

New and poorly-known sawflies (Hymenoptera, Tenthredinoidea) from Sweden, with taxonomic notes on Palaearctic *Heptamelus* species described by Swedish authors

ANDREW D. LISTON, HEGE VÅRDAL & MARKO PROUS

Liston, A.D., Vårdal, H. & Prous, M.: New and poorly-known sawflies (Hymenoptera, Tenthredinoidea) from Sweden, with taxonomic notes on Palaearctic *Heptamelus* species described by Swedish authors. [**Nya och dåligt kända växtsteklar från Sverige, med kommentarer om taxonomin hos de palearktiska arter i släktet *Heptamelus* som beskrivits av svenska entomologer.**] – Entomologisk Tidskrift 139 (2): 119–131. Uppsala, Sweden 2018.

First records from Sweden of eight sawfly taxa are presented: *Arge annulata* Konow, 1891 (Argidae), *Allantus cingillipes* (Kontuniemi, 1947), *Allantus melanarius* (Klug, 1818), *Apethymus cereus* (Klug, 1818), *Dolerus liogaster schneideri* Kiaer, 1898, *Fenusella hortulana* (Klug, 1818), *Monophadnus spinolae* (Klug, 1816), and *Tenthredo mandibularis* Fabricius, 1804 (Tenthredinidae). The problematic taxonomic status of *Arge annulata* is discussed, and it is recorded for the first time from Germany and Estonia. For *Heptamelus dahlbomi* (Thomson, 1870) (Heptamelidae): a lectotype is designated for *Caenoneura dahlbomi*, *H. ussuriensis* Malaise, 1931 is placed as its junior synonym, *Athyrium distentifolium* recorded as a new host, and additional distribution data are presented, including the first records from Austria. A lectotype is designated for *Heptamelus magnocularis* Malaise, 1931, and this species briefly compared with *H. dahlbomi*.

Andrew Liston & Marko Prous, Senckenberg Deutsches Entomologisches Institut, Eberswalder Str. 90, 15374 Müncheberg, Germany. E-mail: aliston@senckenberg.de, mprous@senckenberg.de
Hege Vårdal, Swedish Museum of Natural History, Department of Zoology, Stockholm, Sweden. E-mail: hege.vardal@nrm.se

Since an earlier publication dealing with sawfly species newly recorded from Sweden (Prous et al. 2014), records and observations of eight other such species have accumulated. As in the previous paper, the new data presented here concerns sawfly species belonging to families and tenthredinid subfamilies other than the Nematinae. The opportunity to examine these arose during work on the Swedish Nematinae, funded by the Swedish Taxonomy Initiative (STI). In part, the material studied was already deposited in existing collections, but more recently collected

specimens are also referred to. Some of the latter are from the excursions of the authors and their associates in Sweden, while others were collected by the Swedish Malaise Trap Project (SMTP). The background is explained in more detail in the previous paper. As a matter of convenience, we also include notes on the taxonomy, distribution, and hosts of three nominal species of *Heptamelus* (Heptamelidae) described by the renowned Swedish entomologists Carl Gustaf Thomson and René Malaise: note that the Heptamelidae was elevated to family rank by Malm

& Nyman (2015). The type locality of the species described by Thomson is in Sweden, and the type localities of the two species described by Malaise are in the Russian Far East. We concluded from our study of the type material, that *H. ussuriensis* Malaise is a new junior synonym of *H. dahlbomi* (Thomson). Notes on how to distinguish *H. magnocularis* Malaise from the morphologically similar *H. dahlbomi* are also included. Although several taxonomic problems still require study in this genus, we are confident that the present contribution is a step in the right direction.

Material and methods

The names of collections referred to in the text are abbreviated as follows:

MZLU Lunds universitet, Entomological Museum, Lund, Sweden

NHRS Naturhistoriska riksmuseet, Stockholm, Sweden

SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany

Information on the status in Sweden of host plant species is based largely on the web presentation “Den virtuella floran” (Anderberg & Anderberg 2012).

The newly reported COI gene fragment (1078 bp) of one *Heptamelus dahlbomi* (GenBank accession MG913289) was sequenced as described in Prous et al. (2016).

Results

ARGIDAE

Arge annulata Konow, 1891

Arge annulata Konow, 1891: 42. Described: female. Type locality: Caucasus, Araxes-Thal [Azerbaijan, Aras Valley]. Holotype, SDEI (examined).

This was for many years recognised as a valid species, occurring in the Caucasus and southern Russia (e.g. Gussakovskij 1935, Muehe 1977), until Zhelohovcev (1988) synonymised it with *Arge nigripes* (Retzius, 1783). Schedl (2012) revoked this synonymy, and published the first European records, from Austria (Styria and Carinthia).

The external morphology of adult *annulata* and *nigripes* is indeed very similar. Their lancets

are also hardly distinguishable (*annulata* Fig. 1a, *nigripes* Fig. 1b), even sharing the bands of fine sensilla along the annular sutures described for *nigripes* by Schedl & Pschorn-Walcher (1984) and stated by them to distinguish that taxon from *sorbi* Schedl & Pshorn-Walcher, 1984, in which such setae are not visible. Perhaps there is a difference in the marginal sensilla on the middle annuli, although too few specimens have been examined to state this with certainty: *annulata* has one or two sensilla, and if two, they are of very unequal length (Fig. 1a); *nigripes* has two or three sensilla, and if three, two are of nearly equal length and longer than the third (Fig. 1b). On the other hand, the differences in coloration between *annulata* and *nigripes* are striking, and because no intermediate specimens have been found, it seems prudent to treat them provisionally as separate taxa. The main differences are:

- Metatibia basally white (Fig. 1c). Intercostal cell of fore wing much darker than rest of fore wing membrane, except for the small but conspicuous substigmatal fleck (Fig. 2a). Setae on upper head pale (Fig. 2c).....*annulata*
- Metatibia entirely black / dark brown (Fig. 1d). Intercostal cell of forewing at most only slightly darker than rest of fore wing membrane, and substigmatal fleck inconspicuous (Fig. 2b). Setae on upper head fuscous (Fig. 2d).....*nigripes*

Material examined

Sweden: Småland, *Hultsfred*, Kloster Gård, 57.50°N 15.87°E, 100 m altitude, 1♂, 31.5.2013 (SDEI); Dalarna, *Mora*, Stenis 1km N, 60.95°N 14.47°E, 180 m altitude, 2♀, 14/16.06.2013 (NHRS, SDEI); *Borlänge*, Borlänge 11km NW, 60.55°N 15.22°E, 160 m altitude, 1♀, 16.6.2013 (SDEI). All specimens collected by Liston, Prous and Taeger.

Estonia: Viljandimaa, Sandra, 58.45°N 25.04°E, 25 m altitude, 1♂, 7.6.2015, leg. A. Liston, M. Prous & A. Taeger (SDEI)

Germany: Brandenburg, Gatow / Oder, Feldwegrand, *Angelica archangelica*, 53.10°N 14.33°E, 1♀, 29.6.1999, leg. H.-J. Flügel (SDEI). Sachsen-Anhalt, Gohrau, Bresker Forst, *Chaerophyllum temulum*, 51.81°N 12.48°E, 1♂, 28.05.2012, leg. W. Bäse (SDEI).

There is currently no indication of which larval host plants are used by *A. annulata*. Many *Arge* species are frequent visitors to inflorescences of Apiaceae, and the species names of plants on the labels of the German specimens

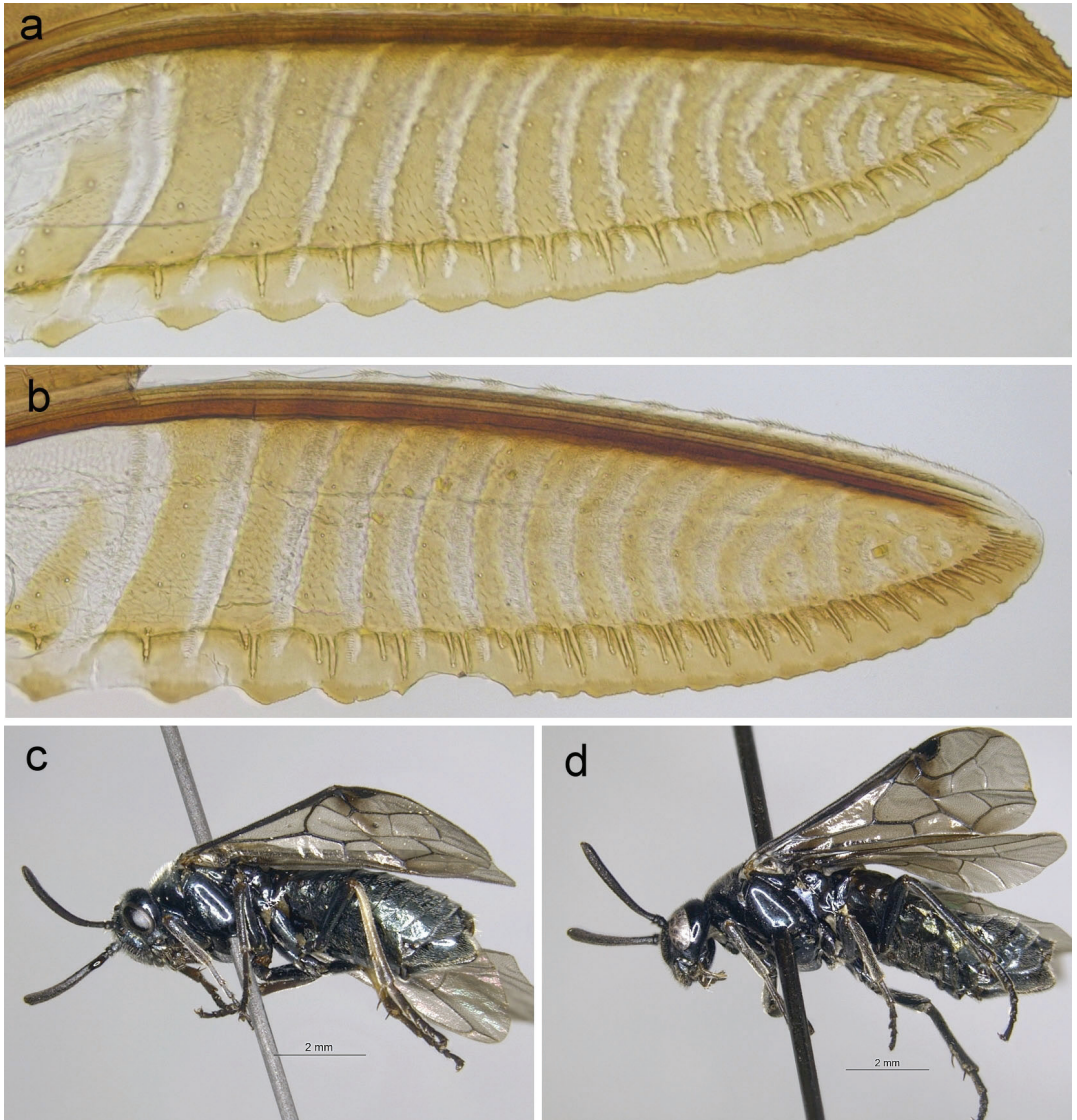


Figure 1. *Arge annulata* (DEI-GISHym19901) compared with *A. nigripes* (DEI-GISHym11562, Austria, Lower Austria, 01.09.2009, reared from larva on *Rosa*, leg. E. Altenhofer) (females). Part of lamnium of lancet, with serrula 2 the most basal at left – a) *annulata*, – b) *nigripes*. Lateral view, note colour of metatibia – c) *annulata*, – d) *nigripes*.

Arge annulata (DEI-GISHym19901) jämförd med *A. nigripes* (DEI-GISHym11562, Österrike, Lower Austria, 01.09.2009, kläckta från larver på *Rosa*, leg. E. Altenhofer) (honor). Den sågtandade delen (=lamnium) på ägglägningsapparatens ventrala del (=lancet) där serrula 2 (=sågtand 2) syns längst nede till vänster. – a) *annulata*, – b) *nigripes*. Sedda från sidan, lägg märke till färgen på bakskenbenet, – c) *annulata*, – d) *nigripes*.

presumably refer to this. Distribution: Transcaucasus and southern Russia, Austria (Schedl 2012), and the first records (above) from Germany, Sweden, and Estonia. *Arge annulata* runs

to *A. sparta* (MacGillivray, 1923) in the key to Nearctic *Arge* by Smith (1989). These seem to be very similar in external characters, and even their lancets strongly resemble each other

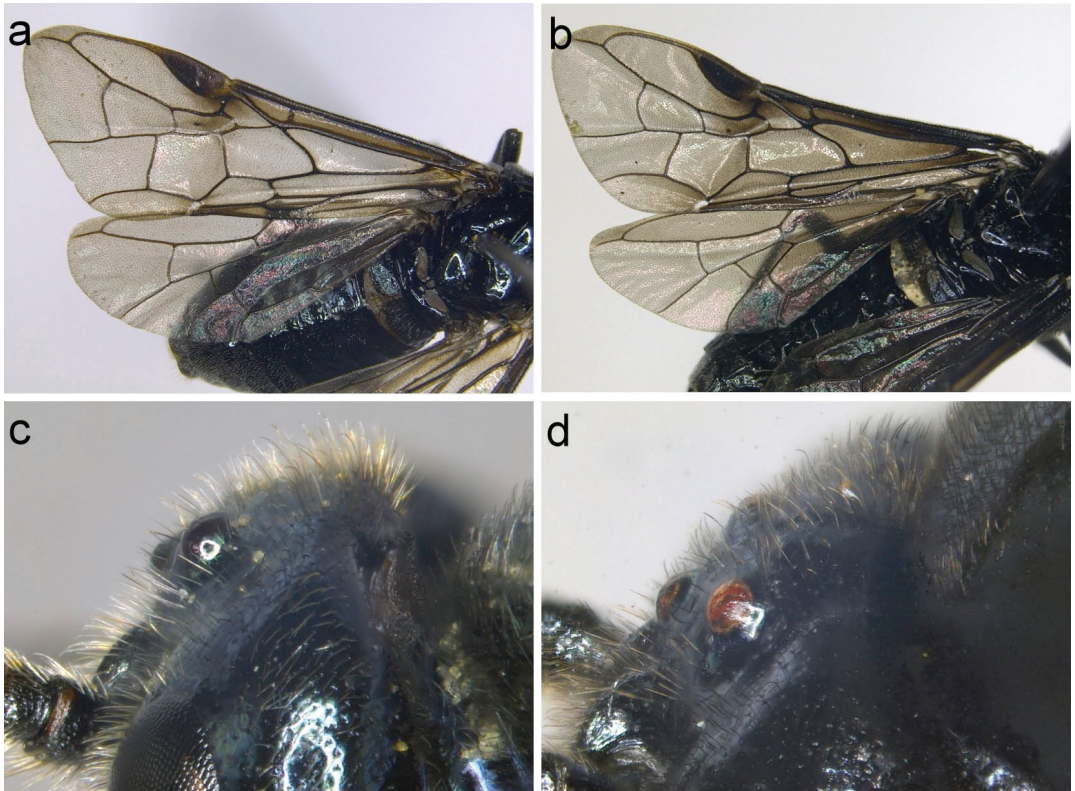


Figure 2. *Arge annulata* (DEI-GISHym19901) compared with *A. nigripes* (DEI-GISHym11562, Austria, Lower Austria, 01.09.2009, reared from larva on *Rosa*, leg. E. Altenhofer) (females). Fore wing, colour – a) *annulata*, – b) *nigripes*. Colour of setae on upper head – c) *annulata*, – d) *nigripes*.

Arge annulata (DEI-GISHym19901) jämförd med *A. nigripes* (DEI-GISHym11562, Österrike, Lower Austria, 01.09.2009, kläckta från larver på *Rosa*, leg. E. Altenhofer) (females). Framvingefärg: – a) *annulata*, – b) *nigripes*. Behåringens färg ovanpå huvudet – c) *annulata*, – d) *nigripes*.

in most respects (*A. sparta*: Fig. 87 in Smith 1989). However, serrulae 2 and 3 [numbered from base] are hardly separated in *sparta*, but widely separated in *annulata* (Fig. 1a), and the apical serrulae are more prominent in *A. sparta*.

HEPTAMELIDAE

Heptamelus dahlbomi (Thomson, 1870)

Caenoneura dahlbomi Thomson, 1870: 270–271. Described: female. Type locality: Sandhammaren i Skåne. Lectotype (MZLU), designated below.

Heptamelus ussuriensis Malaise, 1931a: 142–143. Described: female, holotype (NHRS, examined). Type locality: Wladiwostok (Suchan). New synonymy.

Type material examined

Caenoneura dahlbomi. Lectotype, female, here designated, MZLU: label data (Fig. 3a) include an original label by Dahlbom “Sandhmr [=Sandhammaren] 14 Aug [18]38; [?] säust. m. Phyll. amaura” and “*Caenoneura Dahlbomi*” in Thomson’s handwriting. The specimen (Fig. 3b) is in perfect condition, except that the entire abdomen has faded from black to brown [black, according to Thomson 1870]. In agreement with the original description, the antennae of the lectotype have 8 antennomeres. The number of antennomeres varied between 7 and 8 in the *dahlbomi* specimens examined by Vikberg & Liston (2009), and all other characters fit the redescription of *Heptamelus dahlbomi* by the latter authors.

Heptamelus dahlbomi was first recognised as distinct from its only other West Palaearctic congener, *H. ochroleucus* (Stephens, 1835), by Vikberg & Liston (2009), who wrote that no syntypes could be located in Lund, nor in any other collection. The designation of a primary type was, and still is, considered desirable because the taxonomy of *Heptamelus* in the East Palaearctic and Oriental Regions is poorly understood. During a recent visit to Lund, a single female syntype of *Caenoneura dahlbomi* was found in the Dahlbom collection, standing under a handwritten cabinet label by Dahlbom indicating that he considered the specimen to represent a new genus and species. The data on the Dahlbom label on the specimen pin agree perfectly with the information given by Thomson (1870) on the types [existence of a syntype series assumed]: “Sällsynt; funnen af Prof. Dahlbom vid Sandhammaren i Skåne; den förekom tillsammans med *Phyllotoma vagans*.” [Rare; found by Prof. Dahlbom near Sandhammaren in Scania; it occurred together with *Phyllotoma vagans*]. Note that *Phyllotoma amaura* (Klug, 1818), mentioned on Dahlbom’s label, is a synonym of the species currently known as *Heterarthrus vagans* (Fallén, 1808). As visited by AL in 2016, the part of the Sandhammeren Nature Reserve along the wet areas just behind the dunes is dominated by *Alnus glutinosa*, with many ferns in the ground vegetation. This habitat would still seem to be suitable for both species mentioned by Dahlbom.

Heptamelus ussuriensis. Holotype, female (NHRS-HEVA000001249): labels (Fig. 3c). Specimen (Fig. 3d) in good condition, except for missing left protarsus, but the entire abdomen has faded to brown (black according to original description), and the setae on valvula 3 are mostly broken or missing.

The holotype of *Heptamelus ussuriensis* Malaise possesses all the morphological characters considered by Vikberg & Liston (2009) to be diagnostic for *dahlbomi*, and we therefore regard them as conspecific. One specimen of *dahlbomi* was recently collected near the *ussuriensis* type locality (see below). COI barcoding of the fresh specimen yielded a sequence (GenBank accession MG913289) approximately 0.2% divergent from those of European individuals.

Other material examined

Sweden: Dalarna, *Sätters kommun*, Säterdalen, Näsåkerspussen, 60.367°N 15.717°E, 1♀, 23.6.2003–8.7.2003, leg. SMTP (NHRS).

Austria: Salzburg, Mahdalm-Hütte, 47.49°N 13.48°E, 1500 m altitude, larvae in *Athyrium filix-femina*, 22.7.2010, leg. E. Altenhofer, identified by barcoding. Upper Austria, Oberschwarzenberg, 48.75°N 13.84°E, larvae in *Athyrium distentifolium*, 16.8.2013, leg. E. Altenhofer, identified by barcoding and examination of reared adults. Lower Austria, Etzen, Paradies, 48.53°N 15.11°E, larvae in *Athyrium* sp., 26.6.2009, leg. E. Altenhofer, identified by barcoding. As in previous rearings (Vikberg & Liston 2009), only females were obtained. These are the first records of a *Heptamelus* species from Austria.

Russia: Far East, Primorskij Kraj, Yakovlevka 10km NW, 44.52°N 133.39°E, 250m asl, 27.05.2016, leg. K. Kramp, M. Prous & A. Taeger (SDEI; DEIGISHym86313).

Until now, only *Athyrium filix-femina* was recorded as a host plant of *dahlbomi*, and the known range comprised Central and North Europe, including the British Isles, and North America (presumably by introduction) (Vikberg & Liston 2009). *Athyrium distentifolium* is a new host plant record, and the Russian Far East is added to the known range of the species. So far, *Heptamelus ochroleucus* has been recorded more frequently in Sweden than *dahlbomi* (see Vikberg & Liston 2009). Of the latter, the only Swedish specimens we have seen are the lectotype, and the female from Dalarna (above).

Heptamelus magnocularis Malaise, 1931

Heptamelus magnocularis Malaise, 1931b: 27–28. Described: syntypes; female, male (NHRS, examined); Kamtchatka, Petropawlowsk and Elisowo. Lectotype designated below. Type locality: Elisowo (Kamtchatka).

Type material examined:

Heptamelus magnocularis. Lectotype, female, here designated (NHRS-HEVA000001246): labels (Fig. 3e). Specimen (Fig. 3f) in poor condition: right fore wing, antennae, and parts of legs missing. Paralectotypes: 1 male, Elisowo (NHRS-HEVA000001248): antennae missing except for right scape and pedicel and left scape. 1 male, Kamtschatka (NHRS-HEVA000001247): head missing. All specimens in NHRS.

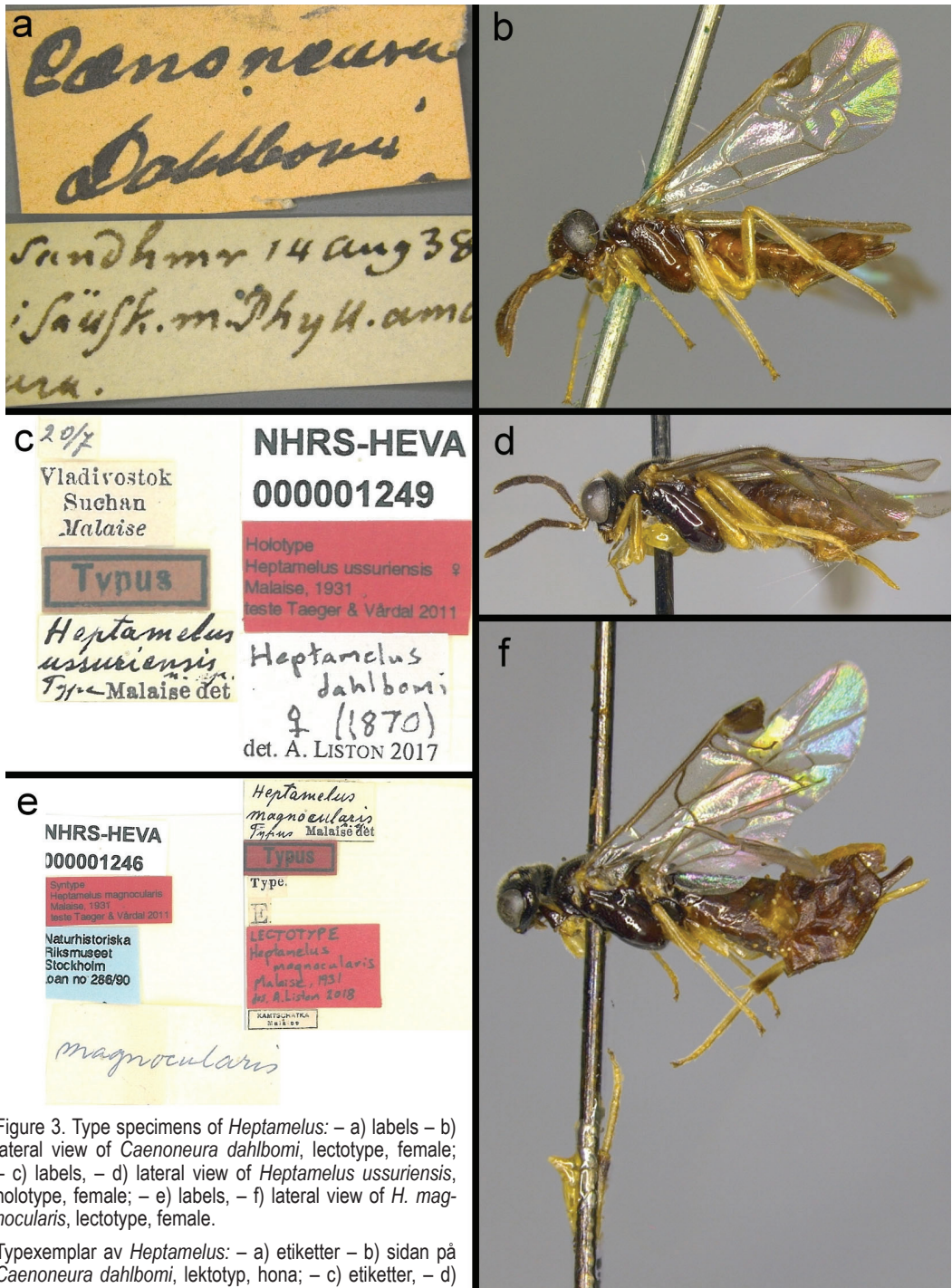


Figure 3. Type specimens of *Heptamelus*: – a) labels – b) lateral view of *Caenoneura dahlbomi*, lectotype, female; – c) labels, – d) lateral view of *Heptamelus ussuriensis*, holotype, female; – e) labels, – f) lateral view of *H. magnocularis*, lectotype, female.

Typexemplar av *Heptamelus*: – a) etiketter – b) sidan på *Caenoneura dahlbomi*, lektotyp, hona; – c) etiketter, – d) sidan på *Heptamelus ussuriensis*, holotyp, hona; – e) etiketter, – f) sidan på *H. magnocularis*, lektotyp, hona.

Heptamelus magnocularis resembles *dahlbomi* in many characters, but their females can be distinguished thus (the male of *dahlbomi* is unknown):

- Pedicel about 1.5× as long as scape: scape, and often pedicel, pale (Fig. 4a). Clypeus with v-shaped excision (Fig. 4c). Upper mesepisternum with sparse, well-defined punctures, and interspaces very shiny, almost polished (Fig. 4e).....*dahlbomi*
- Pedicel about as long as scape: scape and pedicel dark (Fig. 4b). Clypeus with arcuate excision (Fig. 4d). Upper mesepisternum with closely-spaced, poorly-defined punctures, so that whole surface appears slightly rough (Fig. 4f).....*magnocularis*

Note: Abdomen of *magnocularis* male paratopotypes completely black, except for pale subgenital plate and entire genitalia. Malaise (1931a) described and figured the profile of the sawsheath apex, in lateral view, as more acute in *ussuriensis* (*dahlbomi*) than in *magnocularis*. Although a difference seems to exist between the respective primary types (Fig. 4g and 4h), it will be necessary to examine additional *magnocularis* specimens before deciding whether this character is useful.

TENTHREDINIDAE

Allantinae

Allantus cingillipes (Kontuniemi, 1947)

Hälsingland, *Söderhamn*. Bergvik kl. [possibly kläckt (= reared)], 61.26°N 16.83°E, 1♀ (NHRS-HEVA000003305), 3.5.1948, leg. O. Lundblad (NHRS).

This specimen (Fig. 5a) already stood in the NHRS Swedish collection under the name *cingillipes*, but one can only speculate on who had identified it. The leg coloration of *cingillipes* is highly distinctive, and unlike any other known *Allantus* species: metafemur red with black apex, and metatibia basally whitish and apically blackish (Fig. 5a). Some further diagnostic characters were presented by Koch (1988a). No other European specimens have been recorded since the original description (Kontuniemi 1947), which was based on four females, collected 1922–1945: two from Finland (Helsinki, and Province Häme) and two from localities now in Russia (Republic of Karelia, and Leningradskaya oblast). One of the Finnish specimens

was found indoors, and Kontuniemi thought that it had probably emerged from firewood. According to Takeuchi (1956), who identified one female, collected in 1935 on Kunashir Island (Kuriles) as *cingillipes*, this species also occurs in Japan (Honshu) and Korea. Sundukov (2017) mentions only Sakhalin under the East Palaearctic distribution. We do not know whether Takeuchi compared East Palaearctic specimens with European ones. Larval hosts and the male sex are unknown.

Allantus melanarius (Klug, 1818)

Öland: *Skogsby*, Station Linné, 56.615°N 16.509°E, Malaise trap no. 22, “diversitetsängen”, 40 m altitude, 1♀, 13.7.-17.7.2003, leg. SMTP (NHRS). *Borghage*, Röpplinge, 56.85°N 16.62°E, 1♀ (NHRS-HEVA000003300), 3.7.1941, leg. Edgar Wieslander (NHRS). Oel [Öland: no specific locality given], 1♀ (NHRS-HEVA000007458), leg. Carl Henrik Boheman, with determination labels “*E. didymus*” and “*melanarius* Kl.” (NHRS).

The only recorded larval host is *Cornus sanguinea* (Lacourt 1999). Distribution: through southern and central Europe, including the British mainland (Taeger et al. 2006), and east to northern Iran (Lacourt 1999). The most northern recorded European occurrences were in Denmark and Estonia (Taeger et al. 2006).

Notes on the larva and hosts, based on 4 larvae collected on *Cornus sanguinea* in Germany, Brandenburg, Landkreis Märkisch-Oderland, Strausberg, Hennickendorfer Chaussee, 09.07.2017, leg. Liston & Prous (SDEI). Lengths of larvae: 1 (put in alcohol) ca. 10 mm; 3 ca. 16–17 mm (Fig. 5b, c). Larvae are solitary, spending most time on the underside of a leaf-blade, in which they eat holes. Although Carpentier (1907) observed that the larvae were frequently found rolled-up, our larvae seemed always to adopt a straight attitude. Three larger larvae were given (only) *Cornus alba* leaves on 11.07.2017; one died on 12.07.2017. The other two ate the *C. alba* leaves readily. On 15.07.2017 the leaves were replaced with those of *C. mas*, and short lengths of various types of twig were added, into which it was hoped the mature larvae would bore. The larvae did not even try to eat the *C. mas* leaves. On 18.07.2017 the second larva died, and the third was again given a leaf of *C.*

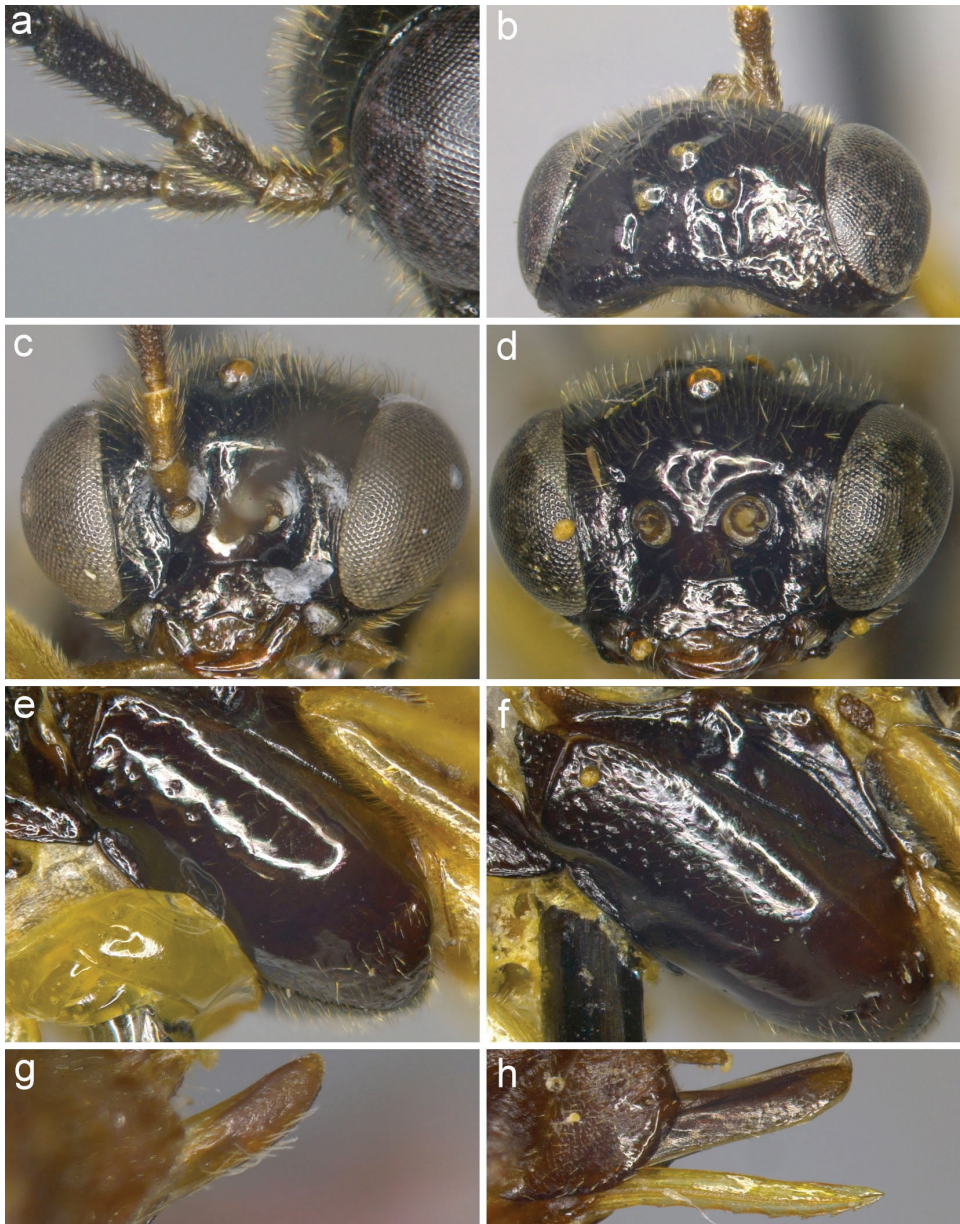


Figure 4. *Heptamelus dahlbomi* compared with *H. magnocularis*. Images of *dahlbomi* are of the *ussuriensis* holotype, female, except 4a. Images of *magnocularis* are of the lectotype, female, except 4b. Head, to show scape and pedicel – a) *dahlbomi* (DEI-GISHym86313), – b) *magnocularis*, male paralectotype NHRS-HEVA000001248. Head, frontal – c) *dahlbomi*, – d) *magnocularis*. Mesepisternum – e) *dahlbomi*, – f) *magnocularis*. Sawsheath apex, lateral – g) *dahlbomi*, – h) *magnocularis*.

Heptamelus dahlbomi jämförd med *H. magnocularis*. Bilderna på *dahlbomi* är på holotypen av *ussuriensis*, hona, utom 4a. Bilderna på *magnocularis* är på lektotypen, hona, utom 4b. Huvud, för att visa antenskaf och andra antennleden på – a) *dahlbomi* (DEI-GISHym86313), – b) *magnocularis*, male paralectotype NHRS-HEVA000001248. Huvud, framifrån på – c) *dahlbomi*, – d) *magnocularis*. Mesepisternum på – e) *dahlbomi*, – f) *magnocularis*. Spetsen på sågskidan från sidan på – g) *dahlbomi*, – h) *magnocularis*.

alba, on which it fed until it bored into a twig on 19.07.2017. We have repeatedly searched in Germany for larvae on cultivated *Cornus*, such as *C. alba*, but have not so far found any.

Apeithymus cereus (Klug, 1818)

Södermanland, *Huddinge*, Drevviken, 59.20°N 18.15°E, 1 ♀, leg. Smidt [no other data] (NHRS).

The only recorded host plant of *A. cereus* is *Quercus robur* (Setrakova 2014). Until the revision of *Apeithymus* by Koch (1988b), *cereus* had been mixed up with the taxon now called *filiformis* (Klug, 1818). Possibly this is part of the reason for the somewhat restricted, mainly central European distribution of *A. cereus*, as presently recorded (Taeger et al. 2006). Although *cereus* and *filiformis* are not identifiable by DNA barcoding (Schmidt et al. 2017), and adults are recognisable using only somewhat variable colour characters, as comprehensively described and illustrated by Mol & Blommers (2017), the latter authors found apparently clear differences in the larvae which lend support to the existence of two species. The most northern records of *cereus* were hitherto from Schleswig-Holstein, Germany (Blank et al. 2001).

Blennocampinae

Monophadnus spinolae (Klug, 1816)

Skåne, *Malmö*, Limhamns Kalkbrott, 55.568°N 12.933°E, 1 ♀, 17.8.-30.8.2009, Malaise trap, leg. B. W. Svensson et al. (MZLU).

Although Pschorn-Walcher & Altenhofer (2000) considered *M. spinolae* to be univoltine, it is definitely bivoltine in warmer areas of central Europe (Wittenberg & Schroeder 1993). The date of capture of the Swedish specimen (Fig. 5d) indicates that it might be of the second generation. The species is normally bisexual. Colour variability of the adults is rather extreme (Enslin 1914), and those of the second generation tend to have more extensive pale markings than those of the first (Liston, personal observations). The only known larval host plant is *Clematis vitalba* (Wittenberg & Schroeder 1993). Distribution: southern and Central Europe, Turkey (Lacourt 1999). Until now, the most northern records were from the Netherlands (Taeger et al. 2006) and German localities in Brandenburg and Lower Saxony (Blank et al. 2001). Because the larval

host is an introduced, but naturalised species in southern Sweden, from where the first records were published in 1941 (Anderberg & Anderberg 2016), *M. spinolae* must also be considered to be an introduced species in Sweden.

Fenusella hortulana (Klug, 1818)

Skåne, *Malmö*, Limhamns Kalkbrott, 55.568°N 12.933°E, 1 ♀, 13.4.-13.6.2009, Malaise trap, leg. M. Molander (MZLU).

From the other European *Fenusella* species, females of *hortulana* can be immediately distinguished by the pale (yellowish) pronotum, upper mesepisternum, and markings on the mesoscutum (Koch 1990). The number of antennomeres, used for example by Benson (1952) to separate *hortulana* from *glaucoptis* (Konow, 1907), has proved to be too variable for use in identification. The species is mainly parthenogenetic, with very rare males. The main host is *Populus nigra* (Pschorn-Walcher & Altenhofer 2000), but hybrid poplars are also affected (Pschorn-Walcher 1982). That *P. tremula* and *P. alba* were listed as hosts of *F. hortulana* by Altenhofer (2003) seems to have been a mistake. All other studies indicate that these are hosts of *glaucoptis*, but not of *hortulana*. Distribution: through most of southern and central Europe, including the Iberian Peninsula and British Mainland (Taeger et al. 2006), North Africa, Transcaucasus, Central Asia, and introduced to North America (Lacourt 1999). In the Nordic countries only previously recorded from Denmark (Taeger et al. 2006). Because the larval hosts were introduced to Sweden, although present at least since the mid 18th Century (Anderberg & Anderberg 2016), *F. hortulana* must also be considered to be an introduced species in Sweden.

Selandriinae

Dolerus liogaster schneideri Kiaer, 1898

Torne Lappmark, *Kiruna*, Abisko, Mt Njulla, 68.36°N 18.73°E, 600-900m altitude, 1 ♀, 23.06.2016, leg. A. Liston (NHRS).

This taxon is distinguished from the more southern and lowland nominate subspecies of *Dolerus liogaster* Thomson, 1871 by its entirely black meso- and metafemora (Fig. 5e), and red-marked pronotum, median mesoscutal lobes (Fig. 5f), and sometimes also tegulae (in ssp.

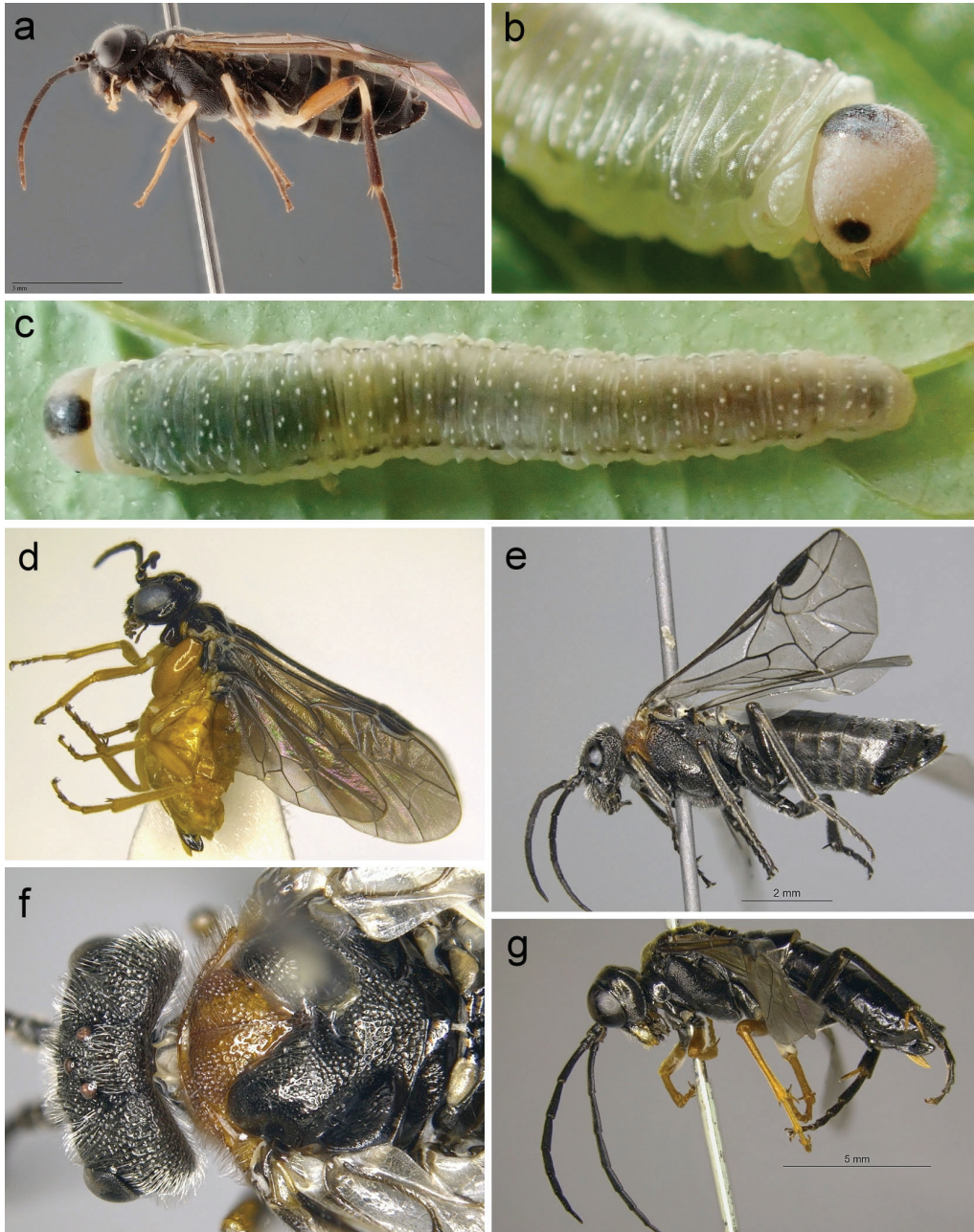


Figure 5. Sawfly taxa newly recorded in Sweden: – a) *Allantus cingillipes*, female, Hälsingland; – b, c) *Allantus melanarius*, larva, Brandenburg; – d) *Monophadnus spinolae*, female, Skåne; – e, f) *Dolerus liogaster schneideri*, female, Torne Lappmark; – g) *Tenthredo mandibularis*, female, Skåne.

Växtsteklar som nyligen hittats i Sverige för första gången: – a) *Allantus cingillipes*, hona från Hälsingland; – b, c) larv av *Allantus melanarius*, Brandenburg; – d) *Monophadnus spinolae*, hona från Skåne; – e, f) *Dolerus liogaster schneideri*, hona från Torne Lappmark; – g) *Tenthredo mandibularis*, hona från Skåne.

liogaster femora extensively red, and thorax entirely black). Distribution (ssp. *schneideri*): previously only recorded from northern Norway, Finland, and Russia (Taeger et al. 2006), as well as mountainous parts of the Czech Republic, according to Macek (2008). Note that although *D. liogaster schneideri* is treated as a valid taxon by, for example, Taeger et al. (2010), its status as a distinct subspecies of *D. liogaster* has also been doubted (e.g. Pesarini 1997).

Tenthredininae

***Tenthredo mandibularis* Fabricius, 1804**

Skåne, *Simrishamn*, Kivik 4km S, 55.648°N 14.220°E, 60m altitude, 1 ♀, 12.7.2016, leg. A. Liston & M. Prous (NHRS).

Populations of this species in central and western parts of Europe are nearly always associated with *Petasites hybridus*, its main host plant, as was the case at the above locality. Occasionally, other *Petasites* species have been mentioned as hosts (e.g. *P. albus* by Pschorn-Walcher & Altenhofer 2000). However, at the only previously published Scandinavian localities of *mandibularis*, all in the Oslofjord area of Norway, *Petasites* does not occur (Heibo & Lönnve 2005). *Tussilago farfara* may be the host at the Norwegian localities, as suggested by the latter authors. As far as we are aware, until recently only a single original published observation existed of *T. farfara* as a host, in what is today north-west Poland (Brischke 1883), but two of the four Swedish records (three from two localities in Scania, 2011 and 2015, and one from Halland, 2011) of *mandibularis* in Artportalen (<https://www.artportalen.se>) accessed on 28.06.2018, all based on the highly distinctive larva, also indicate that *T. farfara* was the host. For the other two records, the host is unclear. Perhaps the use of *T. farfara* as an additional host is limited to the more northern parts of the sawfly's range. Distribution: through central parts of western Europe, reaching Estonia in the North (Taeger et al. 2006), and to Transcaucasia in the East (Lacourt 1999). *Petasites hybridus* is considered to be a naturalised introduction to Sweden, present at least since the 17th Century (Anderberg & Anderberg 2016). However, the recorded use by *T. mandibularis* in other parts of Europe of additional *Petasites* species as hosts,

such as *P. albus*, which is native to Sweden, and *Tussilago farfara*, likewise native, preclude the assumption that *mandibularis* is not of natural occurrence in Sweden. On the other hand, it is hard to believe that such a large and distinctive species (adult, Fig. 5g; larva, see Artportalen) would have been overlooked in Sweden for a long time. The first appearances of *mandibularis* in Scotland (since 2010, and so far only on *Petasites hybridus*; Liston et al. 2012), after a probable northwards range extension from England, suggests that the Swedish occurrences could be part of a more widespread colonisation of new territories on the northern edges of its range.

Discussion

There seems no reason doubt that *Arge annulata*, *Allantus melanarius*, *A. cingillipes*, *Apethymus cereus*, and *Dolerus liogaster schneideri* are indigenous to Sweden, whereas *Fenusella hortulana* and *Monophadnus spinolae* exclusively use host plant species which are not native in the country, and consequently the sawfly species must also be neobiota. Both are currently recorded in Sweden only from Limhamn's Kalkbrott, a large, disused limestone quarry on the outskirts of Malmö, partly with extremely dry and summer-warm conditions, where an impressive list has accumulated of plant and animal species which are rare, or not known, in other parts of the country (see, for example, Molander & Hellqvist 2011). The status of *Tenthredo mandibularis* is less clear, but the circumstances of recent observations suggest that it may only recently have colonised southern parts of the country, but is already quite widespread. *Allantus cingillipes* is the most enigmatic of the species which we discuss. The single Swedish specimen, although collected some seventy years ago, is the most recent of a species which is apparently extremely rare in Europe: only otherwise known from the four specimens comprising the type series.

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Svensk sammanfattning

De första fynden i Sverige av följande åtta växtstekeltaxa presenteras: *Arge annulata* (Konow, 1891) (Argidae), *Allantus cingillipes* (Kontunemi, 1947), *Allantus melanarius* (Klug, 1818), *Apethymus cereus* (Klug, 1818), *Dolerus liogaster schneideri* Kiaer, 1898, *Fenusella hortulana* (Klug, 1818), *Monophadnus spinolae* (Klug, 1816), och *Tenthredo mandibularis* Fabricius, 1804 (Tenthredinidae). En diskussion av den problematiska taxonomiska status för *Arge annulata* ges och första fynden av arten i Tyskland och Estland rapporteras. Vad gäller *Heptamelus dahlbomi* (Heptamelidae) utses lektotyp för *Caenoneura dahlbomi* Thomson, 1870 och *Heptamelus ussuriensis* Malaise, 1931 placeras som junior synonym för *H. dahlbomi*. Dessutom rapporteras nya utbredningsdata, däribland första fynd i Österrike, samt en ny värd, *Athyrium distentifolium*, för *H. dahlbomi*. En lektotyp utses även för *Heptamelus magnocularis* Malaise, 1931 och denna art jämförs med *H. dahlbomi*.