

## Additions to the checklist of Belgian Muscidae: subfamily Coenosiinae (Diptera)

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### Abstract

In this paper five species of the subfamily Coenosiinae are added to the Belgian Muscidae checklist: *Lispe loewi* Ringdahl, 1922, *Pseudocoenosia abnormis* Stein, 1916, *Lispocephala falculata* Collin, 1963, *Orchisia costata* (Meigen, 1826) and *Coenosia octopunctata* (Zetterstedt, 1838).

**Keywords:** Muscidae, *Lispe*, *Pseudocoenosia*, *Lispocephala*, *Orchisia*, *Coenosia*, species new for Belgium

### Samenvatting

In dit manuscript worden vijf soorten van de subfamilie Coenosiinae toegevoegd aan de Belgische Muscidae checklist: *Lispe loewi* Ringdahl, 1922, *Pseudocoenosia abnormis* Stein, 1916, *Lispocephala falculata* Collin, 1963, *Orchisia costata* (Meigen, 1826) en *Coenosia octopunctata* (Zetterstedt, 1838).

### Résumé

Dans cet article, cinq espèces de la sous-famille des Coenosiinae sont ajoutées à la liste des Muscidae de Belgique: *Lispe loewi* Ringdahl, 1922, *Pseudocoenosia abnormis* Stein, 1916, *Lispocephala falculata* Collin, 1963, *Orchisia costata* (Meigen, 1826) et *Coenosia octopunctata* (Zetterstedt, 1838).

### Introduction

Members of the Muscidae subfamily Coenosiinae are distinguished from other Muscidae by being mainly predaceous in the adult stage (SKIDMORE, 1985; GREGOR *et al.*, 2002). The most species-rich genera of this subfamily are *Spilogona* Schnabl, 1911 and *Coenosia* Meigen, 1826 (PONT, 1986). In recent papers a whole series of species of these genera were added to the Belgian checklist (MARTENS, 2012; 2013a; 2013b; 2015; 2016). This paper focuses on the other genera of Coenosiinae. Recently *Limnospila albifrons* was reported as new for Belgium (MARTENS, 2013a). The present paper gives the first records of *Lispe loewi* Ringdahl, 1922, *Pseudocoenosia abnormis* Stein, 1916, *Lispocephala falculata* Collin, 1963 and *Orchisia costata* (Meigen, 1826). In addition, one species of *Coenosia* is included, which was already collected in 2002 by the second author but was never published.

### Material and methods

The specimens were obtained by sweeping the vegetation with a net. Identification is based on GREGOR *et al.* (2002). All collected specimens were dry mounted and are preserved in the private collection of the first author.

## Results

### *Lispe loewi* Ringdahl, 1922

MATERIAL. Knokke-Heist, Baai Van Heist, 28.VIII.2013, 1♀, leg., det. & coll. C. Martens; Brugge, Inner port of Zeebrugge, WSO, 28.VIII.2013, 1♀, leg., det. & coll. C. Martens; Knokke-Heist, Kleiputten van Heist, salt meadow, 5.VIII.2014, 1♂ & 4♀, leg., det. & coll. C. Martens.

*Lispe loewi* is a mainly Palaearctic species which is widely distributed. It occurs from Scandinavia to Northern Africa and from Great Britain to Siberia. It was found also in the Afrotropics (in Sudan). The species occurs in all our neighbouring countries, except for Luxemburg (Adrian Pont, pers. comm., XII.2016).

Puparia of *Lispe loewi* were found under mats of *Enteromorpha* on saline mud together with puparia of *Spilogona biseriata* (Stein, 1916) and in the *Honckenya* zone on the beach. The species occurs mainly on the sea coast, but also in inland areas of high salinity close to deposits of halite (SKIDMORE, 1985; GREGOR *et al.*, 2016). At inland saline habitats in Poland the species was found attacking freshly emerged imagines of *Aedes dorsalis* (Meigen, 1830) (Diptera: Culicidae) on the surface of the water of saline reservoirs. They were also observed sucking the body contents of dead or drowning insects (Diptera, Saltatoria, Homoptera) and attacking imagines of the biting midge *Culicoides longicollis* Glukhova, 1971 (Diptera: Ceratopogonidae). On the shore of the Aselebener Pumpensee (Sachsen-Anhalt, Germany) *Lispe loewi* was found with an adult chironomid midge as prey (WERNER & PONT, 2006).

We collected *Lispe loewi* at three localities within 5 km of each other. One female was collected in the 'Baai van Heist' which is a coastal nature reserve. It consists of beach, embryonic dunes, dunes and an inlet with salt marsh. The specimen was obtained by sweeping the salt marsh vegetation (Fig. 1). On the same day another female was obtained in the inner port of Zeebrugge, where the specimen was swept on the edge of a salt meadow. This was a narrow strip with higher vegetation alongside the road (Fig. 2). Unfortunately the second locality was destroyed only about ten days later for expansion of the harbour activities. About one year later 1 male and 4 female specimens were collected in a salt meadow in the nature reserve 'Kleiputten van Heist' (Fig. 3). The meadow is grazed by cattle. Fig. 8 shows the corresponding 5x5km UTM-squares on the Belgian map.

### *Pseudocoenosia abnormis* Stein, 1916

MATERIAL. Arlon, Camp Lagland, Marais du Landbruch, 22.VIII.2013, 2♀, leg., det. & coll. C. Martens.

*Pseudocoenosia abnormis* is a Palaearctic species. In Europe it occurs from Scandinavia to North Italy and Austria and from Ireland to Poland and Lithuania. It was found also in Siberia. In Southern Europe it seems to be absent. Up to now it has not been found in The Netherlands, Luxembourg and France (Adrian Pont, pers. comm., XII.2016).

*Pseudocoenosia abnormis* is a characteristic bogland fly. Larvae and puparia of this species were found in wet *Sphagnum* (SKIDMORE, 1985).

We collected two specimens in 'Marais du Landbruch', which is part of the military domain 'Camp Lagland'. 'Camp Lagland' is situated in the "Lorraine" and encompasses many different habitats such as poor fens, transition mires and quaking bogs, rich fens, carr, active raised bogs, *Sphagnum Betula* woods, dry heathlands and several types of forest. 'Marais du Landbruch' is a bog in a valley with poor drainage. The bog is fed by two streams and contains all of the above-mentioned wet habitats. One specimen was collected in the transition zone between a mixed forest and a boggy area (Fig. 4), at an altitude of ±350 m ASL. The second specimen was collected in the bog, at an altitude of ±340 m ASL (Fig. 5). Fig. 8 shows the corresponding 5x5km UTM-squares on the Belgian map.



Fig. 1. Salt marsh in the 'Baai van Heist' (Knokke-Heist), one of the sampling localities of *Lispe loewi*.



Fig. 2. Salt meadow in the inner port of Zeebrugge (Brugge). *Lispe loewi* was collected here from the narrow edge with higher vegetation alongside the road.



Fig. 3. A salt meadow grazed by cattle in the 'Kleiputten van Heist' (Knokke-Heist), the third sampling locality of *Lispe loewi*.



Fig. 4. One of the sampling localities of *Pseudocoenosia abnormis* in 'Marais du Landbruch' (Arlon).



Fig. 5. Second sampling locality of *Pseudocoenosia abnormis* in 'Marais du Landbruch' (Arlon).



Fig. 6. Dune slack with pond in the nature reserve 'De Fonteintjes' at Zeebrugge (Brugge). *Lispocephala falculata* was found in the herbaceous vegetation near the pond.

### *Lispocephala falculata* Collin, 1963

MATERIAL. Oud-Heverlee, Vijvers van Oud-Heverlee, Zuidelijke Vijver, 24.III.2002, 2♂ & 1♀, leg. J. Menten, det. J. Menten & C. Martens; col. C. Martens; Huldenberg, Neerijse, Doode Bemde, 7.IV.2002, 1♀, leg. J. Menten, det. J. Menten & C. Martens, coll. C. Martens; Leuven, Heverlee, Egenhovenbos, Rotspoel, 13.IV.2002, 1♀, leg. J. Menten, det. J. Menten & C. Martens, coll. C. Martens; Brugge, De Fonteintjes te Zeebrugge, second dune slack when counting from Zeebrugge, 22.IV.2013, 1♂, leg., det. & coll. C. Martens.

*Lispocephala falculata* is a West Palaearctic species which was found up to now only in Finland, Denmark, Great Britain, France, the Czech Republic and Hungary (Adrian Pont, pers. comm., XII.2016).

It is a spring species, which can be found from February to May (GREGOR *et al.*, 2016).

We collected *Lispocephala falculata* in two far distant areas with completely different habitats. In 2002 five specimens were collected in a period of one month at three different localities in the valley of the river Dyle, south of the city of Leuven. These localities are situated in the loam region of Flanders. Two males and one female were collected near the southern pond in the nature reserve 'Vijvers van Oud-Heverlee' in Oud-Heverlee. One female each was collected in the nature reserve 'Doode Bemde' in Neerijse (Huldenberg) and in a meadow close to the forest 'Egenhovenbos' in Heverlee (Leuven). All three collection localities were marshy meadows with many sedges and were situated close to the river Dyle. In 2013 one male was collected in a dune slack in the nature reserve 'De Fonteintjes' at Zeebrugge (Brugge). The dune slack contains a pond and the specimen was obtained by sweeping the herbaceous vegetation near the pond (Fig. 6). Fig. 8 shows the corresponding 5x5km UTM-squares of all the collection localities on the Belgian map.

### *Orchisia costata* (Meigen, 1826)

MATERIAL. Nieuwpoort, Simlidiunen, 26.VII.2014, 1♀, leg., det. & coll. C. Martens.

*Orchisia costata* occurs in the Palaearctic, the Oriental, the Australasian and the Afrotropical biogeographic realms. In Europe the species is widely distributed but seems to be absent in the north (Fennoscandia, Iceland, Baltic states, Russia). Also in the Netherlands and in Luxemburg the species has not yet been found (Adrian Pont, pers. comm., XII.2016). Though *Orchisia costata* is not included in the Belgian Muscidae checklist (HOFMANS, 1991), in the Fauna Europaea (PONT, 2017) *Orchisia costata* is mentioned from Belgium, but neither the specimen nor the literature reference on which this is based can now be traced (Adrian Pont, pers. comm., VIII.2017). Consequently the species is included in this paper, for the first time based on an authentic specimen.



Fig. 7. Small dune slack in the nature area 'Simlidiunen' in Nieuwpoort, the collection locality of *Orchisia costata*.

In Great Britain *Orchisia costata* is mainly known from coastal dunes and from dry, sandy heath, on the south-coast of England and Wales. However in southern England the species was also swept at two localities from small stands of reed growing on eroding coastal soft clay cliffs and in an inland damp herb-rich ride in a broad-leaved woodland on gravelly calcareous clay. This indicates that *Orchisia costata* can occur in markedly different habitats (HOWE & HOWE, 2000).

We collected one female *Orchisia costata* in a small dune slack in the nature area 'Simlidiunen' in Nieuwpoort (Fig. 7). Fig. 8 shows the corresponding 5x5km UTM-square on the Belgian map.

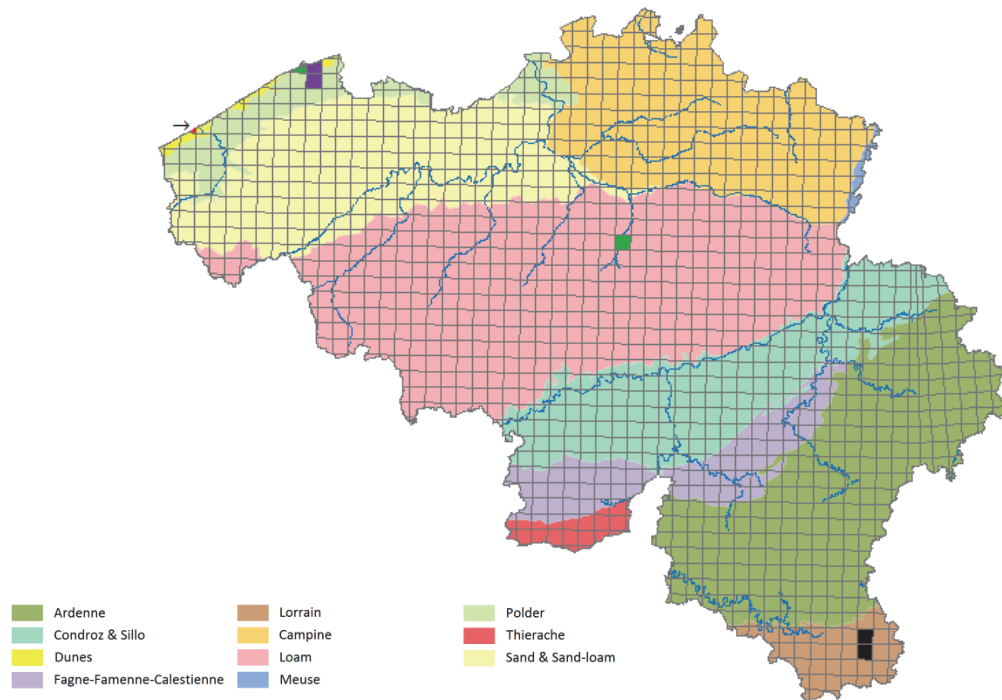


Fig. 8. Preliminary distribution map of the species, using 5x5 km UTM-squares (■ *Lisse loewi*, ■ *Pseudocoenosia abnormis*, ■ *Lispocephala falculata*, →■ *Orchisia costata*). *Coenosia octopunctata* is not included in the map as the locality is not known accurately enough.

### *Coenosia octopunctata* (Zetterstedt, 1838)

MATERIAL. Arlon, Camp Lagland, 18.V.2002, 1♂, leg. J. Menten, det. J. Menten & C. Martens, coll. C. Martens.

*Coenosia octopunctata* is a Holarctic species. In Europe it is known from Norway, Sweden, Finland, Estonia, Lithuania, Russia, Poland, The Czech Republic and Austria. No records from Western Europe are known (Adrian Pont, pers. comm., XII.2016).

*Coenosia octopunctata* occurs mainly in the uplands (GREGOR *et al.*, 2016).

We collected *Coenosia octopunctata* in the military domain ‘Camp Lagland’, situated in the ‘Lorraine’. The area is described in the paragraph on *Pseudocoenosia abnormis*. It is not known where exactly in this military domain and in what habitat the specimen was collected. As ‘Camp Lagland’ encompasses 2600 hectares, it covers several municipalities and several 5x5km UTM-squares and it is not known in what municipality and in what UTM-square the specimen was collected. However, to give an idea of the location in Belgium we refer to *Pseudocoenosia abnormis*, which was also collected in Camp Lagland (Fig. 8). Note also that the altitude in Camp Lagland varies between ±340 and ±430m ASL.

When looking at the above-mentioned distribution, we conclude that our record is the only one in Western Europe.

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