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Cheilosia hypena Becker, 1894 (Diptera, Syrphidae) – description of the male, re-description of the female and its separation from *Cheilosia frontalis* Loew, 1857

Lucien Verlinden

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A first full description is given of the male of *Cheilosia hypena.* The female, originally described from a single specimen, is re-described. Characteristics are given to separate *C. hypena* from the closely similar *C. frontalis.*

Zusammenfassung

Das Männchen von *Cheilosia hypena* wird erstmals ausführlich beschrieben. Das Weibchen, ursprünglich beschrieben nach einem einzigen Exemplar aus Russland, wird wieder beschrieben. Merkmale zur Trennung von *C. hypena* und *C. frontalis* werden angegeben.

Introduction

In some recent publications, e.g. Maibach et al. (1992) and Dirickx et al. (1994) there are references to *Cheilosia hypena.* Yet the male of this species has never been fully described, a situation which cannot be allowed to continue. As the original description of the female is somewhat misleading, and was based on a single specimen, a re-description seems necessary. The only widely used keys in which *hypena* is featured are Sack (1932) and Brădescu (1991). However, in Sack only the female is listed (in group B, though female *hypena* have bare eyes) and Brădescu's keys are too concise to be convincing.

C. hypena was described after a female from the Russian plains. The first reference to the male dates from 1974, when Goeldlin summarily described it as a new species, *C. capitata*, distinguishable from the similar looking *C. frontalis* by the different shape of frons and surstyli. It was later recognized that *capitata* might well be the hitherto unknown male of *hypena* (Maibach et al. 1992).

C. hypena is a widespread species and though it was rarely recorded it is easy to identify, even if no material of *frontalis* is available for comparison. Still, both species do look rather similar, they often share the same habitat and both their range and flight period partly overlap. No doubt they were until recently confused, and older records

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of both species cannot be relied on. As is so often the case in *Cheilosia* both species are rather variable, particularly in size. As will be shown, any suggestions that *frontalis* is normally smaller than *hypena* and that they can be separated on the basis of this criterion should be rejected.

Material

CH: St. Niklaus (Wallis), 1200 m, 1♂, 1♀ (J.A.W. Lucas leg. & det., as *capitata*), 29.07.1964; Trun (Graubünden), 1400 m, 2♂, July 1977. – I: Prazzo (Piemonte, prov. Cuneo), 1000-1300 m: 1♂, 27.05.1991 and 4♂, 1♀, 18.05.1991; Acceglio, 1200 m: 1♂, 27.05.1991. – F: [Hautes Alpes de Provence] Maljasset, 2000 m 1♂, 3♀, 10.06.1994; Ste Anne-Route du Parpaillon, 1700-2000 m: 1♂, 1♀ 15.06.1994 (*); St. Paul d'Ubaye, 1550m: 2♂, 1♀, 16.06.1994; [Hautes Alpes] La Grave, 1400 m, 7♂, 5♀, 03.06.1995 (*); Châteauroux, 1700m, 1♀, 17.06.1994 (*); Arvieux, 1800 m, 1♂, 1♀, 18.06.1996; Vars St. Marcellin, 1900m, 1♀, 27.05.1997 (*); Névache, 1500m, 2♂, 11.06.1997; Cervières-Les Fonts, 2150 m, 2♀, 13.06.1997 (*); Le Casset, 1700m, 1♂, 1♀, 17.06.1997; Puy St. André, 1900m, 3♂, 14♀, 23.06.1997 (*); Montgenèvre, Col du Gondrand, 2100m, 1♀, 25.06.1997 (*); [Isère] La Salette-Fallavaux, 1200m, 1♀, 15.06.1998.

All this material in the author's collection. Records marked (*): *C. hypena* was taken on the same site as *C. frontalis*.

Description of *Cheilosia hypena* Becker, 1894

Diagnosis

♂: eyes hairy; face with many erect hairs (group B of Sack). – Head: much broader than thorax; frons much swollen, eye angle very obtuse; face obviously broader than one eye, most of it heavily dusted; third antennal segment orange-red at base. – Thorax: mesonotum with long and erect light-coloured pile with some black hairs mixed in laterally; sternopleuron: upper and lower hair patches extensive and broadly connected anteriorly. Legs bicoloured, tarsi dark. – Abdomen: tergites mostly a dull black, with long and erect light-coloured pile ; sternites strongly dusted. Genital capsule small. – Body length varying between 6.5 and 11 mm, usually about 9 mm.

♀: eyes bare at 30 x (group A of Sack); face with many erect hairs. – Head: frons broad and shining; face for the most part heavily dusted; eye margins broad, with long ciliation; third antennal segment unusually large, a dusky orange darkened anteriorly; arista virtually bare. – Thorax: mesonotum with short and dense erect whitish pile, with a variable number of longer black hairs; scutellar bristles strong; sternopleuron and legs as in male. – Abdomen: broadly oval; tergites moderately shining; sternite 1 thickly dusted, the following sternites lightly or partly pollinose. – Body length varying between 6.5 and 10.5 mm, usually about 8 mm.

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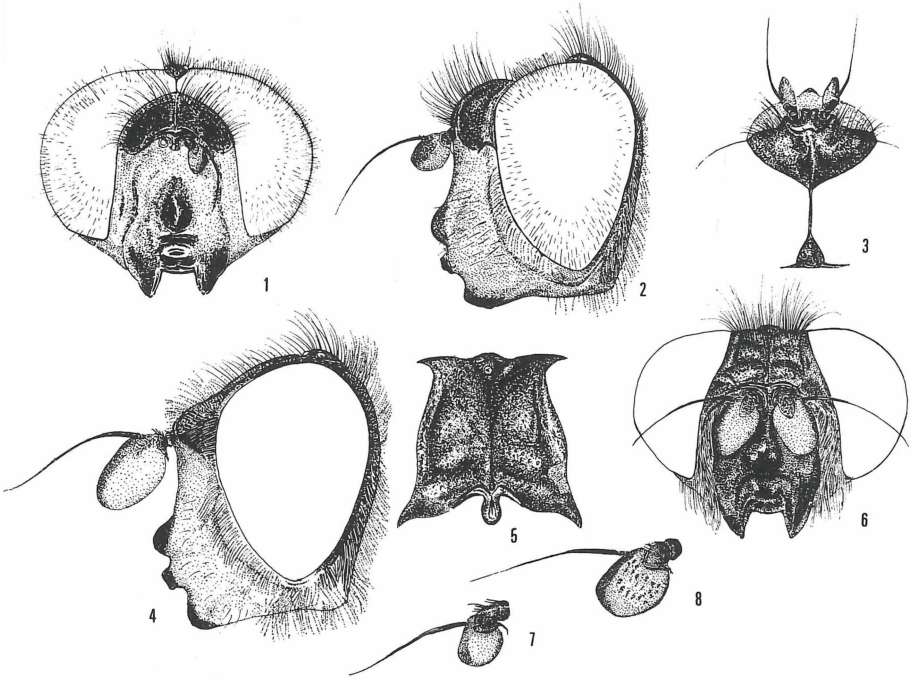
Description

♂: Head: noticeably broader than thorax; face about 1.5 times as broad as one eye near antennae (fig. 1). Head profile as fig. 2: moderately projected forward and downward; frons much swollen, broad, with long and dense black pile, shining black and dusted at most very narrowly along eye margins; eye angle very obtuse, 110° or more (fig. 3). Eyes entirely covered with long and dense, but quite fine pile. Face almost entirely covered with very thick light grey dusting; only the facial knob and parts of the mouth edge shining black. Facial knob placed rather low, small and rounded (fig. 2), appearing rather pointed in dorsal view (fig. 3); eye margins fairly broad, dusted, with long ciliation. Antennae of normal size; third segment rounded, orange-red at base and more or less broadly darkened distally. Arista long and slender, virtually bare. Face with many erect black and white hairs.

Thorax: mesonotum entirely pollinose, with longitudinal stripes of brownish dusting, rather dull, covered with long and erect whitish hairs, many of which are crinkly at the top; a variable number of black hairs are mixed in, especially between



Figs. 1-8 : *Cheilosia hypena* Becker. – 1. Head in frontal view (♂); – 2. Head profile (♂); – 3. Frons and vertex in dorsal view (♂); – 4. Head profile (♀); – 5. Frons (♀); – 6. Head in frontal view (♀); – 7. Antennae (interior surface) of ♂; – 8. Idem of ♀.

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humeri and transverse suture, rarely also on the middle part. Scutellum with even longer mixed pile: scutellar bristles long and numerous, but quite fine. Pleura almost entirely dusted, with long black and white pile; mesopleuron with extensive upper and lower hair patches, which are broadly connected anteriorly. Legs: All femora entirely black or narrowly yellow distally; the long hairs on them mainly white, some black hairs mixed in; hind femora with numerous black setulae underneath. Tibiae broadly yellow at base, narrowly yellow distally. Tarsi black. Wings hyaline, with dark brown veins, in mature flies a smoky brown all over. Squamae whitish, border and fringe a very pale yellow. Haltere a dull brown, with darkened knob and base.

Abdomen: long and narrowly oval. Tergites dully black on the disk, otherwise only weakly shining, though the puncturing is sparse and fine. All tergites with long and erect whitish pile, which is conspicuous only on and near the side margins; on the posterior parts of tergites III and IV some black hairs are mixed in. Sternites entirely dusted; in some males the posterior part of the sternum is only lightly dusted. Genital capsule small.

Body length quite variable, 6.5-11 mm, usually circa 9 mm.

♀: Sexual dimorphism is quite pronounced in *Cheilosia hypena*. Among the features the females have in common with the males are: the broad and heavily dusted and hairy face, a similar profile (figs. 2, 4), the colouring of the antennae, legs and wings.

Head: Eyes entirely or virtually bare (30 x). Frons broad and shining, with well-developed longitudinal grooves and transverse depression (fig. 5), covered with fairly long and almost erect pile; this is light-coloured anteriorly (and "brushed" sideways near anterior corners); towards the vertex more and more longer black hairs are mixed in (fig. 4). In frontal view the face is obviously much broader than one eye (fig. 6); it is heavily dusted, except on the facial knob and the mouth edge; there are a number of erect whitish hairs. Eye-margins broad, dusted, with very long ciliation (comparable to *C. laticornis* Rondani, 1857 and *C. hercyniae* Loew, 1857. Head profile similar to male: at most slightly concave below antennae, central knob placed low, small and rounded. Third antennal segment unusually large, much larger than in the male (figs. 7, 8), for the greater part orange-red, more or less broadly darkened dorsally and anteriorly; the inner surface often a more dusky orange and covered with silvery dusting.

Thorax: Mesonotum undusted, coarsely punctured yet shining, with dense and short erect greyish or whitish pilosity from which a variable number of longer black hairs protrude. Scutellum with well-developed black marginal bristles, more easily distinguishable from the regular scutellar pile than in the male. Pleura dusted, with fairly long greyish pile; hair patches on sternopleuron as in male, but shorter. Legs coloured as in male, hind femora with at most a few setulae underneath. Haltere pale brown, the knob only slightly darkened.

Abdomen: more broadly oval than in male, often with a greenish metallic sheen. Tergites finely punctured, moderately shining ; pilosity long, erect and light-coloured

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laterally, but short, almost adpressed and mainly black on the disk. Sternite I strongly pollinose, the other sternites lightly dusted, sometimes only near the side margins.

Body length quite variable, 6.5-10.5 mm, usually circa 8-8.5 mm.

Variability of *Cheilosia hypena*

♂: Head profile: facial knob somewhat variable in size, occasionally nose-shaped instead of evenly rounded. Third antennal segment sometimes squarish instead of rounded; the light-coloured basal part may be reduced to a very small patch, or on the contrary reach forward almost to the anterior margin; it varies from pale orange to vermillion. The normally extensive yellow parts of the tibiae are sometimes much reduced and darkened. The proportion of black hairs on the mesonotum varies considerably, but the light-coloured hairs always largely predominate.

♀: The median groove on the frons is sometimes incomplete or only rudimentary. Antennae: the proportion between the orange and the dark part is strongly variable. In some females the pile on the mesonotum is entirely light-coloured (as in *frontalis*), but it is less dense and the hairs are obviously of different lengths. The halteres, normally a light ochre, may be much darker.

Separating *Cheilosia hypena* from *Cheilosia frontalis*

Using Sack's keys *hypena* would be attributed to *frontalis*. Indeed, until Goeldlin (1974) noticed the difference in shape of the surstyli nobody seems to have realised they were separate species. Sack's keys to the females of *hypena* and *frontalis* are misleading. He attributes an entirely red third antennal segment to *hypena* and omits to stress its unusually large size. Brădescu's keys include both *hypena* (as *capitata* Goeldlin) and *frontalis*, both sexes; his definition of the male *hypena* is unconvincing and in the diagnosis of the female he repeats Sack's errors and omissions. Existing keys have to be adapted.

It has been suggested (Speight 1998) that body length is a useful criterion to separate both species. This obviously did not comply with the material in my collection. After I measured it roughly I had to conclude that the measurements entirely overlap:

C. hypena ♂ (n=28): 6.5-11 mm; both average and median values: 9.0 mm.

C. hypena ♀ (n=28): 6.5-10.5 mm; average: 8.3 mm; median: 8.0 mm.

C. frontalis ♂ (n=75): 6.5-11 mm; average: 8.8 mm; median: 9.0 mm, i.e. almost identical with *hypena*.

C. frontalis ♀ (n=78): 6.5-10.5 mm; average: 8.6 mm; median: 9.0 mm, i.e. slightly larger than *hypena*.

Table 1 summarizes the criteria by which *Cheilosia hypena* and *Cheilosia frontalis* may be separated.

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	Cheilosia frontalis Loew	*Cheilosia hypena* Becker
♂		
Eye angle	90-100°	110° or more
Dusting of face	moderately pollinose	thickly dusted
Pile on mesonotum	mixed black and grey all over	almost all grey on disk; partly black laterally
Sternopleuron	hair patches smaller; widely separated	hair patches larger, connected anteriorly
Tergites II-IV	often with large dust spots; the pile on the posteromedian part short and adpressed, long and erect laterally	uniformly dull black; pilosity long and erect all over
♀		
Eye pilosity	fine, but long and dense	(virtually) absent
3rd antennal segment	normal size	uncommonly long
Eye margins	ciliation moderately long	ciliation much longer than width of margin
Pile on mesonotum	all grey, uniform length	grey, with a number of longer black hairs
Sternopleuron	as ♂	as ♂
Puncture on mesonotum	coarse	fine

Table 1: Differences between *Cheilosia frontalis* Loew and *Cheilosia hypena* Becker.

Faunistics and habitat preference of adult *C. hypena* and *C. frontalis*

For almost a century after Becker's original description of *C. hypena* the species was hardly ever mentioned in the literature (Dirickx 1994). As it is a widespread and not uncommon taxon *hypena* must have been confused with *frontalis*. Older records of *frontalis* from regions where both species are now known to occur must therefore be treated with circumspection. Thanks to recent faunistic publications (Brădescu 1986, Maibach et al. 1992, Speight et al. 1998; Dirickx et al. 1996) we now know that

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hypena is found in most of the Alps and at least locally in the Balkans as well as in eastern Russia.

Both *hypena* and *frontalis* are endemic species of Europe, with a wide range within the continent. They are also essentially species of the montane and subalpine zone, though they occur in smaller number also at lower altitudes. Both are bi- or polyvoltine species at least in part of their range; their flight period stretches from early spring to mid or late summer, but apparently it strongly peaks in spring. Both taxa have been called uncommon (Maibach et al. 1992; Speight and Lucas 1992), but in spring they are fairly common and locally even abundant in certain mountain areas, particularly *frontalis*, which appears somewhat earlier than *hypena.*

Apart from these similitudes there are some important dissimilitudes. *C. frontalis* has been reported from mountainous country from western Spain throughout the Alps to Romania, but also from France through Belgium, Germany, Denmark and Sweden into Finland and Russia. So far there has been no record of *C. hypena* north of the Alps and the Swiss "Mittelland"; the rather scarce records that are available suggest it is most frequent in the Pyrenees and the south-western part of the Alpine range (Speight et al. 1998).

Cheilosia hypena and *C. frontalis* often share the same habitat: the contact zone between various types of mountain forest and unimproved grassland, often grassland on steep slopes crossed by rivulets. They are also found together in the very open type of *Larix* forest (used for summer grazing) which is frequent on north-facing slopes in the southern French Alps, as well as on humid stony verges of mountain tracks and streams. Here they forage on flowers like *Anthriscus, Sisymbrium, Potentilla*, ... which attract many other *Cheilosia.*

An important difference between the feeding habits of both species is a very marked preference in *C. frontalis* to forage on male *Salix* catkins. Late-flowering willows in boggy depressions, along mountain streams and in the stony floodplains of mountain torrents, particularly at high altitudes, often attract *frontalis* in considerable number. As an experiment I once tried to catch all hoverflies swarming round a large clump of *Salix repens*; the 60 *Cheilosia* I captured (and many must have escaped) were all *frontalis.* After the withering of the last catkins *frontalis* becomes noticeably rarer. In June *hypena* is certainly more numerous than *frontalis.*

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Author's address:

Lucien Verlinden, Tulpenlaan 29, B-3020 Herent

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