Viedebanttia egorovi sp. n., a new acarid mite from South Korea, with notes on the genus (Acariformes: Acaridae)

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Klimov, P.B. 1998. *Viedebanttia egorovi* sp. n., a new acarid mite from South Korea, with notes on the genus (Acariformes: Acaridae). *Zoosystematica Rossica*, 7(2): 251-254.

Viedebanttia egorovi sp. n., a new species of acarid mite phoretic on the beetle *Rhombonyx testaceipes* from South Korea is described. The following species are transferred to the genus *Viedebanttia* Oudms., 1929: *Tyroglyphus fuscipes* Vitz., 1924; *Robinisca macrocnemis* Zachv., 1941; *R. longipes* Volgin, 1951; *R. coniferae* Sevastianov & Marroch, 1993 and *Caloglyphus vitzthumi* Mah., 1979.

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Introduction

Up to now the genus *Viedebanttia* Oudemans, 1929 was known from two species, *V. schmitzi* Oudemans, 1929 and *V. diamanus* Fain & Schwan, 1984. Examination of Dr. A. Egorov's entomological collection from South Korea (1997) has yielded a new species of this genus. In addition, five other species described in the genera *Robinisca* Zachvatkin, 1941, *Tyroglyphus* Latreille, 1796 and *Caloglyphus* Berlese, 1923 should be placed in *Viedebanttia* on the basis of Fain & Schwan's (1984) definition of the genus.

The terms of body parts and idiosomal chaetotaxy follow Griffiths et al. (1990); terms of leg chaetotaxy and solenidiotaxy follow Griffiths (1970) (except ω_3 which is replaced by *ba*). All measurements are given in micrometers (μm).

The holotype and the coleopteran host of the new species are kept in the Institute of Biology and Pedology, Vladivostok (IBPV).

Genus **Viedebanttia** Oudemans, 1929

Viedebanttia: Zachvatkin, 1941: 218; Fain, 1985: 276.
Robinisca: Zachvatkin, 1941: 215 (part.); Volgin, 1951: 36; Sevastianov & Marroch, 1993: 149; Bùgrov, 1997: 152 (part.). Misidentifications.
Acotyledon (non Oudemans, 1903; part.): Turk & Turk, 1957: 93; Černý & Samšiňák, 1971: 508.
Caloglyphus (non Berlese, 1923): Mahunka, 1979: 326 (part.).

Type species *Viedebanttia schmitzi* Oudemans, 1929, by original designation.

The genus *Viedebanttia* had been proposed for a single species, *V. schmitzi* (hypopus), by Oudemans (1929). Owing to insufficient original description, Zachvatkin (1941) considered this genus as incertae sedis. He had believed that *Viedebanttia* is closely related to *Robinisca* Zachvatkin, 1941. Turk & Turk (1957) described adults of *V. schmitzi* and placed this species in *Acotyledon* Oudemans, 1903, while Mahunka (1979) has synonymized *Viedebanttia* with *Caloglyphus* Berlese, 1923. Later, Fain & Schwan (1984) and Fain (1985) redescribed the holotype specimen of *V. schmitzi* and resurrected *Viedebanttia* as a valid genus.

The main features of the genus *Viedebanttia* are the enlarged tibiae of legs I (II), very short propodosoma, and long setae *scx* as Fain & Schwan (1984) defined. Based on this definiton, the following species should be transferred to the genus *Viedebanttia*: *Tyroglyphus fuscipes* Vitzthum, 1924; *Robinisca macrocnemis* Zachvatkin, 1941; *Robinisca longipes* Volgin, 1951; *Robinisca coniferae* Sevastianov & Marroch, 1993 and *Caloglyphus vitzthumi* Mahunka, 1979.

Turk & Turk (1957) synonymized *Robinisca macrocnemis* with *Viedebanttia schmitzi*. In the present paper *V. macrocnemis* is considered as a separate species, because it differs from *V. schmitzi* in the arrangement of setae *la*, *ra* and *wa* on tarsus I (*la* is located near seta *wa* in *V. schmitzi* and near seta *ra* in *R. macrocnemis*) and in the length of seta of trochanters I (longer than width of gnathosoma in *V. schmitzi* and shorter in *V. macrocnemis*).

The genus *Viedebanttia* comprises 8 species distributed in Palaearctic, Nearctic and Neotropic regions. Species of *Viedebanttia* are associated with scarabaeid beetles (Coleoptera: Scarabaeidae), fleas (Siphonaptera), ants (Hymenoptera: Formicidae) and mammals (Insectivora and Rodentia). Only *V. schmitzi*, the type species of the genus, is known from both adults and hypopi, other species are described from hypopi only.

Included species (with data on distribution, hosts and habitats). *V. schmitzi* Oudemans, 1929 – Netherlands, Belgium, Germany, Czech and Slovak Republics, Russia (Moscow Prov.), nest of *Talpa europea* Linnaeus, 1758 (Insectivora: Talpidae), forest litter; *V. fuscipes* (Vitzthum, 1924), **comb. n.** = *Tyroglyphus fuscipes* Vitzthum, 1924 – Brasilia; *V. macrocnemis* (Zachvatkin, 1941), **comb. n.** = *Robinisca macrocnemis* Zachvatkin, 1941 – Russia (Ivanovo and Moscow Provinces, Primorsk Terr.), soil mixed with waste products of rye threshing; *V. longipes* (Volgin, 1951), **comb. n.** = *Robinisca longipes* Volgin, 1951 – Ukraine (Poltava), ex *Lethrus* (*Lethrus*) *apterus* Laxmann, 1770 (Coleoptera: Scarabaeidae); *V. vitzthumi* (Mahunka, 1979), **comb. n.** = *Caloglyphus vitzthumi* Mahunka, 1979 – Costa Rica (Puerto Viejo), ex *Neivamyrmex rugulosus* Borgmeier, 1953 (Hymenoptera: Formicidae); *V. diamanus* Fain & Schwan, 1984 – USA (California), ex *Oropsylla* (*Diamanus*) *montana* (Baker, 1895) (Siphonaptera: Ceratophyllidae) found in nest of *Citellus* (= *Spermophilus*) *beecheyi* (Richardson, 1829) (Rodentia: Sciuridae); *V. coniferae* (Sevastianov & Marroch, 1993), **comb. n.** = *Robinisca coniferae* Sevastianov & Marroch, 1993 – Lithuania, ex *Geotrupes* (*Anoplotrupes*) *stercorosus* (Scriba, 1791) = *G. sylvaticus* Panzer (Coleoptera: Scarabaeidae); *V. egorovi* sp. n. – South Korea (Suwon), ex *Rhombonyx testaceipes* Motshulsky, 1860 (after Zachvatkin, 1941; Volgin, 1951; Turk & Turk, 1957; Tareev, 1971; Černý & Samšiňák, 1971; Mahunka, 1979; Fain & Schwan, 1984; Fain, 1985; Sevastianov & Marroch, 1993; Bugrov, 1997, and personal observations).

Viedebanttia egorovi sp. n.
(Figs 1-8)

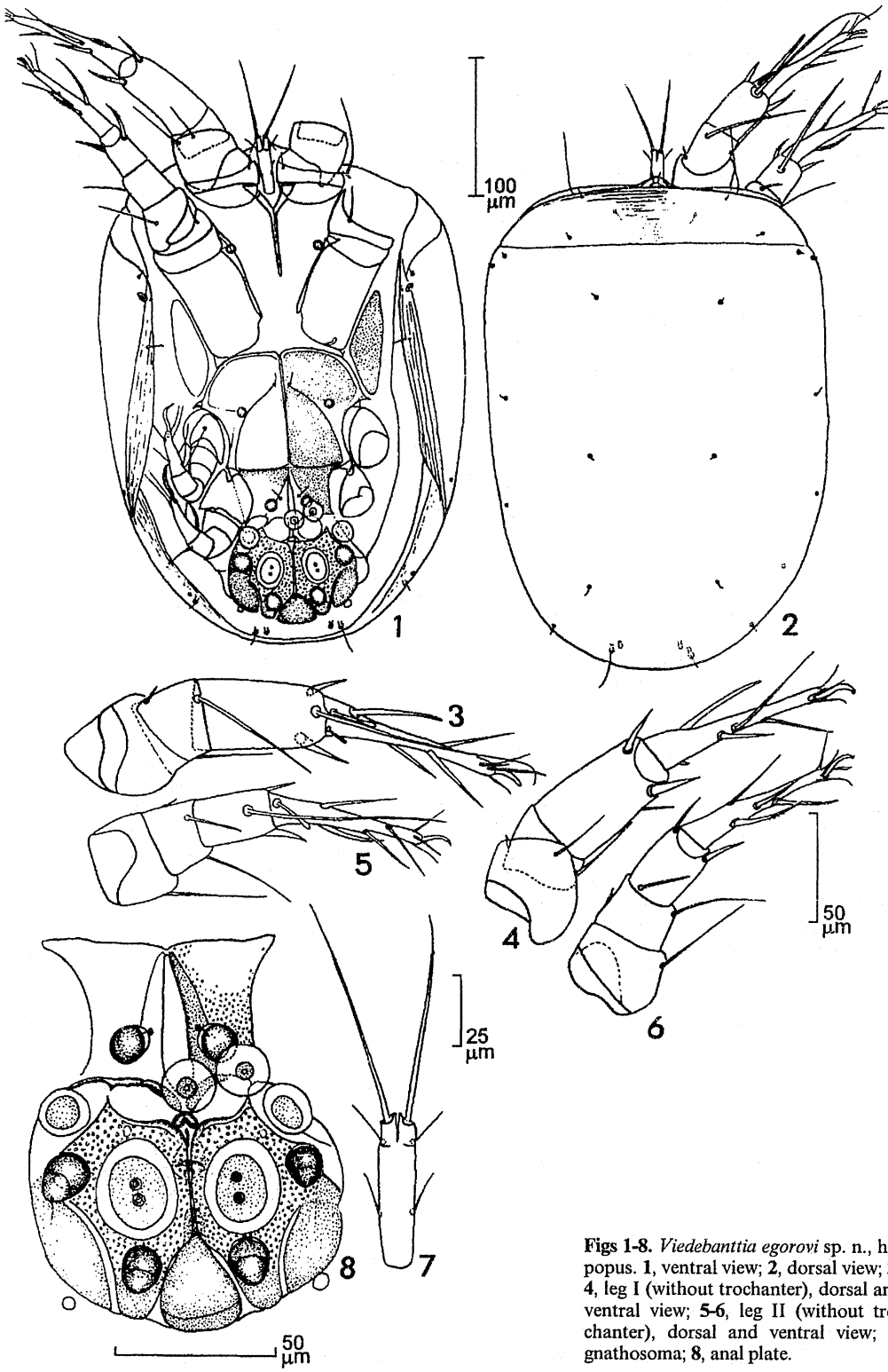
Holotype. Hypopus, **South Korea**, Suwon-city, Seocho River, Yogisan Mt., ex *Rhombonyx testaceipes* Motshulsky, 1860 (Coleoptera: Scarabaeidae) (No. 8.1), 3.VII.1997 (A.B. Egorov).

Description. Body brown, smooth, ovoid, anterior edge straight. Idiosoma 365.1 long, 255.2 wide.

Gnathosoma (Fig. 7) elongate, protruding from anterior idiosomal edge, 53.3 long, 8.5-11.9 wide at base and tip, respectively. Length of free palpomeres 11.3. Palpal solenidia (75.1) longer than gnathosoma. Anterior gnathosomal setae 17.0, posterior ones 14.5 long.

Dorsum (Fig. 2). Propodosoma strongly reduced and comparatively weakly sclerotized, almost completely hidden under hysterosoma. Only short (8.0) tubercle-like rostrum and narrow lateral edges of propodosoma not covered by hysterosomal shield. *vi* short (7.3), placed under transparent rostrum; *ve* situated laterally of *vi* at base of rostrum. *se* and *si* both covered by hysterosoma, well visible. *scx* 55.7 long, placed ventrally but most part of the setae visible dorsally. Hysterosoma 357.1 long. Anterior edge of hysterosoma straight, emarginated by wide (39.5) band bearing characteristic transverse lineal pattern. Transverse lines of the pattern gradually interrupted toward posterior edge of the band. All idiosomal setae developed, represented by microsetae (only *vi* and h_3 longer than other setae). h_3 32.7 long. Setae c_1 placed on anterior hysterosomal band. Distance between several idiosomal setae: *si-si* 42.9, *se-se* 121.1, d_1-d_1 79.9, c_1-c_1 136.4, e_1-e_1 95.7, h_1-h_1 89.6, h_2-h_2 41.2, h_3-h_3 58.1. Opening of opisthogastric glands displaced ventrally, located near anterior hysterosomal angle just posterior to *cp*.

Venter (Fig. 1). Sternum 50.4 long, not reaching posterior edge of sternal shield (distance between end of sternum and the edge approximately equal to sternum length). Epimerae II (61.8) not reaching posterior edge of the shield, but forming weakly developed connections to lateral angle of sternal shield, therefore coxal field II enclosed. Posterior edge of shield straight, 99.3 long; lateral edges 96.9 long. Sternal and ventral shields touching each other. There is a pair of additional triangular shields (72.7 long, 21.8 wide) between lateral edges of sternal and anterior lateral edges of ventral shield. c_3 9.7 long. Ventral shield 84.8 long, 109.0 wide, separated from genital one by well-visible unsclerotized suture. Punctate pattern of both shields as well as additional shields is better developed than on sternal shield. Coxal fields III and IV enclosed. Ventrum not interrupted, beginning from anterior edge of ventral shield and ending at its posterior edge. Genital shield 48.4 long, 89.6-50.7 wide at anterior edge and at level of narrowest part, respectively. Genital slit 40.7



Figs 1-8. *Viedebanttia egorovi* sp. n., hypopus. **1**, ventral view; **2**, dorsal view; **3-4**, leg I (without trochanter), dorsal and ventral view; **5-6**, leg II (without trochanter), dorsal and ventral view; **7**, gnathosoma; **8**, anal plate.

long. *1a, 3b* and *4a* represented by conoids; their diameter 7.0, 7.3 and 10.2, respectively. Bases of *3b* placed on sclerotized spots. *3a* and *g* represented by setae, 10.4 and 13.3 long, respectively. Anal plate 79.9 long, 97.1 wide, bearing well-defined porous sculpture (Fig. 8). Fore suckers (19.4); central one (21.9 × 17.2) with 2 pores not touching each other; hind suckers (12.1), anterior edge of lateral suckers (14.0) placed at level of anterior edges of central ones; fore cuticular suckers (17.0) developed, supplied with rounded central sclerites with granular sculpture; paired lateral cuticular suckers (28.8 × 17.7) as well as unpaired posterior sucker darker and more sclerotized than the rest surface of anal plate, bearing fine granular pattern. Pores *ih* touching posterior cuticular suckers.

Legs. Length of leg I-II podomeres (femora-tarsi): 36.3, 33.4, 52.6, 79.9; 41.2, 27.4, 28.3, 72.7, respectively. Legs I (Figs 3-4): seta of trochanter short (8.2); *vF* 26.6; *mG* 40, *cG* 9.7, σ 58.1; *gT* 26.6, *hT* 29.1, φ 113.8; tarsus I – ω_1 19.4, ω_2 12.1, both solenidia placed at proximal edge of tarsus, *ba* (ω_3 after Griffiths, 1970) long (37.5), represented by solenidion, widened at base (3.6); *wa* 33.2; *ra* 38.8; *la* enlarged (60.6); *f* 21.6; *e* 24.2; *d* 17.0, *d* and *e* near each other; *vsc* 14.5. Legs II (Figs 5-6): seta of trochanter 27.6 long; *vF* 50.9; *mG* 46.7; *gT* 29.1, *hT* 26.2; tarsus II – *ba* (48.0) represented by seta, not widened at base; *wa* 35.8; *ra* 36.3; *la* not enlarged (38.8); *f* 24.2; *e* 17.0; *d* 4.2, *d* displaced proximal to *e*; *vsc* 17.0. Length of claws III-IV more than half of corresponding tarsi. Claw IV 24.2, tarsus IV 32.7 long. Setae *d* displaced medially on tarsi III-IV. Chaetotaxy and solenidiotaxy of legs I-II as follows: 1-1-2+(1)-2+(1)-8+(3); 1-1-2+(1)-2+(1)-9+(1), respectively.

Etymology. The new species is dedicated to Dr. A.B. Egorov (IBPV) who collected the coleopteran host with the holotype of the new species.

Comparison. The new species differs from other species of the genus in the strongly reduced propodosoma of which most part is placed under anterior part of hysterosomal shield; length of hysterosoma/length of free part propodosoma more than 44. The species is closely related to *V. schmitzi* and *V. macrocnemis* but differs in the following characters: *ba* reaches two-thirds of tarsus I (reaches tip of tarsus in *V. schmitzi* and *V. macrocnemis*); pores on central suckers of anal plate are separated (touching each other in *V. schmitzi* and *V. macrocnemis).*

Acknowledgements

I wish to express my thanks to Dr. A. Egorov (IBPV) who collected the new species, Dr. G. Lafer (IBPV) for identification of the coleopteran host and Dr. A. Lelej (IBPV) for critical reading of the manuscript.

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Received 15 April 1998