

## First observation of *Cheilosia clama* Claussen & Vujić, 1995 in Belgium (Diptera: Syrphidae)

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### Abstract

In the Jansbach valley near Rocherath (province Liege) the first *Cheilosia clama* for the Belgian fauna was recorded. The species name is derived from the Latin word “clam” meaning secretive, referring to the rare status of this species all over Europe where it is found. The host plant of the species is unknown so far but is part of the species rich meadows within forests, often at or in mountains, where *C. clama* is found.

**Keywords:** forest glade, Eifel, herb-rich grassland

### Samenvatting

In de Jansbach vallei nabij Rocherath (provincie Luik) werd een nieuwe zweefvlieg voor de Belgische fauna gevangen, *Cheilosia clama*. Deze soort krijgt de Nederlandse naam Verborgen gitje toebedeeld, vanwege het Latijnse soortepitheton afgeleid van “clam” wat verborgen betekent en verwijst naar het zeldzame voorkomen van de soort. De voedselplant van de soort is nog onbekend, maar de vlieg komt steeds voor op soortenrijke graslanden in bosgebieden, vaak in laag- of hooggebergte.

### Résumé

*Cheilosia clama* (Syrphidae), espèce nouvelle pour la faune de Belgique, a été capturé dans la vallée du Jansbach près de Rocherath (province de Liège). Le nom spécifique dérivant du latin « clam » qui signifie secret, fait référence à la rareté de l'espèce en Europe. Cette espèce est présente dans des prairies riches à l'intérieur des forêts, souvent aussi en basse ou haute montagne, cependant, sa plante-hôte est encore inconnue.

### Introduction

With more than 175 species, *Cheilosia* is the most speciose syrphid genus within Europe (SPEIGHT, 2015). At the same time, it is one of the most challenging groups to identify, as nearly all species have the same brown-black colour and a subtle combination of bristles, hairs and dusting characteristics on various parts of the body are needed to identify these flies. With some exceptions, *Cheilosia* are herbivorous species that contribute by large numbers and species diversity especially to syrphid communities in mountain areas and otherwise pristine and diverse vegetation types in Central and Northern Europe. Many species are oligoherbivorous feeding on a single plant species or genus, which explains their often very localized distribution tightly linked to that of the food plant.

In Belgium 46 *Cheilosia* species are known to date. The highest richness and diversity in this group is reached in or near the larger Flemish deciduous forests, and mainly in forest rich areas in Wallonia. It is in one of the best of these areas, the Belgian Eifel near the border with Germany, that *Cheilosia clama* Claussen & Vujić, 1995 was discovered, a new species in Belgium.

### Observations

8.V.2016, 1♂, Rocherath, valley of the Jansbach, on *Salix aurita*, Latitude: 50.4470384, Longitude: 6.3510454, leg. det. & coll. Frank Van de Meutter.

The grasslands on the slopes of the Jansbach valley at 570-600 m ASL have a mountainous flavor and are among the richest plant communities found in Belgium. The dominant plant species is *Meum athamanticum* which renders them their local German name *Bärwurzweiden*. They are a very rewarding place to search for Syrphidae in early spring, with a good deal of local specialties. On the 8<sup>th</sup> of May 2016 I visited the Jansbach valley with the aim to find *Cheilosia nebulosa*, a species probably linked to *Centaurea jacea*, and which has been reported once from this area. On flowering *Salix aurita* I soon recorded good numbers of *Cheilosia morio* (8), *Cheilosia frontalis* (8), *Cheilosia lenis* (20+), *Cheilosia chrysocoma* (6), *Cheilosia pagana* (20+) and a male *Cheilosia uviformis*. In addition I found a male *Cheilosia* with a superficial resemblance to my target species: a small, rather bulky *Cheilosia*, with a large head and a wide eye angle. As the tibia were not yellow, *C. nebulosa* was ruled out however, and I temporarily classified it as an aberrant *C. uviformis*. Afterwards, the specimen went on loan for a long time to take part in a photographic field guide (BOT & VAN DE MEUTTER, 2019), so I could not further study it. When I finally saw some pictures of the specimen, this triggered my attention, especially when viewing details of the head (relatively little dusting, very wide eye angle, antennas completely red, Fig. 1). After the specimen returned, it was studied with the available keys for Western Europe (VERLINDEN, 1991; VAN VEEN, 2004; BARTSCH *et al.*, 2009b) but was clearly different from all listed species. Other European literature was consulted until a match was found with *C. clama*, a rare Central-European species (CLAUBEN & VUJIĆ, 1995).



Fig. 1. *Cheilosia clama* male, 8.V.2016 Rocherath, Belgium. Note the wide eye angle (Photo: Sander Bot).

### Recognition

To cope with the wealth of species, researchers traditionally group *Cheilosia* according to a limited set of morphological features, but these groups have no taxonomic significance. This classification usually works fine to swiftly key out a species down to a smaller set of species, but unfortunately not for *C. clama*. *Cheilosia clama* belongs to group “C”; *Cheilosia* species of which the legs are not entirely black, the face has no long hairs, the eyes are haired and the hind rim of the scutellum has no bristles. But a number of *C. clama* do have some bristles on the scutellum, and therefore key to group “D”. As with a small number of other *Cheilosia*, males have haired eyes but females don’t. Females therefore fit into group “A” (eyes without hairs). Updating current keys therefore is a complicated matter as it requires multiple insertions. A key for *Cheilosia* occurring in and near Belgium and the Netherlands including *C. clama* can be found in BOT & VAN DE MEUTTER (2019). In VAN VEEN (2004), males of *C. clama* first key to the “*canicularis*-group” but in this key further branch to the “*fraterna*-subgroup” before ending at the couplet *Cheilosia fraterna*/*Cheilosia bracusii*. Females key to the “*pagana*-group” and run into *Cheilosia laticornis* because of lacking black bristles on the scutellum. The following additions are needed to include this species (additions are for the most common case of *C. clama* without bristles on the scutellum).

*Males (numbering according to fraterna-subgroup key in VAN VEEN, 2004)*

- 3a. Eye virtually bare in the lower part, tibia pale with at most a dark patch halfway..... *C. fraterna*
- 3b. Eyes hairy all over, tibiae pale with dark ring .....4
- 4a. Larger species: 10-13 mm. Male: eye hairs dark on upper part..... *C. bracus*
- 4b. Smaller species: 6-9 mm. Male: eyes completely light haired ..... *C. clama*

*Females (numbering according to pagana-group key)*

- 8a. Hind margin of scutellum with bristles ..... *C. pagana* & *C. uviformis*
- 8b. Hind margin of scutellum without bristles .....9
- 9a. Eye margin below antennae with long white hairs. Third antenna red with darkened tip.....  
.....*C. laticornis*
- 9b. Eye margin below antennae with short white hairs. Third antenna red..... *C. clama*

It is important to stress that *C. clama* in fact is very similar to *C. nebulosa*, and very dark specimens of *C. nebulosa* could be mistaken for *C. clama*. Differences for separating dark males of *C. nebulosa* from males of *C. clama*, based on the Belgian specimens I have seen, are the fully red antennae in *C. clama* (with a brownish tinge near the top in *C. nebulosa*), the suture on the frons that runs from the eyes to the lunulae in *C. clama* (stops before the lunulae in *C. nebulosa*), the generally much darker tarsi and more extensively black tibiae in *C. clama*, and the crossvein r-m having the same yellow colour as the other veins in the wing of *C. clama* (crossvein r-m dark brown in *C. nebulosa*).

### Discussion

It is exceptional to find a new species in Belgium not included in current West-European keys. VAN VEEN (2004) states that species from mountains within the area covered by his key are not all included, which may explain why it is not included in his book. Other keys focus on Northern Europe where the species has not been found yet (HAARTO & KERPPOLA, 2004; BARTSCH *et al.*, 2009a), or date back to before the species was known (VAN DER GOOT, 1981; VERLINDEN, 1991). *Cheilosia clama* is generally found high in mountains (980 - 1700 m ASL), but several observations are from 200-400m ASL (Germany, Yugoslavia) (CLAUBEN & VUJIĆ, 1995; CLAUDE *et al.*, 2016). All localities with *C. clama* have in common that they are exceptionally well-preserved and rich grasslands in forest glades, often along small brooks and rivulets. The Belgian observation along the Jansbach river fits this description perfectly. Assuming *C. clama* is a phytophagous species like other *Cheilosia*, it follows that the host plant has to be a typical species of such habitats, yet host and host plant distribution are not necessarily similar. At the Jansbach also *Cheilosia frontalis* occurs which has been observed to oviposit and probably develop in *Caltha palustris*, yet in Flemish lowland marshes where *Caltha* is very abundant it does not occur.

A recurring observation on *C. clama* is that it is a very rare species. For a species that is relatively distinct (at least for a *Cheilosia*...) and that occurs from eastern Belgium, over Central en southern Germany, including Central and southern France all the way to Yugoslavia, the low number of specimens found so far is curious. In Yugoslavia, the impressive number of 12.000 *Cheilosia* sp. have been collected over the years by syrphid experts, but only 6 are *C. clama* (CLAUBEN & VUJIĆ, 1995). The species has been collected between 20 April and 16 June. At low altitude most catches are from end April-May. It is stated that this rather early flight period may partly explain why it is seldom met with (CLAUBEN & VUJIĆ, 1995), but that would not explain the single Belgian observation at the Jansbach in over 10 years of regular visits to this area, also in spring. *Cheilosia clama* could well be among the genuinely rare species of the European fauna.

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