

Notes on the little known species of the genus *Empicoris* WOLFF
(*Heteroptera: Reduviidae: Emesinae*)

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ABSTRACT. A new find of *E. uniannulatus* (SIGN.) from the territory of the former Soviet Union (Crimea) is described and *E. winnemana* McATEE & MALLOCH holotype from Eastern United States is redescribed and figured. The systematic position of *E. uniannulatus* (SIGN.) and its close relative *E. xambeii* (MONT.) is discussed.

Key words: Entomology, redescriptions, Holarctic Region, *Heteroptera, Reduviidae*.

INTRODUCTION

The study of two representatives of the little known species of the genus *Empicoris* from the Collection of the Zoological Museum of the Moscow State University and the United States National Museum of the Smithsonian Institution, Washington (USNM) allowed to clear up a number of questions concerning their systematics and diagnostics. This genus of *Emesinae* is one of the largest and so far insufficiently studied. It includes about 80 described species found in all zoogeographical regions of the world (PUTSHKOV & PUTSHKOV, 1988; MALDONADO-CAPRILES, 1990).

ACKNOWLEDGEMENTS

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In the collection of the Zoological Museum of the Moscow State University there is a female of a very rare species of emesins *Empicoris uniannulatus* (SIGN.). This species has so far been known only from two specimens. The first type specimen (a female) was found in the vicinities of Paris (SIGNORET, 1852) and later it was studied and redescribed by MULSANT and REY (1873). The second specimen of an unknown location was mentioned by GULDE (1940). However the place where both these specimens are kept is still unknown (WYGODZINSKY, 1966). Still later, P. V. PUTSHKOV (1987 a, b) studied one more male specimen of this species from the Hungarian Natural History Museum (Budapest) collected by A. L. MONTANDON south of Bucharest (Roumania). This first find within the former Soviet Union proves once more that P. V. PUTSHKOV was right (1987 a) saying that new findings of European species are possible in areas adjoining West Europe and that an irregular distribution of the species of *Empicoris* is not very likely. In particular, he suggested that *E. uniannulatus* (Sign.) may be found in the south-west of Ukraine (PUTSHKOV, 1987 a). This is also proved by synonymization of the European species of this genus recently made by P. V. PUTSHKOV (1991).

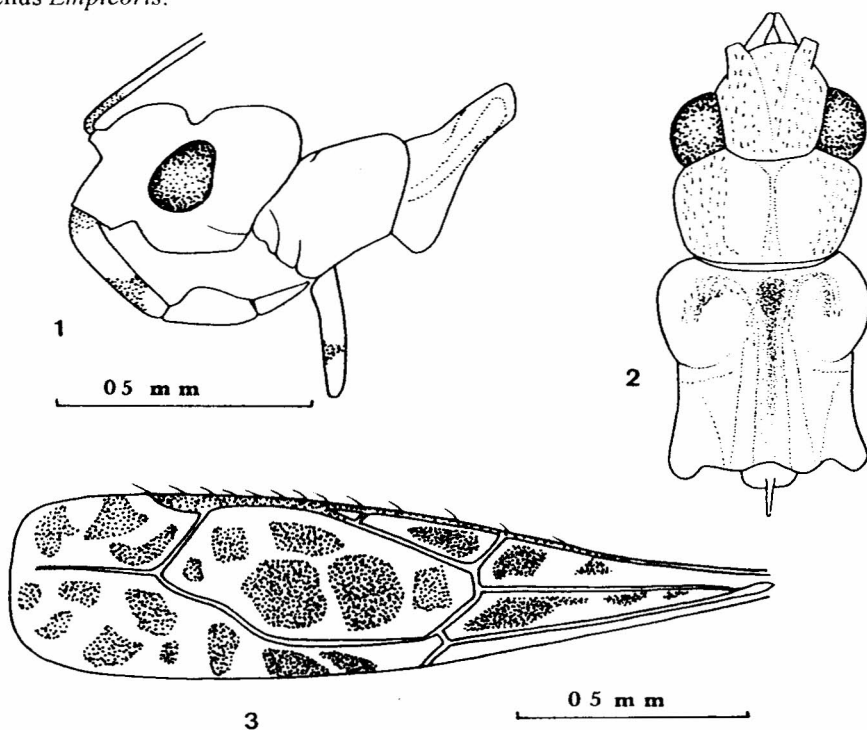
By its major characters, the Crimean specimen of female corresponds to the description of the female type specimen from France made by SIGNORET (1852) and MULSANT and REY (1873), as well as to a short characteristics of P. PUTSHKOV (1987 b) of the male from Roumania. Yet there are still some differences in this specimen. They primarily concern the structure of pronotum: the presence of pit-like depression of anterior lobe, feeble development of longitudinal depression of posterior lobe and the absence of lateral carinae of the latter and also somewhat different proportions of pronotum (length equal to width). The latter feature may have appeared as a result of a still greater shortness of hemelytra (hemelytra hardly extend beyond tergite 6). Vertex is also broader (twice as broad as the eye) than in the West European specimen (1.5 times). Also judging from the total drawing of *E. uniannulatus* given by P. V. PUTSHKOV (1987 b, fig. 1), the anterior lobe of head of the Crimean specimen is distinctly longer than posterior one. By the size, our female (3.7 mm) is smaller than the type specimen of female (4.5 mm) from France, yet it is almost of the same length as the male (3.8 mm) from Roumania. One may assume that the Crimean specimen is either subspecies of *E. uniannulatus* (SIGN.) or most probably an example of a local variability on the boundary of its eastern margin of distribution.

There is no doubt that *E. uniannulatus* (SIGN.) is very close to *E. xambeii* (MONT.) by the form of pronotum, correlation of the length of antennal joints and a broadened abdomen (PUTSHKOV, 1987 a, b). The proportions of antennal joints unusual for the species of the genus *Empicoris* (joints 2 and 3 are equal in length and much shorter than the first one), shortened hemelytra (much shortened in *E. uniannulatus* and hardly reaching the top of abdomen in *E. xambeii*), aberrant shape of pronotum (anterior lobe is equal in length to posterior one) and strongly widened abdomen have made A. DOHRN doubt that it was right to refer *E. uniannulatus* to the genus *Empicoris* (DOHRN, 1863, p. 62). However P. V. PUTSHKOV (1987 a, b) is justified to

believe that by the main characters of the structure of head, pronotum, hemelytrae and the location of genital segment, this species undoubtedly belongs to the genus *Empicoris*.

A different variant of the position of these two species in the genus *Empicoris* is also possible. The unusual characters of these species might serve as a basis for singling *E. uniannulatus* and *E. xambeii* out into a special subgenus of the genus *Empicoris*. However, the final solution of this question will become possible after a complete revision of this genus in future.

Empicoris winnemana McATEE and MALL. is known only from a male (McATEE and MALLOCH, 1925) and female (WYGODZINSKY, 1966) from Eastern United States. It is characterized by a weakly expressed colouring of the body, by the structure of pronotum and hemelytra veins (a linear pterostigma, part of M closing discal cell apically almost perpendicular to longitudinal axis of forewing) and hind wing (cross veins form a straight line). The absence in the initial description of at least general morphological drawings that could allow to compare this species with other species of this genus, primarily with the Central and North American ones, made me use the received type specimen for publishing material on the major exterior morphological structures which could be used for a future revision of the American species of the genus *Empicoris*.



1-3. *Empicoris uniannulatus*, female: 1 - head and pronotum, lateral view; 2 - head and pronotum, dorsal view; 3 - hemelytron

TAXONOMY

Empicoris uniannulatus (SIGNORET, 1852)

(figs. 1-3)

Ploiaria uniannulata SIGNORET, 1852: 544.

Description. Female: length of body 3.7 mm, width 1.0 mm; length of head 0.48 mm ($0.3 + 0.22$), width 0.4 mm; length of pronotum 0.5 mm ($0.25 + 0.25$), width 0.45 mm; length of hemelytra 1.65 mm, width 0.45 mm.

Head and anterior lobe of pronotum more shiny; general coloration light brown, rostrum, antennae, middle and hind legs straw yellow. Posterior lobe of pronotum with two linear submedian, whitish vittae surpassing anterior margin of lobe. Abdomen yellow brown with dark spots on connexivum. Head and pronotum with light, microscopical, delicate, scattered, pressed hairs. Antennomere 1 with small dark basal and feebly coloured apical rings. Base and subapical ring of rostral joint 1 slightly dark (fig. 1). Lateral margins of posterior lobe of pronotum whitish, fore coxae with very small, feebly coloured spot at the apex; femur with 3 dark brown rings; tibia dark brown. Middle and hind femora with 1 distinct apical ring; tibiae with feebly coloured basal ring. Hemelytra light, with numerous spots, pattern as in fig. 3.

Shape of head as in fig. 1; quite short, 1.2 times longer than wide; antecular part 1.36 times as long as postocular one; posterior margin much backward curved. In dorsal view the interocular isthmus (vertex) is 2 times as wide as the eye. Rostrum: joint 1 almost equal to joints 2 and 3 combined, joint 2 slightly shorter than 3rd, their ratio being in mm as 0.3: 0.15: 0.17. Antennae clothed with very short, dense, adpressed hairs, denser on joints 3 and 4; ratio of antennomeres 1-4 in mm as 1.8: 1.05: 1.05: 0.45 respectively. Pronotum as in fig. 2; surface rather smooth, especially anterior lobe, with two conspicuously curved, pilose, light silver vittae; with two submedial elevates, between which there is a median depression, deeper (elongate pit) before anterior margin. Scutellum very short, posterior margin widely truncated; spine of scutellum straight, slender, directed backward, with subvertical apex. Length of coxa 1, femur 1, tibia 1 and tarsus in mm as 0.4: 1.1: 0.85: 0.7 ($0.07 + 0.1$). Femur 2 and tibia 2 in mm as 1.85 and 2.55. Femur 3 and tibia 3 in mm as 2.85 and 3.75.

Hemelytra shortened, which extend hardly to tergite 6; costal margin from base to perostigma covered with very short adpressed hairs; their pattern and venation as in fig. 3. Abdomen quite wide, 2.5 longer than wide; widest at segments 5-6.

MATERIAL EXAMINED

Ukraine: Crimea, near Yalta, Dolossy, 1 female 5.X.1966, 600m., pine forest, leg. R. D. ZHANTIEV; in the collection of the Zoological Museum of the Moscow State University, Moscow.

DISTRIBUTION

France, Roumania and Ukraine (Crimea).

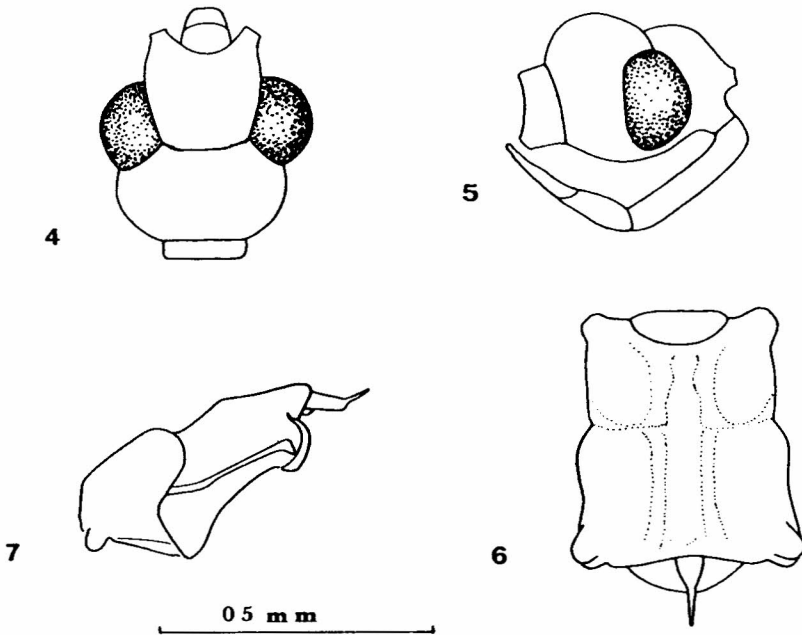
***Empicoris winnemana* McATEE and MALLOCH, 1925**

(figs. 4-10)

Empicoris winnemana McATEE and MALLOCH, 1925: 19.

Redescription. Male: length of body from apices of hemelytra 4.5 mm, length of head 0.42 mm (0.25 + 0.17); length of pronotum 0.55 mm (0.2 + 0.35); length of hemelytra 3.5 mm, width 1.2 mm.

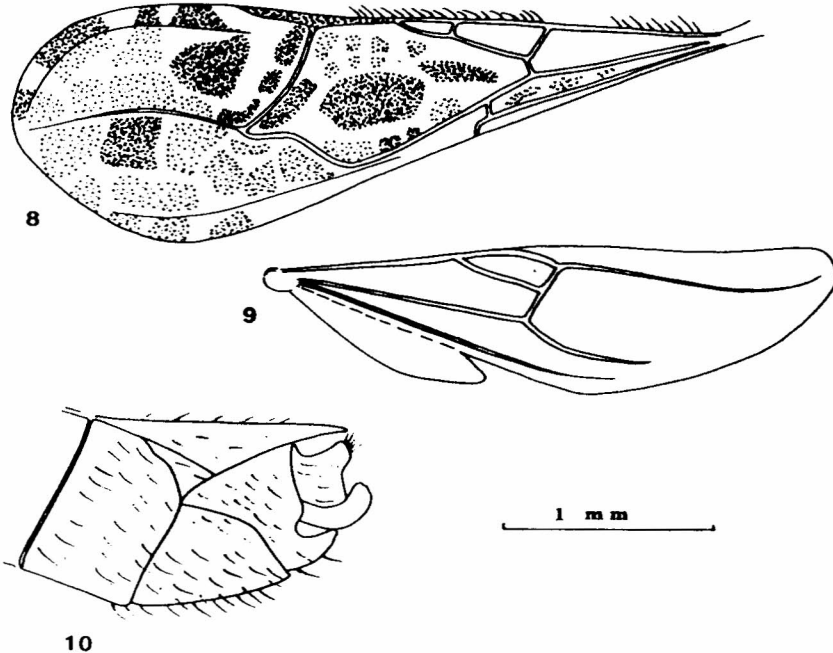
General coloration stramineous. Antennae with very short, adpressed hairs. Head and pronotum with adpressed, silvery white pubescence, forming indistinct stripes dorsally. Head of background colour; anterior lobe dorsally with short median marking and two lateral longitudinal wide stripes (fig. 4). Rostrum unicolor. Pronotum with two median, longitudinal, pale stripes; lateral carinae of posterior lobe whitish. Spine of scutellum whitish. Middle and hind legs stramineous, without any rings. Hemelytra light, with numerous darkish spots; pterostigma mostly dark. Hind wings without any spots; costal margin before pterostigma with short, delicate, suberect hairs.



4-7. *Empicoris winnemana*, male: 4 - head, dorsal view; 5 - head, lateral view; 6 - pronotum and scutellum, dorsal view; 7 - pronotum and scutellum, lateral view

Shape of head as in figs. 4 and 5; anteocular part 1.43 times as long as postocular one. Eyes rather large, semicircular; in lateral view the head height is 1.42 times as long as eye height; length ratio of eye and postocular part of head is 1: 1.15 in lateral aspect; in dorsal view the interocular isthmus is 1.4 times as wide as the eye. Rostrum: joint 1 almost equal to joints 2 and 3 combined, joint 2 slightly shorter than 3rd, their ratio being in mm as 0.3: 0.15: 0.17. Antennae clothed with very short hairs; there are some long, sparse, erect hairs exceeding the diameter of joint 2; ratio of antennomeres 1-3 (4th broken) in mm as 2.2: 1.75: 1.0, respectively. Pronotum as in figs. 6 and 7; surface rather smooth, with median, distinct, longitudinal impression, covered with very short, adpressed hairs; posterior margin almost straight. Anterior lobe 1.78 times as wide as long; posterior lobe quite long, almost 1.5 times as long as the anterior one and 1.6 times as wide as long; humeral angles developed; lateral carina complete. Spine of scutellum quite long and slender, directed backward, apical part raised a little (fig. 6). Fore legs broken. Femur 2 and tibia 2 in mm as 2.0 and 2.51. Femur 3 and tibia 3 in mm as 2.8 and 3.7.

Hemelytron quite wide, almost 3 times as long as wide, apically rather widely rounded, surpassing apex of abdomen by 1.4 mm; their pattern and venation as in fig. 8; pterostigma linear, entirely dark brown; discal cell quite short, ca. 2 times longer than wide. Hind wing as in fig. 9; cross vein m-cu and section M forming continuous straight line.



8-10. *Empicoris winnemana*, male: 8 - hemelytron; 9 - hind wing; 10 - distal portion of abdomen, lateral view

Abdomen stramineous, with median, longitudinal, dark stripe on tergites 2-6; anterior half of connexival segments light dorsally and ventrally; apex of the last tergite widely rounded; last tergite tapering toward apex and reaching the pygophor apex, basal part of the latter with quite a short, needle-shaped apophysis covered apically by curved parameres (fig. 10).

TYPE MATERIAL EXAMINED

Holotype male of *Empicoris winnemana* McATEE and MALLOCH: USA, Plummers 1, Oct. 10. 2 MD, leg H. L. VIERECK (Inv.-Nr. 21703, USNM); in the collection of USNM.

DISTRIBUTION

Eastern United States.

REFERENCES

- DOHRN, A., 1863. Beiträge zu einer monographischen Bearbeitung der Familie der Emesina. (Zweites Stück). *Linnaea Entomol.*, **15**: 42-76.
- GULDE, J., 1940. Die Wanzen Mitteleuropas. *Hemiptera-Heteroptera*. Teil VII. Fam. *Dysodiidae*, *Phymatidae*, *Reduviidae*, *Nabidae*. Frankfurt a. M.: 116 pp.
- MALDONADO-CAPRILES, J., 1990. Systematic catalogue of the *Reduviidae* of the World (*Insecta: Heteroptera*). *Caribbean J. Sci.*, Puerto Rico: 694 pp.
- McATEE, W. L., MALLOCH, J. R., 1952. Revision of the American bugs of the reduviid subfamily *Ploiariinae*. *Proc. U. S. Nat. Mus. Wash.*, **67**(1): 1-135.
- MULSANT, E., REY, C., 1873. Tribu des Reduviides. *Ann. Soc. Linn.*, Lyon, **20**: 65-186.
- PUTSHKOV, P. V., 1987a. Fauna of Ukraine. *Reduviidae*. *Kiev*, **21**(5): 248 pp. (in Russian).
- , 1987b. On the systematic position of some species of the genus *Empicoris* WOLFF (*Heteroptera, Reduviidae*) of the European fauna. *Vestnik Zool.*, **6**: 13-19; (in Russian).
- , 1991. Note préliminaire sur la taxonomie de quelques espèces du genre *Empicoris* décrites par PUTON, HORVATH et DISPONS (*Heteroptera, Reduviidae*). *Revue fr. Ent. (N. S.)*, **13**(1): 41-47.
- PUTSHKOV, V. G., PUTSHKOV, P. V., 1988. A catalogue of the assassin bugs (*Heteroptera, Reduviidae*) of the World fauna. V. *Emesinae*: 119 pp. (Typescript deposited in VINITI, Nr. 3271-B88), Kiev (in Russian).
- SIGNORET, V., 1852. Notice sur quelques Hémiptères ou peu connus. *Ann. Soc. ent. France* (2), **10**: 539-544.
- WYGODZINSKY, P. W., 1966. A monograph of the *Emesinae* (*Reduviidae, Emesinae*). *Bull. Amer. Mus. Nat. Hist.*, **133**: 614 pp.