

## ***Conquistator*, a new genus for *Podisus mucronatus* Uhler, 1897 (Heteroptera: Pentatomidae: Asopinae) with a re-description of type species**

D.A. GAPON

D.A. Gapon, Zoological Institute, Russian Academy of Sciences, Universitetskaya Emb. 1, 199034 St. Petersburg, Russia. E-mail: tentatdag@yandex.ru

*Conquistator* **gen. nov.**, is described to hold the North American species *Podisus mucronatus* Uhler, 1897. This new genus differs from *Podisus* Herrich-Schaeffer, 1851, in having the digitiform process on the paramere corpus more characteristic of species in the American asopine genera *Apoecilus* Stål, 1870 and *Supputius* Distant, 1889. The new genus, however, also differs from these two genera by essential morphological characters. The type species, *Podisus mucronatus* Uhler, 1897, is re-described based on a morphological examination of the male and female terminalia.

**Key words:** Heteroptera, Pentatomidae, Asopinae, *Conquistator mucronatus*, *Podisus*, *Apoecilus*, *Supputius*, new genus, new combination

### **INTRODUCTION**

Thomas (1992), in his monograph devoted to the Asopinae of the Western Hemisphere, placed the 33 species of *Podisus* Herrich-Schaeffer, 1851 into eight species groups. He included *Podisus mucronatus* Uhler, 1897 into a monotypic species group characterized by the acuminate lateral angles of the pronotum strongly curving anteriorly which is a character unique in *Podisus*. While studying asopine genera of the New World, I discovered several characters shared by *Podisus mucronatus* and American genera *Apoecilus* Stål, 1870 and *Supputius* Distant, 1889, but absent in other asopine genera I examined. Most significant of these characters is a long digitiform process on the corpus of the paramere. These differences justify the exclusion of *Podisus mucronatus* from the genus *Podisus*, but this species cannot be included in either *Apoecilus* or *Supputius* since it differs considerably from both of these genera. It is here placed in a distinct genus of its own.

### **MATERIAL AND METHODS**

This work is based on material from the collection of the Zoological Institute of the Russian Academy of Sciences (St. Petersburg) and the collection of D.A. Rider (North Dakota State University, Fargo, USA). Examined were 130 species from 53 genera of the world fauna of Asopinae, including all species of the genera *Apoecilus* and *Supputius* as well as about half of the species from the genus *Podisus* (*P. aenescens* (Stål, 1860), *P. affinis* Distant, 1880, *P. brevispinus* Phillips, 1982, *P. congrex* (Stål, 1862), *P. crassimargo* (Stål, 1860), *P. distinctus* (Stål, 1860), *P. maculiventris* (Say, 1831), *P. nigrispinus* (Dallas, 1851), *P. pallipes* (Dallas, 1851), *P. placidus* Uhler, 1870, *P. sagitta* (Fabricius, 1794), *P. semialbus* (Walker, 1868), *P. serieventris* Uhler, 1871, and *P. trucidatus* Thomas, 1992).

The aedeagi were studied in a completely inflated state with the use of the method of hydraulic inflating of aedeagus and subsequent drying in a blast of hot air (Gapon,

2001). The terminology of aedeagal parts follows Konstantinov & Gapon (2005).

## RESULTS

### Family PENTATOMIDAE Leach, 1815

#### Subfamily ASOPINAE Amyot & Serville, 1843

#### Genus *Conquistator* gen. nov.

Type species: *Podisus mucronatus* Uhler, 1897.

*Diagnosis.* *Conquistator* differs from *Podisus* in two main ways: first, the basal part of the parameral corpus is wide and, second, the presence of a long digitiform process arising from the corpus (Figs 1, 3–6, *l. pr*). In *Podisus*, the basal part of the corpus of the paramere is narrow and the digitiform process is absent (Figs 7–9). A long digitiform process on the corpus of the paramere is also present in *Apoecilus* and *Supputius*, but absent in other examined genera of Asopinae. The digitiform process should not be confused with the inner branch of the hypophysis. The digitiform process is located more basally than the plane of the hypophysis and present along with the inner branch of the hypophysis. *Conquistator*, *Apoecilus* and *Supputius* form a distinct holophyletic group identified by the synapomorphy described above. The new genus differs from *Apoecilus* in having the following complex of characters: each lateral margin of pronotum with rim separated dorsally (vs. without rim); glandular patches on male abdominal venter absent (vs. present); dorsoapical margin of pygophore lower than its ventroapical margin (vs. higher); apex of paramere hypophysis directed laterad (Figs 1, 5, *apx*) (vs. directed towards dorsoapical margin of the pygophore); ventrolateral lobes of conjunctiva without sclerites on their apices (figs 13, 15, *vl. l*) (vs. with sclerites); triangulum located under contiguous gonocoxites 1 and not intervening between them (Fig. 16, *tr, gx. 1*) (vs. intervening between gonocoxites 1). *Conquistator* is closely related to the genus *Supputius* and differs from it in having

a shorter rostral segment II, not exceeding the combined length of segments II and III (vs. exceeding); a wider rim on each pronotal lateral margins; the posterior angles of abdominal segments short and obtuse (vs. pointed and rather long). Additionally, the new genus differs from the genera *Podisus*, *Apoecilus* and *Supputius* in having the following characters: unimucronate humeral angles, strongly curving anteriorly (vs. directed laterad, unimucronate or oblong in anterior part and widely rounded in posterior part in *Supputius*; directed laterad, unimucronate in *Apoecilus*; directed laterad or posteriorly, unimucronate or bimucronate, in *Podisus*, curved anteriorly, bimucronate in *P. gundlachii* (Guerin-Meneville, 1857) according to Thomas, 1992); the presence of a pair of distinct callosal patches on pronotum behind cicatrices and on the anterolateral corners of the scutellum (vs. absence in *Podisus*, *Apoecilus* and *Supputius*); a short poriferous strip on the posterior margin of each mesopleurite not extending to lateral margin (vs. extending to lateral margin in *Podisus*, *Apoecilus* and *Supputius*); lateroapical angles of the pygophore short, rounded (vs. long, angulate in *Podisus*, *Apoecilus* and *Supputius*).

*Note.* I propose the hypothesis that the digitiform process of the paramere corpus is a newly formed structure which developed basally from the hypophysis and not lying in the plane of the latter (Fig. 6). However another possible hypothesis is that the digitiform process may represent a derivative of the inner branch of the hypophysis. Thus, *Podisus affinis* Distant, 1880 has a long, thin, inner branch of the hypophysis which lies in the same plane (Figs 10–12). This inner branch could shift basally of the hypophysis and become "the digitiform process". Then a structure which I consider above as the apex of the hypophysis of *Conquistator* and *Supputius* would be considered as the outer branch of the hypophysis appearing for the first time, whereas a structure mentioned above as the inner branch of *Conquistator* and *Supputius* is the true apex of the hypophysis.

The second hypothesis thus proposes that a unique character shared by the genera *Conquistator*, *Apoecilus* and *Supputius* is the basal location of the thin, long inner branch of the hypophysis, and a unique character of the genera *Conquistator* and *Supputius* is the appearance of the outer branch of the hypophysis.

*Etymology.* The name of the new genus descends from Latin *conquistator* which comes from the verb *conquistare*, a frequentative formation of *conquirere*. The gender is masculine.

*Composition.* The genus contains only the type species distributed in USA (Florida), Cuba and Puerto-Rico.

***Conquistator mucronatus* (Uhler, 1897),  
new combination**

(Figs 1, 2, 13, 16, 17)

*Podisus mucronatus* Uhler, 1897: 386.

*Material examined.* Male, female; **USA**, Florida, Lee Co. Estero; 13 Febr. 2000; J.E. Eger leg.; D. Rider collection.

A brief description of eggs, imago and five nymph instars of *Conquistator mucronatus* with figures are given by Costello et al. (2002). More complete description of the species with paying of special attention to a structure of male and female terminalia which was not described earlier is given below.

*Re-description.* Body oval, dorsally flattened, ventrally slightly convex. Coloration yellowish with brown maculae on dorsal surface.

*Head.* Preocular part of head slightly narrowing anteriorly. Juga as long as clypeus, with rectangularly rounded outer angles and shallow lateral notches. Rostrum reaches posterior margins of hind coxae, its segment II longest, but shorter than segments II and III united; segment IV brownish. Dorsal surface of head densely covered with small dark points. The middle of vertex, frons and clypeus, narrow stripes on each side of vertex and frons, rather large patches near inner margin of each eye without punctua-

tion. Margins of juga and spots before eyes blackish.

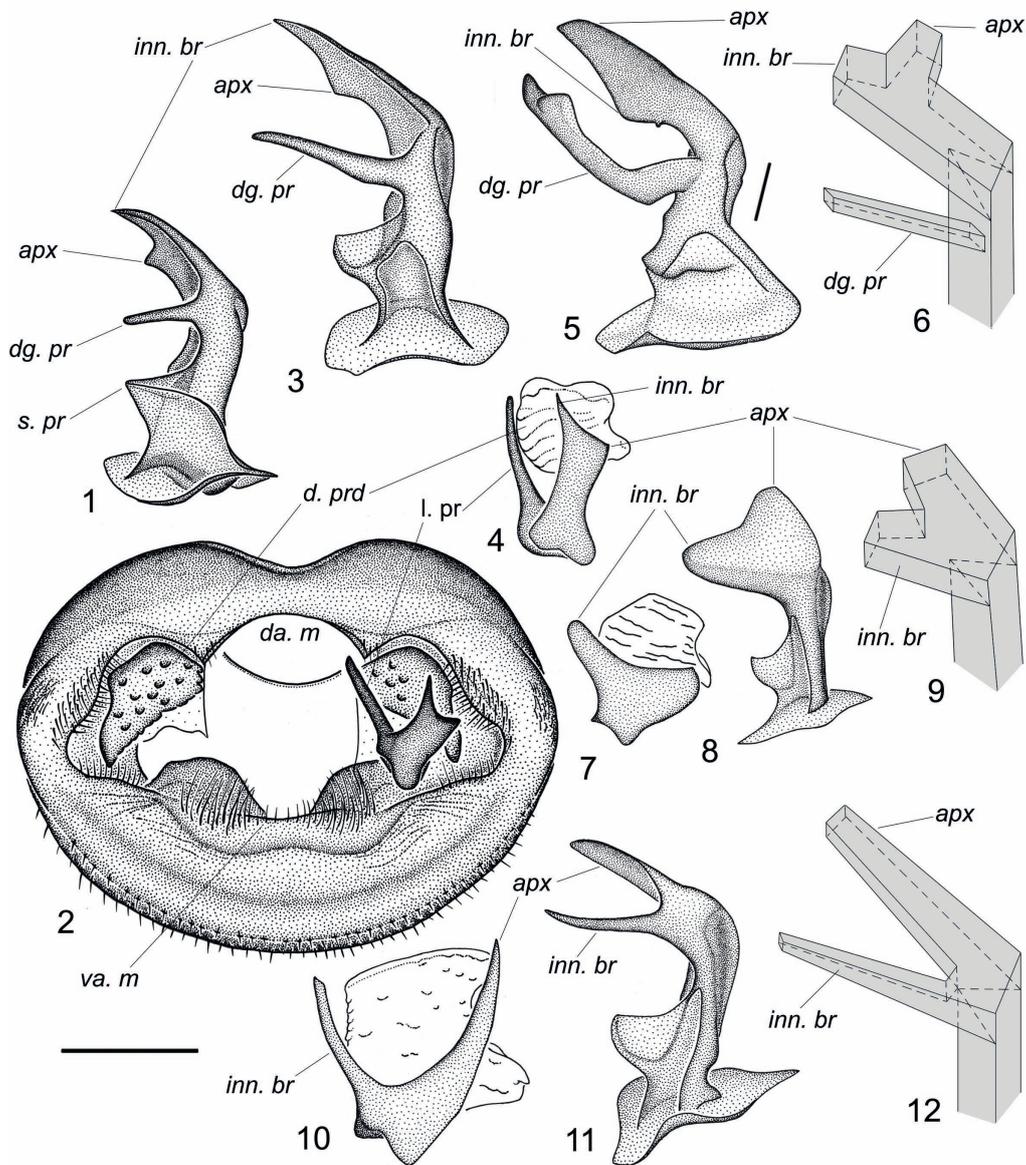
*Prothorax.* Anterior margin of pronotum slightly incurved, without edge. Lateral margins of pronotum straight, with wide calloused yellow rims, bearing five or six small pointed denticles directed laterad. Anterior angles of pronotum with same denticles as those on lateral margins. Lateral angles of pronotum long, narrowly triangular and strongly bent anteriorly, unimucronate, dark brown. Posterior angles of pronotum triangularly rounded, without hamuli. Anterior portion of pronotal disc with distinctly smoothed tubercles on each side covered with points. Cicatrices relatively wide, brown. Pair of large, pale, roundish, calloused patches located behind cicatrices. Entire pronotal disk densely covered with rather large brown points; patches of cuticle between them slightly convex, yellow.

*Mesothorax.* Scutellum with small calloused patches on basal corners, in middle of basal margin and on apex. Apical part of scutellum narrower than corium at same level. Points of punctuation on scutellum similar to those on pronotum. Carina on mesosternum narrow, extended in anterior part, flattened in posterior part. Posterior margin of each mesopleurite with small patch of porous cuticle in proximal part.

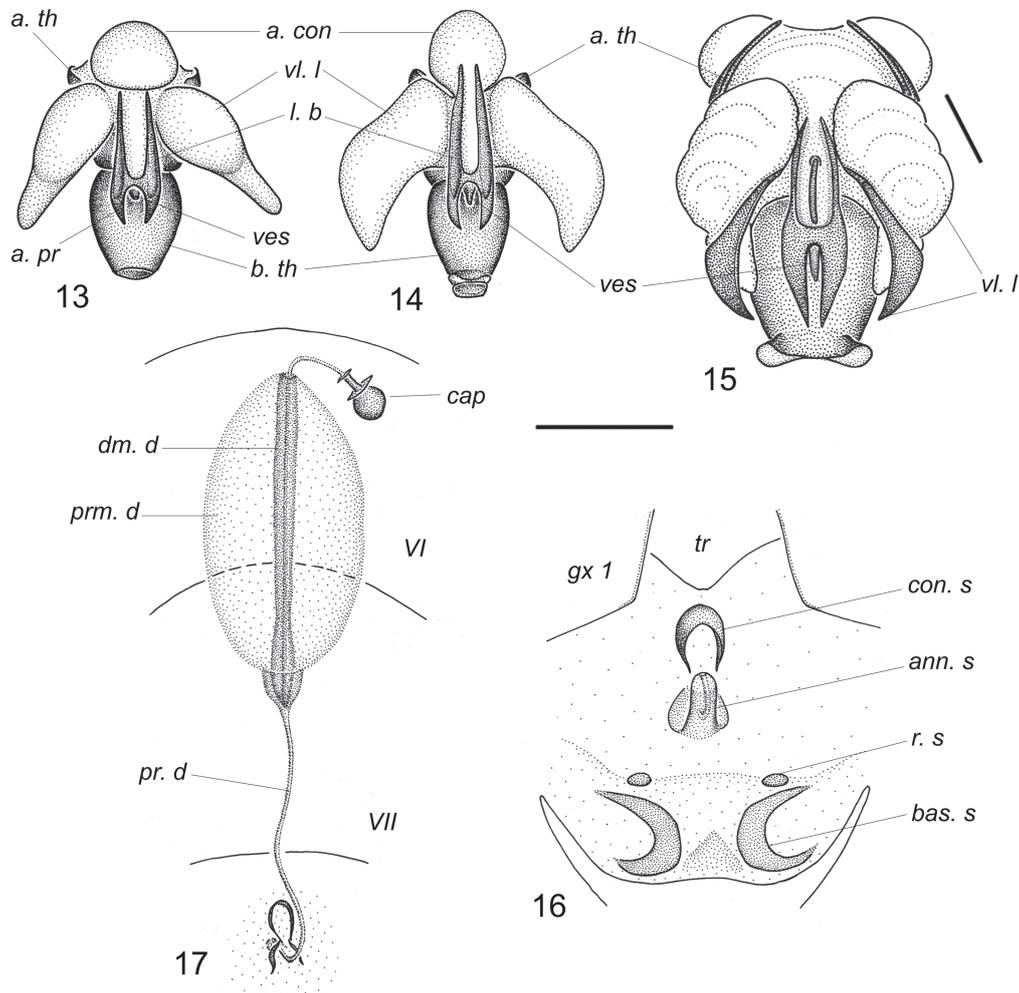
*Metathorax.* Smooth part (ruga) of evaporatorium expanded distad, without dark spot on rounded distal end, not reaching middle of metapleurite, and completely surrounded by patch of porous cuticle. Metasternum flat, narrowed anteriorly and posteriorly, with very narrow ribs on lateral margins. Metapleurites without black spots.

*Legs* pale, tarsi brownish. Profemora without spine, protibiae without carina.

*Abdomen.* Laterotergites of connexivum pale, with dark spots in anterior inner corners; laterotergite VII with dark inner margin. Each posterior angle of abdominal segments short and obtuse; posterior angles of segment VII widely triangular, rounded apically. Ventral surface of abdomen pale, covered with colorless points, without black spots. Spine



**Figs 1–12.** 1, 3–12 – parameres (1, 3, 5, 6, 8, 9, 11, 12 lateral view, 4, 7, 10 apical view); 2 – pygophore, caudal view. 1, 2 – *Conquistator mucronatus* (Uhler, 1897); 3 – *Supputius typicus* (Distant, 1889); 4 – *S. cincticeps* (Stål, 1858); 5 – *Apoecilus invarius* (Walker, 1867); 7, 8 – *Podisus brevispinus* Phillips, 1982; 10, 11 – *P. affinis* Distant, 1880; 6, 9, 12 – generalized schemes of paramere structure (6 – *Conquistator*, *Apoecilus* and *Supputius*; 9 – majority of *Podisus* species; 12 – *Podisus affinis* and probably some other species of *Podisus*). *Apx*, apex of paramere hypophysis; *d. prd*, dorsal parandria; *da. m*, dorsoapical margin of pygophore; *dg. pr*, digitiform process of paramere; *inn. br*, inner branch of paramere hypophysis; *s. pr*, sensory process of paramere; *va. m*, ventroapical margin of pygophore. Scale bar: 0.25 mm.



**Figs 13–17.** 13–15 – aedeagi without phallobase, ventral view; 16 – gynatrium, ventral view; 17 – spermatheca, dorsal view. 13, 16, 17 – *Conquistator mucronatus* (Uhler, 1897); 14 – *Supputius typicus* (Distant, 1889); 15 – *Apoecilus invarius* (Walker, 1867). *A. con*, apex of conjunctive; *a. pr*, apical processes of medial penal plates; *a. th*, apical part of theca; *ann. s*, annular gynatrial sclerite; *b. s*, basal gynatrial sclerites; *b. th*, basal part of theca; *cap*, capsule of spermatheca; *con. s*, conoid gynatrial sclerite; *dm. d*, distomedial part of spermathecal duct; *gx 1*, gonocoxites 1; *l. b*, longitudinal bands of medial penal plates; *pr. d*, proximal part of spermathecal duct; *prm. d*, proximomedial part of spermathecal duct; *r. s*, ring gynatrial sclerites; *tr*, triangulum; *ves* – vesica; *vl. l*, ventrolateral lobes of conjunctiva; VI, VI abdominal sternite; VII, VII abdominal sternite. Scale bar: 0.25 mm.

on base of abdomen round in transversal section, reaches middle of hind coxae.

*Pygophore* (Fig. 2) as wide as long, its lateral walls in parallel planes. Lateroapical angles of pygophore short, rounded, located at level of ventroapical margin of pygophore, with short thickened setae on their

apices. Dorsoapical margin of pygophore (Fig. 2, *da. m*) located below its ventroapical margin, with shallow notch along its whole width and several setae on each side. Dorsal infolding short. Ventroapical margin of pygophore (Fig. 2, *va. m*) strongly bent dorsad, with uniform small medial and lat-

eral notches. Impression of ventral surface of pygophore deep, with distinct, weakly concave basal margin located on level of pygophoral ventroapical margin and covered like it with dense long setae. *Dorsal parandria* (Fig. 2, *d. prd*) approximately as wide as long, narrowed on ventral end and widely rounded on dorsal end. Outer margins of parandria with deep notches, inner margins strongly convex, bearing as well as upper parandrial surfaces small rounded tubercles. Ventral parandria (presented in some other taxa of Asopininae) absent.

*Paramere* (Fig. 1). Basal plate rounded. Inner angle of sensory process (Fig. 1, *s. pr*) acute and slightly extended. Corpus of paramere wide in basal part, with long narrow digitiform process (Fig. 1, *l. pr*) on apical part of inner surface basally of hypophysis. Digitiform process directed anteriorly and to medial line of pygophore. Hypophysis long and rather narrow, directed anteriorly and slightly outside. Inner branch of hypophysis (Fig. 1, *inn. br*) short, acute-angled, directed anteriorly. Apex of hypophysis (Fig. 1, *apx*) shorter and wider than its inner branch, directed outside. Inner and outer margins of hypophysis concave.

*Aedeagus* (Fig. 13). Phallobase as long as wide, widening caudad, with rather narrow ventral processes. Basal and apical parts of theca (Fig. 13, *a. th*, *b. th*) subequal in length. Ventroapical notch of apical part of theca shallow, widely rounded. Base of conjunctiva with weakly sclerotised patch on each side. Ventrolateral lobes of conjunctiva (Fig. 13, *vl. l*) long, moderately wide basally, narrowing apicad, without sclerites on their apices. Ventrolateral lobes directed ventrolaterad and arcuately bent towards base of aedeagus. Apex of conjunctiva (Fig. 13, *a. con*) roundish, its length slightly more than its width. Ventral lobe of conjunctiva rather short. Longitudinal bands of medial penial plates (Fig. 13, *l. b*) parallel, narrow, weakly extending distad. Membranous surface between them convex on total length. Apical processes of medial penial plates (Fig. 13, *a. pr*) short,

converge, but not contiguous. Vesica (Fig. 13, *ves*) appearing as short tube.

*Female genitalia* (Figs 16, 17). Posterior margins of gonocoxites 1 strongly convex in outer part. Each gonocoxite 1 with deep impression on internal surface in its inner part near posterior margin. Medial genital plate rectangular, with straight posterior margin. Paratergites IX wide, with rather strong convex inner and straight outer margins. Paratergites VIII wider than long, with widely rounded outer angles, straight posterior margins and very small spiracles in anterior corners. *Gynatrial sclerites*. Basal sclerites (Fig. 16, *b. s*) moderately wide, in form of crescent, strongly narrowed on anterior and posterior ends. Round sclerites (Fig. 16, *r. s*) small. Annular sclerite (Fig. 16, *ann. s*) rather short, roundish. Conoid sclerite (Fig. 16, *con. s*) longer than its width and slightly expanded in its anterior part. *Spermatheca*. Proximal part of spermathecal duct (Fig. 17, *pr. d*) nearly reaching middle of abdominal sternum VII. Medial part of duct not reach anterior margin of sternum VI. Proximo-medial part (membranous dilation) of duct (Fig. 17, *prm. d*) narrowed in its base; distomedial part (sclerotized rod) of duct (Fig. 17, *dm. d*) without dilation before its posterior (morphologically anterior) end. Proximal collar of spermathecal pump reduced. Capsule (Fig. 17, *cap*) roundish, slightly shorter than pump.

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