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The Neotropical species of the genera *Pseudespeson* LECOQ, 1994 and *Espeson* SCHAUFUSS, 1882

(Coleoptera: Staphylinidae: Osoriinae)

With 18 figures

ULRICH IRMLER

Summary

A review of the Neotropical species of the genera *Pseudespeson* LECOQ, 1994 and *Espeson* SCHAUFUSS, 1882 has been performed. Whereas no new species could be added to the genus *Pseudespeson* LECOQ, 1994, six new species were found in the genus *Espeson* SCHAUFUSS, 1882. These are: *E. adisi* n. sp., *E. dybasi* n. sp., *E. franiae* n. sp., *E. hermani* n. sp., *E. pecki* n. sp., and *E. simplex* n. sp. One species, *E. lenkoi* SCHEERPELTZ, 1970, is synonymised with *E. moratus* SCHAUFUSS, 1882. Thus, in total, 2 species of *Pseudespeson* LECOQ, 1994, and 13 species of *Espeson* SCHAUFUSS, 1882 are actually known from Central and South America including the West Indies.

Keywords

Osoriinae, *Espeson*, *Pseudespeson*, new species, Neotropics

Zusammenfassung

Eine Revision der neotropischen Arten der Gattungen *Pseudespeson* LECOQ, 1994 und *Espeson* SCHAUFUSS, 1882 wurde durchgeführt. Während für die Gattung *Pseudespeson* LECOQ, 1994 keine neue Art gefunden werden konnte, wurden für die Gattung *Espeson* SCHAUFUSS, 1882 sechs neue Arten beschrieben. Diese sind: *E. adisi* n. sp., *E. dybasi* n. sp., *E. franiae* n. sp., *E. hermani* n. sp., *E. pecki* n. sp., and *E. simplex* n. sp. Eine Art, *E. lenkoi* SCHEERPELTZ, 1970, wurde als neues Synonym zu *E. moratus* SCHAUFUSS, 1882 gestellt. Daher sind insgesamt zurzeit 13 Arten der Gattung *Espeson* SCHAUFUSS, 1882 vom Festland Zentral- und Südamerikas und von den Westindischen Inseln bekannt.

Schlüsselbegriffe

Osoriinae, *Espeson*, *Pseudespeson*, neue Arten, Neotropis

1 Introduction

The genus *Pseudespeson* was established by LECOQ (1994) on the basis of several species originally described in *Espeson* SCHAUFUSS, 1882. HERMAN (2001) placed the two genera into the tribe Thoracophorinae, subtribe Glyptomina. However, according to IRMLER (2010) a group of genera including *Pseudespeson* and *Espeson* attributed to the subtribes Glyptomina and Clavilispinia

showed no close relation. Regarding the aedeagus, a close relation can be stated between *Espeson* and *Pseudespeson*. In particular, the paramera are unique in the subfamily and show no relation to any other genera in the subfamily Osoriinae. Therefore, a closer relation to the other genera of Clavilispina or Glyptomina cannot be stated.

Due to the studies of LECOQ (1994) the species of the genus are distributed over the whole tropical regions from Central Africa to Indo-Malaysia and Central and South America. According to HERMAN (2001) 18 species have been described world wide in the genus *Espeson* SCHAUFUSS, 1882 and 12 species in the genus *Pseudespeson* LECOQ, 1994. In the Neotropics, *Pseudespeson* LECOQ, 1994 is represented by only two species. The genus is differentiated from the closely related genus *Espeson* by the following characters: front edge of mentum with comb, first abdominal segment anteriorly not narrowed, 4 tarsomeres and 8th antennomere smaller than 7th and the following antennomeres. The two species are minute between 1.9 and 2.4 mm and colouration varies between light yellow to brown. The shape is very similar between the two genera *Pseudespeson* and *Espeson* with strongly emarginate sides of pronotum and elytra wider than pronotum. From South America 11 species have been described including 3 species from the Galapagos islands and only 3 species from Africa, 1 from the Philippines, 1 from the Seychelles islands, and 1 from New Guinea. If the 3 species from the Galapagos islands are excluded, on the Central and South American mainland, 8 species have been described which is by far much more than in the other continents. As 6 species are newly described here and 1 species is synonymised, a total of 13 species is actually known from the Central and South American mainland including the West Indies. Descriptions of all new species from the Central and South American mainland are provided here and in addition also that of already described species, because most of the old descriptions are insufficient.

2 Material and methods

The material studied in this investigation is presently deposited in the following public museums and private collections:

AMNH	American Museum of Natural History, New York, U.S.A.
BMNH	The Natural History Museum, London, United Kingdom
HNMB	Hungarian National Museum, Budapest
IRSNB	Institut Royal des Sciences Naturelles de Belgique, Brussels, Belgium
KU	University of Kansas, Museum of Natural History
ZMHU	Zoologisches Museum der Humboldt-Universität, Berlin, Germany
NHMW	Naturhistorisches Museum, Wien, Austria
FMNH	Field Museum of Natural History, Chicago, U.S.A.
NMPC	National Museum, Museum of Natural History, Prague, Czech Republic
UFMT	Collections of the Universidade Federal do Mato Grosso
UIC	private collection of author, Plön, Germany
VAC	private collection of Volker Assing, Hannover, Germany

The photographs were taken using a Makroskop M 420 (Wild, Herbrugg) in combination with a digital camera Leica EC3. A set of 10 to 15 photos were taken and combined using the program CombineZ5 (HADLEY 2006). Length was measured in the middle of tagmata: head from clypeus to posterior edge, pronotum from anterior to posterior edge along midline, elytra from anterior edge at shoulders to posterior edge; width at the widest part of tagmata (head width includes eyes). In the measurement of total length, the abdominal intersegmental space is subtracted.

3 Results

Key to the species

1. Abdominal segment III as wide as segment IV, abdominal tergite VIII triangular with central tooth *Pseudespeson* LECOQ 2
- Abdominal segment III at base smaller than segment IV, abdominal tergite VIII triangular in females, but in males differing in shape, mostly without central tooth *Espeson* SCHAUFUSS 3
2. Larger, 2.5 mm long, temples behind eyes 0.5 times as long as eyes, pronotum deeply and densely punctate, distance between punctures 1/4 as wide as diameter of punctures (Fig. 1d) *P. crassulus* (FAUVEL, 1902)
- Smaller, 1.9 mm long, temples behind eyes nearly absent, punctation on pronotum finer and less deep, distance between punctures on average 0.5 times as wide as diameter of punctures (Fig. 2d) *P. nitens* (FAUVEL, 1902)
3. Disc of pronotum without impressions (Figs 16E, 17D) 4
- Disc of pronotum with impressions (Figs 17B) 7
4. Elytra longer than wide, punctation coarse, sides more or less parallel (Fig. 16E) *E. microphthalmus* FAUVEL, 1902
- Elytra wider than long, sides curved (Fig. 16B) 5
5. Larger species between 2.2 and 2.4 mm, penultimate antennomeres slightly wider than long, nearly quadrate (Fig. 13 b) *E. simplex* n. sp.
- Small species between 1.8 and 2.0 mm, penultimate antennomere distinctly wider than long (Figs 6 b, 10 b) 6
6. Temples smoothly rounded, pronotum narrower, only 1.2 times wider than long (Fig. 16A) *E. adisi* n. sp.
- Temples shortly parallel behind eyes; with nearly rectangular angle; pronotum wider; nearly 1.4 times wider than long (Fig. 16F) *E. nervermanni* BERNHAUER, 1942
7. Large species of 2.7 mm length *E. franiae* n. sp.
- Not longer than 2.3 mm 8
8. With a pair of impressions on both sides of the midline (Fig. 16C) *E. moratus* SCHAUFUSS, 1882
- With one or two impressions in the pronotal midline (Figs 16D, 17F) 9
9. Pronotum with two impressions in the midline (Fig. 16D) 10
- Pronotum with one impression in the midline (Fig. 17F) 13
10. Elytra distinctly wider than long; length-width ratio lower than 0.80 *E. pecki* n. sp.
- Elytra quadrate or length-width ratio at least 0.86 11
11. Elytra more sparsely punctate; distance between punctures on average as wide as diameter of punctures, 1.8 mm long (Fig. 18) 12

- Elytra more densely punctate; on average distance between punctures only half as wide as diameter of punctures (Fig. 16B), not longer than 1.6 mm *E. titschacki* BERNHAUER, 1941
- 12. Antennae longer than head and pronotum combined (Fig. 5b), anterior pronotal impression narrow and longitudinal (Fig. 16D) *E. euplectoides* FAUVEL, 1902
- Antennae only as long as head and pronotum combined (Fig. 8b), anterior pronotal impression wider oval (Fig. 18) *E. subtilis* BERNHAUER, 1910
- 13. Pronotal impression in the anterior half (Fig. 17F), elytra lighter red than head and pronotum *E. hermani* n. sp.
- Pronotal impression in the posterior half (Fig. 17B), elytra not lighter red than head and pronotum 14
- 14. Pronotal impression circular (Fig. 17B), elytra distinctly wider than pronotum, ratio between width of pronotum: elytra 0.6 *E. dybasi* n. sp.
- Pronotal impression drop-shaped (Fig. 17C), elytra less wider than pronotum, ratio between width of pronotum: elytra 0.7 *E. mexicanus* FAUVEL, 1902

Description of species

Pseudespeson crassulus (FAUVEL, 1902: 35) (Figs 1a-c)

Espeson crassulus FAUVEL, 1902: 35

Type material examined:

Guadeloupe: Trois Rivieres, 1 male, 3 females, detritus vegetaux, without further data (IRSNB, all syntypes).

Additional material examined:

Guadeloupe: 1 female without further data (NHMW); **St. Vincent:** Leeward side, 1 male, 1 female without further data, leg. H. H. Smith (NHMW); **St. Thomas:** 1 male without further data (NHMW).

Diagnosis:

The species is larger than *P. nitens* and eyes are remarkably smaller. Eyes are only 0.25 times longer than temples, while they are three times longer than temples in *P. nitens*. Additionally, punctuation on pronotum and elytra is denser and coarser than in *P. nitens*.

Description:

Length: 2.4 mm. *Colour:* dark yellow, antennae and legs lighter yellow.

Head: 0.30 mm wide, 0.48 mm long; eyes 0.25 times longer than temples; temples smoothly rounded; disc coarsely and densely punctate; distance between punctures 0.5 times as wide as diameter of punctures; on clypeus punctuation slightly sparser; surface shiny, with weak longitudinally reticulate microsculpture.

Antennae with 2nd and 3rd antennomere equal in length; 4th antennomere quadrate; the following ones wider than long and increasing in width; 8th antennomere less wide than 7th and 9th antennomere and distinctly shorter.

Pronotum: 0.30 mm long, 0.48 mm wide; distinctly emarginate in front of posterior edge; only half as wide as at anterior edge; coarsely and densely punctate; still coarser and denser punctate than on head; distance between punctures on average 0.25 times as wide as diameter of punctures; surface shiny, with weak irregular microsculpture.

Elytra: 0.50 mm long, 0.53 mm wide; with dense and deep punctation; distance between punctures similar as on pronotum; surface shiny, with weak irregular microsculpture; microsculpture slightly denser than on pronotum.

Abdomen with finer and sparser punctation than on elytra and microsculpture more distinct; thus, surface less shiny than elytra; laterally with long dark setae, tergite of last abdominal segment with distinct central tooth.

***Pseudespeson nitens* (FAUVEL, 1902: 36) (Figs 2a-d)**

Espeson nitens FAUVEL, 1902: 36

Type material examined:

Brazil: Brésil, without further data, 1 female, **Guadeloupe**: Base terre, without further data, 1 female (syntypes, IRSNB).

Additional material examined:

Peru: Madre de Dios, Pentiacolla Lodge, 5.5 km NW El Mirador Trail, Alto Madre de Dios River (12°30.10'S, 71°15.28'W), 500 m elevation, 23.-26.Oct.2000, 1 female, leg. R. Brooks, (PERU1B00 100), flight intercept trap (KU).

Diagnosis:

At present, only 2 species of the genus are known from the Neotropics. Therefore, the diagnosis given in *P. crassulus* informs about the differences between the two species.

Description:

Length: 2.0 mm. *Colour*: yellow, antennae and legs lighter yellow.

Head: 0.25 mm wide, 0.35 mm long; eyes large, 3 times longer than temples; temples with distinct angles; punctation distinct, but sparse and moderately fine; distance between punctures on average wider than diameter of punctures; surface shiny with weak and sparse microsculpture.

Antennae with 2nd and 3rd antennomere equal in length; 4th to 6th antennomeres not wider than preceding antennomeres; 4th and 5th antennomeres quadrate, 6th one shorter, wider than long; antennomeres 7 to 11 distinctly wider than preceding antennomeres; 7th antennomere quadrate, 8th distinctly shorter and smaller; the penultimate antennomeres wider than long.

Pronotum: 0.28 mm long, 0.38 mm wide; distinctly emarginate in front of posterior edge; 0.3 times as wide as at anterior angles; punctation slightly coarser and denser than on head, in particular on both sides of the midline; distance between punctures on average smaller than diameter of punctures; surface shiny and nearly polished; with weak irregular microsculpture.

Elytra: 0.43 mm long, 0.45 mm wide; with similar punctation as on pronotum; surface polished.

Abdomen with finer and sparser punctation than on elytra and microsculpture more distinct than on fore body; scarcely shiny; laterally with long dark setae, tergite of last abdominal segment with distinct central tooth.

Espeson adisi n. sp. (Figs 6a-e, 16A)**Type material:**

Holotype, male: **Brazil:** Amazonas, Manaus, male, floating meadow, #WM13, 15.4.1981, leg. J. Adis (INPA).

Paratypes: floating meadow, 13 specimens, #WM13, #WM12, 15.4.1981, 3 specimens, #WM10, 6.2.1981, 2 specimens, #WM13, 16.3.1981, 1 specimen, #WM12, 17.2.1981, 1 specimen, #WM12, 18.5.1981, 1 specimen, 3.3.1982, leg. J. Adis; 1 specimen, 3.3.1982, tree eclector, leg. J. Adis (INPA, UIC, AMNH).

Diagnosis:

The species closely resembles *E. titschacki* in colour, shape of antennae, and shape of abdominal tergite VIII of male. In *E. adisi* the two pronotal impressions in the midline are absent, the apical part of the central lobe of the aedeagus is placed in a more or less rectangular angle to the basal part and the paramera are also angulated, whereas they are straight in *E. titschacki*. Posterior edge of abdominal tergite VIII of male is slightly obtuse in *E. adisi*, whereas it is of more semicircular shape in *E. titschacki*.

Description:

Length: 1.8 – 1.9 mm. *Colour:* dark yellow, legs lighter yellow.

Head: 0.23 mm long, 0.33 mm wide; eyes large and distinctly prominent; temples behind eyes narrowed to the neck without rectangular angle; setiferous punctation fine, but distinct; distance between punctures as wide as diameter of punctures; a midline without or with sparser punctures; setae pointing to the midline; surface with weak and sparse microsculpture, shiny, but not polished.

Antennae with 2nd antennomere short and globular; 3rd antennomere conical and slightly longer than 2nd; antennomeres 4 to 6 more or less quadrate; the following antennomeres wider than long and increasing in width except 8th antennomere being smaller than 7th and 9th; 10th antennomere 1.5 times wider than long.

Pronotum: 0.27 mm long, 0.33 mm wide; widest shortly behind anterior angle; slightly narrowed to posterior deep emargination; two long dark marginal setae and one dark seta at anterior edge; sides additionally with several dark shorter setae; setiferous punctation as on head; with irregular smooth midline; discal setae yellow pointing to midline; surface as on head with weak microsculpture and shiny, but not polished.

Elytra: 0.35 mm long, 0.40 mm wide; widest in the posterior half; distinctly narrowed to shoulders; base distinctly deeper than disc; setiferous punctation and surface as on pronotum; sides with several long dark setae.

Abdomen much finer and sparser punctate than elytra; surface less shiny; abdominal tergite VIII with few long dark setae in a more or less dense pubescence and obtuse posterior edge.

Aedeagus with thick central part and nearly rectangular apical part; paramera also angulate, but with obtuse angle with basal and slender apical segment; apical transparent plate circular; diameter of transparent plate approximately half as wide as length of apical segment of paramera.

Etymology:

The species is named in honour of my passed friend Prof. Joachim Adis, who found this species in the Central Amazon near Manaus during his studies in the Várzea of the Amazon river.

Espeson dybasi n. sp. (Figs 15a-e, 17B)**Type material:**

Holotype, male: **Panama:** Chiriqui, Finca Palo Santo, 5.3.1959, leg. H. S. Dybas (AMNH).

Paratypes: 179 specimens with same date as holotype; NW Volcán de Chiriqui, litter near stream (82°40'32"W, 8°49'19"N), 1450 m elevation, 4 males, 6 females, 16.5.2001, 1 female, 17.5.2001, leg. L. Herman; 25.7 km NW Volcán de Chiriqui, litter near stream (82°46'24"W, 8°50'06"N), 1150 m elevation, 3 females, 27.12.2001, leg. L. Herman; 11.5 km E Volcán de Chiriqui, Rio Sereno, tree fall litter in forest (82°46'24"W, 8°50'05"N), 1150 m elevation, 1 female, 26.12.2001, leg. L. Herman; Panama, road to Cerro Campana, litter near seep (79°54'50"W, 8°41'20"N), 645 m elevation, 4 specimens, 1.1.2002, leg. L. Herman; road to Cerro Campana, litter near stream (82°55'12"W, 8°41',00"N), 730 m elevation, 3 specimens, 22.12.2001, leg. L. Herman; **Costa Rica:** Puntarenas, 35 km NE San Vito, nr. Las Alturas (82°50.08'W, 8°56.16'N), trail to Cerro Echandi, 1950 m elevation, beyond trail marker 30, litter near stream, 78 specimens, 19.3.1991, leg. L. Herman; 7.5 km on trail to Cerro Echandi, Rio Bella Vista, litter near stream, 34 specimens, 21.3.1991, leg. L. Herman; Las Cruces Botanical Garden, near San Vito (82°57.19'W, 8°47.28'N), 1066 m elevation, 1 specimen, 27.2.1985, leg. L. Herman; Alajuela, nr. Poasito (84°11.35'W, 10°10.09'N), 6.6 km W Jct. Rt.126(9) & 120, 2011 m elevation, Volcán Poas, litter near stream, 6 females, 16.3.1991, leg. L. Herman; Cartago, 16.5 km N Capelladas (83°47.07'W, 9°55.27'N), Rd. to Volcán de Turrialba, 2538 m elevation, leaf litter under hummock in pasture, 7 specimens, 14.3.1991, leg. Herman; Heredia, 2 km S Sacramento, Rd. to Volcán Barba, 2011 m elevation, litter near stream, 1 male, 15.3.1991, leg. L. Herman; La Selva Biol. Station, 1 specimen, 18.2.1985, leg. L. Herman; 27 km N Heredia (83°59'W, 10°39'W), Rt 9, 1828 m elevation, 1 specimen, 9.2.1985, leg. L. Herman; **Ecuador:** Pichincha, 18-20 km NE Alluriquin, old Quito-Sto Domingo rd., 1460 m elevation, litter, 1 specimen, 21.10.1988, leg. L. Herman; 1950 m elevation, litter, 1 specimen, 23.10.1988; 43 km N, Las Palmeras, old Qt Sto. Dgo. rd. km 59, litter, 2 females, 23.10.1988, leg. L. Herman; Napo, 7 km W Baeza, litter, 2400 m elevation, 1 male, 31.10.1988, leg. L. Herman (AMNH, UIC).

Diagnosis:

The species resembles *E. mexicanus* and *E. simplex* in size and colour. It can be easily differentiated from these two species by the elongate antennae. Whereas in *E. mexicanus* and *E. simplex* antennae are only slightly longer than head and pronotum combined, antennae of *E. dybasi* are as long as head plus pronotum plus half of elytra. Moreover, the shape of the elytra also differs distinctly between *E. dybasi* and both *E. mexicanus* and *E. simplex*, respectively. Width of elytra of *E. dybasi* is more than 1.5 times as wide as pronotum, whereas it is only 1.3 times as wide in *E. mexicanus* and *E. simplex*. In all three species tergite VIII is slightly emarginate at posterior edge. In *E. mexicanus* the emargination is weak and smooth without distinct acute prominences at outer posterior angles. In *E. dybasi* a short stylus is placed at posterior angles, while an acute teeth is present in *E. simplex*.

Description:

Length: 2.3 mm. *Colour:* brown; elytra and antennae red; legs yellow.

Head: 0.30 mm long, 0.40 mm wide; eyes distinctly prominent; temples half as long as eyes; smoothly rounded to neck; fore-head distinctly narrowed to acute front edge of clypeus; densely and deeply punctate; distance between setiferous punctures on average less than 1/2 of diameter of punctures; vertex with impunctate midline; without microsculpture; surface shiny.

Antennae longer than head and pronotum combined; 2nd antennomere short; 3rd conical antennomere longer than 2nd; 3rd to 7th antennomeres longer than wide; 8th antennomere slightly narrower and shorter than preceding and following antennomeres.

Pronotum: 0.38 mm long, 0.38 mm wide; smoothly rounded in anterior half; distinctly emarginate in posterior half; lateral margin not visible in dorsal aspect; setiferous punctures dense and coarse; with narrow impunctate midline; on average distance between punctures half as wide as diameter of punctures; with small, but deep circular impression in central position of posterior half.

Elytra: 0.55 mm long, 0.60 mm wide; sides smoothly rounded; widest in posterior third; setiferous punctation distinctly sparser and weaker than on pronotum; distance between punctures at least as wide as diameter of punctures, but on average distinctly wider.

Abdomen with abdominal tergite III densely and deeply punctate; distance between punctures 1/2 as wide as diameter of punctures; density of punctation decreasing from tergite III to tergite VII; distance between punctures on tergite VII 2 to 3 times as wide as diameter of punctures; abdominal tergite VIII widely emarginate and with acute angles; on top of each acute angle a short stylus; at base of tergite VIII two setiferous pores within irregular dark spots.

Aedeagus with more or less straight central lobe; paramera straight and with small irregular plate at apex.

Etymology:

The specific name refers to the name of its first collector Dr. H. S. Dybas.

Espeson euplectoides FAUVEL, 1902: 37 (Figs 3a-e, 16D)

Type material examined:

Guadeloupe: without further data, 1 male, 4 females (syntypes, IRSNB)

Further material examined:

Guadeloupe: Gourbeyre, 6 specimens, without further data (AMNH, UIC); **Dominica**: Long Ditton, females, 20.06.1911 and 21.06.1911 (AMNH).

Diagnosis:

The species resembles *E. titschacki*, *E. microphthalmus*, *E. adisi*, *E. venezuelanus*; *E. moratus*, *E. nevermanni*, *E. subtilis*, and *E. pecki* in colouration and size. Among these species *E. euplectoides* is characterised by the two pronotal impressions, a longitudinal one in the anterior half and a circular one in the posterior half. Furthermore, the antennae are longer than head and pronotum combined, whereas they are shorter or only as long as head and pronotum combined in the other yellow species. The aedeagus is similar to *E. titschacki*, but tergite VIII of male is obtuse, whereas it is elongate in *E. titschacki*. In comparison to the other yellow species the punctation of the elytra is relatively sparse.

Description:

Length: 1.8 mm. *Colour*: yellow, antennae and legs lighter yellow.

Head: 0.20 mm long, 0.30 mm wide; eyes as large as temples; temples smoothly rounded; punctation dense and distinct; distance between punctures on average half as wide as diameter of punctures; surface shiny with weak and sparse microsculpture.

Antennae longer than head and pronotum combined; 2nd and 3rd antennomere equal in length; following 4 antennomeres at least scarcely longer than wide and slightly increasing in width; penultimate antennomeres quadrate.

Pronotum: 0.30 mm long, 0.33 mm wide; distinctly emarginate in front of posterior edge; 0.3 times smaller than at anterior angles; in the front half of a longitudinal impression in the midline; in the posterior half a circular impression; deeply and densely punctate; distance between punctures on average as wide as diameter of punctures; surface shiny, nearly polished, without microsculpture.

Elytra: 0.40 mm long, 0.40 mm wide; with similar deep, but sparser punctation as on pronotum; distance between punctures is on average slightly wider than diameter of punctures; surface shiny, with weak irregular microsculpture.

Abdomen densely and deeply punctate; punctation similar as on elytra; without microsculpture; surface shiny; laterad with long dark setae, abdominal tergite VIII of male slightly narrowed distad and smoothly emarginate at posterior edge; with few longer and darker setae among short sparse pubescence.

Aedeagus slender with smoothly curved apical part; paramera slightly longer than central lobe and with short transparent plate.

Espeson franiae n. sp. (Figs 12a-e, 17E)

Type material:

Holotype, male: **Mexico**: Chiapas, Union Juárez (15°03'N, 92°04'W), NE slope of Volcan Tacaná, 2000 m elevation, male, Dec. 21, 1975, leg. H. Frania, #200-75 (AMNH).

Diagnosis:

E. franiae is the largest *Espeson* species of the Neotropical region, actually known. Its darker reddish colouration is similar as in *E. dybasi*, *E. mexicanus*, *E. hermani*, and *E. simplex*. It resembles *E. dybasi* in the pronotal and elytral punctation, and in the shape and position of the circular pronotal impression. It can be distinguished from *E. dybasi* by the larger size and the narrower elytra. Whereas the ratio of pronotal to elytral width is 1.4 in *E. franiae*, *E. mexicanus*, *E. simplex*, and *E. hermani*, the ratio is 1.6 in *E. dybasi*. Abdominal tergite VIII of males and the aedeagus resembles those of *E. simplex*, but paramera in *E. franiae* are angulate in the middle and a pair of transparent spots is placed at base of tergite VIII.

Description:

Length: 2.7 mm. *Colour*: brown, elytra lighter reddish, legs dark yellow.

Head: 0.30 mm long, 0.43 mm wide; more or less globular in shape; widest at eyes and with rounded temples; fore-head triangular; setiferous punctation deep and dense; on average distance between punctures less than half as wide as diameter of punctures; with moderately wide impunctate midline; surface without microsculpture and polished.

Antennae slightly longer than head and pronotum combined; 2nd antennomere globular, half as long as conical 3rd antennomere; 4th to 6th antennomere more or less quadrate; following antennomeres slightly wider than long and slightly increasing in width with exception of 8th antennomere; 8th antennomere slightly smaller than 7th and 9th antennomeres.

Pronotum: 0.37 mm long, 0.45 mm wide; widest in anterior half; sides of anterior half rounded; in posterior half deeply emarginate; lateral margin in anterior half present, but not visible in dorsal aspect; setiferous punctation coarse and dense; punctures distinctly deeper and larger than

head; distance between punctures less than half as wide as diameter of punctures; surface without microsculpture and polished.

Elytra: 0.63 mm long, 0.65 mm wide; sides smoothly rounded from shoulders to posterior angles; anterior edge distinctly emarginate; posterior edge slightly emarginate; setiferous punctation irregular; size of punctures variable; fine micro-punctures between punctures of normal size and few larger and deeper punctures; on average distance between punctures as wide as diameter of punctures; surface without microsculpture and polished.

Abdomen on anterior segments III to V coriaceous punctate; density of punctation decreasing to posterior segments; segment VIII twice as long as preceding segments; posterior edge of tergite VIII deeply emarginate; at outer posterior angles with short stylus; with few long and black setae and more dense fine setation; at posterior emargination with transverse lighter band with longitudinal striae; at base of tergite VIII two lighter spots surrounded by darker circle.

Aedeagus with apical part of central lobe as long as basal part; apical part smoothly rounded; paramera with small transparent plate at apex; diameter of transparent plate not wider than apical short stylus; paramera with triangular prominence at middle.

Etymology:

The specific name refers to its collector H. Frania.

Espeson hermani n. sp. (Figs 11a-e, 17F)

Type material:

Holotype, male: **French Guiana**: Eaux Claires, N of Saül, (3°39.44'N, 53°13.17'W), 160 m elevation, in litter, male, X-5-1995, leg. L. Herman (AMNH).

Paratypes: **Costa Rica**: Puntarenas, 6.5 km W Rincon (83°31'W, 8°41'N), Fundacion Neotropica, litter near stream # 2531, female, 25.3.1991, leg. L. Herman; Heredia, La Selva, Biol. Station, nr. Puerto Viejo de Sarapiquí, male # 2109, 18.2.1985, leg. L. Herman (AMNH, UIC).

Diagnosis:

E. hermani is one of the darker reddish Neotropical *Espeson* species. Among these species, it is conspicuous by the slightly lighter red elytra and the longitudinal impression in the anterior half of the pronotum. In the male, the species can be easily identified by the central spine at abdominal tergite VIII, the large triangular shape of the transparent lobe of the paramera, and the short apical part of the central lobe of the aedeagus.

Description:

Length: 2.0 mm. *Colour*: reddish; pronotum and elytra lighter red than head and abdomen; legs yellow.

Head: 0.25 mm long, 0.35 mm wide; eyes large and prominent; nearly four times longer than short temples; labrum more or less triangular with short acute apex; setiferous punctation dense and deep; distance between punctures less than half as wide as diameter of punctures; a wide midline impunctate; surface with extremely weak remains of microsculpture between punctures; midline without microsculpture and more or less polished.

Antennae distinctly longer than head and pronotum combined; 2nd antennomere more or less globular; conical 3rd antennomere slightly longer than 2nd; 4th to 5th antennomeres more or less

quadrate; 6th slightly wider than long; following antennomeres slightly increasing in width and wider than long except smaller 8th antennomere.

Pronotum: 0.30 mm long, 0.35 mm wide; with sides rounded in anterior 2/3rd and emargination in posterior 1/3rd; fine lateral margin visible in anterior half in dorsal aspect; setiferous punctation similar as on head; distance between punctures irregular; laterad on average half as wide as diameter of punctures; impunctate midline in anterior half and there with longitudinal impression; surface with weak remains of microsculpture; midline without microsculpture; shiny; at posterior edge a transverse band with coriaceous ground-sculpture.

Elytra: 0.45 mm long, 0.50 mm wide; with sides smoothly rounded and with emargination at both anterior and posterior edge; setiferous punctation distinctly wider than on pronotum; distance between punctures on average as wide as diameter of punctures; a sparse micro-punctation between normal punctures.

Abdomen finely and sparsely punctate; density of setiferous punctation decreasing posteriad; on tergites II to V transverse impressions with coriaceous ground sculpture; tergite VIII of male deeply emarginate at posterior edge; emargination divided by acute spine; a stripe of fine longitudinal striae at posterior emargination.

Aedeagus with short straight apical part and two times longer basal part; paramera slightly longer than central lobe and with large more or less triangular transparent plate; diameter of transparent plate more than half as long as length of paramera.

Etymology:

The specific name refers to its collector Lee Herman.

Espeson mexicanus FAUVEL, 1902:37 (Figs 4a-e, 17C)

Type material examined:

Mexico: 1 female, without further data (holotype, IRSNB)

Additional material examined:

Mexico: Prov. Veracruz, 1 mi. S Huatusco (96°57'W, 19°8'N), Berlese extraction, 1344 m elevation, 45 specimens, 2.8.1969, leg. S. & J. Peck (AMNH, UIC).

Diagnosis:

The species resembles *E. simplex*, *E. franiae*, *E. dybasi*, and *E. hermani* in the darker reddish colouration and its size of at least 2.0 mm. It can be differentiated from the similarly large *E. hermani* by the position of the pronotal impression. In *E. mexicanus* the longitudinal impression is placed in the posterior half and drop-shaped, whereas in *E. hermani* the longitudinal impression is placed in the anterior half. Moreover, the elytra in *E. hermani* are lighter red than head and pronotum, whereas no different colouration between head, pronotum, and elytra is found in *E. mexicanus*. In males, tergite VIII and aedeagus distinctly differ between the two species. *E. simplex*, *E. dybasi*, and, in particular, *E. franiae* are larger with at least 2.3 mm length. In *E. simplex* a pronotal impression is absent, in *E. dybasi* and *E. franiae* the pronotal impression is placed also in the posterior half, but with a circular shape.

Description:

Length: 2.0 mm. *Colour*: dark reddish, elytra dark yellow, antennae and legs yellow.

Head: 0.28 mm long, 0.36 mm wide; eyes 0.3 times longer than temples; temples smoothly rounded; punctation dense and deep; distance between punctures half as wide as diameter of punctures; a space in the middle of disc without punctures; without microsculpture; surface polished.

Antennae as long as head and pronotum combined; 2nd and 3rd antennomeres equal in length; following antennomeres quadrate and slightly increasing in width; 8th antennomere slightly smaller than preceding and following antennomeres.

Pronotum: 0.30 mm long, 0.38 mm wide; distinctly emarginate in front of posterior edge; sides in front of emargination smoothly rounded; widest in anterior third; 0.3 times wider than at posterior angles; punctation deep and dense; on average distance between punctures half as wide as diameter of punctures; at posterior edge with coriaceous punctation; a longitudinal impression in the anterior half; with sparse and weak microsculpture; surface shiny.

Elytra: 0.48 mm long, 0.53 mm wide; punctation similar as on pronotum; without microsculpture; surface polished.

Abdomen with sparser and finer punctation as on elytra, but microsculpture more distinct; surface less shiny than on elytra; abdominal tergite VIII slightly narrowed posteriad and with undulate straight edge; with few longer setae among sparse pubescence.

Aedeagus with slender, more or less straight apical part placed in obtuse angle to basal part of central lobe; paramera thick and long with large apical transparent plate; diameter of apical plate nearly as long as length of apical segment of paramera.

***Espeson microphthalmus* FAUVEL, 1902: 36 (Figs 5a,b, 16E)**

Type material examined:

French Guyana: 1 female, without further data (holotype, IRSNB)

Diagnosis:

Compared to the other yellow species, *E. microphthalmus* can be differentiated by the overall parallel shape of the body that resembles a species of the genus *Pseudespeson*; but abdominal segment III is slightly narrowed and tergite VIII is without central spine. The pronotal emargination is deep and its sides are nearly parallel with a distinct lateral margin, whereas they are concave in the other yellow *Espeson* species and lateral margins are absent or extremely narrow. A dorsal impression is absent as in *E. adisi*, but in *E. adisi* the shape of the pronotal emargination is concave and abdominal segment III and IV are narrowed at base. Unfortunately, only the type female is known.

Description:

Length: 1.9 mm. *Colour*: yellow, antennae and legs lighter yellow.

Head: 0.25 mm long, 0.30 mm wide; eyes as large as temples; temples smoothly rounded; punctation dense and deep; distance between punctures half as wide as diameter of punctures; without microsculpture; surface polished.

Antennae shorter than head and pronotum combined; 2nd globular, 3rd conical, both antennomeres equal in length; following 3 antennomeres at least slightly wider than long and not wider than preceding antennomeres; antennomeres 7 to 11 distinctly wider than preceding ones and distinctly wider than long; 8th antennomere slightly smaller than preceding and following antennomere and three times wider than long; penultimate antennomeres twice as wide as long.

Pronotum: 0.28 mm long, 0.38 mm wide; distinctly emarginate in front of posterior edge; with deep impression in the emargination; widest in the middle and slightly narrowed to the anterior angles; deeply and densely punctate on the disc, punctation partly coriaceous; without microsculpture; surface polished.

Elytra: 0.45 mm long, 0.43 mm wide; punctation irregularly dense; distance between punctures as wide as or smaller than diameter of punctures; without microsculpture; surface polished.

Abdomen with similar punctation as on elytra and weak microsculpture; surface shiny, but less shiny than elytra; tergite of last abdominal segment rounded.

***Espeson moratus* SCHAUFUSS, 1882: 45 (Figs 9a-e, 16C)**

Espeson lenkoi SCHEERPELTZ, 1969: 119; new synonymy

Type material examined:

St. Thomas: female without further data (holotype of *E. moratus*, ZMHU); 1 male and 3 females (paratypes, ZMHU); **Brazil**: São Paulo, Barueri, 3 females, in nest of the ant *Camponotus rufipes* F., 3.6.1967, leg. Lenko; (holotype and paratype of *E. lenkoi*, MNHW).

Further material examined:

Cuba: Havana, Sierra Bouilla, 18.11.1928, male, leg A. Bierig; Soledad (80°16'W, 22°09'N), Santa Clara, female, 1.8.1932, leg. B. B. Leavitt (AMNH); **Puerto Rico**: El Yunque (PUE) male, May 1938, leg. Darlington (AMNH); **St. Thomas**: 1 female, without further data, 1 female with information: ex coll. Staudinger & Bang-Haas (ZMHU); 4 females without further data (NHMW); 5 males, 5 females, leg. v. Eggers (NHMW); 3 males, 4 females, col. Eppelsheim Steind. (NHMW, AMNH, UIC); **Guadeloupe**: 1 female without further data (NHMW); **St. Vincent**: 2 females without further data (NHMW, BMNH); **Grenada**: Mount Gay East (Leeward side), 2 females without further date, leg. H. H. Smith (NHMW); 1 female, Leeward side, without further data (BMNH); **Trinidad**: 5 mi SE Rio Claro (61°10'16W, 10°18'17N), female, 3.1.1935, leg. N. A. Weber (AMNH); **Ecuador**: Pichincha, W. of Alluriquin, Tinalandia, 790-850 m elevation, litter nr. stream #2724-2725, female, 19.-20.5.1993, leg. L. Herman (AMNH); Limoncocha, 40 km E Puerto Francisco Orellana, Rio Napo, 1 male, 2 females, 21.-27.9.1979, leg. Balogh (HNMB); **Brazil**: Guanabara (43°07'W, 22°46'S), Represa Rio Grande, female, March-April 1972, leg. F. M. Oliveira (AMNH); **Paraguay**: Puerto Presidente Stroessner (Cuidad del Este: 54°61.67'W, 25°51.67'S), Hungarian, Soil.Zool.Exped., 1 male, 6 females, 5.1.1966, leg Balogh et Mahunka (HNMB).

Diagnosis:

The species is certainly closely related to *E. titschacki* and *E. adisi* concerning the yellow colour, shape of elytra, and structure of aedeagus. The species can be easily distinguished from the two species by the pair of weak pronotal impressions on both sides of the midline in front of posterior edge. Furthermore, it is differing from *E. adisi* by the slightly smaller size and shorter paramera. The shape of abdominal tergite VIII in males is very similar in both species, but posterior edge in *E. moratus* is slightly emarginate, whereas it is more obtuse in *E. adisi* and semicircular in *E. titschacki*.

Description:

Length: 1.4 – 1.6 mm. *Colour*: yellow.

Head: 0.20 mm long, 0.27 mm wide; eyes not prominent, but large, as long as temples; temples smoothly rounded behind eyes to distinctly separated neck; setiferous punctation distinct, moderately fine; distance between punctures on average as wide as diameter of punctures; on disc sparser than laterally; a wide midline without punctures; surface without microsculpture and polished.

Antennae as long as head and pronotum combined; 2nd antennomere globular, 3rd conical, but not longer than 2nd; 4th antennomere wider than long, but not wider than 3rd; the following antennomeres increasing in width; the penultimate antennomere 2 times wider than long.

Pronotum: 0.20 mm long, 0.23 mm wide; widest in the anterior half; smoothly rounded to the front edge, anterior angles scarcely present; distad with deep emargination; setiferous punctation similar as on head, but slightly coarser; distance between punctures half as wide as diameter of punctures; with pair of weak longitudinal impressions on each side of the midline in the posterior half; surface without microsculpture and polished.

Elytra: 0.30 mm long, 0.33 mm wide; widest in the middle; slightly narrowed to the shoulders and the posterior edge; setiferous punctation distinctly sparser and finer than on pronotum; distance between punctures on average two times wider than diameter of punctures; surface without microsculpture, polished.

Abdomen with setiferous punctation still finer and sparser than on elytra; setae pointing posteriad; surface with weak microsculpture, less shiny than elytra; abdominal tergite VIII of male differing from female tergite; posterior edge of male tergite widely emarginate and with indistinct lateral prominence that is expressed by two thicker setae; small midline without setae.

Aedeagus with thick and large basal part in central lobe and sharply angulate short apical part; paramera also short, but slightly longer than central lobe; apical transparent plate circular.

Remarks:

Unfortunately the Brazilian specimens described as *E. lenkoi* by SCHEERPELTZ (1970) are all females. A significant difference between the West Indian *E. moratus* specimens could not be found. SCHEERPELTZ (1970) also described the high similarity of the two species. He focused on the wide antennomeres of *E. lenkoi* compared to *E. moratus*. However, also *E. moratus* is characterised by extremely wide antennomeres. Therefore, although hesitating, I synonymise the two species.

Espeson nevermanni BERNHAUER, 1942: 4 (Figs 10a,b, 16F)

Type material examined:

Holotype, female: **Costa Rica**: Hamburgfarm, Ebene Limon, unter loser Rinde, female, 4.10.1928, leg. P. Nevermann (FMNH).

Diagnosis:

Unfortunately only the female holotype is known. The species resembles *E. microphthalmus*, *E. adisi*, and *E. simplex* in the absence of pronotal impressions. Compared to *E. simplex*, *E. nevermanni* is smaller in size and as long as *E. adisi* and *E. microphthalmus*. It can be differentiated from *E. microphthalmus* by the wider elytra and from *E. adisi* by the more rectangular temples.

Description:

Length: 1.8 mm. *Colour*: yellow.

Head: 0.20 mm long, 0.33 mm wide; with eyes not prominent and temples nearly as long as eyes; fore-head nearly parallel in front of eyes; clypeus triangular; labrum with short spine in middle; punctuation dense and deep; distance between punctures irregular; on average slightly smaller than diameter of punctures; neck with dense coriaceous punctuation; with small impunctate midline; surface without microsculpture and shiny.

Antennae nearly as long as head and pronotum combined; 2nd antennomere globular and nearly as long as conical 3rd antennomere; 4th to 6th antennomeres more or less quadrate; 7th to 10th antennomeres increasing in width and wider than long; except smaller 8th antennomere.

Pronotum: 0.25 mm long, 0.34 mm wide; rounded in anterior two third; in posterior third emarginate; with small margin in posterior half in front of emargination; anterior half not margined; setiferous punctuation more regular; as deep as on head, but less dense; on average distance between punctures as wide as diameter of punctures; without impression on disc; surface without microsculpture and shiny.

Elytra: 0.31 mm long, 0.38 mm wide; with smoothly rounded sides, but not distinctly wider than pronotum; punctuation less dense and deep than on pronotum and surface still more shiny.

Abdomen only with segment III with deep transverse impression at base; following segments without transverse impression; setiferous punctures distinctly finer than on fore-body.

***Espeson pecki* n. sp.** (Figs 14a-e, 17A)

Type material:

Holotype, male: **Mexico**: Cordoba, Prov. Veracruz, tropical evergreen forest, Berlese, male, 7.8.1969, leg. J. Peck (AMNH).

Paratypes: 65 specimens with same data as holotype; 385 specimens with same data as holotype, but 4.8.1969; Cordoba, Paraje Nueve Nacimiento, tropical evergreen forest, Berlese, 26 specimens, 8.1969, leg. S & J. Peck; San Blas, junction San Blas and Tepic roads, 9 specimens, 4.8.1960, without collector information; Nuevo, Monterrey León, Chipinque Mesa (115°15.49'W, 25°35.14'N), forest leaf litter, 1 female, 22.6.1969, leg. S. & J. Peck; Tamaulipas, Gomez Farias, Rancho del Cielo, 1100 m elevation, 1 female, 4.7.1969, leg. S. & J. Peck; Veracruz, Fortin (96°59.59'W, 18°53.49'W) 1 male, 15 females, 5.8.1969, leg. S. & J. Peck (AMNH, UIC).

Diagnosis:

Compared with the small yellow species, *E. titschacki*, and *E. adisi*, *E. pecki* is easily to identify by the extremely small eyes. The species is as small as *E. titschacki* and both species are slightly smaller than *E. adisi*. Antennae are slightly shorter than in *E. titschacki*. In *E. titschacki* antennae are as long as head and pronotum combined, whereas they are slightly shorter than pronotum in *E. pecki*. Both species, *E. pecki* and *E. titschacki*, can be distinguished from *E. adisi* by the presence of two deep impressions on the pronotum, whereas *E. adisi* has no impression on pronotum. *E. venezuelanus* that is also similar to these three species is slightly darker. In males, the deep emargination of abdominal tergite VIII resembles that in *E. simplex*, but *E. simplex* is much larger, and punctuation of tergite VIII is denser. Furthermore, the semicircular large apical plates of paramera are unique in the Neotropical *Espeson* species.

Description:

Length: 1.6 mm. *Colour*: yellow.

Head: 0.20 mm long, 0.25 mm wide; eyes extremely small; only four or five ocellae; nearly invisible in dorsal aspect; temples twice as long as eyes and convexly prominent; fore-head straightly narrowed to more or less acute front edge of clypeus; setiferous punctation moderately dense and fine; on clypeus finer and denser than on lateral part of vertex; disc with impunctate midline; surface shiny; laterad with remains of weak microsculpture; disc polished.

Antennae nearly as long as head and pronotum combined; 1st and 2nd antennomere oblong, 3rd conical; antennomeres 1 to 3 nearly equal in length; antennomere 4 and 5 more or less quadrate; following antennomeres wider than long; 8th antennomere narrower and smaller than antennomeres 7 and 9; 10th antennomere nearly twice as wide as long.

Pronotum: 0.23 mm long, 0.27 mm wide; with weak lateral margin; only visible in posterior half in dorsal aspect; deeply emarginate in posterior half; posterior edge only half as wide as width in anterior half; setiferous punctation deeper and coarser than on head; distance between punctures on average only half as wide as diameter of punctures; in anterior and posterior half each a small, but deep impression; surface shiny; laterad with remains of microsculpture, but surface mostly polished.

Elytra: 0.26 mm long, 0.33 mm wide; with setiferous punctation slightly weaker and sparser than on pronotum; with remains of microsculpture, but surface mostly polished and shiny.

Abdomen with coarser punctation on anterior segments than on distal segments; microsculpture slightly more distinct than on elytra and, thus, surface less shiny; tergite VIII of male deeply emarginate in middle and with long acute teeth at outer angles; sparsely punctate also at lateral margin.

Aedeagus with long and thick basal part; apical part more or less straight and only half as long as basal part; paramera with large apical plate of semicircular shape.

Etymology:

The specific name refers to its collector James Peck.

Espeson simplex n. sp. (Figs 13a-e, 17D)

Type material:

Holotype, male: **Brazil**: Nova Teutonia, without further data, leg. F. Plaumann (ZMHU), (52.23'W, 27.11'S).

Paratypes: Nova Teutonia, 300-500 m elevation, without further data, 1 female, leg. F. Plaumann (ZMHU), 4 males, 3 females, VI.1960, leg. F. Plaumann (ZMHU, UIC), 2 females, VII.1959, leg. F. Plaumann (ZMHU), 1 male, XI.1955, leg. F. Plaumann (ZMHU); **Paraguay**: Puerto Presidente Stroessner (Cuidad del Este: 54°61.67'W, 25°51.67'S), Hungarian Zoological Expedition, 1 male from ethylene-glycol soil traps, 27.12.1965-7.1.1966, leg. A. Zicssi (HNMB).

Diagnosis:

The impressions on the pronotum are absent in this species and in this respect it resembles *E. adisi* and *E. microphthalmus*. But in size and colour it is more similar to *E. mexicanus*. Compared to *E. microphthalmus*, elytra of *E. simplex* are wider and sides are curved, whereas sides are more or less parallel in *E. microphthalmus*. The species is unique by the shape of the abdominal tergite VIII of male that laterally carries a distinct tooth. The two specimens without date were already labelled as holotype and paratype by WENDELER, but never described.

Description:

Length: 2.3 mm. *Colour:* dark red, head brown, leg and antennae lighter red.

Head: 0.25 mm long, 0.33 mm wide; eyes not prominent and small; temples well developed, at least 0.3 times longer than eyes; temples behind eyes shortly parallel, then rounded in a smooth curve; neck distinctly separated from the head; setiferous punctation coarse and dense; distance between punctures less than half as wide as diameter of punctures; on the disc with distinct impunctate midline widened to the front; clypeus sparsely punctate; surface without microsculpture and polished.

Antennae as long as head and pronotum combined; 2nd antennomere globular, 3rd conical, but not longer than 2nd, antennomeres 4 and 5 quadrate, the following antennomeres slightly wider than long; 8th antennomere slightly smaller than preceding and following antennomeres.

Pronotum: 0.30 mm long, 0.37 mm wide; widest in the anterior third, rounded in a smooth curve to the front edge; without distinct front angles; posteriad with emargination, forming a nearly rectangular angle; setiferous punctation coarse and dense, puncture still deeper and larger than on head; distance between punctures less than 1/4 as wide as diameter of punctures; surface without microsculpture and polished.

Elytra: 0.43 mm long, 0.50 mm wide; widest in the posterior half; posterior angles rounded in a smooth curve; shoulders indistinct, too; setiferous punctation as large as on pronotum, but slightly sparser; between setiferous coarse punctation a finer and sparser micro-punctation; distance between coarser punctures irregular, on average half as wide as diameter of punctures.

Abdomen with anterior tergites as coarsely and densely punctate as on head, posterior tergite sparser and finer punctate; abdominal tergite VIII in male emarginate at posterior edge and with lateral tooth; two long setae inserted anteriorly and with relatively long and dense pubescence, but with a wide midline without setae.

Aedeagus slender with slightly angulate apical part; basal segment of paramera thick, apical segment slender; apical transparent plate circular; placed on a short stylus.

Etymology:

The specific name was adopted from the preliminary name given by WENDELER. The name derived from the same Latin word *simplex* meaning simply and presumably refers to the simple surface of the pronotum without impressions.

***Espeson subtilis* BERNHAUER, 1910: 352** (Figs 8a-c, 18)

Type material examined:

Mexico: Veracruz, Cordoba, without further data, leg. Fenyés (holotype in FMNH); Cordoba, without further data, 2 males, 2 females (paratypes, NHMW, BMNH, NMPC).

Additional material examined:

Brazil: Parana, Rio Negro, 3 females without further data, leg. Reichensperger (NHMW); Minas Gerais, Passa Quatro, 1 female without further data (NHMW).

Diagnosis:

The species resembles *E. mexicanus* in punctation of the fore-body and the impressions of the pronotum. But *E. mexicanus* is larger than *E. subtilis* and the impression in the anterior half of the pronotum is longitudinal, whereas it is circular in *E. subtilis*.

Description:

Length: 1.8 mm. *Colour:* red, head darker red, legs and antennae dark yellow.

Head: 0.20 mm long, 0.30 mm wide; eyes scarcely prominent; temples continuously narrowed to the neck; only half as long as eyes; setiferous punctation coarse and deep; distance between punctures only half as wide as diameter of punctures; a wide smooth midline impunctate; surface without microsculpture and polished.

Antennae as long as head and pronotum combined; with 2nd antennomere quadrate, 3rd conical and not longer than 2nd, the following antennomeres more or less quadrate and increasing in width; penultimate antennomeres only slightly wider than long.

Pronotum: 0.27 mm long, 0.30 mm wide; widest in the middle, narrowed in a smooth curve to front angle, emargination in front of the posterior angle forming an obtuse angle; setiferous punctation still deeper and larger than on head; distance between punctures half as wide as diameter of punctures; a wide midline without punctures; within midline a short longitudinal impression in anterior half and a circular impression in posterior half; surface without microsculpture and polished.

Elytra: 0.37 mm long, 0.40 mm wide; widest in the posterior half, with setiferous punctation differing in size; coarser punctation sparser than on pronotum, distance between punctures on average as wide as or wider than diameter of punctures, between coarser punctation a sparse finer punctation; surface without microsculpture and polished.

Abdomen with punctation as coarse and dense as on pronotum, on each abdominal tergite a wide impunctate midline; posterior edge of tergite VIII in male smoothly rounded; without emargination.

Aedeagus with thick basal part of central lobe and apical part placed in rectangular angle to basal part. The paramera not found in the single male specimen.

***Espeson titschacki* BERNHAUER, 1941: 278** (Figs 7a-e, 16B)

Type material examined:

Peru: Ayacucho, Sivia (73°51.09'W, 12°30.45'S) (male holotype FMNH); 3 females with same data as holotype (paratypes, FMNH, NHMW); from the same location, leaf litter; female 22.5.1936, leg. Titschack (paratypes, FMNH).

Further material examined:

Mexico: Nayarit (104°50.42'W, 21°45.07'S), junction San Blas and Tepec roads 300 m elevation, 64 specimens, 4.8.1960, without information of the collector (AMNH, UIC); **Venezuela:** Bolivar, Carabobo (61.24'W, 6.18'N), Via Palmichal, 750-850 m elevation, 3 males, 9 females, Nov. 2005, leg. Brachat (UIC, VAC), 900 m elevation; 2 females, 22.11.2005, leg. Brachat (UIC, VAC); **Ecuador:** Pichincha, Santo Domingo de los Colorados (79°10'W, 0°14'S), 17 km SE, Tinalandia, 900 m elevation, 1 male, 1 female, 16.-21.10.1988, 1 female 19.-20.5.1998, leg. L. Herman (AMNH); Pastaza, 2.6 km S of Santa Clara, (01°17'20"S, 77°53'20"W), 790 m elevation, secondary lowland forest with sparse understory vegetation, shaded, sifting leaf litter between tabular roots, 2 females, 15.-16.11.2006, leg. Fikacek & Skuhrovec (NMPC); Alluriquin, 43 km N, Las Palmeras, old Qto-Sto. Dgo. rd. km 59, litter, 23.10.1988, leg. L. Herman (AMNH); Limoncocha, 40 km E Puerto Francisco Orellana, Rio Napo, 2 females, 21.-27.9.1979, leg. Balogh (HNMB); Napo, 35.5 km NE El Chaco, Cascadas San Rafael

(00°06'00"S, 77°34'51"W), 1200 m elevation, low primary forest on summit of river gorge, sparse understory vegetation, lot of leaf litter, sifting leaf litter, 2 males, 1 female, 29.11.2006, leg. Fikacek & Skuhrovec (NMPC); **Peru:** Cuzco, Madre de Dios, Cuzco Amazonica, secondary forest (69°02'06W, 12°36'48S), 300 m elevation, 5 males, 16 females; 17.5.1995, leg. D. Agosti (AMNH, UIC); Junin, San Ramón de Pangoa (75°19'60W, 11°07'60S), 40 km SE Satipo, 750 m elevation, male, 25.3.1972, leg. R. T. Schuh (UIC); Huanuco, Panguana (74°56'W, 9°37'S), Chocha, female, 15.3.1976, leg. W. Hanagarth (UIC); **Brazil:** Santa Catarina, Nova Teutonia, Aug. 1953, female, leg. F. Plaumann (AMNH); Mato Grosso, Nossa Senhora de Livramento (56°36.24'W, 16°15.24'S), Pirizal, Faz. Retiro Novo, from *V. divergens* tree collected by fogging, female, 22.02.2000, leg. M. Marques (UFMT). **Paraguay:** Puerto Presidente Stroessner (Ciudad del Este: 54°61.67'W, 25°51.67S) Hungarian Soil-Zoology Exp., 1 females, 5.1.1966, leg. Balogh et Mahunka (HNMB); Puerto Presidente Stroessner (Ciudad del Este: 54°61.67'W, 25°51.67'S) Hungarian Soil-Zoology Exp., Acaray waterfall, 1 female, 2.1.1966, leg. Loksa (HNMB); **Argentina:** Salta, Aguas Blancas-Yaculica (64°22.25'W, 22°43.44'S), 460 m elevation, yungas forest, leaf litter, female, 25.10.1994, leg. J. Carpenter & D. Agosa (AMNH).

Diagnosis:

The species is very similar to *E. pecki*, *E. adisi* and *E. moratus* in size and colouration. It differs from *E. adisi* in the presence of the two pronotal impressions. Females are very similar to *E. pecki*, because both species have similar pronotal impressions in the midline. It is distinguished from *E. pecki* by the longer antennae and in the male by the different shape of tergite VIII that is elongate and semicircular at apex in *E. titschacki*, but short and emarginate in *E. pecki*.

Description:

Length: 1.6 mm. *Colour:* yellow.

Head: 0.20 mm long, 0.25 mm wide; eyes as long as temples, with more than 12 ocellae and distinctly visible in dorsal aspect; temples more or less parallel; fore-head straightly narrowed to more or less acute front edge of clypeus; setiferous punctation laterad denser than on disc; setae pointing to middle; with impunctate midline on vertex; surface laterad with remains of microsculpture; on disc without microsculpture; surface polished and shiny.

Antennae as long as head and pronotum combined; 1st antennomere thick; 2nd globular and as thick as conical 3rd antennomere; following four antennomeres more or less quadrate; 8th antennomere only slightly narrower and smaller than 7th and 9th antennomere; 9th and 10th antennomere slightly wider than long.

Pronotum: 0.25 mm long, 0.30 mm wide; with fine lateral margin visible in its total length in dorsal aspect; deeply emarginate in posterior half; anterior edge approximately 1.5 times as wide as posterior edge; densely and deeply punctate; distance between setiferous punctures on average half as wide as diameter of punctures; in midline with impressions in both anterior and posterior half; surface with remains of microsculpture, but mostly polished and shiny.

Elytra: 0.30 mm long, 0.35 mm wide; with similar deep and dense setiferous punctation as pronotum; surface with remains of microsculpture, but moderately polished and shiny.

Abdomen on tergites III to VI more weakly, but as densely punctate as elytra; density of punctation decreasing posteriad; microsculpture more distinct than on fore-body; surface less shiny; tergite VIII of male straightly narrowed to rounded apex; sparsely punctate.

Aedeagus slender with apical part nearly as long as basal part; paramera slightly longer than central lobe and with small apical transparent plate.

Remarks:

No differences could be found between the Mexican specimens and the South American specimens, which let suppose that the species might also occur in other Central American countries.

4 Discussion

The remarkable structure of the aedeagus, in particular, the structure of the paramera with the suction-cup-like apical appendix, at least in the genus *Espeson*, is unique in the family Staphylinidae. Moreover, it seems that the paramera are divided into two parts, similar to the subfamily Aleocharinae. Although the overall habit of the fore-body resembles that in the genus *Glyptoma* ERICHSON, 1839, the structure of the aedeagus suggests that both genera are not closely related to *Glyptoma* as already emphasised by IRMLER (2010). LECOQ (1994) mentioned the smaller 8th antennomere as characteristic to differentiate *Pseudespeson* from *Espeson*, but as the comparison of all *Espeson* species showed the size of the 8th antennomere varies in this genus. In several species, e.g. *E. moratus*, the 8th antennomere equals 7th and 9th antennomere in size, but in other species, e.g. *E. microphthalmus* and *E. nevermanni*, it is distinctly smaller. In some species, e.g. *E. simplex* and *E. pecki*, 8th antennomere is only slightly smaller than 7th or 9th antennomeres. Thus, this character is not appropriate to differentiate the two genera. Furthermore, LECOQ (1994) also noted the shape of the last abdominal tergite as differentiating character between the two genera. Indeed, in the two Neotropical *Pseudespeson* species the last abdominal tergite is of triangular shape with short apical spine. In *Espeson*, a triangular shape of the last tergite without spine is found in *E. titschacki*, a central spine at an emarginate posterior edge is found in *E. hermani*. The distinct sexual dimorphism in *Espeson* with simple triangular shape of last abdominal tergites, i.e. *E. titschacki*, and various shapes in males indicates that the variance in the shape of the last abdominal tergite might be high and provide no valuable differentiating character, too.

The geographic distributions of the species are still vague due to the rare records of the species. The genus *Pseudespeson* was recorded from extreme distant locations, i.e. Guadeloupe and southern Brazil, which indicates that species might occur also in other Neotropical countries. In particular, *P. nitens* that was recorded from The Caribbean, Brazil and Peru shows a wide distribution, but seem to be rare. In contrast, the species of the genus *Espeson* are widely distributed from Mexico to Argentina. Some, e.g. *E. moratus* and *E. titschacki*, seem to be distributed over the whole Neotropical region or at least in a wide area of South America and the Caribbean. Others, i.e. *E. dybasi*, were found from several localities of southern Central America and the northern Andean region of South America. Thus, similar geographical distributions can be assumed as in other osorine genera (IRMLER 2007, 2010).

Concerning the ecology of the species, our knowledge is similarly poor as for the geographical distribution. Referring to the information given on the labels by the collectors, many specimens were found in litter of rain forests. Nevertheless, also other habitats are recorded, e.g. *E. adisi* was also found by tree eclectors, *E. nevermanni* was found under bark, and *E. moratus* even in nests of ants. These records indicate that a variety of habitats may be inhabited by the species.

5 References

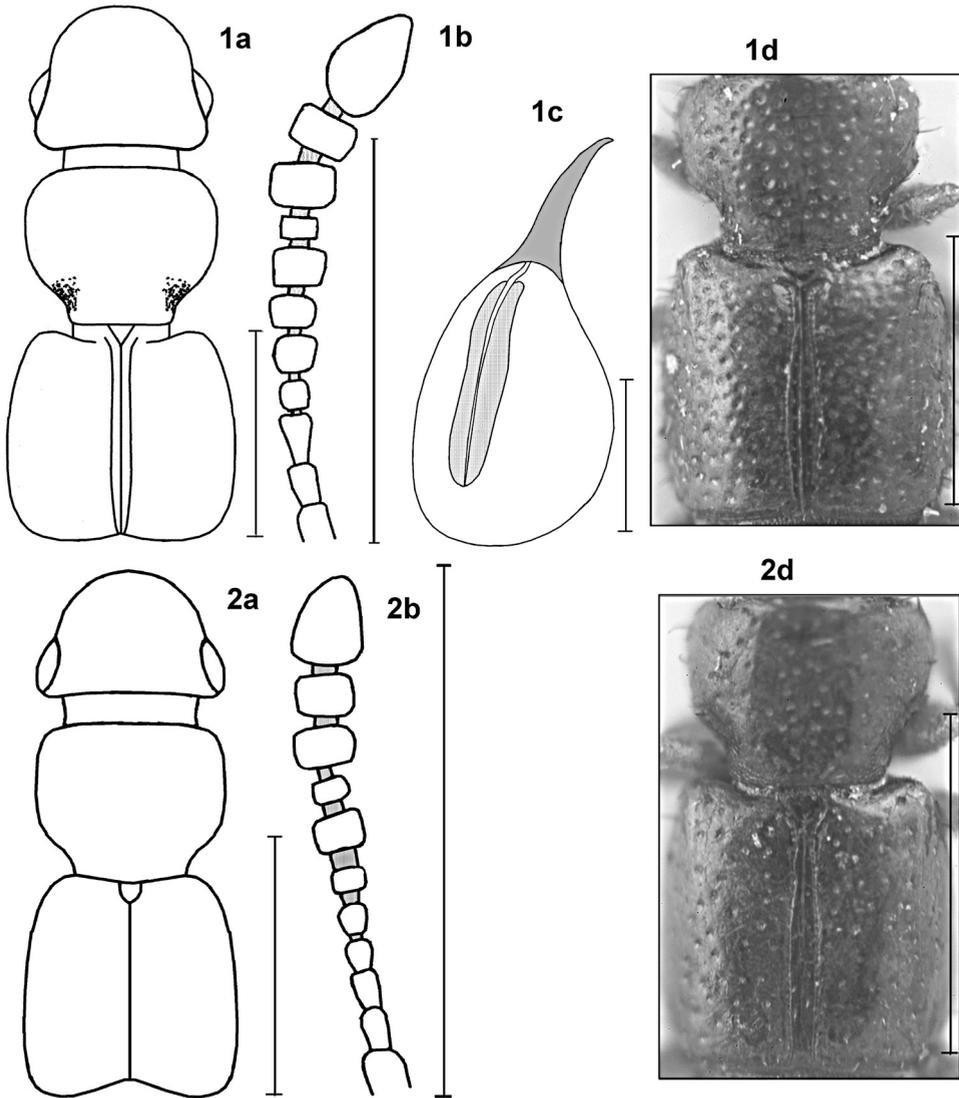
- BERNHAEUER, M. 1910: Staphylinidae (Coleoptera). – Beiträge zur Fauna Perus 1: 277-293.
- BERNHAEUER, M. 1942: Neue Staphyliniden aus Kostarika. – Zoologischer Anzeiger **138**: 1-27.
- FAUVEL, A. 1902: Staphylinides exotiques nouveaux – Revue d'Entomologie **21**: 8-37.
- HADLEY, A. 2006: CombineZ5.3. <http://www.hadleyweb.pwp.blueyonder.co.uk/CZ5/combinez5.htm>
- HERMAN, L. 2001: Catalogue of the Staphylinidae (Insecta: Coleoptera). 1758 to the end of the second millennium. II. Oxytelinae group. – Bulletin of the American Museum of Natural History **265**: 1067-1806.
- IRMLER, U. 2007: The *Tannea* (Coleoptera: Staphylinidae: Osoriinae) species of Costa Rica – new species and records, a key, ecological, and geographical remarks. – Brenesia **68**: 69-85.
- IRMLER, U. 2009: New species and records of the genus *Lispinus* with a key to the species from Peru (Coleoptera: Staphylinidae: Osoriinae). – Zootaxa **2263**: 42-58.
- IRMLER, U. 2010: A new genus of Osoriinae in the Neotropical region with a cladistic analysis of the tribe Thoracophorini (Insecta: Coleoptera: Staphylinidae). – Arthropod Systematics and Phylogeny **68**: 229-237.
- LECOQ, J. C. 1994: Un nouveau genre et une nouvelle espèce d'Osoriinae de Sierra Leone: *Pseudespeson rossi* (Coleoptera, Staphylinidae). – Recherche biologique in Sierra Leone; 1 Academia Nazionale die Lincei, Rom, **267**: 299-306.
- SCHAUFUSS, L. W. 1882: Descriptions de coléptères nouveaux. – Annales de la Société Entomologique de France, 3. Série **62**: 43-48.
- SCHEERPELTZ, O. 1970: Studien über die Arten der Gattungen *Espeson* SCHAUFUSS und *Parespeson* BERNHAEUER (Coleoptera, Staphylinidae, Subfamilie Piestinae, Tribus Thoracophorini). – Mitteilungen der Münchner Entomologischen Gesellschaft **59**: 115-129.

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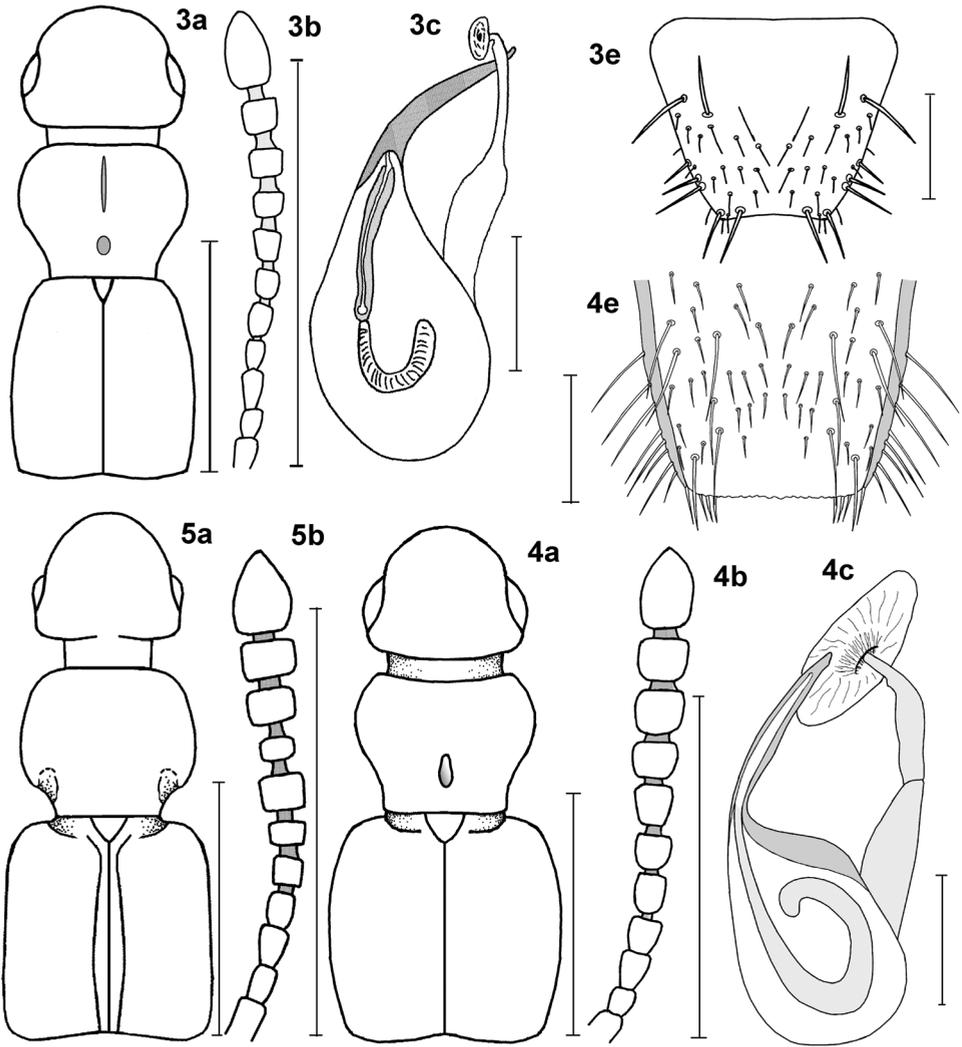
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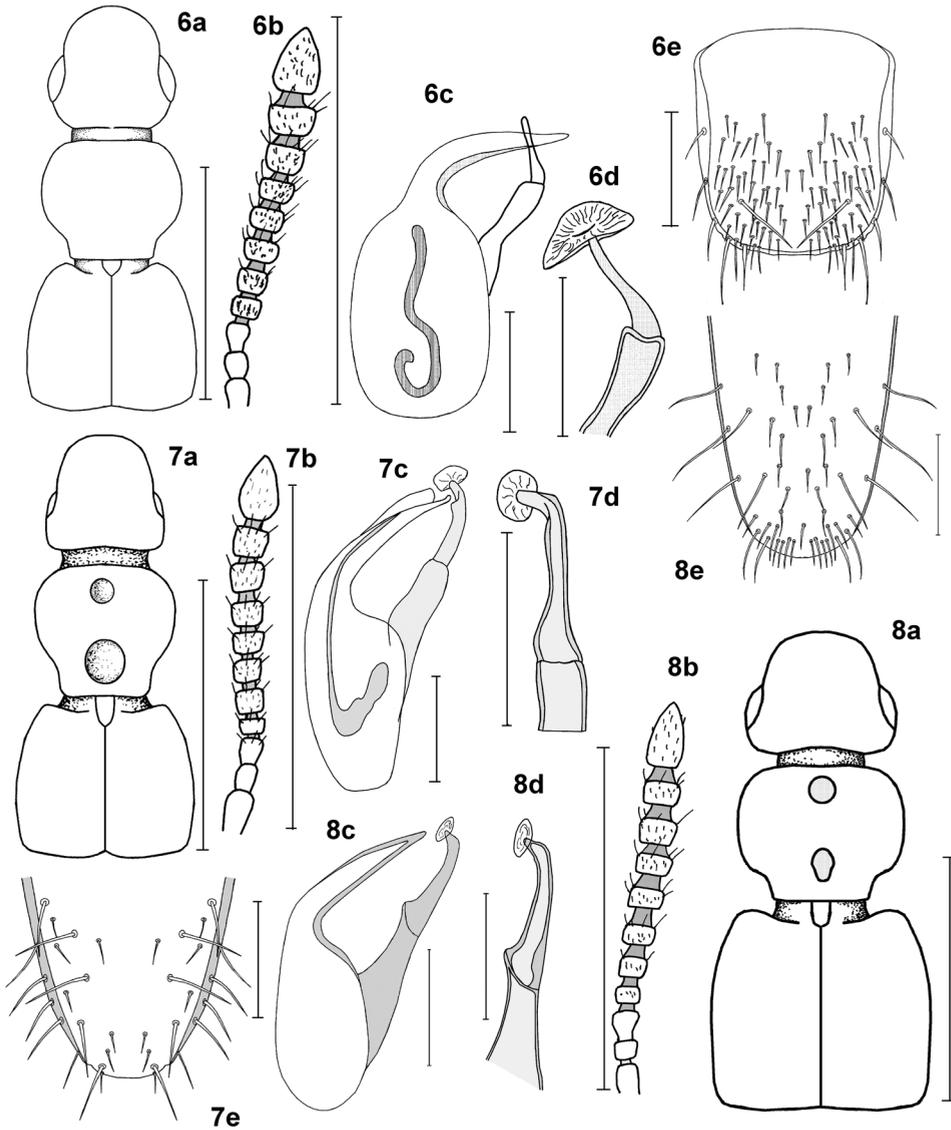
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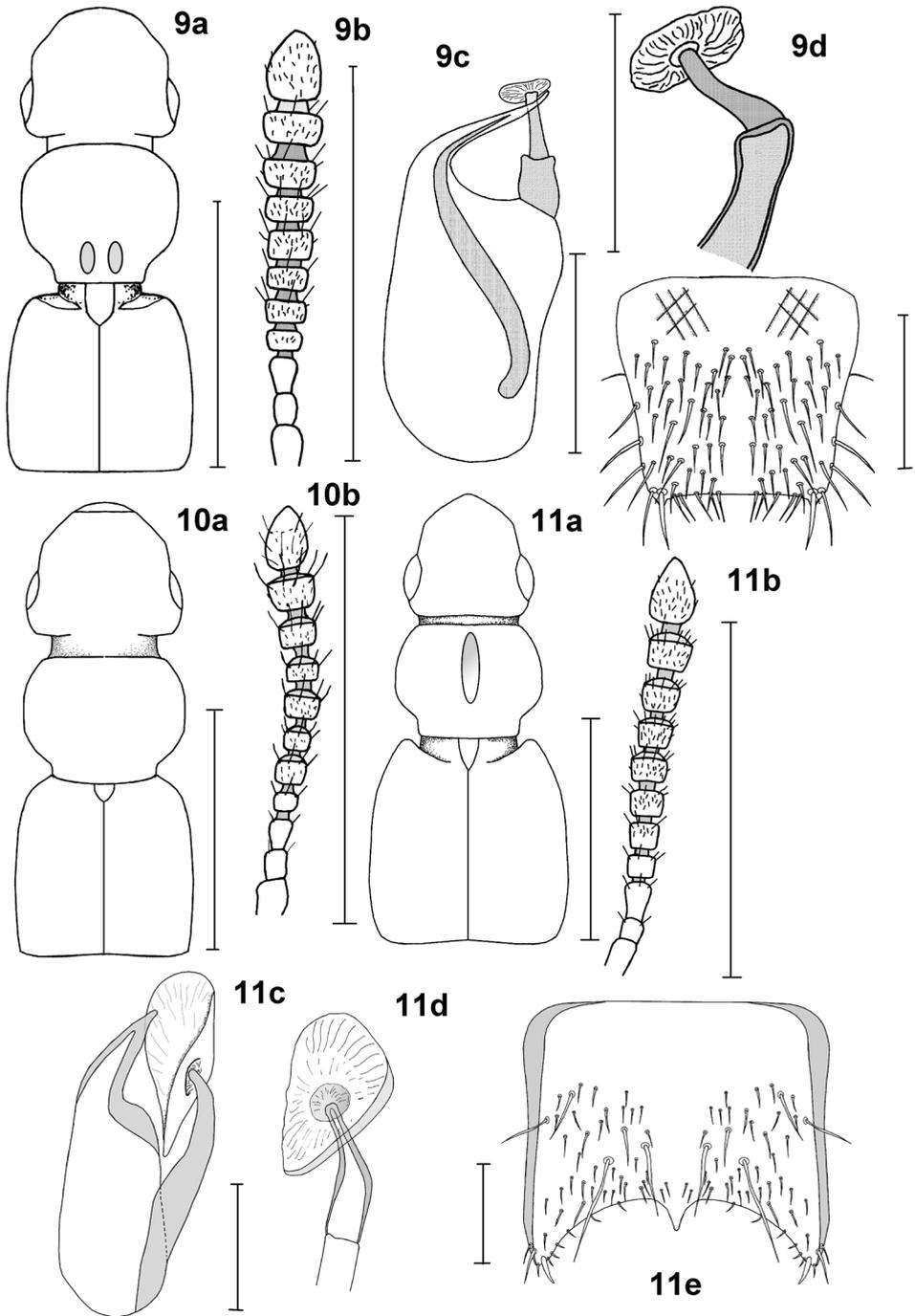
Figs 1-2: *Pseudespeson crassulus* (1), *P. nitens* (2); a: fore-body, b: antenna, c: aedeagus, d: surface of pronotum and elytra (scale bar: a, b, d: 0.5 mm, c: 0.1 mm).



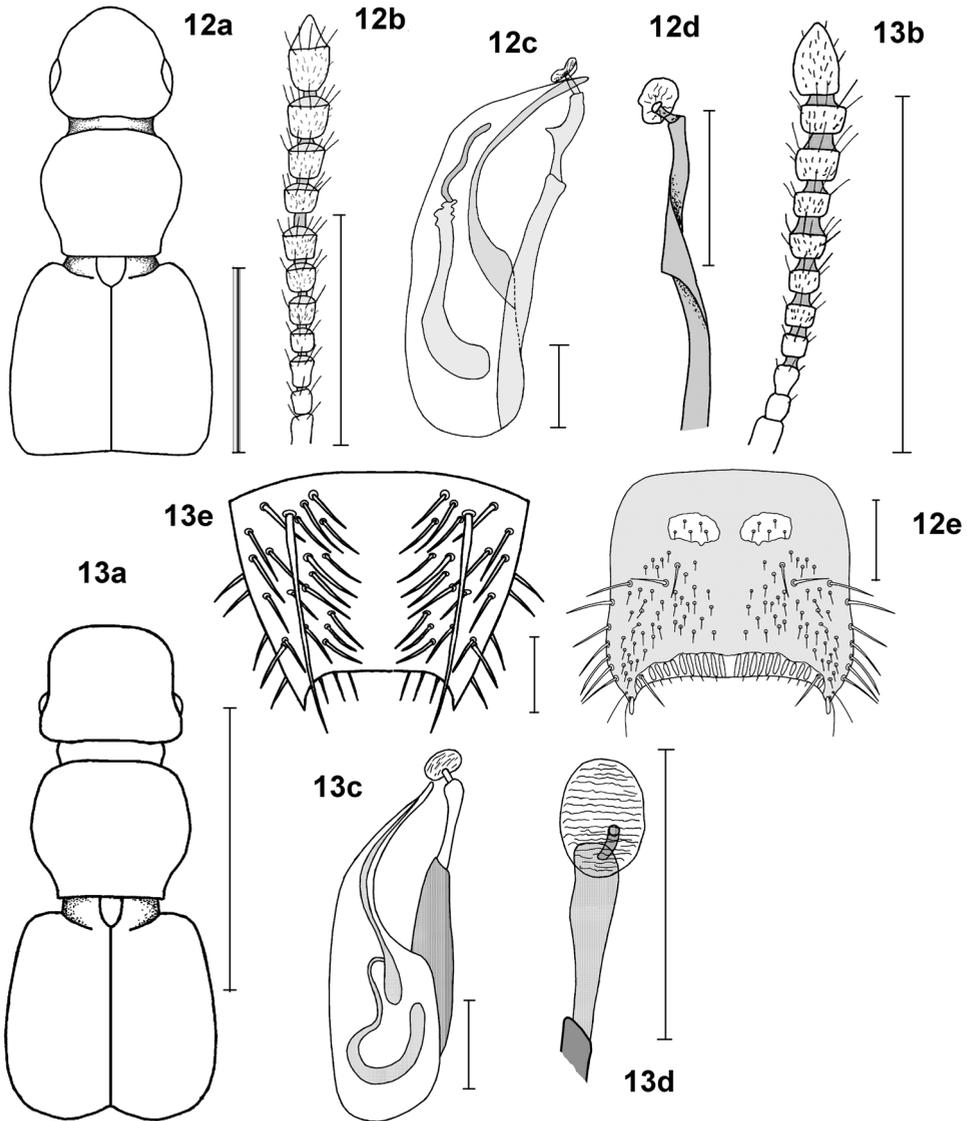
Figs 3-5: *Espeson euplectoides* (3), *E. mexicanus* (4), *E. microphthalmus* (5); a: fore body, b: antenna, c: aedeagus, e: abdominal tergite VIII of male (scale bar: a, b: 0.5 mm, c, e: 0.1 mm).



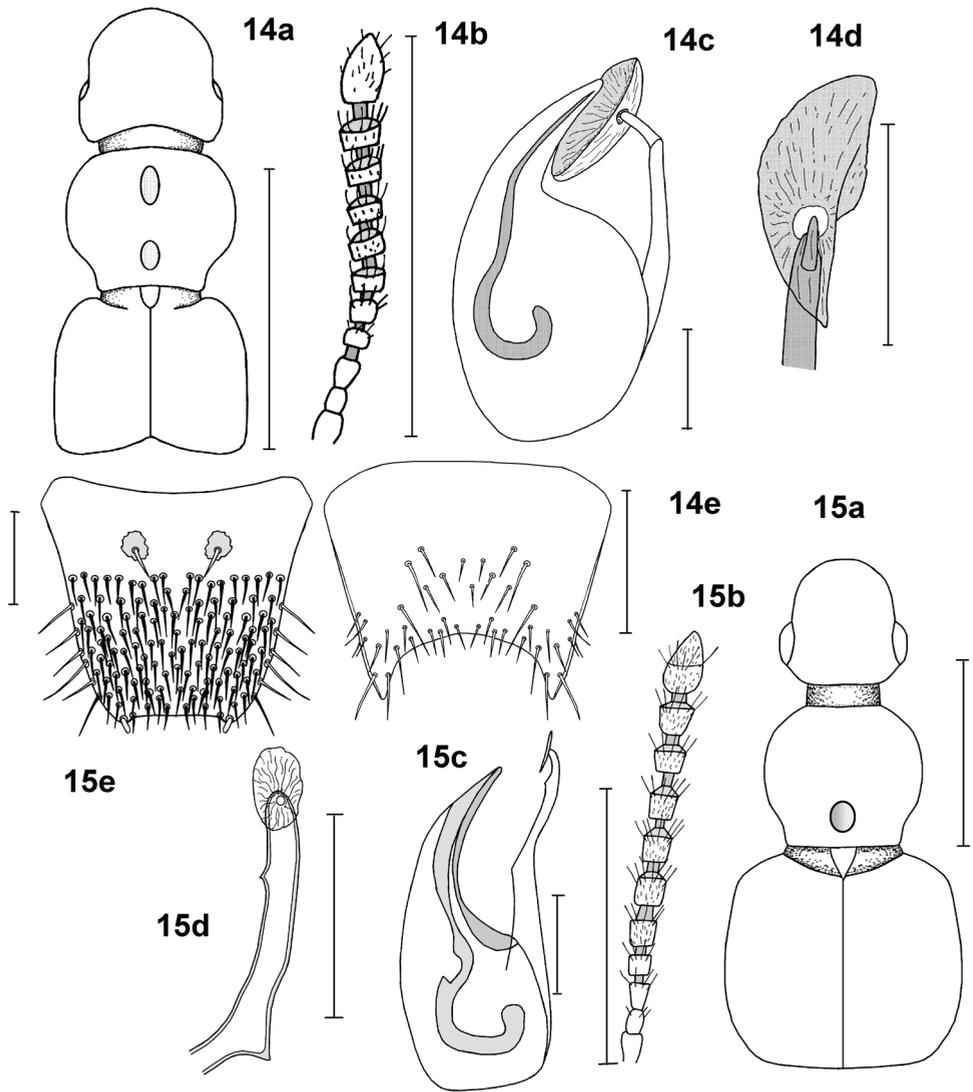
Figs 6-8: *Espeson adisi* (6), *E. titschacki* (7); *E. subtilis* (8); a: fore body, b: antenna, c: aedeagus, d: apex of paramera, e: abdominal tergite VIII of male (scale bar: a, b: 0.5 mm, c-e: 0.1 mm).



Figs 9-11: *Espeson moratus* (9), *E. nevermanni* (10); *E. hermani* (11); a: fore body, b: antenna, c: aedeagus, d: abdominal tergite VIII of male (scale bar: a, b: 0.5 mm, c–e: 0.1 mm).



Figs 12-13: *Espeson franiae* (12), *E. simplex* (13); a: fore body, b: antenna, c: aedeagus, d: apex of paramera, e: abdominal tergite VIII of male (scale bar: a, b: 0.5 mm, c-e: 0.1 mm).



Figs 14-15: *Espeson pecki* (14), *E. dybasi* (15), a: fore body, b: antenna, c: aedeagus, d: apex of paramera, e: abdominal tergite VIII of male (scale bar: a, b: 0.5 mm, c-e: 0.1 mm).

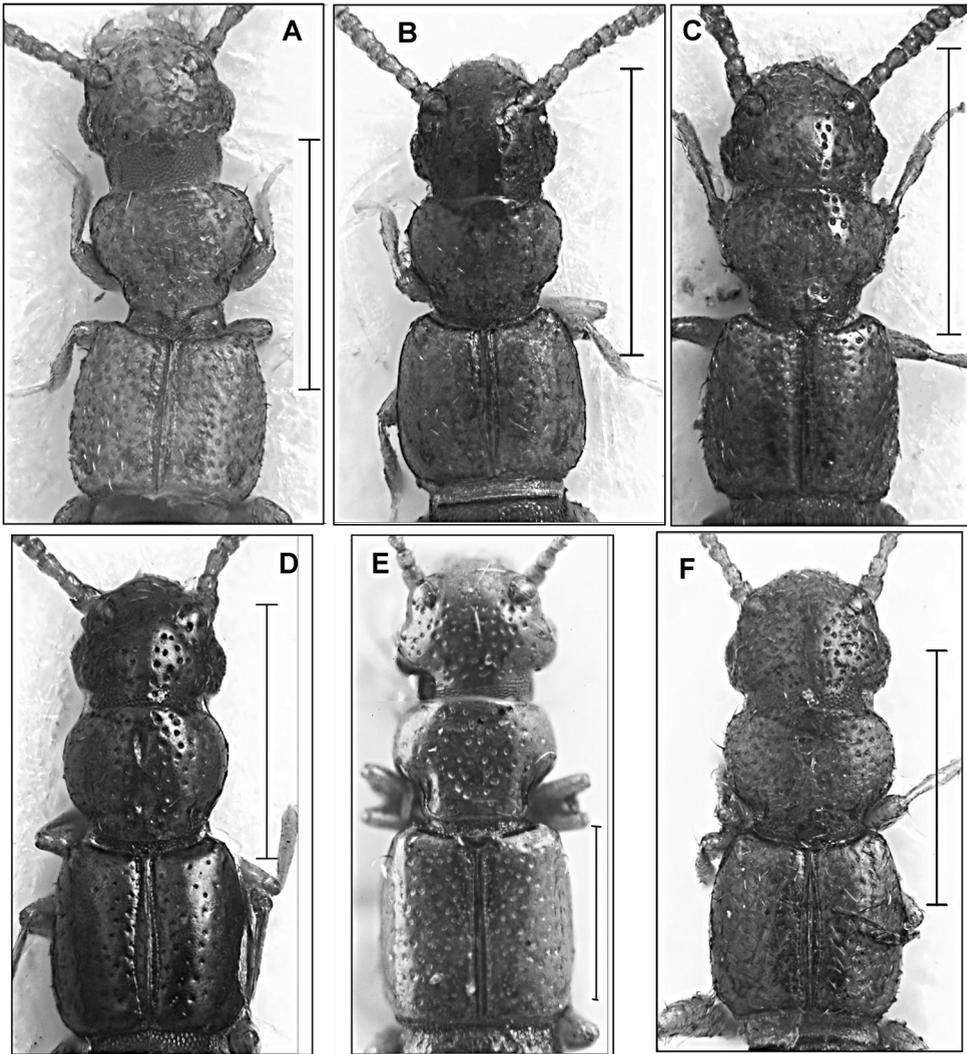


Fig. 16: Punctuation of fore-body of *Espeson adisi* (A), *E. titschacki* (B), *E. moratus* (C), *E. euplectoides* (D), *E. microphthalmus* (E); *E. nevermanni* (F); scale bare 0.5 mm.

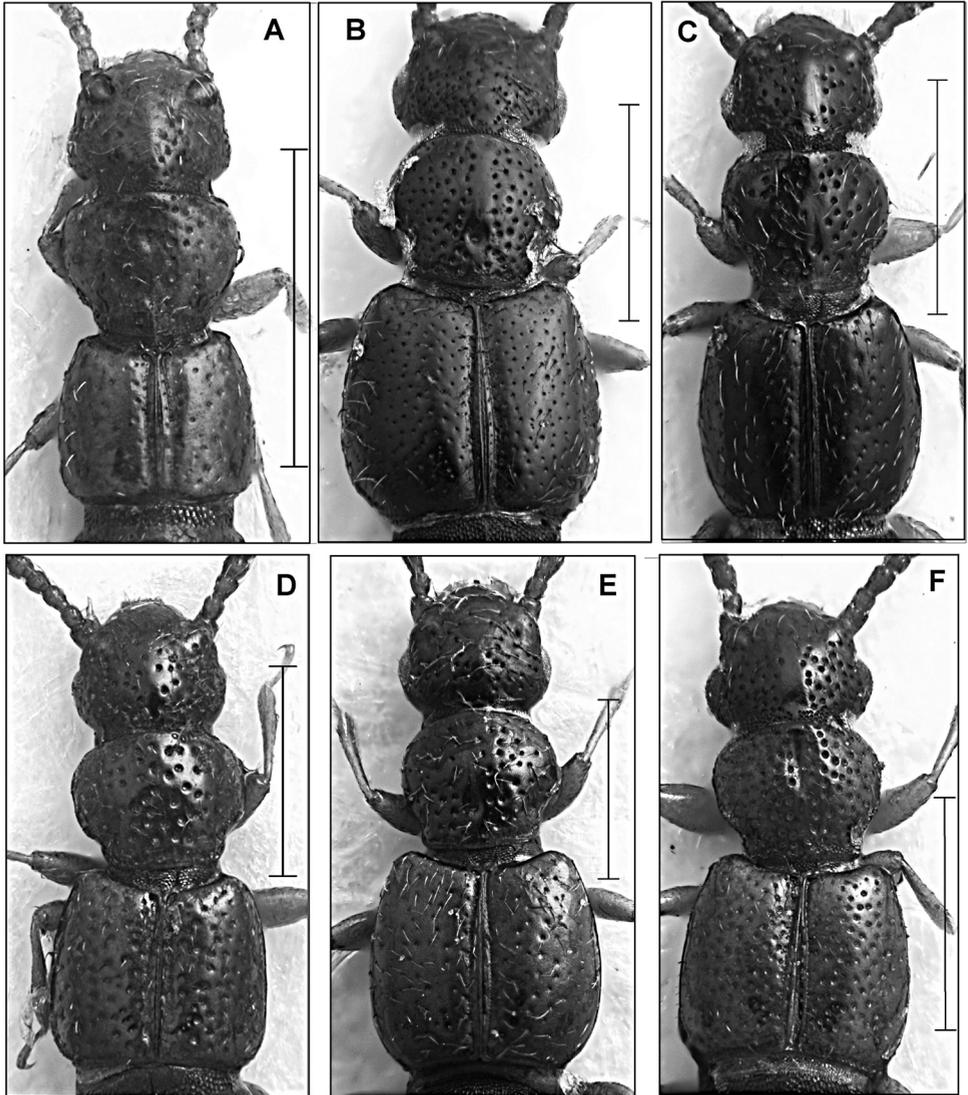


Fig. 17: Punctuation of fore-body of *Espeson pecki* (A), *E. dybasi* (B), *E. mexicanus* (C), *E. simplex* (D), *E. franiae* (E), *E. bermani* (F); scale bare 0.5 mm.



Fig. 18: *Espeson subtilis*; scale bare 0.5 mm.