

Further presumed host plant relationships of *Cheilosia* Meigen (Diptera, Syrphidae) obtained from observing egg-laying females

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The results of observations of egg-laying or egg-laying behaviour for six *Cheilosia* species are given. The known host relationships between *C. chlorus* and *Cirsium oleraceum* and between *C. impressa* and *Eupatorium cannabinum* are confirmed. For *C. cf. melanura* and for *C. vulpina* new plant hosts (*Cirsium rivulare* and *Cirsium eriophorum*, respectively) have been observed. For two species, *C. nebulosa* (on *Centaurea nigra*) and *C. cf. ranunculi* (on *Ranunculus bulbosus*) no plant hosts were known so far.

Zusammenfassung

Beobachtungen von Eiablagen oder Eiablage-Verhalten zu sechs *Cheilosia*-Arten werden gegeben. Sie bestätigen bisher bekannte Wirtsangaben für *C. chlorus* (*Cirsium oleraceum*) und *C. impressa* (*Eupatorium cannabinum*) und liefern neue Wirte für *C. cf. melanura* (an *Cirsium rivulare*) und *C. vulpina* (an *Cirsium eriophorum*). Für *C. nebulosa* (an *Centaurea nigra*) und *C. cf. ranunculi* (an *Ranunculus bulbosus*) waren zuvor keine Wirte bekannt.

Introduction

Although it has been known since 1848 (Dufour 1848) that the larvae of *Cheilosia* are plant feeders the hosts of most species are still unknown. Stuke (2000), in a review of the current knowledge, reports hosts for 45 species. A large part of this knowledge is from the last decade. In a previous paper (Doczkal 1996) I reported observations of egg-laying or egg-laying behaviour for 12 *Cheilosia* species. These observations have been one of the major sources for new plant host relationships. In this paper further observations are reported.

Species accounts

All records of observed egg-laying or eggs refer to solitary eggs glued to the plant.

Cheilosia chlorus (Meigen, 1822)

D, Baden-Württemberg, Bad Urach, Kaltental, 500-540m; wet meadow with mass occurrence of *Cirsium oleraceum* (L.) Scop. beside a riverside forest; 11th May 1998; numerous females with egg-laying behaviour on *Cirsium oleraceum*, nearly every plant with one or several *Cheilosia* eggs on the underside of the leaves, most often near the base.

Cirsium oleraceum is already known as the host plant (Stuke 2000). Perhaps *C. chlorus* is an exception among the thistle feeders as all records of larval and egg-laying hosts refer to only a single plant species. All other thistle feeders with numerous records have a wider host range.

Cheilosia impressa Loew in Schiner, 1857

D, Baden-Württemberg, Rheinstetten-Neuburgweier near Karlsruhe, Kastenwört, 107m; SE facing edge of a hardwood forest; 14th August 2002; one ♀ with egg-laying behaviour (crawling down the stem with extended ovipositor) on *Eupatorium cannabinum* L. After the fly reappeared two eggs were found at the base of the stem just above the ground. Although the fly escaped there can be no doubt about its identity because *C. impressa* is the only species with a yellow wing base flying in midsummer in the lowland of S Germany.

The same plant species has been reported as an egg-laying host by Stuke (2000). Schmid (1999) found numerous larvae in root-stocks of *Arctium lappa* L.

Cheilosia cf. *melanura* Becker, 1894

D, Baden-Württemberg, Friedenweiler-Rötenbach, Paradies, 825m; unimproved wet meadow; 12th May 2001; one ♀ laying one egg and one ♀ with egg-laying behaviour on *Cirsium rivulare* (Jacq.) All. (further three ♀ of possibly the same species with egg-laying behaviour on *Cirsium rivulare* escaped).

Doczkal (1996) reported *C. spinosissimum* (L.) Scop. as an egg-laying host of *C. melanura*. While this thistle is very common in the Alps it is unknown from the Schwarzwald and adjacent regions where *C. melanura* has been reported. For this reason Doczkal, Rennwald & Schmid (2001) claimed that there must be a further host plant species. In Baden-Württemberg the range of *Cirsium rivulare* is restricted to sites up to 900 m NN (Lange in Sebald et al. 1996), i.e. it occurs largely outside the altitudinal range of *C. melanura*. There are some doubts concerning the identity of the taxon observed on this site because the long series of specimens collected there is morphologically somewhat different from Alpine populations of *C. melanura*.

Cheilosia nebulosa Verrall, 1871

(1) D, Baden-Württemberg, Gernsbach, Waldbachtal, ca. 235m; unimproved mesophytic meadow near the edge of a mixed forest on a W facing slope; 25th April 1998; one ♀ with egg-laying behaviour on *Centaurea nigra* L. (2) D, Baden-Württemberg, Michelbach near Gaggenau, Tannenberg, 250m; unimproved dry meadow on a S facing slope; 30th April 2001; one ♀ laying one egg on *Centaurea nigra* L. The examination of some additional *Centaurea* plants revealed a few *Cheilosia* eggs at the bases of leaves just above the ground.

This is the first record of a host plant for *C. nebulosa*. At the site near Michelbach a few weeks later no larvae could be found. Perhaps the young larvae could not develop in the plants due to mowing a week after the egg-laying was observed.

Cheilosia cf. *ranunculi* Doczkal, 2000

D, Baden-Württemberg, Urphar near Wertheim, slope N of the Kembach 0.5 km E of Urphar; unimproved meadow on dry calcareous soil (*Salvia-Arrhenatheretum*); 20th May 2001; one ♀ with egg-laying behaviour on *Ranunculus bulbosus* L., egg-laying itself not observed, but after the fly reappeared two eggs were found, one on a moss and one on a minute leaf of a different plant, both in contact with the base of the stem of the *Ranunculus* down which the fly had crawled. It first landed on a flower of *Ranunculus bulbosus*. There it walked about for a few seconds and touched the petals several times with the labellum, as if examining whether it were the correct plant and then crawled down the stem. A second ♀ was also observed with similar egg-laying behaviour.

Doczkal (2000) inferred from observations about the habitat preferences and from the close relationship to the *Ranunculus*-feeder *C. albitarsis* that *Ranunculus bulbosus* is the most probable host of *C. ranunculi*. Although both specimens observed have the characters typical for *C. ranunculi* (i.e. lunule rough in the median part without a distinct furrow, postpedicellus short, and mesonotum largely with light hairs) the host relationship between *C. ranunculi* and *Ranunculus bulbosus* requires to be confirmed by rearing ♂ specimens from this plant, since the separation of females of *C. albitarsis* and *C. ranunculi* remains somewhat unreliable.

Cheilosia vulpina (Meigen, 1822)

D, Baden-Württemberg, Lindelbach near Wertheim, Gaisberg, ca. 280m; unimproved calcareous grasland; 20th May 2001; one ♀ with egg-laying behaviour on *Cirsium eriophorum* (L.) Scop.

Brunel & Cadou (1990) reported *Cynara scolymus* L. as a larval host. As this plant is missing in large parts of the range of *C. vulpina* it was already clear that there must be one or more further host plants.

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References

- Brunel, E.; Cadou, D. (1990): Description de la larve et de la pupe de *Cheilosia vulpina* Meigen (1822), mineuse de racins d'artichaut (*Cynara scolymus* L.) en Bretagne (Dipt. Syrphidae). – Bulletin de la Société Entomologique de France 95, 121-129. Paris.
- Doczkal, D. (1996): Observations on host plants and behaviour of egg-laying females of *Cheilosia* Meigen (Diptera, Syrphidae) in Central Europe. – Volucella 2, 77-85. Stuttgart.
- Doczkal, D.; Rennwald, K.; Schmid, U. (2001): Rote Liste der Schwebfliegen (Diptera: Syrphidae) Baden-Württembergs (2. Fassung, Stand 15. September 2000). – Naturschutz-Praxis, Artenschutz 5, 49 S. Karlsruhe.
- Dufour, L. (1848): Histoire des métamorphoses du *Cheilosia aerea*. – Annales des Sciences naturelles, Sér. Zoologie 3, 9, 205-209, 1 pl. Paris.
- Lange, D. (1996): 44. *Cirsium* Miller 1754. S. 251-267 In: Sebald, O.; Seybold, S.; Philippi, G.; Wörz, A. (eds.): Die Farn- und Blütenpflanzen Baden-Württembergs. Vol. 6: Spezieller Teil (Spermatophyta, Unterklasse Asteridae) Valerianaceae bis Asteraceae. 577 S. Stuttgart.
- Schmid, U. (1999): Die Larve von *Cheilosia impressa* Loew, 1840 (Diptera, Syrphidae). – Volucella 4, 113-119. Stuttgart.
- Stuke, J.-H. (2000): Phylogenetische Rekonstruktion der Verwandtschaftsbeziehungen innerhalb der Gattung *Cheilosia* Meigen, 1822 anhand der Larvenstadien (Diptera: Syrphidae). – Studia dipterologica Supplement 8, 1-118. Halle a.d. Saale.

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