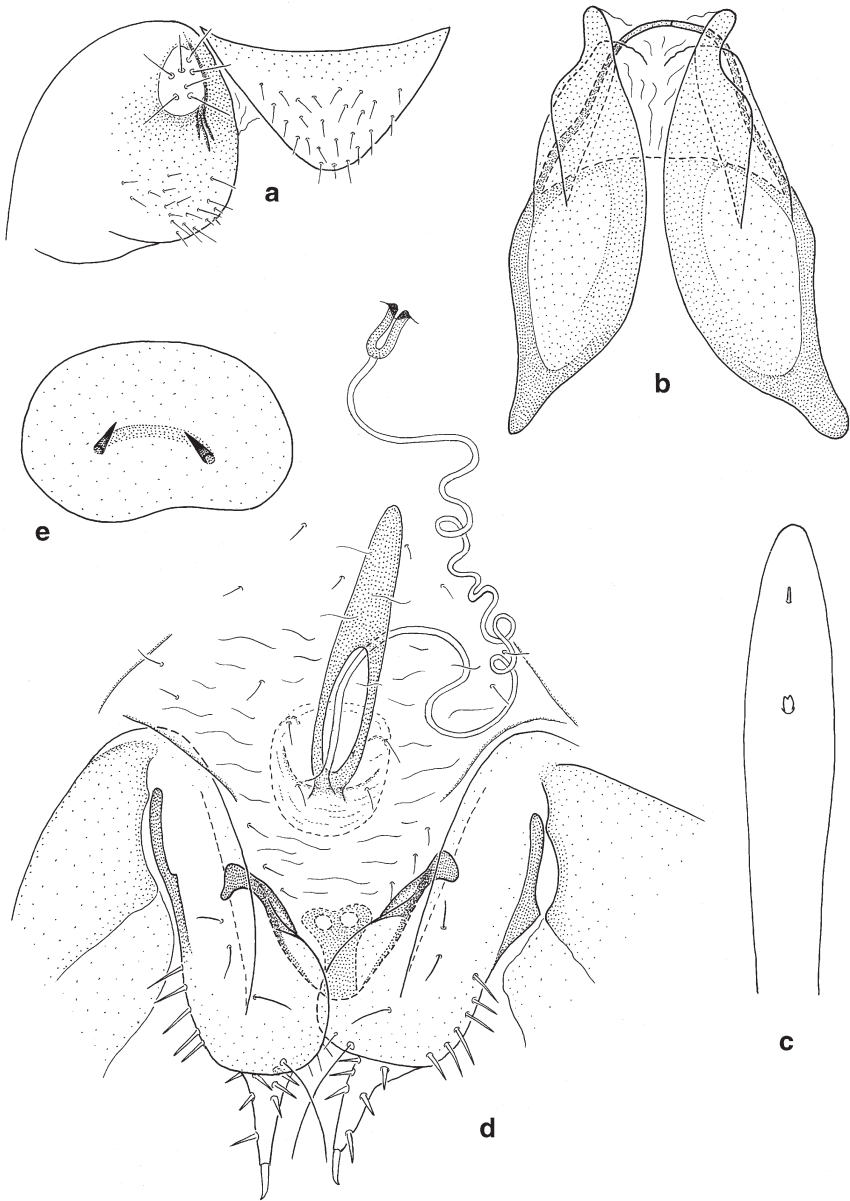


FIG. 5

Sensitibilla etosha Lienhard & Holuša sp. n.: (a) Male, epiproct and left paraproct. (b) Male, phallosome in ventral view. (c) Female, apical half of P4 with thin-walled conical sensilla (general pilosity not shown). (d) Female, genitalia in ventral view (slightly asymmetrical due to slide mounting): ovipositor valvulae with ventrolateral parts of clunium, subgenital plate and, observed in situ through ventral membranes, spermapore and spermathecal duct with accessory structures. (e) Female, kidney-shaped area of spermathecal wall (same magnification as in Fig. 5d).

developed. Posterior part of subgenital plate triangular, with rounded apex, almost completely covered by basal parts of ovipositor valvulae, the latter touching each other medially. Subgenital plate mostly membranous but its apical lobe dorsally with a characteristic mediobasal longitudinal sclerotization (bearing two hyaline "holes" in its broadened anterior part) and two strongly sclerotized lateral rims in zone of fusion with ovipositor valvulae. Ovipositor valvula (= external gonapophysis) laterally articulated near anteroventral angle of clunium, medially fused with subgenital plate in a sclerotized rim; anterior margin of clunium prolonged into a broad membranous ventral fold on valvula. Distal process of ovipositor valvula with a claw-like apical spine, one external spine-like seta in distal half and several such setae in basal half. Basal part of valvula with an external row of several setae and a particularly long ventral hair near rounded posterobasal margin; dorsal pilosity (not shown in Fig. 5d) consisting of a transversal row of setae near base of distal process and some spine-like setae in basal half of this process. Spermatopore situated in a small membranous posteriorly rounded cap, spermathecal duct running through the eye of a simple needle-like accessory sclerite, duct relatively long and more or less curled, with a thickened transition zone leading to spermathecal wall. Spermathecal wall with a kidney-shaped, weakly sclerotized plate (its greatest width about 250 μm , i. e. approximately equal to length of needle-like spermatopore sclerite) situated near origin of duct. Kidney-shaped plate bearing a pair of heavily sclerotized teeth directed towards lumen of spermatheca and connected to each other by a narrow, slightly sclerotized band (in the female allotype one of these teeth only weakly developed). Spermatophores oval, short-necked (5 spermatophores full of sperm observed in the spermatheca of female paratype MHNG 8035).

Male terminalia (Fig. 5a, b): Epiproct, paraproct and hypandrium simple. Paraproct with a few short sclerotized ridges on posterior side of sense cushion. Phallosome with a pair of foliaceous sclerites, anteriorly divergent, much enlarged in middle, posteriorly each with an apically narrowed ventral lobe and a slender dorsal arm curved towards midline of phallosome. These arms fused medio-apically to form a broadly rounded aedeagal arch.

Nymph: As described by Lienhard (2000) for *S. strinatii*.

MEASUREMENTS: *Male holotype*: BL = 2.4 mm (somewhat expanded); FW (not measured, damaged); HW = 1.41 mm; F = 690 μm ; T = 1160 μm ; t1 = 414 μm ; t2 = 114 μm ; t3 = 150 μm ; flagellomeres (right/left): f1 = 680/620 μm ; f2 = 888/747 μm . – *Female allotype*: BL = 2.0 mm; FW (not measured, damaged); HW = 1.42 mm; F = 677 μm ; T = 1156 μm ; t1 = 375 μm ; t2 = 112 μm ; t3 = 148 μm ; flagellomeres (right/left): f1 = 592/846 μm ; f2 = 635/1142 μm ; f3 = 606/– μm . – *Note*: In both specimens the basal flagellomeres of the damaged right/left antennae are very different in length. The lower values could correspond to the normal length of these articles in a probably 13-segmented intact antenna (see intact antenna of *S. strinatii* mentioned by Lienhard, 2000: 874 and 2007: 465). The higher values are probably due to regenerative length growth after accidental partial antennal amputation during nymphal life, as it often can be observed in the suborders Trogiomorpha and Troctomorpha (see Seeger, 1975).

ETYMOLOGY: The specific epithet, a noun in apposition, refers to the famous Etosha National Park situated not far from the type locality.

DISCUSSION: *S. etosha* is easy to distinguish from *S. brandbergensis* and *S. roessingensis* by the structure of the phallosome (see Lienhard, 2007: fig. 9d, f). The male of *S. strinatii* is not known. The female terminalia of the new species are similar to those of *S. brandbergensis*, but in the latter species the subgenital plate has a subacute apical lobe lacking the dorsal longitudinal sclerotization, and the kidney-shaped plate of the spermathecal wall is much larger than in the new species (its width being about twice the length of the needle-like spermapore sclerite, see Lienhard, 2007: fig. 8c). The female of *S. roessingensis* is not known. The female terminalia of *S. strinatii* differ from those of the new species by the following characters (see Lienhard, 2000: fig. 28): anterior part of subgenital plate with a bilateral-symmetrically sclerotized area connected to anteroventral angle of clunium; membranous posterior lobe of subgenital plate lacking dorsal longitudinal sclerotization; ovipositor valvula laterally articulated near posteroventral angle of clunium, anterior margin of clunium not prolonged into a broad ventral fold on valvula; distal process of ovipositor valvula with 3-4 spine-like setae in apical half in addition to the claw-like spine on its tip.

The phallosome of *S. etosha* is similar to that of *S. roessingensis* (see Lienhard, 2007: fig. 9f), therefore the genitalia of the unknown female of the latter species are probably similar to those of *S. etosha* and of the closely related *S. brandbergensis*. The genitalia of the female of *S. strinatii* are very different (see above). The new data support the decision of Lienhard (2007) to treat the unique male from the Roessing cave as belonging to a distinct species (*S. roessingensis*) and not as the still unknown male of *S. strinatii*.

In the previously known males of the genus *Sensitibilla* (see Lienhard, 2007: fig. 9d, f) the aedeagal arch of the phallosome is posteromedially interrupted (*S. roessingensis*) or strongly narrowed (*S. brandbergensis*). The presence of a broadly and regularly rounded aedeagal arch in *S. etosha* strongly suggests the homology of this structure with the simple arched phallosome in *Afrotrogla*, the second genus of the tribe Sensitibillini. This confirms the character polarity already postulated by Lienhard (2007): plesiomorphic state of phallosome structure in *Sensitibilla*, apomorphic simplification in *Afrotrogla*.

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