

COMPARATIVE ANATOMY OF THE FEMALE GENITALIA OF  
GENERIC-LEVEL TAXA IN TRIBE AEDINI (DIPTERA: CULICIDAE).  
PART XXXV. GENUS *ELPEYTONIUS* REINERT, HARBACH AND KITCHING

John F. Reinert<sup>1</sup>

Center for Medical, Agricultural and Veterinary Entomology (CMAVE),  
United States Department of Agriculture, Agricultural Research Service,  
1600/1700 S.W. 23rd Drive, Gainesville, Florida 32608-1067 USA,  
e-mail: John.Reinert@ars.usda.gov

**Abstract.** A comparative, morphological analysis of the female genitalia of species included in genus *Elpeytonius* Reinert, Harbach and Kitching was conducted. The genitalia of the two species included in the genus, *El. apicoannulatus* (Edwards) and *El. simulans* (Newstead and Carter), are illustrated. Treatment of the genital morphology of the genus includes a composite description of the genus, a detailed description of the type species, a list of the species examined, a list of published descriptions of included species with their literature citations, and a discussion. The discussion section contains a list of the most distinctive female genital features of *Elpeytonius*, a comparison of these with other aedine genera, and other pertinent information.

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<sup>1</sup>Also collaborator, Walter Reed Biosystematics Unit (WRBU), National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0165.

## INTRODUCTION

This is the thirty-fifth in a series of papers by the author that describe the female genitalia of the generic-level taxa included in tribe Aedini of family Culicidae. Part I of the series (Reinert 2000a) included an introduction to the series, a brief historical background of published papers dealing with the subject, preparation techniques and anatomical terminology, part II (Reinert 2000b) dealt with genus *Psorophora* Robineau-Desvoidy, part III (Reinert 2000c) with genus *Udaya* Thurman, part IV (Reinert 2000d) with genus *Zeugomyia* Leicester, part V (Reinert 2000e) with genus *Aedes* Meigen, part VI (Reinert 2001a) with genus *Ayurakitia* Thurman, part VII (Reinert 2001b) with genus *Opifex* Hutton, part VIII (Reinert 2001c) with genus *Verrallina* Theobald, part IX (Reinert 2001d) with genus *Eretmapodites* Theobald, part X (Reinert 2002a) with genus *Heizmannia* Ludlow, part XI (Reinert 2002b) with genus *Haemagogus* Williston, part XII (Reinert 2002c) with genus *Armigeres* Theobald, part XIII (Reinert 2002d) with genus *Ochlerotatus* Lynch Arribalzaga, part XIV (Reinert 2002e) provided a key to genera recognized at that time, part XV (Reinert 2008a) with genus *Georgecraigius* Reinert, Harbach and Kitching, part XVI (Reinert 2008b) with genus *Phagomyia* Theobald, part XVII (Reinert 2008c) with genus *Dahlia* Reinert, Harbach and Kitching, part XVIII (Reinert 2008d) with genus *Hulecoeteomyia* Theobald, part XIX (Reinert 2008e) with genus *Danielsia* Theobald, part XX (Reinert 2008f) with genus *Rampamyia* Reinert, Harbach and Kitching, part XXI (Reinert 2008g) with genus *Patmarksia* Reinert, Harbach and Kitching, part XXII (Reinert 2008h) with genus *Downsiomyia* Vargas, part XXIII (Reinert 2008i) with genus *Tanakaius* Reinert, Harbach and Kitching, part XXIV (Reinert 2008j) with genus *Vansomerenis* Reinert, Harbach and Kitching, part XXV (Reinert 2008k) with genus *Dobroworskyius* Reinert, Harbach and Kitching, part XXVI (Reinert 2008l) with genus *Collessius* Reinert, Harbach and Kitching, part XXVII (Reinert 2009a) with genus *Hopkinsius* Reinert, Harbach and Kitching, part XXVIII (Reinert 2009b) with genus *Luius* Reinert, Harbach and Kitching, part XXIX (Reinert 2009c) with genus *Jihlienius* Reinert, Harbach and Kitching, part XXX (Reinert 2009d) with genus *Gilesius* Reinert, Harbach and Kitching, part XXXI (Reinert 2010a) with genus *Sallumia* Reinert, Harbach and Kitching, part XXXII (Reinert 2010b) with genus *Jarnelli* Reinert, Harbach and Kitching, part XXXIII (Reinert 2010c) with genus *Lewnielsenius* Reinert, Harbach and Kitching, and part XXXIV (Reinert 2010d) with genus *Catageiomyia* Theobald. Reinert et al. (2004, 2006, 2008 and 2009) conducted phylogenetic analyses of tribe Aedini and revised the classification of generic-level taxa. This paper covers the female genitalia of genus *Elpeytonius* Reinert, Harbach and Kitching, which was described by Reinert et al. (2009).

A comparative, morphological analysis of the female genitalia of *Elpeytonius* was conducted, a characterization is given, and a discussion including a comparison with other aedine taxa is provided. The format used includes a composite description, a description and illustration of the type species, *El. apicoannulatus* (Edwards), a list of the species examined, a list of published descriptions of species with their literature citations, and a discussion including the most distinctive features and other pertinent information. The other included species of the genus, *El. simulans* (Newstead and Carter), is also illustrated.

## MATERIALS AND METHODS

Female genitalia of genus *Elpeytonius* are considered here to include all structures caudad of abdominal segment VII. Segment VIII is included since its tergum and sternum are often modified in development and shape, and possess specialized setae.

Terminology used in the descriptions and illustrations follows Reinert (2000a, 2008a) and the abbreviations used are found in the "List of Abbreviations Used in the Text and/or Figures" that precedes the figures. The morphological descriptions are based on slide-mounted genitalia that were dissected from dead, dried females. Measurements and descriptions of female genital structures are based on specimens that were cleared, dissected, arranged in a dorsoventrally flattened position, and mounted in Canada balsam under glass cover slips on microscope slides. Ranges are based on the species (listed under "species examined" section) and specimens that I have examined. A phase contrast microscope was used because this was usually necessary to determine some structures, e.g., spermathecal eminence on the roof of the vagina. Measurements of structures (e.g., length and width of terga VIII and IX, sternum VIII, cercus, etc.) include only the pigmented and sclerotized areas and were visible at 400X magnification. Measurements were made using an ocular micrometer having a linear scale of 100 divisions that had been calibrated using a stage micrometer. The scale used in the illustrations is in millimeters.

The method of preparation of specimens followed Reinert (2000a). During dissection of the genitalia, extra care was taken when separating the insula and lower vaginal lip from sternum VIII as the insula often breaks off and remains attached to the apical intersegmental membrane of the sternum. To avoid this, the intersegmental membrane of sternum VIII can be separated from the apical margin of the sternum and mounted with the insula and lower vaginal lip.

#### FEMALE GENITALIA OF GENUS *ELPEYTONIUS* REINERT, HARBACH AND KITCHING

**Genus description.** *Segments VII and VIII.* More or less laterally compressed; intersegmental membrane between VII-Te and VIII-Te relatively moderately long to long in length. *Tergum VIII.* Width greater than length; covered with minute spicules; moderately pigmented; base nearly straight to slightly concave mesally; apex straight, with several moderately long and several short, relatively straight setae; setae on distal 0.31-0.54; basolateral seta usually absent; few broad scales on distal 0.18-0.53; VIII-Te index 0.63-0.82; VIII-Te/IX-Te index 1.77-2.13; length 0.21-0.23 mm; width 0.27-0.35 mm. *Sternum VIII.* Width greater than length; covered with minute spicules; moderately pigmented with distal area occupied by lobes heavily pigmented; base relatively straight; apex with moderate, median emargination separating small to moderate lobes, with several short, slightly curved setae and numerous somewhat longer, slightly curved setae interspersed with short setae, setae more numerous on lobes; several moderately long and short setae on distal 0.89-0.91; seta 1-S inserted relatively short distance from basal margin; seta 2-S inserted posterior and lateral to seta 1-S; basolateral seta usually absent; scales absent or with only few scales on distal area; VIII-S index 0.70-0.76; length 0.26-0.30 mm; width 0.34-0.42 mm. *Tergum IX.* Moderately long; moderately wide; covered with minute spicules; comprised of single moderately pigmented sclerite; apex with 2 small, rounded lobes each with 2-4 short, slender setae; 5-7 total setae; dorsal spheres present; IX-Te width/length ratio 1.00-1.20; length 0.12-0.15 mm; width 0.14-0.15 mm. *Insula.* Tonguelike; covered with minute to short spicules; with 4-6 small tuberculi on distal area. *Lower vaginal lip.* Covered with minute to short spicules; lightly pigmented; narrow; hinge relatively narrow; without lower vaginal sclerite; ventral tuft present, small. *Upper vaginal lip.* Covered with minute to short spicules; moderately pigmented; narrow laterally and curved outward, caudal part somewhat broader and posterior margin relatively straight; upper vaginal sclerite moderately pigmented, small to moderate in size. *Spermathecal eminence.* Membranous; more or less ovoid in outline; with few to several very small spicules on basolateral area. *Postgenital lobe.* Covered with short spicules; moderately long; moderately wide; moderately pigmented with distal part darker pigmented; apex with

moderate, median emargination; basal mesal apodeme, relatively short, width greater than length, moderately pigmented; setae on distal 0.36-0.39 of ventral surface; PGL ventral index 1.56-1.68; PGL ventral width/Ce dorsal width ratio 0.78-0.90. **Proctiger.** Membranous; with minute spicules in more or less short rows on proximal area. **Cercus.** Covered with minute to short spicules; moderately pigmented; moderately long; moderately wide; apex broadly rounded, with few short and few moderately long setae; setae on distal 0.81-0.84 of dorsal surface; dorsal surface without scales (1 specimen of *El. simulans* with 1 small, adventitious scale on 1 cercus); cercus index 1.88-2.23; Ce/dorsal PGL index 2.46-2.87; length 0.16-0.18 mm; width 0.08 mm. **Spermathecal capsule.** Single large one; heavily pigmented; spherical; with several small, spermathecal capsule pores near orifice. **Accessory gland duct.** Basal area narrow, darkly pigmented, relatively short.

**Type species description (*El. apicoannulatus*, Figure 1).** **Tergum VIII.** Base relatively straight to slightly concave mesally; setae on distal 0.31-0.51; VIII-Te index 0.78-0.82; VIII-Te/IX-Te index 1.83-2.13; length 0.22-0.23 mm; width 0.27-0.31 mm. **Sternum VIII.** Setae on distal 0.89-0.90; scales absent; VIII-S index 0.76; length 0.26-0.29 mm; width 0.34-0.38 mm. **Tergum IX.** IX-Te width/length ratio 1.00-1.20; length 0.12-0.15 mm; width 0.14-0.15 mm. **Postgenital lobe.** PGL ventral index 1.67-1.68; PGL ventral width/Ce dorsal width ratio 0.89-0.90. **Cercus.** Dorsal surface without scales; cercus index 2.16-2.23; Ce/dorsal PGL index 2.46-2.87; length 0.17-0.18 mm.

**Species examined.** *Elpeytonius apicoannulatus* and *El. simulans*.

**Discussion.** The following combination of features is most distinctive for the female genitalia of species belonging to genus *Elpeytonius*. Only a single, large, spherical, spermathecal capsule is present. The cercus is moderately long, moderately wide and the apex is broadly rounded. Sternum VIII has the width greater than the length, the apex has a moderate, median emargination separating small to moderate-sized lobes and bears several short and numerous slightly longer setae, those on the lobes are more numerous than the remainder of the apical margin, and the area occupied by the lobes is noticeably more darkly pigmented.

Female genitalia of *Elpeytonius* have some similarity to other aedine genera with a tonguelike insula without setae. They are similar to species of *Catageiomyia* Theobald in the development of a single large spermathecal capsule but differ from these species in the development of the cercus, postgenital lobe and sternum VIII. See Reinert (2010d) for a description of the female genitalia of genus *Catageiomyia*. *Elpeytonius* female genitalia also have a similarity to species of *Bifidistylus* Reinert, Harbach and Kitching in the darker pigmented distal parts of sternum VIII and postgenital lobe but are easily separated by the single large spermathecal capsule, development of tergum IX, and both tergum VIII and sternum VIII without or with very few scales. Species of *Elpeytonius* are easily distinguished from aedine generic-level taxa with a liplike insula bearing setae by the long, tonguelike insula without setae.

Reinert et al. (2009) provided a brief description of the female genitalia of *Elpeytonius* and a description of all known life stages of the genus. Female genitalia of both species included in *Elpeytonius*, *apicoannulatus* and *simulans*, are illustrated below in Figures 1 and 2.

**Published descriptions of female genitalia.** *Elpeytonius apicoannulatus*: Macfie and Ingram (1922), Reinert et al. (2009); *El. simulans*: Reinert et al. (2009).

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FIGURE 1. FEMALE GENITALIA OF *ELPEYTONIUS APICOANNULATUS*FIGURE 2. FEMALE GENITALIA OF *ELPEYTONIUS SIMULANS*

## LIST OF ABBREVIATIONS USED IN THE TEXT AND/OR FIGURES

AGDB	= accessory gland duct base
BLS	= basolateral seta
BMA	= basal mesal apodeme
Ce	= cercus
DPGL	= line of attachment of Pr to dorsal surface of PGL
DS	= dorsal sphere
H	= hinge
I	= insula
IX-Te	= tergum IX
LVL	= lower vaginal lip
mm	= millimeter
PGL	= postgenital lobe
Pr	= proctiger
SCa	= spermathecal capsule
SCaP	= spermathecal capsule pore
SE	= spermathecal eminence
SES	= spermathecal eminence spicule
Tu	= tuberculus
UVL	= upper vaginal lip
UVS	= upper vaginal sclerite
VIII-S	= sternum VIII
VIII-Te	= tergum VIII
VT	= ventral tuft
1-4-S	= setae 1-4-S



Fig. 1

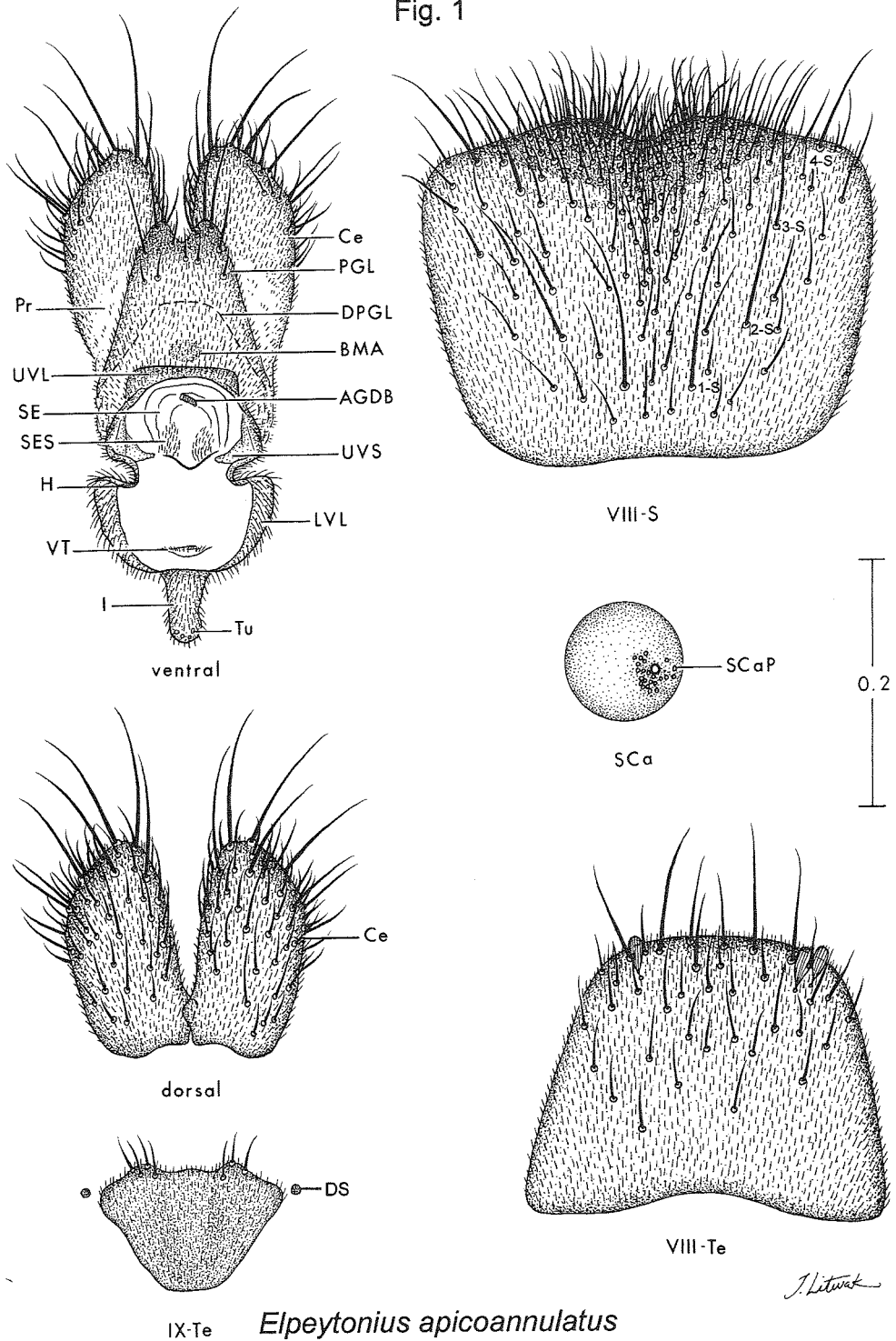
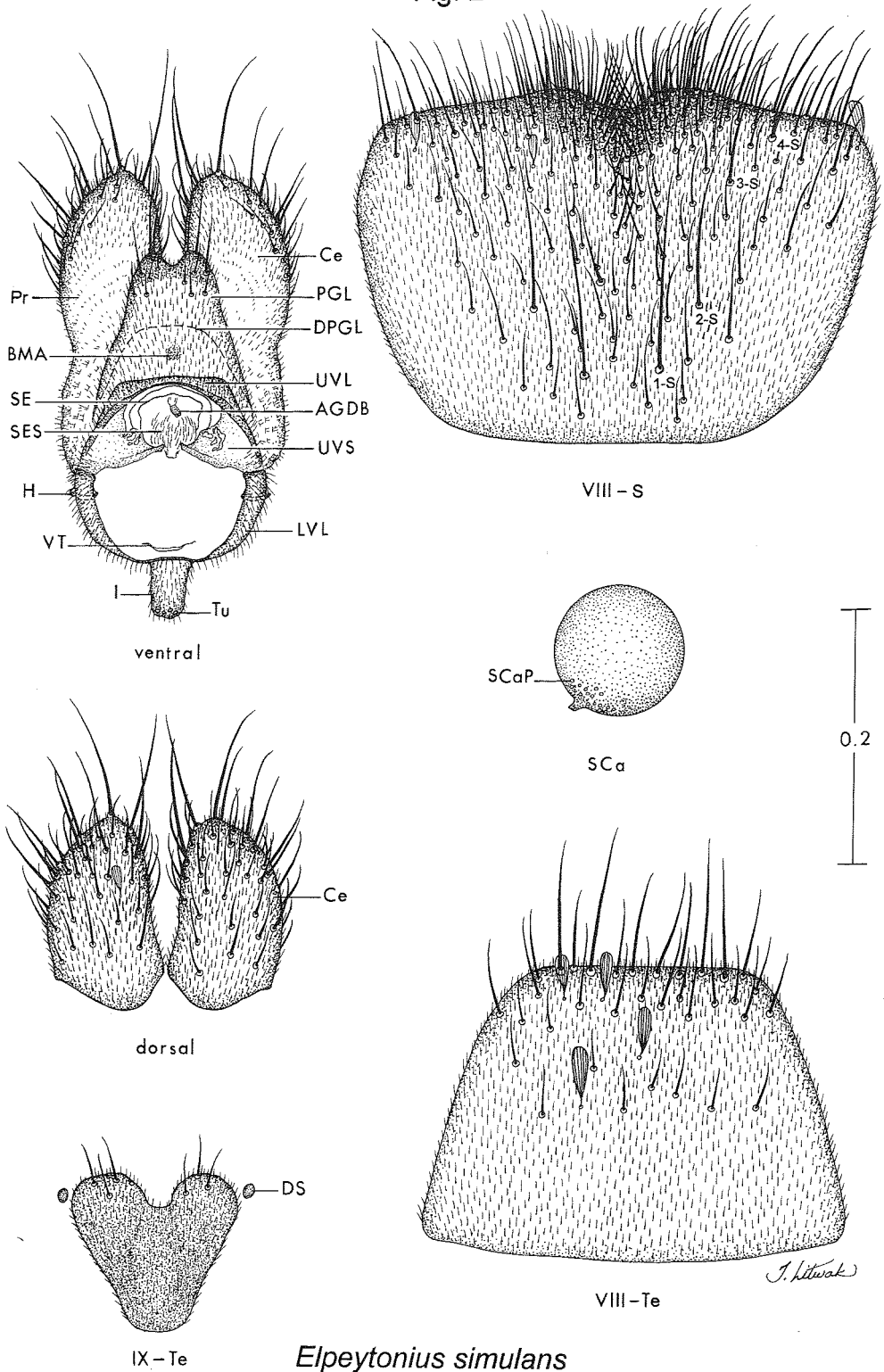


Fig. 2



*Elpeytonius similans*

## SYSTEMATIC INDEX

Valid generic and specific taxa are italicized, other taxa are in Roman type. Boldface page numbers are those which began the primary treatment of the taxon.

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<i>Catageomyia</i>	2, 4
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<i>Danielsia</i>	2
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<i>Downsiomyia</i>	2
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<i>Gilesius</i>	2
<i>Haemagogus</i>	2
<i>Heizmannia</i>	2
<i>Hopkinsius</i>	2
<i>Hulecoeteomyia</i>	2
<i>Jarnellius</i>	2
<i>Jihlienius</i>	2
<i>Lewnielsenius</i>	2
<i>Luius</i>	2
<i>Ochlerotatus</i>	2
<i>Opifex</i>	2
<i>Patmarksia</i>	2
<i>Phagomyia</i>	2
<i>Psorophora</i>	2
<i>Rampamyia</i>	2
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<i>Udaya</i>	2
<i>Vansomerensis</i>	2
<i>Verrallina</i>	2
<i>Zeugnomyia</i>	2