First Record of *Psen ussuriensis* (Hymenoptera: Crabronidae: Pemphredoninae) from Korea, with a Key and Checklist of Current Valid Species of Korean Pemphredoninae

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ABSTRACT

*Psen ussuriensis* Lith is reported for the first time in Korea. Diagnostic description and digital images of this species are provided. For future researchers, a key to higher taxa and a checklist of 36 valid Korean Pemphredoninae species are also given.

Keywords: *Psen ussuriensis*, checklist, Pemphredoninae, Korea

INTRODUCTION

Subfamily Pemphredoninae is better known as aphid wasps among family Crabronidae, and comprises about 1056 worldwide species in four tribes (Plawski, 2010). Except for social in one genus *Microstigmus*, all the other members of this subfamily are solitary wasps, nesting in hollow twigs or stems or soil, and provisioning with mainly various Homopteran families for the young (Bohart and Menke, 1976; Finnamore and Michener, 1993; Yamane, 1999; O’Neil, 2001).

They could be separated from other crabronid species by the following combination of characteristics: mesotibia with one apical spur; hindwing with jugal lobe less than half length of area posterior to claval notch; forewing with stigma almost as large as first discal cell or larger; metasoma usually petiolate, petiol (sometimes short, broader than long) composed of sternum I only, but in some genera almost sessile or very short petiolated.

Recently in the process of examining Korean Pemphredoninae, we found several specimens of *Psen ussuriensis* Lith so far unknown in Korea. Of the known Far eastern species, this species is unique by having quite expanded mandible as described below. We list this species as one of Korean aphid wasps in the present paper. Diagnostic description complemented by digital images is provided. In addition, a key to higher taxa (Tribes, Subtribes and Genera) and a checklist of 36 valid Korean species of Pemphredoninae compiled from previous works are also given for future researchers.

MATERIALS AND METHODS

Morphological terminologies used in description of *P. ussuriensis* and key mainly followed Bohart and Menke (1976). All measurements were taken as the maximal length of the part being taken under an image analyzer (Tomoro Digital Imaging). Body length was measured from anterior margin of head to posterior end of metasoma.

In checklist section, enumeration of higher taxa is the same as the appearance order in the key, and the species is alphabetically ordered in each genus. Original citation together with type information, relevant subsequent citations for Korean fauna, and related major synonymic information were included in the synonym list of each species.

RESULTS

Systematic accounts of *Psen ussuriensis* Lith

*Psen ussuriensis* Lith

*Mimesa orientalis* Gussakovskij, 1932; 5-6. ♂ (Syntype) Russia, Primorskiy Kray, Sutshan and Tigrovaya (Stockholm) [Junior secondary homonym of *Psen orientalis* Cameron, 1890].
Psenus ussuriensis Lith, 1959: 59 [Substitute name for Psenus orientalis (Gussakovskij)]. Female. Body length 10 mm, and forewing length 7.5 mm (Fig. 1A).

Head. In frontal view broader than long, 1.37 X as broad as long (Fig. 1B). Gena in its broadest portion in profile approximately 1.60 X of the eye with sparse small punctures and appressed short hairs. Larger median part of clypeus somewhat polished with dense punctures almost touching one another, lateral parts with dense slanted brassy hairs in addition to suberect sparse long hairs scattered on entire clypeal face (Fig. 1B); apicomedian produced area of clypeus shagreened, and its apical margin slightly emarginate (Fig. 1C). Mandible expanded near middle; its apex acute and near apices broadly polished; ventral parts shagreened, and basal parts somewhat densely punctate and hairy (Fig. 1C). Frons flat with moderate to sparse small punctures and slanted hairs somewhat stiff; frontal carina almost up to anterior ocellus weakly developed. Entire supraclypeal area with dense appressed silvery hairs of which condition same as ones in lateral parts of clypeus (Fig. 1B). Apical margin of labrum rounded, with long dense stiff pale yellow hairs (Fig. 1B). Vertex polished with dense punctures and tiny hairs. Ocellar region with sparse to moderate punctures and tiny hairs.

Mesosoma. Anterior sloping face of pronotum shagreened; anterior half of pronotal lateral face with moderate punctures and hairs, but polished in remaining posterior half; entire face of pronotal dorsum shiny, with tangled silvery hairs moderately set. Mesonotum moderate to dense (especially in its posterior part) punctures. Mesopleuron with moderate small punctures and slant tiny long hairs. Metapleuron impunctate and polished. Scutellum shiny with irregular sparse to moderate punctures and long erect hairs. Metanotum shiny with irregular sparse punctures and erect long hairs. Propodeal enclosure longitudinally carinate and shiny without punctures and hairs; remaining propodeal dorsum longitudinally carinate with dense long erect hairs, carina more irregular, weaker than ones in propodeal enclosure, and somewhat reticulate.

Fig. 1. External features of Psenus ussuriensis, ♂ (A-E). A, general habitus, dorsal view; B, Head, in front; C, Mandible; D, Propodeum in dorsal view; E, Pygidial plate. Scale bars: 0.5 mm.
in its posterior half; lateral propodeal face almost impunctate and shiny; median groove of posterior face shallow (Fig. 1D). *Metasoma.* Petiol impunctate and shiny with downward hairs in its lateral and ventral parts; slightly longer than hind femur (approximately 1.2 X as long as). Metasomal tergum with sparse to moderate punctures and short erect pale silvery or brassy hairs. Petirole carinate or posteriorly sulcate above, with conspicuous outwardly directed hairs along side of laterodorsal carina. — *Mimenesa*
- Petiole polished above, without cariniae and obvious grooves (at most with inconspicuous groove) and outwardly directed hairs on corresponding area — *Pseneo*
- Forewing with one recurrent vein and two discoidal cells. Stigma large, often approaching or surpassing marginal cell in size. Metasomal sternum II laterally with microsetal or micropore fields subtribe *Stigmina* — 7
- Forewing with two recurrent veins and three discoidal cells. Stigma small to moderate, in any case smaller than marginal cell. Metasomal sternum II without microsetal or micropore fields — *Carinostigmus*
- Submedian cell of hind wing reduced, cu-a positioned about halfway from wing base to origin of media — 8
- Frontal tubercle absent, at most with trace of tubercle. Eyes margined by simple narrow sulcus. Petiol carinate and reticulate — *Stigmus*
- Acute frontal tubercle present. Eyes margined by foveolate broad sulcus. Petiol largely smooth, at most a pair of submedian longitudinal carina — *Tzustigmus*
- Episternal sulcus well developed, extending from subalar fossa to hypersternaulus and beyond; hypersternaulus horizontal. Apical margin of labrum rounded. Mandible with two or three teeth. Female without pygidial plate. Female hindtibia without a series of spines along posterior margin — 10
- Episternal sulcus incomplete, not evident between subalar fossa and hypersternaulus; hypersternaulus rising obliquely posteriad. Apical margin of labrum broadly emarginate, notched or truncate. Mandible with two to six teeth. Female with pygidial plate. Female hindtibia often with a series of spines along posterior margin — 11
- Inner orbits nearly parallel, or at least not converging strongly below. Gena without long, erect setae ventrally. Omaulus rarely present. Mid flagellar segments longer than broad — *Passaloeuces*
- Inner orbits converging strongly below. Gena with scattered long, erect setae ventrally. Omaulus present. Mid flagellar segments broader than long — *Polemistus*
- Abdomen, in dorsal view, with petirole longer than broad. Apical margin of labrum almost truncate (at most sometimes weakly notched) — *Pemphredon*
- Abdomen, in dorsal view, with petirole broader than long. Apical margin of labrum emarginate — *Diodontus*
Checklist of valid Korean species of the Subfamily Pemphredoninae

1*Family Crabronidae
2*Subfamily Pemphredoninae
3*Tribe Psenini
4*Subtribe Psenina
5*Genus Psenulus Kohl

Psenulus Kohl, 1897: 293. Type species: Mimesa fuscipennis Dahlbom [≡Psen fuscipennis Dahlbom, 1843], designated by Ashmead, 1899: 224.

6* Psenulus anomoneurae (Yasumatsu)

Nipponopsen anomoneurae Yasumatsu, 1938: 84, ♂, Yashirodani, Honshu, Japan (Fukuoka Univ.).

Distribution. Russian Far East, (North) Korea, Japan.

7* Psenulus fuscipennis japonicus Tsuneki

Psenusicus fuscipennis japonicus Tsuneki, 1959: 38, ♂ (Syntypes), Keijo, Korea (Mus. Nat. Hum. Activ. Hygyo); Tsuneki, 1982a: 15.

Distribution. Korea, Japan.

8* Psenulus laevigatus (Schenck)

Psen laevigatus Schenck, 1857: 215, ♀, Weilburg, Hessen, Germany (depository uncertain).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

9* Psenulus nipponensis Yasumatsu

Psen nipponensis Yasumatsu, 1942: 96, ♀, Minoo in Settu, Honshu, Japan (Kyushu Univ.), [Paratype also from North Korea]; Tsuneki, 1959: 35; Tsuneki, 1982b: 15.

Distribution. Korea, Japan.

10* Psenulus pallipes gussakovskij Lith

Psenulus puncticeps Gussakovskij, 1932: 6, ♀ (Syntypes), Kursk Tomsk, Kamchatka or Ussuri area (Stockholm) [Junior secondary homonym of Psenulus puncticeps (Cameron, 1907)].

Psenulus pallipes gussakovskij: Tsuneki, 1959; 28; Tsuneki, 1959: 29 (in key); Tsuneki, 1959: 41.

Psenulas gussakovskij Lith, 1973: 116 [Substitute name for Psenulus puncticeps Gussakovskij, 1932].

Psenulus pallipes gussakovskij Lith: Tsuneki, 1974: 367; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Distribution. Russian Far East, China, Korea, Japan.

11* Genus Mimesa Shuckard

Mimesa Shuckard, 1937: 228. Type species: “Psen equestris F.” [=Psen equestris of Latreille, 1819 =Trypoxylon equestr Fabricius, 1804], by original designation.

12* Mimesa equestris (Fabricius)

Trypoxylon equestre Fabricius, 1804: 182, sex not indicated, no specific locality of Germany (Zoological Museum, Copenhagen, Denmark).

Psen equestris (Fabricius): Panzer, 1806: 110 (new combination); Tsuneki, 1982a: 19.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

13* Mimesa lutarius (Fabricius)

Sphex lutarius Fabricius, 1787: 273, (ion), ♀ (Lectotype, designated by Vecht, 1961: 27), Kiliae (now Kiel), Germany (Zoological Museum, Copenhagen, Denmark) [as lutaria, incorrect original termination].

Mimesa lutarius (Fabricius): Burdys, 1995: 389-390 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

14*Genus Psen Latreille

Psen Latreille, 1796: 122 (no included species). Type species: Sphex ater Fabricius, 1794 [=Crabro ater Olivier, 1792], designated by Latreille, 1802: 338 (first included species).

15*Psen affinis Gussakovskij

Psen affinis Gussakovskij, 1937: 652, ♀, Primorskiy Kray, Maikhinsk forestry station, Russia (depository uncertain); Budrys, 1986: 145; Tsuneki, 1959: 50 (in key); Kim, 1970: 596; Budrys, 1995: 394 (in key); Budrys, 2000: 64.

Distribution. Russian Far East, NE China, Korea, Japan.

16* Psen ater (Olivier)

Crabro ater Olivier, 1792: 517, ♀ (Neotype, designated by...
Leclercq, 1974b: 259, Yvelines, Feucherolles, France (Mus. Nat. d’Hist. Naturelle, Paris).

Psen ater (Oliver): kim, 1970: 596 [incorrectly designate author as Fabricius]; Tsuneki, 1982a: 3, 15; Burdys, 1995: 392 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

1* Psen aurifrons Tsuneki
Psen aurifrons Tsuneki, 1959: 63, ♀♂, Sabaé Prefecture, Fukui, Japan (Mus. Nat. Hum. Activ. Hygyo); Tsuneki, 1974: 366; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Distribution. Russia, China, Korea, Japan.

2* Psen koreanus Tsuneki
Psen koreanus Tsuneki, 1959: 73, ♀, Keijo, Korea (Smithsonian Inst., Washington, D.C); Kim, 1970: 596-597; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Distribution. Russian Far East, Korea, Japan.

3* Psen seminitidus Lith
Mimesa kohli Gussakovskij, 1934a: 7, ♀♂, Affluent of Me-kong, River Chok-Chyu, Tibet, China (Zoological Institute, Russian Academy of Sciences, St. Petersberg) [Junior secondary homonym of Psen kohli Fox, 1898].

Psen seminitidus Lith, 1965: 40 [Substitute name for Psen kohli (Gussakovskij, 1934)]; Budrys, 1995: 393 (in key).

Psen takanensis Lith; Tsuneki, 1982a: 3; Tsuneki, 1982a: 15; Burdys, 1986: 145 [Synonymized with Psen seminitidus Lith].

Psen hakusanus Tsuneki, 1959: 72; Tsuneki, 1977: 366; Tsuneki, 1959: 50, 52 (in key); Budrys, 2000: 65 [corrected to Psen seminitidus Lith].

Distribution. Taiwan, Russian Far East, NE China, Korea, Japan.

4* Psen ussurensis Lith
Mimesa orientalis Gussakovskij, 1932, ♂ (syntype), Primorskiy Kray, Sutshan and Tigrovaya (Stockholm) [Junior secondary homonym of Psen orientalis Cameron, 1890].

Psen ussurensis Lith, 1959: 59 [Substitute name for Psen orientalis (Gussakovskij)]; Kim and Yang, 2010, this study.

Distribution. Russian Far East, Korea, Japan.

5* Genus Mimusesa Malloch
Mimusesa Malloch, 1933: 16. Type species: Psen niger Packard, 1867, by original designation.

6* Mimusesa atratina (Morawitz)
Mimesa atratina Morawitz, 1891: 206, ♂, Bogdosan, Kazakstan (Zool. Inst. Aca. Sci., St. Petersburg).

Psen atratina longulus (Morawitz): Tsuneki, 1964: 10 (new subspecific combination): Tsuneki, 1974: 366; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Mimusesa atratina (Morawitz): Burdys, 1995: 390 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

7* Mimusesa dahlbomi (Wesmael)
Mimesa dahlbomi Wesmael, 1852: 271, ♂♂, Lectotype, designated by Lith, 1949: 139), Bruxelles area, Belgium (Inst. Roy. Sci. Nat. Bruxelles) [as Dahlbomi, incorrect original capitalization].

Psen dahlbomi (Wesmael): Tsuneki, 1974: 366; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Mimusesa dahlbomi (Wesmael): Burdys, 1995: 390 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

8* Mimusesa littoralis (Bondroit)
Mimesa littoralis Bondroit, 1934: 61, 64, and 65, ♂♂, (Lectotype, designated by Leclercq, 1974a: 194), Ostende, Belgium (Inst. Roy. Sci. Nat. Bruxelles).

Psen (Mimusesa) littoralis (Bondroit): Tsuneki, 1959: 49 (in key), 51 (in key), 56-59; Tsuneki, 1974: 366; Tsuneki, 1982a:15; Tsuneki, 1991: 200.

Mimusesa littoralis (Bondroit): Burdys, 1995: 391.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

9* Genus Pseneo Malloch
Pseneo Malloch, 1933: 7. Type species: Psen kohliii Fox, 1898, by original designation.

10* Pseneo exaratus (Eversmann)
Mimesa exarata Eversmann, 1849: 361, sex not indicated, Kazan area, Russia (Zool. Inst. Aca. Sci., St. Petersburg).

Psen exaratus (Eversmann): Yasumatsu, 1942: 94; Tsuneki, 1959: 49; Tsuneki, 1959: 52 (in key); Tsuneki, 1959: 69;
Kim, 1970: 596; Tsuneki, 1974: 366; Tsuneki, 1982a: 15; Tsuneki, 1991: 200.

Pseneo exaratus (Eversmann): Budrys, 1988: 108 (new combination); Budrys, 1995: 391 (in key).

**Distribution.** Transpalearctic: Europe through Russia to Korea and Japan.

1*Tribe Pemphredonini
2*Subtribe Stigma
3*Genus Carinostigmus Tsuneki
Carinostigmus Tsuneki, 1954: 3. Types species: Stigmus congruus Walker, 1860, by original designation.

4*Carinostigmus filippovi (Gussakovskij)
Stigmus filippovi Gussakovskij, 1934b: 83, ♀, Takao-san (60 km of Tokyo), Honshu, Japan, (Zool. Inst. Aca. Sci., St. Petersburg ); Kim, 1970: 598.

Carinostigmus filippovi (Gussakovskij): Finnamore, 1995: 225 (New combination); Kim and Yang, 2009: 466-467.

**Distribution.** Korea, Japan.

5*Genus Stigmus Panzer
Stigmus Panzer, 1804: 86. Type species: Stigmus pendulus Panzer, 1804, by monotypy.

6*Stigmus japonicus Tsuneki
Stigmus japonicus Tsuneki, 1954: 29, ♀. (♀=Stigmus quadriceps), Kyogoku-mura near Kucchini, Hokkaido, Japan (Mus. Nat. Hum. Activ. Hygyo); Kim and Yang, 2009: 468-469.

**Distribution.** Russian Far East, Korea, Japan.

7*Genus Tsustigmus Finnamore
Tsustigmus Finnamore, 1995: 211. Type species: Tsustigmus syam Finnamore, 1995, original designation.

8*Tsustigmus rhinoceros (Budrys)
Tsustigmus rhinoceros Budrys 1987: 54, ♀, ♂, Levaya River, Khekhitsir Range Khabarovsk, Federation, Russian (Zool. Inst. Aca. Sci., St. Petersburg ); Kim and Yang, 2009: 467-468.

**Distribution.** Russian Far East, Korea.

9*Subtribe Pemphredonina

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Passaloecus Shuckard, 1837: 188. Type species: Pemphredon insignis Linden, 1829, by original designation.

11*Passaloecus clypealis Faester
Passaloecus clypealis Faester, 1947: 204, ♀♂, Basnaes, Denmark (Zoological Museum, Copenhagen, Denmark); Tsuneki, 1974: 368; Tsuneki, 1991: 201; Burdrys, 1995: 403 (in key).

**Distribution.** Transpalearctic: Europe through Russia to Korea and Japan.

12*Passaloecus insignis (Linden)
Pemphredon insignis Linden, 1829: 81, ♀♂ (Syntypes), Bruxelles, Belgium (Inst. Roy. Sci. Nat. Belgique, Bruxelles).

Passaloecus shuckardi Yasumatsu, 1934a: 36, ♀♂, Kongōsan, Kōgendo, Korea (depository uncertain); Yasumatsu, 1934b: 113 [Synonymized with Passaloecus monilicornis var. dahli]; Yarrow, 1970: 178 [corrected to Passaloecus insignis (Linden)].

**Distribution.** Transpalearctic: Europe through Russia to Korea and Japan.

13*Passaloecus koreanus Tsuneki
Passaloecus koreanus Tsuneki, 1974: 368, ♀♂, Hyesan Province, Ryang-gang, Korea (Természettudományi Múzeum, Budapest, Hungary).

**Distribution.** Far Eastern Russia, Korea, Japan.

14*Passaloecus monilicornis Dahlbom
Passaloecus monilicornis Dahlbom, 1842: 12, ♀♂ (Lectotype, designated by Yarrow, 1970: 169), Skansberget Kårböle, Helsingland, Sweden (Lund); Tsuneki, 1955: 3; Tsuneki, 1955: 5 (in key); kim, 1970: 598; Tsuneki, 1982a: 3; Tsuneki, 1982a: 14; Burdrys, 1995: 403 (in key).

**Distribution.** Transpalearctic: Europe through Russia to Korea and Japan.

Note. According to Pulawski (2010), this species may be a synonym or a northern subspecies of insignis. Also, he supposed that specimens recorded prior to Yarrow (1970) mostly referred to Passaloecus insignis.
1*Genus Polemistus Saussure

Polemistus Saussure, 1892: 565. Type species: Polemistus macilentus Saussure, 1892, designated by Pate, 1937: 52.

2*Polemistus abnormis (Kohl)

Passaloecus abnormis Kohl, 1888: 726, ♂, Vipava, Slovenia (Naturhistorisches Museum, Wien, Austria); Tsuneki, 1955: 3; Tsuneki, 1955: 4 (in key); Tsuneki, 1955: 12.
Polemistus abnormis (Kohl): Bohart and Menke, 1976:185 (new combination, listed); Kim, 1970: 597; Tsuneki, 1982b: 14; Burdrys, 1995: 404 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

3*Genus Pemphredon Latreille

Pemphredon Latreille, 1796: 128 (no species included). Type species: Pemphredon lugubris (Fabricius, 1804) [=Crabro lugubris Fabricius, 1793], designated by Shuckard, 1837: 193 (one of the two species first included by Latreille, 1802: 342).

4*Pemphredon flavistigma Thomson

Pemphredon flavistigma Thomson, 1874: 192, ♂, Sällsynt, Småland, Sweden (Lund); Tsuneki, 1982a: 14.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

5*Pemphredon inornata Say

Pemphredon inornata Say, 1824: 339, sex not indicated, Pennsylvania, USA (destroyed) [as inornatus, incorrect original termination]; Tsuneki, 1982a: 3, 14; Burdrys, 1995: 401 (in key).

Cemonus shuckardi Morawitz, 1864: 460, ♂ (syntype), Russia (lost) [as Shuckardi, incorrect original capitalization]; Lomholdt, 1975: 99 [Synonymized with Pemphredon inornata Say].
Pemphredon shuckardi (Morawitz): Kim, 1970: 598; Tsuneki, 1974: 368; Tsuneki, 1991: 201.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

6*Pemphredon japonica Matsumura

Pemphredon japonicum Matsumura, 1912: 179, ♂ (holotype or syntypes), Kyoto, Honshu, Japan (type depository uncertain, might be Hokkaido Univ.); Tsuneki, 1951: 174.
Pemphredon japonica Matsumura: Tsuneki, 1968: 50.

Distribution. Russian Far East, Korea, Japan.

7*Pemphredon koreana Tsuneki

Pemphredon koreana Tsuneki, 1951: 171-183 (in key), ♂, shoyozan, korea (Mus. Nat. Hum. Activ. Hygyo); Tsuneki, 1964: 28 (in key); Tsuneki, 1982a: 14; Burdrys, 1995: 400 (in key).

Distribution. Korea.

8*Pemphredon lethifer (Shuckard)

Cemonus lethifer Shuckard, 1837: 201, ♂ ♂ (Syntypes), Britain (W. Shuckard coll.).
Pemphredon lethifer (Shuckard): Tsuneki, 1974: 367; Tsuneki, 1982a: 14; Tsuneki, 1991: 201; Burdrys, 1995: 401 (in key).

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

9*Pemphredon lugubris (Fabricius)

Crabo lugubris Fabricius, 1793: 302, ♂ (Lectotype, designated by Vecht, 1961: 28), Halae Saxonum, now Sachsen-Anstalt, Halle Germany (Zoological Museum, Copenhagen, Denmark).
Pemphredon lugubris (Fabricius): Fabricius, 1804: 315 (new combination, redescription)
Pemphredon lugubris pacificus Tsuneki, 1974: 367; Tsuneki, 1982a: 14; Tsuneki, 1991: 201.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

10*Pemphredon montana Dahlbom

Pemphredon montanus Dahlbom, 1845: 262, ♂ ♂ (Lectotype, designated by Dollfuss, 1995: 994), Faxälven, Sweden (Lund).
Pemphredon montana Dahlbom: Tsuneki, 1982a: 14.

Distribution. Transpalearctic: Europe through Russia to Korea and Japan.

11*Pemphredon mortifer Valkeila

Pemphredon mortifer Valkeila in Valkeila and Leclercq, 1972: 697, ♂ ♂, St. Petersburg 75 km NW, Metsäpirtti, Isthmus, Karelian, Russia (Zool. Mus. Turku); Burdrys,
1995: 402 (in key).

**Distribution.** Transpalearctic: Europe to Far Eastern Russia and Korea.

1* _Pemphredon rugifer_ (Dahlbom)

_Pemphredon rugifer_ Dahlbom, 1844: 256, ♀♂ (Lectotype, designated by Blüthgen, 1931).

_Pemphredon rugifer wessmæli_ (Dahlbom): Tsuneki, 1974: 367; Tsuneki, 1982a: 14; Tsuneki, 1991: 201.

**Distribution.** Transpalearctic: Europe through Russia to Korea and Japan.

2* _Genus Diodontus_ Curtis

_Diodontus_ Curtis, 1834 (text for plate 496). Type species: _Pemphredon tristis_ Linden, 1829, designated by Internationa Commission on Zoological Nomenclature, Opinion 844, 1968: 10.

3* _Diodontus chosenensis_ Tsuneki

_Diodontus chosenensis_ Tsuneki, 1974: 370, ♀, Hyesan, Province Ryang-gang, Korea (Természettudományi Múzeum, Budapest, Hungary); Tsuneki, 1982a: 14; Burdrys, 1995: 398 (in key).

**Distribution.** (North) Korea.

4* _Diodontus minutus_ Tsuneki

_Diodontus minutus orientalis_ Tsuneki, 1974: 369, ♀, Hyesan, Province Ryang-gang, Korea (Természettudományi Múzeum, Budapest, Hungary); Tsuneki, 1982a: 14.

**Distribution.** (North) Korea.

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