On the occurrence of *Hydroptila vectis* Curtis, 1834 (Trichoptera, Hydroptilidae) in Norway, with notes on four other rare species

TROND ANDERSEN & KJELL MAGNE OLSEN

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Hydroptila vectis Curtis, 1834 and *Limnephilus diphyes* McLachlan, 1880 were listed from Sør-Varanger in Eastern Finnmark (FØ) by Tobias & Tobias (2008), but without exact locality information. *Hydroptila vectis* was not considered for the recent Norwegian Red List for Species, while *L. diphyes* was considered as data deficient (DD) as there was only one additional record from Svanhovd in Pasvik. Tobias' material from Finnmark is now housed in Senckenberg Museum, Frankfurt, Germany, and we contacted the museum to get more information about these records. Recently two males of *L. diphyes* were collected in Tana in northern Finnmark (FN) and several specimens of *H. vectis* were collected at Ljanselva, Oslo in Akershus (AK), both species in Malaise traps. In the trap at Ljanselva, three other rare species, *Hydroptila occulta* (Eaton, 1873), *Lype reducta* (Hagen, 1868), and *Tinodes pallidulus* McLachlan, 1868, were also collected, the first two are regarded as near threatened (NT) in the Norwegian Red List for Species, while the latter is listed as data deficient (DD).

Key words: Trichoptera, Hydroptilidae, Psychomyiidae, Limnephilidae, Norway, new records.

Trond Andersen, Department of Natural History, University Museum of Bergen, University of Bergen, P.O. Box 7800, NO-5020 Bergen, Norway. E-mail: trond.andersen@uib.no

Kjell Magne Olsen, Biofokus, Gaustadalléen 21, NO-0349 Oslo, Norway. E-mail: kjell-magne@biofokus.no

Introduction

Between 1969 and 1981, Wolfgang and Dagmar Tobias spent several summers in eastern Finnmark collecting Plecoptera and Trichoptera. They published a series of articles from the area (e.g. Tobias & Tobias 1971, 1976, Tobias 1981). They also compiled a checklist of the caddisfly species from northeastern Norway and the Kola Peninsula, and listed *Hydroptila vectis* Curtis, 1834 and *Limnephilus diphyes* McLachlan, 1880 from Sør-Varanger in Finnmark (Tobias & Tobias 2008). However, they did not give any specific information on the localities, and *H. vectis* was thus not considered for the recent Norwegian Red List for Species, while *L. diphyes* was listed as data deficient (DD), as there was only one additional Norwegian record of this species from Norway (Andersen & Hagenlund 2012, Olsen *et al.* 2021d). Tobias' material from Finnmark is now housed in the Senckenberg Museum, Frankfurt, Germany. We contacted the museum, and Dr. Steffen Pauls and Dr. Peter Haase, kindly provided us with the locality information for the two species.

In 2021 a Malaise trap was placed at the River Ljanselva in Oslo from 1 April to 8 September. A total of 12 species of caddisflies were collected

in the trap. *Hydroptila vectis* is apparently rather common at the trap site, as nearly 60 specimens were caught. In addition, three other rare species were caught: *Hydroptila occulta* (Eaton, 1873) and *Lype reducta* (Hagen, 1868) are both listed as near threatened (NT) in the recent Norwegian Red List for Species (Olsen *et al.* 2021a, 2021b), while *Tinodes pallidulus* McLachlan, 1868 is listed as data deficient (DD) (Olsen *et al.* 2021c).

Two males of *L. diphyes* were collected in an array of five closely set Malaise traps in Tana in Northern Finnmark in the period 21 July to 7 August 2021. The traps were placed at the same locality where *Oxyethira klingstedti* Nybom, 1983 was collected in 2020 (Olsen & Andersen 2021). The record from Tana shows that the species is a resident of Norway and not only a sporadic immigrant from Russia or Finland.

Material and methods

The material collected by Wolfgang and Dagmar Tobias in eastern Finnmark is housed in the Senkenberg Museum, Frankfurt am Main, Germany. Both *H. vectis* and *L. diphyes* are preserved in ethanol.

The other specimens were collected with Malaise traps, preserved in 80% ethanol and are housed in the collection at Biofokus, Oslo.

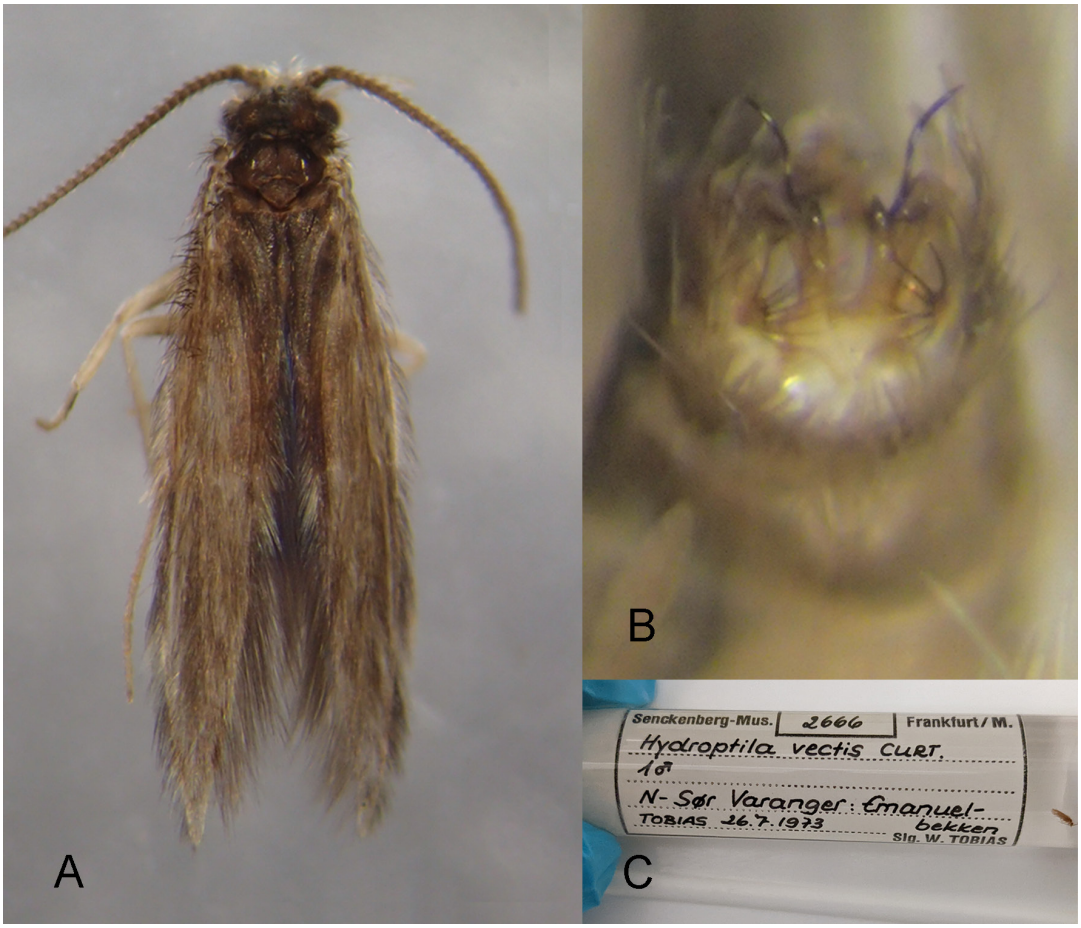

FIGURE 1. *Hydroptila vectis* Curtis, 1834. **A**. Male. **B**. Male genitalia. **C**. The tube with the specimen collected by W. Tobias in Finnmark. Photos: Senckenberg Museum.

Results

***Hydroptila vectis* Curtis, 1834** (Figure 1A–C)

Material. Norway, **Akershus (AK),** Oslo: Nordstrand, Liadalen, Ljanselva, 59.8481°N 10.7927°E, 5 June–8 September 2021, 54♂♂5♀♀, Malaise trap, leg. K.M. Olsen. **Finnmark (FØ),** Sør-Varanger: Pasvik, Emanuelbekken, 69.30367°N 29.26350°E, 51m a.s.l., 26 July 1973, 1♂, leg. W. Tobias.

Remarks. Emanuelbekken is a tributary to the River Pasvik. At the outlet, the stream forms a small bay with partly sandy and stony banks and with adjacent woodland (see Ekrem *et al.* 2012).

The River Ljanselva is a small river partly running through residential areas. It has preserved much of its natural characters and is one of the most pristine rivers in Oslo (Bendiksen & Bakkestuen 2001, Tønnessen 2010). The material was collected in a Malaise trap placed on the bank of Ljanselva. The trap site is characterized by a mesic, thermophilous deciduous forest with Scots elm (*Ulmus glabra)*, common hazel (*Corylus avelana*), black alder (*Alnus glutinosa*) and small-leaved lime (*Tilia cordata);* the ground is mainly covered by bracken ferns (*Pteridium aquilinum*) (Figure 2). The river is about three meters wide and quite shallow, and a thick mixture of fine sediment and organic matter covers the rocky bottom. The crane fly *Tipula* (*Platytipula*) *moiwana* (Matsumura, 1916) was recently recorded for the first time in Fennoscandia from the same trapping site (Boumans *et al.* 2013), and six females were also present in the same sample as *H. vectis*.

***Hydroptila occulta* (Eaton, 1873)**

Material. Norway, **Akershus (AK),** Oslo: Nordstrand, Liadalen, Ljanselva, 59.8481°N E10.7927°E, 5 June–8 September 2021, 1♂, Malaise trap, leg. K.M. Olsen.

Remarks. Collected in the same Malaise trap as *H. vectis.*

FIGURE 2. River Ljanselva, Oslo, close to the trapping site. Photo: K.M. Olsen.

***Lype reducta* (Hagen, 1868)**

Material. Norway, **Akershus (AK),** Oslo: Nordstrand, Liadalen, Ljanselva, 59.8481°N E10.7927°E, 5 June–8 September 2021, 6♂♂2♀♀, Malaise trap, leg. K.M. Olsen.

Remarks. Collected in the same Malaise trap as *H. vectis.*

***Tinodes pallidulus* McLachlan, 1868**

Material. Norway, **Akershus (AK),** Oslo: Nordstrand, Liadalen, Ljanselva, 59.8481°N E10.7927°E, 5 June–8 September 2021, 4♂♂, Malaise trap, leg. K.M. Olsen.

Remarks. Collected in the same Malaise trap as *H. vectis.*

***Limnephilus diphyes* McLachlan, 1880**

(Figure 3)

Material. Norway, **Finnmark (FN),** Tana: northern part of Badjeriŋgi, 70.0367°N 28.0379°E, 20m a.s.l, 21 July–7 August 2021, 2♂♂, Malaise trap, leg. K.M. Olsen. **(FØ),** Sør-Varanger: Øvre Pasvik, Noatun, the bank of River Pasvik, 69.1646°N 29.2474°E, 3–10 October 1976, 1♂, light trap, leg. W. Tobias; Ødevassbekken, 69.05714°N 20.01825°E, 1 August 1979, 1♀, sweep net, leg. W. Tobias; «kl. Moorbach», 1♂, 14 July 1973, sweep net, leg. W. Tobias.

Remarks. At Tana the species was collected at an overgrown oxbow lake formed by a meandering river (Figure 4). The lake had very little open water and is no longer in direct contact with the river, except maybe at very high floods. The vegetation consisted of a *Carex* swamp (halophyte swamp) with mainly bottle sedge (*Carex rostrata*), but also with a lot of purple marshlock (*Comarum palustre*) and some *Sphagnum* moss. It is a belt of willow (*Salix*) bushes along the edge of the lake and mountain birch (*Betula pubescens* ssp. *tortuosa*) on drier ground.

In the collection at Senckenberg Museum there are two males and one female of *L. diphyes* collected by W. Tobias in Sør-Varanger. Two of them have locality information, while the third is only labeled «kl. Moorbach», - small stream in marshy area.

FIGURE 3. *Limnephilus diphyes* McLachlan, 1880, male. Photo: R. Elven.

FIGURE 4. The Malaise traps at Badjeriŋgi, Tana. Photo: K.M. Olsen.

Discussion

Hydroptila vectis is a tiny, dark, faintly yellowish spotted caddis fly with a wing length of 2.9–4.6 mm. It has a West-Palaearctic distribution, found in most parts of Europe including Norway, Sweden, and Finland. In Finland, the species is inhabiting rivers and the sandy seashores of the Botnian Bay (Salokannel & Matilla 2018). Tobias and Tobias (2008) listed the species from Sør-Varanger in Finnmark but did not give any specific information on the locality. The species was thus not considered for the recent Norwegian Red List for Species (Olsen 2021). Tobias' material from Finnmark is now housed in the Senkenberg Museum, Germany and Dr. Peter Haase kindly provided us with more information about the record from Finnmark.

Recently, *H. vectis* was collected at the River Lianselva, in Oslo, southeastern Norway, where it seems to be rather common. The record from River Lianselva is thus the second record from Norway and the first from southern Norway.

Hydroptila occulta is a West-Palaearctic species distributed in most parts of Europe including Denmark, Norway, Sweden, and Finland. It lives in stony brooks and small rivers and seems to prefer groundwater (Salokannel & Matilla 2018). The species was collected for the first time in Norway along the River Loneelven on Osterøy (HOY) in 1972 (Andersen 1976, Marshall 1977). It has later been recorded from the River Tysseelven in Hordaland (HOY), and from Kvitsund in outer Telemark (TEY) (Andersen & Tysse 1985, Andersen *et al.* 1990). The species is listed as near threatened (NT) in the Norwegian Red List for Species 2021 (Olsen *et al.* 2021a). The record from River Ljanselva is thus the fourth record of the species from Norway and the first for more than 30 years.

Lype reducta is a West-Palaearctic species distributed in most parts of Europe including Denmark, Norway, Sweden, and Finland. The larvae inhabit brooks, often fed by ground water

(Rinne & Wiberg-Larsen 2017). The species was recorded for the first time from Norway from Miletjern in western Buskerud (BV) and was later taken at Bogstadvannet in Oslo (AK) (Andersen *et al.* 1993, Olsen 2008). In addition, there are 40 records of the species in Artskart (Artsdatabanken 2022), but few of these are documented with material and it is not stated if the species is identified based on larvae or on adults. As the larvae of *L. reducta* is rather similar to the larvae of the much more common *Lype phaeopa* (Stephens, 1836), these records were considered doubtful, and the species was listed as near threatened (NT) in the Norwegian Red List for Species 2021 (Olsen *et al.* 2021b).

Tinodes pallidulus is a West-Palaearctic species distributed in southeastern and central Europe, including England, Denmark, Norway, and Sweden. The larvae live on stone surfaces in running water (Rinne & Wiberg-Larsen 2017). The species was recently recorded as new to Norway based on larvae collected at three localities in southern Norway (Person & Wiberg-Larsen 2020). They point out that the species might have immigrated to Norway recently, most probably from Denmark and that it is spreading in southern Norway. The species was listed as data deficient (DD) in the Norwegian Red List for Species 2021 (Olsen *et al.* 2021c). The record from Ljanselva is the first record from Akershus (AK) and the first-time adults have been taken in Norway.

Limnephilus diphyes is a Holarctic species. In Europe it is recorded from Norway, Sweden, Finland, Estonia, and Northwest Russia. According to Salokannel & Matilla (2018) the species lives in small pools in open wet mires, usually near birches (*Betula*) or willows (*Salix*), which fits well with the new locality in Tana. Tobias (1976) and Tobias & Tobias (2008) listed the species from the Varanger area without giving specific information on the locality. In the collection at the Senckenberg Museum there are three specimens from Sør-Varanger collected by W. Tobias, two of which have proper locality information (Dr. Steffen Pauls pers. com.). In addition, a single male was taken in a light trap at Svanhovd in Pasvik in September 2010 (Andersen & Hagenlund 2012). Based on this specimen the species was listed as data deficient (DD) in the Norwegian Red List for Species 2021 (Olsen *et al.* 2021d). However, the new record from Tana shows that the species is a resident of Norway and not only a sporadic immigrant from Russia or Finland.

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