Additions and corrections to the list of Norwegian Dixidae (Diptera)

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Dixella autumnalis (Meigen, 1838) is recorded for the first time from Norway, from the island of Hvasser in Vestfold, southeastern Norway. A picture of the male hypopygium is given. *Dixa nubilipennis* Curtis, 1832 and *Dixa submaculata* Edwards, 1920 are deleted from the list as the records were based on misidentifications. *Dixa maculata* Meigen, 1818 is recorded for the second time from Norway, from southern Hedmark. An updated list of the Norwegian Dixidae is presented.

Key words: Diptera, Dixidae, *Dixella autumnalis*, Norway, distribution, check list.

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Introduction

Three larvae of a dixid species, brought to my attention by Kjell Magne Olsen, was with some hesitation identified to *Dixella autumnalis* (Meigen, 1838). However, the setae on the ventral side of the caudal filament were not arranged according to the table in Disney (1999). On 1 July 2012 the locality was therefore revisited and more larvae were collected for rearing. One of these larvae did pupate and a male hatched on 12 July 2012.

The specimen was mounted on a slide in Euparal and could then be identified with certainty to *D. autumnalis*; the hypopygium is shown in Figure 1. The locality is a small, shallow pond, situated about 2m a.s.l. in a Nature Reserve at the southern tip of Tjønneberget on the island of Hvasser, (**VE**, Tjøme: Hvasser, Tjønneberget, N 59º06413, E 10º43765, EIS 19). The area is used as a grazing area for sheep. The water in the pond is probably slightly saline, being very close to the sea. It was found together with larvae of *Dixella amphibia* (De Geer, 1776) and *Dixella aestivalis* (Meigen, 1818).

D. autumnalis has previously been recorded from The Åland Islands (Finland) (Salmela 2006, Autio & Salmela 2010) and is reported to be common in the lowlands on the British Islands (Disney 1999) and in The Netherlands (Krebs 1982). It seems to tolerate some salinity, viz. 3.4‰ (Krebs 1982). According to Wagner (2013) the European distribution covers: Belgium, Corsica, Denmark, Finland, France, Great Britain, Germany, Ireland, Italy, Sardinia, Spain, Switzerland, and The Netherlands.

Dixa nubilipennis Curtis, 1832, was recorded from a brook near Byflaten north of Brumunddal in Ringsaker municipality in southern Hedmark by Olsen (2008). Later another record from a nearby locality was given by Håland (2011); this specimen was sent to Dr. J.K. Moulton at the University of Tennessee (USA) for genetic analysis. The first specimen was recently re-examined and identified to *Dixa maculata* (Meigen, 1818), a species that previously has been recorded only once from Norway, from Tøyen, Oslo in 1841 (Peus 1936). For the time being it is impossible to separate the larvae of *Dixa nubilipennis* and *D. maculata* and the male hypopygium of *D. maculata* has to be

FIGURE 1. Hypopygium of the male of *Dixella autumnalis* (Meigen, 1838).

cleared in KOH to reveal the sclerotized internal hooks to allow identification.

Dixa submaculata Edwards, 1920, was recorded by Håland (1996) from Sandnessjøen in Nordland, based on a few larvae. At closer examination they apparently were misidentified and the species must be deleted from the list of Norwegian Dixidae. However, *D. submaculata* may well occur in Norway as it is recorded from Sweden (Tjeder 1954) and Finland (Salmela 2006).

Check list

A revised list of Norwegian Dixidae is given below, consisting of 17 species.

- *Dixa dilatata* Strobl, 1900
- *Dixa maculata* Meigen, 1818
- *Dixa nebulosa* Meigen, 1830
- *Dixa puberula* Loew, 1849
- *Dixella aestivalis* (Meigen, 1818)
- *Dixella amphibia* (De Geer, 1776)
- *Dixella attica* (Pandazis, 1933)
- *Dixella autumnalis* (Meigen, 1838)
- *Dixella borealis* (Martini, 1928)
- *Dixella dyari* (Garrett, 1924)
- *Dixella filicornis* (Edwards, 1926)
- *Dixella hyperborea* (Bergroth, 1889)
- *Dixella martini* (Peus, 1934)
- *Dixella naevia* (Peus, 1934)
- *Dixella nigra* (Staeger, 1840)
- *Dixella obscura* (Loew, 1849)
- *Dixella serotina* (Meigen, 1818)

Discussion

A few more species are known to occur in our neighboring countries (see Wagner 2013), and some of them might well be found in Norway too. Further, J.K. Moulton has recently found several cryptic species among the North American Dixidae species using DNA methods (see Midgepeet 2011). This may well be the case for some European species too, so the number of species known to occur in Norway will probably rise in the years to come.

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