New additions to the Swedish fauna of Eulophidae (Hymenoptera: Chalcidoidea), including a new species of *Tamarixia* Mercet

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Hansson, C.: New additions to the Swedish fauna of Eulophidae (Hymenoptera: Chalcidoidea), including a new species of *Tamarixia* Mercet. [**Nya bidrag till faunan av fänglanssteklar (Hymenoptera: Chalcidoidea: Eulophidae) i Sverige, inklusive en för vetenskapen ny art i släktet *Tamarixia* Mercet.**] – Entomologisk Tidskrift 139(1): 21-30. Uppsala, Sweden 2018. ISSN 0013-886x.

A new species of the genus *Tamarixia* Mercet, *T. flavimacula*, is described based on material collected from several localities on Öland, an island in the Baltic Sea. The genera *Goetheana* Girault and *Sphenolepis* Nees are recorded for the first time from Sweden and eleven new Swedish species records of the family Eulophidae are also included: *Aceratoneuromyia granularis* Domenichini, *Aprostocetus eurytus* (Walker), *Asecodes delucchii* (Bouček), *Goetheana shakespeari* Girault, *Hemiptarsenus wailesellae* Nowicky, *H. waterhousei* Westwood, *Mestocharis maculata* (Förster), *Pediobius coxalis* Bouček, *Sphenolepis pygmaea* Nees, *Sympiesis dolichogaster* Ashmead, *Tamarixia poddubnyi* (Kostjukov). One new synonym is established: *Chrysocharis insignitellae* Erdös is a junior synonym of *C. pannonica* Erdös, both names have previously been transferred to and currently belong to genus *Achrysocharoides* Girault. To fix the identity of the name *C. pannonica* a lectotype is designated. One new host record, *Caloptilia hemidactylella* (Denis & Schiffermüller) (Lepidoptera: Gracillariidae), is added for *S. dolichogaster*.

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Species of Eulophidae are chalcidoid wasps that with few exceptions develop as parasitoids at the expense of their arthropod hosts. They are small to very small, with an average size somewhere between one and two millimetres, sometimes they are even smaller than one millimetre. In their larval stage they feed and develop on other insects, which they eventually kill, thus earning the denotation parasitoid wasps. Amateur entomologists hardly ever take any interest in them, even though these wasps are frequently encountered when they try to rear specimens of their focus group. For instance, many eulophids parasitize different groups of Lepidoptera – a focus group for many amateurs, from the smallest moths in the genus *Stigmella* Schrank, to the large hawk moths (Sphingidae). Eulophids usually feed on larvae of their hosts, more rarely on their eggs. In spite of the fact that so few Swedish entomologists have taken an interest in the group, the Swedish fauna of eulophids is one of the best known in Europe, currently with 584 species recorded from the country (Dyntaxa 2017). Even so, there are still many things to discover about this group and one important thing to find out is what species actually occur here. To enhance this

knowledge twelve new country records are introduced here, one of the records is represented by a hitherto undescribed species.

Methods

All material included in this paper is from Sweden, the majority of which has been collected by the author within a project funded by the Swedish Taxonomy Initiative (STI), and it is deposited at the Biological Museum (Entomology), Lund University, Sweden (MZLU). Some of the specimens have been sorted from material collected within the Swedish Malaise Trap Project (SMTP) and these specimens will be kept at Station Linné, Öland, Sweden. Apart from the SMTP specimens, that were collected using malaise traps, the material has been collected with a sweep net. The sweep net is constructed according to the specifications in Noyes (1982), and is fitted with a mesh-screen in the opening. The meshes of the screen are four millimetres in size, and the purpose of the screen is to keep larger items out of the net bag, thus saving time when sorting the material collected. Whilst collecting in the field, material in the net bag was emptied frequently into a polythene bag with 80% ethanol, and was later sorted under a stereomicroscope in the lab. It is essential to empty the net bag with short intervals whilst collecting otherwise the specimens will break when they rattle around together with the debris in the bag. After sorting the specimens were dried using a critical point drier and mounted to a card as described by Noyes (1982).

To make the description of *Tamarixia flavimacula* comparable to other European species of *Tamarixia* it follows the format and terminology in Graham (1991). The abbreviations used are explained in the same publication.

Unless otherwise stated the information on distribution and hosts are from Noyes (2017). The records in this database are compilations from the literature and due to misidentification of the wasp species or the host, or contamination of reared samples, not all records will eventually be shown reliable, see Noyes (1994) and Broad (2013) for a discussion on this. However, for now these records are taken at face value. One of the specimens included here has been reared from a Lepidoptera host, but there are no biological information linked to any of the remaining specimens treated here. The number of species recorded from Sweden is from Dyntaxa (2017) and the number of species recorded from Europe is from Noyes (2017).

The images were made using a Canon camera equipment including an EOS 70D body, MP E-65 macrolens, and macro twin lite MT-24 EX. The camera was attached to a Cognisys stackshot macrorail system. The picture stacking was done with Helicon Focus version 6 software. All photos were taken by the author.

Results

New species

Tamarixia Mercet, 1924

This genus belongs in the large and taxonomically challenging subfamily Tetrastichinae, one of four subfamilies of European Eulophidae. Species of *Tamarixia* are diagnosed by having one seta on dorsal surface of the submarginal vein in the forewing, with 2+2 equally long adnotaular setae on mesoscutum and with scutellum strongly transverse.

Tamarixia flavimacula sp. nov.

Figs 1a–c

Diagnosis. Forewing with speculum absent (Fig. 1c); dorsellum with strong sculpture, hence dull; legs with fore coxa and all femora and tibiae pale (Figs 1b,c); scape pale (Fig. 1c); gaster with ventral part yellowish and dorsal part dark brown with a large to small yellowish spot (Figs 1a,b). In the key to the European species of *Tamarixia* (Graham 1991) this new species runs to *T. upis* (Walker) (forewing speculum absent, dorsellum strongly sculptured, femora, tibiae and scape pale). It differs mainly in the colour of female gaster with a pale spot anteromedially and with ventral part pale, in *T. upis* (Walker) the entire gaster is dark. Female gaster with pale parts as in this new species also occurs in *T. actis* (Walker), but *T. actis* has dorsellum finely alutaceous, head and mesosoma usually with metallic tinges, and hind femur at least partly dark.

Female holotype. Head 1.07× as wide as width of mesoscutum; POL 2.0× OOL, OOL 2.14× OD. Eyes 1.79× as long as broad, ratio

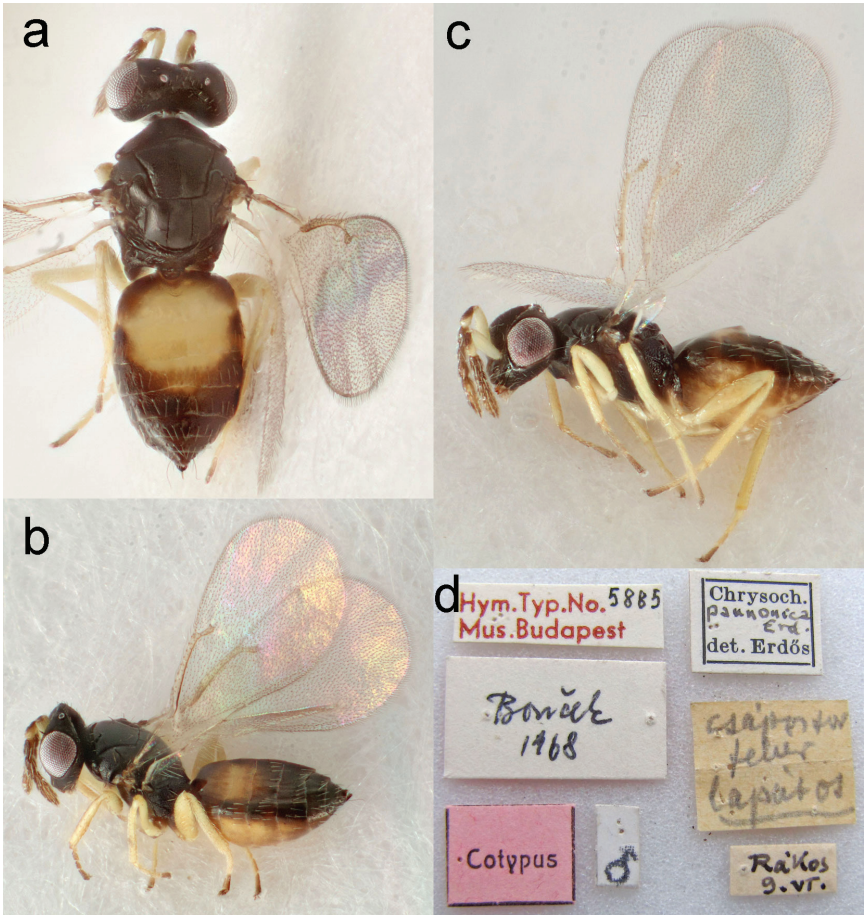

Figure 1. – a-c) *Tamarixia flavimacula* sp. nov. female: – a) Holotype in dorsal view, – b) Paratype from Kalkstad in dorsolateral view, – c) Paratype from Kalkstad in lateral view. – d) Labels on pin of lectotype *Chrysocharis pannonica* Erdös.

– a-c) *Tamarixia flavimacula* sp. nov. hona: – a) Holotyp ovanifrån, – b) Paratyp från Kalkstad, – c) Paratyp från Kalkstad. – d) Etiketter från nålen med lektotypen *Chrysocharis pannonica* Erdös.

shortest distance between eyes in dorsal view/length of eye = 1.64. Malar space 0.64× length of eye; malar sulcus slightly curved. Mouth 1.13× malar space. Length of longest setae on vertex equal to OD. Antenna with scape 0.93× as long as height of eye, not reaching median ocellus; length of pedicellus plus flagellum 0.97× breadth of mesoscutum; pedicellus 1.43× as long as broad, as long as length of F1; funicle proximally narrower than pedicellus, thickening slightly distad; F1 1.57×, F2 1.29×, F3 1.14× as long as broad; clava 1.29× as wide as width of F3, 2.22× as long as broad, pointed, spine as long as C3. Mesosoma 1.23× as long as broad. Mid lobe of mesoscutum 1.33× as broad as long, with very fine engraved sculpture, areoles about twice as long as broad; median line absent. Scutellum 1.5× as broad as long, convex, sculpture much finer than on mesoscutum; submedian lines slightly nearer to sublateral lines than to each other, ratio distances between submedian and sublateral lines/submedian lines = 0.75, enclosed space between submedian lines 2.0× long as broad; anterior setae 0.75× as long as distance between submedian lines, posterior setae slightly shorter. Dorsellum 3.67× as broad as long, with strong sculpture. Propodeum medially 1.67× as long as dorsellum, with same strong sculpture as dorsellum; median carina distinct and complete; spiracles circular, nearly touching metanotum; callus with a seta outside the spiracle and another farther back. Legs short and stout; hind femur 3.7× as long as broad; spur of mid tibia as long as basitarsus and as long as

width of tibia at apex. Forewing with costal cell 1.1× as long as M, 14.3× as long as broad; M 3.25× length of ST, its front edge with 8 setae; speculum hairy; submarginal vein with one seta on dorsal surface, close to base. Hindwing acute, cilia 0.36× breadth of wing. Gaster ovate, 0.96× as long as head plus mesosoma, pointed, 1.5× as long as broad; last tergite 0.47× as long as broad; ovipositor sheaths projecting very slightly; tip of hypopygium reaching 0.65× of gaster length.

Head and mesosoma black (Fig. 1a); gaster with ventral part yellowish (as in Fig. 1c) and dorsal part dark brown with a large yellowish spot on tergites 1-2, but with anterior margin of tergite 1 and lateral margins of tergites 1-2 dark brown (Fig. 1a). Scape yellowish-white, pedicel yellowish-white with dorsal ⅔ dark brown, flagellum dark brown (as in Fig. 1c). Legs yellowish-white with base of mid and hind coxae dark brown (as in Fig. 1c). Wings hyaline, venation yellowish-white (as in Fig. 1c).

Length 1.3 mm (holotype), 1.1–1.3 mm (paratypes).

Variation in colour. There is a linked variation in the size of the pale spot on anteromedian part of gaster and the colour of mid and hind coxae. The palest specimens, e.g. the holotype, have a large yellowish spot over tergites 1-2 (Fig. 1a), and with mid and hind coxae yellowish-white with only very base dark brown. The darkest specimens has a transverse testaceous stripe across gastral tergite 2 but with ventral part still pale (Fig. 1b), and with mid and hind coxae completely dark brown. Variations between these states do occur in the type material.

Male. Unknown.

Material. Holotype female labelled "SWEDEN: Öland, Petgärde, 56°57′03.8N, 16°51′13.8E, 27.vii.2015, C.Hansson" (in MZLU). Paratypes: 1 female with same label data as holotype (BMNH); 10 females "SWEDEN: Öland, Kalkstad, 56°36′33.6N, 16°30′33.4E, 29.vii.2015, C.Hansson" (BMNH, MZLU); 1 female "SWEDEN: Öland, Jordtorpsåsen, Kvarnbackarna, 56°40′44.3N, 16°34′51.0E, 30.vii.2015, C.Hansson" (MZLU); 1 female "SWEDEN: Öland, Ismantorp, 56°44′45.8N, 16°38′29.0E 21.vii.2015, C.Hansson" (MZLU); 1 female from same locality as previous but collected 23.vii.2015 (MZLU); 2 females "SWEDEN: Öland, Karås, 56°47′18.0N, 16°38′13.1E, 23.vii.2015, C.Hansson" (BMNH, MZLU).

Distribution. Sweden (Öland).

Host. The host of *T. flavimacula* is not known, but it is certainly some species of psyllid.

Etymology. From the Latin *flavimacula* = yellow spot, referring to the yellowish spot on dorsal part of gaster.

New synonym

Achrysocharoides pannonica (Erdös)
Fig. 1d.

Chrysocharis pannonica Erdös, 1954:339. Lectotype male (HNHM), examined and **designated here**.

Chrysocharis insignitellae Erdös, 1966:416. Holotype female (HNHM), examined. **New synonym.**

Enaysma pannonica (Erdös) (Bouček & Askew 1968: 121).

Achrysocharoides insignitellae (Erdös) (Kamijo 1990).

Achrysocharoides pannonica (Erdös) (Noyes 2001).

Remarks. This species has previously been recorded from Sweden under the name *A. insignitellae* (Erdös) (Hansson 1991). Erdös described *Chrysocharis pannonica* based on male specimens (Erdös 1954) and *C. insignitellae* based on females (Erdös 1966). Non-type female and male specimens conspecific with the types of these two names reared from the same sample clearly show that they are the same species. Therefore the junior name, *C. insignitellae*, is here synonymized with *C. pannonica*. Both species have previously been transferred to genus *Achrysocharoides*. To fix the name *Chrysocharis pannonica* a lectotype from the syntype material is designated here. It is a male with labels as illustrated in Fig. 1d, in the Hungarian Natural History Museum (HNHM). The lectotype lacks the head, but through the original description it is possible to see the shape of the scape, a crucial character for the identification of this species – the apex of the scape is enlarged in both sexes, but more so in the male. Based on previous definitions of species-groups (e.g. Bryan 1980) *A. pannonica* is difficult to place, the male having a dark antennal flagellum with all five flagellomeres distinctly separated sug-

Figure 2. *Aceratoneuromyia granularis* Domenichini, female, length 1.7 mm. Skåne, Krankesjön, Lottagården, 8.viii.2006, C. Hansson.

Aceratoneuromyia granularis är den andra kända svenska arten i släktet. I Europa förekommer totalt fyra arter, och de parasiterar på fluglarver som lever i växtstänglar och blomhuvuden.

Figure 3. *Aprostocetus eurytus* (Walker), male, length 1.7 mm. Öland, Jordtorpsåsen, 27.vii.2015, C. Hansson.

Aprostocetus eurytus är en av 150 svenska arter i släktet. De flesta arterna parasiterar på larver av gallmyggor, men just denna art parasiterar ägg av öronstriten (*Ledra aurita*).

gest a placement in the *latreilleii*-group but the shape of the petiole suggest a placement in the *atys*-group. The analysis of *Achrysocharoides* species in Lopez-Vaamonde et al. (2005), based on molecular data (28S and Cytb), places *A. pannonica* (as *A. insignitellae*) in the same clade as *A. atys*. This indicates that the shape and colour of male flagellum is of minor importance for the species-group classification, the shape of the petiole is more informative in this respect.

Achrysocharoides pannonica is recorded from Hungary up to Sweden, and probably occurs throughout Europe. It parasitizes *Phyllonorycter insignitella* (Zeller) (Lepidoptera: Gracillariidae) mining leaves of *Medicago* and *Trifolium* spp. (Erdös 1966, Lopez-Vaamonde et al. 2005).

New records

Aceratoneuromyia Girault

This is a small genus with four species recorded from Europe, two of which are now known from Sweden. The species are parasitoids of various groups of Diptera (Anthomyiidae, Scatophagidae, Tephritidae) that have their larval stage inside plants (in stems & flowerheads).

Aceratoneuromyia granularis Domenichini (Fig. 2)

Recorded from central and southern Europe, but this far not known from northern Europe. Parasitizes larvae and pupae of Diptera: *Cleigastra apicalis* (Meigen) (Scatophagidae) and *Pegomyia rubivora* (Coquillett) (Anthomyiidae), living in stems of *Phragmites* and *Rubus* respectively.

Material: Skåne: Krankesjön, Lottagården, swamp, 55°42’18.0”N 13°29”19.3”E, 8.viii.2006 (1 female). This locality has rich stands of *Phragmites communis* along the lake shore as well as on land away from the shore.

Aprostocetus Westwood

Aprostocetus is a cosmopolitan group and one of the largest genera of Eulophidae with 283 species recorded from Europe and with 150 species now known from Sweden. The true number of species for Sweden and Europe is probably much higher because very few taxonomists have worked with this difficult group and combined analyses of morphological and molecular data will very probably enravel cryptic species. Even though the host range for this large genus is wide, most species develop in larvae or pupae of gall midges (Diptera: Cecidomyiidae).

Figure 4. *Goetheana shakespeari* Girault, male, length 0.6 mm. Skåne, Krankesjön, Ekskogen, 14.vii.2014, C. Hansson.

Goetheana shakespeari hittades på flera platser i Skåne och på Öland efter att närmast varit känd från södra Spanien. Arterna i släktet parasiterar på trips.

Aprostocetus eurytus (Walker) (Fig. 3)
Aprostocetus eurytus is a strictly European species, recorded from several countries, the closest being United Kingdom (Graham 1987). Unlike most species of this genus *A. eurytus* and the other species in same subgenus, *A. miridivorus* (Domenichini), develop as parasitoids in eggs of true bugs (Hemiptera). The host for *A. eurytus* is the peculiar-looking eared leafhopper (*Ledra aurita* (L.)) (Hemiptera: Cicadellidae).

Material: Öland: Jordtorpsåsen, swamp, 56°40'35.0''N 16°33'30.8''E, 27.vii.2015 (3 males); Kalkstad, 56°36'33.6''N 16°30'33.6''E, 29.vii.2015 (2 males); Karås, 56°47'18.0''N 16°38'13.1''E, 23.vii.2015 (1 male).

Asecodes Förster
Twelve species are recorded from Europe, of which ten now occur in Sweden. The hosts are from two biological groups: leafminers belonging to several families in the insect orders Diptera, Hymenoptera and Lepidoptera, and eggs of Chrysomelidae (Coleoptera).

Asecodes delucchii (Bouček)
Apart from a few European countries, the closest being the United Kingdom, also reported from Indonesia (Java), Japan and Peoples' Republic of China. The host range is very wide, including leafminers from Agromyzidae (Diptera), Tenthredinidae (Hymenoptera), Gracillariidae, Lyonetiidae and Nepticulidae (Lepidoptera).

Material: Skåne: Linnebjär, 55°43'57.1''N 13°17'58.9''E, 9.vi.2014 (1 male).

Goetheana Girault
One species is recorded from Europe and it was previously known only from southern Spain. Six species are known altogether. The species are parasitoids of Thripidae (Thysanoptera).

Goetheana shakespeari Girault (Fig. 4)
This very small eulophid, less than one millimeter in length, was originally described from Australia in 1920 but has since then been found almost worldwide (Noyes 2017). According to Triapitsyn (2005) it is native to the Australasian and Oriental regions, but has been intentionally or unintentionally introduced into many other countries. In Europe it has so far only been reported from southern Spain (Viggiani & Nieves-Aldrey 1993). Species of *Goetheana* are easy to recognize through their very characteristic forewing with a narrow membrane and a very long marginal fringe (Fig. 4), and their very small size. The small size has led to a reduction of several body parts and the species are therefore difficult to identify, the females especially so. The male of *G. shakespeari* is the only species where males have an extremely swollen scape (Fig. 4). The female included here is not possible to identify to species, but given the distribution of species of *Goetheana* it is tentatively identified as *G. shakespeari*. No hosts are known from Sweden as all specimens have been swept, but

Figure 5. *Hemiptarsenus wailesellae* Nowicky, female, length 1.4 mm. Bohuslän, Hamburgsund, Stora Snixholmen, 17-31.vii.2004, SMTP.

Hemiptarsenus wailesellae är närmast känd från Central- och Sydeuropa. Den är en av många finglansstekelarter som parasiterar på bladminerande fjärilslarver.

Figure 6. *Hemiptarsenus waterhousei* Westwood, a short-winged (brachypterous) female, length 1.7 mm. Öland, Karums alvar, 4.vii.2014, C. Hansson.

Hemiptarsenus waterhousei kan förekomma i en kortvingad form, som här, vilket är mycket ovanligt hos finglansstekelar. Arten föredrar varma och torra miljöer och i likhet med de flesta andra arterna i släktet parasiterar den på larver av bladminerande fjärilar.

records from other parts of the World include several species of Thripidae (Thysanoptera).

Material: Öland: Lenstad stendeponi, 56°36'40.6"N 16°32'37.6"E, 25.vi.2014 (1 male). Skåne: Krankesjön, Ekskogen, lönnallé, 55°41'10.3"N 13°27'40.2"E, 14.vii.2014 (1 male); Krankesjön, Ekskogen, 55°41'10.3"N 13°27'40.2"E, 2.vi.2014 (1 male); Lund, Värpinge, 55°42'08.1"N 13°08'52.6"E, 2.vi.2014 (1 female).

Hemiptarsenus Westwood

Fourteen species are recorded from Europe, of which five now occur in Sweden. The species are parasitoids of leafmining Diptera, Hymenoptera and Lepidoptera.

Hemiptarsenus wailesellae Nowicky (Fig. 5)

Recorded from several countries in Central and South Europe, and North Africa, but has so far not been found in Sweden. The hosts include leafmining micromoths from Lyonetiidae and Nepticulidae.

Material: Bohuslän: Tanums kommun, Hamburgsund, Stora Snixholmen, 58°33'51"N, 11°15'09"E, 17–31.vii.2004 (3 females), 16.vii–3.viii.2005 (1 female). Material from SMTP.

Hemiptarsenus waterhousei Westwood (Fig. 6)

Distributed over most of Europe, but so far not found in Sweden. According to Bouček (1959) this species prefers xerothermic habitats, and the locality for the collected specimen, Karums Alvar, is indeed hot and dry during summer. The hosts include micromoths from five families: Bucculatricidae, Cosmopterigidae, Gracillariidae, Momphidae and Nepticulidae. The females of *H. waterhousei* occur either as fully winged (macropterous specimens) or with wings reduced (brachypterous specimens) (Fig. 6). The significance of this dimorphism is yet to be established. Wing dimorphism also occurs in another species of *Hemiptarsenus*, *H. fulvicollis* Westwood (Bouček 1959), but is otherwise very unusual within the Eulophidae.

Material: Öland: Karums Alvar, 56°46'28.1"N, 16°37'30.6"E, 4.vii.2014 (1 female).

Mestocharis Förster

Two species are recorded from Europe and both are now known from Sweden. Both species are parasitoids on Dytiscidae (Coleoptera), targeting the eggs.

Figure 7. *Mestocharis maculata* (Förster), female, length 2.6 mm. Skåne, Billebjär, 2.ix.2014, C. Hansson.

Mestocharis maculata är närmast känd från Centraleuropa och är en av två arter som förekommer i Europa, den andra arten (*M. bimacularis*) är känd från Sverige sedan tidigare. Båda arterna parasiterar ägg av dykarbaggar (Coleoptera: Dytiscidae).

Mestocharis maculata (Förster) (Fig.7)
Recorded from several countries in central Europe, the Caucasus, Korea and Russia. Reared from eggs of *Dytiscus* sp. and *Hydaticus bilineatus* (Coleoptera: Dytiscidae).

Material: Skåne: Billebjär, 55°41'18.8"N 13°19'20.0"E, 2.ix.2014 (1 female); Häckeberga, swamp, 55°34'37.0"N 13°24'31.3"E, 19.vii.2014 (1 male).

Pediobius Walker
Fortyseven species have been recorded from Europe, of which 26 now occur in Sweden. All species develop as parasitoids in eggs, larvae or pupae of other insects, mainly Coleoptera, Diptera, Hymenoptera or Lepidoptera, although some species target Thysanoptera. Some species are reared from egg sacks of spiders where they have developed on other parasitic Hymenoptera larvae that in turn have been feeding on spider eggs. The host range of this genus is evidently extensive.

Pediobius coxalis Bouček
Recorded from a few countries in Central Europe (Croatia, Czech Republic, Montenegro), Russia and Japan. The biology is unknown for this species.

Material: Öland: Bostorpsvägen, 56°38'56.8"N, 16°35'25.5"E, 25.vi.2014 (1 female). Uppland: Älvkarleby kommun, Marma skjutfält, 60°31'N, 17°27'E, 12–26.viii.2003 (1 female). Lycksele Lappmark: Sorsele kommun, Ammarnäs, Tjulträsklaspen, 65°58'N, 16°03'E, 15.vii–30.viii.2004 (2 females). The records from Uppland and Lycksele Lappmark are from SMTP material.

Figure 8. *Sympiesis dolichogaster* Ashmead, female, length 4.6 mm. Skåne, Krankesjön, 14.ix.2015, C. Hansson.

Sympiesis dolichogaster är känd från stora delar av världen men har fram tills nu undgått upptäckt i Sverige. Arterna i släktet parasiterar på bladminerande fjärilslarver.

Sphenolepis Nees
This is a monotypic genus, i.e. it includes just one species, and it occurs exclusively in Europe, now also known from Sweden. The biology is unknown.

Sphenolepis pygmaea Nees
Recorded from Italy and north up to Germany, but has this far not been recorded north of Germany. It appears to be a rare species (Graham 1987) of which little is known.

Figure 9. *Tamarixia poddubnyi* (Kostjukov), male, length 1.3 mm. Skåne, Krankesjön, Ekskogen, 14.vii.2014, C. Hansson.

Tamarixia poddubnyi är närmast känd från Centraleuropa och är en av 13 europeiska arter, av vilka tio förekommer i Sverige. Arterna parasiterar på larver av bladloppor (Hemiptera: Psylloidea).

Material: Uppland: Älvkarleby kommun, Marma skjutfält, 60°31'N 17°27'E, 12–26.viii.2003 (1 female). Material from SMTP.

Sympiesis Förster

Fortyone (41) species have been recorded from Europe, of which 13 now occur in Sweden. The species target mainly leafmining micromoths from various families.

Sympiesis dolichogaster Ashmead (Fig.8)

Recorded from Australia and many countries in Asia, Europe, and North America. Reared from several Lepidoptera families: Gelechiidae, Geometridae, Gracillariidae, Nepticulidae, Pyralidae, Tischeriidae and Tortricidae.

Material: Skåne: Krankesjön, southern shore, 55°41'50.0"N 13°28'12.3"E, 14.ix.2015 (1 female); Värmland: Hagfors kommun, Råda, rastplats, RN 66559/17372, 27.vii.2017, from leafmine of *Caloptilia hemidactylella* (Denis & Schiffermüller) (Lepidoptera: Gracillariidae) on *Acer platanoides*, emerged 11.viii.2017, leg. Bo Olsson (1 female) (in MZLU).

Tamarixia Mercet

Thirteen species, including the new species described above, are recorded from Europe, of which ten now occur in Sweden. Species of *Tamarixia* are parasitoids on immature stages of leafhoppers, especially in the family Triozidae (Hemiptera: Psylloidea) (Graham 1987).

Tamarixia poddubnyi (Kostjukov) (Fig.9)

Recorded from Bulgaria, Moldova, Peoples' Republic of China, Russia and Uzbekistan. *Trioza magnisetosa* Loginova (Hemiptera: Triozidae) is the single known host for this species (Kostjukov 1978).

Material: Skåne: Häckeberga, swamp, 55°34'37.0"N 13°24'31.3"E, 19.vii.2014 (1 male); Vombsjön eastern shore, 55°40'06.9"N 13°37'26.1"E, 1.viii.2014 (1 female 2 males); Krankesjön, Ekskogen, 55°41'10.3"N 13°27'40.2"E, 11.vii.2014 (1 male); Krankesjön, Ekskogen, lönnallé, 55°41'10.3"N 13°27'40.2"E, 14.vii.2014 (6 males); Sövde, 55°35'N 13°41'E, 19.vii.2007 (13 males); Lund, Värpinge, 55°42'08.1"N 13°08'52.6"E, 12.vii.2006 (1 female 1 male).

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Sammanfattning

Artikeln presenterar nya uppgifter om finglansteklar (Chalcidoidea: Eulophidae) i Sverige. Inklusive de arter som behandlas här består denna familj nu av 596 svenska arter. Antalet arter kommer med stor sannolikhet att stiga betydligt när kryptiska arter (= arter med mycket små morfologiska skillnader) upptäcks med hjälp av kombinerade molekylära och morfologiska metoder. Finglansteklar är små till mycket små (0,5-3 mm) insekter som är parasitoider. I larvstadiet lever de och utvecklas på juvenila stadier av andra insekter från en rad olika insektsgrupper; så kallade värdar som dör och således inte utvecklas till fullvuxna insekter.

I artikeln presenteras en ny värd, *Caloptilia hemidactylella* (Denis & Schiffermüller) (Lepidoptera: Gracillariidae), för *Sympiesis dolichogaster*. En för vetenskapen ny art i släktet *Tamarixia* Mercet, *T. flavimacula*, beskrivs på material insamlat från flera lokaler på Öland. Elva nya finglansstekelarter för Sverige presenteras också: *Aceratoneuromyia granularis* Domenichini, *Aprostocetus eurytus* (Walker), *Asecodes delucchii* (Bouček), *Goetheana shakespeari* Girault, *Hemiptarsenus wailesellae* Nowicky, *H. waterhousei* Westwood, *Mestocharis maculata* (Förster), *Pediobius coxalis* Bouček, *Sphenolepis pygmaea* Nees, *Sympiesis dolichogaster* Ashmead, *Tamarixia poddubnyi* (Kostjukov).

Släktena *Goetheana* och *Sphenolepis* har hittills inte haft några representanter i Sverige. När en art är känd under två eller flera namn blir de yngsta namnen synonymer till det äldsta namnet - som är det enda giltiga namnet, och i artikeln etableras en ny synonym: *Chrysocharis insignitellae* Erdös synonymiseras under *C. pannonica* Erdös. Båda namnen har tidigare flyttats till släktet *Achrysocharoides* Girault och det giltiga namnet för dessa blir nu *A. pannonica* (Erdös). Arten är känd från Sverige sedan tidigare under namnet *A. insignitellae*. För att fixera namnet *C. pannonica* utses ett referensexemplar, en så kallad lektotyp, från typmaterialet, dvs det material som ursprungligen låg till grund för beskrivningen av arten.