

Descriptions of a Previously Unknown Male, of a New Genus and Three New Species of Pteromalidae (Hym., Chalcidoidea) from Northern Sweden

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Abstract

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The previously unknown male of *Stictomischus longiventris* Th. is described and com-

pared with *S. gibbus* (Walk.) Three new species, viz. *Spathopus montanus* ♀, *Spaniopus hedqvisti* ♀ ♂ and *Zdenekia plana* ♀, are described and for the last species the new genus *Zdenekia* — which is very close to *Anogmus* Först. — is created.

Stictomischus longiventris Th.

This seems to be an uncommon or rare species the male of which seems not to have been described. Because the species is not well known I will here give a rather detailed description of the male.

♂. Length about 3.2 mm. Colour, as in the female, black with a faint violet to greenish metallic gloss, antennae and legs with lighter or darker brown parts, although these parts in general are darker than in Delucchi's (1955) redescription of the female.

Head dorsally (Fig. 2) about 3.5 times as wide as long; about 1.1 times the breadth of mesoscutum; temples about 1/4 the length of eye. POL: OOL=20:15. Head in frontal view broad (Fig. 3), about 1.5 times as broad as long, very faint malar sulcus nearly 1/3 the length of eye; eyes separated by about 1.5 times their length; breadth of oral fossa nearly 3.5 times malar space; clypeus shiny, rather protruding and weakly incised medially with two large teeth and an indistinct one (which may be missing) on the left side; right mandible with four, left with three teeth (Fig. 1). Sculpture, as in female, finely reticulate and slightly raised above surface,

shiny. Antennae (Fig. 4) inserted half way between clypeus and median ocellus; scape 4.4 times as long as pedicel plus flagellum and about 1.4 times length of eye, almost reaching median ocellus; the eight last segments of antennae as long as breadth of head; funicular segments about 1.7 times as long as broad, first slightly longer and last one shorter; clava 2.3 times as long as broad, slightly wider than funicle; hairs of flagellum rather short and sensilla sparse, arranged in one or two irregular rows on each segment.

Thorax, propodeum and petiole as in female; scutellum and frenum with a characteristic very finely engraved punctate reticulation (Fig. 5) which is also to be found on dorsellum. This is rather unusual but was pointed out by Delucchi . . . "Scutellum allongé, aussi finement réticulé que le post-scutellum . . . Metanotum . . . et aussi finement réticulé que le scutellum." Wings as in female (Figs. 6—7); hind coxa 1.6 times as long as wide, seen from inside with wave like almost transverse sculpture and raised scaly reticulation, on dorsal lower surface with long bristles and shorter ones along ventral edge (Fig. 8).

Gaster as long as thorax, basal tergite 1.5 times as long as the rest of gaster; genitalia as in Fig. 9.

Material examined:

Sweden. Småland: Hornsö 13.VI.1970, ♂♀. — Västerbotten: Granö, Ralberget 10.VI.1969, ♂. Leg. L. Huggert and in coll. Huggert, Umeå.

My specimens were compared with one female from Dalarna, leg. Boheman in coll. Thomson, Lund.

Biology unknown. One of my males was swept from spruce in an almost pure spruce forest and the others in a deciduous forest mixed with spruce. Probably this species is associated with that tree.

Both males are rather weakly sclerotized. Thus there are some distortions in the Figs. In Graham's (1969) key to the males of *Stictomischus* the two specimens run to couplet 4, but the head is much wider than in *S. tumidus* (Walk.), so if one goes further one will reach *S. gibbus* (Walk.). This species, however, has quite a different head (Fig. 11) and antenna (Fig. 12). The prepectus in *longiventris* Th. (Fig. 10) has a more rounded upper margin than in *gibbus* (Walk.) (Fig. 13), but not always as much as in Fig. 10.

Spathopus montanus sp.n.

In 1904 Ashmead erected his genus *Spathopus*, with *S. anomalipes* Ashm. from Florida as type species. The generic characters, however, were later found by Bouček (1964) to be mostly of only secondary value, because although Ashmead stated that his specimen was a female, it was in fact a male and he did not mention anything in his description about those characters of real generic value, e.g. the shape of the pronotum with its constriction posteriorly, or the flattened thorax. The generic status of the genus *Spathopus* Ashm. was clearly demonstrated by Bouček in his detailed redescription of the genus, based also on males and females of a new

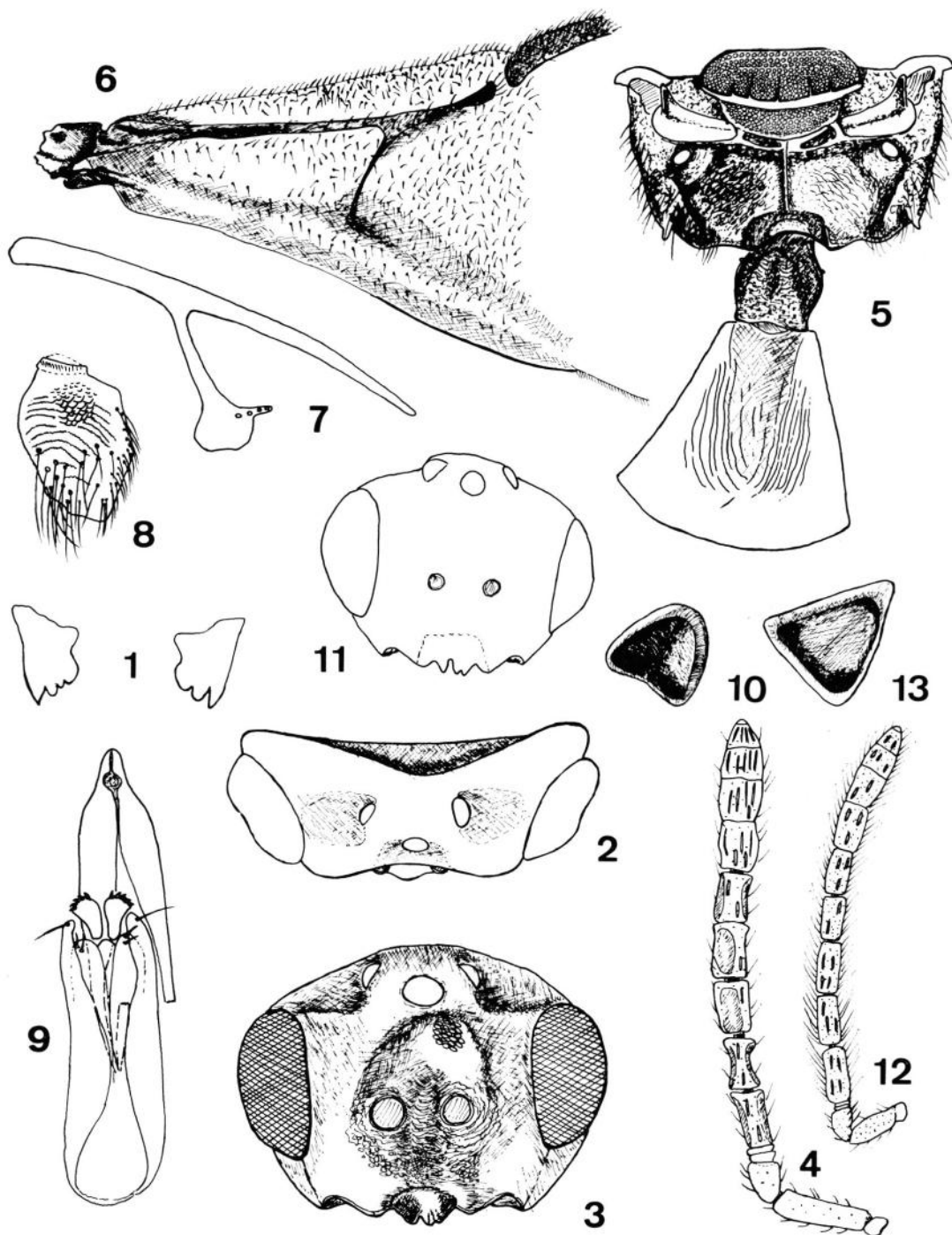
European species *S. hofferi* Bouč., from Czechoslovakia and USSR. In the present paper I will describe a third species, which seems to be very close to *S. hofferi* Bouč., but differs in some details. A detailed description is not given but I refer to Bouček's paper.

♀. Length about 2.0 mm. Colour of body as in *hofferi*.

Head set with rather sparse piliferous punctures, hairs much longer than in *hofferi*, about as long as width of radicle (Fig. 15); sculpture as in the latter. POL: OOL=3.5:2.0. Clypeus protruding with two long hairs; genae swollen but not forming a subangular lobe, instead the lobe has more evenly rounded sides (Fig. 15), otherwise as in *hofferi*; mandibles the same in both species. In facial view head is more circular because of shape of genae and less conical vertex. Antennae as in *hofferi*, but first funicular segment not ring-like and clearly narrower than the second one (Fig. 14); scape slightly shorter than the five funicular segments (12:15).

Thorax agrees in shape and sculpture with *hofferi*, but as was the case with the head, hairs are rather long and distinct (Fig. 14); propodeum with one long hair on each side on callus (not mentioned by Bouček). Laterally (Fig. 16) thorax as in *hofferi* with sides of pronotum forming an angle of almost 90° to the dorsal surface; prepectus large, triangular, facing downwards. Fore and mid tibiae as in *hofferi*, but the latter as long as tarsus. Wings of about the same dimensions and shape (Fig. 14).

Gaster in side view (Fig. 17) the same in both species with hypopygium rather large and reaching tip of gaster. Dorsally (Fig. 14) tergites 3—5 are rather narrowly incised medially and sixth tergite has a still wider incision. Bouček did not say anything about the last four tergites having an incision medially. This is rather important and should be added to the generic diagnosis. Probably the tergites of *hofferi* are of the same shape, but when mounted dry this feature is difficult to observe, especially as the last tergites are



Figs. 1—10. *Stictomischus longiventris* Th. ♂. — 1. Mandibles. 2—3. Head dorsally and from in front. 4. Antenna. 5. Apex of scutellum, propodeum and petiole. 6. Proximal part of fore wing. 7. Veins. 8. Hind coxa from inside. 9. Genitalia. 10. Prepectus.

Figs. 11—13. *S. gibbus* (Walk.) ♂. — 11. Head from in front. 12. Antenna. 13. Prepectus.

shifted upwards. The gaster of my specimen was rather shrunken so these characters were only seen after it had been softened in a solution of KOH.

♂. Unknown, as is the biology.

Holotype ♀. Sweden. Lycksele lappmark: Hemavan 3.VII.1972. Leg. and coll. L. Huggert, Umeå.

The specimen was swept rather high up in a mountain birch forest in a meadow with dominating *Trollius* and *Geranium*.

Zdenekia gen.n.

Head and thorax hardly metallic with gaster, legs and antennae brownish. Body strongly dorsoventrally depressed. Head (Fig. 18) almost circular with rather small oral fossa and mandibles; clypeus straight with apex slightly bent inwards; pubescence sparse and short; sculpture fine alutaceous, more strongly engraved towards genae and eyes; occiput not margined.

Antennal formula 11263, antenna inserted below lower ocular line near clypeus and scrobes shallow; scape (Fig. 19) short and foliaceously dilated apically with a large shallow depression; pedicel short, two short transverse anelli, six transverse flagellar segments and short clava with straight sutures; the sixth flagellar segment is but loosely joining the fifth one and the clava (this may, however, be a desiccation phenomenon); funicle with one row of sensilla on each segment.

Thorax rather short and broad (Fig. 18) with a similar sculpture and pilosity as head. Pronotum narrower than mesoscutum, unusually large with rounded sides, not carinaceous and collar only bluntly set off. Notauli indicated anteriorly, incomplete. Mesoscutum and scutellum separated by a very fine scutellar suture; apex of scutellum obtuse, with no frenal furrow; dorsellum short and distinct as a lunate strip. Propodeum smooth, delicately alutaceously sculptured with no ridges; nucha as a lunate strip

and callus weakly developed with some longer hairs; spiracles rather small and unusually far from metanotum. Mesopleura with a smooth triangular area below base of hind wing. Fore wing (Fig. 18) with poor pubescence of proximal part, speculum indistinct and a distinct hyaline break between submarginal and marginal veins; marginal vein slightly thickened and rather long compared to radial and short postmarginal veins.

Gaster (Fig. 18) sublanceolate, broader than mesoscutum, shrunken, with a transverse row of hairs on each tergite. Petiole very short, transverse and smooth. Tergites of about equal length, first to fourth with hind margins somewhat subangularly produced; fifth one with concave hind margin. Bristles of cerci of equal length and hypopygium (Fig. 20) reaching middle of gaster.

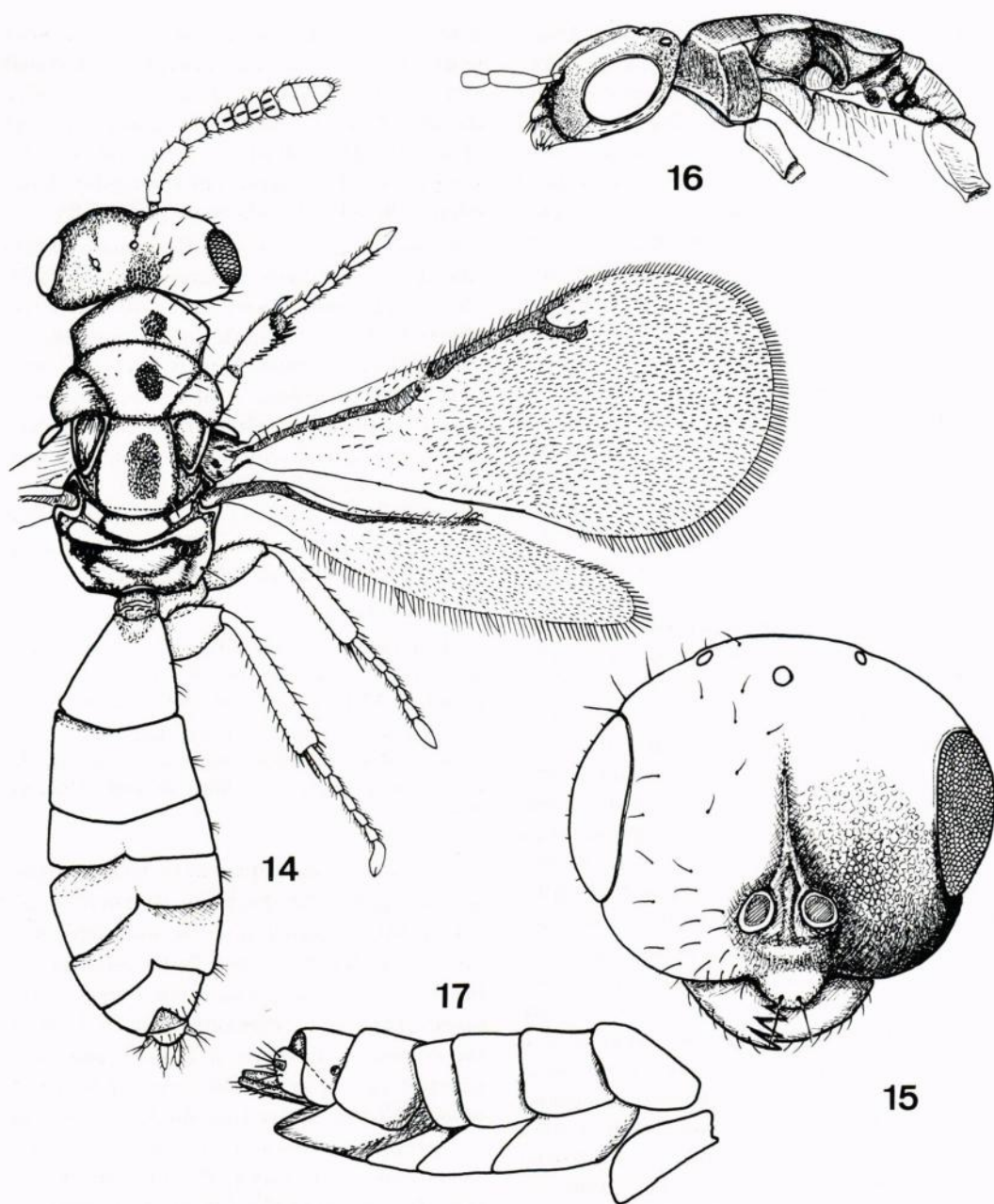
♂. Unknown.

Type species: *Zdenekia plana* sp.n.

This genus is named in honour of the prominent Czech specialist on Chalcidoidea, Dr. Zdeněk Bouček of London, to whom I am indebted for support and advice. *Zdenekia* comes nearest to *Anogmus* Först. but in Graham's key to the genera (1969) it will not run to *Anogmus* at couplet 110, but to 111, because the mesopleura has a smooth triangular area below the hind wing. Then it will run to *Leptomeraporus* Graham and *Habrocytus* Th. at couplet 117, but these genera are not at all related to *Zdenekia*. Nor is the newly described genus *Anogmoides* Askew (1970) closely related to the latter. As there is no carina on the collar, although this is well developed, we will not reach *Anogmus* again at couplet 143.

Zdenekia plana sp.n.

♀. Length about 2.6 mm. Black with a greenish to violet tinge on head and thorax; gaster, legs, veins and antennae testaceous with scape and proximal part of antennae having some violet tinge; wings subhyaline.



Figs. 14—17. *Spathopus montanus* sp.n. ♀. — 14. Dorsal view. 15. Head from in front. 16. Lateral view. 17. Gaster laterally.

Head dorsally very thin, about 3.8 times as wide as long, wider than thorax (60: 50); temples almost obsolete. POL: OOL=20:15. Occiput not carinated. Head from in front

semicircular (42: 60); eyes about 2.3 times as long as wide; genae somewhat buccate and malar space about $\frac{2}{3}$ the length of an eye; mouth (Fig. 18) rather small, only 1.2 times

as long as malar space and mandibles small; clypeus poorly defined, mouth margin more or less straight or slightly concave and bent downwards. Head with a finely engraved alutaceous sculpture, which is more rugose towards genae, inner orbits and temples; head with short hairs, which tends to be more numerous on lower face. Antennae (Fig. 19) inserted well below lower ocular line and rather stout; scape about half as long as width of frons, only 1.7 times as long as wide and dilated apically with a large shallow depression externally; pedicel short (15:11), narrower than funicle; both anelli combined slightly wider than long (8:10); flagellar segments more and more transverse (9—9—7—8—8—7:15), last one only loosely joining the fifth and the clava, which is short (20:15) with a blunt apex; flagellum with a thin row of sensilla.

Thorax (Fig. 18) much depressed and very thin in lateral view, about 3.5 times as wide as high; from collar to apex of propodeum about 1.5 times as long as wide. Pronotum with a well developed collar but not carinated, with rounded slightly constricted sides posteriorly at the strongly indicated notauli, which are, however, incomplete; mesoscutum transverse (34:50) as is scutellum (18:25), which is very indistinctly bordered laterally; mesonotum delicately engraved alutaceously sculptured, stronger so on side lobes and with scattered short pilosity; scutellar furrow very thin and delicate; dorsellum separated from scutellum by a distinct furrow and developed as a lunate transverse hump. Propodeum smooth with a delicate alutaceous sculpture; nucha as a lunate strip and callus weakly developed with but few hairs; propodeum shorter than scutellum (14:18); spiracles rather small and unusually far from metanotum. Mesopleura with a smooth triangular area below base of hind wing.

Legs with no peculiarities and hind tibia with one spure. Fore wing (Fig. 18) (160:70) with short marginal cilia and poor pilosity proximally; speculum indistinct but closed below; basal cell with scattered hairs distally

near basal vein; costal cell with scattered hairs and rather broad. Between submarginal and marginal veins a distinct break; relative lengths of veins: slightly thickened marginal vein 34, rather short postmarginal 17 and stigmal 15 with stigma subrectangular. Hind wing (120:30) with short marginal cilia.

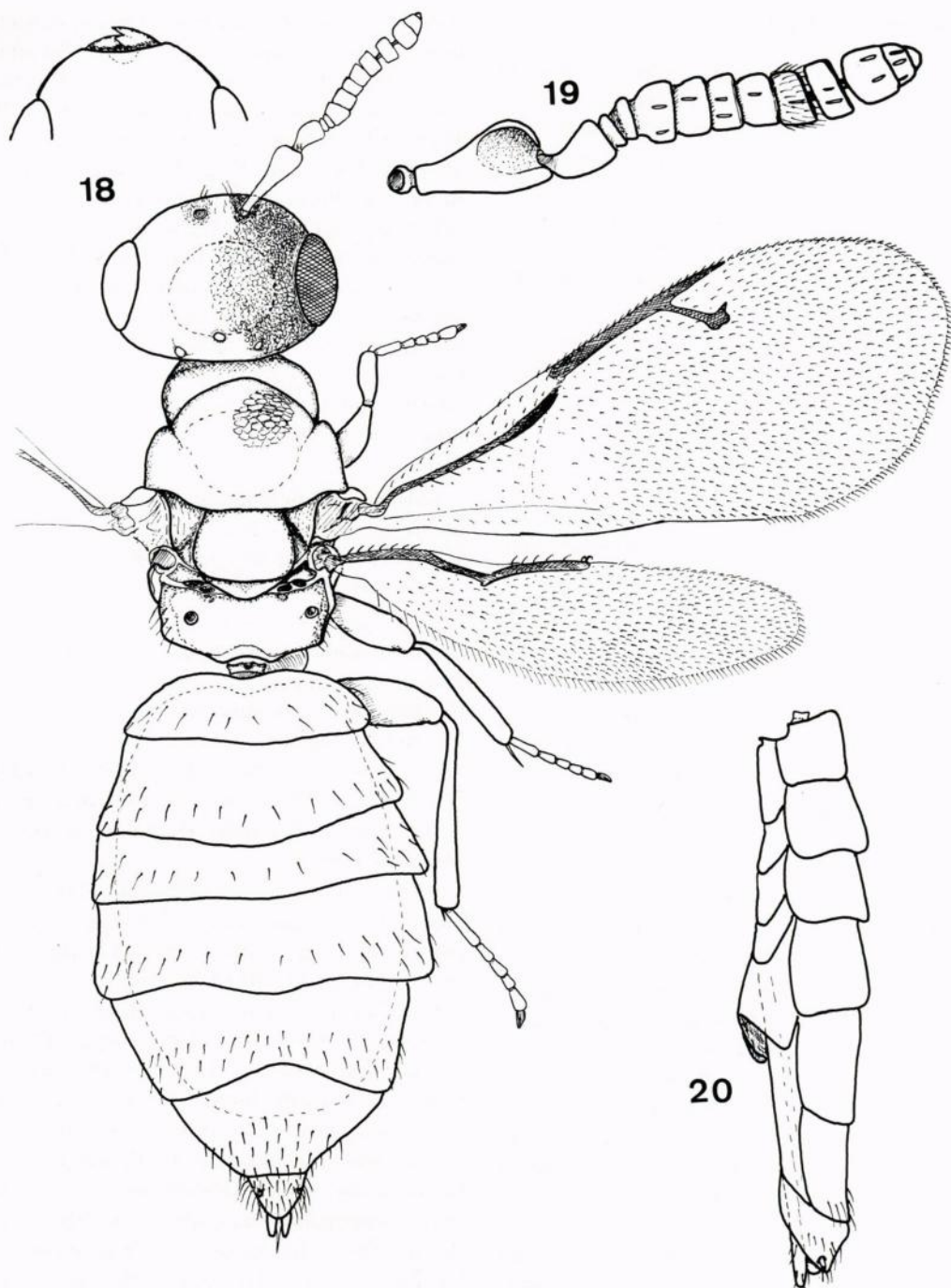
Gaster (Fig. 18) wider than mesoscutum (85:50), almost twice as long as thorax (140:75). Petiole smooth and transverse; first tergite very short with posterior margin slightly subangularly produced as is the case with next three tergites, which are, however, longer; fifth tergite with hind margin incised and each segment with a row of hairs, which are denser towards sides and apex of gaster; ovipositor sheaths hardly protruding and cerci with subequal bristles. Hypopygium (Fig. 20) reaching middle of gaster.

♂. Not known.

Holotype ♀. Sweden. Norrbotten: Klöverträsk, Lappsmicken about 20 km S of Boden 2.VI.1973. Leg. and coll. Huggert, Umeå.

Paratype ♀. Same data as above. The paratype is a fully developed pupa with most of the important characters visible. In coll. Huggert, Umeå.

Biology. Six pupae were found of this species under the bark of a newly dead, rather thin exposed pine at the edge of a mire. The thin bark was fastly adhering to the wood and the pupae were found in the pupal chamber of *Phaenops cyanea* F. (Col. Buprestidae). However, it is not quite clear whether this is really the actual host of *Z. plana*. It is not likely that the host would be a member of Diptera because six pupae were found in a cluster. Possibly the host is to be found among the sphecidae; or perhaps *Z. plana* is a hyperparasite of a larger wasp attacking *Phaenops*. Unfortunately, I was only able to rear one of the pupae to imago. It is interesting to note that this genus, which is so close to *Anogmus*, does not develop in cones, but seems to have a quite different biology.



Figs. 18—20. *Zdenekia* gen.n. *plana* sp.n. ♀. — 18. Dorsal view. 19. Antenna. 20. Gaster laterally.

***Spaniopus hedqvisti* sp.n.**

♀. Length 1.7–2.2 mm. Colour of head and thorax mainly dark olive green, but often in larger specimens with a bright purplish, cupreous or even in some parts bluish tinge; gaster of a dark blackish green; legs and scape testaceous, apex of scape and flagellum dark brown to blackish with tip of clava slightly lighter; wings subhyaline distally, venation testaceous.

Head dorsally (Fig. 21) 2.7 times as wide as long, 1.2 times as wide as mesoscutum; temples about 1/3 (10:26) length of eye. POL: OOL=22:14. In facial view (Fig. 22) head about 1.3 times as wide as high, genae strongly and slightly angularly converging; lower face and clypeus rather strongly radiately striate, lower margin of clypeus subemarginate; with short pubescence which is longer on genae and lower face; head with rather uniform reticulation (Fig. 22). Scape hardly reaching median ocellus, about 5.3 times as long as wide (43:8); pedicel pear-shaped (12:7); both anelli together (5:5) as long as wide, subequal; length of anelli plus flagellum about equal to width of frons; all funicular segments subequal (8:9), the first slightly elongate and the sixth slightly transverse; clava (21:10); flagellum slightly clavate, each segment with one row of sensilla, clothed with semierect hairs almost half as long as segments (Fig. 23).

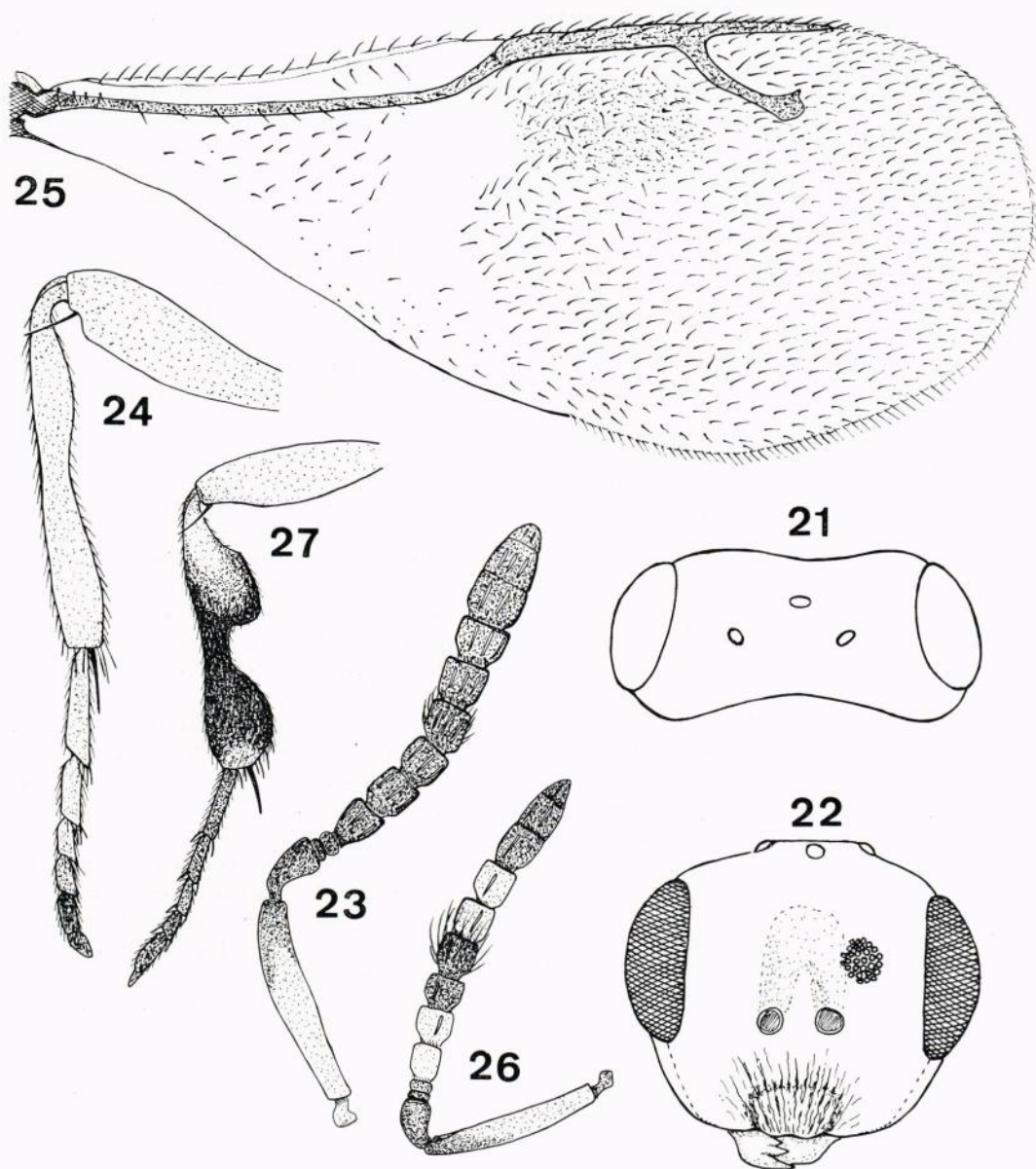
Collar not margined, narrower than mesoscutum (22:26), anteriorly and posteriorly evenly rounded, in middle about 1/5 the length of mesoscutum, which is about 1.7 times as wide as long; notauli fading out in the middle; scutellum about as long as mesoscutum, with a fine frenal line; mesonotal sculpture as in head, medially meshes distinctly elongate, especially on scutellum. Propodeum 0.67 length of scutellum, median area about 1.6 times as wide as long, anteriorly less coarsely reticulate than on well developed nucha, which is separated from central part by a distinct groove; plicae distinct and median carina rather weak; lateral

part of propodeum beyond spiracle densely hairy. Upper mesepimeron smooth. Mid tibia (Fig. 24) with bisinuate inner margin and outer one slightly so (as in *S. dissimilis* Walk.); hind femur about 4.4 times as long as wide. Fore wing (Fig. 25) rather strongly hairy, speculum almost open below, only few hairs on cubital vein, basal cell strongly hairy, short marginal cilia; relative lengths of veins: marginal 35, postmarginal 25 and stigmal 25; wing hardly reaching tip of gaster (in small specimens wing is much shorter and narrower, almost semidwarfed, with shorter and thicker veins; wing 2.2 times as long as wide, about 2.4 times in larger specimens).

Gaster oval-acuminate strongly convex, about as long as head plus thorax, about 1.4 times as long as wide; dorsally sides of sixth tergite converging at angle of about 75°.

♂. Length 1.2–1.4 mm. Colour bright greenish, some brassy tinge on vertex, collar and propodeum or as a whole colour more blueish-green; antennae and legs pale yellow, but funicle segments three and four fuscous; apex of scape, pedicel, clava and mid tibia fuscous except basal part of the latter. Fore wing distally infumate, strongest so below marginal vein.

Head and thorax as in female, but genae more strongly angularly converging, lower margin of genae with a group of about 10 erect white hairs, about as long as width of scape. Flagellum plus pedicel about 1.1 times as long as width of head; scape slightly shorter than width of face (18:23); pedicel (Fig. 26) dorsally hardly 1.7 times as long as broad; both anelli transverse, hardly as long as wide, second one slightly longer than the first one; funicular segments subequal in shape, somewhat increasing in width; clava shorter than the three preceding segments together (21:25); flagellum with one row of sparse sensilla on each segment and clothed with semierect hairs about as long as width of segment. Fore wing as in female and about 2.5 times as long as wide. Mid tibia (Fig. 27)



Figs. 21—27. *Spaniopus hedqvisti* sp.n. — 21—22. Head dorsally and from in front, ♀. 23. Antenna, ♀. 24. Mid leg, ♀. 25. Fore wing, ♀. — 26. antenna, ♂. 27. Mid leg, ♂.

flattened with inner margin very strongly incised medially, thus forming one slightly angular upper lobe and one more rounded apical one; outer margin clearly bisinuate.

Gaster subrotund, about as long as and

slightly wider than thorax. Petiole brownish, smooth and transverse.

Holotype ♂. Sweden. Västerbotten: Hällnäs 21.VIII.1962. Leg. K.-J. Hedqvist and in coll. Hedqvist, Stockholm.

Paratypes. Härjedalen: Tännålen 7.VIII.1975, ♂, 8.VIII.1975 ♂♀. — Västerbotten: Bygdsiljum 24. VII.1969, ♂; Umeå 15.IX.1968: ♀; Hällnäs 11.VIII.1974, 2 ♂♂, 23.VI.1974, ♀. — Lycksele lappmark: Hemavan 3.VII.1972, ♀. All leg. L. Huggert and in coll. Huggert, Umeå. One male paratype in British Museum (Nat. Hist.), London.

Biology: Not known, but my and Hedqvist's specimens were swept on marshy meadows near rivers or lakes and three of my specimens were taken on a flourishing sloping mire on calcareous slate in the high mountain birch forest.

Named in honour of my friend Mr. K.-J. Hedqvist, because he allowed me to describe it although he was the first to find the species.

The male of this species runs to *S. varicornis* Bouček (1972) and, if it were not for the remarkable mid tibia, it would be very difficult to distinguish it from that species. Although this is a secondary sexual character, which might be much more pronounced in the North European population, I do not believe that this is the case and that this species would be the same as *S. varicornis*. I have so far seen no variation of the shape of the mid tibia supporting such an assumption. The antenna of the female is blackish except for the scape, but in *S. varicornis* it is coloured more or less as in the male. The female head is about 2.7 times as wide as

long dorsally, but only twice as wide as long in *S. varicornis*.

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