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Taxonomy and Evolution of *Tenthredo* (*Elinora*) Species Similar to *T. dahlii* and *T. koehleri* (Hymenoptera: Tenthredinidae)

Stephan M. Blank & Andreas Taeger

Introduction

Elinora is a lineage of *Tenthredo* which exhibits its greatest diversity in the Mediterranean Basin. *Tenthredo dominiquei* (Konow, 1894) and *T. flaveola* Gmelin, 1790 occur northwards to the coast of the Baltic Sea (Liston 1995, Blank et al. 2001). The most eastern representatives occur in Central Asia, i.e. *Tenthredo dissidua* (Konow, 1899), *Tenthredo fulveola* (Zhelochovtsev, 1961), *Tenthredo longipes* (Konow, 1886), and *Tenthredo pallidipes* (Dalla Torre, 1894) [= *Allantus pallipes* Freymuth, 1870 nec Fallén, 1808] (Zhelochovtsev 1976). The vast majority of *Elinora* species prefer steppe-like habitats and some occur even in semi-desert areas (Lacourt 1991; personal observation). As far as the larval host plants are known, these are all members of the Brassicaceae (Taeger et al. 1998, Lacourt 1999). Furthermore, the adults can frequently be found on brassicacean leaves and flowers, sometimes in large numbers. Exceptions are *Tenthredo koehleri* Klug, 1817 and *Tenthredo radoszkowskii* (André, 1881), which occur in the submontane to subalpine zone and whose adults usually visit *Geranium* flowers for feeding and resting (Lacourt 1997; present data).

Currently 52 *Tenthredo* (*Elinora*) species are regarded as valid (Taeger & Blank 2005; present work). Benson (1968) has provided the only identification keys to all species known at that time classifying them under *Cuneala* and *Elinora*. Lacourt (1991) revised and keyed the western Mediterranean species and published a number of shorter works (Lacourt 2000, 2001; for additional references see Lacourt 1999 and Taeger & Blank 2005).

The taxa revised and keyed in the present work have been treated under *Cuneala* by Benson (1968). Zhelochovtsev (1976) was the first to place *Cuneala* as a junior synonym of *Elinora*, treating the latter as a subgenus of *Tenthredo*. Lacourt (1998) has named a group comprising of *Elinora koehleri* and *Elinora radoszkowskii* as *Blankia* (= *Cuneala* auct. partim), but we regard this generic name as a junior subjective synonym of *Elinora*. Lacourt combined the other species of *Cuneala* sensu Benson with his *E. limbalis-dahlii* group (Lacourt 1997). Here we explain, why we include *Blankia* in *Elinora*. We describe three additional species from Syria and Turkey, which are similar to those species treated under *Cuneala* by Benson and under *Blankia* and the *E. limbalis-dahlii* group by Lacourt.

Material and methods

Morphological terminology generally follows Goulet (1992) and Goulet & Huber (1993). Terminology for the external genitalia is after Smith (1968: postcalcar and cypsella of the ovipositor) and Gibson (1980: valviceps of the penis valve), and that of surface microsculpture is after Harris (1979). The acronym "**PD**" means point distance, i.e. the relation of the distances between the margins of two points : the diameter of the points.

For light microscopic imaging stacks of digital photos were taken with the KYF-F75U camera (JVC) attached to an Olympus stereo microscope SZX12 (images of whole specimens; lighting was from cold light sources attached to ring light and to double light guides ending close to plastic plates diffusing the light) or to an Olympus compound microscope BX51 (images of ovipositors and penis valves). Focussed images were computed using the software AutoMontage 5.01.

Type labels are cited strictly verbatim, additional explanations are given in brackets. Geographical names, which are originally written in Cyrillic letters, are listed according to the Times Atlas. Distribution data listed here are primary except where stated otherwise. The distribution maps were prepared using the CFF 1.2 program by Y. Barbier & P. Rasmont (Mons / Belgium, 1996 and 1997), to which the borders of several countries were added.

The following abbreviations have been used for collections, where material studied is deposited:

ATC A. Taeger, Müncheberg / Germany
CUDB Cumhuriyet University, Faculty of Science and Literature, Department of Biology, Sivas / Turkey
DEI Deutsches Entomologisches Institut am Zentrum für Agrarlandschaftsforschung, Müncheberg / Germany
JLC J. Lacourt, Le Pâty, Igé / France
MKC M. Kraus, Nürnberg / Germany
MNB Museum für Naturkunde, Institut für Systematische Zoologie, Hauptabteilung Entomologie, Berlin / Germany
MZLU Museum of Zoology, Lund University, Lund / Sweden
NHM Natural History Museum, London / Great Britain
NHMW Naturhistorisches Museum Wien, Vienna / Austria
NHRS Naturhistoriska Riksmuseet, Stockholm / Sweden
OÖLL Oberösterreichisches Landesmuseum, Linz / Austria
SMBC S. M. Blank, Eberswalde / Germany
SMNS Staatliches Museum für Naturkunde, Stuttgart / Germany
ZIP Zoological Institute of the Russian Academy of Sciences, St. Petersburg / Russia
ZSM Zoologische Staatssammlung, Munich / Germany.

Monophyly and ecological evolution of *Tenthredo* (*Elinora*)

Opinions upon the taxonomic treatment of *Elinora* are largely divergent. Lacourt (1988, 1997, 1998) has split the group into *Blankia*, *Elinora* and *Murciana*. Goulet (1996) considered *Elinora* and *Murciana* as junior synonyms of *Tenthredo* (*Blankia* had not yet been described at that time). Among the taxa included in *Tenthredo* s.l. (in the sense of Goulet 1996), *Elinora* can be identified by the combination of the following characters:

1 ventral arms of propleura meeting medially;
2 occipital carina absent on postocellar area and more or less absent along dorsal portion of gena;
3 usually several terga with yellow distal edges, which are wider laterally and ventrally than dorso-medially, often terga 3–5 more or less red;
4 distal edge of labrum often more or less truncated or notched;
5 labio-maxillary complex and malar space more or less elongated;
6 apical portion of the anterior fore tibial spurs more or less abruptly bent in axillary view.

Unequivocal morphological apomorphies, which support the monophyly of *Elinora*, are unknown. Goulet (1996) has demonstrated the characters 1–3 above to be ground plan states

of *Tenthredo* and accordingly plesiomorphies of *Elinora*. Both the shape of the labrum (character 4) and the length of the mouthparts (character 5) are liable to a wide interspecific variation (Taeger 1991). The shape of the labrum is not explicable at the moment but it occurs homoplastically in *Sciapteryx* Stephens, 1835, a closely related lineage of Tenthredinini (Goulet 1996). In a comparative study Jervis & Vilhelmsen (2000) identified the mouthparts of *Cuneala* as the type 1 of various types of concealed-nectar extraction apparatus occurring in sawflies. The length of the mouthparts appears to be related to adult feeding on nectar and pollen, which is concealed in more or less narrow flower corollas. We suppose that the gradual variation of the mouthpart length reflects the specific feeding preference rather than phylogenetic relationships at a higher level. The length of the malar space appears to be correlated with the length of the mouthparts. Most *Elinora* species have the anterior fore tibial spur clearly bent (char. 6), but also this character exhibits wide variation within *Elinora*. The inflection is less distinct or the spur is almost straight e.g. in *Tenthredo koehleri*, *T. longipes*, *T. parvula*, *T. radoszkowskii* and *T. sabariensis*. In *Elinopsis*, *Paratenthredo*, *Rhogogaster* and *Tenthredo* s.str. the spurs are mostly straight or only shallowly bent.

We score the larval oligophagy on Brassicaceae as an apomorphy of *Elinora*, although the larvae are known only for few species. All of these are strictly associated with Brassicaceae as their host plants (Lorenz & Kraus 1957, Weiffenbach 1985, Lacourt 1997, 1999, Taeger et al. 1998). Adults are usually swept from flowers and plants of Brassicaceae which strengthens the assumption of a general oligophagy of *Elinora* species (Muche 1962, Schedl 1979, Saure & Blank 2006). The larva of *Tenthredo koehleri* has been suspected to feed on *Geranium* species (e.g. by Magis 1987). This might be concluded from the frequently observed visits of adults to *Geranium* flowers, which applies also to *T. radoszkowskii* (Lacourt 1997, 1999, present data). But K. Beneš has reared the larva of *T. koehleri* from *Cardamine* (Taeger et al. 1998). According to our knowledge the oligophagy of *Elinora* on Brassicaceae is unique among Tenthredininae. The association with Brassicaceae is a rare phenomenon among sawflies. It occurs in a large number of *Athalia* Leach, 1817 species but by no means all (Benson 1962). These form a distantly related lineage of Tenthredinidae (Lacourt 1999) or possibly are the basal lineage of non-blasticotomid Tenthredinoidea (Blank, unpubl. results). Also the diet of some polyphagous Tenthredininae may include Brassicaceae (e.g. *Tenthredo atra* Linné, 1758; Taeger et al. 1998). But for neither of the Tenthredinini lineages is a specialization on Brassicaceae as the exclusive larval diet known.

Brassicaceae contain secondary plant metabolites which may be sequestered by sawfly larvae feeding on them. Larvae of *Athalia rosae* (Linné, 1758) store glucosinolates and supposedly additional compounds of the host plant in their haemolymph. They use them as an effective deterrent against invertebrate and vertebrate predators (e.g. Müller et al. 2002, Müller & Brakefield 2003, Vlieger et al. 2004, Boevé & Müller 2005). *Elinora* species have not yet been studied in this respect (C. Müller and J.-L. Boevé, pers. comm.). But it appears conceivable that the adaptation to Brassicaceae is also here coupled with the sequestration of plant compounds to protect the exophytic larvae in a corresponding way.

Brassicacean species are very diverse in regions with low precipitation and may provide a significant portion of biomass there. They are paricularly species rich in the Mediterranean Basin (Hammer 2000). Owing to the adaptation to and exploitation of Brassicaceae, *Elinora* was enabled to spread into steppes and semi-desert regions, which are otherwise inhabited only by a comparatively small number of sawflies with free feeding larvae. The possible chemical-based protection of the larvae may have given rise to the species radiation of *Elinora* in such regions, where ants in particular may represent highly abundant predators.

Lacourt (1997) indicated the occurrence in humid habitats of the mountainous to subalpine level as characteristic for *Tenthredo koehleri* and *T. radoszkowskii*. The present distribution data suggest that this might also apply to *T. davidi*, *T. longipes* and *T. lacourtiana*.

Lacourt (1988, 1997) separated *Murciana* for *Murciana sebastiani* and *Blankia* for *Blankia koehleri* and *Blankia radoszkowskii* by morphological and ecological autapomorphies.

For *Blankia* the autapomorphies concern e.g. the shape of the penis valve and the preferred habitat. The coarse clypeus surface sculpture of *koehleri* and *radoszkowskii* is also found in *longipes* females, which Lacourt (1999) classified as an *Elinora* species, and additionally in *davidi* and *lacourtiana* described below. The dorsal and apico-ventral lobes of the valviceps of the penis valve are elongated in *davidi*, *koehleri*, *lacourtiana* and *radoszkowskii*, whereas in *longipes* the lobes are similarly short as in most other *Elinora* species. Apomorphies for the remaining *Elinora* species have neither been reported by Lacourt, nor have any been found during the present study. Since after removing *Blankia* and *Murciana* the group comprising of the remaining *Elinora* species would supposedly run the risk to be paraphyletic, we keep all the included species under one genus-group name. Goulet's (1996) phylogenetic work has demonstrated that there is no well-founded subdivision for *Tenthredo* s.l. at the moment. Therefore, we treat *Elinora* at the level of a subgroup of *Tenthredo* in accordance with Zhelochovtsev (1976) and Zhelochovtsev & Zinovjev (1988).

***Tenthredo* (*Elinora*)** Benson, 1946

= *Elinora* Benson, 1946: 35–39; type species: *Allantus dominiquei* Konow, 1894, by original designation; combined as a subgenus of *Tenthredo* by Zhelochovtsev (1976)

= *Cuneala* Zirngiebl, 1956: 325; type species: *Cuneala tricolor* Zirngiebl, 1956 [= *Tenthredo* (*Elinora*) *longipes* (Konow, 1886), see Blank 1996], by monotypy; synonymy with *Tenthredo* (*Elinora*) by Zhelochovtsev (1976)

= *Murciana* Lacourt, 1988: 310; type species: *Murciana sebastiani* Lacourt, 1988, by original designation; synonymy by Taeger (1991)

= *Blankia* Lacourt, 1998: 487; type species: *Tenthredo* (*Allantus*) *koehleri* Klug, 1817, by original designation; **syn. n.**

Species identification

The geographical scope of the following key is Europe (excluding the Iberian Peninsula south of the Pyrenees) and Central Asia. The Pyrenees are the south-western distribution limit of *Tenthredo koehleri*. The species are roughly characterized by the combination of elongate mouthparts and generally extensive surface sculpture (e. g. clypeus surface granulate, dull; occipital carina often complete on genae and vertex except for the postocellar area; medial part of frons densely punctate and often with granulate microsculpture). These taxa have formerly been classified by Benson (1968) with *Cuneala*, or by Lacourt (1997, 1998) with the *Elinora limbalis-dahlii* group and *Blankia*. They are possibly the most extensively sculptured *Elinora* species, although *T. krausi* has the vertex and the male of *T. davidi* the clypeus comparatively smooth. The frons is similarly sculptured e.g. in *Tenthredo algeriensis* (Magretti, 1886) from Algeria and Tunisia and in *Tenthredo lucasii* (W. F. Kirby, 1882) from Morocco, but in these species the clypeus is at least moderately shining. A similarly extensive surface sculpture is present in the Iberian and North African *Tenthredo limbalis* Spinola, 1843. Among the excluded taxa many have the clypeus shining brightly between scattered punctures. The exclusion of other *Tenthredo* (*Elinora*) species in course of a number of couplets 1, 8 and 12–16 is necessary, because we were unable to identify a concise combination of characters clearly defining a group including all these taxa.

1 Species from Eurasia except for south-western Europe, *or* clypeus black **2**

— Species from North Africa, Portugal and Spain, *and* clypeus always yellow.
other *T.* (*Elinora*) species

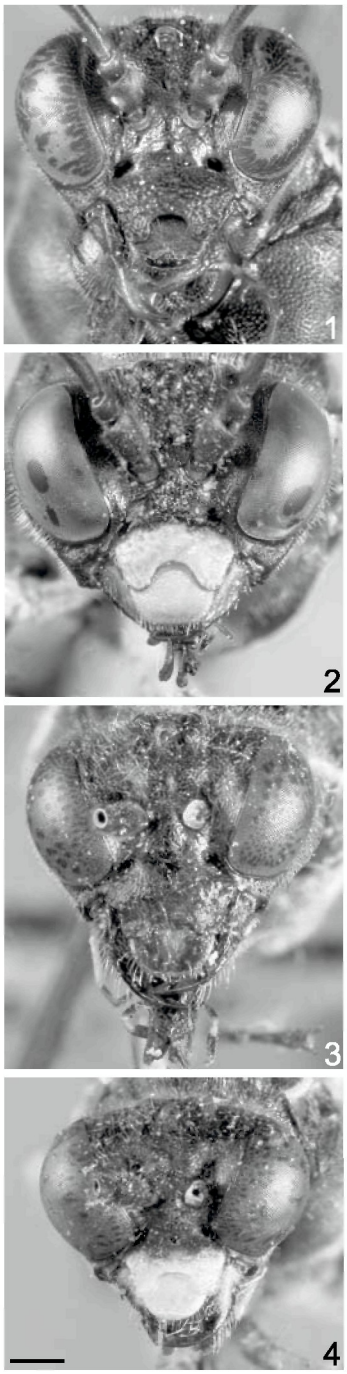
2(1) Clypeus black (Figs 1, 3) **3**

— Clypeus pale, sometimes base black (Figs 2, 4) **12**

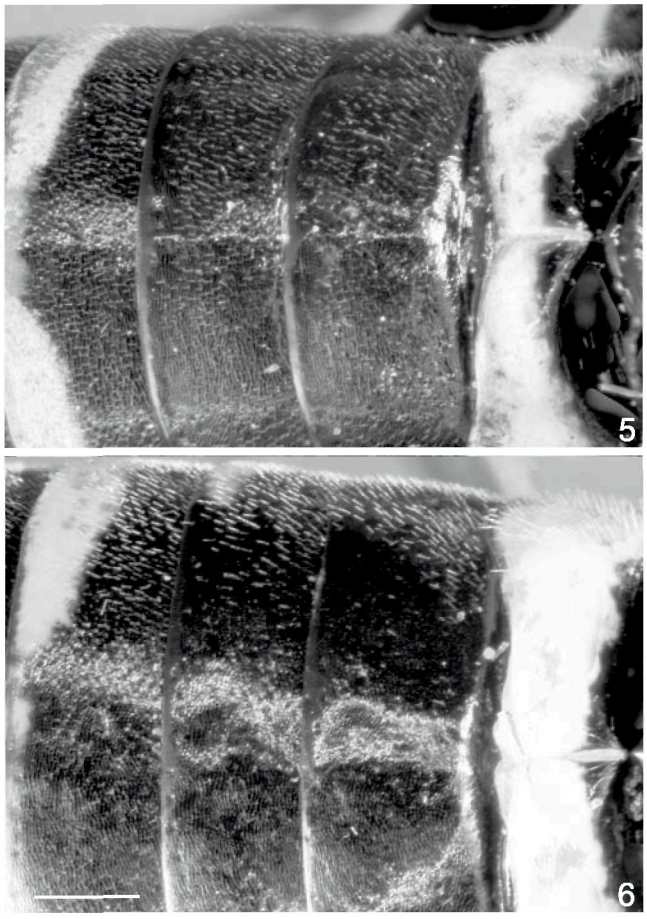
3(2) Female **4**

— Male **8**

4(3) Tegulae with lateral edge yellow. Labrum brown to brownish white (Fig. 3). Apex of hind tibia black. Metepisternum more or less yellow along posterior edge (sometimes completely black?).
Distribution (Fig. 72): Caucasus and Transcaucasus, northern Iran, Turkmenistan (Kopet Dag). ***T. longipes*** (Konow, 1886) ♀



Figs 1–4: Face. 1, *Tenthredo koehleri* ♀; 2, *T. krausi* ♀; 3, *T. longipes* ♀; 4, *T. longipes* ♂. Scale 0.5 mm.



Figs 5–6: Pilosity of basal terga. 5, *Tenthredo koehleri* ♀; 6, *T. radoszkowskii* ♀. Scale 0.5 mm.

— Tegulae and usually labrum black. Apex of hind tibia orange. Metepisternum completely yellow or at least with large yellow spot medially leaving narrow posterior edge brown to black.....**5**

5(4) Terga 2–3 densely pilose lateral of the middle (setae density on dorso-lateral portion similar to that on lateral portion; Fig. 5).
Distribution (Fig. 74): Central Europe (mostly in mountainous to subalpine regions), in the South-West towards the Pyrenees, in the South-East towards the mountain ranges of southern Bulgaria. ***T. koehleri*** Klug, 1817 ♀

— Terga 2–3 dorsolaterally of middle with scattered setae (setae density on dorso-lateral portion distinctly less than that on lateral portion; Fig. 6).....**6**

6(5) Sawteeth of ovipositor rounded (Fig. 60). Mesoscutellum black, rarely with two yellow spots medially or anterior half of mesoscutellum yellow with a medial longitudinal line brown or black. Mesepisternum black. Terga 3–5 sometimes more or less red (Fig. 37).
Distribution (Fig. 74): Caucasus and Transcaucasus, central and north-eastern Turkey.
T. radoszkowskii (André, 1881) ♀

— Sawteeth of ovipositor flat (Figs 55, 58). Mesoscutellum yellow on anterior two thirds (Figs 19, 31). Mesepisternum with more or less long stripe posterio-medially. Terga 3–5 without red **7**

7(6) Hind femur black, narrow base and apex and a dorsal line yellow (Fig. 21). Scape yellow dorsally, black ventrally, pedicel and flagellum black. Occipital carina missing on complete vertex. Prementum 1.1–1.2× longer than flagellomere 1. Sawteeth of ovipositor with comparatively large postcalcar (Fig. 55).
Distribution (Fig. 72): South-eastern Turkey (Hakkâri Mountains).
T. davidi Blank & Taeger, **sp. n.** ♀

— Hind femur orange (Fig. 32). Scape, pedicel and narrow base of flagellomere 1 orange, otherwise flagellum black. Weak occipital carina present on vertex lateral to postocellar area. Prementum 0.8× as long as flagellomere 1. Sawteeth of ovipositor with comparatively small postcalcar (Fig. 58).
Distribution (Fig. 72): North-eastern Turkey (Kaçkar Mountains).
T. lacourtiana Blank & Taeger, **sp. n.** ♀

8(3) Mesoscutellum black **9**

— Mesoscutellum yellow.
other *T.* (*Elinora*) species

9(8) Hind femur yellow on outer side and black on inner side (Fig. 28, 30). Vertex without occipital carina.
Distribution (Fig. 72): South-eastern Turkey (Hakkâri Mountains).
T. davidi Blank & Taeger, **sp. n.** ♂

— Hind femur predominantly or completely black (Figs 26, 40, 44). Vertex with a short occipital carina present close to postocellar area **10**

10(9) Hind tibia bright yellow with red apex (Fig. 26), rarely apex infuscated. Terga 4–5 with usually continuous yellow bands posteriorly and sometimes terga 3 and 6 with yellow spots laterally, terga 3–5 never red (Fig. 24, 26).
Distribution (Fig. 74): Central Europe (mostly in mountainous to subalpine regions), in the South-West towards the Pyrenees, in the South-East towards the mountain ranges of southern Bulgaria. ***T. koehleri*** Klug, 1817 ♂

— Usually hind tibia orange or more or less black, rarely yellow with orange apex (Figs 40, 44). Either terga 3–5 more or less red and / or tergum 4 with a continuous yellow band posteriorly and tergum 5 with lateral yellow spots (Figs 38, 40, 42, 44). (Species identification ambiguous.) **11**

11(10) Upper half of mesepisternum between punctures smooth or with fine microsculpture, shining.
Distribution (Fig. 72): Turkey (Artvin).
? ***T. lacourtiana*** Blank & Taeger, **sp. n.** ♂

— Upper half of mesepisternum between punctures usually wrinkled, punctures more or less obsolescent, usually dull.
Distribution (Fig. 74): Caucasus and Transcaucasus, central and north-eastern Turkey.
T. radoszkowskii (André, 1881) ♂

12(2) Orbits completely black (only *E. amasiensis* sometimes with a tiny brown spot on lower portion of gena) **13**

— Orbits with distinct pale pattern.
other *T.* (*Elinora*) species

13(12) Mesepisternum completely black in anterior half **14**

— Mesepisternum more or less pale in anterior half. other *T.* (*Elinora*) species

14(13) Hind femora on inner side black at least in distal half, often complete inner side black except for base and apex **15**

— Hind femora yellow, inner side sometimes with a small spot on base or apex.
other *T.* (*Elinora*) species

15(14) Clypeus completely dull, with granulate microsculpture between punctures .. **16**

— Clypeus shining at least medially, at most with fine reticulate microsculpture between punctures. other *T.* (*Elinora*) species

16(15) Vertex and upper portion of inner orbits roughly punctate, interspaces often with microsculpture and more or less dull..... **17**

— Vertex and upper portion of inner orbits at most with tiny, scattered punctures, interspaces smooth and shining.
other *T.* (*Elinora*) species

17(16) Female **18**

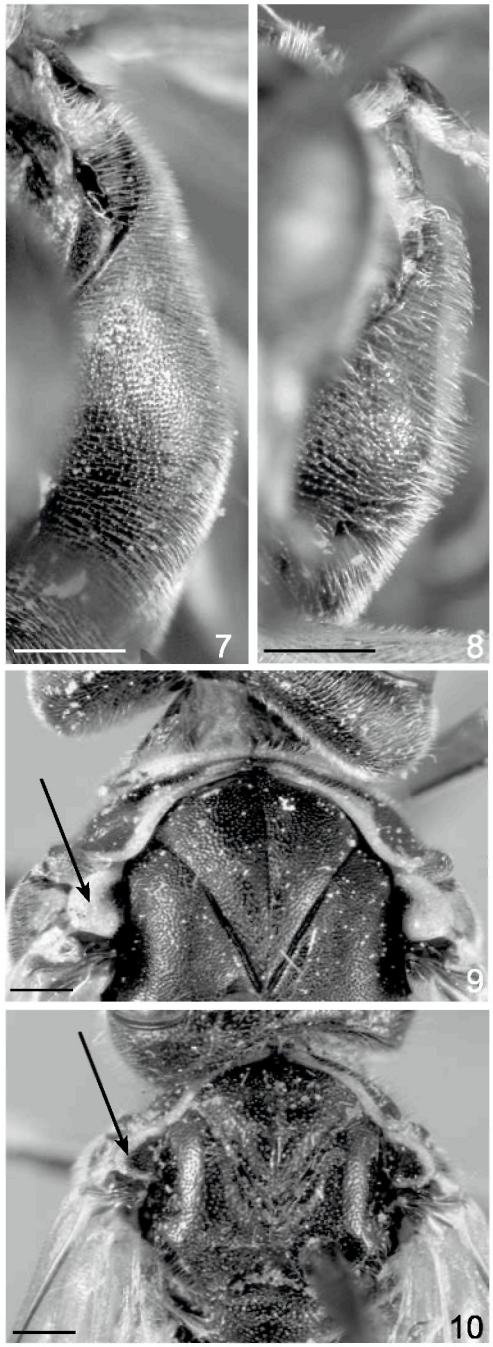
— Male **20**

18(17) Pubescence on head and mesepisternum short, about 0.5–0.75× as long as ocellar diameter, longest setae on mesepisternum about 80 µm long (Fig. 7). Tegulae predominantly yellow with a tiny black spot basally (Fig. 9).
Distribution (Fig. 72): Greece (Lesvos Island), western to central Turkey.
T. amasiensis (Kriechbaumer, 1869) ♀

— Pubescence on head and mesepisternum about as long as ocellar diameter, longest setae on mesepisternum 170–200 µm long (Fig. 8). Tegulae black with lateral edge yellow (Fig. 10)..... **19**

19(18) Terga 7 and 8 with distal yellow edges, which may be interupted medially on tergum 7, and seldom missing on tergum 8 (Figs 27, 29). Ovipositor with 18–19 sawteeth, sawteeth rounded (Fig. 57). Smaller species (9.5–10 mm).
Distribution (Fig. 73): North-western Syria, western and central Turkey.
T. krausi Blank & Taeger, **sp. n.** ♀

— Terga 7 and 8 black or sometimes tergum 7 yellow laterally (Figs 15, 17). Ovipositor with 21–22 sawteeth, sawteeth flat (Fig. 54). Larger species (12–13.5 mm).
Distribution (Fig. 73): South-eastern Europe.
T. dahlii Klug, 1817 ♀



Figs 7–10: 7, Mesepisternum *Tenthredo amasiensis* ♀; 8, mesepisternum *T. krausi* ♀; 9, colour pattern of tegulae *T. amasiensis* ♀; 10, colour pattern of tegulae *T. krausi* ♀. Scale 0.5 mm.

20(17) Setae on mesepisternum 80–100 µm long, about 0.5–0.75 as long as ocellar diameter (Fig. 7)..... **21**

— Seate on mesepisternum 180–200 µm long, about as long or longer than ocellar diameter (Fig. 8)..... **22**

21(20) Posterior coxae, trochanters and femora black, femora with small apical margin yellow (Fig. 36). Clypeus yellow with base largely black (Fig. 4). Mesepisternum regularly and very densely punctured, medially completely dull with interspaces between punctures much smaller than diameter of the punctures. Smaller species (9 mm).
Distribution (Fig. 72): Caucasus and Transcaucasus, northern Iran, Turkmenistan (Kopet Dag). ***T. longipes*** (Konow, 1886) ♂

— Posterior coxae yellow apically, trochanters completely yellow, femora with basal third or half and a broad apical margin yellow (Fig. 14). Clypeus completely yellow. Mesepisternum densely punctured, medially with shining interspaces between the punctures, distance between punctures partly about 0.5 × the diameter of the punctures. Larger species (10.5–11.5 mm).
Distribution (Fig. 72): Greece (Lesvos Island), western to central Turkey.
T. amasiensis (Kriechbaumer, 1869) ♂

22(20) Tergum 4 predominantly yellow, basally sometimes with a small black margin (Fig. 28). Medial sterna at least with broad, yellow apical margins, second visible sternum sometimes almost completely yellow (Fig. 30). Smaller species (9–10 mm).
Distribution (Fig. 73): North-western Syria, western and central Turkey.
T. krausi Blank & Taeger, **sp. n.** ♂

— Tergum 4 predominantly black, apical third or quarter yellow (Fig. 24). Medial sterna spotted yellow laterally on apical margin (Fig. 26). Larger species (11–12 mm).
Distribution (Fig. 72): South-eastern Europe.
T. dahlii Klug, 1817 ♂

Tenthredo (*Elinora*) *amasiensis* (Kriechbaumer, 1869)

(Figs 7, 9, 11–14, 45, 53, 61, 72)

= *Allantus xanthorius* var. *amasiensis* Kriechbaumer, 1869: 592, ♀♂, type locality: Turkey, Amasia province, Amasia; = *Allantus dahlii* var. *amasiensis* (Kriechbaumer, 1869); = *Cuneala amasiensis* (Kriechbaumer, 1869); = *Elinora amasiensis* (Kriechbaumer, 1869)

Diagnostic combination. Characterized by the combination of 1, short hairs on head and mesepisternum (0.5–0.75 × as long as ocellar diameter; Fig. 7), and 2, predominantly yellow tegulae bearing a tiny black spot basally (Fig. 9).

Type material. *Allantus xanthorius* var. *amasiensis*. Lectotype ♀ (hereby designated): [pink:] "199."; "Mann 1860 Amasia"; [handwriting of Kriechbaumer:] "*xanthorius* m. ♀ var."; "*Dahli* det. Kohl"; "*xanthor.* var. *amasiensis* det. Kriechbaumer"; [red:] "Lectotypus ♀ *Allantus xanthorius* var. *amasiensis* Kriechbaumer, 1869 des. S. M. Blank 1998"; "*Elinora amasiensis* (Kriechbaumer) ♀ det. S. M. Blank 1998". The lectotype is in perfect condition. Paralectotype 1♂ with identical collecting label. NHMW.

Discussion. Kriechbaumer (1869) described *Allantus xanthorius* var. *amasiensis* from a couple collected by Mann in Amasia in 1860. In the Vienna collection there are seven females and one male with such collecting labels, which have subsequently been labelled as *amasiensis*. One female, which is hereby designated as the lectotype, bears Kriechbaumer's handwritten identification label. The only male *T. amasiensis* of the series is designated as the paralectotype. The other six females belong to *T. amasiensis* (1♀) and *T. krausi* (5♀).

Distribution (Fig. 72). Greece (Lesvos Island), Turkey (Amasya, Ankara, Aydin, Denizli, Kayseri, Konya, Muğla).

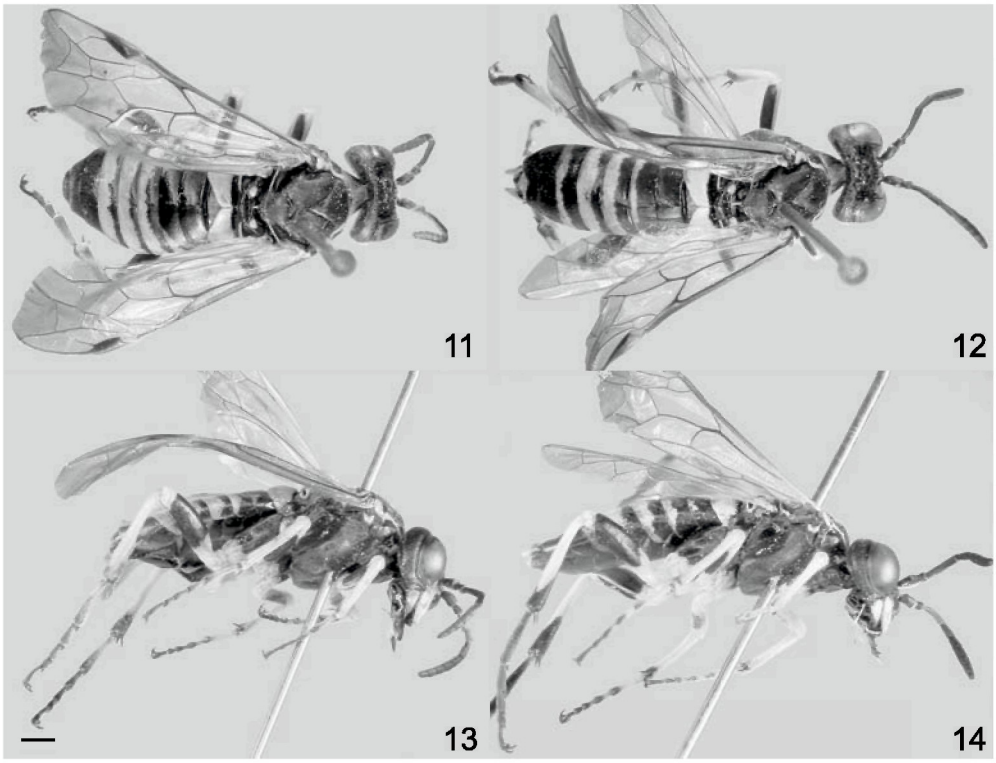
Studied material. 21♀ 11♂.

Tenthredo (*Elinora*) *dahlii* Klug, 1817

(Figs 15–18, 46, 54, 62, 73)

= *Tenthredo* (*Allantus*) *dahlii* Klug, 1817: 143–144, ♀, type locality: Hungary; = *Allantus dahlii* (Klug, 1817); = *Cuneala dahlii* (Klug, 1817); = *Elinora dahlii* (Klug, 1817); = *Elinora dahli*, misspelling; *Tenthredo dahli*, misspelling; *Tenthredo* (*Elinora*) *dahli*, misspelling

= *Tenthredo villosa* Brullé, 1832: 390–391, Tab. LII Fig. 10, ♀, type locality: Greece, Pelopónnisos, Modon plain



Figs 11–14: *Tenthredo amasiensis,* habitus. 11, ♀ dorsally; 12, ♂ dorsally; 13, ♀ laterally; 14, ♂ laterally. Scale 1 mm. (See also Colour Plate 6).

= *Tenthredo unicincta* Brullé, 1832: 391, ♂, type locality: Greece, Pelopónnisos, Modon plain; = *Allantus unicinctus* (Brullé, 1832)

= *Allantus xanthorius* Kriechbaumer, 1869: 591–592, ♀♂, type locality: Romania, Tulcea [= Tultscha]

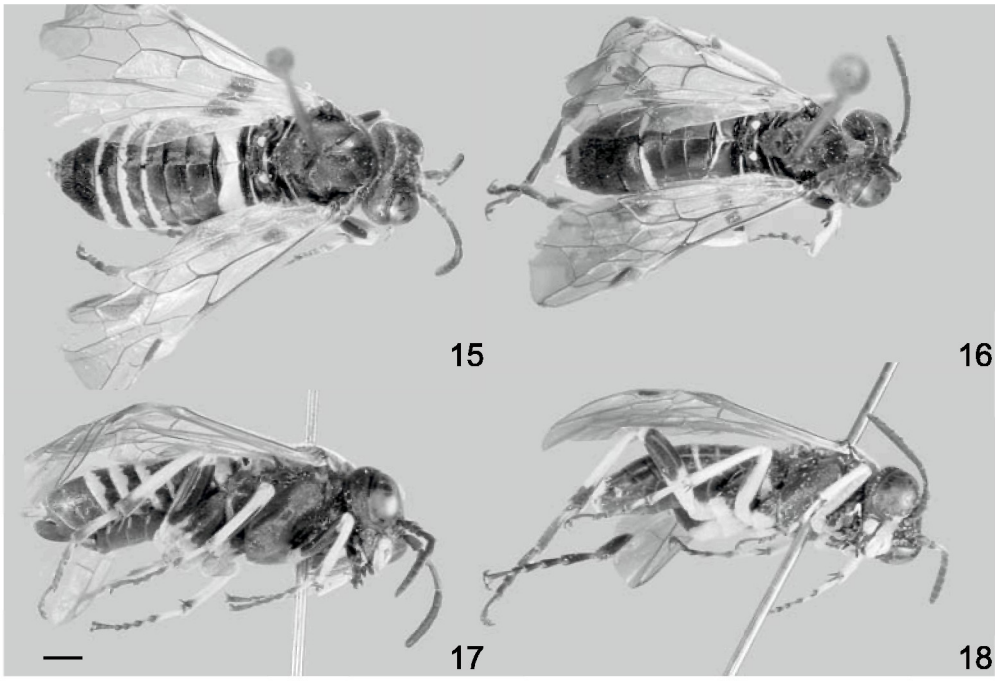
= *Macrophya hartigii* W. F. Kirby, 1882: 260, Tab. X Fig. 1, ♂, type locality: Albania; *Macrophya hartigi*, misspelling

Diagnostic combination. *Tenthredo dahlii* is most similar to *T. krausi* on basis of the combination of 1, comparatively long hairs of mesepisternum and vertex (as long as or longer than ocellar diameter), and 2, the predominantly black tegulae bearing a narrow yellow lateral edge. *T. dahlii* females are characterized by 1, tergum 7 bearing at most yellow spots laterally and tergum 8 being black (terga 7–8 with continuous distal yellow edges in *T. krausi*), and 2, flat sawteeth of valvula 1 of the ovipositor (rounded in *T. krausi*). In males only the narrow distal edge of tergum 4 is yellow (predominantly yellow in *T. krausi*). *T. dahlii* (♀ 12.0–13.5 mm, ♂ 11.0–12.0 mm) is clearly larger than *T. krausi* (♀ 9.5–10.0 mm, ♂ 9.0–10.0 mm).

Type material. *Tenthredo (Allantus) dahlii*. Holotype ♀: [red:] "Type"; "13993"; "Ungarn Dahl"; "Zool. Mus. Berlin"; "*dahlii*"; [red:] "Holotypus ♀ *Tenthredo* (*Allantus*) *dahlii* Klug, 1817 det. S. M. Blank 98"; "*Elinora dahlii* (Klug) ♀ det. S. M. Blank 98"; "GBIF-GISHym 2641". In perfect condition. MNB. The collection catalogue mentions the following data regarding the number 13993: "*Allantus Dahlii* Kl. | 1. [= 1 specimen] | Hungar, Dahl.".

Allantus xanthorius. Lectotype ♀ (hereby designated): [red:] "200." [or: "203."?]; "Mann 1865 Tultscha"; "*Dahli* det. Kohl"; [red:] "Lectotypus ♀ *Allantus xanthorius* Kriechbaumer, 1869 des. S. M. Blank 1998"; "*Elinora dahlii* (Klug) ♀ det. S. M. Blank 1998". The lectotype is missing the left flagellum. Paralectotypes 2♂ labelled "Mann Nanos 854" and ♂ "0.2. Taur Parreys" respectively. NHMW.

Discussion. *Tenthredo dahlii* has been described by Klug (1817) upon a single female from Hungary bearing yellow posterior margins



Figs 15–18: *Tenthredo dahlii,* habitus. 15, ♀ dorsally; 16, ♂ dorsally; 17, ♀ laterally; 18, ♂ laterally. Scale 1 mm. (See also Colour Plate 6).

on terga 1, and 4–6, and black sterna. This is the valid name for a *Tenthredo* (*Elinora*) species distributed from south-eastern Austria and Slovakia towards Greece and the European part of Turkey.

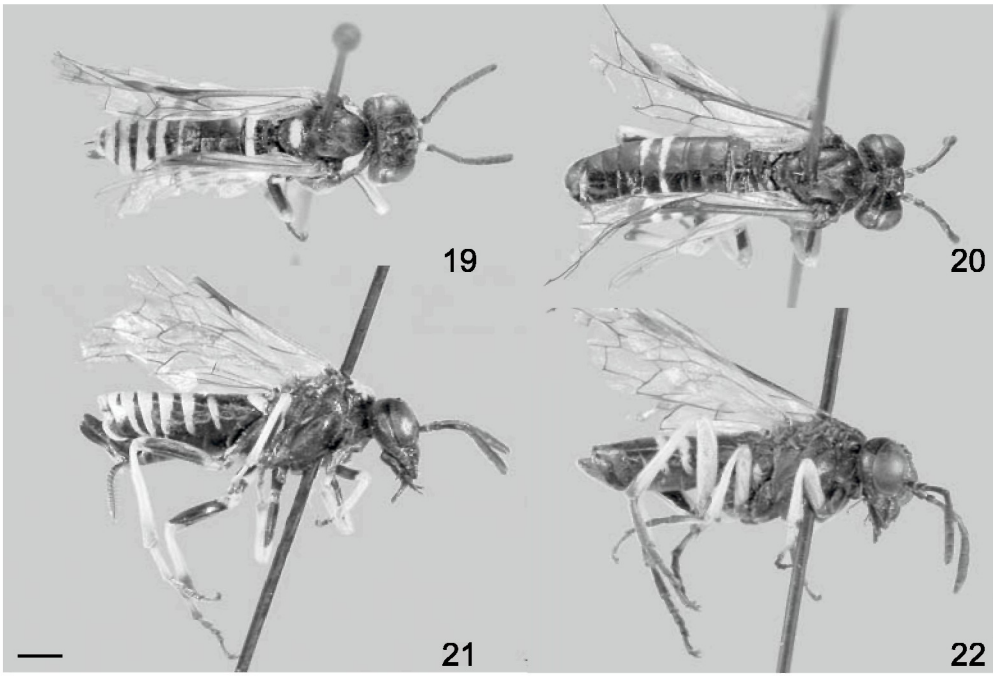
In later publications this species has repeatedly been reported as new under various names upon material which was collected in south-eastern Europe. Brullé (1832) described and illustrated *T. villosa* (♀) from the Pelopónnisos, which bears yellow posterior margins on terga 1, and 4–6. According to the illustration the light margin on tergum 6 is interupted medially. *T. unicincta* Brullé, 1832 (♂) has the small posterior margin of tergum 1 and the posterior margin of tergum 4 yellow, the latter interrupted medially. According to the descriptions, illustrations and the origin of the material the current synonymies of these names can be confirmed (Lacourt 1999, 2001).

Kriechbaumer's (1869) statement concerning the number of type specimens of *Allantus xanthorius* is ambiguous. He mentioned, that he had a couple of specimens from the Vienna collection on hand, but he noted three collecting localities (♂ from the Crimea, ♀ from Tultscha in Bulgaria and from Mt. Nanos). There are three specimens in the NHMW, which agree with the description, and which are hereby designated as lectotypes and paralectotypes respectively. The male from Nanos, which is little more stout, has obviously been listed as a female. *A. xanthorius* has been correctly identified as a synonym of *T. dahlii.* The locality "Taur" names the mountains of the Crimea (German name "Taurien").

Macrophya hartigii was described from Albania. Kirby (1882) described and illustrated the typical *T. dahlii* male with tergum 4 "narrowly bordered behind with yellow, the band on the fifth segment interrupted in the middle".

Distribution (Fig. 73). Albania, Austria, Bulgaria, Czech Republic, Greece, Hungary, Republic of Macedonia, Poland, Romania, Slovakia, Slovenia, Turkey (Edirne), Ukraine. Also reported from the European part of Russia (Zhelochovtsev & Zinovjev 1996).

Studied material. 81♀ 50♂.



Figs 19–22: *Tenthredo davidi*, habitus. 19, ♀ dorsally (holotype); 20, ♂ dorsally; 21, ♀ laterally (holotype); 22, ♂ laterally. Scale 1 mm. (See also Colour Plate 7).

Tenthredo (Elinora) davidi
Blank & Taeger, **sp. n.**

(Figs 19–22, 47, 55, 63, 72)

Type locality: Turkey, Hakkâri province, Sat Mountains, valley south of Gevriã Sermendi

Diagnostic combination. Among the species with black clypeus, labrum and tegula *Tenthredo davidi* is characterized by the complete lack of an occipital carina on the vertex and the comparatively wide gena. The male is characterized by the hind femur being yellow on the outer and black on the inner side (Fig. 22; other species with hind femur either completely black or with scattered, irregular, pale spots).

Female Description. Color (Figs 19, 21). Head black, scape dorsally yellow, apex of mandible brown. Thorax black, posterior margin of pronotum, anterior half of mesoscutellum, a small stripe on posterior half of mesepisternum, and metepisternum yellow. Abdomen black with tergum 1 yellow except for the most anterior area close to the metapostnotum, tergum 3 with yellow posterior stripe laterally and ventrally, terga 4–7 and 9+10 with complete posterior edge yellow, tergum 8 yellow on posterior edge except for most ventral portion, sterna 3–5 with small posterior spots laterally, sternum 6 with posterior edge yellow. Legs mostly yellow with tibial apices orange. On fore leg coxa black, trochanter and trochantellus mainly black, femur black ventrally, posteriorly and at base, tarsus black towards tip. On hind leg coxa black with apical third ventrally yellow, trochanter mainly black, trochantellus yellow, femur black on inner, outer and most of ventral side, tarsus orange except for yellow base of tarsomere 1. Wings yellowish, basal half of costa yellow, subcosta yellow anteriorly and black posteriorly, basal section of anal veins yellow, pterostigma black with yellowish brown base.

Morphology. Body length 9.0 mm. Clypeus 0.60 × as long as distance between lower eye margins, medially excised for 0.40 of its length, with flat and irregular wrinkles, shining, irregularly punctured (PD 0.5–2). Medial part of frons densely punctured (PD 0.5–1), interspaces mostly dull, upper inner orbits less sculp-

tured with larger punctures (mostly PD < 0.5). Prementum ca 670 µm long, 0.90 × as long as stipes, 0.80 × as long as flagellomere 1. Occipital carina only present on lower half of gena. Proportions of flagellomere length relative to that of flagellomere 1 as follows: 2: 0.42, 3: 0.39, 4: 0.35, 5: 0.30, 6: 0.28, 7: 0.33. Median lobe of mesoscutum medially densely punctured (PD 0.5–1.5) with smooth and shining interspaces. Mesoscutellum densely punctate (medially PD 0.2–0.6). Mesepisternum densely covered with ca 20 µm large punctures (PD 0.5–1.5) and with few 30–50 µm large punctures, interspaces shining. Anterior tibial spur of anterior legs slightly bent apically. Hypopygium posteriorly shallowly excised lateral of middle. Length of longest setae on the frons about 150 µm, on the mesepisternum about 170 µm. Ovipositor with 16 flat sawteeth (Figs 47, 55).

Male Description. Color (Figs 20, 22). Similar to female. Thorax black, metepisternum with a large yellow spot posteriorly. Abdomen black, lateral corners and very narrow posterior edge of tergum 1 yellow, yellow bands on tergum 3 present ventrally on posteror edge, on tergum 4–5 present along posterior edge of terga and interrupted dorsally in the middle, tergum 9 yellow in middle. Sternum 5 with a pair of indistinct lateral yellow spots close to hind margin. On fore leg coxa black with an indistinct medio-ventral yellow spot, trochanter and trochantellus mostly black, femur yellow with posterior side black, tibia yellow with apex narrowly black, tarsus black except for the mostly yellow tarsomere 1. On hind leg coxa black with ventral side yellow, trochanter mostly black, trochantellus mostly yellow, femur yellow with inner side black, tibia yellow with black apex, tarsus black except for narrow base of tarsomere 1.

Morphology. Body length 7.5 mm. Prementum ca 560 µm long, 0.85 × as long as stipes, 0.70 × as long as flagellomere 1. Clypeus largely unpunctured and shining in the middle, 0.60 × as long as distance between lower eye margins, medially excised for 0.35 of its length. Longest setae on frons ca 120 µm, on mesepisternum ca 100 µm long. Hypopygium truncate distally. Dorsal lobe of valviceps strongly elongate (Fig. 63).

Variability. Unknown.

Type material. Holotype ♀: "TK [= Turkey] – Hakkari [province] 4.8.[19]86 Tal S Gevria-Pass [= valley south of Gevria pass, = Gevriă Sermendi] 3000 m [alt.] leg. S. Blank"; "*Ranunculus*"; "*Cuneala confinis* (Knw.) ♀ det. W. Schedl 1987"; [red:] "Holotype ♀ *Elinora davidi* spec. nov. det. S. M. Blank 2004"; "GBIF-GISHym 4315". DEI. Ovipositor stored in a vial on the pin of the specimen. Paratype: **Turkey**: 1 ♂ "TK – Hakkari, Satgeb nördl. Mt. Gavaruk [= Sat Mountains, north of Mount Gavaruk] 3000 m [alt.]5.8.[19]86 leg. S. M. Blank"; "Umbelliferae [= Apiaceae]"; [penis valves mounted on a separate glass slide by W. Schedl bearing the label:] "Pr. Nr. 397 *Cuneala confinis* (Konow) ♂ 2 Penisvalven, Türkei, Hakkari Satgeb[irge], nördl. Mt. Gavaruk, 3000 m, 5.8.[19]86, leg. Blank in coll. Blank 25.10.87 fec. W. Schedl". DEI.

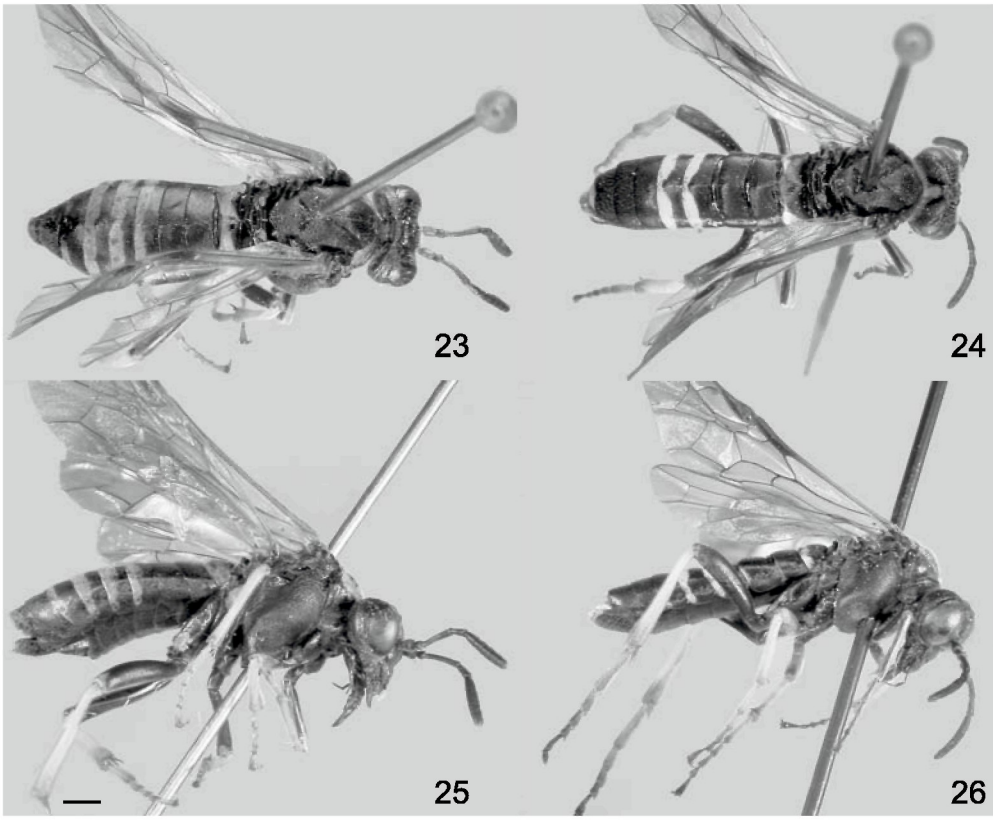
Etymology. We dedicate this species to David R. Smith in deep thanks for his generous support of our work and of the studies of many other sawfly researchers.

Discussion. The single known male and female are assumed to belong to the same species upon the yellow color of the hind femur and the missing carina on the vertex. The collecting sites in the Sat Range of the Hakkâri Mountains are only three kilometers apart.

The female is most similar to *T. lacourtiana* due to the anteriorly completely yellow scutellum, but these species differ in the relative length of the prementum (0.90 × as long as stipes in *T. davidi*, 1.15 in *T. lacourtiana*) and in the dorsally yellow scape (scape and pedicel orange in *T. lacourtiana*). Furthermore, the latter has a body size of 10.5–11 mm, whereas *davidi* has a body size of 7.5–9 mm.

T. radoszkowskii has never been found in the Hakkâri province although extensive material has been collected there by Hymenopterists such as the late K. Warncke (sawflies mostly in MKC; see also distribution data presented by Benson (1968) and by Çalmaşur & Özbek (2004) for "*koehleri*" and *radoszkowskii*). Besides a series of an unidentified *Sciapteryx* species these two specimens were the only sawflies found during these summer days in early August 1986 at this altitude.

The summits of the Hakkâri Mountains exceed 3,000 m altitude everywhere and more than 4,000 m in the center of the Cilo Range. Precipitation and glaciation is more extensive and the snow line lower than might be expected for a mountain range of that altitude,



Figs 23–26: *Tenthredo koehleri,* habitus. 23, ♀ dorsally; 24, ♂ dorsally; 25, ♀ laterally; 26, ♂ laterally. Scale 1 mm. (See also Colour Plate 7).

geographical latitude and geographical position relative to the Central Asian arid areas (Bobek 1938, 1940). Several insect and plant groups have been found to be particularly species rich here and to have produced a large number of forms endemic to this region (Hesselbarth et al. (1995) for butterflies of Tragacanth steppes of the Irano-Anatolian Refuge; Blank & Kraus (1994) for bee taxa described by K. Warncke). The outstanding climate and geography of the range may have been driving forces for this diversification. Only few details are known for the sawfly fauna of the Hakkâri Mountains.

Ecology. The adults were swept from the flowers of a buttercup (*Ranunculus* spec.) and of an umbellifer (Apiaceae) at 3,000 m altitude.

Distribution (Fig. 72). Turkey (Hakkâri).

Studied material. 1 ♀ 1 ♂.

Tenthredo (Elinora) koehleri Klug, 1817

(Figs 1, 5, 23–26, 48, 56, 64, 74)

= *Tenthredo* (*Allantus*) *koehleri* Klug, 1817: 143, ♀♂, type locality: Poland, Silesia; = *Allantus koehleri* (Klug, 1817); = *Blankia koehleri* (Klug, 1817); = *Cuneala koehleri* (Klug, 1817); = *Elinora koehleri* (Klug, 1817); = *Tenthredo koehleri* (Klug, 1817); = *Allantus köhleri*, misspelling; = *Tenthredo köhleri*, misspelling

= *Allantus koehleri* forma *scutellaris* Gregor, 1941: 201, ♀, type locality: Czech Republic, Hodslavice, primary homonym of *Allantus scutellaris* Konow, 1898

= *Allantus koehleri* var. *biinterruptus* Pic, 1925: 14, ♂, type locality: France, Royat, infrasubspecific name; = *Allantus koehleri* var. *biinteruptus*, misspelling

= *Allantus koehleri* var. *multiinterruptus* Pic, 1925: 14, ♀, type locality: France, Royat, infrasubspecific name; = *Allantus koehleri* var. *multiinteruptus*, misspelling

= *Allantus koehleri* var. *notaticornis* Pic, 1925: 14, ♀, type locality: France, Royat, infrasubspecific name
= *Allantus koehleri* var. *uniinterruptus* Pic, 1925: 14, ?♂, type locality: France, Royat, infrasubspecific name; *Allantus koehleri* var. *uniinteruptus*, misspelling
= *Allantus koehleri* var. *subinterruptus* Pic, 1925: 14, ♂, type locality: France, Royat, infrasubspecific name; *Allantus koehleri* var. *subinteruptus*, misspelling
= *Allantus koehleri* var. *multiplicatus* Pic, 1925: 14, ♀, type locality: France, Royat, infrasubspecific name

Diagnostic combination. Among the species with black labrum, clypeus and tegulae females differ in 1, the densely pilose terga 2–3 (Fig. 5; scattered medially in *T. davidi*, *T. lacourtiana* and *T. radoszkowskii*), and 2, the hind femur being black with a narrow yellow apex (Fig. 25; with a yellow dorsal line in *T. davidi*, orange in *T. lacourtiana*, similar or red in *T. radoszkowskii*). Males are characterized by 1, the apical band of tergum 5 being usually continuous (Fig. 24; interrupted in *T. davidi*, *T. lacourtiana* and *T. radoszkowskii*), and 2, the hind tibia being yellow with red apex (yellow with black apex in *T. davidi*, similar in *T. lacourtiana*, completely orange, more or less infuscated or rarely similar in *T. radoszkowskii*).

Type material. Lectotype ♂ (hereby designated): [red:] "Type"; "13988"; "Schlesien Klug"; [cabinet label:] "Köhleri Kl. Siles. [= Silesia] M.Kl. [= Museum Klug]"; [red:] "Lectotype ♂ *Tenthredo* (*Allantus*) *koehleri* Klug, 1817 des. S. M. Blank 2005"; "GBIF-GISHym 2654". In perfect condition. MNB. Paralectotypes: 2♀ 1♂, MNB. The collection catalogue mentions the following data regarding the number 13993: "*Allantus Koehleri* Kl." | 4. [= 4 specimens] | "Siles. Kl.".

Discussion. Zhelochovtsev (1941) and Zhelochovtsev & Zinovjev (1988) classified *koehleri* and *radoszkowskii* as geographical forms of *Tenthredo koehleri*. Upon morphological differences we regard them as two separate species as did Benson (1968). *T. koehleri* females are continuously pilose along the edge between tergum 1 and metapostnotum (setae ca 100 µm long). Terga 2–3 are medially densely pubescent (Fig. 5). *T. radoszkowskii* females have few, ca 50 µm long setae on tergum 1 and terga 2–3 are almost glabrous in the middle (Fig. 6; clearly less setous medially than on the lateral portion). The difference in setae density also occurs in males but is much less evident. The shape of the valviceps of *T. koehleri* (Fig. 64) is within the range of variability of that of *T. radoszkowskii* (Figs 68–71; see also Lacourt 1997: Figs 1–2). *T. koehleri* is comparatively uniform in coloration, size and surface sculpture (Figs 23–26), whereas *T. radoszkowskii* is highly variable (Figs 37–44; see also Taeger 1988 and below).

Klug (1817) described *Tenthredo* (*Allantus*) *koehleri* upon an unknown number of males and females from Silesia. A male is selected as the lectotype from 2♀ and 2♂ syntypes preserved at the MNB.

Çalmaşur & Özbek (2004) presented *Cuneala koehleri* as an alleged new species for the Turkish fauna. Records are from the provinces Artvin, Erzurum and Rize. The authors reported most specimens having been collected together with *C. confinis* (a junior synonym of *T. radoszkowskii*) or close to collecting sites of the latter. From the extensive north-eastern Turkish material of *T. radoszkowskii*, which has been checked during the present study, we conclude that *T. koehleri* is absent from the Asian part of Turkey. Çalmaşur & Özbek (2004) most likely misidentified black and yellow *T. radoszkowskii* as *C. koehleri*.

Distribution (Fig. 74). Austria, Bulgaria, Czech Republic, France, Germany, Hungary, Italy, Luxembourg, Poland, Romania, Slovakia, Slovenia, Switzerland. Additionally reported from Andorra, Albania, Belgium, Republic of Macedonia, Netherlands, European part of Russia, Ukraine and modern Yugoslavia (Taeger & Blank 2006).

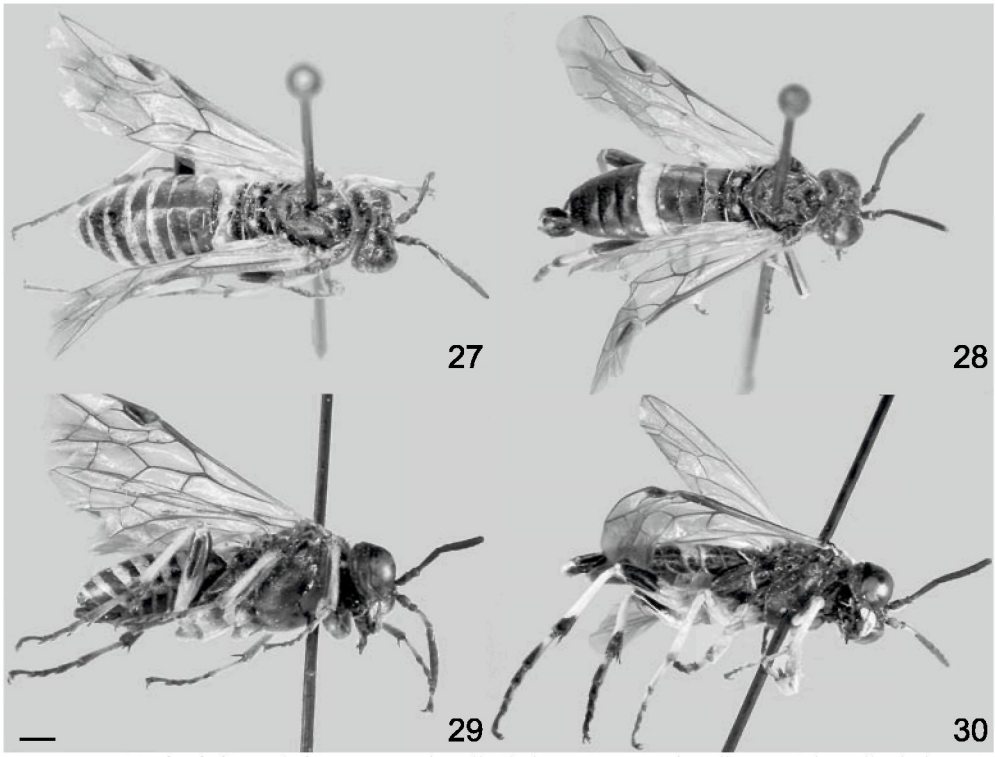
Studied material. 316♀ 241♂.

Tenthredo (*Elinora*) *krausi* Blank & Taeger, **sp. n.**

(Figs 2, 8, 10, 27–30, 49, 57, 65, 73)

Type locality: Turkey, Konya province, Konya WSW 30 km, Kı zlören Dağı ,hill 2–5 km SE Sefaköy
= *Elinora krausi* Blank & Taeger, in litt.: Lacourt (1999)

Diagnostic combination. Among the species with yellow clypeus and comparatively long hairs of vertex and mesepisternum (as long as or longer than ocellar diameter), *T. krausi* females are characterized by 1. the yellow distal edge of terga 7–8 (tergum 7 with lateral spots



Figs 27–30: *Tenthredo krausi,* habitus. 27, ♀ dorsally (holotype); 28, ♂ dorsally; 29, ♀ laterally (holotype); 30, ♂ laterally. Scale 1 mm. (See also Colour Plate 8).

and tergum 8 black in *T. dahlii*), and 2, the rounded sawteeth of valvula 1 of the ovipositor (flat in *T. dahlii*). Males differ in the predominantly yellow tergum 4 (with narrow distal edge yellow in *T. dahlii*). *T. krausi* (♀ 9.5–10 mm, ♂ 9–10 mm) is conspiciously smaller than *T. dahlii* (♀ 12–13.5 mm, ♂ 11–12 mm).

Female Description. Color (Figs 27, 29). Head black, clypeus, labrum, broad base of mandibles, medial segments of the labial and maxillary palps, and a small spot at the apex of the scape yellow. Thorax black, posterior margin of pronotum, lateral margins of tegulae, and posterior margins of metepisterna yellow. Tergum 1 yellow except for the most anterior area close to the metapostnotum, terga 2–3(–4) with yellow spots on posterior margins, terga (4-)5–7 with posterior margins completely and terga 8–9 medially yellow. The yellow stripes of terga 4–7 are broader laterally than medially. Preapical sterna with tiny yellow spots laterally on the posterior margins. Legs yellow, coxae basally, tibiae and tarsomeres apically black, anterior and middle femora black posteriorly, posterior femora largely black on preapical portion. Wings yellowish, costa yellow, subcosta yellow anteriorly and black posteriorly, anal veins yellow, pterostigma yellow anterobasally and black posterio-apically.

Morphology. Body length 9.5–11 mm. Clypeus granulate, irregularly punctured (PD 0.5–2). Medial part of frons densely punctured (PD 0.5–1), interspaces dull with granulate microsculpture, upper inner orbits smooth with smaller punctures (mostly PD > 1). Occipital carina present on genae and vertex, often indistinct on upper genae. Stipes 880–930 µm long, 0.90–0.95 as long as flagellomere 1. Proportions of flagellomere length relative to that of flagellomere 1 as follows: 2: 0.45, 3: 0.37, 4: 0.29, 5: 0.28, 6: 0.24, 7: 0.25. Median lobe of mesoscutum medially punctured (PD 1–2.5) with smooth and shining interspaces. Mesoscutellum densely punctate (medially PD 0.2–0.6).

Mesepisternum densely punctured with shining interspaces (PD 0.5–1.5). Anterior tibial spur of anterior legs distinctly bent apically. Hypopygium posteriorly almost straight. Length of longest setae on the frons about 200 µm, on the mesepisternum about 170 µm. Ovipositor with 18–19 rounded sawteeth (Figs 49, 57).

Male Description. Color (Figs 28, 30). Head, thorax, legs and wings similar to female besides the following pattern: scape completely black, yellow margins of pronotum, tegulae and metepisterna smaller. Tergum 1 with small posterior margin yellow, terga 2–3 and 5–6 variably yellow on posterior margin (mostly interrupted medially), tergum 4 dorsally predominantly yellow apart from a small black anterior margin, ventrally predominantly black anteriorly. Visible sternum 3 mostly predominantly yellow, other sterna variably yellow on posterior portion, last sternum yellow apically.

Morphology. Body length 9.5–10 mm. Stipes 820–920 µm long, 0.91–0.94 as long as flagellomere 1. Surface sculpturing similar to female. Length of longest setae on the frons about 250 µm, on the mesepisternum about 170 µm. Penis valve see Fig. 65.

Variability. In females the yellow postertior margin of tergum 4 is usually interrupted medially, but continuous in few specimens. One male has almost completely dark sterna with superficial yellow pattern on the visible sterna 2–4 posteriorly and on 2 medially. There is no geographical correlation of the color pattern variability. Light and dark specimens have been collected on the same site.

Type material. Holotype ♀: "Turkey: Prov. Konya, Konya WSW 30 km, Hill 2–5 km SE Sefaköy (Kı zı lören Dağı) 1450 m [alt.] ca. 37°47'N 32°13'E 23.V.1998 S. M. Blank"; [red:] "Holotype ♀ *Elinora krausi* spec. nov. S. M. Blank & A. Taeger 1998". DEI. Paratypes 42♀ 43♂: **Turkey**: 1♀ "[leg.] Mann Brussa 1851" [= Bursa, Bursa Province]; 1♂ "Ephesus, Loew" [= İzmir province]; 1♂ "TR, Sereflikosisar [= Şereflikoçhisar], 17.V.1970, leg. Kl. Warncke" [= Ankara province]; 2♂ "Angora [= Ankara] IV.1912" [= Ankara province]; 1♀ "Angora [= Ankara] Escherich" [= Ankara province]; 5♀ "[leg.] Mann 1860 Amasia" [= Amasia province]; 3♂ "Amasia" [= Amasia province] "Staudinger"; 3♂ "Amasia Staudgr [= Staudinger]" [= Amasia province]; 2♂ "Konia [= Konya]" [= Konya province]; 1♀ 1♂ "Ak-Chehir [= Akşehir] 1900 Korb" [= Konya province]; 1♀ 4♂ "TURKEY: Prov. Konya, Konya WSW 30 km, Hill 2–5 km SE Sefaköy (Kı zı lören Dağı) 1450 m [alt.] ca. 37°47'N 32°13'E 23.V.1998 S. M. Blank"; 1♀ "Altı napabarajı / Beyşehir / Turkey 23.4.2001 [leg.] Sevda Hastaoglu"; 1♂ "TK – Ürgüp 23–4–1989 [leg.] Perraudin" [= Nevşehir province]; 1♀ "Türkei Göreme 24.5.86 leg. M. Kraus" [= Nevşehir province]; 2♂ "Turkey: Prov. Kayseri, Kayseri WSW 30 km, Incesu W 5 km 1100 m [alt.] 38°38'01"N 035°09'20"E 27.V.1998, S. M. Blank"; 7♀ 3♂ "Türkei cent., 20 km E Göreme, 9.5.1994 leg. Mi. Halada" [= Nevşehir province]; 2♂ "Ulukischla [= Ulukişla] 16.–20.5.55 [leg.] Seidenstücker" [= Niğde province]; 4♀ "Türkei mer. or. Halfeti env. 3.–5.5.1994 leg. Mi. Halada" [= Gaziantep province]; 3♀ "Türkei-Birecik / Urfa 19-IV–1984 leg. Kl. Warncke" [= Şanlı ufa province]; **Syria**: 1♂ "Idlib N.W.Syria coll. 6.4.44 [leg.] A. S. Talhouk"; 1♂ "Syrien: Aleppo, Ronj E, 20.3.79, leg. R. Kinzelbach"; 2♀ 3♂ "SYR – 270 m [alt.] Apamea 65 km MW Hama 18–4–92 leg. M. Kraus"; 9♀ 8♂ "SYR – 270 m [alt.] Apamea 65 km MW Hama 18–4–92 leg. Warncke"; 6♀ 3♂ "SYR – 500 m [alt.] Stausee [= reservoir] 10 km SW Homs 15–4–92 leg. M. Kraus"; 1♂ "SYR – 500 m [alt.] Stausee [= reservoir] 10 km SW Homs 15–4–92 leg. Warncke"; 1♂ "SYR – Simeon Kloster 45 km SW Aleppo 550 m [alt.] 19–4–92 leg. Warncke". Paratypes in ATC, CUDB, DEI, JLC, MKC, MNB, MZLU, NHM, NHMW, NHRS, OÖLL, SMBC, ZSM.

Etymology. This pretty species is dedicated to our friend and colleague Dr. Manfred Kraus (Nürnberg). His systematic study on the sawfly larvae, Lorenz & Kraus (1957), is still today one of the major standard works in the research of sawflies.

Discussion. *Tenthredo krausi* is morphologically very similar to *T. dahlii*. The distribution ranges of these species of seem to abut along the border of Europe and Asia Minor and supposedly these are vicariant species (Fig. 73). The most north-western and western records of *T. krausi* are from Bursa and Ephesus in the Asian part of Turkey. The closest records of *T. dahlii* are from the European part of Turkey (Edirne [= Adrianopel], 6.1894, leg. Flach, 1♂, DEI) and from south-eastern Bulgaria (Kharmanli [= Harmanli], 09.05.1985, leg. J. Kadlec, 1♀, MKC). Schedl (2005) mentioned *E. dahlii* for the Greek island Chios, which is situated only few kilometers West of the Turkish mainland near İzmir. But this is a type error for Athens airport (W. Schedl, pers. comm. 2005).

T. amasiensis occurs sympatrically with *T. krausi* in Turkey (Konya WSW 30 km, Hill

2–5 km Sefaköy, Kı zı lören Dağı , 1450 m alt., 23.05.1998, leg. S. M. Blank, 6♀ 4♂, SMBC; Fig. 72). Adults of both species have been collected even from flowers of the same plant.

Host plant. The adults from Incesu and Sefaköy were swept from the yellow flowers of a Brassicaceae species on road sides. Supposedly the larvae are also associated with Brassicaceae as is usual for *Elinora* species.

Distribution (Fig. 73). Syria, Turkey (Amasya, Ankara, Bursa, Isparta, Izmir, Kayseri, Konya, Nevşehir, Nigde, Şanlı Urfa)

Studied material. 43♀ 42♂.

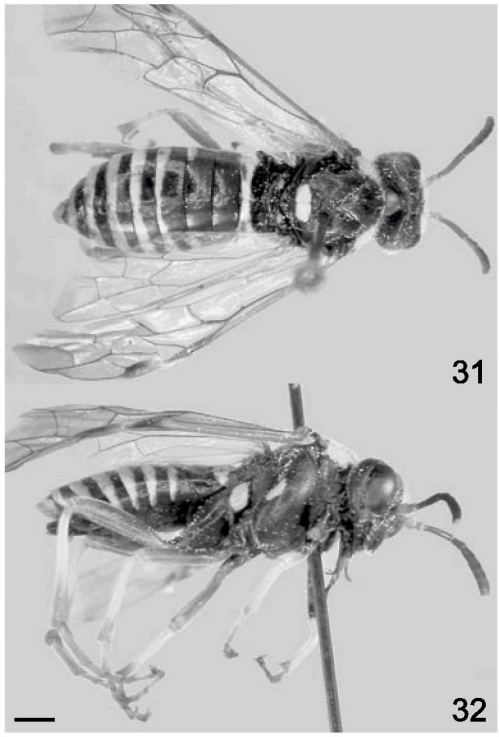
Tenthredo (Elinora) lacourtiana Blank & Taeger, **sp. n.**

(Figs 31, 32, 50, 58, 67, 72)

Type locality: Turkey, Artvin, Kaçkar Mountains, Sarigöl

Diagnostic combination. Among the species with black clypeus, labrum and tegula, the female of *T. lacourtiana* shares the largely yellow scutellum with *T. davidi*. Yellow spots on the mesoscutellum occur rarely in *T. radoszkowskii*, whose sawteeth are more lobular and the cypsellae shorter. In *T. lacourtiana* the occipital carina on the vertex is weak but present (absent in *T. davidi*). Scape, pedicel and the narrow base of flagellomere 1 are orange (Figs 31, 32; only scape dorsally yellow in *T. davidi*). The prementum of *T. lacourtiana* (1.15 × as long as stipes) is longer than in *T. davidi* (0.90), and the sawteeth of the ovipositor bear a comparatively small postcalcar (Fig. 58).

Female Description. Color (Figs 31, 32). Head black, scape, pedicel, narrow base of flagellomere 1, outer portion of mandible except for tip (and except for a medial infuscation in holotype) orange. Thorax black, posterior margin of pronotum, anterior two thirds of mesoscutellum, a stripe on posterior half of mesepisternum, and metepisternum yellow. Abdomen black with tergum 1 yellow except for the most anterior area close to the metapostnotum, tergum 3 with yellow posterior stripe laterally and ventrally, terga 4–7 with complete posterior edge yellow, tergum 8 yellow on posterior edge except for most ventral portion, tergum 9+10 with more or less interrupted posterior yellow band, sterna without yellow. Coxae black, posterior coxa with tiny diffuse pale spot medially



Figs 31–32: *Tenthredo lacourtiana,* habitus. 31, ♀ dorsally; 32, ♀ laterally. Scale 1 mm. (See also Colour Plate 8).

before the tip, trochanters orange anteriorly, more or less black posteriorly, femora orange, fore femur predominantly yellow anteriorly and black posteriorly (holotype) or orange anteriorly and diffusely infuscated posteriorly (paratype), fore and middle femora narrowly yellow at apex, tibiae yellow with distal quarter or third orange, tarsi orange, fore tarsus slightly infuscated towards tip. Wings slightly yellowish, costa, subcosta yellow and anal veins yellow, costa and subcosta infuscated before pterostigma, pterostigma brown with largely orange base.

Morphology. Body length 10.5–11.0 mm. Clypeus ca 0.60 × as long as distance between lower eye margins, medially excised for 0.35 of its length, with flat and irregular wrinkles, shining, irregularly punctured (PD 0–2). Medial part of frons densely punctured (PD 0–1), interspaces moderately shining, upper inner orbits similarly sculptured as surface of

frontal crests. Occipital carina present on lower half of gena and weakly on vertex lateral to postocellar area. Prementum 1.020–1.080 µm long, ca 1.15 × longer than stipes, 1.10–1.20 × longer than flagellomere 1. Proportions of flagellomere length relative to that of flagellomere 1 as follows (holotype / paratype): 2: 0.44 / 0.45, 3: 0.43 / 0.41, 4: 0.36 / 0.34, 5: 0.33 / 0.29, 6: 0.28 / 0.28, 7: 0.28 / 0.27. Median lobe of mesoscutum medially densely punctured (PD 0.5–2) with smooth and shining interspaces. Mesoscutellum densely punctate (medially PD 0.2–1.5), posterior third more or less strigulate between punctures. Mesepisternum densely covered with ca 25 µm large punctures (PD 0.5–1.5) and with few 50–70 µm large punctures, interspaces shining. Anterior tibial spur of anterior legs slightly bent apically. Hypopygium posteriorly shallowly excised lateral of middle. Length of longest setae on the frons about 190 µm, on the mesepisternum about 125 µm. Ovipositor with 17 flat sawteeth (Figs 50, 58).

Male (identification ambiguous). Head black, scape more or less yellow dorsally. Thorax and abdomen black with yellow pattern: very narrow posterior edge of tergum 1, small posterio-lateral spots on tergum 3, continuous or medially interruped posterior band on tergum 4, small posterio-lateral spots or medially interruped posterior band on tergum 5, narrow posterior edges of medial sterna, large medial spot at distal edge of hypopygium. Coxae and trochanters black. On fore leg femur, tibia and tarsus anteriorly mainly yellow, posteriorly mainly black. Middle femur black, anterior side in distal half or completely yellow. Hind femur black, apex yellow, basis and ventral side more or less yellow or brown. On middle and hind legs femora and tibiae yellow with orange apex, tarsi orange. Wings similar to female.

Morphology. Body length 9.0–10.0 mm. Prementum 850–920 µm long, ca 1.10 × as long as stipes, 0.90–1.00 × as long as flagellomere 1. Clypeus 0.60 –0.65 × as long as distance between lower eye margins, medially excised for 0.35–0.40 of its length, with flat and irregular wrinkles, shining, irregularly punctured (PD 0–2). Longest setae on frons ca 200 µm, on mesepisternum ca 130 µm long. Hypopygium truncate distally. Penis valve similar to that of *T. radoszkowskii* (Fig. 67).

Variability. The coloration of the legs varies in both sexes. The amount of yellow pattern on the terga of the males is variable.

Type material. Holotype ♀: "TK [= Turkey] – Artvin [province] 3000 m [altitude] Sarigöl - Mt. Kaçkar 14.8.[19]86 leg. K. Warncke"; "*Cuneala confinis* (Konow) ♀ det. W. Schedl 1987"; [red:] "Holotype ♀ *Tenthredo* (*Elinora*) *lacourtiana* spec. nov. det. S. M. Blank 2006"; "GBIF-GISHym 4698". DEI. Ovipositor stored in a vial on the pin of the specimen. Paratype: **Turkey**: 1 ♀ with identical collecting data except for the collector S. Blank. Additional, non-type material: 1 ♂ with identical data as the holotype, 2 ♂ collected by S. Blank. DEI.

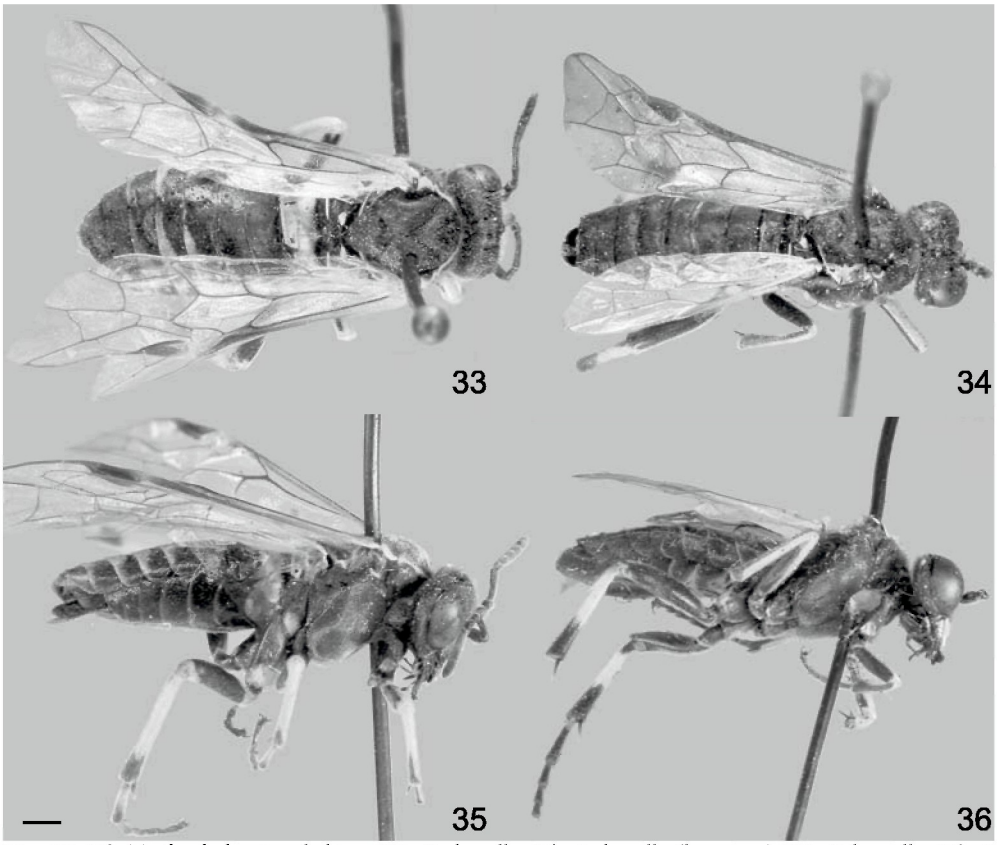
Etymology. Etymology. This species is dedicated to our friend and colleague Dr. Jean Lacourt (Igé). His extensive studies on *Elinora* and his catalog of the West Palaearctic Tenthredinidae are particularly important and useful contributions to the knowledge of sawflies. The species name is to be treated as an adjective.

Discussion. In Sarigöl on the same day two female *Tenthredo radoszkowskii* were caught together with *T. lacourtiana*, one with red on the abdomen and one without. Also four males were found there, one with red on the abdomen (= *T. radoszkowskii*) and three without (here identified as *T. lacourtiana*). The latter three males have lateral yellow marks on tergum 3 and lateral yellow marks or more or less continuous bands on terga 4–5. Unambiguous *T. radoszkowskii* (abdomen partly red) notably differ from these males in the sculpture of the upper half of the mesepisternum. In *T. radoszkowskii* the mesepisternum usually is densely, irregularly wrinkled, and the punctures may hardly be perceptible between the rough surface sculpture. In the present three males it is polished between the punctures or bears very fine microsculpture. Since the females of *T. lacourtiana* have a similar surface sculpture, the three males are assumed to belong here. But due to the great variability observed in *T. radoszkowskii* the identification remains quite doubtful and the inclusion of these three males in the identification key and in the description above remains provisional.

Ecology. *Tenthredo lacourtiana* was found to occur syntopically together with *T. radoszkowskii* at 3,000 m altitude.

Distribution (Fig. 72). Turkey (Artvin).

Studied material. 2 ♀ 3 ♂.



Figs 33–36: *Tenthredo longipes,* habitus. 33, ♀ dorsally; 34, ♂ dorsally (lectotype); 35, ♀ laterally; 36, ♂ laterally (lectotype). Scale 1 mm. (See also Colour Plate 8).

Tenthredo* (*Elinora*) *longipes (Konow, 1886)

(Figs 3, 4, 33–36, 51, 59, 66, 72)

= *Allantus longipes* Konow, 1886: 20–21, ♀♂, type locality: Russia, Dagestan, Derbent; = *Cuneala longipes* (Konow, 1886); *Elinora longipes* (Konow, 1886)

= *Allantus shestoperovi* Ushinskij, 1936: 110–111, ♀♂, type locality: Turkmenia, Kopet Dagh, Arpaklenskoje Ushtshelje, **syn. n.**; = *Tenthredo* (*Elinora*) *longipes* ssp. *shestoperovi* (Ushinskij, 1936); = *Allantus schestoperovi*, misspelling; *Tenthredo schestoperovi*, misspelling; *Tenthredo* (*Elinora*) *schestoperovi*, misspelling

= *Cuneala tricolor* Zirngiebl, 1956: 322–325, ♀, type locality: Iran, Racht [= Rescht], Ṭaher Gūrāb [= Tahergourabe]; secondary homonym of *Allantus tricolor* Kriechbaumer, 1869 [= *Elinora corynetes* (W. F. Kirby, 1882)]

Diagnostic combination. The *Tenthredo longipes* female is characterized among species with black clypeus by 1, the pale lateral edge of the tegula (black in *T. davidi*, *T. koehleri*, *T. lacourtiana* and *T. radoszkowskii*), and 2, the brown to white labrum (Fig. 3; black in *T. davidi*, *T. koehleri*, *T. lacourtiana* and *T. radoszkowskii*). The base of the clypeus being extensively black distinguishes the male from other species with pale clypeus (Fig. 4; base yellow in other species).

Type material. *Allantus longipes*. Lectotype ♂ (hereby designated): "♂"; "Derbent"; "coll. Konow"; [red:] "Typus"; "*Allantus longipes* Knw. Kauk."; "DEI Eberswalde"; "Pr. Nr. 377 W. Schedl"; [red:] "Lectotypus ♂ *Allantus longipes* Knw. des. W. Schedl 1987"; [red:] "Lectotypus ♂ *Allantus longipes* Konow, 1886 des. S. M. Blank 98"; "*Elinora longipes* (Konow) ♂ det. S. M. Blank 97". The left anterior, and the right medial and posterior tarsi, the complete left antenna, and the right flagellum are missing. There is a small

plastic slide on the pin, but the genitalia preparations formerly embedded on it are missing. DEI.

Allantus shestoperovi. Types not studied.

Cuneala tricolor. SMNS. See Blank (1996; specimen now additionally labelled with "GBIF-GISHym 2101").

Discussion. *Tenthredo longipes* is the valid name for a species, which is known from the eastern part of the Caucasus and Transcaucasus mountains, from northern Iran (close to Racht), and from Turkmenistan (Kopet Dagh). *Allantus longipes* was described upon an unknown number of males and females. The only specimen of the DEI collection, which is labelled as collected in "Derbent", is hereby designated as the lectotype. Schedl never published the lectotype designation which is indicated by the labelling. An additional female without a collecting label is not taken into consideration as syntype. The lectotype agrees well with the original description. Females have terga 4–6 with yellow posterior margins and terga 3 and 7 with small yellow posterior stripes laterally. In males terga 3 and 4 bear very small posterior margins, the basal three sterna are largely pale medially at their base.

Allantus shestoperovi is a pale form of *T. longipes*. According to Ushinskij's original description, females have the dorsal part of terga 3–4 completely yellow or red, terga 5–7 and 9 with yellow posterior margins, and the ventral parts of terga 5–7 with confluent triangular pale spots. Males have terga 3–4 and the basal three sterna whitish yellow, the basal sternum bearing two lateral black spots. Ushinskij (1936) described *A. shestoperovi* from 4 ♀ and 2 ♂ collected in Turkmenistan (Kopet Dag, Arpaklenskoe ushchel'e, 5.–7.5.1933). Zhelochovtsev (1976) added a single female (Kopet Dag, Kara-Kala, ushch. [= ushchel'e, gorge] Ay-Dere, 26.5.1936, A. Ushinskij) and classed it as *Tenthredo* (*Elinora*) *longipes* ssp. *shestoperovi* (Ushinskij, 1936). The red color pattern of terga 3–4 in *A. shestoperovi* is similar to Zirngiebl's type specimen of *C. tricolor* from northern Iran and a further female from Talysh mountains on the border of Iran and Azerbaijan ("Transkauk. Talysch 1886"; DEI). The distribution areas of the pale and the dark form overlap at least in the West of the Transcaucasus range. As no geographical separation is apparent, these two forms are treated as synonyms.

Distribution (Fig. 72). Azerbaijan, Iran (Gilan), Russia (Daghestan). Reported from Turkmenia (Kopet Dag) by Ushinskij (1936) and Zhelochovtsev (1976).

Studied material. 5 ♀ 1 ♂.

Tenthredo (*Elinora*) *radoszkowskii* (Ed. André, 1881)

(Figs 6, 37–44, 52, 60, 68–71, 74)

= *Macrophya radoskowskii* Ed. André, 1881a: 365 and Catalogue 44*, ♀, type locality: Caucasus, incorrect original spelling; = *Macrophya radoszkowskii* Ed. André, 1881b: 591, correction of spelling (Art. 32.5.1.1., ICZN 1999); = *Blankia radoszkowskii* (Ed. André, 1881); = *Cuneala radoszkowskii* (Ed. André, 1881); = *Elinora radoszkowskii* (Ed. André, 1881); = *Elinora koehleri radoszkowskii* (Ed. André, 1881); *Tenthredo* (*Cuneala*) *radoszkowskii* (Ed. André, 1881); = *Allantus radoskowskii*, misspelling; = *Allantus koehleri radoszkovskii*, misspelling; = *Cuneala radoszkovskii*, misspelling

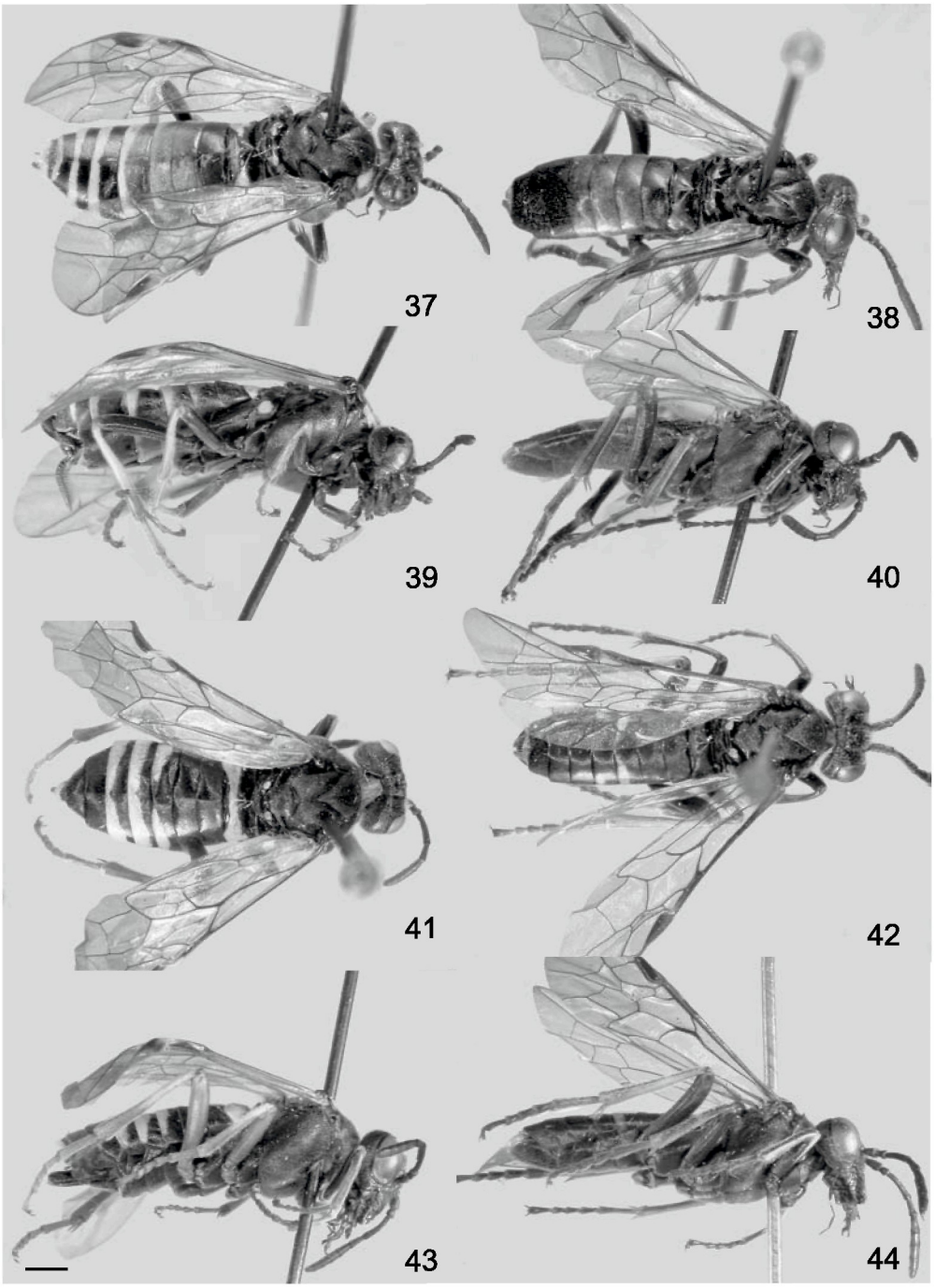
= *Allantus atratus* Ed. André, 1883: 206, ♂, type locality: Russia, ?Sarepta (most likely from Caucasus); = *Tenthredo atrata* (Ed. André, 1883)

= *Allantus confinis* Konow, 1886: 21, ♀ ♂, type locality: Azerbaydzhan, Shakh Dag; = *Cuneala confinis* (Konow, 1886); = *Tenthredo confinis* (Konow, 1886)

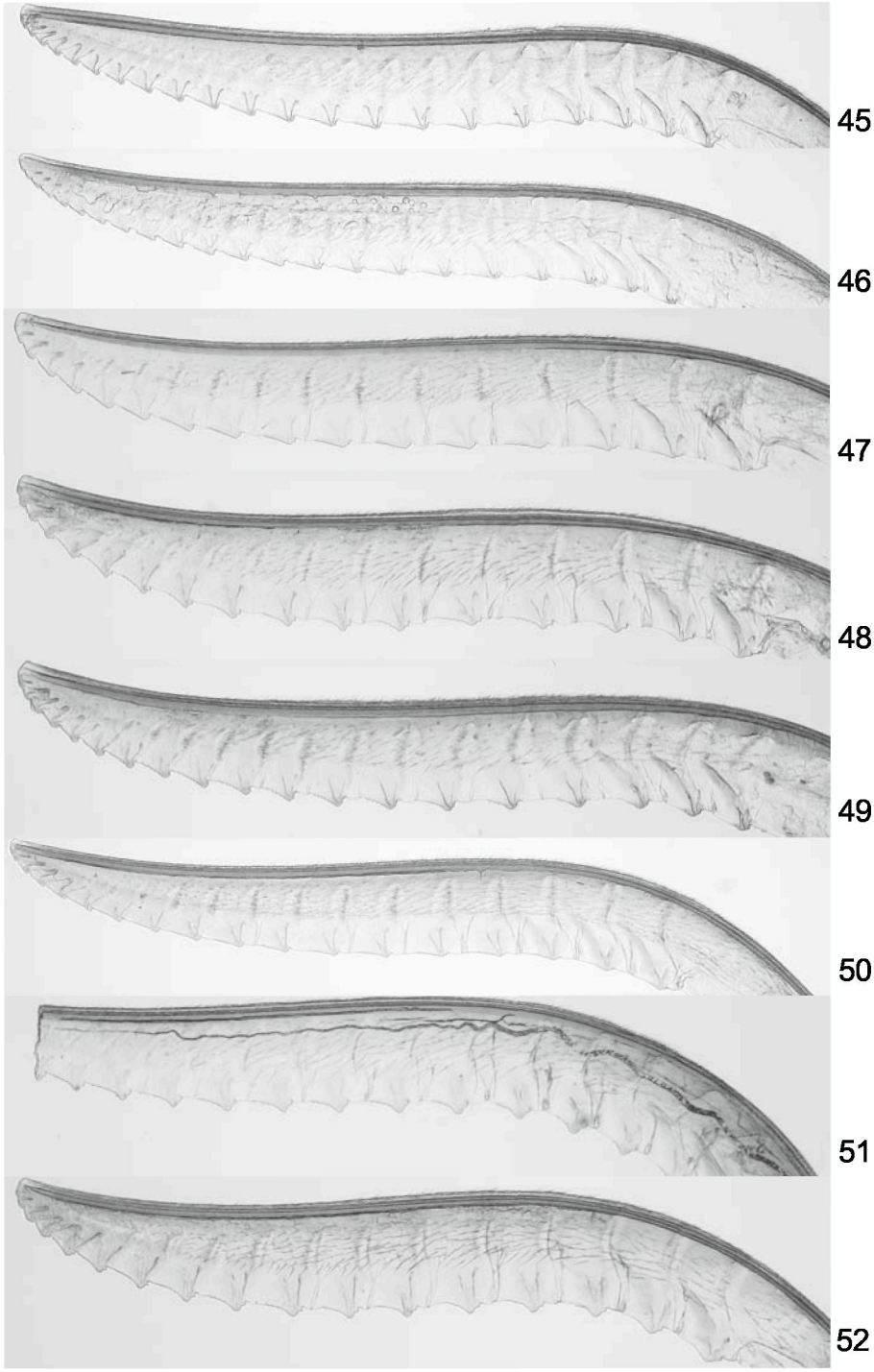
= *Allantus parviceps* Konow, 1898: 329, ♀ ♂, type locality: Georgia, Lomis-Alevskiy Khrebet [= Lomis mta]; = *Elinora parviceps* (Konow, 1898); = *Allantus parvicera*, misspelling

= *Cuneala koehleri*: Çalmaşur & Özbek (2004), misidentification

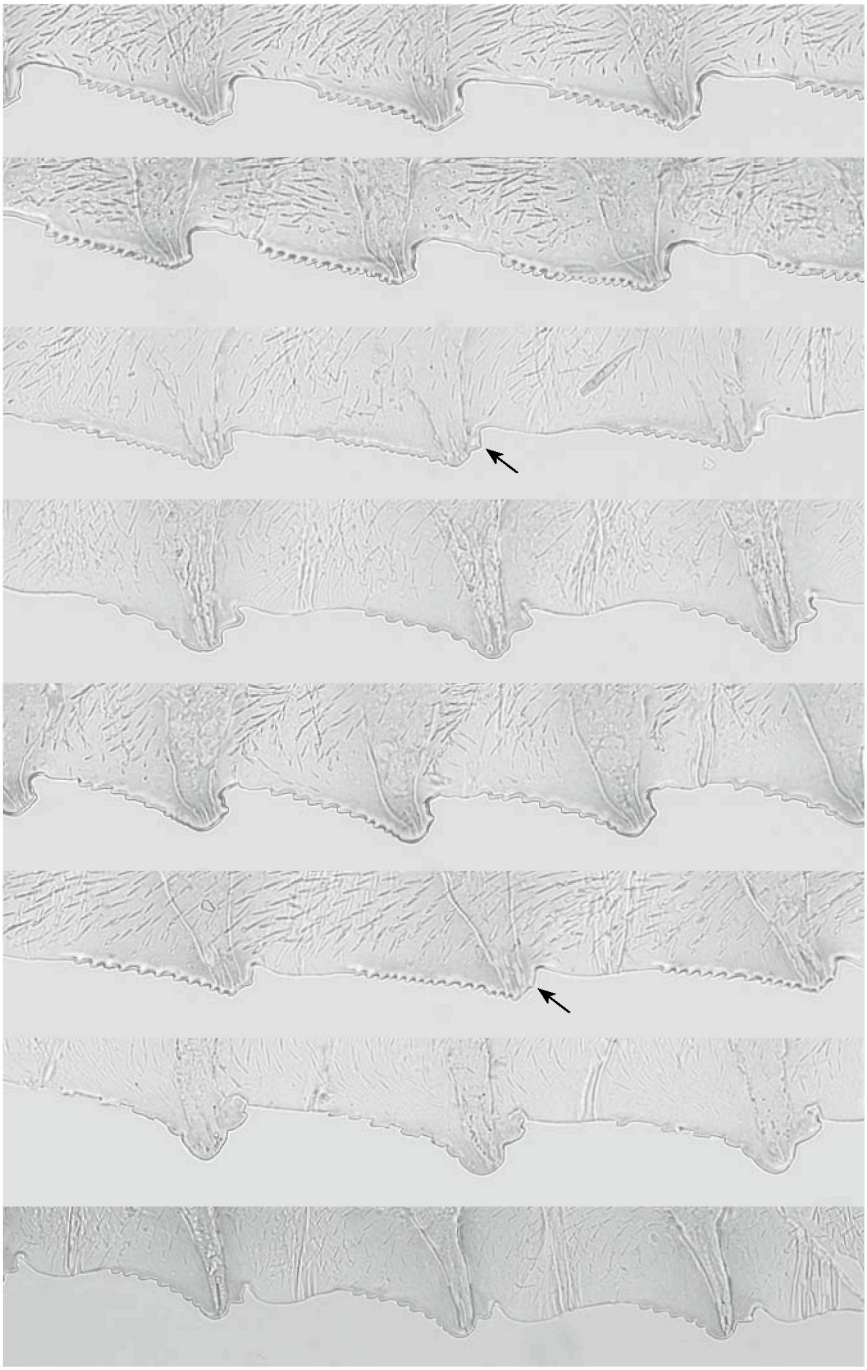
Diagnostic combination. *Tenthredo radoszkowskii* shares the black clypeus, labrum and tegulae with *T. davidi*, *T. koehleri* and *T. lacourtiana*. The vertex lateral to the postocellar area bears at least a weak occipital carina (absent in *T. davidi*). The female is characterized by the combination of 1, scattered setae in the middle of tergum 2–3 (Fig. 5; setae continuously present in *T. koehleri*); 2, rounded sawteeth of valvula 1 of the ovipositor (Fig. 60; flat in *T. davidi* and *T. lacourtiana*). Most females have a black scutellum, but rarely specimens with two separate yellow spots occur (mesoscutellum yellow on anterior two thirds in *T. davidi* and *T. lacourtiana*). The male has 1, terga 3–5 red, and / or 2, tergum 4 with a more or less continuous distal yellow edge and tergum 5 with yellow distal spots laterally (Figs 38, 40, 42, 44). The



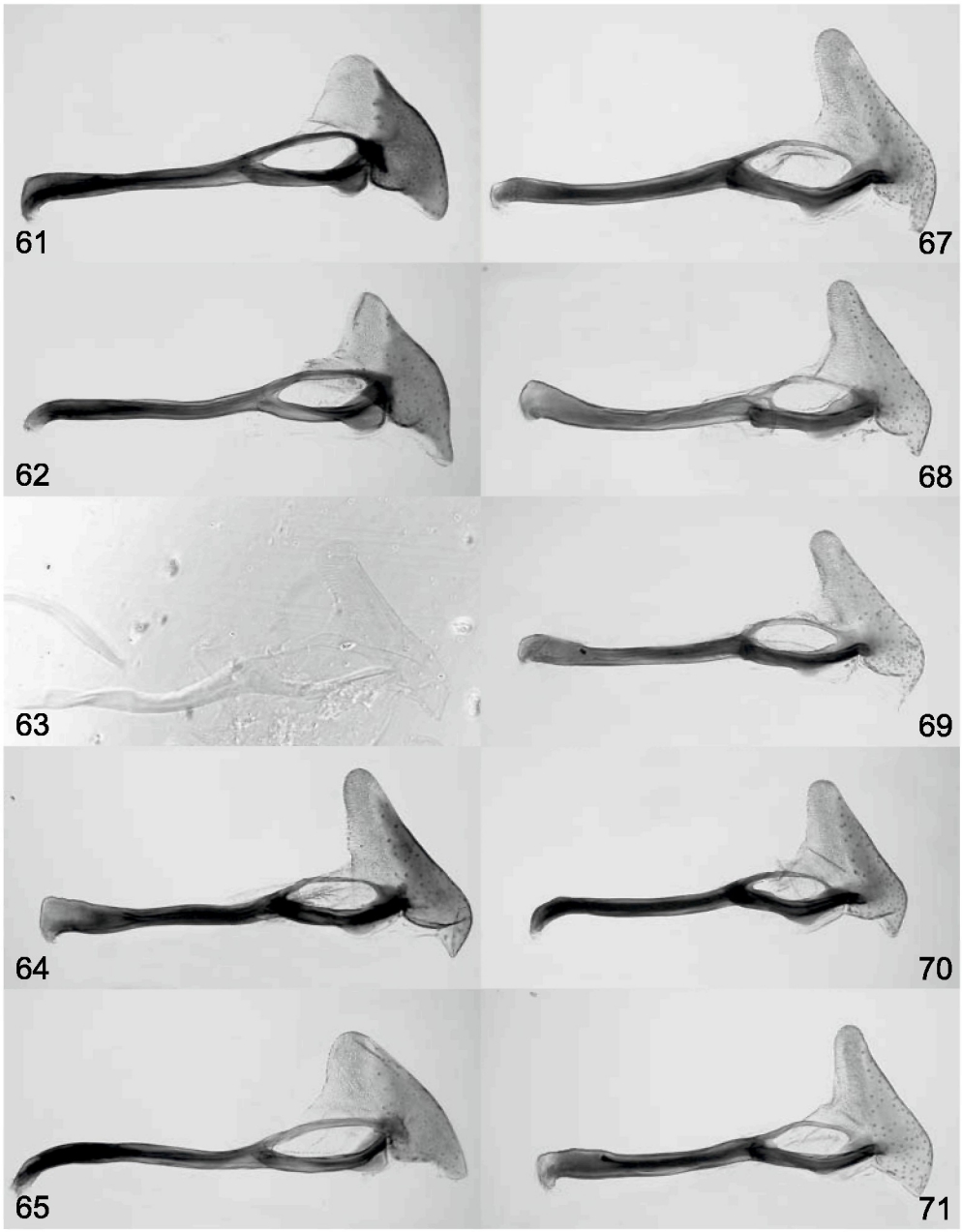
Figs 37–44: *Tenthredo radoszkowskii*, habitus. 37–40 form with red markings. 37, ♀ dorsally; 38, ♂ dorsally; 39, ♀ laterally; 40, ♂ laterally. 41–44 form without red markings. 41, ♀ dorsally; 42, ♂ dorsally; 43, ♀ laterally; 44, ♂ laterally. Scale 1 mm. (See also Colour Plate 9).

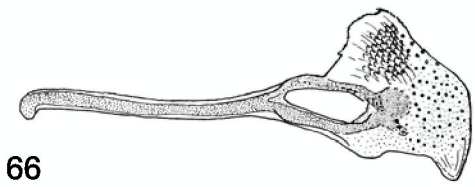


Figs 45–52: *Tenthredo* (*Elinora*) spp., ovipositor. 45, *T. amasiensis*; 46, *T. dahlii*; 47, *T. davidi*; 48, *T. koehleri*; 49, *T. krausi*; 50, *T. lacourtiana*; 51, *T. longipes*; 52, *T. radoszkowskii*.

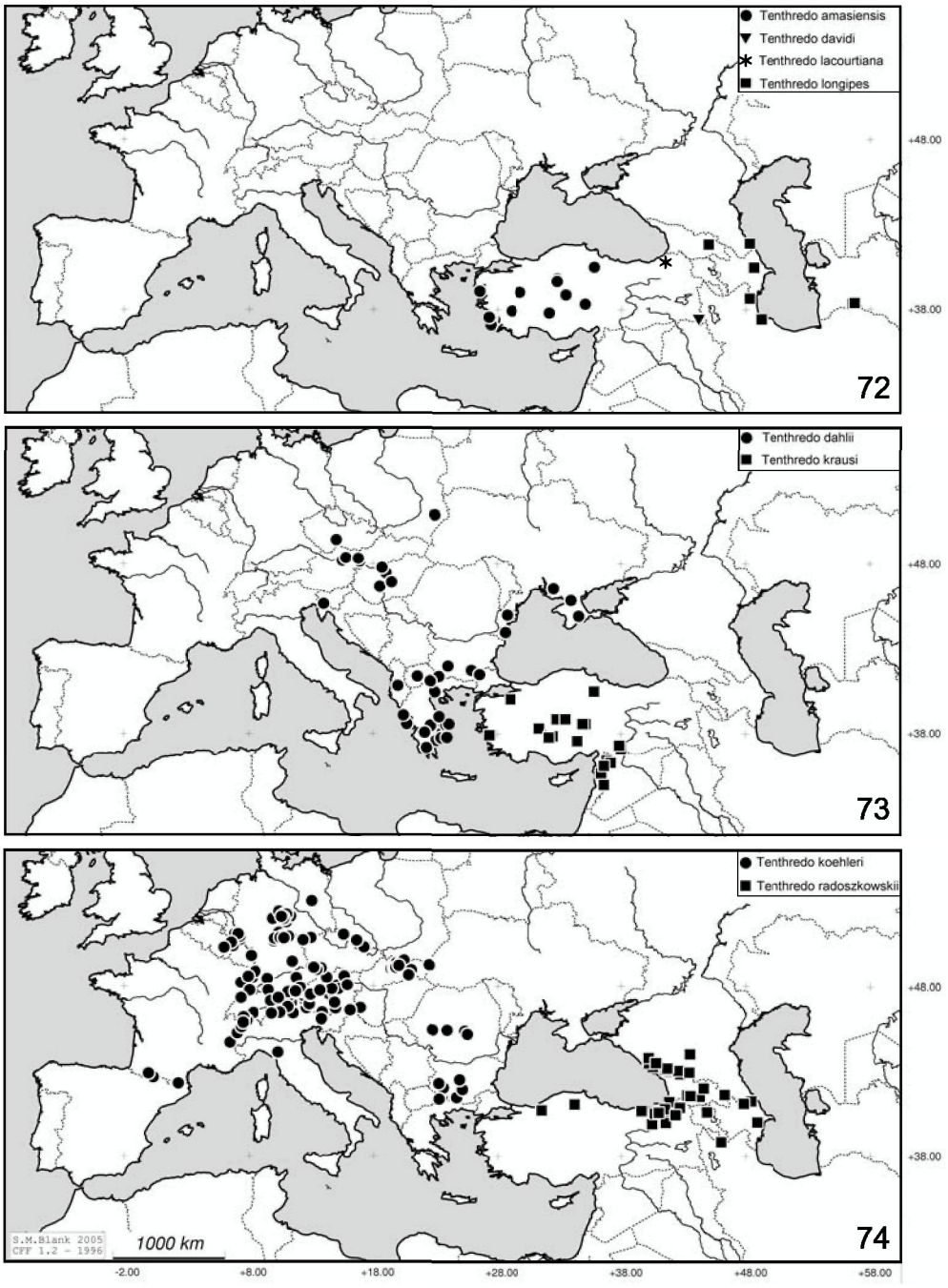


Figs 53–60: *Tenthredo* (*Elinora*) spp., teeth of the saw (in parentheses number counted from the apex). 53, *T. amasiensis* (10–12); 54, *T. dahlii* (9–11); 55, *T. davidi* (7–9, arrow indicates postcalcar) ; 56, *T. koehleri* (8–10); 57, *T. krausi* (8–10); 58, *T. lacourtiana* (8–10, arrow indicates postcalcar); 59, *T. longipes* (ca 8–10); 60, *T. radoszkowskii* (7–9).





Figs 61–71: *Tenthredo* (*Elinora*) spp., penis valves. 61, *T. amasiensis*; 62, *T. dahlii*; 63, *T. davidi*; 64, *T. koehleri*; 65, *T. krausi*; 66, *T. longipes* (sketch by courtesy of W. Schedl, 1987); 67, *T. lacourtiana*; 68–71, *T. radoszkowskii.*



Figs 72–74: Distribution records from material checked in the present study and from Ushinskij (1936; *Allantus shestoperovi* [= *Tenthredo longipes*] from Turkmenia, Kopet Dagh, Arpaklenskoje Ushtshelje) and Kirby (1882; *Macrophya hartigii* [= *T. dahlii*] from Albania); 72, *Tenthredo amasiensis*, *T. davidi*, *T. lacourtiana* and *T. longipes*; 73, *T. dahlii* and *T. krausi*; 74, *T. koehleri* and *T. radoszkowski*.

differentiation of male *T. radoszkowskii* and *T. lacourtiana* is ambiguous.

Type material. *Allantus atratus*. Type ♂: [round, golden label, = type specimen]; "Sarepta"; "*Allantus atratus* André"; [Cyrillic letters:] "K. Jakovleva". ZIP

Macrophya radoszkowskii, *Allantus confinis*, *A. parviceps*: see Taeger (1988).

Discussion. *Tenthredo radoszkowskii* is a frequently collected sawfly species in the Caucasus range and neighbouring high mountain ranges. The species is confusingly variable throughout its distribution area. Most females can be associated with two forms: form 1 has the hind femora red and only yellow pattern on the medial terga (Figs 41, 43); form 2 has the hind femora black, the medial terga bear yellow and often red pattern (Figs 37, 39). Two forms can also be distinguished among males with respect to the abdominal coloration: form 1 with yellow stripes on terga 4–5 (Figs 42, 44); form 2 with terga 3–5 red and sometimes with yellow stripes on terga 4–5 (Figs 38, 40). Males and females of these forms have often been collected on the same site. On particular collecting sites one of the forms is usually dominant among long series of specimens. Form 1 is much more abundant in the Caucasus and form 2 in the north-eastern Turkish mountains. Really intermediate forms (femora red with extensive black pattern, abdomen only with yellow pattern) are rare. A series of such intermediate, locally quite constantly colored specimens is from northern Caucasus (Russia, Kuban region, Kisha; DEI and ZSM). Due to the variability of the color pattern and the syntopic occurrence of the forms we regard them as conspecific.

Females with the most extensive yellow color pattern may have two yellow spots on the anterior portion of the mesoscutellum (Azerbaijan, Aras Valley, Ordubad, 1♀, DEI; Russia, Respublika Karachay-Cherkessia, Kuban Mountains, Kisha, 22.5.1914, leg. Prager, 2♀, DEI; Turkey, Rize S, 1200 m altitude, 30.7.1983, leg. K. Warncke, 1♀, MKC). The single female from Rize was collected together with 16♀ and 7♂, which all have a black mesoscutellum. In the specimens from Kisha and Rize the yellow spots are widely separate. In the female from Ordubad they cover almost the complete anterior half of the mesoscutellum and abut medially along a narrow brown line. The yellow spots were found to occur in females with and without red on the abdomen.

The placement of *Allantus atratus*, *A. confinis* and *A. parviceps* as synonyms of *Tenthredo radoszkowskii* was reconsidered by Taeger (1988, 1991a). The type of *A. atratus* represents a dark male of *T. radoszkowskii*. The type locality "Sarepta" near Volgograd is doubtful, because it is far from the known distribution range of the species. The type material was collected and sent to André by A. Becker (see André 1883). Alexander Becker dealt with insects in Sarepta, which he had collected in steppes of Kyrgyzstan, Caucasus, Daghestan and on other sites (Horn et al. 1990). It seems likely that this specimen has been labelled wrongly.

Tenthredo davidi and *Tenthredo lacourtiana* are described as new species in course of the present work, because the nominal taxa associated with the most similar species, *T. radoszkowskii*, cannot be referred to the present taxa. The lectotype of *Macrophya radoszkowskii* has the mesepisternum and the mesoscutellum black (André 1881a: "Thorax noir"; examination and redescription of lectotype by Taeger 1988). The type specimen of *Allantus atratus* was studied by Taeger already long before our discovery of *T. lacourtiana*, and we do not have it on hand at present. André's (1883) description refers to a black male with dull thorax and anteriorly yellow fore femur and tibia, which does not match the more extensively pale and largely shining males here associated with *T. lacourtiana* and *T. davidi*. The lectotype females of *Allantus confinis* and *A. parviceps* disagree with *T. davidi* and *T. lacourtiana* among other characters in the black mesepisternum and mesoscutellum and the lobular sawteeth.

Distribution (Fig. 74). Armenia, Azerbaijan, Georgia, Russia (Daghestan, Krasnodarskiy Kray, Respublika Kabardino-Balkaria, Respublika Karachay-Cherkessia, Stavropol'skiy Kray), Turkey (Artvin, Erzurum, Erzurum and Rize, Gümüşhane, Kars, Kastamonu, Rize, Trabzon). Benson (1968) listed records from Iran and from additional, more western provinces of Turkey.

Studied material. 100♀ 51♂.

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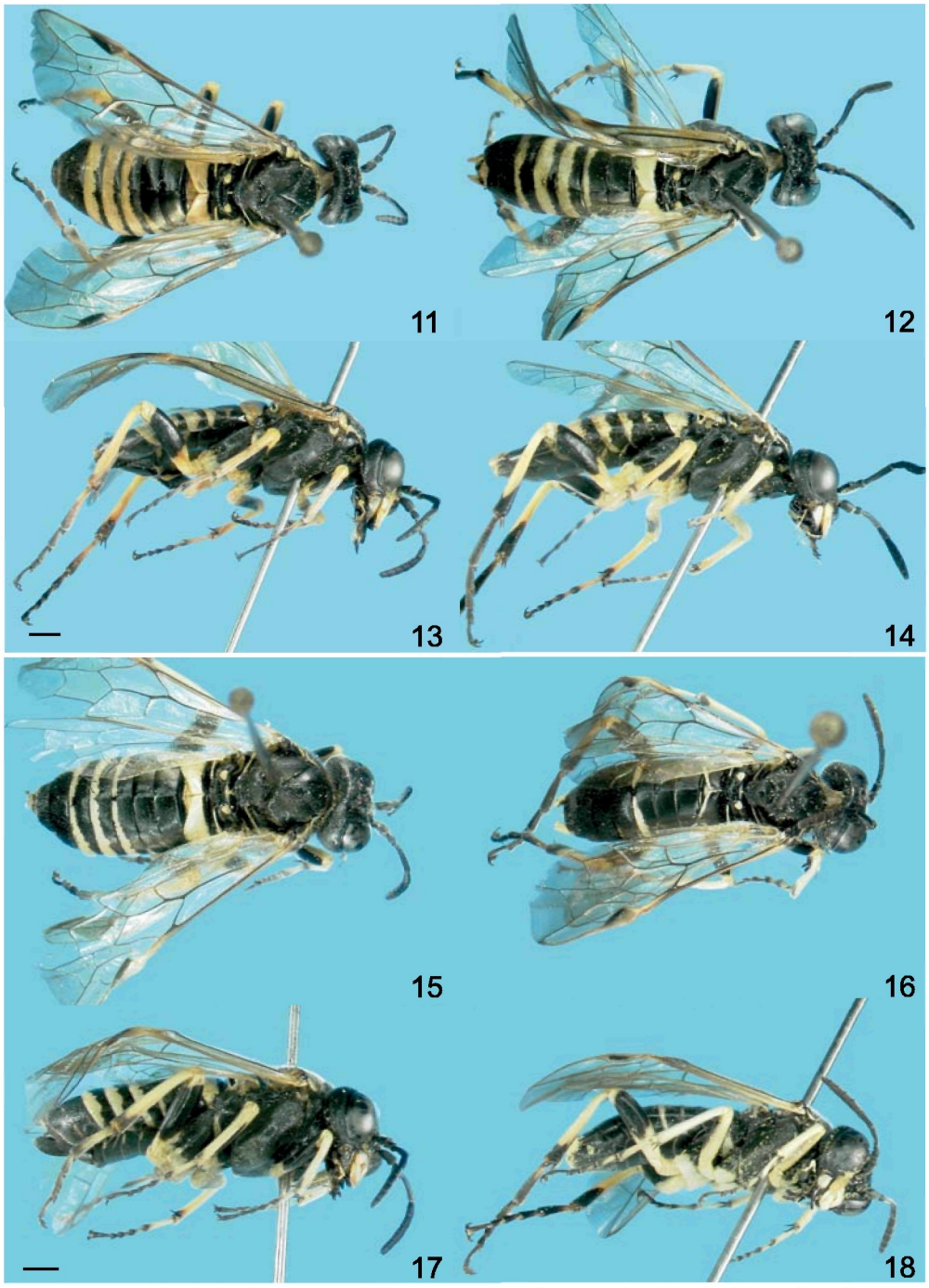
Abstract

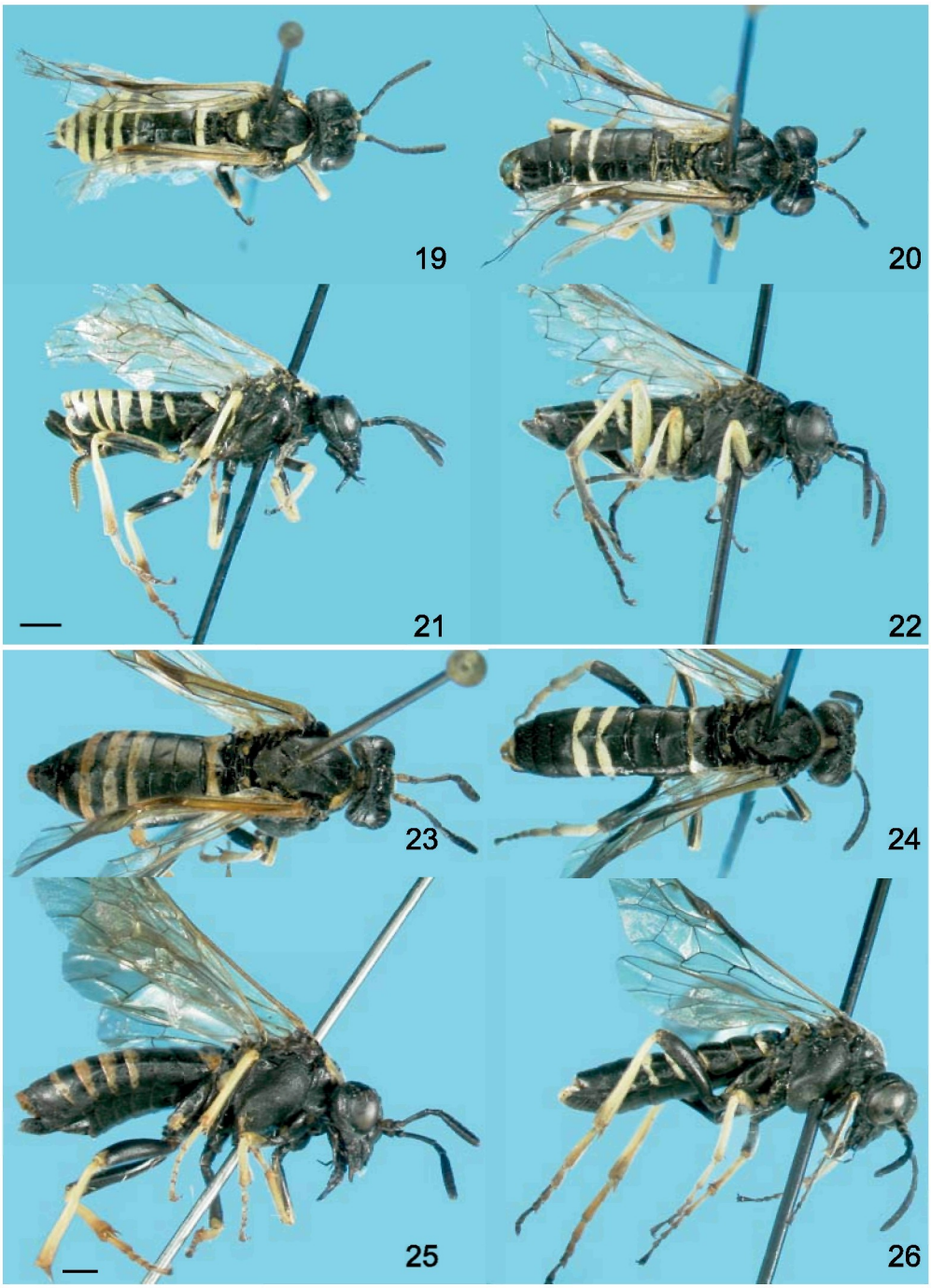
Taxonomy and Evolution of *Tenthredo* (*Elinora*) Species Similar to *T. dahlii* and *T. koehleri* (Hymenoptera: Tenthredinidae). Although *Elinora* Benson, 1946, a lineage of *Tenthredo* Linné, 1758, is taxonomically well defined, the known morphological characters do not unequivocally support the monophyly of such a taxon. They turned out as plesiomorphies, underly considerable interspecific variability, or occur homoplastically in *Sciapteryx* Stephens, 1835, a closely related lineage of Tenthredinini. The adaptation of *Elinora* larvae to Brassicaceae as their host plants is regarded as the only unequivocal apomorphy for this group. *Blankia* Lacourt, 1997, which has been split off from *Elinora* on basis of autapomorphies, is considered as a new synonym of *Tenthredo* Linné, 1758, due to the lack of apomorphies of the remaining *Tenthredo* (*Elinora*) species. The species, which are similar to *T. dahlii* Klug, 1817 and *T. koehleri* Klug, 1817, are revised and keyed. *T. davidi* sp. n., *T. krausi* sp. n. and *T. lacourtiana* sp. n. are described from Turkey and Syria. *Allantus shestoperovi* Ushinskij, 1936 is regarded as a new synonym of *T. longipes* (Konow, 1886). Lectotypes are designated for *Allantus xanthorius* Kriechbaumer, 1869, *A. xanthorius* var. *amasiensis* Kriechbaumer, 1869, and *Tenthredo* (*Allantus*) *koehleri* Klug, 1817.

Zusammenfassung

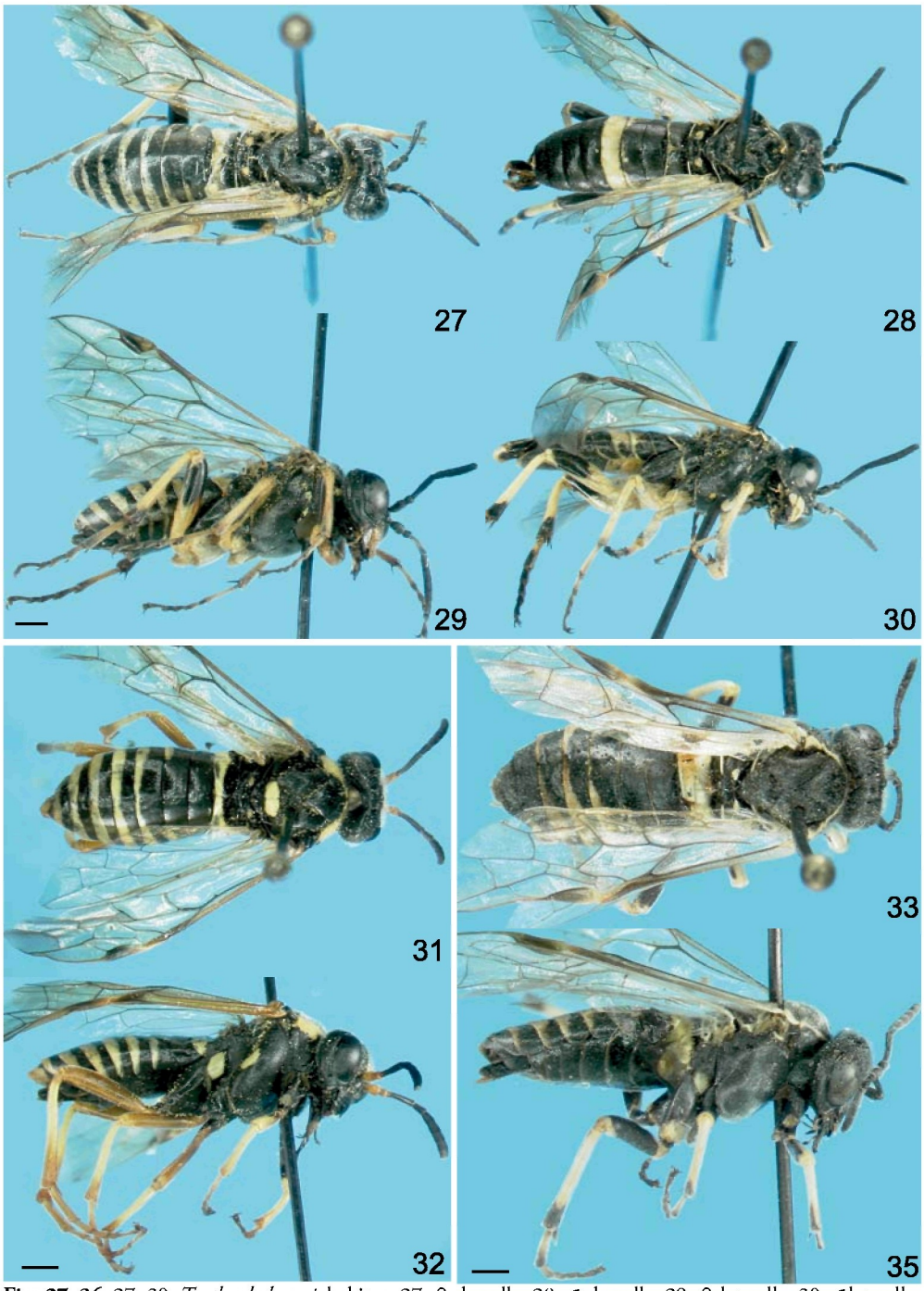
Taxonomie und Evolution der *Tenthredo* (*Elinora*)-Arten, die *T. dahlii* and *T. koehleri* (Hymenoptera: Tenthredinidae) ähneln. Die Imagines von *Elinora* Benson, 1946, einer Linie innerhalb von *Tenthredo* Linné, 1758, sind taxonomisch gut erkennbar. Eindeutige morphologische Merkmale für ihre Monophylie sind jedoch nicht bekannt. Die untersuchten Merkmale stellten sich als Plesiomorphien heraus, oder sie unterlagen deutlichen interspezifischer Variabilität, oder sie traten homoplastisch bei *Sciapteryx* Stephens, 1835, einer nahe verwandten Linie der Tenthredinini, auf. Die Anpassung von *Elinora* an die Brassicaceae als larvale Wirtspflanzen wird als einzige eindeutige Apomorphie für diese Gruppe gewertet. *Blankia* Lacourt, 1997, die von *Elinora* aufgrund von Autapomorphien abgespalten wurde, wird als neues Synonym von *Tenthredo* Linné, 1758 betrachtet, da für die übrigen *Elinora*-Arten keine Apomorphien vorliegen. Die Arten, die *T. dahlii* Klug, 1817 und *T. koehleri* Klug, 1817 ähneln, werden revidiert und in einem Bestimmungsschlüssel zusammengestellt. Aus der Türkei und aus Syrien werden *T. davidi* sp. n., *T. krausi* sp. n. und *T. lacourtiana* sp. n. beschrieben. *Allantus shestoperovi* Ushinskij, 1936 wird als neues Synonym von *T. longipes* (Konow, 1886) betrachtet. Für *Allantus xanthorius* Kriechbaumer, 1869, *A. xanthorius* var. *amasiensis* Kriechbaumer, 1869 und *Tenthredo* (*Allantus*) *koehleri* Klug, 1817 werden Lectotypen festgelegt.



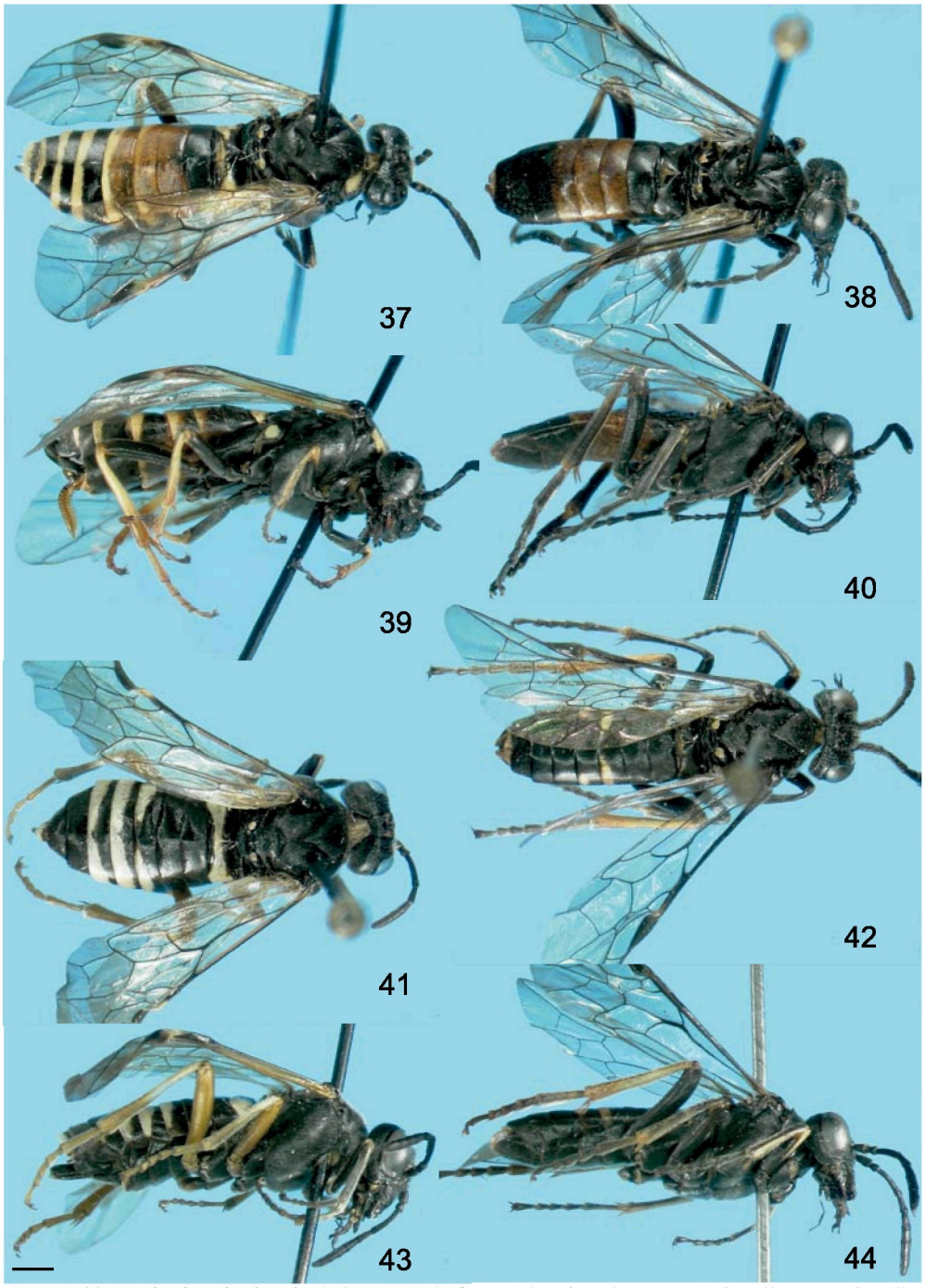
Figs 11–18: 11–14, *Tenthredo amasiensis,* habitus. 11, ♀ dorsally; 12, ♂ dorsally; 13, ♀ laterally; 14, ♂ laterally; 15–18, *Tenthredo dahlii,* habitus. 15, ♀ dorsally; 16, ♂ dorsally; 17, ♀ laterally; 18, ♂ laterally. Scale 1 mm.



Figs 19–26: 19–22, *Tenthredo davidi,* habitus. 19, ♀ dorsally; 20, ♂ dorsally; 21, ♀ laterally; 22, ♂ laterally; 23–26, *Tenthredo koehleri,* habitus. 23, ♀ dorsally; 24, ♂ dorsally; 25, ♀ laterally; 26, ♂ laterally. Scale 1 mm.



Figs 27–36: 27–30, *Tenthredo krausi,* habitus. 27, ♀ dorsally; 28, ♂ dorsally; 29, ♀ laterally; 30, ♂ laterally; 31–32, *Tenthredo lacourtiana,* habitus. 31, ♀ dorsally; 32, ♀ laterally; 33, 35, *Tenthredo longipes,* habitus. 33, ♀ dorsally; 35, ♀ laterally. Scale 1 mm.



Figs 37–44: *Tenthredo radoszkowskii,* habitus. 37–40 form with red markings. 37, ♀ dorsally; 38, ♂ dorsally; 39, ♀ laterally; 40, ♂ laterally. 41–44 form without red markings. 41, ♀ dorsally; 42, ♂ dorsally; 43, ♀ laterally; 44, ♂ laterally. Scale 1 mm.