

Review of the sawfly fauna of Cyprus, with descriptions of two new species

(Hymenoptera: Symphyta)

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Abstract. Four species of Hymenoptera Symphyta are recorded for the first time in Cyprus: one Cephidae, *Calameuta pygmaea* (Poda, 1761), and three Tenthredinidae; *Euura atra* (Jurine, 1807), *Heterarthrus vagans* (Fallén, 1808) and *Pristiphora calliprina* sp. n. The genus *Periclista* is also newly recorded, but the species remains unidentified. Identifications of three species previously recorded in Cyprus are revised: *Calameuta nigricarpus* (André, 1881) comb. nov. (from *Cephus*) (= *Calameuta filiformis*: misidentification), *Allantus ariadne* sp. n. (= *Allantus laticinctus*: misidentification), *Strongylogaster cypria* Benson, 1954 stat. nov. (= *S. multifasciata*: misidentification). *Alnus orientalis* is a new hostplant record for *Heterarthrus vagans*. Of the 43 species of Symphyta now recorded in Cyprus, six are at present only known from there: *Allantus ariadne*, *Calameuta festiva*, *Heterarthrus cypricus*, *Macrophya aphrodite*, *Pristiphora calliprina* and *Pristiphora schedli*. Rather than being endemic to Cyprus, most of these species may also occur in the relatively poorly investigated neighbouring mainland eastern Mediterranean countries such as Lebanon, Syria and Israel.

Key words. Cephidae, Tenthredinidae, new records, new species, new combination, new status, new host.

Introduction

The first detailed information on the sawfly fauna of Cyprus was presented by BENSON (1954), based on material collected by G. A. MAVROMOUSTAKIS. Results of subsequent investigations were presented by SCHEDL & KRAUS (1988), SCHEDL (2002, 2005, 2008) and LISTON & SPÄTH (2008). Data published up to 2005 were collated by TAEGER et al. (2006). The sum of data on Cypriot sawflies in previous publications is not large, so it seems worthwhile to present here all new data on the 25 species of Symphyta recorded in Cyprus by the authors during a visit in April 2011.

Material and methods

From 11th to 18th April 2011, many miles were driven by car in the Paphos, Limassol and Larnaka Districts, to sample localities with vegetation types, or single plant species, that seemed likely to support Symphyta. All specimens were collected with hand nets, either by sweeping or 'on sight', and are deposited in the Senckenberg Deutsches Entomologisches Institut (DEI; Müncheberg, Germany). Most were killed with ethyl acetate and pinned on the evening of the day on which they were collected. A few were kept in 96% ethanol specifically for use in barcoding.

Results of mitochondrial DNA barcoding (sequencing of CO1 gene) conducted as part of the BOLD project (RATNASINGHAM & HEBERT 2007) are included for some species. A single right mid-leg (at least tibia and tarsus, with or without coxa/trochanter/trochantellus) of dry, pinned specimens as well as specimens kept in ethanol were submitted for analysis.

Positions of the localities, mentioned hereafter only by their names, are: Larnaca District: Vavatsinia (34°53'N, 33°13'E), Odou (34°53'N, 33°8'E). – Limassol District: Alassa (34°46'N, 32°56'E), Asgata (34°46'N, 33°15'E), Caledonia Waterfall, N. Pano Platres (34°53'N, 32°51'E), Kellaki (34°46'N, 33°10'E), Mandria (34°52'N, 32°50'E), Moniatis (34°53'N, 32°53'E), Pano Platres (34°53'N, 32°51'E), Trimiklini (34°51'N, 32°54'E). – Paphos District: Agios Georgios (34°45'N, 32°37'E), Cedar Valley (34°58'N, 32°40'E), Kidasi (34°49'N, 32°43'E), Stavrokonnou (34°46'N, 32°37'E), Trachypedoula (34°47'N, 32°40'E), Tsada (34°50'N, 32°28'E).

Results: Annotated list of species collected in 2011

Cephidae

Calameuta festiva Benson, 1954

Material: Trachypedoula, 1♀, 11.iv.2011; Alassa, 2♀ 1♂, 12.iv.2011; Kellaki, 2♀, 12.iv.2011; Kidasi, 1♂, 11.iv.2011; 1♀ 15.iv.2011; 2♀ 2♂ 16.iv.2011; Moniatis, 1♀, 18.iv.2011.

Calameuta nigricarpus (André, 1881) **comb. nov.** [Figs 1-3]

Cephus nigricarpus André, 1881: p. 546; unspecified number of syntypes, sex not stated; Type locality; Syrie (Bloudan. Antiliban) [Syria, Anti-Lebanon, Bloudan].

Calameuta filiformis (Eversmann, 1847): misidentification of material from Cyprus; SCHEDL & KRAUS (1988), LISTON & SPÄTH (2008).

Material: Stavrokonnou, edge of village, 1♀, 16.iv.2011; Kidasi, 1♀, 15.v.2011; 1♀ 1♂, 16.iv.2011; 1♀ 1♂, 17.iv.2011; Agios Georgios, 2♂, 17.iv.2011.

Diagnosis. Amongst West Palaearctic *Calameuta* species [see also key, below] *C. nigricarpus* resembles *C. filiformis* most closely. Differences are as follows:

– Female: Cerci in dorsal view as long as projecting part of sawsheath. Terga (2-)3-7 with yellow apical markings. Dorsal apex of apical abdominal tergum with at most extreme apical margin pale. Mandibles yellow with brown apex. Male: apical sternum with short setae not longer than on lateral edges and only narrow apical margin yellow. On either side of central yellow patch on supraclypeal area, outer facial orbit next to eye with yellow stripe extending approximately half/third height of eye. *Calameuta filiformis* (Eversmann, 1847)

– Female: Cerci in dorsal view half as long as projecting part of sawsheath (Fig. 1). Terga 3-6 with yellow apical markings. Dorsal apex of apical abdominal tergum with large yellow marking (Fig. 1). Mandibles black with brown apex (Fig. 2). Male: apical sternum with setae much longer than on lateral edges and with large apical yellow spot (Fig. 3). On either side of central yellow patch on supraclypeal area, outer facial orbit next to eye completely black or with very small yellow fleck. *Calameuta nigricarpus* (André, 1881)

Redescription. Head slightly contracted behind eyes in dorsal view. Antenna with 26-27 flagellomeres. Maxillary palpomere 5 less than half as long as 6. Frontal groove well defined and narrow, extending to upper interantennal area. Occipital carina clearly developed to height corresponding with level of antennae. 4 cubital cells in forewing. Venation black, only basal third of costa yellow. Wing membrane subhyaline. 1 pre-apical spine on meso-



Figs 1-3. *Calameuta nigricarpus*. 1. Female apex of abdomen, dorsal. 2. Female head, frontal. 3. Male apex of abdomen, ventral. Scale bars 0.5 mm.

tibia. Two pre-apical spines on metatibia. Metatarsal claws subbifid. Whole body dull with microsculpture between ill-defined shallow pits, including mesonotum and scutellum.

Female: Black. Apex of mandible brown. Pale (more or less yellow) are: Maxillary palpomere 3 apically and 4 basally; basal third of costa; anterior apex of profemur; protibia and basitarsus; apex of mesofemur; mesotibia; apico-lateral flecks on tergum 3; apical margins of terga 4-5 nearly entirely; apico-lateral flecks on tergum 6; apical half of tergum 9; apico-lateral flecks on hypopygium. Sawsheath viewed dorsally tapering slightly towards apex and about twice as long as cercus (Fig. 1). Length: 9-12 mm.

Male: Black. Pale are: yellow mandible with brown apex; patch on supraclypeal area; line along lower outer facial orbit; maxillary palpomere 3 apically, 4 and 5 entirely; markings on procoxa, trochanter, trochantellus; whole anterior surface of profemur; whole protibia, tarsus except for brown apical tarsomere; fleck on mesocoxa and trochanter; whole mesofemur except posterior base; more or less mesobasitarsus; venter of metacoxa; broad apical margins of terga 4-6; apico-lateral flecks on tergum 7; apico-lateral flecks on hypopygium; broad apex of sternum 9. Apex of apical sternum rounded, with setae much longer than on lateral edges. Length: 10-11mm.

Variability. In one female the yellow lateral markings on terga 3 and 6 are more extensive and form nearly complete bands.

Etymology. The species name is considered to be a Latin noun.

Remarks. Although superficially similar to Central European specimens at present identified as *C. filiformis* [type locality: Southern Russia: Provinces Casan, Orenburg, Saratov and Astrachan (syntypes; presumably at Zoological Institute of the Russian Academy of Sciences, St Petersburg)] none of the Cyprus specimens previously identified as *C. filiformis* by SCHEDL & KRAUS (1988) or LISTON & SPÄTH (2008) are conspecific with European and Bashkirian specimens of *C. filiformis* in the DEI. We are indebted to M. KRAUS and J. SPÄTH for a re-examination at our request of specimens from Cyprus previously determined as *C. filiformis*. The current definition of *C. filiformis* follows the descriptions by DOVNAR-ZAPOLSKIJ (1931) and GUSSAKOWSKIJ (1935). DOVNAR-ZAPOLSKIJ (1931) stated that he had examined Eversmann's types. *C. nigricarpus* runs to *C. filiformis* in the key by BENSON (1968). The provisional key given below will enable determination of females of W. Palearctic *Calameuta* species. Because of its short cerci, *C. nigricarpus* might be mistaken for a

Key to West Palaearctic *Calameuta* species (Females)

- 1 Mesotibia with 1 preapical spine. Femur, tibia and tarsus of at least anterior legs partly black. Claws with inner tooth..... 2
- Mesotibia without preapical spine. Femur, tibia and tarsus of all legs yellow. Claws simple. [female unknown: characterisation based on male]. Algeria
..... *aurea* (Benson, 1935)
- 2 Pronotum entirely black and at most 2 terga (4-5) completely yellow with rest of abdomen mainly black. Metatibia usually with 2 subapical spines. 3
- Pronotum laterally yellow or several terga (at least 3-5) completely yellow and rest of abdomen mainly yellow. Metatibia usually with 1 subapical spine. 11
- 3 Whole body, including scutellum, densely microsculptured and dull 4
- Head and pronotum punctuate, but interspaces shiny. Scutellum largely impunctate and highly shiny. 7
- 4 Cerci in dorsal view as long, or almost as long, as projecting part of sawsheath. 5
- Cerci in dorsal view half as long as projecting part of sawsheath. Syria, Cyprus.
..... *nigricarpus* (André, 1881)
- 5 Metatibia pale yellow with black apex. Abdomen completely black. Europe, Turkey*pallipes* (Klug, 1803)
- Metatibia entirely dark brown or black. Abdomen with yellow markings. 6
- 6 Wings hyaline. Some terga with complete apical bands of yellow. Europe, N. Africa, Turkey, Central Asia, Siberia. *filiformis* (Eversmann, 1847)
- Wings smoky. Terga with at most lateral yellow flecks. Spain.. ... *antigae* (Konow, 1894)
- 7 Metatibia dark brown or black. Terga 3-7 entirely black, laterally yellow or tergum 4 entirely yellow. Body length 7-9 mm..... 8
- Metatibia yellow. Only lateral edges of terga 3-7 yellow. Body length 6-7 mm. Caucasus *gracilicornis* (Konow, 1896)
- 8 Terga 1-4 black. Apical tergum largely orange red..... 9
- At least tergum 4 pale marked. Apical tergum black or marked with pale yellow. 10
- 9 Maxillary palpomere 5 about half as long as 6. [?= *filum* (Gussakowskij, 1935)] Europe, C. Asia *punctata* (Klug, 1803)
- Maxillary palpomere 5 almost as long as 6. Europe, Turkey, Caucasus
..... *haemorrhoidalis* (Fabricius, 1781)
- 10 Terga 4 and 5 mostly black with yellow lateral flecks. Greece, Cyprus.
..... *moreana* (Pic, 1916)
- Tergum 4 completely yellow and 5 at least mostly yellow. Cyprus.....
..... *festiva* Benson, 1954
- 11 Pronotum black. Terga 2 and 5 largely orange. 12
- Pronotum laterally extensively yellow. Terga 2 and 5 predominantly black. S. Europe, Turkey, Caucasus *idolon* (Rossi, 1794)
- 12 Face black. Body length 12-15 mm. Mediterranean Basin, including N. Africa
..... *pygmaea* (Poda, 1761)
- Face yellow below the antennae. Body length 8 mm. Algeria [?and *tazzekeae* Lacourt, 1991: female unknown; Algeria]..... *gaullei* (Konow, 1896)

Cephus, but it clearly belongs in *Calameuta* because the pronotum is longer than wide, the distance between inner edge of antennal sockets is less than the distance from lower edge of antennal socket to ventral tentorial pit, and the apical sterna of the male are unmodified. As pointed out by KONOW (1896) the black mandibles of [the female] *C. nigricarpus* distinguish it from all other West Palaearctic Cephidae apart from *Pachycephus*, *Syrista*, some *Hartigia* species and *Calameuta pygmaea*. Apart from the apparently greater extent of yellow colouration on the profemur of the Syrian syntypes, the description by ANDRÉ (1881) agrees perfectly with female *C. nigricarpus* from Cyprus. Apparently no material of *C. nigricarpus* has become known since the original description. KONOW (1896) and BENSON (1968) had not examined André's material and treated *Cephus nigricarpus* as a "species incertae sedis".

Calameuta pygmaea (Poda, 1761)

Material: Trachypedoula, 1♂, 16.iv.2011.

Remarks. New record for Cyprus. In Europe *C. pygmaea* is recorded mainly from the West Mediterranean, from Portugal east to Bulgaria and in the Canary Islands (TAEGER et al. 2006). However, in North Africa there are records from as far East as Egypt and the species has also been found in Israel (BENSON 1968). Recently it was added to the fauna of Turkey (ÇALMASUR & ÖZBEK 2010).

Pachycephus smyrnensis (J. Stein, 1876)

Material: Trachypedoula, 7♀ 4♂, 11.iv.2011; 4♀ 1♂, 16.iv.2011; Alassa, 1♀, 12.iv.2011; Asgata, 1♀ 1♂, 14.iv.2011; Agios Georgios, 8♀ 4♂, 15.iv.2011; 1♂, 17.iv.2011. All specimens on *Papaver rhoeas*, mostly on inflorescences.

Argidae

Arge cyanocrocea (Forster, 1771)

Material: Mandria, 1♀, 11.iv.2011. Pano Platres, 1♂, 11.iv.2011; 1♂, 16.iv.2011; 2♀ 1♂, 17.iv.2011; 2♀ 5♂, 18.iv.2011.

Remarks. The above specimens include some with mostly pale femora, some with mainly black femora (as those listed by LISTON & SPÄTH 2008 as *A. syriaca* (Mocsáry, 1880)), and also intermediates. The other slight and apparently variable differences in morphology given by BENSON (1959) and PESARINI (2002) for separation of *A. cyanocrocea* and *A. syriaca* have not been found to correlate with differences in leg colour. The synonymy of these taxa proposed by BENSON (1968) is therefore accepted.

Arge melanochra (Gmelin, 1790)

Material: Pano Platres, 1♀, 17.iv.2011.

Arge scita (Mocsáry, 1880)

Material: Vavatsinia, 1♂, 14.iv.2011.

Cimbicidae

Corynis krueperi (J. Stein, 1876)

Material: Trachypedoula, 2♀, 11.iv.2011. Agios Georgios, 2♀, 15.iv.2011; 1♀, 17.iv.2011. All specimens from inflorescences of *Papaver rhoeas* growing on extremely dry spots.



Fig. 4. *Allantus laticinctus* female, lancet.

Tenthredinidae

Allantus ariadne sp. n. [Figs 5-7]

= *Allantus balteatus* (Klug, 1818), misidentification: BENSON 1954, SCHEDL & KRAUS 1988.

= *Allantus balteatus* var. *laticinctus* (Lepeletier, 1823), misidentification: SCHEDL & KRAUS 1988.

= *Allantus laticinctus* (Serville, 1823), misidentification: LISTON & SPÄTH 2008.

Material: Holotype, ♀ “Cyprus Kidasi, 34°49’N, 32°43’E, 17.iv.2011 leg. A. D. LISTON”, [red] “Holotype *Allantus ariadne* LISTON & JACOBS sp. n. det. A. LISTON 2011”, “DEI-GISHym 11089” (deposited DEI, Müncheberg). – Paratypes: Agios Georgios, 1♀ 1♂, 15.iv.2011, leg. JACOBS & LISTON (DEI). – Other material: Kidasi, 1♀, 16.iv.2011; 3♀ 2♂, 17.iv.2011, leg. JACOBS & LISTON (DEI). Polis, sw Kathikas, 1♀, 24.iv.2006, leg. J. SPÄTH (DEI). Limassol, 13♀ 17♂, March-April 1939, leg. [unknown] (Swedish Museum of Natural History, Stockholm).

Diagnosis. *A. ariadne* closely resembles *A. laticinctus* in morphology. They may be distinguished thus:

– Female: Abdominal terga 7-8 completely black. At least sterna 2 and 3 extensively black. Lancet (Fig. 4) with 21 annuli; lamnium length 4.8-5.0x maximum height. Serrulae 3 and 4 resemble basal 2 serrulae: flatter and more rounded than serrulae apical to these. Male: Apex of valviceps of penisvalve distal of valvispina rather evenly curved, with apex not far above midline of valviceps (KOCH 1988, Fig. 1.6; KNIGHT 2006, Fig. 3).

..... *laticinctus* (Serville, 1823)
 – Female: At least abdominal tergum 7 laterally red (Fig. 5). Sterna 2 and 3 entirely red. Lancet (Fig. 6) with 19 annuli; lamnium length about 4.5x maximum height. Serrulae 3 and 4 resemble serrulae apical to these: more acute-triangular than basal 2 serrulae. Male: Apex of valviceps of penisvalve distal of valvispina more abruptly curved, with apex clearly above midline of valviceps (Fig. 7) *ariadne* sp. n.

Description. Mesepisternum smooth, shiny; evenly and completely setose. Venation black except for white base of forewing stigma and extreme apex of costa. – Female (Fig. 5). Black. Small elongate pale spot at inner top of orbit next to eye. Legs black: anterior face of fore tibia and basitarsus whitish; anterior apex of middle tibia whitish; rear femur red except extreme base; rear tibia red except for apex, but spurs red. Abdomen: Red are: entire terga 3-6; terga 7-8 anterio-laterally; tergum 2 laterally; whole underside of abdomen except for hypopygium, sterna posterior of hypopygium, and sawsheath. Lancet (Fig. 6). Lamnium with 19 annulets. Length of lamnium about 4.5x its maximum height (to apex of a serrula). Serrulae 3 and 4 longer and more acute than basal 2 serrulae. Body length 6-8 mm. – Male. As



Figs 5-7. *Allantus ariadne* sp. n. 5. Female, lateral. Scale bar 0.5mm. 6. Female lancet. 7. Male penisvalve.

female apart from primary sexual characters, but head and abdomen completely black. Penisvalve (Fig. 7). Body length 8 mm. – Variability. Apart from female body length, no variability was observed.

Etymology. The species epithet is a noun; a figure in Greek mythology.

Host(s): In Central Europe, *Rosa* spp. are the normal hosts of *A. laticinctus* (SCHEIBELREITER 1973, KNIGHT 2006). No species of *Rosa* was observed at either of the Cyprus *A. ariadne*

localities visited by the authors in 2011. Perhaps *A. ariadne* therefore has a different host-plant. At Kidasi most specimens were collected from *Rubus sanctus*.

Remarks. *Emphytus balteatus* var. *nigripes* Konow, 1897: p. 375; ♀; Kroatien [Croatia] was explicitly described as ‘an aberration’ [Abänderung] and therefore an infrasubspecific and unavailable name. It was treated as a synonym of *Allantus laticinctus* by TAEGER et al. (2010).

KONOW (1897) wrote [translation of original German]: “4. Gen. *Emphytus* Klg. *E. balteatus* Klg. var. *nigripes* n. var. In *E. balteatus* the legs are red, only the coxae, trochanters and tarsi as well as the bases of the fore femora remain black. Contrastingly, I have before me from southern Croatia a female specimen that has black legs; and only on the forelegs is the anterior face of knees and tibiae, on the middle legs only a small part of the tibiae reddish. For this conspicuous aberration I propose the above name”. KONOW’s description falls within the wide range of variability in leg colour that we observed in *A. laticinctus*. Such variability has already been described for female *A. laticinctus* [under the name *A. balteatus* (Klug, 1818): homonym] by KOCH (1988). Female specimens of *A. laticinctus* with leg colour indistinguishable from that of *A. ariadne* occur, for example, in Sicily [specimens leg. Jacobs & Liston, SDEI]. Leg colour cannot therefore be used to distinguish *A. ariadne* from *A. laticinctus*.

Barcoding reveals a difference in genotype (CO1 mitochondrial DNA) of about 3.6% between *A. ariadne* (2 specimens) and *A. laticinctus* (4 specimens from Belgium, France, Italy and Greece).

Athalia cordata Serville, 1823

Material: Caledonia Waterfall, 1♀, 11.iv.2011; 1♂ 18.iv.2011. Pano Platres, 1♀ 1♂, 11.iv.2011; 4♂, 15.iv.2011; 1♂, 16.iv.2011. Tsada, 1♂, 13.iv.2011. Cedar Valley, 1♂, 11.iv.2011. Odou, 1♀, 14.iv.2011. Trimiklini, 1♀, 18.iv.2011.

Cladius ordubadensis Konow, 1892

Material: Kidasi, 1♂ 17.iv.2011.

Remarks. BENSON (1954) identified Cyprus specimens of *Cladius* as *C. ordubadensis* Konow, 1892, rather than as *C. pectinicornis* (Geoffroy, 1785), with which it had previously been synonymised by ZHELOCHOVTSEV (1952). *C. ordubadensis* is distinguished in the male by the very long apical projections on the antennomeres: on antennomere 6 this is about as long as antennomere 7 in *C. ordubadensis*, whereas on antennomere 6 this is less than half as long as antennomere 7 in *C. pectinicornis*. On this basis, the male from Kidasi may also be referred to *C. ordubadensis*. It might be significant, that at a locality near Platania, Volos, Greece, numerous specimens of adult *Cladius* were collected exclusively from *Sanguisorba minor*. These were identified as *C. pectinicornis* by STANDFUSS et al. (2010). In fact, they also belong to the segregate *C. ordubadensis*. The Kidasi specimen was collected from a roadside verge rich in *Sanguisorba minor*. The usual host of *C. pectinicornis* is *Rosa* (SCHEIBELREITER 1973, PSCHORN-WALCHER & ALTENHOFER 2000). No *Rosa* was observed at Kidasi.

Euura atra (Jurine, 1807)

Material: Mandria, 1♀ 1♂, 11.iv.2011; 1♀, 15.iv.2011; 2♂, 16.iv.2011. All swept from (planted?) *Salix alba*, the only willow species present at this site.

Remarks. This is a new record for Cyprus. Before the revision of the species group by KOPELKE (1996), the name *Euura atra* been used as an aggregate name for several species. Records of *E. atra* sensu lato from Mediterranean countries published before KOPELKE's revision refer usually to specimens not associated with particular willow species, and are therefore not identifiable as one of the highly host-specific *Euura* species proposed by KOPELKE. Of species of the *E. atra* group as interpreted by KOPELKE, only *E. purpureae* Kopelke, 1996 has so-far definitely been recorded in some [western] Mediterranean territories, either explicitly or by mention of association with *Salix purpurea*: Spain (LLORENTE VIGIL 1983); Corsica and Sardinia (LISTON 2007); Marocco (LACOURT 1989). *Salix alba* is however widely distributed in the Mediterranean region and *E. atra* s. str. may be under-recorded in this part of its range.

Heterarthrus cypricus Schedl, 2005

Empty leaf-mines from the previous year (or years?) were found on the evergreen foliage of *Acer obtusifolium* at Pano Platres, Vavatsinia and Cedar Valley.

Heterarthrus vagans (Fallén, 1808)

Material: Kidasi, 1♀, 15.iv.2011; 1♀ 3♂, 16.iv.2011; 3♂, 17.iv.2011. Pano Platres, 1♂, 18.iv.2011. All specimens collected from *Alnus orientalis*.

Remarks. This is a new record for Cyprus. The host is *Alnus orientalis*, by association of adults with the only *Alnus* species present in Cyprus, and because previously known hosts of *H. vagans* are *Alnus* species. *A. orientalis* is a new foodplant record for *H. vagans*. Previously known populations of *H. vagans* have the abdominal sterna of males yellow, whereas the abdomens of males from Cyprus are completely black. The females resemble pale forms of the highly variable Central and North European *H. vagans* populations. When more material becomes available from other parts of the Palaearctic, the status of the Cyprus taxon should be re-investigated. Barcoding results show some divergence between specimens from Central Europe, Sicily and Cyprus, but the extremes amount to only about 2%. However, genetic divergence between four species of European *Heterarthrus* attached to *Acer* is even less (LEPPANEN et al. [in preparation]), although these taxa seem to be well characterised by morphological and biological differences (ALTENHOFER & ZOMBORI 1987).

Hoplocampa brevis (Klug, 1816)

Material: Caledonia Waterfall, 1♀, 18.iv.2011.

Hoplocampa chrysorrhoea (Klug, 1816)

Material: Mandria, 1♀, 11.iv.2011.

Macrophya aphrodite Benson, 1954

Material: Kidasi, 3♀ 9♂, 15.iv.2011; 3♀ 24♂, 16.iv.2011; 4♀ 12♂, 17.iv.2011. All specimens on or around *Rubus sanctus* growing in half-shade under *Alnus orientalis*. Pano Platres, 1♂, 15.iv.2011. Trimiklini, 1♀, 18.iv.2011.

Remarks. *Rubus sanctus* covered the drier parts of the woodland floor at the Kidasi site, to the exclusion of all other ground flora except occasional plants of a *Clematis* sp. It seems likely that *R. sanctus* is the host of *M. aphrodite*, as already indicated by SCHEDL (2002).

Mesoneura lanigera Benson, 1954

Material: Pano Platres, 2♀ 2♂, 15.iv.2011; 1♂ 16.iv.2011. Swept from freshly flushed *Quercus infectoria*, which is the only host known in Cyprus (LISTON & SPÄTH 2008).

Monsoma pulveratum (Retzius, 1783)

Material: Caledonia Waterfall, 1♂, 18.iv.2011. Moniatis, 22♂ 1♀, 18.iv.2011. Swept from *Alnus orientalis*.

Remarks. Marko PROUS (Tartu, Estonia) is currently studying the taxonomy of *Monsoma*. The taxon occurring in Cyprus is possibly not conspecific with *M. pulveratum*.

Nematus lucidus (Panzer, 1801)

Material: Pano Platres, 1♂, 11.iv.2011. Tsada, 1♀, 13.iv.2011.

Periclista sp.

Material: Kidasi, 2♀ 2♂, 16.iv.2011; 1♀, 17.iv.2011. All swept from *Quercus calliprinos*.

Remarks. This is the first record of the genus for Cyprus. It is not at present possible to identify the species. Two females and one male have been sent to Ad MOL (Rosmalen, The Netherlands), who is currently undertaking revisionary studies of W. Palaearctic *Periclista*.

Pontania proxima (Serville, 1823)

Material: Kidasi, 3♀, 15.iv.2011. Galls were abundant on *Salix alba*. Mandria, 1♀, 16.iv.2011. All adults were swept from *Salix alba*.

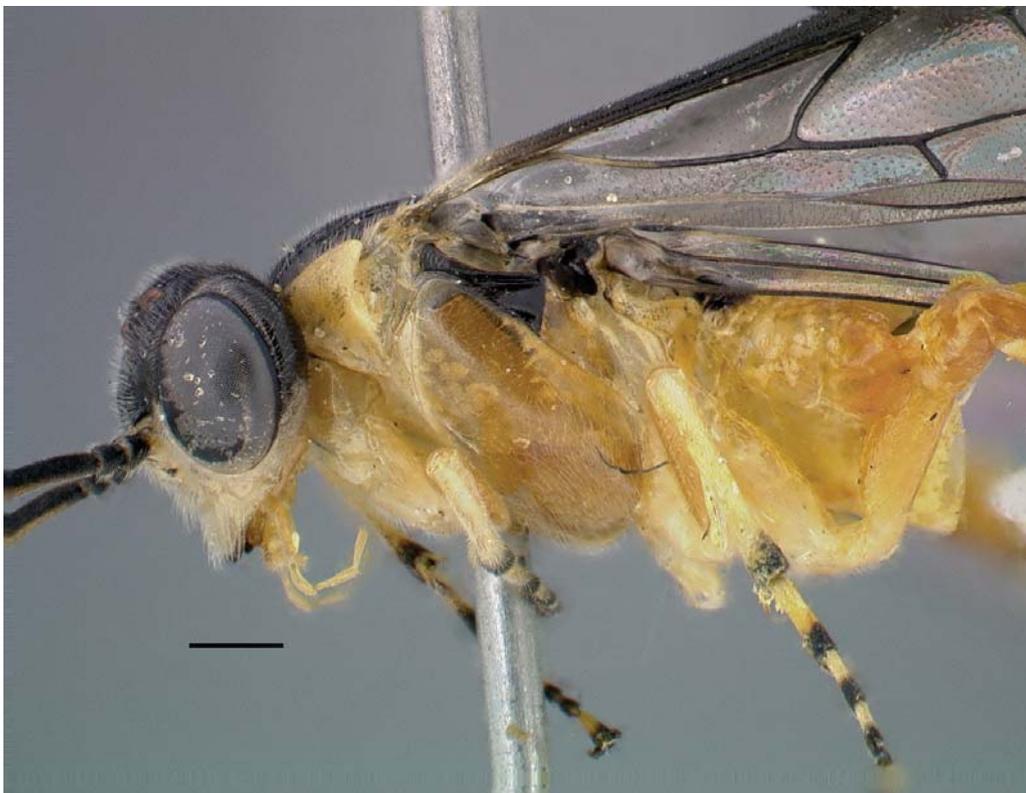
Pristiphora calliprina sp. n. [Figs 8-12]

Holotype, ♀: "Cyprus: Kidasi, 34°49'N, 32°43'E, 16.iv.2011 leg. A. D. LISTON", [red] "Holotype *Pristiphora calliprina* LISTON & JACOBS sp. n. det. A. LISTON 2011", "DEI-GISHym 10963" (deposited DEI, Müncheberg).

Diagnosis. *Pristiphora calliprina* resembles *Pristiphora parnasia* Konow, 1902 [see redescription and figures in LISTON & SPÄTH (2008)]. They are immediately distinguishable from all other West Palaearctic Nematinae by having yellow tarsi with the tarsomeres ringed with black at their apices. The species differ as follows:

- Front of head below antennae largely yellow. Underside of flagellomeres brown. Tegulae yellow. Mesepisternum pale except for narrow upper edge. Abdominal terga 1-7 with medial black fleck. Pale colour yellow. Flagellomere 1 shorter than 2. Antennal flagellomere 6 about 5x as long as wide. Malar space ca. 0.5x as long as anterior ocellus. Ventral edge of lamnium curved. Larger: length 8 mm. *P. calliprina* sp. n.
- Front of head below antennae largely black. Flagellomeres entirely black. Tegulae black. Mesepisternum ventrally black. Abdominal tergum 1 dorsally with medial black marking, following terga without black markings. Pale colour orange. Flagellomeres 1 & 2 nearly equal in length. Antennal flagellomere 6 about 4x as long as wide. Malar space ca. 0.8-1.0x as long as anterior ocellus. Ventral edge of lamnium slightly sinuate, almost straight. Smaller: length 5-7 mm. *P. parnasia* Konow, 1902

Description: Female. Head black; below level of antennae pale yellow (Fig. 8); upper inner orbits narrowly whitish; flagellomeres black above, brown below. Thorax yellow (Fig. 9): dorsum black (mesonotum, metanotum, except pale cenchri; Fig. 10), entire lateral and



Figs 8-9. *Pristiphora calliprina* sp. n., female, scale bars 0.5mm.
8. Head frontal. 9. Head and thorax, lateral.



Figs 10-12. *Pristiphora calliprina* sp. n., female, scale bars 0.5mm. 10. Head and thorax, dorsal. 11. Sawsheath, dorsal. 12. Lamnium of lancet.

underside yellow except black anepimeron and metepimeron. Legs yellow with apex of each tibia and tarsomere ringed with black. Abdomen yellow with tergum 1 largely black except for narrow postero-lateral margins. Terga 2-7 with large medial black fleck reaching anterior margin of tergum but bordered with yellow on posterior margin (black markings thus appear as discrete flecks). Cerci and sawsheath black. Wing membrane hyaline, all venation black, except for unpigmented extreme bases of veins. Head and mesonotum shiny between indistinct punctures. Mesepisternum unsculptured, shiny, with uniform vestiture of short, pale pubescence. Malar space about half diameter of anterior ocellus. Antennal flagellomere 6 about 5x as long as wide. Flagellomere 1 shorter than 2. Claws bifid. Sawsheath (Fig. 11). Lancet (Fig. 12); with 19 serrulae; lamnium, particularly ventral edge, clearly curved; annular suture 3 with a very few, short ctenidia; annular sutures 4-15 with dense row of long, spine-like ctenidia.

Length: ca 8mm [middle of abdomen damaged during capture and measurement therefore approximate].

Male: unknown.

Etymology. The species name is to be treated as a Latin adjective, derived from the species name of its probable host.

Distribution. Cyprus.

Host. ? *Quercus calliprinos*. Holotype was netted from this, the only oak species growing in the immediate area. *P. parnasia*, a similar species, is thought to use *Quercus* spp. as hosts (LISTON & SPÄTH 2008). Note that the status of *Q. calliprinos* has been treated controversially by botanists; as a separate species replacing the western Mediterranean *Q. coccifera* in the eastern Mediterranean, as a subspecies of the latter, or as conspecific. Recent research indicates that they may be conspecific (TOUMI & LUMARET 2010).

Remarks. CO1 barcoding indicates a divergence of *P. calliprina* of more than 4% from *P. parnasia*, but at present only one specimen of each species has been sampled.

Pristiphora schedli Liston & Späth, 2008

Material: Pano Platres, 1♀ 1♂, 11.iv.2011. Vavatsinia, 2♂, 14.iv.2011. All swept from *Acer obtusifolium*.

Strongylogaster cypria Benson, 1954, **stat. nov.**

Material: Pano Platres, 2♀, 18.iv.2011. Swept from *Pteridium aquilinum*.

Remarks. BENSON (1954) described specimens of this taxon from Cyprus, which he also recorded from Lebanon, as subspecies *cypria* of *S. lineata* (Christ, 1791). The latter is now placed as a synonym of *S. multifasciata* (Geoffroy, 1785) (BLANK 2002). Morphologically, *S. cypria* differs from *S. multifasciata* only in colour characters: femora entirely pale in *S. cypria* (black basally in *S. multifasciata*), basal antennomeres black in *S. cypria* (more or less red in *S. multifasciata*). According to SCHEDL & KRAUS (1988), *S. cypria* is smaller, but material examined by us does not differ significantly in size to the average for *S. multifasciata*. No males have been recorded in Cyprus. Previously published records refer to a total of nine females: BENSON 1954(2); SCHEDL & KRAUS 1988(2); SCHEDL 2002(1); LISTON & SPÄTH 2008(4). According to BLANK (2002), *S. cypria* is a synonym of *S. multifasciata*. Barcoding results indicate a significant difference in genotype (CO1 mitochondrial DNA) of more than 4% between *S. cypria* (3 specimens barcoded) and *S. multifasciata* (3 specimens from Germany and Scotland barcoded). Nevertheless, the status of *S. cypria* is problematic,

because it may represent an exclusively parthenogenetic strain of *S. multifasciata*, long isolated from other, partly bisexual, populations. Such parthenogenetic 'races' present problems for taxonomists, because they are impossible to evaluate using the parameters conventionally employed for the definition of species. For the moment, until the problem is studied more intensively (ideally including Lebanese material), it seems justifiable to treat the taxon occurring in Cyprus as specifically distinct from *S. multifasciata*.

Discussion

With the addition of five newly recorded taxa, the known sawfly fauna of Cyprus comprises 43 species. Whilst certain species occurring in Cyprus have been considered to be endemic to the island (SCHEDL & KRAUS 1988), some or even all of these seem likely to occur in the poorly investigated neighbouring mainland areas of the Middle East, particularly S. E. Turkey, Syria and Lebanon (LISTON & SPÄTH 2008). *Mesoneura lanigera*, described from Cyprus (BENSON 1954, LISTON & SPÄTH 2008), was reported additionally from the Transcarpathian Region, Crimea and northern Caucasus (ZHELOCHOVTSEV & ZINOVJEV 1988). *Empria archangelskii*, recorded from Cyprus by BENSON (1954), occurs also in E. Turkey, the Transcaucasus, Lebanon and Israel (BENSON 1968, CONDE 1940, SMITH 1982). *Strongylogaster cypria* is known from Lebanon and Cyprus. *Calameuta nigricarpus* is so far recorded from Syria and Cyprus. Nevertheless, six sawfly taxa are at present only known from Cyprus (*Allantus ariadne*, *Calameuta festiva*, *Heterarthrus cypricus*, *Macrophya aphrodite*, *Pristiphora calliprina* and *P. schedli*), but in our opinion, none of these seems likely to be truly endemic. In fact, no convincing example of a sawfly species endemic to any Mediterranean island yet exists. Floristic and faunistic affinities of Cyprus are mainly with Syria and southern Anatolia, and distinct from those of Crete, which are mainly with the West Mediterranean. An Irano-Turanian element dominates in the flora of Cyprus (THOMPSON 2005), and probably such an element is also present amongst the sawflies. The arbitrary but generally accepted (e.g. LISTON 1995, TAEGER et al. 2006) inclusion of Cyprus in 'Europe' introduces a faunal element to the European list of Symphyta that is not otherwise represented.

Several sawfly species recorded in Cyprus, apart from those dealt with in this work, require further investigation on their taxonomy and biology. No doubt some as yet entirely unrecorded taxa still await discovery. In this respect we wish to emphasise that no fieldwork was attempted in the coastal marshes (such as those on the Akrotiri Peninsula), nor in higher parts of the Troodos Mountains. For sawflies, the first might best be visited in March, as for low-lying areas of Cyprus generally (as indicated by data in BENSON 1954), and the second rather later than our visit in mid-April. The season was apparently somewhat retarded at all altitudes in 2011, and around the summit areas collecting was impossible, because of low temperatures and the still extensive snow cover.

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(Dingolfing, Germany) kindly re-examined specimens of *Calameuta* from Cyprus in their collections and communicated the results. Dr David R. SMITH (Washington DC, USA) and two anonymous reviewers are thanked for their constructive criticism of the manuscript.

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Annex:

Checklist of Cyprus Hymenoptera Symphyta

Synonyms listed are only those that have been used in the literature for specimens from Cyprus. For complete synonymy see TAEGER et al. (2010). Following the species names a key reference is given, in brackets, relating to its occurrence in Cyprus.

Xyelidae

Xyela ? *graeca* J. Stein, 1876 [SCHEDL 2002]

Cephidae

Calameuta festiva Benson, 1954 [LISTON & SPÄTH 2008]

= *haemorrhoidalis*: misidentification

Calameuta idolon (Rossi, 1794) [BENSON 1954]

Calameuta moreana (Pic, 1916) [SCHEDL & KRAUS 1988]

Calameuta nigricarpus (André, 1881) comb. nov. [this paper]

= *filiformis*: misidentification

Calameuta pygmaea (Poda, 1761) [this paper]

Pachycephus smyrnensis (J. Stein, 1876) [SCHEDL & KRAUS 1988]

Syrista parreyssii (Spinola, 1843) [BENSON 1954]

Trachelus libanensis (André, 1881) [SCHEDL & KRAUS 1988]

= *armenius* (Konow, 1896)

Trachelus tabidus (Fabricius, 1775) [SCHEDL & KRAUS 1988]

Siricidae

Sirex noctilio Fabricius, 1783 [BENSON 1954]

Urocerus gigas (Linnaeus, 1758) [BENSON 1954]

Argidae

Arge cyanocrocea (Forster, 1771) [SCHEDL 2002]

= *syriaca* (Mocsáry, 1880)

Arge melanochra (Gmelin, 1790) [BENSON 1954]

= *nigritarsis* (Klug, 1834)

Arge ochropus (Gmelin, 1790) [BENSON 1954]

Arge scita (Mocsáry, 1880) [BENSON 1954]

= *proxima* (André, 1881)

Cimbicidae

Corynis krueperi (J. Stein, 1876) [SCHEDL & KRAUS 1988]

= *similis* (Mocsáry, 1880)

Diprionidae

Diprion pini (Linnaeus, 1758) [SCHEDL 2002]

Tenthredinidae

Allantus ariadne sp. n. [this paper]

= *balteatus*: misidentification

= *laticinctus*: misidentification

Athalia cordata Serville, 1823 [SCHEDL 2002]

Cladius ordubadensis Konow, 1892 [BENSON 1954]

= *pectinicornis*: misidentification

Empria archangelskii Dovnar-Zapolskij, 1929 [BENSON 1954]

Eutomostethus gagathinus (Klug, 1816) [BENSON 1954]

= *gagathinus* ssp. *meridionalis* Benson, 1954

Euura atra (Jurine, 1807) [this paper]

Halidamia affinis (Fallén, 1807) [SCHEDL 2002]

Heterarthrus cypricus Schedl, 2005 [LISTON & SPÄTH 2008]

Heterarthrus vagans (Fallén, 1808) [this paper]

Hoplocampa brevis (Klug, 1816) [LISTON & SPÄTH 2008]

Hoplocampa chrysorrhoea (Klug, 1816) [SCHEDL & KRAUS 1988]

Hoplocampa crataegi (Klug, 1816) [LISTON & SPÄTH 2008]

Hoplocampa minuta (Christ, 1791) [SCHEDL & KRAUS 1988]

Macrophya aphrodite Benson, 1954 [SCHEDL 2002]

Mesoneura lanigera Benson, 1954 [LISTON & SPÄTH 2008]

Monsoma pulveratum (Retzius, 1783) [SCHEDL & KRAUS 1988]

Nematus lucidus (Panzer, 1801) [LISTON & SPÄTH 2008]

Periclista sp. (undetermined) [this paper]

Pontania proxima (Serville, 1823) [SCHEDL & KRAUS 1988]

Pristiphora abbreviata (Hartig, 1837) [SCHEDL 2002]

Pristiphora sp. near *biscalis* (Förster, 1854) [BENSON 1954]

Pristiphora calliprina sp. n. [this paper]

Pristiphora schedli Liston & Späth, 2008 [LISTON & SPÄTH 2008]

= *subbifida*: misidentification

Strongylogaster cypria Benson, 1954, stat. nov. [BENSON 1954]

= *Strongylogaster lineata* ssp. *cypria* Benson, 1954

= *Strongylogaster multifasciata*: misidentification

Orussidae

Pseudoryssus henshii (Mocsáry, 1910) [SCHEDL 2002]