

***Bathycranium* : synonymised with *Syntormon*,
distinction between *Parasyntormon* and *Syntormon* discussed and
S. bicolorellus and *S. luteicornis*
(Diptera : Dolichopodidae) redescribed**

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Abstract: It is demonstrated that there is no valid basis on which to sustain the monotypic genus *Bathycranium* Strobl and concluded that *Bathycranium* should be recognised as a junior synonym of *Syntormon* Loew (new status). The species *Syntormon bicolorellus* Zetterstedt (new combination) falls into a natural grouping of *Syntormon* species with downcurved facial hairs in females. This species and *S. luteicornis* Parent are redescribed. Distinctions between *Syntormon* and *Parasyntormon* are discussed.

Sommaire: Aucune base valable ne soutient le genre *Bathycranium* Strobl et il en ressort que *Bathycranium* doit être reconnu comme synonym junior de *Syntormon* Loew (n. stat.). L'espèce *Syntormon bicolorellus* Zetterstedt (n. comb) appartient à un groupement naturel d'espèces de *Syntormon* munies de soies faciales pendantes chez les femelles. Cette espèce, ainsi que *S. luteicornis* Parent, sont redécrites. Les distinctions entre *Syntormon* et *Parasyntormon* sont passées en revue.

Introduction

The cosmopolitan genus *Syntormon* was established by Loew (1857) based on European species. Wheeler (1899) erected the genus *Parasyntormon* for various Nearctic species described by him in that paper, plus the Nearctic *Sympycnus occidentalis* Aldrich, 1894. Subsequently, Coquillett (1910) designated the European species *S. metathesis* (Loew) as the type species of *Syntormon* and the Nearctic *P. asellus* Wheeler as the type species of *Parasyntormon*.

Outside the Nearctic, no species seem, as yet, to have been assigned to *Parasyntormon*. Examination of European *Syntormon* species demonstrates that many of them possess a mixture of *Parasyntormon* and *Syntormon* features, as used by Wheeler and later North American authors to characterise these genera. If these genera are to be maintained, a certain amount of redefinition is needed. Here we discuss the available morphological evidence in this context.

The Palaearctic genus *Bathycranium* was established by Strobl (1892) for the species *Dolichopus bicolorellus* Zetterstedt, 1843. As indicated by Negrobov (1991) Zetterstedt's species *bicolorellus* becomes the type species of *Bathycranium*, by monotypy. We have re-examined the original material of *bicolorellus* Zetterstedt, 1843, redescribed this species and designated a lectotype. Here we present the case for including the genus *Bathycranium* under *Syntormon*. We note in passing that there has been confusion over the gender of *Syntormon*; it is masculine.

We have discovered that there is potential for confusion between Zetterstedt's *bicolorellus* and *Syntormon luteicornis* of Parent, 1927. To establish the placement of *S. luteicornis* unequivocally, we herein redescribe the type material of this obscure species.

Bathycranium and *Syntormon*

Strobl (1892) provides no clear statement of the characters he considers diagnostic of *Bathycranium*,

but does mention those he regards as separating *B. bicolorellum* from other species, as follows :-

1. Arista subapical.
2. Antennae largely yellow.
3. Eyes close together.
4. Frons deeply inset, metallic.
5. Acrosticals uniserial.
6. Legs almost entirely yellow.
7. Male legs simple.
8. Hypopygium concealed.

In the more lengthy redescription he provides of *B. bicolorellum* he mentions additional characters which bear on the relationship between *Bathycranium* and *Syntormon*:

9. Antennal segment 1 (scape) setose on dorsal surface.
10. Antennal segment 2 (pedicel) convex distally, but not with a thumb-shaped projection.
11. Basal three tarsomeres of hind leg equal in length.

Of these, characters 4, 10 and 11 might be construed as separating *Bathycranium* from *Syntormon*, and characters 4 and 10 have been used for this purpose by later authors. However, it is apparent that Strobl had only one male specimen of a species he identified as *bicolorellus* available to him. We have not seen this specimen but we have been able to examine not only Zetterstedt's type series of *Dolichopus bicolorellus* but also hundreds of males and females of this species collected in alcohol by Malaise traps at different Irish localities. From this extensive material we conclude :

1. The concave frons observed by Strobl was an artefact, probably due to dependence on a single dry specimen. Neither males nor females of *bicolorellus* exhibit a condition of the frons noticeably different from that of *Syntormon metathesis*, when freshly collected specimens or alcohol-preserved material are examined.

2. In *bicolorellus* the interdigitation of the second antennal segment into the third (first flagellomere) is as great as, or greater than, in many *Syntormon* or *Parasyntormon* species. It is illustrated here from alcohol-preserved specimens (Figs 1, 2). An extreme example of a short interdigitation, which was described as "thumb-shaped", is provided by *S. palmaris* Loew (1857) and figured by Van Duzee (1925). There is some intra-specific variation in this feature in *bicolorellus* and it is certainly more difficult to interpret in dried specimens. We conclude that Strobl was once again misled by the condition of the limited material at his disposal. Keys purporting to separate *bicolorellus* from *Syn-*

tormon species on the basis of an absence of the thumb-shaped interdigitation of the second antennal segment into the third are seriously misleading.

3. From our abundant material it is clear that, in both male and female *bicolorellus*, the first tarsomere of the hind leg is subequal to the second, but the third segment is nearly a third shorter (Fig. 13) so that Strobl's description of this character is incorrect.

4. Differences between *bicolorellus* and *Syntormon* listed by subsequent authors are unreliable to the extent that they are based on characters mentioned by Strobl (1892).

None of the other characters mentioned by Strobl may reasonably be used to separate *bicolorellus* from *Syntormon* without substantially altering the current concept of *Syntormon*. For instance, in different *Syntormon* species the arista may be inserted sub-apically, apically, or dorsally (Table 1). The colour of the antennae in *bicolorellus* provides no distinction from *Syntormon*, since there are at least two other *Syntormon* species with yellow antennae, *S. luteicornis* in the Palaearctic (Negrobov, 1975) and *S. simplicatarsis* Van Duzee (1925) in the Nearctic (Tables 1 and 2). At least one European species, *S. rufipes* Meigen, has virtually unmodified legs in the male; leg modifications exhibited by males currently in *Syntormon* are so varied that if they were to be used in defining genera, it would become necessary to question the inclusion of many species in addition to *bicolorellus* within the genus *Syntormon*.

In the single apparent difference between *Syntormon* and *Parasyntormon*, *bicolorellus* shows the *Syntormon* condition (see below). We conclude that *Dolichopus bicolorellus* of Zetterstedt should be regarded as a species of *Syntormon* and that since *Bathycranium* has only this species consigned to it, *Bathycranium* should be regarded as a synonym of *Syntormon*. These conclusions stand whether or not Strobl's specimen belonged to *bicolorellus* of Zetterstedt.

Parasyntormon and *Syntormon*

In his description of his new genus *Parasyntormon*, Wheeler (1899) gives the following characters:-

1. Male face narrow.
2. Antennae inserted high on head.
3. Antennal segment 1 bare dorsally.

4. Antennal segment 2 with a thumb-shaped projection into segment 3, internally (projection shorter in female).
5. Antennal segment 3 large, flattened, of variable shape, distinctly pilose (hardly longer than broad in female).
6. Arista dorsal, subapical or apical, long (dorsal in female).
7. Acrostical bristles uniserial.
8. Scutellum with only two bristles.
9. Hypopygium small, embedded, with only "the small appendages projecting."
10. Hind basitarsus (first tarsomere) bare, shorter than 2nd tarsomere.
11. Male foretarsi modified.
12. Middle and hind legs unmodified.

Only in exhibiting setae on the dorsal surface of antennal segment 1 does the type species of *Syntormon*, *S. metathesis*, differ from this diagnosis of *Parasyntormon*. Nevertheless, it is difficult to use this character for separating *Parasyntormon* from *Syntormon* because in the European *S. rufipes*, for instance, the first antennal segment is dorsally setose in the male but bare in the female (Table 1).

Van Duzee (1925) introduced an additional character, the width of the female face, as a basis for separating *Syntormon* from *Parasyntormon* species, in response to Becker's (1922) paper synonymizing them. Of this reinstatement of *Parasyntormon* Curran (1931) subsequently remarked "Mr. Van Duzee would maintain *Parasyntormon* Wheeler as a separate genus on the basis of the shape of the face in the females, but it seems to me that the character is not sufficiently distinctive to be of generic value. In some cases the males can be assigned to their proper groups, but more often this cannot be done."

We have been unable to discover any more recent discussion of the validity of *Parasyntormon*, but the genus has been maintained in North American literature and additional species have been assigned to it by various authors. It also appears in the keys to dolichopodid genera by Robinson and Vockeroth (1981) in the Manual of Nearctic Diptera where new characters are used to distinguish *Parasyntormon* from *Syntormon*. The mesopleural anepimeron and the metapleuron are stated to be bare in *Parasyntormon*, but to have fine pale hairs in *Syntormon*. We have examined these features in a number of *Syntormon* and *Parasyn-*

tormon species, with the results summarised in Tables 1 to 3.

Essentially, the mesopleural hair patches (A and B in Figure 9) are rather variable, but the metapleuron hair patch (C) is consistently present in both the Nearctic and Palaearctic species of *Syntormon* we have examined. If this holds true for unexamined species and if absence of metapleuron hairs is characteristic of all *Parasyntormon* species, as suggested by Robinson and Vockeroth, then this seems to be the only character consistently separating *Parasyntormon* from *Syntormon*.

Is this an adequate basis for segregating *Parasyntormon* as a distinct genus? Assuredly it is as clear a distinction as is used to separate many other dolichopodid genera. Without a thorough cladistic analysis of the relationships between dolichopodid species and genera it is difficult to carry discussion further. A comprehensive reappraisal of dolichopodid genera seems badly needed. Meanwhile, maintenance of *Parasyntormon* as a genus distinct from *Syntormon*, based not on characters traditionally used, but on the presence or absence of metapleuron hairs, is at least feasible. It remains to be seen whether this definition would lead to some Palaearctic species at present assigned to *Syntormon* being placed in *Parasyntormon*, once more of the Palaearctic species have been examined.

Redescription of *S. bicorellus* (Zetterstedt) and designation of lectotype.

(Figs 1, 2, 4, 6, 7, 11, 13)

Type material : 2 males, 5 females in ZML.

Type locality : not given on label, but stated by Zetterstedt (1843) to be Southern and Central Sweden, especially at Abusa and Esperöd (Scania) and Martebo (Gottlandia); also in Denmark. We have selected a female as lectotype because the males are in poor condition.

Lectotype female (apparently intact) bearing the following labels :-

small oblong white label - sta9
square, pale blue label - 1991/204
~~oblong white handwritten label - Bathycranium~~
1991/*bicorellus* (Ztt.) female/det. STARK u.
Pollet
square pale blue label - 1992/216
Lectotype *

Length ca 2.5 mm. Head. Frons white dusted, metallic blue-green. Face white dusted, very slightly protruding at the lower margin and with a pair of short suberect fine hairs (Fig. 6). Width of face at

narrowest point approximately equal to distance between posterior ocelli (Fig. 4). Palps yellowish-brown, with a single setula and a small hair. Ocellar triangle with one pair of strong bristles and one pair of smaller bristles behind. One pair of strong vertical bristles. Postoculars uniserial, lower ones yellow, upper three (including postverticals) black. Eyes with very short pubescence visible at high magnification. Upper facettes slightly smaller than lower ones.

Antennae yellow, slightly darkened dorsally, level of insertion just above 2/3rds height of eye, first antennal segment setose, arista dorsal, less than twice as long as antennal segments 1-3 combined. Interdigitation of second and third antennal segments as in Fig. 1. Wing venation not significantly different from Fig. 10 except that the last segment of CuA1 is a little more than twice as long as dm-cu. Flexure of M 1/5th of distance along distal section of M. Calyptal margin with yellow hairs.

Thorax. Metallic blue-green with white dusting. Acrostical bristles uniserial. Dorsocentral bristles 6. Scutellum bare above, with two strong marginal bristles. Pleura white dusted metallic blue-green except for anteroventral corner of the mesopleuron and the whole of the metapleuron which are yellow. Mesopleuron with a single patch of two hairs (patch A); metapleuron with a row of hairs (patch C) (Fig. 11).

Legs entirely yellow. Coxa 1 with a few brown setae apically, otherwise whitehaired. Coxa 2 with a series of setae apically and a single strong bristle above. Coxa 3 with a single strong bristle near the middle. Femora 2 and 3 with anterior preapical bristle; tibia 1 roughly equal in length to femur 1 and with a small dorsal bristle just above the middle; tibia 2 slightly longer than femur 2, and with 1 anteroventral near the middle, 3 spaced anterodorsals in proximal 2/3rds, and 1 posterodorsal in proximal third. Tibia 3 nearly 1.3 times as long as femur 3, and with 3 anterodorsals, 4 posterodorsals, and a few bristly hairs underneath. Tarsus of leg 1 nearly a third longer than tibia, the first segment roughly equal to 3 following segments combined. Tarsus of leg 2 almost equal to tibia in length, the first tarsal segment equal to remaining 4 segments combined. Tarsus of leg 3 about 3/4 length of tibia, the first tarsomere subequal in length to second (Fig. 13).

Abdomen. Yellow-brown without metallic colouring, first segment yellow, second segment mainly brown with yellow band anteriorly, third segment brown in anterior third, otherwise yellow, fourth segment brown, fifth segment brown anteriorly, yellow posteriorly. Sternites yellow.

Male. The type material is in poor condition, the following observations are taken from alcoholic specimens. Length 2.9-3.0 mm. Antennae (Fig. 2) triangular with subapical arista. Face very narrow, eyes not quite touching, lower part of face not protruding and without hairs, palp and labellum smaller than in female (Fig. 7). Bristly hairs on ventral surface of tibia 3 slightly longer than in female. The number of black postoculars (including the postverticals) varies from 3 to 4.

Variation. The difference between brown and yellow in the abdomen of the type has almost disappeared as a result of drying and ageing. In alcoholic specimens, the abdomen is yellow with clearly delimited brown bands which are broadest in the midline and taper to all yellow lateroventrally. The breadths of the brown bands are variable but in general the first two segments are all yellow, the third segment usually has a narrow brown band, the fourth and fifth segments have the broadest bands, and in the male the sixth segment may have a narrow brown band or be all yellow.

Known range. This dolichopodid is known from Fennoscandia, Great Britain and Ireland, the Netherlands, Belgium, the Czech Republic, parts of Russia west of the Urals and Mongolia. The records for Great Britain (Fonseca, 1978) and the Czech Republic (Olejnick, 1987) are additional to those in Negrobov (1991). This is an insect of wet woodland (*Salix/Alnus* carr) and may be collected in abundance by malaise traps, although it is difficult to find by sweeping.

Paralectotypes

1. Male, head damaged, antennae missing
small square blue label - blank
white handwritten label - D. bicolorellus male (?
symbol unclear)
square blue label - 1991/199

oblong white handwritten label - Bathycranium
1991/bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label -1992/211
Paralectotype *

2. Male, specimen reduced to thorax, front legs, right mid leg, right wing and fragment of base of abdomen.
small oblong white handwritten label -147
oblong white handwritten label - *Argyra bicolor.*/
Staeg, male
square blue label - 1991/201
oblong white handwritten label - Bathycranium
1991/bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label -1992/213
Paralectotype *
3. Female, specimen apparently intact, some fungal growth.
small white handwritten label - Staeg.
square blue label -1991/205
oblong white handwritten label - Bathycranium
1991/bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label -1992/217
Paralectotype *
4. Female, third antennal segment missing on both sides, eyes badly sunken.
small white handwritten label - Gottl.
square blue label -1991/202
oblong white handwritten label - Bathycranium
1991/ . bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label -1992/214
Paralectotype *
5. Female, arista of right antenna broken at base.
square blue label - 1991/200
oblong white handwritten label - Bathycranium
1991/bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label -1992/212
Paralectotype *
6. Female, specimen apparently intact, much fungal growth.
small white handwritten label - 148
oblong white handwritten label - *D. bicolorel./lus*
female(?symbol unclear) Staeg.
square blue label - 1991/203
oblong white handwritten label - Bathycranium
1991/bicolorellum (Ztt.)/det. STARK u. Pollet
square blue label - 1992/215
Paralectotype *

* label added by us

Redescription of *luteicornis* Parent and confirmation of holotype

(Figs 3, 5, 8, 10, 12, 14)

Type material: Unique female, standing under number 5933 in the Pandellé collection, in MNHN. Last two segments of left hind tarsus missing. The specimen bears the following labels:

small square handwritten label - female /5933
oblong white handwritten label - Diaphorus
round red-ringed label - holotype *
SYNTORMON LUTEICORNIS Parent *

* added by us.

Type locality : Apt (Vaucluse)

This species was first described by Parent (1927) p.61 as *luteicornis*. It appears in the key on the previous page as "espèce X". A shorter account of the species is given in Parent (1938). In introducing the original description Parent (1927) says "je crois donc nouvelle.....no. 5933". We were able to locate the holotype in the collection Pandellé standing under this number. The specimen is accompanied by an oblong white label, handwritten, except for last line stating "Syntormon (female)/spec ?/ Cah. 5 p.23./O. PARENT det."

The following description of the type is based on reexamination of the type specimen. The specimen agrees in all particulars with Parent's original description, but we have augmented it with additional observations. We find no basis for changing the current practice of placing this species in *Syntormon*.

Length 3.8 mm.

Head: Frons white dusted, metallic blue-green. Face white dusted, strongly protruding at the lower margin with a pair of long downcurved pale hairs (Fig. 8). Width of face at narrowest point 1 1/3 to 1 1/2 times distance across hind ocelli (Fig. 5). Palps yellowish brown, with a single setula. Ocellar triangle with one pair of strong bristles and 3 single small bristles behind. One pair of strong vertical bristles. Postoculars uniserial, lower ones yellow, upper seven (including postverticals) black. Eyes with short hairs; upper facettes slightly smaller.

Antennae: yellow, inserted just above 2/3rds height of eye. First antennal segment setose, with prominent medio-ventral lobe when viewed from above. Arista dorsal, more than twice as long as segments

1-3 combined. Interdigitation of second and third antennal segments as in Fig. 3.

Wing: Cu-A1 1.75 times as long as crossvein dm-cu. Flexure of M approximately 2/5ths along length of distal section (Fig.10). Calyptal margin with black hairs.

Thorax: Metallic blue-green with white dusting. Acrostical bristles uniserial front and back, obscured by pin in mid-length. Six dorsocentral bristles. Scutellum bare above, but with two strong marginal bristles. Pleura mainly metallic blue-green, densely white-dusted; in the metepimeron the colour grades into yellow ventrally. Mesopleural hair patch A with two white hairs (in front of posterior spiracle). Metapleural hair patch C with a row of 9 white hairs along almost its whole length (Fig. 12).

Legs as described for *bicolorellus*, except for the hind tarsi in which the second tarsomere is clearly longer than the first (Fig.14).

Abdomen: mainly metallic blue-green with thin white dusting. The yellowish brown semicircular patch in the anterior third of the second, and to a lesser extent the third, segment, noted by Parent (1927), can be discerned but may be an artefact. Fifth segment brown. Sternites lightly white dusted, black with yellow areas. Sternite 2 mainly, and sternite 3 partially, yellow; sternite 4 entirely black; sternite 5 yellow in distal 2/3rds.

Known range: known only from France, Belgium and the Czech Republic. The French material is limited to the holotype. The Belgian record is based on a specimen mentioned by Parent (1938). We have sought to establish whether this specimen still exists, but it cannot be located and there are no subsequent Belgian records (Pollet, pers. comm.). The species is currently regarded as only doubtfully recorded from Belgium (Meuffels and Groot-aert, 1987). Negrobov (1991) confuses the French and Belgian records, placing the type locality Apt, Vaucluse, in Belgium. We have not seen Czech specimens. The species was erroneously recorded from Ireland by Blackith *et al.* (1990) based on specimens of *S. bicolorellus*

Key to distinguish *S. bicolorellus* and *S. luteicornis* from other European *Syntormon* species and from each other

1. Metapleura bare *Parasyntormon*

(Nearctic: no Palaearctic species reported)
Metapleura with at least a few hairs 2

2. Antennae mostly or partly yellow 3
Antennae black
..... other Palaearctic *Syntormon* species
3. Abdominal tergites extensively yellow, calyptal margin with yellow hairs, lower margin of face very slightly protruding and bearing a pair of short hairs *bicolorellus* (Zetterstedt)
Abdominal tergites metallic green, calyptal margin with black hairs, lower margin of face strongly protruding and bearing a pair of long hairs *luteicornis* Parent (male unknown)

Conclusions

The monotypic genus *Bathycranium* cannot stand scrutiny, as none of the characters on which it was founded is unique to it, nor is any combination of such characters sufficient to distinguish its sole species from species of *Syntormon*. *Bathycranium* is also unsatisfactory in being founded primarily on a character (cranial shape) applicable to only one sex and heavily influenced by post mortem drying. Zetterstedt's *bicolorellus* has not been considered in taxonomic revisions of *Syntormon* because it has erroneously been excluded from the genus; Parent (1927), in consequence, when describing *luteicornis*, believed it to be the only *Syntormon* with yellow antennae. On the lower part of the face of *bicolorellus* is a pair of hairs which correspond in position to the downcurved facial hairs of those species of *Syntormon* which *bicolorellus* most closely resembles, namely *luteicornis*, *miki*, and *setosus*. It is within this group that *bicolorellus* finds its natural place as a *Syntormon* species. We propose the following nomenclatorial changes:

Syntormon bicolorellus new combination, previously valid name *Bathycranium bicolorellus* (Zetterstedt). *Bathycranium* Strobl, 1892, new junior synonym of *Syntormon* Loew, 1857 (new status).

The Nearctic genus *Parasyntormon* has never been recognised for European species and we suggest that there is no sufficient basis for changing this practice, since the bare metapleuron distinguishes *Parasyntormon* as a distinct entity; all European *Syntormon* species so far examined exhibit metapleural hairs.

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Table 1. Characters of Palaearctic *Syntormon* species. Data for males, with females if known in parentheses. Antennal colour applies to both sexes.

	antenna	1st ant.segment	arista	pleural hair patch		
				A	B	C
				(see Fig. 9)		
¶ <i>aulicus</i> (Meigen)	b	+(+)	3(3)	-(<u> </u>)	-(<u> </u>)	-(<u> </u>)
¶ <i>bicolorellus</i> (Zett.)	y	+(+)	2(3)	-(<u> </u>)	X (X)	-(<u> </u>)
<i>eutarsiformis</i> Negr.	b	-	1			
<i>filiger</i> Verrall	b	-(-)	1(1)			
<i>lindneri</i> Negrobov	b	+	1			
¶ <i>luteicornis</i> Parent	y	?(+)	?(3)	?(<u> </u>)	? (X)	?(<u> </u>)
<i>macula</i> Parent	b	?(+)	?(2)			
¶ <i>metathesis</i> (Loew)	b	+(+)	1(2)	-(<u> </u>)	-(<u> </u>)	-(<u> </u>)
¶ <i>miki</i> Strobl	b	+(+)	2(3)	-	X (<u> </u>)	-
<i>monochaetus</i> Negr.	b	-	1(3)			
¶ <i>pallipes</i> (Fabricius)	b	-(-)	1(1)	-(<u> </u>)		
<i>pumilus</i> (Meigen)	b	+(+)	1(2)			
<i>rufipes</i> (Meigen)	b	+(-)	1(1)	X̄ (<u> </u>)	X̄ (<u> </u>)	-(<u> </u>)
<i>samarkandi</i> Negr.	b	-(-)	1			
¶ <i>setosus</i> Parent	b	?(+)	?(3)	? (<u> </u>)	? (<u> </u>)	(<u> </u>)
<i>siplivinskii</i> Negr.	b	-(-)	1(3)			
<i>submonilis</i> Negr.	b	-	?			
<i>sulcipes</i> (Meigen)	b	-(-)	1(1)	-(<u> </u>)	-(<u> </u>)	-(<u> </u>)
<i>tarsatus</i> (Fallén)	b	+(+)	2(3)	-(<u> </u>)	-(<u> </u>)	-(<u> </u>)
<i>violovitshi</i> Negr.	b	-	1			
<i>zelleri</i> (Loew)	b	+(+)	1(1)	-(<u> </u>)	-(<u> </u>)	-(<u> </u>)

b= black, y = yellow (at least not black in part); + setose, - bare; 1 apical, 2 subapical, 3 dorsal; present, X absent; # type species; ¶ specimen from collection of MCDS (characters of other species derived from literature).

Table 2. Characters of Nearctic *Syntormon* species. Data for males, with females in parentheses if known. Antennal colour applies to both sexes.

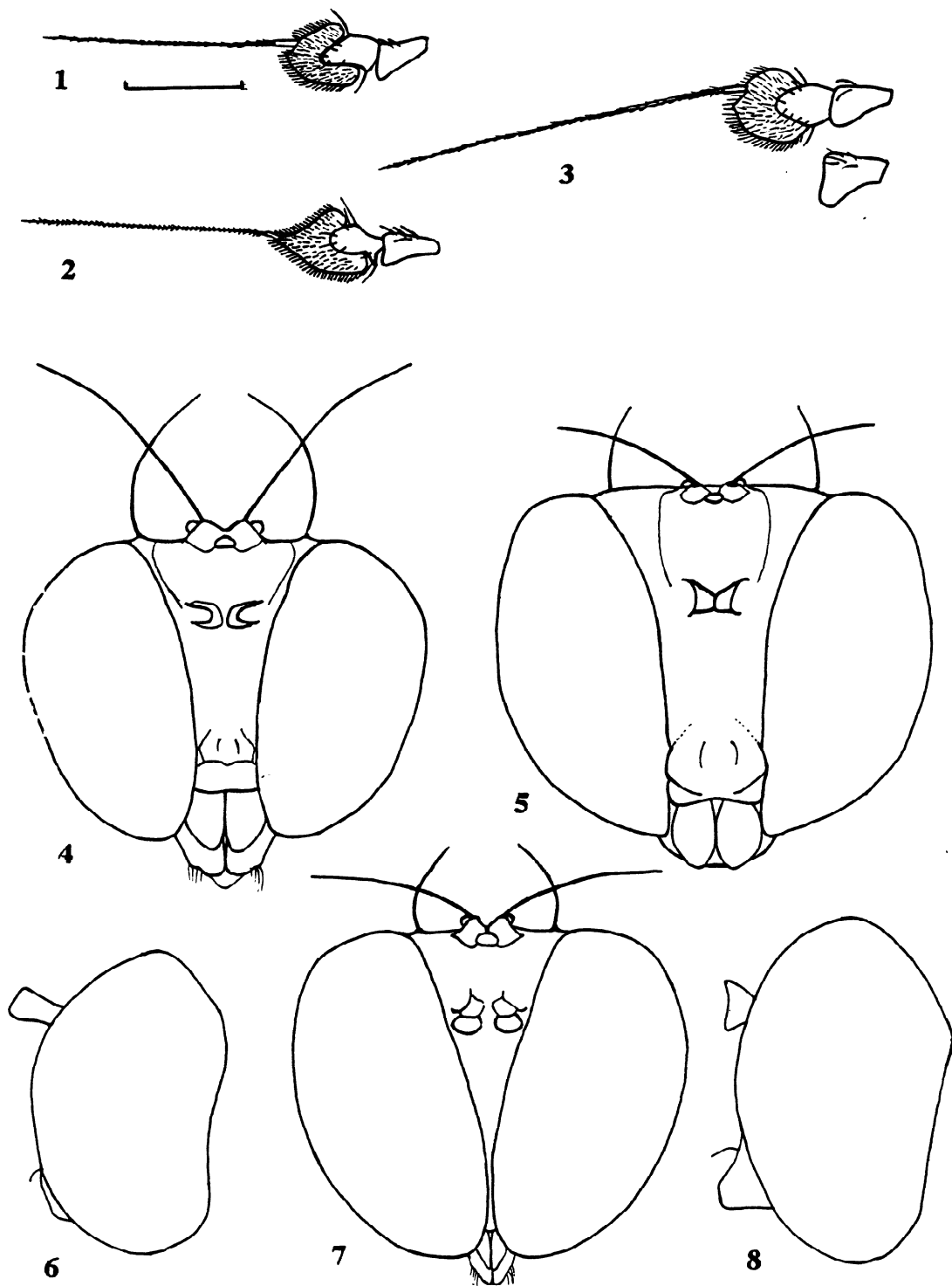
antenna	1st ant.segment	arista	pleural hair patch		
			A	B	C
			(see Fig. 9)		
<i>affinis</i> Wheeler b	+(+)	2(3)			
<i>bisinuatus</i> Van Duz. b	?	1			
<i>californicus</i> Harms. b	?	1			
† <i>cinereiventris</i> Loew b	+(+)	1(1)	-()	-()	-()
<i>clavatus</i> Van Duz. b	?	1			
<i>dissimilis</i> Van Duz. b	?	1(2)			
† <i>femoratus</i> Van Duz. b	?	1			
† <i>flexibilis</i> Becker b	+(+)	1(2)	-(X)	X (X)	-()
† <i>mycklebusti</i> Harms. b and Miller	+(+)	1(2)	-()	X (X)	-()
<i>ornatipes</i> Van Duz. b	?	2			
<i>palmaris</i> Loew b	?	2			
<i>simplicitarsis</i> Van D. y	?	1			
<i>strataegus</i> Wheeler b	+(+)	2(2)			
† <i>tricoloripes</i> Curran b	-	1(2)	-()	-()	-()

b = black, y = yellow (at least not black in part); + setose, - bare; 1 apical, 2 subapical, 3 dorsal; _ present, X absent; † specimen determined by Dr. Vockeroth and seen by us (characters of other species derived from literature).

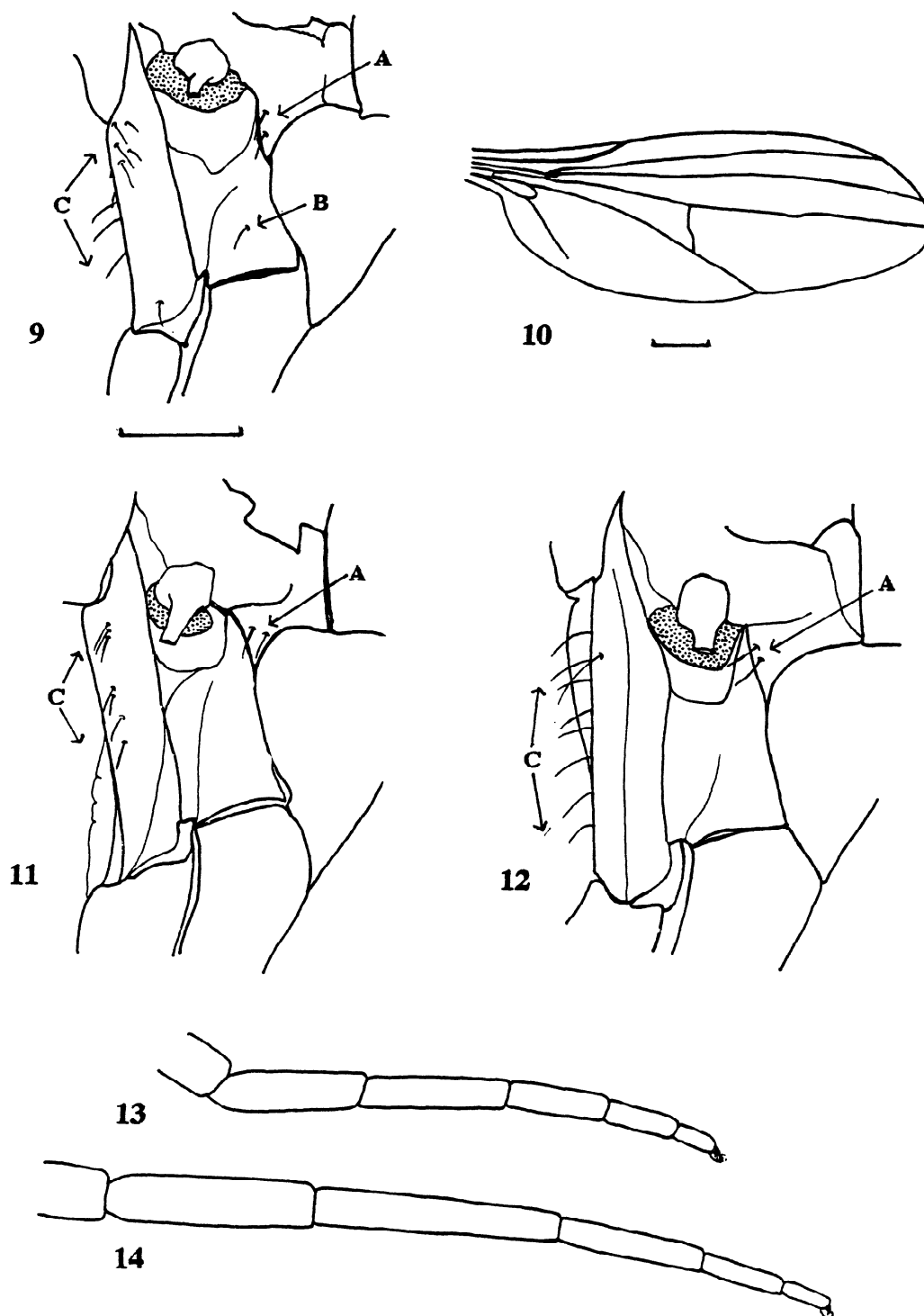
Table 3. Characters of *Parasyntormon* species. Data for males, with females if known in parentheses. Antennal colour applies to both sexes.

	antenna	1st ant.segment	arista	pleural hair patch		
				A	B	C
				(see Fig.9)		
#	<i>asellus</i> Wheeler	b	-(-)			
†	<i>emarginatus</i> Wheeler	b	-(-)	X (X)	X (X)	X (X)
†	<i>emarginicornis</i> Curran	b	-(-)	X (X)	X (X)	X (X)
	<i>flavicoxus</i> Van Duzee	b	-			
	<i>fraterculus</i> Van Duzee	b	-			
	<i>hinnulus</i> Wheeler	b	-			
	<i>lagotis</i> Wheeler	y	-(-)			
	<i>lepus</i> Van Duzee	b	-			
	<i>montivagus</i> Wheeler	b	-(-)			
	<i>mulinus</i> Van Duzee	b	-			
	<i>occidentalis</i> Aldrich	b	-			
†	<i>rotundicornis</i> Van Duz.	y	-(-)	X (X)	X (X)	X (X)

b = black, y = yellow (at least not black in part); + setose, - bare; 1 apical, 2 subapical, 3 dorsal; _ present, X absent; # type species; † specimen determined by Dr. Vockeroth and seen by us (characters of other species derived from literature).



Figures 1-8. 1,2,4,6,7 *S. bicorellus*; 3,5,8 *S. luteicornis*. 1) female, right antenna, inner side; 2) male, right antenna, inner side; 3) female, right antenna, inner side (inset shows shape of first antennal segment in dorsal view); 4),5) female head, front view; 6) female head, side view; 7) male head, front view; 8) female head, side view. Scale line = 0.25 mm for all figures.



Figures 9-14. 9) *S. metathesis* female, pleura, left side showing mesopleural hair patches A and B and metapleural hair patch C. 10) *S. luteicornis* female, right wing. 11) *S. bicolorellus* female, pleura, left side, showing hair patches A and C. 12) *S. luteicornis* female, pleura, left side, showing hair patches A and C. 13) *S. bicolorellus* female, hind tarsus. 14) *S. luteicornis* female, hind tarsus. Scale line for Figure 9 = 0.25 mm, and is the same for Figures 11-14. Scale line for Figure 10 = 2.0 mm.