

Données pour un atlas des Hyménoptères de l'Europe occidentale

XI. *Pemphredon* (*Sphécidae*) from Belgium and elsewhere (*)

by

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This article treats of the West European species of the genus *Pemphredon* LATREILLE from the collections of the "Faculté des Sciences Agronomiques de l'État" (Gembloux) and from the BONDROIT collection in the "Institut royal des Sciences naturelles de Belgique" (Brussels). The material has been identified as a preliminary work for a revisional study of the West Palearctic species. The main part of the species is divided as follows: the subgenus *Pemphredon* LATREILLE is separated by Mr. A. K. MERISUO, M. A. and Mr. E. VALKEILA in collaboration, the subgenus *Ceratophorus* SHUCKARD by Prof. J. LECLERCQ. The last author has united exact records from the literature (with references to the published synonyms) into the survey.

The names and synonyms differing from the previous publications, e. g. BLÜTHGEN (1931), WAGNER (1932), TSUNEKI (1951) and DE BEAUMONT (1964), are based on type specimens (types, lectotypes or paratypes) or in absence of the type material on other specimens identified by the authors. However, the types or lectotypes of several (principally well known) species were not examined for this study. Some authors, e. g. FAESTER (1951) and VAN DER VECHT (1961), have examined a part of them during the recent decades. The officials of the zoological

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museums and institutes have been very willing to loan type specimens and other material and to give information for the identification of the species.

The West and Central European fauna is the best known part of the Palearctic species of the genus *Pemphredon*. Thus it is no wonder, that no before unknown species is found in the examined material. The disentanglement of some synonyms has nevertheless resulted in at least one new species from this area having to be described in the following supplement. Several entomologists have been in disagreement with each other on a part of the taxons named here as species. Thus there are reasons to produce the following discoveries on the taxonomy and synonymy of some difficult species and groups.

1) *Pemphredon lethifer* (SHUCKARD) [= *fabricii* (MÜLLER), *littoralis* WAGNER]. This species has been divided in two or three species named as varieties by some authors (BLÜTHGEN, 1931) or "forms" (WAGNER, 1932 and DE BEAUMONT, 1964). TSUNEKI (1951) has described *P. lethifer fabricii* (MÜLLER) from Japan as a subspecies. The rich European material available to us, some dozens from West Asia and a few specimens from Central and East Asia (including Japan) and from North Africa, have shown that it is impossible to separate two or three species or varieties on the ground of the hitherto known characteristics. There seems to be an extraordinary broad gradual variation. Thus all the published names of the several forms of *P. lethifer* have to be synonyms.

2) *P. austriacus* KOHL and *P. enslini* WAGNER [= *P. austriacus* RASSE *enslini* WAGNER, 1932, p. 227] have been varieties or forms of one species, but DE BEAUMONT (1964, p. 296) has considered, that they should merit the rank of species. In the following list these forms are named as species on the ground of the morphological characteristics of both sexes.

3) The group of *P. rugifer* (DAHLBOM) is very difficult and especially the identification of the European ♂♂ is uncertain. This can not show that they are conspecific. Likewise the ♂♂ of *P. shuckardi* (A. MORAWITZ) and *P. lugubris* (FABRICIUS) are often not easy to identify, although they usually have good specific characteristics, which separate them from the nearest species.

a) *P. wesmaeli* (A. MORAWITZ). Dr. W. J. PULAWSKI has examined the type series of *Cemonus wesmaeli* A. MORAWITZ and designated the lectotype. As Dr. POPOV earlier (cf. WAGNER, 1932, p. 225) he has found them to be of one species. On the ground of three cotypes available to us, the species is identical with *P. scoticus* PERKINS. Thus *P. "wesmaeli"* auct. has to be named as a new species. Previously WAGNER (*op. cit.*) has seen that, but not decided the problem. The structure of

the propodeum of the ♀ is not a definite characteristic, as WAGNER (*op. cit.*) has thought, and there is no reason to believe, that the type specimen of A. MORAWITZ is lost. In all cases, the identification of the species has to be based on the existing type material.

b) *P. rugifer* (DAHLBOM) [= *solivagus* (BONDROIT, 1932)]. The lectotype, ♀ from Glogau (ZELLER leg.) is a rare variety differing from the other examined ♀♀ from the anterior end of the clypeus. The type of *P. solivagus* and other material of *P. rugifer* collected by BONDROIT are normal specimens.

c) *P. "wesmaeli"* auct. We have found no valid name for this species. Thus it is going to be described as a new species in the following supplement, with a list of the type material. On account of the difficult identification of the ♂♂ in the *rugifer* group, it has to be mentioned that we have identified the ♂♂ of *P. wesmaeli* (A. MORAWITZ) on the ground of Finnish specimens with several ♂♂ bred from nests with the ♀♀. Besides this, *P. wesmaeli* is the single species of this group in the present fauna of Finland, and has here a large distribution from the south coast to the polar circle. The specimens of BONDROIT and other West European material have given support to the identification of the ♂♂ of *P. rugifer* (DAHLBOM).

Pemphredon mortifer VALKEILA, n. sp. ♀, ♂.

Syn.: *Pemphredon (Dineurus) unicolor* (PANZER) var. *Wesmaeli* (A. MORAWITZ) ♀ ♂: BLÜTHGEN, 1931, p. 127; WAGNER, 1932, p. 225.

Pemphredon (Dineurus) unicolor wesmaeli (A. MORAWITZ, 1864): TSUNEKI, 1951, p. 194.

Pemphredon (s. s.) rugifer DAHLBOM forma *wesmaeli* MORAWITZ: DE BEAUMONT, 1964, p. 296.

♀. Distinct from the other European species of the *rugifer* group from the deep and large incision of the anterior end of the clypeus. This notch is wider than the antennal socket, either semicircular or semioval or sometimes rectangular with rounded angles, and in a part of the ♀♀ with semioval incision with a small tooth or nodule in the middle. Other characteristics, either gradual or average, are the form of the head (seen from above), the structures of the scutum and the propodeum. The temples are shorter and less bulging as in the ♀♀ of *wesmaeli* and *rugifer*, often little sloping backwards. The scutum is smooth between the punctures, usually without crosswise wrinkles or with low unevenness. The dorsal surface of the propodeum usually with a broad and smooth rand fold, but variable as in the ♀♀ of *rugifer* and *wesmaeli*, and therefore not a good characteristic.

♂. The anterior end of the clypeus usually bowl-like, sometimes truncate with two rounded teeth. The dorsal surface of the propodeum in the middle (the wrinkled part of it) lower down than the smooth rand fold, but very variable and sometimes the rand fold entirely wrinkled, too. The dorsal side of the petiolus usually more rounded than in the ♂♂ of *wesmaeli* and *rugifer*.

In addition, the mandibles are distinct from the mentioned species. An examination of this characteristic is possible only when the mandibles have been prepared open in fresh (and after the killing moistened) specimens, and the divergences are well described from the ♀: the apical tooth smaller, the anterior side broader and the lateral side narrower than in the ♀♀ of *rugifer* and *wesmaeli*. Expressly the ♀ of *wesmaeli* has a long and sharp apical tooth. A clear difference in the mandibles between the ♀♀ of *mortifer* and *rugifer* is to be seen, when the inner side is viewed so that the hindmost tooth is wholly united in the figure of the foregoing apical tooth. In that position the foremost tooth in the mandible of the *mortifer* ♀ is projecting to the inner side as a fang of the boar. In the *rugifer* ♀, instead of that, it has the same direction as the other teeth. The foremost tooth of the *wesmaeli* ♀ is almost in the same way projecting (but not as long and sharp) as in *mortifer*.

The length of the body, ♀, ♂: 8-11 mm, as large in *rugifer* and *wesmaeli*.

Type material (with identification labels of E. VALKEILA, except 3 paratypes given last).

Holotype. — USSR, Russian SFSR, Karelian Isthmus (about 75 km northwards from Leningrad): "Metsäpirtti, Vaskela", ♀, A. PULKKINEN (Zoological Museum of the University of Turku).

Paratypes. — USSR, Russian SFSR, Karelian Isthmus: "Metsäpirtti, Vaskela", 2 ♂♂ 10.VI.1936, 1 ♀, A. PULKKINEN; Metsäpirtti 4 ♀♀, P. NIEMELÄ, 1 ♀, A. K. MERISUO (Zoological Museum of the University of Turku); 2 ♂♂ from the same locality, A. PULKKINEN (Institute of Agricultural and Forest Zoology of the University of Helsinki); 18 ♂♂, 9 ♀♀ from the same locality, W. LÖFGREN (1 ♀) and A. K. MERISUO; prov. Olonetz: Petrozavodsk ♀ 6.VIII.1942, A. K. MERISUO (Coll. MERISUO); Estonian SSR: "Dorpat" (= Tartu) ♀ and ♂, Coll. WÜSTNEI (Zoological Museum of the University of Copenhagen); Grusian SSR, the west coast of Caucasus: "Sinop pr. Suchum" ♂ 4.VIII.1930, G. KOSTYLEV; "Ermolovskoc pr. Gagry" ♂ 5.VIII.1933, ♂ 18.VIII.1933, V. KOSTYLEV (Zoological Museum of the Moscow Lomonosov State University).

Sweden: Gtl. "Thorsburg" ♂ 14.VII.1841, A. G. DAHLBOM; a ♂ without locality information (Zoological Institute of the University of Lund); Gtl. Fårö ♀ 19.VII.1950, E. WIESLANDER; Visby ♀ 2.VIII.1933, S. SELANDER (Swedish Museum of Natural History, Stockholm); Sm. Korsberga ♂

26.VII.1927⁽¹⁾, D. GAUNITZ; Gtl. "Hällarne" between Vible and Kneipp villages ♀ 9.VII.1924, "Bläddsfälls" south of the Kneipp village ♂ 11.VII.1924⁽¹⁾, D. GAUNITZ; Visby ♀ 4.-14.VIII.1931, C. B. GAUNITZ; Ly. Lpm. Sorsele Pansborg ♂ 3.VII.1920, S. GAUNITZ (Coll. MERISUO).

Denmark: Hareskov ♀ 14.VI.1932, Coll. O. HØRRING; Horsens ♂ 16.VII.1870, ♀ 20.VII.1870, O. JENSEN; "Nordsjol" ♀ and ♂, DREWSEN; Strandmøllen ♂, DREWSEN; 3 ♀♀ and ♂ (locality not given) prepared in the same manner as the before-mentioned specimens of DREWSEN; 2 ♂♂ (locality not given), BORRIES (Zoological Museum of the University of Copenhagen).

The West European specimens from Belgium, France and Spain of the "Faculté des Sciences Agronomiques" (Gembloux) and of the "Institut royal des Sciences naturelles de Belgique" (Brussels) are recorded hereafter in the survey of the *Pemphredon* species of these institutes.

Germany, Bayer: Starnberg ♀ 6.VI.1940, F. STÖCKLEIN (Zoologische Sammlung des Bayerischen Staates, Munich); Hessen: Marburg a. d. Lahn ♀ 12.VI.1947, H. WOLF (Coll. VALKEILA); Schleswig-Holstein: Glücksburg ♀ 7.VIII.1885, Coll. WÜSTNEI (Zoological Museum of the University of Copenhagen).

Holland: Noordwijk a. Z. ♀ 7.IX.1941, ♀ 31.VII.1942, ♂ -.VIII.1942, P. M. F. VERHOEFF (Coll. VERHOEFF).

Austria, Austria sup.: Salzburg ♀ 18.VII.1957, ♀ 21.VII.1961, P. P. BABY; Linz St. Martin ♀ 19.VI.1958, ♂ 18.V.1959, ♀ 21.V.1959, ♀ 5.VI.1959, ♀ 15.VI.1959, 3 ♀♀ 26.VI.1959 nesting in a wooden post and carrying plant lice in the nests, ♂ 22.V.1960, 2 ♀♀ in 1963, M. SCHWARZ; Austria inf.: Guntramsdorf ♀ 19.VI.1961, 2 ♂♂ 15.VIII.1961, M. SCHWARZ; Burgenland: Winden-See ♂ 10.VII.1960, Winden ♂ 17.VII.1962, KARL KUSDAS (Coll. SCHWARZ); Carniola: Umg. Laibach ♀ 22.VI.1938, F. STÖCKLEIN; Styr.: Podčetrtek ♂ 11.VI.1933, ♀ 16.VII.1958, E. JAEGER (Zoologische Sammlung des Bayerischen Staates, Munich).

Switzerland: "Basel. I" ♀ (Zoologische Sammlung des Bayerischen Staates, Munich); Wallis: Branson ♂ 27.VI.1948, P. M. F. VERHOEFF (Coll. VERHOEFF).

France, Vaucluse: Carpentras ♂ 30.-31.VII.1951, P. M. F. VERHOEFF; Hte-Alpes: Vallouise ♀ 18.VIII.1939, P. M. F. VERHOEFF (Coll. VERHOEFF); "Aix" (province not given) ♀ 6.VIII.1963, E. DILLER (Coll. SCHWARZ).

Spain, Toledo: Toledo ♀ 25.-27.VII.1967, 3 ♀♀ 2 ♂♂ 10.VII.1969, P. M. F. VERHOEFF; Almeria: Laujar 2 ♀♀ 12.VIII.1958, 2 ♂♂ 13.VIII.1958, ♂ 29.VI.1960, ♂ -.VII.1962, J. SUÁREZ (Coll. VERHOEFF).

Italy, Trentino-Alto-Adice: "Bozen" (= Bolzano) ♀ 19.VII.1888 (Zoologische Sammlung des Bayerischen Staates); Veneto: Padova ♂ 17.IV.1953⁽²⁾ (Faculté des Sciences Agronomiques, Gembloux); Interneppo (province not given) ♀ 2.-4.VII.1960, M. SCHWARZ (Coll. SCHWARZ).

Greece, Peloponnesos: Kalamata ♀ 13.V.1964, M. SCHWARZ (Coll. SCHWARZ).

(1) Petiolus deformed: the caudal end in the Korsberga ♂ somewhat and in the Kneipp ♂ strongly dilated.

(2) Petiolus exceptionally short, the identification very uncertain.

Turkey, Antakya : Antakya ♂ 2.VII.1965, M. SCHWARZ (Coll. SCHWARZ).
Paratypes with labels "*Pemphredon mortifer* Valk n. sp., MERISUO det." —
♀ with a label "Collect. GRAEFFE" (locality not given) ; "Sutok" ♀ 31.V.
1885 ; Austria : "Schnifis, Vorarlberg" ♀ 25.V.1903, ex coll. JUSSEL (Natur-
historisches Museum, Zoologische Sammlung, Vienna).

Paratypes identified by E. VALKEILA, but possibly a new subspecies. —
Japan, Hokkaido : Sapporo ♀ 21.IX.1947, ♂ 19.VI.1952, 3 ♂♂ 24.VI.1952,
♂ without date, K. TSUNEKI (Coll. VERHOEFF).

In addition to the foregoing list, *P. mortifer* n. sp. should be found from
England (RICHARDS, 1937) and from the East Baltic countries (WAGNER,
1932). Instead of that, the Japanese *Pemphredon* "*unicolor wesmaeli* (A.
MORAWITZ)" described by TSUNEKI (1951, p. 194) should possibly be
named as a new subspecies, but the available material is not enough for
the description. Thus the specimens have now the mere specific name
in the labels. The ♀ is at the first sight very similar to *P. mortifer* n. sp.,
but the ♂ has some distinct characteristics and is easy to separate from
the other Palearctic species of this group. The East Asiatic form is
known from Korea, from the Island of Sakhalin and from the isles
Honshu and Hokkaido in Japan (TSUNEKI, 1951, p. 197).

A key for West and Central European species of the group of
Pemphredon rugifer (DAHLBOM)

♀♀

- 1 (4) Incision of the clypeus not so wide as the antennal socket.
- 2 (3) Incision of the clypeus less wide than the antennal scape at the
base and shallow, as a quarter of circle, or very small, punctiform.
Temples seen from above usually distinctly more bulging than
the eyes. Scutum with a relatively dense punctation, punctures
often in lengthwise rows, and scutum often with folds or wrinkles,
which may be as rough and well visible as the punctures.

wesmaeli (A. MORAWITZ)

- 3 (2) Incision of the clypeus as wide as the scape at the base or wider
than it, deep and semicircular. Hind part of the head wider
than the eyes but less bulging than in *wesmaeli* or nearly rec-
tangular with rounded angles. Scutum usually more sparsely
punctured than in *wesmaeli*, rarely with folds or wrinkles.

rugifer (DAHLBOM)

- 4 (1) Incision of the clypeus wider than the antennal socket.
- 5 (6) Incision of the clypeus very shallow, the other characteristics
as in the paragraph 2 (Rare varieties).

wesmaeli (A. MORAWITZ)

- 6 (5) Incision of the clypeus deep, semicircular or semioval or (often
in small ♀♀) nearly rectangular with rounded angles, and it
may have a small tooth or nodule in the middle. Hind part of the
head usually not distinctly more bulging than the eyes, nearly
rectangular or in small ♀♀ narrowing off backwards. Scutum
with sparser and not uniform punctation (very similar to *rugifer*
but diverging from normal *wesmaeli*), spaces between the punctures
smooth, without wrinkles.

mortifer n. sp.

♂♂

- 1 (2) Dorsal surface ("area cordata") of the propodeum entirely
raised from surrounding parts and bordered on a rough groove,
that reaches to the median furrow of the posterior surface ; the
posterior end of the dorsal surface not considerably bent down-
wards and usually not broken by the median furrow. Hind part
of the head larger than usually in the following species. Dorsal
surface of the petiolus weakly convex.

rugifer (DAHLBOM)

- 2 (1) "Area cordata" either not distinctly raised from surrounding
parts or bent downwards at the posterior end or broken by the
median furrow of the posterior surface.
- 3 (4) Wrinkled part of the "area cordata" about on the same plane
with the rand fold, that is flat and sloping gently. Dorsal surface
of the petiolus usually weakly convex.

wesmaeli (A. MORAWITZ)

- 4 (3) Wrinkled part of the "area cordata" distinctly lower down than
the rand fold, that raises bankwise from it, but has the width and
structure very variable. Dorsal surface of the petiolus usually
strongly convex.

mortifer VALKEILA, n. sp.

The species of the *rugifer* group excavates their nests in soft rotted
wood. The single exception is *P. wesmaeli* (A. MORAWITZ) nesting in
bark of pine, *Pinus silvestris* L., and possibly in other *Pinus* species, but
rarely in rotted wood. Perhaps this nesting habit is caused by the strong
mandibles of the ♀ *wesmaeli* with a large and sharp apical tooth.

Survey

1. *Pemphredon austriacus* (KOHLE).

Seine-et-Oise : Orsay 3 ♂ 4 ♀ VI-X.1948, galls d'*Adleria kollari*. — Italie :
Romagna Scorticata ♀ 1890.

2. *Pemphredon clypealis* THOMSON.

Most of the specimens recorded here from the province of Brabant had been correctly separated from *morio* VANDER LINDEN by BONDROIT after the publication of the papers (1932, 1933, 1934) in which, like many authors then, he did not recognize *clypealis*. These specimens were checked by Prof. J. LECLERCQ and are now in the collection BONDROIT kept in the Institut royal des Sciences naturelles de Belgique (Brussels).

Flandre-Occidentale : St-Andries ♂ 4.VII.1926 (*morio*, CRÈVECŒUR et MARÉCHAL 1927) ; Brabant : Auderghem ♀ 12.VIII.1943, Bruxelles, Bois de la Cambre ♂ 9.VI.1939, ♀ 27.VIII.1940, Drogenbosch ♀ 8.VII.1951, Ixelles, Boendael ♀ 16.VI.1934, ♀ 22.VI.1935, ♀ 29.VI.1936, ♀ 26.VII.1936, ♀ 20.VIII.1936, ♀ 1.IX.1936, 2 ♀ ♂ 8.VIII.1938, ♀ 26.VIII.1939, Ixelles, Solbosch ♀ 3.IX.1928, ♀ 30.VIII.1929, ♀ 17.VIII.1930, ♀ 19.VI.1932, ♀ 19.VII.1932, ♀ 2 ♂ 5.VIII.1932, 2 ♀ 6.VIII.1932, ♀ 15.VI.1933, ♀ 21.VI.1933, ♀ 18.VII.1933, ♂ 30.V.1934, ♂ 8.VI.1934, Laeken 2 ♀ 20.IX.1941, Uccle ♀ 3.VII.1932, ♀ 10.VII.1932, ♀ 24.VI.1936, Watermael ♂ 9.VIII.1933, ♀ 20.VI.1949, Watermael-Boitsfort ♀ 5.VIII.1933, ♂ 21.VIII.1936, ♀ 27.VII.1941, ♀ VIII.1941 ; Liège : Embourg ♂ 10.VIII.1969, La Calamine ♀ 18.IX.1960.

3. *Pemphredon enslini* WAGNER (*austriacus* auct.).

Brabant : Bruxelles, Bois de la Cambre ♀ 1935, Ixelles Boendael ♀ VI.1933, La Hulpe ♂ 8.VI.1936 ; Namur : Nismes ♀ 4.VIII.1953 ; Liège : Cerexhe-Heuseux ♀ 21.VII.1966, Feneur ♀ 16.VIII.1964, ♀ 21.VII.1966, Retinne ♀ 14.VI.1968 ; Montagne-St-Pierre : Lixhe, Loën ♀ 19.VI.1930 (*austriacus*, CRÈVECŒUR et MARÉCHAL 1932).
Basses-Alpes : St-André-les-Alpes 3 ♂ 24.VIII.1968.

4. *Pemphredon lethifer* (SCHUCKARD).

Flandre-Occidentale : Assebroek, Diksmuide (BEQUAERT 1909), Oostduinkerke, Ostende (BONDROIT, 1934), Varsenare ; Flandre-Orientale : Aalst (BEQUAERT, 1909), Melle de *Lipara*, Selzaete (BEQUAERT, 1909), Wetteren (BEQUAERT, 1909) ; Anvers : Mol-Postel ; Limbourg : Genk, Lommel Lummen, Maaseik, Opgrimbie, Rekem (*fabricii* LEFEBER, 1967), Tongres, Tongres de *Rubus* ; Brabant : Auderghem, Bruxelles Bois de la Cambre, Foret (*unicolor* MEUNIER, 1897), Forêt de Soignes, Ixelles Boendael, Ixelles Solbosch, Ixelles Solbosch (BONDROIT, 1932), Genval, Kortenberg, La Hulpe, Opprebais Wez, Tervuren, Uccle, Uccle (BONDROIT, 1932), Uccle Calleevoit (*unicolor* MEUNIER, 1897), Watermael, Watermael-Boitsfort, Wezembeek, Woluwe-St-Pierre ; Hainaut : Peruwelz, Soignies ; Namur : Dion, Gembloux, Rochefort, Winenne de *Rubus* ; Luxembourg : Hargimont, Mirwart, Musson, Waha ; Liège : Angleur, Aubel, Ayeneux, Aywaille, Bassenge, Battice, Bellaire, Berneau, Bettincourt, Beyne-Heusay, Bolland, Bombaye, Bressoux, Cerexhe-Heuseux, Charneux, Chaudfontaine, Chênée, Cheratte, Embourg, Engis, Feneur, Fléron, Forêt, Fouron-St-Martin, Fraipont, Francorchamps Hockai, Grâce-Berleur de *Rosa*, Henri-Chapelle, Herstal récoltant des Aphides

sur *Galium aparine*, Ivoz-Ramet, Ramioul de *Rubus*, Jupille, La Calamine, Liège, Lierneux, Melen, Membach Drossart, Olne, Pepinster (*unicolor* MARÉCHAL, 1929), Queue-du Bois, Rocourt, Romsée, St-Nicolas, Soumagne, Sprimont, Thimister, Tilf, Tilleur, Vaux-sous-Chèvremont, Waremme, Wonck, Xhendelesse ; Montagne St-Pierre : Eben-Emael (CRÈVECŒUR et MARÉCHAL, 1936), Lanaye, Lixhe Loën de *Rubus*. Also ethological notes in LECLERCQ, 1941, 1953 and in MARÉCHAL, 1929).

Grand Duché de Luxembourg : Bourscheid — Cambridge : Stapleford ♀ 24.VII.1964 ; Radnor : Llandrindod Wells ♂ 25.VIII.1902 — Baden-Wurtemberg : Stuttgart 2 ♂ 1962 ; Gera : Jena ♂ 8.IX.1904. — Allier : Vichy 2 ♀ 4.VII.1874 ; Basses-Alpes : Allos ♂ 20.VIII.1968, Annot ♂ 3.VIII.1966 *Pastinaca*, Barcelonnette, Le Sauze ♀ 31.VII.1968, Barrême 2 ♂ ♀ 11.VIII.1966 *Pastinaca*, Peyresq ♀ 17.VII.1965, ♂ 22.VIII.1968, St-Michel-Peyresq ♂ 2 ♀ 24.VII.1965, ♂ 15.VIII.1966 *Aethusa cynapium*, ♀ 14.VIII.1967 *Carduus acanthoides*, ♀ 25.VIII.1967, ♂ 4.VIII.1968, Thorame-Haute ♂ 9.VIII.1967 ; Alpes-Maritimes : Puget-Théniers ♂ ♀ 23.VII.1965, Roquebrune ♂ 26.IV.1962 ; Bouches-du-Rhône : Aigues-Mortes ♀ 23.VII.1959, Fos-sur-Mer ♀ V.1922, Stes Maries-de-la-Mer ♀ 18.VII.1959 *Dorycnium suffruticosum* ; Drôme : Col de Pertuis ♀ 20.VII.1968 ; Crest ♂ 2.VIII.1966, Valence ♀ 25.V.1959 ; Hérault : Béziers ♀ 25.VII.1964, Pont-de-Lunel ♀ 24.VII.1961 ; Indre : Lothiers ♂ 23.VII.1963 ; Puy-de-Dôme : Besse ♀ 15.VII.1954 ; Pyrénées-Orientales : Banyuls 5 ♂ 17/21.IV.1957 ; Bas-Rhin : Muttersholz ♂ 15.V.1966 ; Haut-Rhin : Colmar ♂ 24.VII.1962, Ribeauvillé ♂ 15.V.1966 ; Vienne : Couhé-Vérac ♂ 15.VII.1963 ; Vosges X Haut-Rhin : Col de la Schlucht ♀ 10.VIII.1963 *Heracleum*. — Ticino : Caslano 2 ♂ 16.VIII.1959. — Salzburg : Parsch ♀ 30.VI.1963. — Catania : Catania ♂ 19.V.1954 ; Cueno : Roccabruna ♀ 8.VIII.1966 ; Firenze : Firenze ♂ 10.V.1948 ; Padova : Padova ♂ V.1956 ; Piacenza : Piacenza ♂ 20.V.1954, ♀ 15.IV.1960, Piacenza Bobbio ♀ 21.VII.1960, Piacenza Pianello 9 ♂ 6 ♀ 16.V.1960 ; Treviso : Istrana ♀ ; Venezia : Alacuo ♀ VII.1955, Lido de Venezia ♂ 13.VI.1934, ♀ 16.VII.1934 ; Fiume (= Rijeka Yougoslavie) ♂ 13.V.1960. — Alicante : Crevillente ♂ ♀ 13.VII.1964, Jijona ♀ 13.VII.1964 ; Barcelona : Canet de Mar ♀ 1.V.1965, ♂ 1.V.1967, 3 ♂ 22.VI.1967, ♂ 30.IV.1968, S. Cipriano de Villalta ♀ 10.X.1965, Tordera ♀ 28.VI.1968 ; Gerona : Toroella ♀ 4.VII.1958 ; Guipuzcoa : Fuenterrabia ♂ 29.VI.1958 ; Huesca : Monzon ♀ 15.VII.1967 ; Lerida : Viella 900 m ♀ 27.VIII.1968 ; Madrid : Ribas de Jarama 8 ♂ 22.V.1969 ; Valencia : El Perello ♀ 15.VII.1964. — Portugal : Collares ♂ 3.VII.1935. — Serbie : Srem Mitrovica ♀ 10.VII.1968. — Grèce : Platamon ♀ 28.VI.1968.

5. *Pemphredon lugens* DAHLBOM.

Not previously recorded from Belgium.

Namur : Bohan ♀ 19.VI.1968, Rienne 2 ♂ 18.IV.1968, éclosions forcées de troncs de Conifères.
Weilheim ♂ 28.V.1920. — Basses-Alpes : Peyresq ♀ 22.VIII.1967 ; Landes : Hossegor ♂ 18.VII.1963.

6. *Pemphredon lugubris* LATREILLE.

Flandre-Occidentale : St-Andries (CRÈVECŒUR et MARÉCHAL, 1936), Coxyde ; Flandre-Orientale : Destelbergen (CRÈVECŒUR et MARÉCHAL, 1936), Gent,

Melle, St-Amandsberg; Anvers: Anvers, Wijnegem; Limbourg: Genk, Lommel, Tongres; Brabant: Anderlecht, Auderghem, Braine-l'Alleud, Evere, Forêt de Soignes, Forest, Genval, Herent, Ixelles, Ixelles Boendael, Solbosch, (BONDROIT, 1932), St-Gilles Parc (MEUNIER, 1897), Uccle (BONDROIT, 1932), Uccle Fort Jaco, Uccle Stallé (MEUNIER, 1897), Watermael, Watermael-Boitsfort, Wemmel, Woluwe-St-Lambert; Hainaut: Ghlin, Orcq, Soignies, Virelles; Namur: Andenne, Arsimont, Ciergnon, Denée-Maredsous (CRÈVECEUR et MARÉCHAL, 1936, DE HENNIN et ANGLAUX, 1948), Gembloux, Gembloux éclos d'un tronc d'*Alnus*, Gesves, Felembé, Malonne Insepré, Mazy, Mesnil-Église Ferage, Mont-Gauthier, Olloy, Winenne, Winenne éclos d'un tronc de *Salix*; Luxembourg: Daverdisse, Offagne; Liège: Angleur, Ayeneux, Bassenge, Bellaire, Beyne-Heusay, Chênée, Embourg, Gemmenich, Gleixhe, Herve, Huy, Jupille, La Calamine, La Reid, Liège (CRÈVECEUR et MARÉCHAL, 1929) Liège, Magnée, Neu-Moresnet, Ombret, Romsée, Seraing, Sougné-Remouchamps Nonceveux, Spa, Stavelot, Tavier autour d'un *Sorbus sanguinea* à *Anoecia corni*, Tiff, Visé, Wanne, Trois-Ponts, Warsage; Montagne St-Pierre: Lixhe Loën. See also LECLERCQ (1953): Aphids as preys.

Basses-Alpes: Allos 2 ♀ 10.VIII.1966, 2 ♂ ♀ 20.VIII.1968, Peyresq ♀ 26.VII.1967, St-André-les-Alpes ♀ 24.VIII.1968, Thorame-Haute ♀ 7.VIII.1968; Dordogne: Les Eyzies ♂ 16.IV.1955; Meuse: Epiey-sur-Meuse ♂ 27.VIII.1968; Pyrénées-Orientales: Argèles ♀ 20.IV.1957, Vauchuse; Combe de Lourmarin ♀ 22.V.1962. — Wien: Wien Kuchelau 2 ♀, Wien Klosterneuburg ♀. — Firenze: Firenze ♂ 10.IV.1949. — Barcelona: Canet de Mar ♂ 28.IV.1965; Lerida: Aigues Tortes ♀ 18.VIII.1967.

7. *Pemphredon montanus* DAHLBOM.

Valais: Grimetz ♀ 13.VIII.1958 — Kärnten: Karawank ♀ 10.VII.1951.

8. *Pemphredon morio* VANDER LINDEN.

Flandre-Occidentale: St-Andries ♀ 29.VII.1939; Limbourg: Genk ♂ 24.V.1959; Brabant: Auderghem ♀ 6.VII.1940, ♀ 31.VII.1942, Etterbeek ♀ 8.VII.1935, Ixelles Boendael ♀ 12.VI.1937, ♀ 6.VII.1937, ♀ VIII.1938, ♂ 22.VIII.1939, Ixelles Solbosch ♀ 5.VII.1931, ♀ 16.VI.1932, ♀ 15.VII.1934, Uccle ♀ 29.VIII.1931, ♀ 10.VII.1932, Woluwe-St-Pierre ♀ 30.VI.1951, ♀ 20.VII.1951; Namur: Wépion ♀ 14.VII.1928 (CRÈVECEUR et MARÉCHAL, 1929); Luxembourg: Harre Deux-Rys ♀ 22.VII.1951 (MARÉCHAL et PETIT, 1955); Liège: Ayeneux ♂ 10.VI.1966, Beyne-Heusay ♂ 1.VII.1940, Bolland ♀ 22.VII.1962, Évegnée ♀ 11.IX.1963, Jupille ♀ 29.VI.1939, ♀ 17.VII.1940, ♀ 27.VI.1952, ♂ 31.V.1959, La Calamine ♀ 7.VIII.1960, Liège ♀ 14.VII.1896, Neu-Moresnet ♀ 2.VIII.1962, Olne ♀ 10.VI.1964; Montagne St-Pierre: Lixhe Loën ♀ 29.VII.1938. Basses-Alpes: St-André-les-Alpes ♂ 24.VIII.1968; Aube: Troyes ♀ VIII.1873.

9. *Pemphredon mortifer* n. sp.

Excepting the records from the literature, the specimens mentioned here are paratypes.

Flandre-Occidentale: St-Andries ♂ 5.VII.1929 (*wesmaeli*?, CRÈVECEUR et MARÉCHAL, 1932); Flandre-Orientale: Aalst (*wesmaeli*?, BEQUAERT,

1909), Gent (*wesmaeli*?, BEQUAERT, 1909); Anvers: Kalmthout (*wesmaeli*?, POLL, 1938); Brabant: Auderghem ♀ 6.VII.1940, ♂ 12.VIII.1943, ♂ 27.V.1944, Genval ♂ 25.VII.1935, ♂ 13.VII.1936, Ixelles Boendael ♂ VI.1933, ♀ 5.VII.1934, ♀ 5.VII.1935, ♀ 25.IX.1936, ♀ 23.VI.1938, ♀ 15.VII.1938, ♂ 9.VIII.1939, 2 ♂ fin V.1940, Ixelles Solbosch 2 ♂ 20.VII.1927, ♂ 28.VI.1928, ♂ 7.VI.1930, ♀ ♂ 17.VI.1930, 7 ♂ 23.VI.1930, ♂ 10.VII.1930, ♀ 17.VIII.1930, ♀ 18.VI.1931, ♂ 16.VI.1932, ♂ 18.VI.1932, ♀ 20.VI.1932, ♂ 4.VII.1932, 2 ♀ 30.VII.1932, ♀ 1.VIII.1932, ♀ 7.VI.1933, 2 ♀ 25.VII.1933, ♂ 27.VII.1933, ♂ 10.VIII.1934, ♂ 27.VIII.1934, 2 ♀ 3.IX.1934, ♀ 7.VI.1939, Jette ♀, Uccle ♀ 29.VIII.1931, 2 ♂ 3.VII.1932, ♂ 14.VII.1932, ♀ 24.VII.1932, ♂ 14.VIII.1932, ♂ VI.1933, Watermael ♂ VI.1948, ♀ VIII.1949, ♂ VIII.1949, Watermael-Boitsfort ♀ 28.VI.1937, ♀ 14.V.1943, 2 ♂ 18.V.1943, Woluwe-St-Pierre ♀ VIII.1950; Namur: Winenne ♀ 10.VI.1964; Liège: Engis ♂ 9.VI, ♀ 18.VI.1968, Henri-Chapelle ♀ 6.VIII.1964 *Tanacetum*, Herve ♀ 29.VI.1963, Jupille 2 ♂ 3.VI.1950, ♂ 5.VI.1950, 2 ♂ 31.V.1959, ♀ 16.VI.1960, 2 ♀ 12.VI.1964, ♀ 18.VI.1964, ♀ 24.VI.1967, Xhendelesse ♀ 27.VII.1969; Montagne St-Pierre: Lixhe Loën ♀ 19.VII.1930 (*wesmaeli*?, CRÈVECEUR et MARÉCHAL, 1932).

Basses-Alpes: La Mure ♀ 24.VIII.1968, Thorame-Haute ♀ 9.VIII.1967. — Padova: Padova ♂ 17.IV.1953. — Barcelona: Canet de Mar ♂ 15.VII.1963, ♂ 26.IX.1963, ♂ 4.X.1963, ♀ 14.VII.1965, Ripoll ♂ 10.VII.1961, S. Cipriano de Vallalta ♀ 10.X.1965.

10. *Pemphredon podagricus* CHEVRIER.

Wien: Wien, Kuchelau 26.V.1965.

11. *Pemphredon rugifer* (DAHLBOM).

Flandre-Orientale: St-Denijs-Westrem ♀ 26.VII.1943; Limbourg: Gellik ♀ 19.VII.1965; Brabant: Auderghem ♂ 21.VII.1941, Beersel ♀ 11.VII.1954, Etterbeek ♂ 1.VII.1946, Hal ♀ 15.VII.1932, Ixelles Boendael ♂ 19.VI.1937, fin V.1940, Ixelles Solbosch ♂ 27.VI.1929, ♂ 5.VI.1931, ♂ 30.V.1934, Uccle ♀ 15.VII.1929 (type de *solivagus* BONDROIT, 1932), ♀ 24.VI.1936, ♂ 17.VII.1951, Watermael Boitsfort ♂ 17.VII.1945; Hainaut: Courcelles ♂ 19.VI.1966; Namur: Gembloux ♂ 6.V.1966, Javingue ♀ 17.VII.1964, Namur ♀ VIII.1938; Liège: Beyne-Heusay ♀ 2.VII.1940 with preys, cf. LECLERCQ, (1953), Bolland 8 ♂ 6.VI.1964, Bombaye ♀ 6.VI.1964, Bressoux ♂ 22.VII.1951, Fouron-St-Martin ♀ 15.VI.1958, Henri-Chapelle 3 ♂ 9.VI.1964, Hermée ♀ 10.VI.1961 *Heracleum*, Jupille ♂ 6.VIII.1944, ♀ 17.VI.1961, ♀ 17.VIII.1964, Liège ♀ 28.V.1893, ♂ 9.VI.1896, Trembleur ♀ VII.1939, Wonck ♀ 26.VIII.1956.

Ardenne: Chooz ♀ 26.V.1960; Meurthe-et-Moselle: Mousson ♀ 17.VII.1959.

12. *Pemphredon shuckardi* (MORAWITZ).

Flandre-Occidentale: Coxyde (MARÉCHAL et PETIT, 1957), Houthulst (BEQUAERT, 1909, Knokke, La Panne, Oostduinkerke, St-Andries (CRÈVECEUR et MARÉCHAL, 1932); Flandre-Orientale: Aalst (BEQUAERT, 1909), Cherscamp (BEQUAERT, 1909), Destelbergen, Gand (GOETGHEBUER, 1934),

Heusden, Melle ex *Lipara*, Wetteren (BEQUAERT, 1909); Anvers: Mortsels; Limbourg: As, Lommel, Lummen, Piringen *Heracleum*, Sluizen; Brabant: Braine-l'Alleud, Bierghes Mt-Plaisir, Buysingen, Genval, Groenendael, Ixelles Boendael, Ixelles Solbosch, Kortenberg, La Hulpe, Uccle, Vilvorde, Watermael, Watermael Boitsfort; Namur: Dion, Falaën, Gembloux, Malonne, Malvoisin, Ponderôme, Winenne; Luxembourg: Izier Ozo, Waha (CRÈVECŒUR et MARÉCHAL, 1936); Liège: Acosse, Aubel, Ayeneux, Bellaire, Beyne-Heusay, Bilstain, Bolland, Bombaye, Cerexhe-Heuseux, Chênée, Clavier, Embourg (CRÈVECŒUR et MARÉCHAL, 1928), Engis, Eupen Barage, Évegnée, Fléron, Fouron-St-Martin, Fouron-St-Pierre, Haccourt, Henri-Chapelle, Hermale-sous-Argenteau, Hermée, Herstal, Jupille, La Calamine, Liège, Membach, Ouffet Source du Néblon, Raeren, Retinne, Romsée, Teuven, Thimister, Vaux-sous-Chèvremont, Verlaine Tohogné (CRÈVECŒUR et MARÉCHAL 1936), Vottem (CRÈVECŒUR et MARÉCHAL, 1936), Wandre (CRÈVECŒUR et MARÉCHAL, 1932), Wonck, Xhendelèsse, Wandre; Montagne St-Pierre: Lanaye, Lixhe Loën (CRÈVECŒUR et MARÉCHAL, 1932).

Grand-Duché de Luxembourg: Bourscheid. — Gelderland: Apeldoorn 2 ♀ 3.VII.1953; Utrecht: Abcoude ♀ 16.VIII.1951. — Middlesex: Ealing ♂ 28.V.1946. — Schwerin: Schwerin Mecklemburg ♂ 25.VI.1883; Westphalien: Neheim 2 ♂ 15/17.VI.1968; Hessen: Oberwestwaldkreis, Zonhain ♂ 13.VI.1968; Gera: Jena ♀ 27.V.1906. — Ardennes: Givet ♀ 11.VIII.1967; Basses-Alpes: Allos ♂ 20.VIII.1968, Annot ♂ 16.VIII.1968, Barrême ♂ 11.VIII.1966 *Pastinaca*, Colmars 3 ♂ 7.VIII.1967, Méailles 3 ♂ 4.VIII.1966, St-André-les-Alpes 4 ♂ ♀ 24.VIII.1968, Thorame-Haute ♂ 9.VIII.1967; Côte-d'Or: Tilchâtel 2 ♀ 5.VIII.1960; Hérault: Palavas ♂ 9.VII.1954, Pont-de-Lunel ♂ 16.VII.1959; Manche: Mont-sur-Vent ♀ 18.VII.1963; Haute-Marne: Chassigny 2 ♀ 30.VIII.1967, Rouvroy ♂ 14.VII.1959; Meurthe-et-Moselle: Belleville ♂ 25.VII.1960, Nancy Ludres ♂ 2.IX.1962, Pont-à-Mousson 2 ♂ 25.VII.1960; Meuse: Epiey-sur-Meuse ♂ 27.VIII.1968; Pyrénées-Orientales: Argelès ♂ 20.IV.1957. — Valais: Hérémeuse ♀ 17.VII.1962. — Oberösterreich: Attersee Weyregg ♂; Steiermark: Admont ♂ — Catania: Catania ♂ 27.VI.1954; Padova: Padova ♂ 14.IX.1957; Piacenza: Pianello ♀ 16.V.1960. — Barcelona: Canet de Mar ♂ 2.VII.1967, S. Cipriano de Villalta ♀ 10.X.1965.

13. *Pemphredon wesmaeli* (MORAWITZ) (*scoticus*).

As mentioned hereabove, the type of BONDROIT's *Pemphredon solivagus* is a *rugifer*, and most of the other material we have seen from his collection is either *rugifer* or *mortifer*. True *wesmaeli* are:

Brabant: Auderghem ♀ VII.1943, Watermael Boitsfort ♀ 17.VI.1945, Woluwe-St-Pierre ♀ 16.VI.1951, 2 ♂ 17.VI.1951; Limbourg: Beverlo ♀ VII.1904; Liège: Hautes-Fagnes ♀ VII.1922.
Basses-Alpes: d'Annot au Fugeret ♀ 15.VIII.1968, Méailles ♂ 4.VIII.1966, Peyresq ♀ 12.VIII.1967, ♂ 22.VIII.1968, St-André-les-Alpes 2 ♂ 24.VIII.1968, St-Michel-Peyresq ♀ 5.VIII.1966, ♀ 9.VIII.1966, 2 ♀ 11.VIII.1966 venant capturer des Aphides aux sommités fleuries de *Carduus acanthoides*. — Niederösterreich 3 ♂ Pernitz; Steiermark: Gesäuse ♀.

SUMMARY

Here are preliminary notes for a revisional study of the West Palearctic species of the genus *Pemphredon*. They include the description of *Pemphredon mortifer* n. sp. and a revised key to the species of the *rugifer* DAHLBOM group.

In addition a complete survey of the available data on the distribution of the *Pemphredon* species in Belgium and of the material collected elsewhere in Western Europe found in the collection of the Faculté des Sciences Agronomiques, in Gembloux.

10 species occur in Belgium. They are listed hereafter from the commonest to the rarest, with indication of the total number of specimens actually caught and of their sex ratio:

<i>Pemphredon</i> species	Specimens caught	Males	Females
<i>lethifer</i>	513	300	213
<i>lugubris</i>	174	41	133
<i>shuckardi</i>	153	80	73
<i>mortifer</i>	79	36	43
<i>clypealis</i>	43	10	33
<i>rugifer</i>	42	25	17
<i>mario</i>	31	5	26
<i>enslini</i>	9	1	8
<i>wesmaeli</i>	7	2	5
<i>lugens</i>	3	2	1

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