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## A new *Loewia* Egger (Diptera: Tachinidae) from Turkey, with taxonomic and nomenclatural remarks on congeners

PIERFILIPPO CERRETTI<sup>1,2</sup>, GIUSEPPE LO GIUDICE<sup>1,2</sup> & JAMES E. O'HARA<sup>3</sup>

<sup>1</sup>Dipartimento di Biologia e Biotechnologie "Charles Darwin", Università di Roma "La Sapienza", Piazzale A. Moro 5, 00185 Rome, Italy

<sup>2</sup>Centro Nazionale Biodiversità Forestale (CNBFVR) – Corpo Forestale dello Stato, via Carlo Ederle 16/a, 37100 Verona, Italy

<sup>3</sup>Canadian National Collection of Insects, Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, Ontario, Canada K1A 0C6

### Abstract

The new species *Loewia papei* sp. nov. from southern Anatolia (Turkey) is described, illustrated and compared with congeners. A brief diagnosis of *Loewia* Egger is provided and the systematics of the genus are discussed. *Loewia nudigena* Mesnil, 1972 is fixed as the type species of *Fortisia* Rondani, 1861 (junior synonym of *Loewia*). A full list of previously known valid species of *Loewia* is provided along with information on primary types, type repositories (where known), and type localities. A lectotype is designated for *Thrychogena brevifrons* Rondani, 1856 (= *Loewia brevifrons* (Rondani, 1856)).

**Key words:** *Loewia*, new species, nomenclature, Palaearctic, Tachinidae, taxonomy, Turkey

### Introduction

The ernestiine genus *Loewia* Egger, 1856 was previously known from 16 valid species in the Palaearctic Region. With the exception of *L. latifrons* Mesnil, 1973, which seems to be restricted to the East-Palaearctic (Chita and Ussuria, cf. Ziegler & Shima 1996), all the other species are West-Palaearctic in distribution (Herting & Dely-Draskovits 1993; Ziegler 1996). The European *L. foeda* (Meigen, 1824) has also been recorded from North America (USA: New York; Canada: Ontario, Quebec) (Wood & Wheeler 1972; Wood 1987; O'Hara & Wood 2004), where it was probably accidentally introduced. Very little is known about the biology of species belonging to this genus: *Loewia foeda*, a parasite of *Lithobius* spp. (Chilopoda: Lithobiomorpha), is the only species of the genus for which host records and information on larval morphology are known in some detail (Thompson 1915). New data in behavior and ecology of *L. foeda* will be published in the next issue of the online newsletter 'The Tachinid Times' on February 2014 (Haraldseide & Tschorsnig, pers. comm., November 2013). Recently, two puparia of a *Loewia* species (probably *Loewia brevifrons* (Rondani, 1856), due to their large size [ca. 8 mm in length]) were found within the remains of an *Eupolybothrus fasciatus* (Newport) (Chilopoda: Lithobiomorpha) in central Italy (Cerretti 2010; Cerretti & Tschorsnig 2010). *Loewia* is among the very few tachinids attacking a non-insect arthropod (cf. Herting 1960; Wood & Wheeler 1972; Wood 1987).

No unique autapomorphies support *Loewia*'s monophyly, but all species share the following combination of character states that unequivocally distinguishes the genus from other tachinids: (i) male frons narrow, not exceeding one third of the width of a compound eye in dorsal view (usually distinctly narrower), (ii) male with weak, proclinate and feebly distinct inner and outer vertical setae, (iii) antenna arising at about middle of compound eye height, (iv) postpedicel short, at most 1.5 times as long as pedicel, (v) occiput mainly covered with black setulae, (vi) lower facial margin not visible in lateral view in front of vibrissal insertion, (vii) prosternum bare, (viii) preapical anterodorsal seta of fore tibia as long as, or longer than, preapical dorsal seta, (ix) preapical posteroventral seta on hind tibia about as long as preapical anteroventral seta, (x) abdomen ovoid, not laterally or dorsoventrally compressed, (xi) male intermedium scarcely developed, (xii) male cerci entirely fused medially and

more or less subtriangular in posterior view, and (xiii) body ground colour dull shiny black. Specimens of *Loewia* from the Palaearctic and Nearctic regions can be identified using dichotomous (Wood 1987; Tschorsnig & Richter 1998) and interactive (Cerretti 2010; Cerretti *et al.* 2012) keys.

This paper was prompted by the finding of a few specimens of an undescribed species of *Loewia* in the western Taurus Mountain Range (Anatolia, Turkey). The species is described and compared with its congeners to provide a clear differential diagnosis. The systematics of the genus *Loewia* are discussed and a few nomenclatural issues are addressed.

## Material and methods

**Specimens.** Male terminalia were dissected and prepared for examination following the method described by Cerretti & Pape (2012). Composite photomicrographs were produced from stacked images captured using a DS-L1 digital camera (Nikon, Tokyo) mounted on a MZ 12.5 stereoscopic microscope (head, wing, habitus) and a DM LS microscope (Leica, Wetzlar, Germany), and processed with CombineZP Image Stacking Software (UK). The material examined is deposited in the following collections (acronyms as used in the text):

BMNH	Natural History Museum [formerly British Museum (Natural History)], London, United Kingdom.
CNC	Canadian National Collection of Insects, Agriculture and Agri-Food Canada, Ottawa, Canada.
DEI	Deutsches Entomologisches Institut, Leibniz-Zentrum für Agrarlandschaftsforschung, Müncheberg, Germany.
IRSNB	Institut Royal des Sciences Naturelles de Belgique, Bruxelles [Brussels], Belgium.
MHNL	Musée d'Histoire Naturelle de Lille, Lille, France.
MNHN	Muséum National d'Histoire Naturelle, Paris, France.
MZF	Museo Zoologico "La Specola", Firenze [Florence], Italy.
MZUR	Museum of Zoology, Università di Roma "La Sapienza", Roma [Rome], Italy.
NHMW	Naturhistorisches Museum Wien, Wien [Vienna], Austria.
NHRS	Naturhistoriska riksmuseet [Swedish Museum of Natural History], Stockholm, Sweden.
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany.
ZIN	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.
ZMUC	Zoological Museum, Natural History Museum of Denmark, University of Copenhagen, Copenhagen, Denmark.

Label data of primary types are given verbatim using the following symbols:

/ end of a line and beginning of the next;

// end of a label and beginning of the next (from top to bottom on the same pin).

**Terminology.** Morphological terminology generally follows Merz & Haenni (2000) except for the antenna and for the wing vein abbreviations for which we are following Stuckenberg (1999) and McAlpine (1981), respectively. Measurements and ratios of the head follow Cerretti (2010).

## Systematics

### Genus *Loewia* Egger

*Thrychogena* Rondani, 1856: 65. *Nomen oblitum* (see O'Hara *et al.* 2011: 180); senior but invalid synonym of *Loewia* Egger, 1856. Type species: *Thrychogena brevifrons* Rondani, 1856, by monotypy.

*Loewia* Egger, 1856: 386. *Nomen protectum* (see O'Hara *et al.* 2011: 180); junior but valid synonym of *Thrychogena* Rondani, 1856. Type species: *Loewia setibarba* Egger, 1856, by monotypy.

*Thricogena* Rondani, 1859: 242. Unjustified emendation of *Thrychogena* Rondani, 1856. This is one of two original spellings of the name in Rondani (1859), the other being *Tricogena*. Acting as the First Reviser, O'Hara *et al.* (2011: 179) selected *Thricogena* as the correct original spelling.

- Fortisia* Rondani, 1861: 94. Type species: hereby fixed under Article 70.3.2 of ICZN (1999) as *Loewia nudigena* Mesnil, 1973, misidentified as *Tachina foeda* Meigen, 1824 (as “*F. Phaeda* Wdm. Mgn. (non Macq.)”) in the fixation by monotypy of Rondani (1861).
- Thrychogena* Bezzi, 1894: 305 (in synonymy with *Loewia* Egger, 1856), 352 (index). Unjustified emendation of *Thrychogena* Rondani, 1856 (see O’Hara *et al.* 2011: 268).
- Oestroloewia* Mesnil, 1953: 152. Type species: *Oestroloewia crassipes* Mesnil, 1953, by monotypy.
- Thrychogrna*. Incorrect subsequent spelling of *Thrychogena* Rondani, 1856. This spelling first appeared in the Junk 1914 facsimile edition of Rondani (1856) and was unwittingly attributed to the original Rondani (1856) by Herting (1984: 109, 190) (see O’Hara *et al.* 2011: 201).
- Trichogena*. Incorrect subsequent spelling of *Thrychogena* Rondani, 1856 (Bezzi & Stein 1907: 403, in synonymy with *Loewia*; Mesnil 1973: 1204, in synonymy with *Loewia*, p. 1205, as subgenus of *Loewia*; Herting 1984: 109).
- Tricogena*. Incorrect original spelling of *Thricogena* Rondani, 1859 (Rondani 1859: 84, as “*Tricogena*” in Latin) (see O’Hara *et al.* 2011: 183).

Selected references: Thompson (1915) (biology and pre-imaginal instars of *L. foeda*); Herting (1971) (key to European species, with description of a new species); Richter (1972) (description of a new species from the Caucasus); Wood & Wheeler (1972) (first record of *L. foeda* for the Nearctic Region and redescription); Mesnil (1973) (redescription, with key to Palaearctic species); Herting (1983) (taxonomy of *L. rondanii* Villeneuve, 1920a); Herting (1984) (Palaearctic catalogue); Tschorsnig (1985) (morphology of male terminalia); Wood (1987) (key to Nearctic genera); Tschorsnig & Herting (1994) (key to genera and species of Central Europe); Ziegler (1996) (description of a new species from Crete); Tschorsnig & Richter (1998) (key to Palaearctic genera); Tschorsnig *et al.* (2004) (checklist of European species); Cerretti (2010) (redescription, with key to West-Palaearctic species); O’Hara *et al.* (2011) (nomenclatural revision of Rondani’s genus-group names); Cerretti *et al.* (2012) (interactive key to Palaearctic genera).

### Previously known valid species

See Herting and Dely-Draskovits (1993: 306) for synonyms of valid species.

- 1 *adjuncta* Herting, 1971: 9 (*Loewia*). Holotype male (SMNS). Type locality: Austria, Mariazell.
- 2 *alpestris* Villeneuve, 1920b: 117 (*Macquartia*). Syntypes, 1 male and 1 female (not located; probably IRSNB). Type localities: France, St-Pierre-de-Chartreuse (male) and Italy, Macugnaga (female).
- 3 *aragvicola* Richter, 1972: 924 (*Loewia*). Holotype male (ZIN). Type locality: Georgia, Pasanauri.
- 4 *brevifrons* Rondani, 1856: 65 (*Thrychogena*). Lectotype male (MZF), by designation herein. Type locality: not given (probably vicinity of Parma).

Remarks: Rondani (1856: 65) proposed the genus-group name *Thrychogena* for the single species *brevifrons* in a footnote to genus *Macquartia* Robineau-Desvoidy, 1830, writing: “A quo [*Macquartia*] forsitan sejungenda spec: nova, *Brevifrons* Mihi, quae generice ab aliis distincta erit — Fronte nihil omnino prominente — Peristomio setoso, paeter macrochetas orales ect. — Genus apellandum *Thrychogena* Mihi.” [“From which [*Macquartia*] perhaps ought to be separated the new species *Brevifrons*, which will be distinct from other genera — Frons not at all protruded — Peristome setose, in addition to oral macrochaetae etc. — called my new genus *Thrychogena*.”]. Rondani did not specify the number of specimens, their sex, or a type locality. Rondani (1859: 84, 86) later gave a full description of *brevifrons*, treating it as a new species of *Macquartia* but again noting in a footnote (p. 84): “Forte characteres isti genericam differentiam indicant, et *Tricogena* genus a me pro hac specie propositum, adoptandum.” [“Perhaps the characters suggest to distinguish it as a genus, and I adopted the genus *Tricogena* for this particular purpose.”] Rondani (1859: 86–87) clearly based his description on both males and females and mentioned they were collected “in agro parmensi, praesertim in montuosis” [“in fields near Parma, especially in the mountains”]. There are currently 6 (1 male, 5 females) conspecific specimens standing under the name *brevifrons* in the Rondani collection in MZF:

- i. 1 male, 4 females—drawer: 11; condition of specimens: good; label data for each: 537 // Museo “La Specola” / coll. Rondani / Syntypus;
- ii. 1 female—drawer: E; condition of specimen: good; label data: 393 / 205 // *Macquartia* Desv / *Brevifrons* Rnd / 205 ♀ Parma // Museo “La Specola” / coll. Rondani / Syntypus .

In the absence of evidence to the contrary the above specimens are all assumed to be original syntypes of

*Thrychogena brevifrons* Rondani, 1856. In order to preserve nomenclatural stability, authors Cerretti and O'Hara here select the single male syntype as lectotype of *Thrychogena brevifrons* Rondani, 1856 [= *Loewia brevifrons* (Rondani)]. The lectotype has been provided with the following additional labels: Lectotype ♂ / *Thrychogena / brevifrons* Rondani, 1856 / Cerretti & O'Hara des. 2013 // *Loewia / brevifrons* (Rondani, 1856) / Cerretti & O'Hara det. 2013.

- 5 *crassipes* Mesnil, 1953: 152 (*Oestroloewia*). Holotype male (BMNH). Type locality: Middle East, "Palestine".
- 6 *cretica* Ziegler, 1996: 323 (*Loewia*). Holotype male (DEI). Type locality: Greece, Kriti [Crete], Heraklion District, 4 km SE Timbákion, hill near Phaistos, 35°03'N 24°48'E [given as "35.03 N 24.48 E"].
- 7 *erecta* Bergström, 2007: 3 (*Loewia*). Holotype male (NHRS). Type locality, Sweden, Uppsala, Nästen, Forsbacka.
- 8 *foeda* Meigen, 1824: 282 (*Tachina*). Syntypes, females ("Mehre Exemplare" ["several specimens"]) (MNHN, Herting 1972: 7). Type locality: not given (Europe).
- 9 *latifrons* Mesnil, 1973: 1208 (*Loewia (Fortisia)*). Holotype male (ZIN). Type locality: Russia, eastern Siberia, Khabarovsk.
- 10 *montivaga* Richter, 1998: 709 (*Loewia*). Holotype male (ZIN). Type locality: Azerbaijan, Qakh District, upper Kurmukhchay River, Sarybash.
- 11 *nudigena* Mesnil, 1973: 1208 (*Loewia (Fortisia)*) (named for *Dufouria clausa* of authors, not Robineau-Desvoidy, 1830). Syntypes, males and females (1 male in CNC, Cooper & O'Hara 1996: 47). Type locality: not given; male in CNC from Switzerland, Delémont (Cooper & O'Hara 1996: 47).
- 12 *phaeoptera* Meigen, 1824: 288 (*Tachina*). Syntypes, description mentions only males (female(s) in MNHN, Herting 1972: 11). Type locality: not given (specimens collected by Meigen in summer and hence probably Germany, Stolberg).  
Remarks: There are two original spellings for *phaeoptera* in Meigen (1824): *phoeoptera* (p. 288, species header) and *phaeoptera* (p. 427, index). By subsequent usage (Article 24.2.4 of ICZN 1999), Meigen (1838: 212) acted as the First Reviser and selected *phaeoptera* as the correct original spelling.
- 13 *piligena* Mesnil, 1973: 1209 (*Loewia (Fortisia)*). Holotype male (SMNS). Type locality: Austria, Lavamünd.
- 14 *rondanii* Villeneuve, 1920a: 356 (*Fortisia*). Syntypes, unspecified number and sex (probably lost, Mesnil 1973: 1205; Herting 1983: 4) (named for *Tachina foeda* of Rondani, 1861, not Meigen, 1824, but Villeneuve misidentified Rondani's misidentification according to Herting 1983: 5). Type locality: Corse [Corsica].
- 15 *setibarba* Egger, 1856: 386 (*Loewia*). Syntypes, 2 males (NHMW). Type locality: Italy, Trieste [originally given as "Nussdorf" (now part of greater Wien) but corrected to Trieste (as "Triest") by Schiner (1861: 528)].
- 16 *submetallica* Macquart, 1855: 189 (*Rhinophora*). Type(s), male (MHNL, according to Herting 1976: 8). Type locality: France, Mont-de-Marsan.

### ***Loewia papei* sp. nov.**

Figs 1A–G, 2C, 2F, 2G

**Type material.** Holotype male: Turkey—Isparta prov. / nr. Kovada Gölü, 1010 m / 37°36'43.65"N 30°51'48.38"E / 3.vi.2011, Pape & Whitmore [MZUR]. Paratypes: 3 males, same data as holotype [MZUR, SMNS, ZMUC]; 1 male, Turkey—Antalya prov. / 9km NNW Akseki 1660 m / 37°7'22.64"N 31°45'37.90"E / 31.v.2011, Pape & Whitmore [PC collection at MZUR]; 1 female, Turkey—Isparta prov. / 2km SSE Aşağıgökdere / 480 m / 4.vi.2011, Pape & Whitmore [PC collection at MZUR].

**Etymology.** Dedicated to the Danish dipterist and outstanding systematist, Thomas Pape, who collected the type specimens.

**Diagnosis.** *Loewia papei* is strongly characterized by the presence of a long  $M_2$  appendix that is about 2–3 times as long as crossvein r-m (Fig. 1G). This state is unique among *Loewia* species (see Fig. 1H), but the species is clearly a member of the *Loewia* clade and we therefore extend the generic limits of the genus to include it. The MOSCHweb interactive key data matrix (character 74) and online key (Cerretti *et al.* 2012) have been modified accordingly.

*Loewia papei* is distinguishable from its congeners also by the following combination of characters: (i) male compound eye covered with dense, long ommatrichia; (ii) parafacial entirely bare; (iii) three or four katapisternal

setae; (iv) three basal postpronotal setae arranged in a line; (v) two well-developed anepimeral setae; (vi) two posthumeral setae; (vii) presutural intra-alar seta present; (viii) halter blackish-brown; (ix) petiole of wing cell  $r_{4+5}$  about 1/5 of postangular section of vein M; (x) male with a well-developed epiphallus, and (xi) male with a well-developed extension of dorsal sclerite of distiphallus.

**Description.** *Body length:* 9–11 mm.

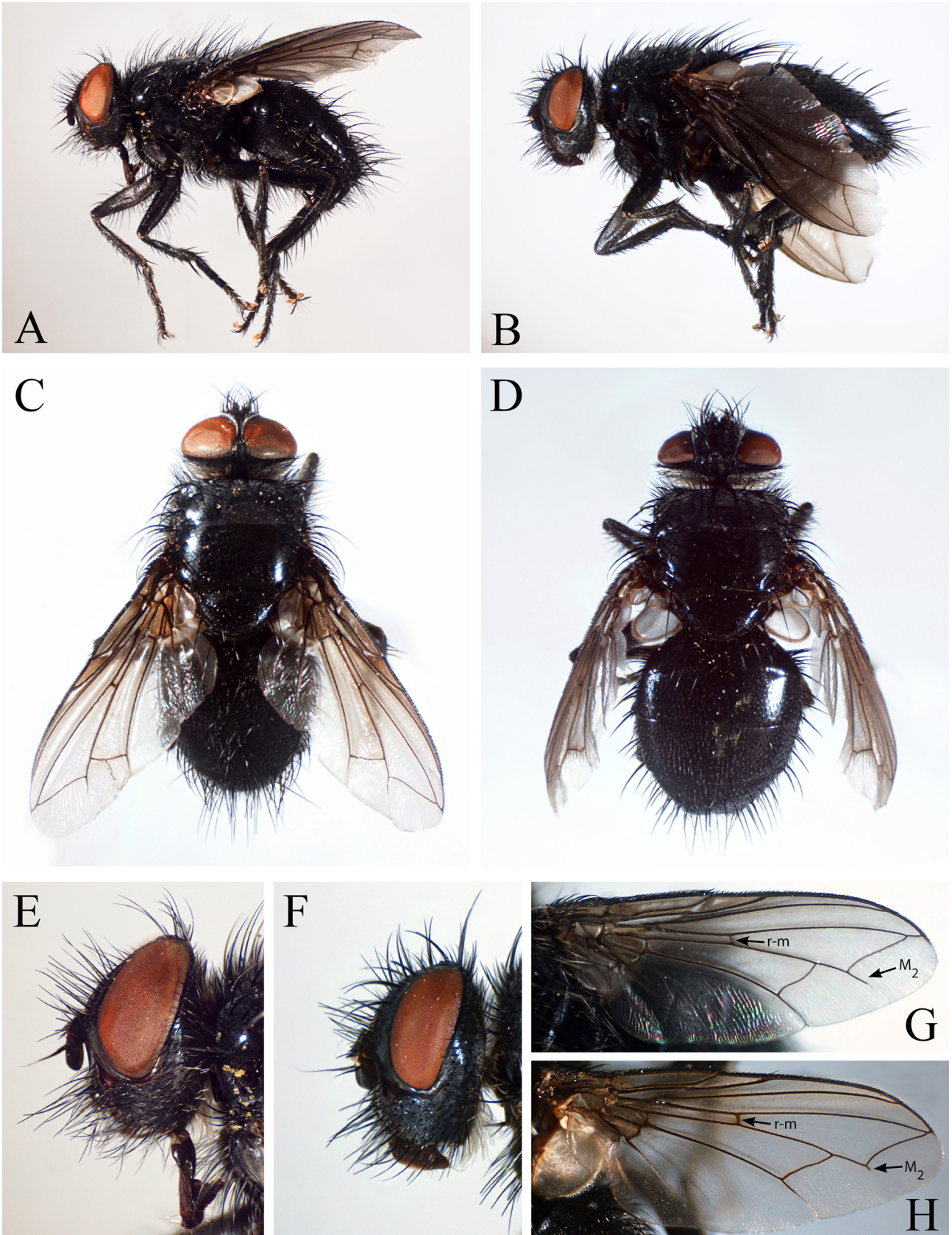
*Male (Figs 1A, 1C, 1E, 1G, 2C, 2F, 2G):*

*Colouration (Fig. 1A–G):* Head black, covered with weak, grey, microtomentum. Antenna mainly black or dark brown except distal end of pedicel and inner proximal portion of postpedicel which are light brown to yellowish. Thorax (including legs and scutellum) shiny black; presutural portion of scutum feebly covered with grey microtomentum, except on the four longitudinal vittae. Tegula and basicosta black. Wing membrane distinctly infuscated anterobasally (Fig. 1G). Halter blackish-brown. Abdomen entirely black, evenly covered with weak and virtually undetectable microtomentum.

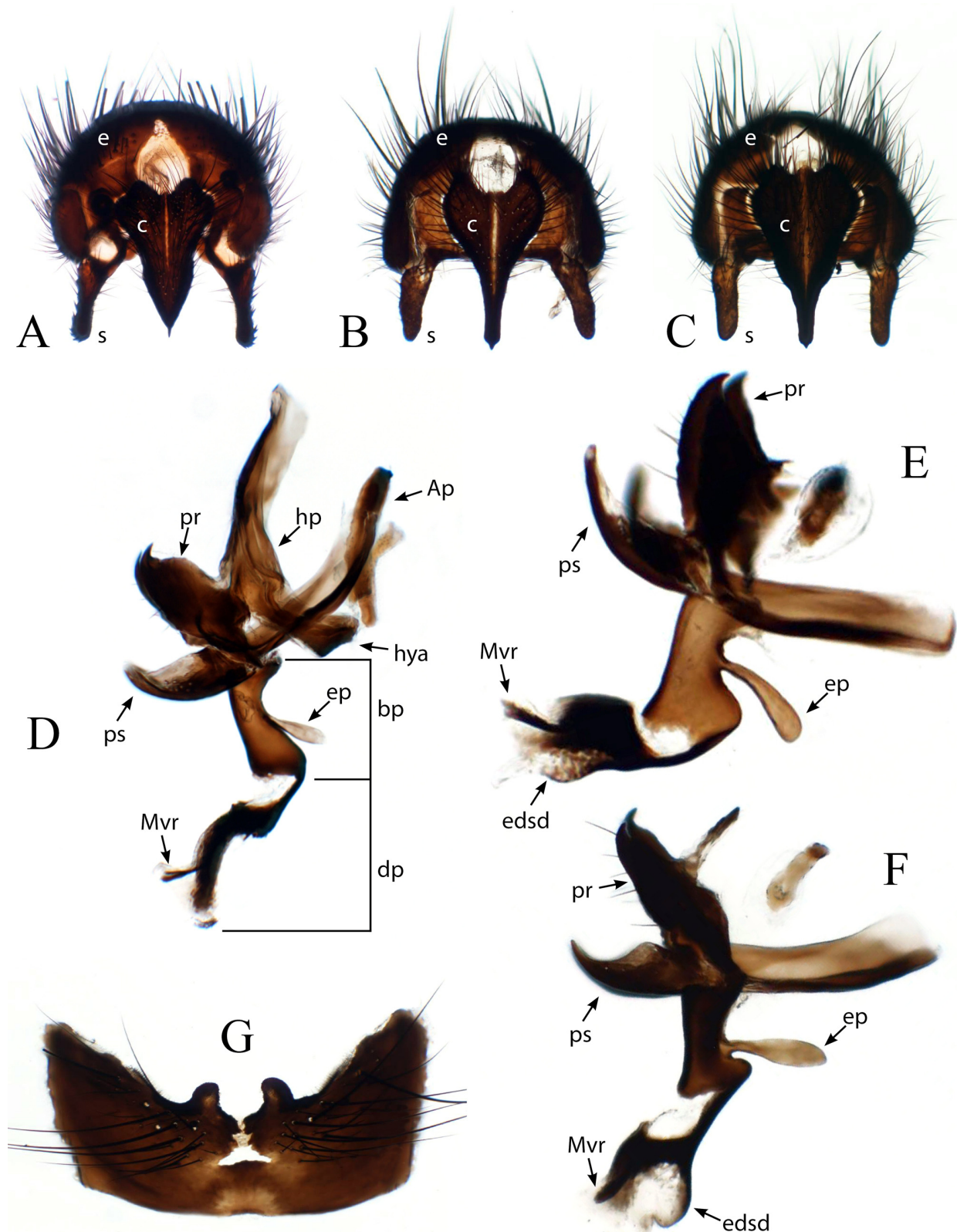
*Head (Fig. 1A–F):* Compound eye covered with long ommatrichia, which are distinctly longer than three eye facets. Ocelli present; ocellar setae well developed, proclinate. Frons at its narrowest point 0.11–0.14 times as wide as compound eye in dorsal view. Outer vertical setae may or may not be differentiated from postocular setae. Frontal setae descending to level between middle and lower margin of pedicel. Fronto-orbital plate with several proclinate setulae between frontal row and compound eye margin. Upper reclinate orbital setae not developed. Proclinate orbital setae absent. Parafacial entirely bare below lower frontal seta. Parafacial at its narrowest point about as wide as width of postpedicel at midlength. Parafacial not narrowing ventrally. Facial ridge concave with robust, recumbent setulae on lower third. Vibrissa arising at about level of lower facial margin. Face and lower facial margin not protruded forward and not visible in lateral view. Genal dilation very well developed and covered with robust black setulae. Postgena and lower occiput with mostly pale setulae. Upper half of occiput with 1–3 irregular rows of black setulae behind postocular row. Gena about 0.3–0.4 times as high as compound eye in lateral view. Antenna about as long as height of gena, or slightly longer. Postpedicel about 1.3–1.5 times as long as pedicel. Postpedicel distally rounded or at most slanted anteroapically. Arista apparently bare, thickened approximately on its basal third. First aristomere distinctly shorter than wide; second aristomere about as long as wide (at most slightly longer). Prementum 1.5–2.0 times as long as wide. Palpus subcylindrical or very slightly clavate, with long setulae on distal third.

*Thorax:* Prosternum and proepisternum bare. Postpronotum with four setae, the three basal ones arranged in a line. Scutum with two posthumeral setae; 3–4 + 3–4 acrostichal setae; 3 + 4–5 dorsocentral setae; 1 + 3 intra-alar setae (first postsutural sometimes hair-like); three strong postsutural supra-alar setae (first postsutural supra-alar seta at least as long and robust as posterior notopleural seta and distinctly longer than first postsutural dorsocentral seta) interspersed with 0–3 shorter setae along the same longitudinal line; two notopleural setae and three postalar setae. Three or four katepisternal setae. Katepimeron with long setae on anterior third to half. Two anepimeral setae. Scutellum with 4–6 pairs of marginal setae: 1 basal; 1–3 (1 only in holotype) laterals, 1 subapical, 1 crossed and horizontal apicals. Lateral scutellar seta(e) about as long and robust as subapical seta. Dorsal surface of scutellum covered with long and sub-erect setulae. Anatergite bare below lower calypter. Upper and lower calypters unmodified. Second costal sector bare ventrally. Costal spine virtually undifferentiated from costal setulae. Vein  $R_{4+5}$  with only a few setulae at base, not extending beyond basal third. Bend of vein M at a right angle, with a long  $M_2$  appendix.  $M_2$  appendix about 2.3–2.5 times as long as crossvein r-m, and about 3/4 as long as sector of M between crossvein dm-cu and bend of M (Fig. 1G). Sector of M between r-m and dm-cu 2.5–2.8 times as long as sector between dm-cu and bend of M. Cell  $r_{4+5}$  closed and petiolate; petiole about 1/5 of postangular section of M (Fig. 1G). Preapical anterodorsal seta of fore tibia as long as or longer than preapical dorsal seta. Mid tibia with 4–5 anterodorsal setae. Hind tibia with 2–3 dorsal preapical setae (often asymmetrical with 2 on one side and 3 on the other). Preapical posteroventral seta of hind tibia about as long as preapical anteroventral seta. Anterodorsal setae on hind tibia irregular in length and thickness. Posterodorsal margin of hind coxa bare.

*Abdomen (Fig. 1A–D):* Mid-dorsal depression on syntergite 1+2 extending back to hind margin of segment. Marginal setae on syntergite 1+2 present or absent. Tergite 3 with 1 pair of median marginal setae. Tergite 4 with a row of marginal setae. Tergites 3 and 4 each with several median discal setae irregularly dispersed mid-dorsally. General setulae on tergite 3 and 4 recumbent. Tergite 5 with a row of marginal and discal setae, about 0.8 times as long as tergite 4 measured at mid-length. General setae on tergite 5 more or less erect. Sternites 3 and 4 not covered by lateroventral edges of corresponding tergites.



**FIGURE 1.** *Loewia* spp. **A–G** *Loewia papei* sp. nov. **A–D** habitus **A** holotype in lateral view **B** female (paratype) in lateral view **C** holotype in dorsal view **D** female (paratype) in dorsal view **E–F** head in lateral view **E** holotype **F** female (paratype) **G** right wing in dorsal view (male: paratype) **H** *Loewia brevisfrons* (Rondani) (male: Sicily, Italy), right wing in dorsal view.



**FIGURE 2.** *Loewia* spp. (male terminalia) **A–C** epandrial complex in posterior view **A** *L. alpestris* (Villeneuve) (Piemonte, Italy) **B** *L. brevifrons* (Sicily, Italy) **C** *L. papei* sp. nov. (Isparta province, paratype) **D–F** hyandrial complex in left lateral view **D** *L. alpestris* (Piemonte, Italy) **E** *L. brevifrons* (Sicily, Italy) **F** *L. papei* sp. nov. (Isparta province, paratype) **G** *L. papei* sp. nov. (Isparta province, paratype), sternite 5 in ventral view. **Abbreviations:** **Ap** = phallapodeme; **bp** = basiphallus; **c** = cercus; **dp** = distiphallus; **e** = epandrium; **edsd** = extension of dorsal sclerite of distiphallus (= Fortsatz des Dorsalsklerits, Tschorsnig 1985); **ep** = epiphallus; **hp** = hyandrium; **hya** = hyandrial arm; **Mvr** = medioventral ridge of distiphallus (= Medianleiste “MI” of Tschorsnig, 1985, p. 61); **pr** = pregonite; **ps** = postgonite; **s** = surstylus.

*Terminalia* (Fig. 2C, 2F, 2G): Tergite 6 ribbon-like and firmly fused with segment 7. Syntergite 7 + 8 large and convex. Sternite 6 asymmetrical and right side connection to segment 7 membranous. Sternite 5 (Fig. 2G) with anterior margin almost straight; posterior margin with a deep median cleft submedially bearing finger-like processes. Membranous transverse band on sternite 5 reduced to a median spot. Epandrium short and convex. Anterior epandrial process scarcely developed. Lateral epandrial lobe moderately developed. Cerci medially fused and suture between them virtually indistinct (Fig. 1C). Cerci in posterior view sub-triangular and not abruptly narrowing at midlength (Fig. 1C). Surstylus narrow, more or less lobe-like in lateral view, not fused with epandrium; surstylus with fine setulae only. Processus longi rod-shaped. Hypandrial arms fused posteromedially, entirely encircling base of phallus. Pregonite well-developed, moderately hook-shaped and provided with fine setulae (Fig. 1F). Postgonite well-developed, hook-shaped (Fig. 1F). Intermedium barely distinct. Ejaculatory apodeme present. Basal processes of basiphallus present. Epiphallus well-developed and arising dorsomedially (Fig. 1F). Ventral wall of distiphallus concave. Lateroventral region of distiphallus membranous. Medioventral ridge (MI, see Tschorsnig 1985) of distiphallus well-developed (Fig. 1F). Extension of dorsal sclerite of distiphallus well-developed (Fig. 1F).

Female (Fig. 1B, 1D, 1F) differs from male as follows:

*Colouration*: Abdomen shiny black.

*Head*: Compound eye with only scattered ommatrichia that are not longer than three eye facets (2.0–2.5 times). Frons at its narrowest point 1.4 times as wide as compound eye in dorsal view (Fig. 1D). Inner and outer vertical setae both well-developed; inner vertical pair sub-parallel. Three proclinate orbital setae (Fig. 1F). Two laterocline upper orbital setae.

*Abdomen*: General setae on tergites 3–5 recumbent and shorter than those of male (Fig. 1B).

## Discussion

Mesnil (1973) had a different concept of *Loewia* than that adopted by Herting (1984) and now widely accepted. In fact, Mesnil (1973: 1204) continued with his earlier placement (Mesnil 1953) of *L. crassipes* in the genus *Oestroloewia* of the subtribe Loewiina. Mesnil's (1973) reasons for keeping *O. crassipes* distinct were based on the following character states: a concave but weakly carinate face, greatly reduced mouthparts (including palpus), scutellum without lateral setae, and costal sector  $cs_4$  about as long as costal sector  $cs_6$ . All the remaining *Loewia* share a non-carinate face, normally developed mouthparts, and  $cs_4$  usually (not always) longer than  $cs_6$ . Mesnil (1973: 1204) also divided *Loewia* into three subgenera:

*Loewia sensu stricto*, composed of *setibarba* and *alpestris*, characterized by: (a) syntergite 1+2 not excavate to hind margin, (b) the three basal, strongest postpronotal setae arranged in a triangle, and (c) presutural intra-alar seta absent;

“*Trichogena*” [i.e., *Thrychogena*], including the single *brevifrons*, characterized by: (a) abdominal tergite 4 with a regular row of erect marginal setae, (b) three katepisternal setae, (c) two posthumeral setae, (d) two strong anepimeral setae subequal in length, and (e) scutellum with two or three lateral setae. Note: character states a–c are shared also by *L. alpestris*.

*Fortisia*, for the remaining then-known species *adjuncta*, *latifrons*, *nudigena*, *piliceps* Mesnil, 1973 (now a synonym of *submetallica*), *piligena*, *foeda*, and *phaeoptera*, characterized by: (a) abdominal tergite 4 with a row of short, fine marginal setae with only the median pair and lateral 2–4 setae erect, the other marginals recumbent, (b) two katepisternal setae, and (c) one posthumeral seta. Note: character states a–b are shared also by *L. setibarba*.

Based on the taxonomic arrangement of *Loewia* by Mesnil (1973), Ziegler (1996) and Richter (1998) respectively assigned *L. cretica* and *L. montivaga* to the subgenus *Fortisia*. Although *Loewia aragvicola* was described by Richter (1972) before the publication of Mesnil's (1973) revision of Palearctic *Loewia*, it was not treated by Mesnil. According to the original description *L. aragvicola* possesses a unique combination of character states that prevents it from being assigned to one of the above mentioned subgenera, namely: large size, parafacial bare, three strongest basal postpronotal setae arranged in a line, three presutural dorsocentral setae, two katepisternal setae, two posthumeral setae, one anepimeral seta, and one lateral scutellar seta. We did not examine this species and the original description does not provide information about the hypandrial complex and phallus, and as a consequence the affinities of *L. aragvicola* will not be discussed further here.



Some of the characters used by Mesnil (1973) to distinguish subgenera show intraspecific variability in the material examined by us. In particular, we observed variability in the number of both posthumeral and presutural acrostichal setae with some *Fortisia* (*cretica* and *foeda*) having two and three respectively, and in the development of the excavation of syntergite 1+2, which sometimes also reaches the posterior margin in *Loewia* s. str. (i.e., *alpestris* and *setibarba*). Furthermore, Mesnil did not examine male terminalia. We conclude that his subgeneric groupings might be not monophyletic.

From our own examination of the above characters, and additionally the male terminalia and metathoracic spiracle, we can identify two main species-groups that are probably based on derived character states:

***L. setibarba*-group**—composed of *Loewia setibarba*, *L. crassipes*, and *Fortisia sensu* Mesnil (1973) and characterized by: a modified phallus that is (a) lacking an epiphallus, and (b) lacking the process of the dorsal sclerite of distiphallus. These species also have (c) the anterior and posterior lappets of the metathoracic spiracle subequal in size;

***L. brevifrons*-group**—composed of *Loewia alpestris*, *L. brevifrons* and *L. papei*, and characterized by: (a) a phallus that possesses a weakly sclerotized, well-developed epiphallus (Fig. 2D–F), (b) epiphallus that arises in dorso-submedian position with respect to the basiphallus (Fig. 2D–F), and (c) a relatively large body size of 8–11 mm in length.

Within the *L. brevifrons*-group, the species *L. brevifrons* and *L. papei* share (i) a well-developed process of the dorsal sclerite of the distiphallus (Fig. 2E–F), which is not at all developed in *L. alpestris* (Fig. 2D) or other *Loewia*, (ii) two well-developed anepimeral setae, and (iii) two or three lateral scutellar setae. We therefore consider *L. brevifrons* and *L. papei* to be sister species.

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