

Diptera from rich fens and other habitats in eastern part of Innlandet, southeastern Norway. VIII. Drosophilidae

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Records of 17 species of Drosophilidae from Hedmark in the eastern part of Innlandet County, southeastern Norway, are presented based on material collected in 2016 and 2017 during a survey of insects inhabiting rich fens in the region. Four species, *Drosophila lummei* Hackman, 1972, *Lordiphosa hexasticha* (Papp, 1971), *Lordiphosa nigricolor* (Strobl, 1898) and *Microdrosophila congesta* (Zetterstedt, 1847) are recorded for the first time in Norway, and an additional 10 species are recorded for the first time from northern Hedmark (Strand-region HEN). *Scaptomyza pallida* (Zetterstedt, 1847) was the most abundant species, collected both on rich fens and in other habitats. *Drosophila transversa* Fallén, 1823 was also comparatively common on the rich fens. The remaining species were less abundant, mostly taken only in one or a few specimens.

Key words: Rich fens, Diptera, Drosophilidae, new records, Hedmark, Innlandet County, Norway.

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Introduction

The Drosophilidae is a species-rich family of acalyprate Brachycera with more than 4000 species in 76 genera described worldwide (Pape *et al.* 2011). The species are minute to medium sized (1.5–7.0 mm) flies. Their body color varies from yellow to brownish black and they often have whitish markings on the head and thorax or pattern of stripes on the thorax. When alive the eyes are often bright red. The larvae of most species feed on micro-organisms in rotting organic matter, but some species live in exuding tree sap, are miners or prey on other insects (Oosterbroek 2006).

Baechli *et al.* (2004) recorded 40 species of Drosophilidae from Norway. Later, Thunes *et al.* (2004), Falck (2007), and Gammelmo & Søli (2011) have added new species. But the Norwegian fauna of Drosophilidae is still not well

known. Baechli *et al.* (2004) recorded 72 species in 11 genera from Fennoscandia and Denmark. Kahanpää (2014) listed 67 species from Finland, while 51 species are so far known from Norway (Elven & Søli 2021).

In 2016 the project «Insects on rich fens in Hedmark, eastern Norway» was initiated aiming at increasing the knowledge of the insect fauna on rich fens in Norway (see Artsdatabanken 2016, Andersen & Hagenlund 2019). Rich fens are among our most vulnerable and threatened nature types. Five types of lowland rich fens are listed in the Norwegian Red List of Nature Types (Lindegaard & Henriksen 2011). These fens are rich in calcium and usually fed by ground water and a number of rare and red-listed plants grow on these fens. During the project insects were collected in nearly 100 localities (see Jonassen & Andersen 2020). The insect fauna on rich

fens were the main target, but insects were also collected in a number of other habitats to get a better understanding of the habitat preferences of the different species. Below we present a list of the *Drosophilidae* species from Hedmark collected during the project.

Material and methods

The fieldwork was conducted during 2016 and 2017. The main part of the material was collected in Malaise traps, but adult Diptera were also collected with other methods like sweep nets, window traps, light traps and yellow pan traps. The Malaise traps were situated on eight different rich fens in 2016 and were emptied bi-weekly beginning after the snow had melted in April–May and continuing until the winter started in late October. The fens are of different sizes and structure and a gradient from lowland fens to upland fens were strived for (see Jonassen & Andersen 2020). A total of 94 localities in Hedmark were visited during the project. Each locality is given a HeLoc number, which is used in the species list below. Although the fieldwork was focused on rich fens, a number of other habitats were also explored. In the species list rich fen localities are marked with an asterisk after the HeLoc number. All localities including HeLoc numbers are listed in Jonassen & Andersen (2020: Table 1). One species was also collected in a Malaise trap run by Marit Hagenlund in 2011.

During the field work the material was preserved in 75–80% ethanol, then brought to the Department of Natural History, University of Bergen, and sorted to family level. The material from the project is mainly stored in 75–80% ethanol, but a few specimens are pinned. It is housed in the entomological collection at the Department of Natural History, University Museum of Bergen (ZMBN). All species were identified by the senior author.

The former counties Oppland and Hedmark were merged into Innlandet County on the 1 January 2020. None of the municipalities in Hedmark were, however, altered or merged and the municipality boundaries are still as before 2020. All fieldwork was performed in the eastern

part of Innlandet, i.e. the former Hedmark County, and we have used the biogeographical regions southern Hedmark (HES) and northern Hedmark (HEN) following the «Strand-system» (Endrestøl 2021).

Results

Cacoxenus argyreator Frey, 1932

Material. HeLoc32*, 23 June–11 July 2016, 2♂♂, Malaise trap; HeLoc74*, 2–16 September 2016, 1♀, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

Leucophenga quinque maculata Strobl, 1893 (Figure 1)

Material. HeLoc78*, 2–16 September 2016, 1ex, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

Stegana coleoptrata (Scopoli, 1763)

Material. HeLoc17*, 9–23 June 2016, 1♂, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

Stegana furta (Linnaeus, 1767)

Additional material. HEN, Stor-Elvdal: Evenstad, Høgskolen i Innlandet, 61.4244977°N 11.077615°E, 251 m a.s.l., 3–10 June 2011, 1♀, Malaise trap, leg. M. Hagenlund.

Remarks. Recorded for the first time from northern Hedmark (HEN).

Drosophila lummei Hackman, 1972

Material. HeLoc34, 21 June–20 July 2017, 1♂, light trap.

Remarks. New to Norway. A Palearctic species found along rivers in northern and eastern Europe, including Sweden and Finland (Baechli *et al.* 2004).

Drosophila melanogaster Meigen, 1830

Material. HeLoc45*, 26 May–9 June 2016, 1♀, Malaise trap; HeLoc78*, 2–16 September



FIGURE 1. *Leucophenga quinquemaculata* Strobl, 1893 was collected in the Malaise trap on the rich fen Brydalskjølen in northern Hedmark. Photo: Raimo Peltonen.

2016, 1♂, Malaise trap.

***Drosophila obscura* Fallén, 1823**

Material. HeLoc17*, 28 April–13 May 2016, 1♂1♀, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

***Drosophila phalerata* Meigen, 1830**

Material. HeLoc17*, 28 September–13 October 2016, 1♂, Malaise trap; HeLoc34, 21 June–20 July 2017, 1♀, light trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

***Drosophila transversa* Fallén, 1823** (Figure 2)

Material. HeLoc17*, 14–26 May 2016, 1♂; 2–16 September 2016, 1♂, Malaise trap; HeLoc32*, 21 July–4 August 2016, 2♀♀, Malaise trap; HeLoc47*, 17 August–2 September 2016, 1♀; 2–16 September 2016, 1♂; 16–29 September

2016, 1♀; 29 September–13 October 2016, 1♂, Malaise trap; HeLoc71*, 2–16 September 2016, 1♂1♀; 16–29 September 2016, 1♀, Malaise trap; HeLoc74*, 11–21 July 2016, 1♀, Malaise trap; 2–16 September 2016, 3 ex, window trap; HeLoc78*, 21 July–4 August 2016, 1♂; 2–16 September 2016, 1♀, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN).

***Hirtodrosophila cameraria* (Haliday, 1833)**

Material. HeLoc17*, 23 June–11 July 2016, 3♀; 21 July–4 August 2016, 1♀, Malaise trap; HeLoc47*, 23 June–11 July 2016, 1♀, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN). Previously only one observation from Rogaland (Artsdatabanken 2017). The specimen is identified by Terje Jonassen and is housed in his personal collection (T. Jonassen pers. com).



FIGURE 2. *Drosophila transversa* Fallén, 1823 was collected on several rich fens in northern Hedmark. Photo: Raimo Peltonen.

***Lordiphosa hexasticha* (Papp, 1971)**

Material. HeLoc17*, 17 August–2 September 2016, 1♂, Malaise trap.

Remarks. New to Norway. A Palearctic species with a few scattered records in Europe and Far East Russia (Baechli *et al.* 2004). In northern Europe it has previously been recorded from Sweden, Finland, Estonia and Germany (Baechli *et al.* 2004, SLU Artdatabanken 2022).

***Lordiphosa nigricolor* (Strobl, 1898)**

Material. HeLoc34, 21 June–20 July 2017, 1♂, light trap.

Remarks. New to Norway. A Palearctic species with a few scattered records in Europe and Far East Russia (Baechli *et al.* 2004). In northern Europe it has previously been recorded from Sweden, Finland, Estonia and Germany (Baechli *et al.* 2004, SLU Artdatabanken 2022).

***Microdrosophila congesta* (Zetterstedt, 1847)**

Material. HeLoc09, 22 July 2017, 2♀♀, sweep net.

Remarks. New to Norway. An overlooked but probably widespread Palearctic species (Baechli

et al. 2004). In northern Europe it has previously been recorded from Sweden, Finland, Germany and Poland (Baechli *et al.* 2004).

***Scaptomyza graminum* (Fallén, 1823)**

Material. HeLoc38, 29 July 2016, 1♂, sweep net; HeLoc74*, 26 May–9 June 2016, 1♂, Malaise trap.

***Scaptomyza griseola* (Zetterstedt, 1847)**

Material. HeLoc30, 4 June 2017, 1♂9♀♀, sweep net.

Remarks. Recorded for the first time from northern Hedmark (HEN).

***Scaptomyza pallida* (Zetterstedt, 1847)**

Material. HeLoc07, 21 July 2017, 1♀, sweep net; HeLoc17*, 16–29 September 2016, 1♂, Malaise trap; HeLoc19, 21 July 2017, 1♂, sweep net; HeLoc25, 15 August 2016, 3 ex., sweep net; HeLoc29, 18 September 2016, 3 ex., sweep net; HeLoc32*, 17 August–2 September 2016, 1♀; 28 September–13 October, 2016, 1♂, Malaise trap; 16 July 1916, 1♀, sweep net; HeLoc35, 25–31 July 2016, 35 ex., light trap; HeLoc37*, 2 July 2016,

2♂♂, sweep net; HeLoc44, 17 September 2016, 10 ex., sweep net; HeLoc45*, 23 June–11 July 2016, 6 ex.; 11–21 July 2016, 1♂; 21 July–4 August 2016, 2 ex.; 17 August–2 September 2016, 2 ex.; 2–16 September 2016, 29 ex.; 16–29 September 2016, 6 ex., Malaise trap; HeLoc47*, 23 June–11 July 2016, 7 ex.; 21 July–4 August 2016, 2 ex.; 4–17 August 2016, 1♂; 17 August–2 September 2016, 2♂♂; 2–16 September 2016, 4 ex.; 16–29 September 2016, 1♂, Malaise trap; HeLoc57, 28 July 2016, 1 ex., sweep net; HeLoc64*, 28 July 2016, 1♂, sweep net; HeLoc70*, 25 July 2016, 1♀, sweep net; HeLoc71*, 2–16 September 2016, 2 ex.; 16–29 September 2016, 1♂2♀♀, Malaise trap; HeLoc73*, 28 July 2016, 1♀, sweep net; HeLoc74*, 21 July–4 August 2016, 1♀; 2–16 September 2016, 2 ex.; 16–29 September 2016, 2 ex., Malaise trap; HeLoc75*, 9–23 June 2016, 1♀; 23 June–11 July 2016, 2 ex.; 16–29 September 2016, 4 ex., Malaise trap; HeLoc78*, 26 May–9 June 2016, 1♀; 9–23 June 2016, 1♂1♀; 23 June–11 July 2016, 10 ex.; 11–21 July 2016, 8 ex.; 21 July–4 August 2016, 31 ex.; 4–17 August 2016, 11 ex.; 17 August–2 September 2016, 32 ex.; 2–16 September 2016, 45 ex.; 16–29 September 2016, 11 ex., Malaise trap; HeLoc80*, 17 August 2016, 1♀, sweep net; HeLoc84, 23 July 2016, 1♀, sweep net; HeLoc85, 23 July 2016, 10 ex., sweep net.

Scaptomyza teinoptera Hackman, 1955

Material. HeLoc25, 15 August 2016, 1♂, sweep net; HeLoc 78*, 9–23 June 2016, 1♂; 16–29 September 2016, 1♂, Malaise trap.

Remarks. Recorded for the first time from northern Hedmark (HEN). Recently recorded as new to Norway from Sigdal (Thunes *et al.* 2004) and from Akershus (Gammelmo & Søli 2011).

Discussion

A total of 17 species of Drosophilidae were collected in Hedmark. Four species, *Drosophila lummei*, *Lordiphosa hexasticha*, *L. nigricolor*, and *Microdrosophila congesta*, are recorded for the first time from Norway. In addition, 10 species are recorded for the first time from northern Hedmark

(HEN).

Scaptomyza pallida was the most abundant species and was collected both on rich fens and in other habitats. In the Malaise trap at Brydalskjølen (HeLoc 78*) no less than 151 specimens were collected constituting 96% of the total catches in this trap. According to Baechli *et al.* (2004) the species is a cosmopolite, very abundant among grasses. Máca (1972) stated that the larvae are saprophagous, living on decaying plant material. *Drosophila transversa* was also taken in comparatively high numbers on the rich fens. The species is a widespread Holarctic species, most abundant in northern areas, less so in southern areas where it is most abundant in the mountains, suggesting a boreo-alpine distribution pattern (Baechli *et al.* 2004). The remaining species were less abundant, mostly taken only in one or a few specimens.

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