

First Record of the Genus *Parydra* Stenhammar (Diptera: Ephydriidae) in Korea

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Abstract: In this paper, three species of the shore fly genus *Parydra* Stenhammar newly reported from Korea are treated: *Parydra* (*Chaetoapnaea*) *albipulvis* Miyagi, *P.* (*Chaetoapnaea*) *quadripunctata* (Meigen) and *P.* (*Parydra*) *aquila* (Fallén). Key to Korean species and diagnoses are given. Photographs on external features and illustrations of male and female genitalic structures are also provided.

Key words: taxonomy, Diptera, Ephydriidae, *Parydra*, Korea

INTRODUCTION

The genus *Parydra* Stenhammar is one of the common shore flies widely distributed throughout the world, including over twenty species in Palaearctic region (Cogan, 1984; Mathis and Zatwarnicki, 1995). Their larvae are aquatic or semi-aquatic, and adult flies are found near water.

In this paper, we report three species of *Parydra* Stenhammar, *P.* (*Chaetoapnaea*) *albipulvis* Miyagi, *P.* (*Chaetoapnaea*) *quadripunctata* (Meigen) and *P.* (*Parydra*) *aquila* (Fallén), for the first time in Korea.

The voucher specimens examined in the present study are deposited in the Laboratory of Plant Protection at Kyungpook National University, Sangju. Abbreviations for Korean provincial names are used as follows: CB: Chungcheongbuk-do, GB: Gyeongsangbuk-do, JB: Jeollabuk-do.

SYSTEMATIC ACCOUNTS

Class Insecta
Family Ephydriidae

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Genus *Parydra* Stenhammar

Key to the Korean species of the genus *Parydra*

1. Scutellum with four marginal tubercles (subgenus *Parydra*) *P.* (*Parydra*) *aquila* Fallén
-. Scutellum without marginal tubercles (subgenus *Chaetoapnaea*) 2
2. Wing without apical stump of R2+3 (Fig. 1)
..... *P.* (*Chaetoapnaea*) *albipulvis* Miyagi
-. Wing with apical stump of R2+3 (Fig. 3)
..... *P.* (*Chaetoapnaea*) *quadripunctata* (Meigen)

Genus *Parydra* Stenhammar, 1844

Parydra Stenhammar, 1844: 144, as "section 3" of the genus *Ephydra* (type-species: *Ephydra aquila* Fallén, 1813, designated by Coquillett, 1910).

Napaea Robineau-Desvoidy, 1830: 799, homonym of the genus *Napaea* Hübner (1819) of Lepidoptera, synonymized by Haliday (1855) (type-species: *Npaea stagnicola* Robineau-Desvoidy, 1830).

Diagnosis. Inner and outer vertical bristles present; cervical region compressed; latero-clinate orbital bristle present; median facial and epistomal bristles absent; tibia without apical spur.

Subgenus *Chaetoapnaea* Hendel, 1930

Chaetoapnaea Hendel, 1930: 150 (type-species: *Ephydra pusilla* Meigen, 1830).

Diagnosis. Scutellum lacking tubercles or an apical process; aedeagus and aedeagal apodeme fused; gonites usually pointed apically; gonial arch absent (Clausen and Cook 1971).

***Parydra* (*Chaetoapnaea*) *albipulvis* Miyagi, 1977**
(Figs. 1 and 2)

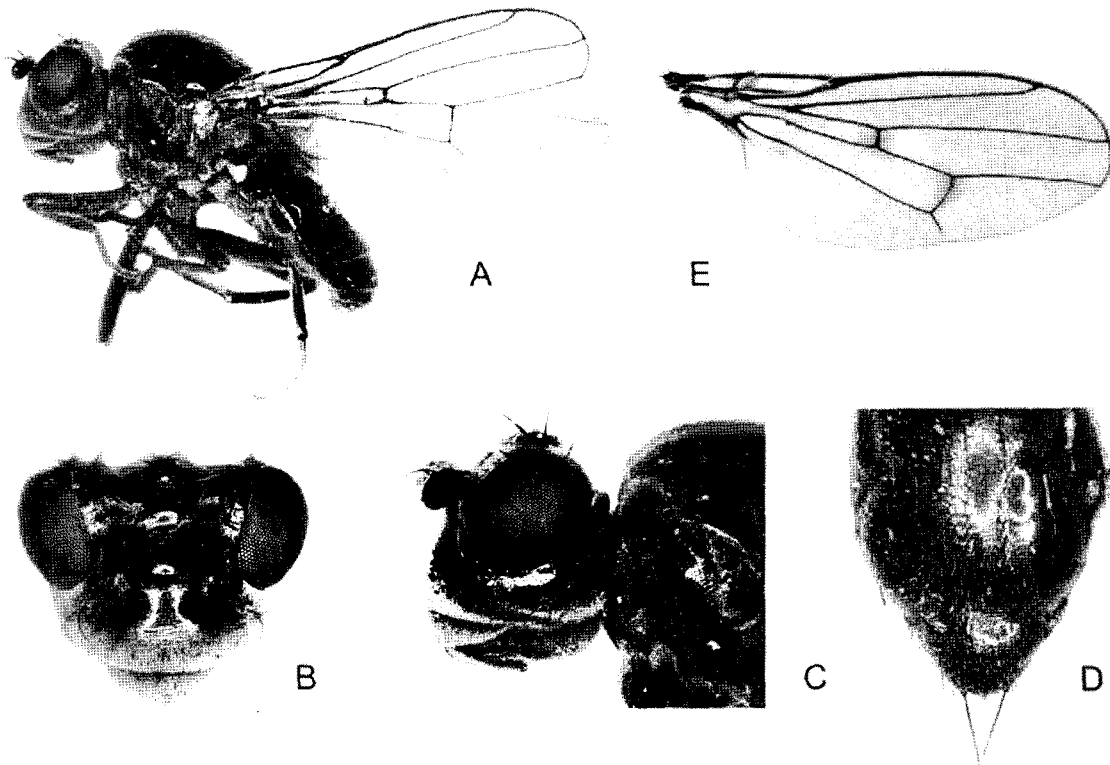


Fig. 1. *Parydra (Chaetoapnaea) albipulvis* Miyagi, 1977. A: habitus; B-C: head; D: scutellum; E: wing. Scale bar, A: 1.0 mm; B-D: 0.5 mm; E: 0.8 mm.

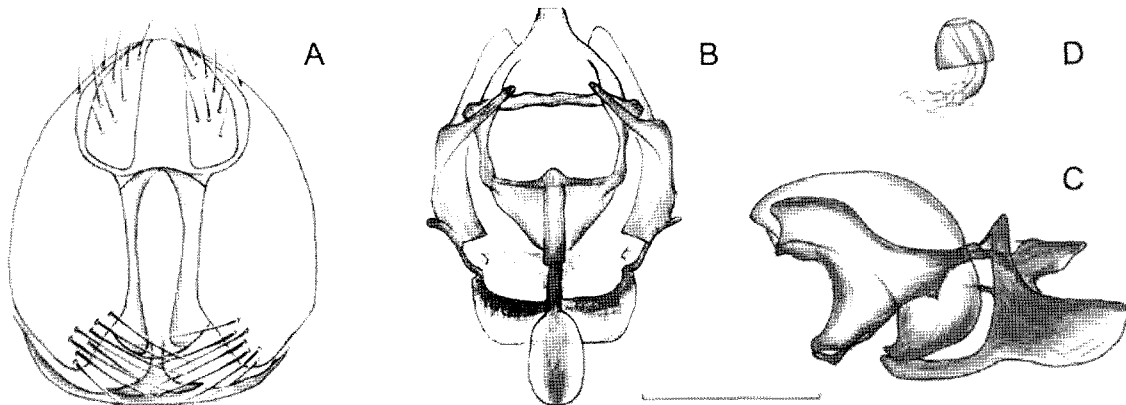


Fig. 2. *Parydra (Chaetoapnaea) albipulvis* Miyagi, 1977. A: male terminalia, posterior view; B: internal male terminalia, posterior view; C: same, lateral view; D: female spermatheca. Sale bar, 0.3 mm.

Parydra (Chaetoapnaea) albipulvis Miyagi, 1977: 71-72 (type-locality: Japan).

Diagnosis. Body length 3.2-4.5 mm, wing length 3.0-4.0 mm. Head about 0.93 times as high as long in profile; mesofrons sparsely and mostly uniformly brown microtomentose, at most slightly subshiny; ocellar triangle and parafrons indistinguished from mesofrons, nearly concolor; inner vertical bristle strong and convergent; two latero-oclinated orbital bristles well developed; no interfrontal bristle; ocellar bristles well developed, proclinate and divergent. First flagellomere yellow basoventrally, tan to

dark brown apicodorsally; arista shortly pubescent. Face bare medially; parafacial bristles inconspicuous but the first bristle well developed; face slightly convex in profile; epistomal margin of face and cheek densely silvery microtomentose; cheek about 0.5-0.6 times as high as eye. Clypeus and prementum densely silvery microtomentose. Thorax generally dull; mesonotum subshiny blackish brown, densely microtomentose, mostly uniformly brown but with faint grayish brown stripes between dorsocentral and acrostichal setal rows. Scutellum sparsely microtomentose, subshiny. Acrostichal setulae small, inconspicuous;

dorsocentral bristles small except prescutellar bristle long; posterior intraalar seta well developed; lateral and apical scutellar tubercles absent; apical scutellar bristle well developed but lateral one very short. Pleura densely silvery brown microtomentose but anepisternum brown; anterior notopleural bristles weak or absent; one anepisternal bristle present, slightly shorter than posterior notopleural bristle. Legs black with silvery microtomentum, lacking prominent setae; tarsi slightly brownish tinged except 5th tarsomere black; basotarsomere tuft yellow. Wing hyaline, slightly brownish black tinged, with brown spots on both cross-veins. Calypter dull white, margin and fringe white. Halter with knob whitish yellow to yellow. Abdomen generally bluish black, sparsely brown microtomentose.

Material examined. 16 ♂ 21 ♀, Bakdalsan, Geomun-ri, Jangyeon-myeon, Geosan-gun, CB, 6.vi.2006, SJ Suh; 6 ♂ 5, Gugok-ri, Susan-myeon, Jecheon-gun, CB, 5.vi.2006, SJ Suh; 1 ♂, Obongsan, Dongbu-ri, Geosan-eup, CB, 21.viii.2006, SJ Suh; 1 ♂ 1 ♀, Cheontaesan, Deokcheon-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 1 ♂ 1 ♀, Sangjeung-ri, Taemin-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 1 ♂ 1 ♀, Poamsan, Gwaneum-ri, Mungyeong-eup, GB, 5.vi.2006, SJ Suh.

Distribution. Korea (new record), Japan.

Parydra (Chaetoapnaea) quadripunctata (Meigen, 1830)

(Figs 3 and 4)

Ephydra quadripunctata Meigen, 1830: 117 (type-locality: uncertain, probably Germany).

Diagnosis. Body length 2.8-3.4 mm, wing length 2.7-3.2 mm. Head about 0.9 times as high as long in profile; mesofrons distinguished from parafrons, sparsely and mostly uniformly brown microtomentose, at most slightly subshiny; parafrons and ocellar triangle densely dark brown microtomentose appearing velvety; inner vertical bristle strong and convergent; two lateroconvergent front-orbital bristles well developed; no interfrontal bristle; distance between posterior ocelli narrower than distance between anterior ocellus and either posterior ocellus; ocellar bristles well developed, proclinate and divergent. First flagellomere yellow basoventally, tan to dark brown apicodorsally; arista shortly pubescent, about 2-3 times as long as arista width at base. Face sparsely microtomentose, bare medially; parafacial bristles inconspicuous but the first bristle well developed; face slightly convex in profile; parafacialia, epistomal margin of face and cheek densely brown microtomentose, cheek about 0.3-0.4 times as high as eye. Clypeus and prementum densely brown microtomentose. Thorax generally dull; mesonotum subshiny blackish brown, densely brown microtomentose, mostly uniformly brown but with faint grayish brown stripes between dorsocentral and acrostichal setal rows. Scutellum densely brown microtomentose, subshiny. Acrostichal setulae small,

inconspicuous; dorsocentral row with 4 bristles, none presutural; posterior intraalar seta well developed; lateral and apical scutellar tubercles absent; apical scutellar bristle well developed but lateral one very short or lacking, basal one moderate about as long as half of apical. Pleura densely brown microtomentose but kataposternum silvery; anterior notopleural bristles weak or absent; one anepisternal bristle present, slight shorter than posterior notopleural bristle. Legs black with silvery microtomentum, lacking prominent setae; tarsi slightly brownish tinged except 5th tarsomere more black; basotarsomere tuft yellow. Wing hyaline, slightly brownish black tinged, with brown spots on cross-veins and apical stump of R2+3. Calypter dull white, margin and fringe black. Halter with knob light brown to dark brown. Abdomen generally bluish black; tergites sparsely grayish microtomentose except lateral margin brown.

Material examined. 2 ♂ 7 ♀, Bakdalsan, Geomun-ri, Jangyeon-myeon, Geosan-gun, CB, 6.vi.2006, SJ Suh; 1 ♂, Deunggoksan, Sangno-ri, Hansu-myeon, Jecheon-shi, CB, 5.vi.2006, SJ Suh; 10 ♂ 10 ♀, Eoraesan, Sanbang-ri, Buljeong-myeon, Goesan-gun, CB, 21.viii.2006, SJ Suh; 1 ♀, Gugok-ri, Susan-myeon, Jecheon-gun, CB, 5.vi.2006, SJ Suh; 1 ♀, Obongsan, Dongbu-ri, Geosan-eup, CB, 21.viii.2006, SJ Suh; 1 ♂ 1 ♀, Samusan, Jeongok-ri, Susan-myeon, Jecheon-shi, CB, 5.vi.2006, SJ Suh; 1 ♂ 4 ♀, Baeksan, Guban-ri, Gangok-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 1 ♀, Bonghwabong, Yuyu-ri, Byeonsan-myeon, Buan-gun, JB, 24.v.2006, SJ Suh; 2 ♀, Cheontaesan, Deokcheon-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 2 ♂ 2 ♀, Chilbosan, Sucheong-ri, Chilbo-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 10 ♂ 10 ♀, Guksabong, Waryong-ri, Soseong-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 2 ♂ 7 ♀, Sangjeung-ri, Taemin-myeon, Jeongeup-shi, JB, 25.v.2006, SJ Suh; 1 ♂ 2 ♀, Ugeumsan, Yongseo-ri, Sangseo-myeon, Buan-gun, JB, 24.v.2006, SJ Suh; 1 ♂, Munmyeongsan, Myeongho-myeon, Bonghwan-gun, GB, 24.v.2007, SJ Suh; 10 ♂ 10 ♀, Poamsan, Gwaneum-ri, Mungyeong-eup, GB, 5.vi.2006, SJ Suh; 2 ♀, Tonggosan, Ssangjeon-ri, Seo-myeon, Uljin-gun, GB, 19.vi.2007, SJ Suh.

Distribution. Korea (new record), Japan, Rusia (European Territory, Far East, Siberia), Tadzhikistan, Uzbekistan, Europe.

Subgenus *Parydra* Stenhammar, 1844

Parydra Stenhammar, 1844: 144 (type-species: *Ephydra aquila* Fallén, 1813).

Diagnosis. Scutellum usually with tubercles or an apical process; male genitalia usually with aedeagus not fused to aedeagal apodeme; gonites usually rounded apically; gonial arch present (Clausen and Cook 1971).

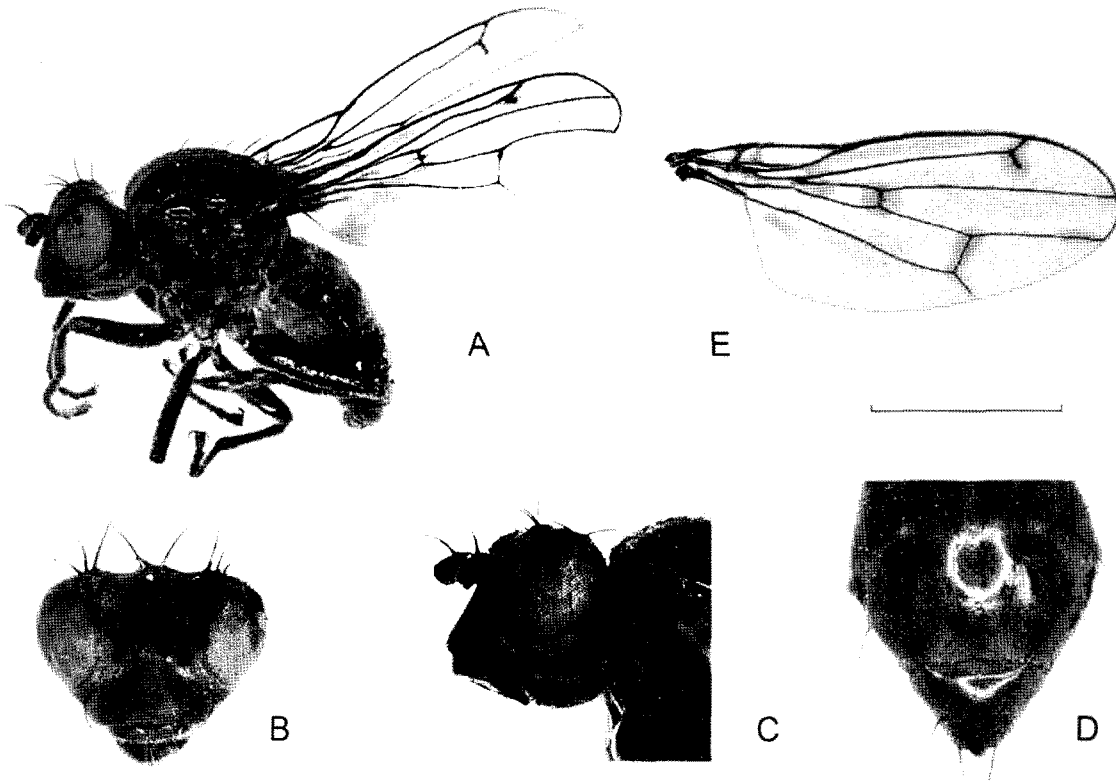


Fig. 3. *Parydra (Chaetoapnaea) quadripunctata* (Meigen, 1830). A: habitus; B-C: head; D: scutellum; E: wing. Scale bar, A: 1.0 mm; B-D: 0.5 mm; E: 0.8 mm.

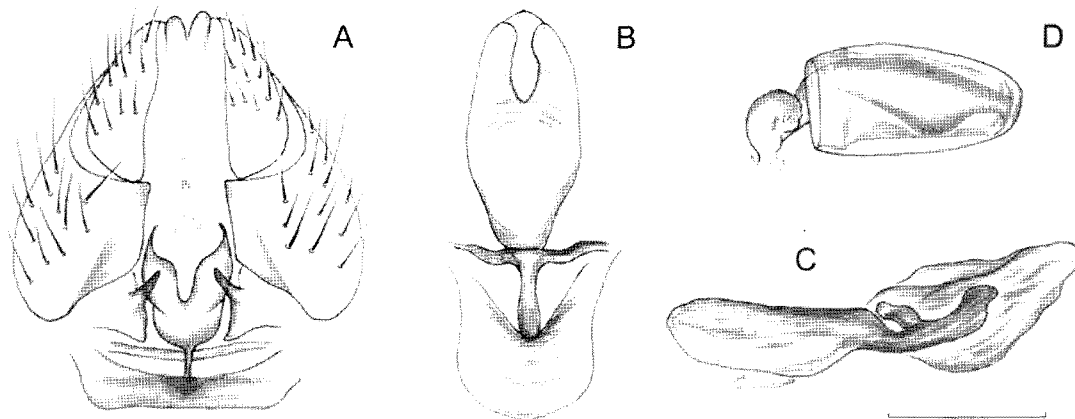


Fig. 4. *Parydra (Chaetoapnaea) quadripunctata* (Meigen, 1830). A: male terminalia, posterior view; B: internal male terminalia, posterior view; C: same, lateral view; D: female spermatheca. Sale bar, 0.3 mm.

***Parydra (Parydra) aquila* (Fallén, 1813)**

(Figs 5 and 6)

Ephydra aquila Fallén, 1813: 247, combined with *Parydra* by Haliday (1856: 345) (type-locality: Sweden).

Diagnosis. Body length 3.7-4.2 mm, wing length 3.5-4.0 mm. Head about 0.95 times as high as long in profile; mesofrons distinguished from parafrons, sparsely and mostly uniformly brown microtomentose, at most slightly subshiny; ocellar triangle and parafrons densely dark brown

microtomentose, appearing velvety; inner vertical bristle strong and convergent; two lateroclinated orbital bristles well developed; no interfrontal bristle; distance between posterior ocelli narrower than distance between anterior ocellus and either posterior ocellus; ocellar bristles well developed, proclinate and divergent. First flagellomere yellow basoventrally, tan to dark brown apicodorsally; arista shortly pubescent. Face bare medially; parafacial bristles inconspicuous but the first bristle well developed;

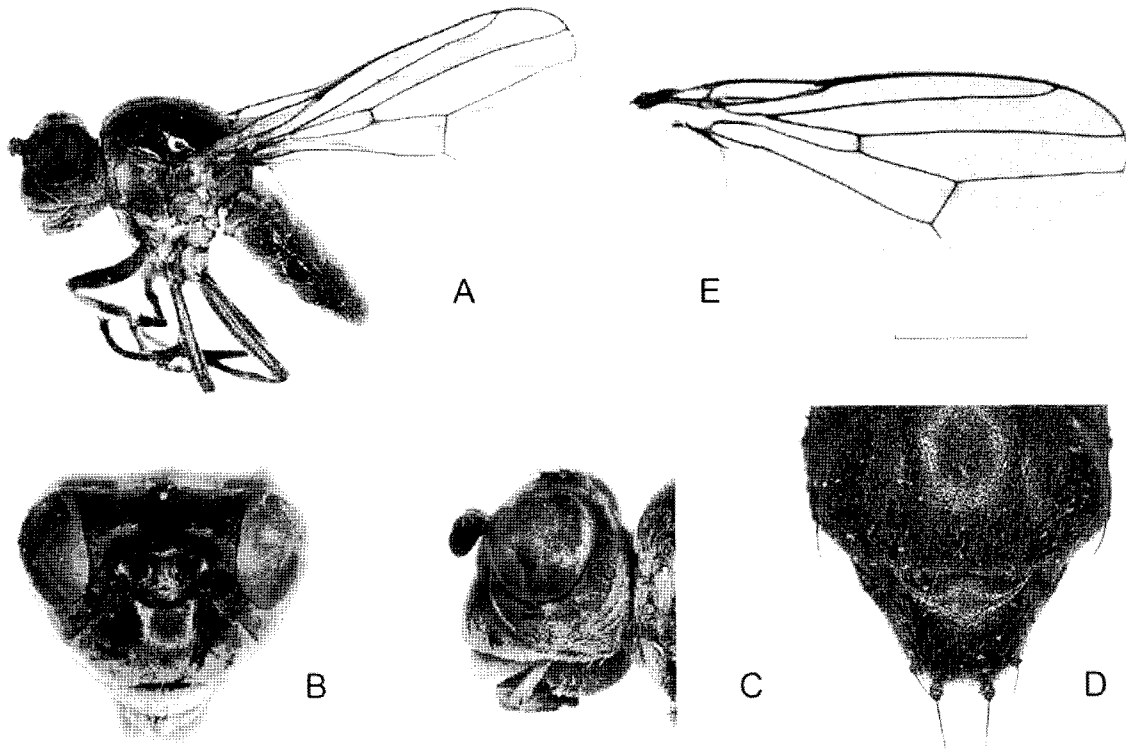


Fig. 5. *Parydra (Parydra) aquila* (Fallén, 1813). A: habitus; B-C: head; D: scutellum; E: wing. Scale bar, A: 1.0 mm; B-D: 0.5 mm; E: 0.8 mm.

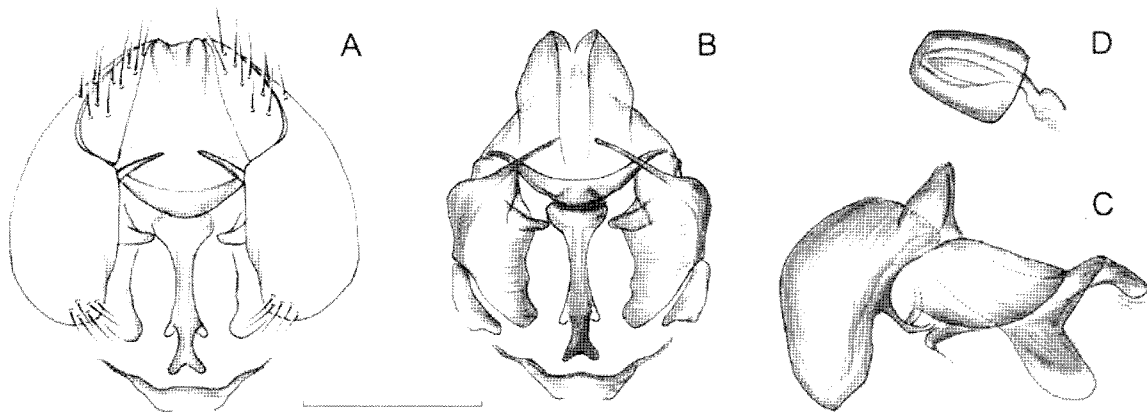


Fig. 6. *Parydra (Parydra) aquila* (Fallén, 1813). A: male terminalia, posterior view; B: internal male terminalia, posterior view; C: same, lateral view; D: female spermatheca. Sale bar, 0.3 mm.

face slightly convex in profile; cheek densely microtomentose, about 0.5-0.6 times as high as eye. Clypeus and prementum densely silvery microtomentose. Thorax generally dull; mesonotum subshiny blackish brown, densely microtomentose, mostly uniformly brown but with faint grayish brown stripes between dorsocentral and acrostichal setal rows. Scutellum sparsely microtometose, subshiny. Acrostichal setulae small, inconspicuous; dorsocentral bristles small but prescutellar bristle; posterior intraalar seta well developed; lateral and apical scutellar

tubercles present with long bristles. Pleura densely silvery microtomentose but anepisternum golden brown, appearing velvety; notopleural bristles usually two, the anterior weaker; one anepisternal bristle present, slight shorter than posterior notopleural bristle. Legs black with silvery microtomentum, lacking prominent setae; knees and tarsi slightly brownish tinged; yellow basotarsomere tuft developed. Wing hyaline, slightly brownish black tinged. Calypter dull white with pale yellow fringe. Halter with knob whitish yellow to yellow. Abdomen generally bluish

black, sparsely brown microtomentose.

Material examined. 8 ♂ 10 ♀, Uhwagyo, Chungju-dam, Jungbang-ri, Danseong-myeon, Danyang-gun, CB, 27.iv.2007, SJ Suh; 1 ♀, Poamsan, Gwaneum-ri, Mungyeong-eup, GB, 4.vi.2006, SJ Suh.

Distribution. Korea (new record), Japan, Kazakhstan, Morocco, Russia (European Territory, Far East, Siberia), Europe, N.America.

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