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First record of two erotylid species of *Triplax* (Coleoptera: Erotylidae: Tritomini) from Korea

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Two fungivorous Korean erotylid beetles - *Triplax ainonia* Lewis, 1887 and *Triplax nagaoi* Nakane, 1977 in the tribe Tritomini - were recorded for the first time from Korea. All Korean *Triplax* members are associated with the fruiting bodies of higher fungi and fungus-grown bark. Re-description, key to the species of Korean *Triplax*, photographs of adults, and line drawings of diagnostic characters and host fungi records are provided.

Keywords: Coleoptera, Erotylidae, host fungi, new to Korea, *Triplax*

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Introduction

The genus *Triplax* Fabricius belongs to the tribe Tritomini, family Erotylidae, and is comprised of 67 species in the Palaearctic region (Wegrzynowicz, 2007), including three Korean species (Kim *et al*., 1994; Kwon *et al*., 1996; Wegrzynowicz, 2007; Hong and Lee, 2014).

Triplax is characterized by the following combination of features: Body relatively elongate oval to elongate-elliptical; head with pair of stridulatory files on the occipital region; antennae clavate, 9-11 antennomeres forming a distinct club; apical maxillary palpomere weakly to strongly widened, about 2-5 times wider than long; intercoxal area comparatively narrow; prosternal lines short, not extending in front of procoxal cavities (Chûjô, 1969; Goodrich and Skelley, 1993).

Larvae and adults of *Triplax* are mostly fungivorous (Chûjô, 1969). For example, *Triplax* group feed almost exclusively on the gilled fungus *Pleurotus* and associated with the polypore genus *Inonotus* (Skelley, 1988; Goodrich and Skelley, 1993). Korean members are considered mycetobiont because they depend upon the basidiocarps for feeding and breeding throughout their life span (per. obs.).

Three species of *Triplax* were previously recorded from Korea, *Triplax devia* Lewis, *Triplax japonica* Crotch and *Triplax sibirica connectens* (Lewis) (Chûjô *et al*., 1993; Kim *et al*., 1994; Kwon *et al*., 1996; Wegrzynowicz, 2007; Hong and Lee, 2014). In this study, we report two unrecorded species, *Triplax ainonia* Lewis, 1887 and *Triplax nagaoi* Nakane, 1977 from Korea. Re-descriptions and keys to species of Korean *Triplax*, photographs of adults, and line drawings of diagnostic species characters and host fungi records are also provided.

Materials and Methods

The following records are based on specimens deposited in JUNG's Insect Collection (Seoul, Korea) that were predominantly collected from fruiting bodies of Agaricales and Aphyllophorales fungi associated with rotten wood and then partly reared in the laboratory. In addition, some specimens were collected with flight intercept traps (FIT) in the Gotsawal of Jejudo and Gyeonggi-do in Korea.

The host fungi were identified based on Breitenbach and Kränzlin (1986) and Lee (1988). The detailed morphological characters were carefully examined using stereomicroscopy (M50, DM2500, Leica, Germany) and photographed with a digital camera (Canon 5D, Japan). The abbreviations used in this study are as follows: GG (Gyeonggi-do); JJ (Jeju-do); Mt. (Mountain).

Taxonomic accounts

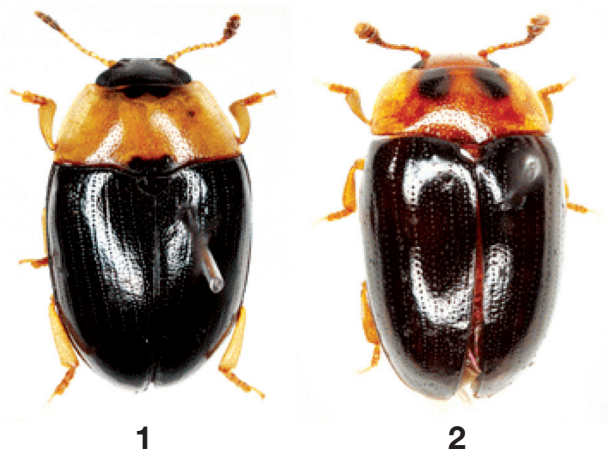
Family Erotylidae Latreille, 1802

[Korean name: Beo-seos-beol-re-gwa]
Subfamily Erotylinae Latreille, 1802
[Korean name: Beo-seos-beol-re-ah-gwa]
Genus *Triplax* Herbst, 1793
[Korean name: Si-be-ri-a-beo-seos-beol-re-sok]

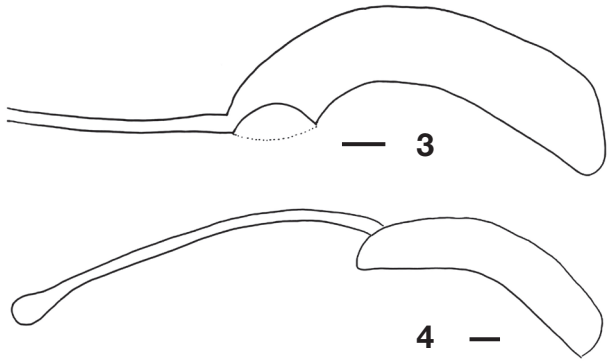
Triplax Herbst, 1793: 146. Type species: *Silpha russica* Linnaeus, 1758.
Platichna C. G. Thomson, 1859: 96. Type species: *Erotylus rufipes* Fabricius, 1787.
Ogcotriplax Heller, 1918(1920): 29. Type species: *Triplax pseuda* Heller, 1920.
Peudotriplax Heller, 1918(1920): 29. Type species: *Triplax tayabasi* Heller, 1920.

Key to the Korean species of *Triplax*

1. Head black ····· 2
− Head red ····· 3
2. Apical maxillary palpomere about 2.5 times wider than long ····· *T. ainonia*
− Apical maxillary palpomere about 3 times wider than long ····· *T. sibirica connectens*
3. Pronotum reddish brown, without markings ····· ····· *T. japonica*
− Pronotum reddish brown, with large subrotundate markings ····· 4
4. Vertex without circular marking; pronotum with two subrotundate black markings, one placed at middle of anterior margin and the other placed before scutellum ····· *T. devia*
− Vertex with black circular marking; pronotum with a pair of bilateral- symmetrical, circular and black markings ····· *T. nagaoi*



Figs. 1-2. Habitus (dorsal). 1. *Triplax ainonia*; 2. *T. nagaoi*.



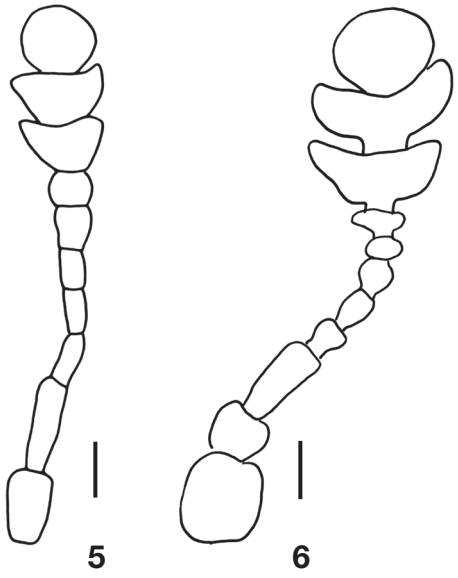
Figs. 3-4. Genitalia (lateral, Each scale bar = 0.1 mm). 3. *T. ainonia*; 4. *T. nagaoi*.

***Triplax ainonia* Lewis, 1887**

[Korean name: Neu-ta-li-beo-seos-beol-re] [Figs. 1, 3, 5]
Triplax ainonia Lewis, 1887: 69.

Re-description: Body length 3.0-3.5 mm. Body elongate oval, weakly convex, color mostly black and shiny; strongly glabrous; 1-8 antennomeres (9-11 antennomeres blackish brown), mouthpart, pronotum and legs yellowish brown to reddish brown; pronotum with two transverse and black spot, one placed at middle of basal margin and the other placed at middle of anterior margin; ventral part mostly black, but yellowish brown at lateral and apical part. **Head** finely punctate; shallowly depressed at each side; vertex with black circular marking; ocular distance about 2.2 times wider than eye diameter; antenna reaching to middle of pronotum; third antennomere about 1.8 times longer than fourth; 9-11 antennomeres forming a loose club; ninth antennomere triangular, tenth antennomere bowl-shaped and apical antennomere rotundate; apical maxillary palpomere about 2.5 times wider than long. **Pronotum** weakly convex, about twice wider than long; finely and a little sparsely punctate; with a pair of bilateral- symmetrical, circular and black markings; anterior margin weakly round, thinly rimmed; lateral sides subparallel-sided, gradually narrow anteriorly, with a small pore at each; basal margin strongly arched posteriorly at median part, distinctly rimmed. **Scutellum** almost cordiform, with fine punctures. **Elytra** weakly convex; striate-punctate; strial punctures distinct; interstriae weakly flat, with small and somewhat sparse punctures. All tibiae of **legs** strongly widened apically; 1-4 tarsomeres with dense setae ventrally; fourth tarsomere minute, inserted into third; fifth tarsomere almost equal to four preceding tarsomeres combined together. Male gentalia with median lobe and median stout as in Fig. 3.

Specimens examined: [GG] 1 ex. Deoksu-ri, Danweol-myeon, Yangpyeong-gun, 21.vi-30.vi.2016, J.B. Seung and B.H. Jung (FIT); 1 ex. Deoksu-ri, Danweol-myeon, Yangpyeong-gun, 2.vi.-17.vi.2016, J.B. Seung and B.H. Jung (FIT); [JJ] 20 exs. Hwasun Gotjawal, Andeok-



Figs. 5-6. Antenna (Each scale bar = 0.1 mm). 5. *T. ainonia*; 6. *T. nagaoi*.

myeon, Seogwipo-si, 13.vi.2016, J.B. Seung and B.H. Jung, from *Pleurotus pulmonarius*; 2 exs. Hwasun Gotjawal, Andeok-myeon, Seogwipo-si, 15.v.-6.vi.2016, J.B. Seung (FIT).
Host fungus: *Pleurotus pulmonarius* (Fr.) Quél.
Distribution: Korea (New Record), Japan, Russia (Far East).
Remarks: *Triplax ainonia* Lewis is rarely observed in Korea and is a mycetobiont (an obligatory fungal inhabitant). This species inhabits the fresh fruiting bodies of *Pleurotus pulmonarius*, which are soft and nearly ephemeral. Both adults and larvae usually feed on and breed in the context and the gills of fruiting bodies. In the laboratory, development from first larvae to adulthood took approxmately 30 days.

***Triplax nagaoi* Nakane, 1977**
[Korean name: Baek-un-san-beo-seos-beol-re] [Figs. 2, 4, 6]
Triplax nagaoi Nakane, 1977: 98.

Description: Body length 3.4-4.3 mm. Body elongate-oval, moderately convex, shiny and strongly glabrous; body color mostly reddish-yellow; marking on vertex, a pair of round markings on pronotum, sometimes scutellum elytra and meso- and metasternum black. **Head** with tiny punctures, with shortly transverse depression behind clypeus; eyes slightly oblique, moderately and roundly produced; ocular distance about three times wider than eyes diameter; antennae not reaching to basal margin of pronotum; third antennomere slender and about twice longer than fourth; 9-11 antennomere strongly enlarged, forming a densely articulated club, apical antennomere circular and narrower than tenth. **Pronotum** about 2.2 times wider than long, widest at base; convex; with fine punctures; anterior margin weakly emarginate but median part nearly straight, thinly rimmed; lateral sides subparallel-sided, abruptly narrowed anteriorly, moderately rimmed; basal margin weakly arched posteriorly at middle, moderately rimmed. **Scutellum** tongue shape, with sparse and minute punctures. **Elytra** strongly convex; with 8 files of distinct striae-puncture; strial punctures deep, distinct and dense; interstriae weakly flat, with tiny and irregular punctures. All tibiae of **legs** strongly widened apically; 1-4 tarsomeres with dense setae ventrally; fourth tarsomere minute, inserted into third; fifth tarsomere almost equal to four preceding tarsomeres combined together. Male gentalia with median lobe and median slightly stout as in Fig. 4.
Specimens examined: [JN] 10 exs. Han-jai, Baikun-san (Mt.), donggok-ri, Oklyeong-myeon, Gwangyang-si, 8.ix.2016, B.H. Jung and H.C. Park, from *Trametes*.
Host fungus: *Trametes trogii* Berk., *Trametes* sp.
Distribution: Korea (New Record), Japan.
Remarks: *Triplax nagaoi* is rarely observed in Korea and a mycetobiont (an obligatory fungal inhabitant). This species inhabits the fresh fruiting bodies and mycelia of *Trametes*, which are soft when young and then ligneous when old. Host fungi of this species are ligneous enough for it to feed and breed in it through its life cycle. Both adults and larvae usually feed on and breed in the context of fruiting bodies. In the laboratory, development from first larvae to adulthood took approxmately 40 days.

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