

# Taxonomy of Korean *Hydrovatus* Motschulsky (Coleoptera: Dytiscidae)

Dae-Hyun LEE and Kee-Jeong AHN<sup>1\*</sup>

Institute of Ecosystem Restoration Planning, 97 Deokmyeong-ro, Yuseong-gu, Daejeon 34155, Korea

<sup>1</sup>Department of Biology, Chungnam National University, Daejeon 34134, Korea

## 한국산 점틀물방개속(딱정벌레목 : 물방개과)의 분류학적 연구

이대현 · 안기정<sup>1\*</sup>생태계복원계획연구소, <sup>1</sup>충남대학교 생물학과

**ABSTRACT:** A taxonomic study of Korean *Hydrovatus* Motschulsky is presented. Two species are recognized, one of which (*H. acuminatus* Motschulsky) is reported for the first time in Korea. Habitus, key and diagnostic characters with line drawings of the species are provided.

**Key words:** Taxonomy, *Hydrovatus*, Dytiscidae, Coleoptera, Korea

**초 록:** 한국산 점틀물방개속(*Hydrovatus* Motschulsky)의 분류학적 연구를 수행하였다. 2종이 발견되었으며, 노랑점틀물방개(*H. acuminatus* Motschulsky)를 국내에서 처음 보고한다. 본 속의 각 2종에 대한 성충의 외형 사진 및 식별 형질과 검색표를 제시한다.

**검색어:** 분류, 점틀물방개속, 물방개과, 딱정벌레목, 한국

The genus *Hydrovatus* Motschulsky contains 206 described species worldwide (Nilsson, 2015) and 23 species in the Palearctic region (Nilsson and Hájek, 2014). In East Asia, 11 species have been reported in China, seven species in Japan and four species in Taiwan. But only a single species is recorded in Korea (Nilsson and Hájek, 2014).

Members of *Hydrovatus* are characterized by the combination of the following features: apex of elytra and sternite VII acute; metacoxal process elongate and slender, and apical incision deep and narrow; gonocoxa fused into a knife-like structure with long lateral fringe (Miller and Bergsten, 2014).

In this paper, we report two species in the Korean fauna, one of which (*H. acuminatus* Motschulsky) is reported for the first time in Korea. Habitus, key and diagnostic characters with line

drawings of the species are provided.

## Materials and Methods

To identify Korean *Hydrovatus* species more reliably, we compared them with the type and voucher specimens in the Natural History Museum (NHM), London, United Kingdom. The specimens used in this study are deposited in Chungnam National University Insect Collection (CNUIC), Daejeon, Korea. We only present brief diagnoses of the species because previous researchers already described them in detail.

## Taxonomic accounts

### Family Dytiscidae Leach, 1815

### Genus *Hydrovatus* Motschulsky, 1853 점틀물방개속

*Hydrovatus* Motschulsky, 1853: 4. Type species: *Hyphydrus*

\*Corresponding author: [kjahn@cnu.ac.kr](mailto:kjahn@cnu.ac.kr)

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*cuspidatus* Kunze, 1818.

See Biström (1996) for more detailed synonymies.

**Key to the species of Korean *Hydrovatus***

- 1. Antennomeres 7–10 slightly broad apically (Fig. 2A); apex of median lobe protruded and acute laterally ..... *H. acuminatus*
- Antennomeres 7–10 distinctly broad apically (Fig. 3A); apex of median lobe rounded ..... *H. subtilis*

***Hydrovatus acuminatus* Motschulsky, 1859**

노랑점물방개(신칭) (Figs. 1A, 2, 4)

*Hydrovatus acuminatus* Motschulsky, 1859: 42.

See Biström (1996) for more detailed synonymies.

**Diagnosis.** Length 2.4–2.6 mm. Antennomere (Fig. 2A) 1 slender and longer than 2, 2–10 slightly broad apically and slightly longer than wide, 3–6 broad subapically in male, 11 long oval, widest at middle. Median lobe (Figs. 2B, 2C) of aedeagus broad and subparallel, apex protruded, acute laterally in dorsal view; slender and slightly curved, apex acute in lateral view. Paramere (Fig. 2D) semicircular, widest at base; apex rounded in lateral view.

**Material examined.** KOREA: Chungnam Prov.: 2♂♂, Taean-gun, Iwon-myeon, Gwan-ri, Iwon-seawall, N36°53' 902" E126°16'219" 3 m, 5 VIII 2015, DH Lee, SH Lee, at light near reclaimed land; 2♂♂ 2♀♀, Taean-gun, Wonbuk-myeon,

Hwangchon-ri, N36°51'855" E126°11'973" 13 m, 17 VII 2015, DH Lee, at light near abandon salt farm.

**Distribution.** Asia: Korea, China (Fujian, Guandong, Guangxi, Hainan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Xinjiang, Yunnan), Iran, Iraq, Israel, Japan, Nepal, Oman, Pakistan, Saudi Arabia, Syria, Taiwan, Turkey, Yemen (Socotra), North Africa: Egypt, Libya.

***Hydrovatus subtilis* Sharp, 1882 점물방개**

(Figs. 1B, 3, 4)

*Hydrovatus subtilis* Sharp, 1882: 329; Nilsson, 1995: 36.

*Hydrovatus adachii* Kamiya, 1932: 4; Takizawa, 1933: 165.

See Biström (1996) for more detailed synonymies.

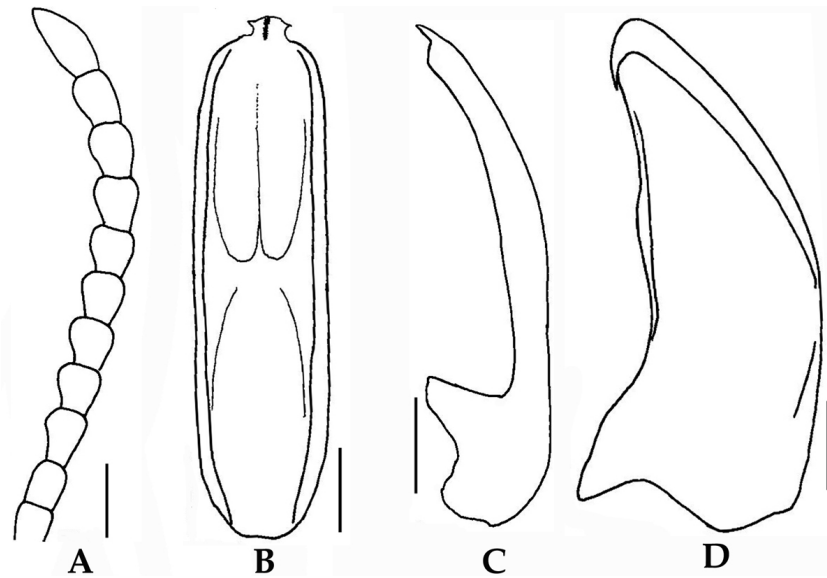
**Published Korean records.** *Hydrovatus subtilis*: Lee et al., 1992: 47; Kim et al., 1994: 133; Nilsson, 2003: 71; 2015: 41; Park et al., 2008: 220.

**Diagnosis.** Length 2.4–2.8 mm. Antennomere (Fig. 3A) 1 slender and longer than 2, 2–10 distinctly broad apically and slightly longer than wide in male, 11 long oval, widest at middle. Median lobe (Figs. 3B, 3C) of aedeagus narrowed apically, widest at basal fourth, apical margin broadly rounded in dorsal view; slender, slightly curved, apex vented and acute in lateral view. Paramere (Fig. 3D) semicircular, widest at basal fifth; apex acute in lateral view.

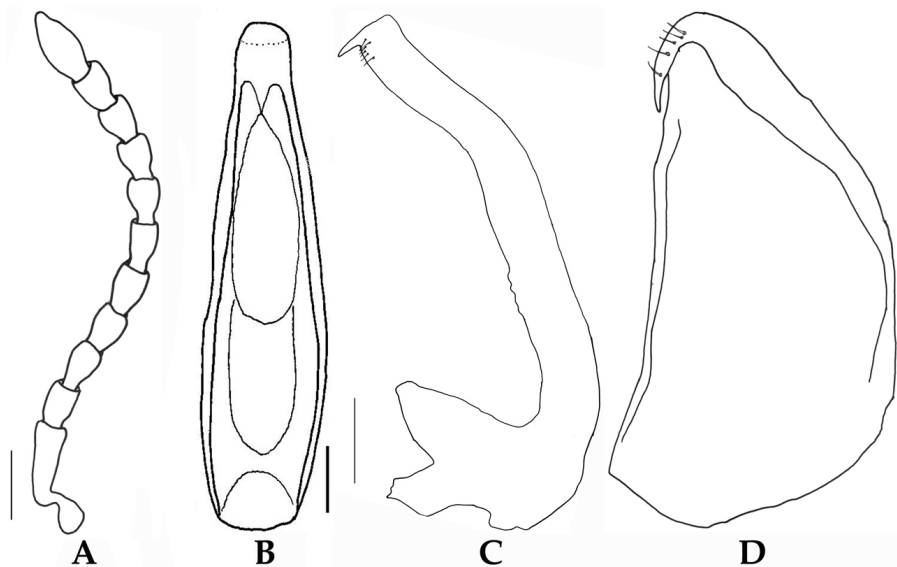
**Material examined.** Lectotype. 1♂ (NHM), with labels as follows: "Type, Siam, Sharp Coll 1905-313, Type ♂, *Hydrovatus*



Fig. 1. Habitus. A: *Hydrovatus acuminatus*, 2.3 mm; B: *H. subtilis*, 2.5 mm.



**Fig. 2.** *Hydrovatus acuminatus*. A: antenna; B: median lobe (dorsal aspect); C: median lobe (lateral aspect); D: paramere (lateral aspect), Scales = 0.1 mm.



**Fig. 3.** *Hydrovatus subtilis*. A: antenna; B: median lobe (dorsal aspect); C: median lobe (lateral aspect); D: paramere (lateral aspect), Scales = 0.1 mm.

*subtilis* n. sp. *Hydrovatus subtilis* Sharp Des. O. Biström, 1989, Lectotype". **KOREA: Chungbuk Prov.:** 1 ♀, Cheongju-si, Heungdeok-gu, Hyuam-dong, 7 V 2005, D.-H. Lee, *ex pond*; 1 ♀, same data as former except for 1 VI 2005; 1 ♂, same data as former except for 15 X 2005; 2 ♂ ♂ 8 ♀ ♀, same data as former except for 5 V 2006 (2 ♂ 3 ♀ ♀, on slide); **Gyeonggi Prov.:** 1 ♀, Suwon-si, Seoho-pond, 14 IX 1990, SH Lee, *ex pond*; **Gyeongnam Prov.:** 1 ex, Sancheong-gun, Maetgol-pond,

7 VI 2009, SH Lee; **Jeju Prov.:** 1 ♀, Bukjeju-gun, Jongdal-ri, 27 VII 1990, SH Lee, *ex pond*; 1 ♂, Namjeju-gun, Siheung-ri, 26 VII 1990, SH Lee, *ex pond*; Jeonnam Prov.: 1 ex, Jangseong-gun, Songsan-pond, 1 VIII 2009, SH Lee; 1 ♂, Yeongam-gun, Taeganji, 22 VII 1989, SH Lee, *ex pond*.

**Distribution.** Korea, China (Macao), India, Indonesia, Japan, Laos, Malaysia, Taiwan, Thailand.

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