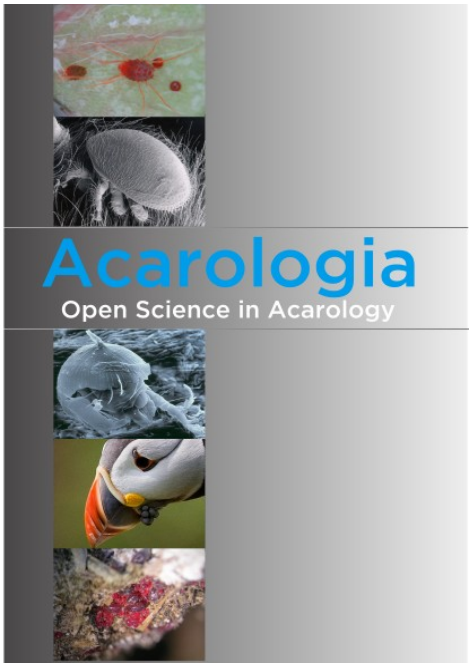

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A NEW SUBGENUS *VIDRINATAX* (ACARI: UNIONICOLIDAE: *UNIONICOLA*) WITH DESCRIPTION OF TWO NEW SPECIES OF WATER MITES IN THE GENUS *UNIONICOLA* FROM CHINA

BY CHUNGEN WEN, BAOCHING HU, ZHIMIN ZHU [1]

(Accepted March 2007)

WATER MITES
UNIONICOLIDAE
UNIONICOLA
NEW SUBGENUS
NEW SPECIES

SUMMARY: *Unionicola lumbria* Wen & Zhu 1998 is re-evaluated and placed in a new subgenus *Vidrinatax* erected of the genus *Unionicola* Halderman 1842. *Vidrinatax* is intermediate in morphology between the subgenus *Pentatax* Thor 1922 and *Causeyatax* Vidrine 1994. Two new species, *U. agilex* sp. nov. and *U. brevipedalis* sp. nov., in the genus Unionicola, are described from freshwater Bivalves, *Anodonta woodiana woodiana* (Lea, 1834) (Bivalvia: Unionidae), which belong to subgenus *Vidrinatax* and *Vietsatax* Uchida & Imamura 1938 respectively.

INTRODUCTION

Some 50 subgenus and more than 200 species recognized in the genus *Unionicola* Halderman 1842 (VIDRINE, 2002). With the exception of Antarctica, Unionicolid mites have been found in world, but only 14 species are recorded from China (VIETS, 1938; UCHIDA, 1941; UCHIDA & IMAMURA, 1951; JIN, 1997; WEN & ZHU 1996, 1998, 1999). Previously *Unionicola lumbria* Wen & Zhu 1998 has been placed in the subgenus *Polyatax* Viets 1933 of the genus *Unionicola* (WEN & ZHU, 1998), as without being aware of a significant paper that has redefined *Polyatax* and created four new subgenus (VIDRINE, 1994). A new subgenus *Vidrinatax* is erected for this group, and two new species, *U. agilex* sp. nov. and *U. brevipedalis* sp. nov., in the genus *Unionicola* are described in this paper.

Terminology and measurements for adult structures follow COOK (1974) and HEVERS (1978). Measurements are given in micrometers (μm). All bars on figures equal 100 micrometers. The type specimen is deposited in the Department of Bioscience and Technology, Nanchang University, China.

The abbreviations used in the paper are: *EpI*, *EpIII:* first and third epimeral plates.; *AEGs:* anterior epimeral groups; *PEGs*: posterior epimeral groups; *P-I-V*: palpal segments 1 to 5; *I-L-2-6*, etc.: first leg segments 2 to 6, etc.

RESULTS

Vidrinatax new subgenus
Type species: *Unionicola (Vidrinatax) lumbria*
Wen & ZHU 1998

DIAGNOSIS: Dorsum with dorsal platelets; *Ep* with distinct borders, *EpI* extending toward inner margin; 5 pairs of genital acetabula as the subgenus *Pentatax* Thor 1922; female genital field with 2 pairs of acetabular plates; anterior plates elongated toward

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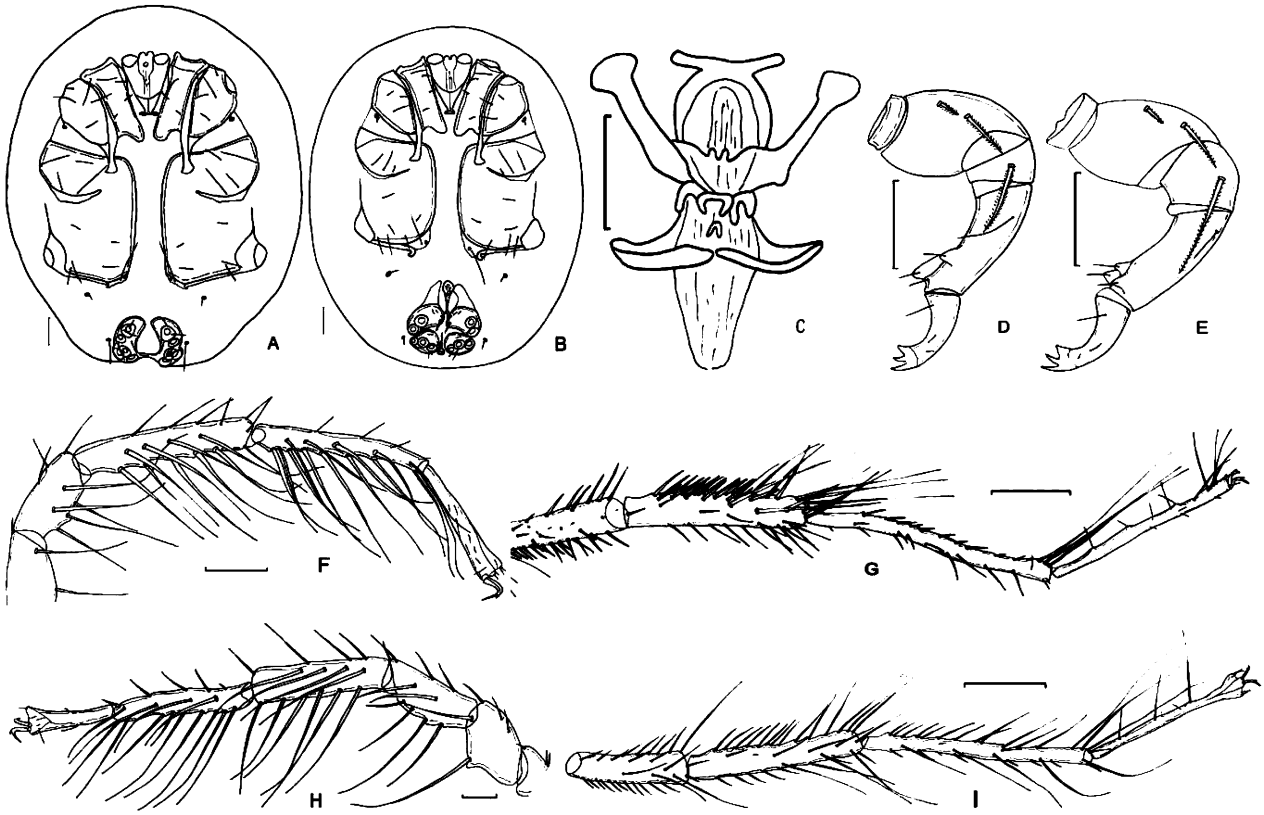

Fig. 1. *Unionicola* (*Vidrinatax*) *agilex* sp. nov. A. — Male venter; B. — Female venter; C. — Ejaculatory complex; D. — Male right palp; E. — Female left palp; F. — Male left I-L-2-6; G. — Male left IV-L-3-6; H. — Female left leg I; I. — Female left IV-L-3-6.

anterior, with inner flap but not elongate and bearing 2 short, thick spines; posterior plates unmodifided; pedipalp subcylindrical and well sclerotized tarsus usually curved in outline, with large, obvious clawlets; male left and right acetabular plates connected at posterior end, with a latero-cleft on lateral margin of acetabular plates; a pair of ventro-glandularia near genital field; leg I with large setae; *III-L-3-5* with dense spines; leg IV modified and sexually dimorphic as the subgenus *Causeyatax* Vidrine 1994, *IV-L-4* bearing nearly 20 spines and/or 5-8 elongate setae on dorsum, *IV-L-5* slender than *IV-L-4*; *IV-L-6* with 5-7 long distal setae; tarsal claws of legs bifid with dorsal prong shorter than ventral prong.

Habitat: Parasites of mussels (Unionidae: Anodontinae).

Distribution: China.

Discussion: This subgenus is intermediate in morphology between the subgenus *Pentatax* Thor 1922 and *Causeyatax* Vidrine 1994. But the distinctive modifications in *EpI*, acetabular plates and male leg IV required it placement into a separate group.

Unionicola (Vidrinatax) agilex sp. nov.
(Figs. 1. A-I)

Male: Body oval in shape, length 1315-1105, width 1078-894; dorsum black in life, with 3 lightly sclerotized platelets; interval between lateral eyes 442; capitulum slender, infracapitulum length 203, width 187; epimeral plates with hexagonal reticulation; post-apodeme of *AEGs* reaching near median of *EpIII*; *EpI* well sclerotized and extending toward inner margin; *AEGs* length 258, width 350; median distance between *PEGs* 99; *PEGs* nearly rectangular, length 443, width 340, with distinct post-apodemes 31 in

length; genital field located at post-venter end, 239 in length, 260 in width, with one pair of plates connected at posterior end and 5 pairs of acetabula, a latero-cleft on lateral margin of acetabular plates; a pair of venteroglandularia near genital field; Ejaculatory complex 120 in length, 244 in width; anal pore located at post-dorsum end of body, 26 in length, 10 in width. P-I short; P-II slightly stout and bearing 4 spiculate spines; P-III with a spiculate spine; P-IV with 3 papillous protrusions bearing a seta respectively and a dorsal seta; P-V curved and with 2 clawlets. Dorsal lengths of palpal segments: P-I 14, P-II 147, P-III 57, P-IV 125, P-V 109; dorsal lengths of leg segments: *I-L-3* 235, *I-L-4* 416, *I-L-5* 401, *I-L-6* 302; dorsal lengths of IV leg segments: *IV-L-3* 369, *IV-L-4* 463, *IV-L-5* 639, *IV-L-6* 515. Swimming setae on leg segments: I-L-2-5 2-5-10-14, II-L-2-5 1-3-5-6, III-L-2-5 1-21-10-12, *IV-L-2-5* 3-0-7-3; *III-L-3-5* with 24-61-56 dorsal spines, IV leg sexually dimorphic, *IV-L-4* bearing 20 spines and 5 elongate setae on dorsum, IV-L-6 with 5 long distal setae; IV-L-5 slender than *IV-L-4*; bifid claws of legs with dorsal prong shorter than ventral prong.

Female: Body colour, palp, epimeral plates and claws of legs similar to these of male; body nearly ellipsoidal and flatten dorsum in shape, length 1262-1210, width 1105-999; dorsum with 4 lightly sclerotized platelets, 52-62 in length, 36-42 in width; interval between lateral eyes 484; infracapitulum length 198, width 187; *AEGs* length 218, width 291; median distance between *PEGs* 73; *PEGs* length 395, width 322, post-apodemes of *PEGs* length 52; genital field 270 in length, 307 in width, with 2 pairs of acetabular plates, anterior acetabular plates well sclerotized, with elongate anterior plates, two acetabula each and an not elongate inner flap with 2 short spines each side; posterior plates with 3 acetabula each and a single, inner seta; anal pore 31 in length, 16 in width. Dorsal lengths of palpal segments: P-I 18, P-II 135, P-III 52, P-IV 130, P-V 88; dorsal lengths of I leg segments: I-L-3 227, I-L-4 361, I-L-5 319, I-L-6 286; dorsal lengths of IV leg segments: IV-L-3 299, IV-L-4 412, IV-L-5 589, IV-L-6 391. Swimming setae on leg segments: I-L-2-5 2-5-10-12, II-L-2-5 1-4-11-12, III-L-2-5 2-4-11-15, IV-L-2-5 2-3-8-7; III-L-3-5 with 13-22-20 spines on dorsum, IV-L-6 with 3 elongate setae on dorsum.

Type: holotypes 2♂♂, paratypes 2♀♀, holotypes 8♀♀, 3♂♂ were collected in freshwater bivalves *Anodonta woodiana woodiana* (Lea) from Poyang Lake (N28°22′-29°45′, E115°47′-116°45′), Jiangxi province, 11 February, 2004, by Baoqing Hu; same data as for holotypes: 7♂♂, 15♀♀from Hong Lake (N29°38′-29°59′, E113°11′-113°28′), Hubei province, 15 April, 2004, by Chungen Wen; 10♂♂, 16♀♀ from Tai Lake (N30°56′-31°34′, E119°54′-120°36′), Jiangsu province, 27 March, 2004, by Baoqing Hu; 3♂♂, 5♀♀ Chao Lake (N31°25′-31°43′, E117°16′-117°5′), 3 April, 2004, by Baoqing Hu.

Remarks : The new species resembles *Unionicola lumbaria* Wen Zhu 1998. It can be distinguished from the latter by elongate setae on dorsum of male IV-L-4 (the latter male IV-L-4 bearing 8 elongate setae on dorsum), elongate setae on distal dorsum of male IV-L-6 (the latter male IV-L-6 with 2 long distal setae) and elongate setae on dorsum of female IV-L-6.(the latter only bearing 2 long setae on venter of female IV-L-6).

Unionicola (Vietsatax) brevipedalis sp. nov.
(Figs. 2. A-I)

Male: Body typical oval in shape, length 721, width 567; dorsum light black in life, with 4 lightly sclerotized platelets, length 8-10, width 18-24; interval between lateral eyes 109; capitulum slightly slender, infracapitulum length 172, width 130; epimeral plates with hexagonal reticulation; post-apodeme of *AEGs* reaching near *EpIII*; median margin of *EpIII* lightly sclerotized; *AEGs* length 198, width 260; median distance between *PEGs* 26; *PEGs* nearly quadrangular, length 364, width 317, without distinct post-apodemes; genital field of hexagonal reticulation extending to the center of dorsum, dorsal genital plates being sector, with 3 pairs of acetabula located near post-dorsum and 2 pairs of acetabula near post-venter. P-I short; P-II slightly stout and bearing 4 spines; P-III with 2 long spines; P-IV with 3 papillous protrusions, a peg-like seta present at distal protrusion; P-V curved and with 2 clawlets. Dorsal lengths of palpal segments: P-I 21, P-II 88, P-III 36, P-IV 83, P-V 78; dorsal lengths of first leg segments: I-L-3 146, I-L-4 213, I-L-5 218, I-L-6 177; dorsal

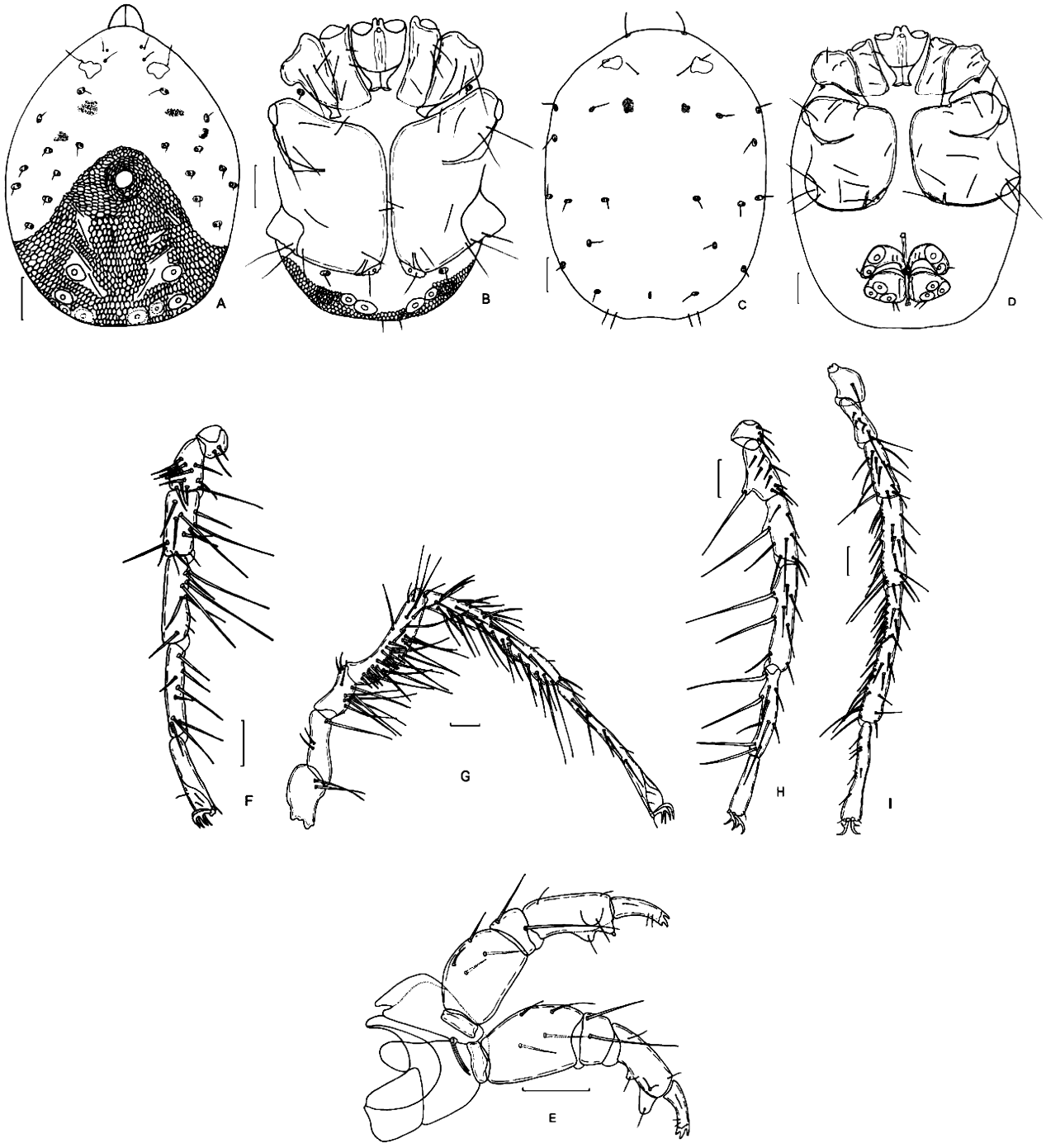

FIG. 2. *Unionicola (Vietsatax) brevipedalis* sp. nov. A. — Male dorsum; B. — Male venter; C. — Female dorsum; D. — Female venter; E. — Female capitulum; F. — Male left leg I; G. — Male left leg IV; H. — Female right leg I; I. — Female right leg IV

lengths of IV leg segments: IV-L-3 175, IV-L-4 340, IV-L-5 515, IV-L-6 494; I and III legs shorter than II and IV legs. Swimming setae on leg segments: I-L-2-5 1-2-3-3, II-L-2-5 2-4-0-0, III-L-2-5 2-6-11-11, IV-L-2-5 1-7-16-2; IV leg sexually dimorphic, IV-L-3-4 concave on dorsum; bifid claws of legs with dorsal prong longer than ventral prong.

Female: Body colour, palpal and claws of legs similar to these of male; body ellipsoidal in shape, length 865, width 653; dorsum with 2 lightly sclerotized platelets, length 5-20, width 4-8; interval between lateral eyes 216; infracapitulum length 187, width 156; post-apodeme of *AEGs* extending slightly beyond *EpIII*; AEGs length 198, width 239; median distance between *PEGs* 42; *PEGs* nearly rectangular and length 328, width 276, without distinct post-apodemes; genital field 224 in length, 296 in width, with 2 pairs of acetabular plates, anterior acetabular plates well sclerotized, with two acetabula each and an elongate inner flap with 2 short spines each side; posterior plates with 3 acetabula each and a single, inner seta; anal pore located near dorsal end, 16 in length, 8 in width. Dorsal lengths of palpal segments: P-I 21, P-II 187, P-III 78, P-IV 125, P-V 83; dorsal lengths of first leg segments: I-L-3 206, I-L-4 278, I-L-5 247, I-L-6 175; dorsal lengths of IV leg segments: IV-L-3 216, IV-L-4 330, IV-L-5 505, IV-L-6 376. Swimming setae on leg segments: I-L-2-5 1-1-2-4, III-L-2-5 0-0-3-5, IV-L-2-5 0-1-2-5, II-L-2-5 without swimming setae; I and III legs shorter than II and IV legs.

Type: holotype ♂, paratype ♀, holotypes 4♀♀, 2♂♂, were collected in freshwater bivalves *Anodonta woodiana woodiana* (Lea) from Chao Lake (N31°25′-31°43′, E117°16′-117°5′), 3 April, 2004, by Baoching Hu.

Remarks : The new species resembles *Unionicola parasitica* (Uchida & Imamura 1938). It can be separated from the latter by peg-like seta on distal protrusion of pedipalp, (the latter 3 papilla have each a minute hair), morphology of male dorsal genital plates (the latter morphology of male dorsal genital plates being narrow), setae of male IV-L-4 (the latter with two long distal britstles).

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