

Tinodes maclachlani Kimmins, 1966 – a caddis – fly found unexpectedly in Denmark (Trichoptera, Psychomyiidae)

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Larvae, pupae and imagines of *Tinodes maclachlani* Kimmins, 1966 were discovered at several localities at the NW coast of the island Bornholm in the Baltic Sea. This hygropetric species is either to be regarded as a postglacial relict, or it may have been overlooked in northern Europe. Similar habitats are very scarce in Denmark.

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Introduction

During a visit to the island of Bornholm in the middle of May 1984 a species of the caddis fly genus *Tinodes* was discovered living on wet surfaces of rocks near the north-western coast of the island. In several places small amounts of ground-water is permanently flowing in thin films over nearly vertical rock faces. The fauna living in this film of water is called the »hygropetric fauna« and the habitat the »hygropetric habitat«. The fauna associated with wet but not submerged litter, dead wood etc. found near springs and brooks is also usually called hygropetric. Until now more than 100 species of *Tinodes* have been described from North America and the Old World. Many of these are confined or able to inhabit hygropetric localities i.e. on rocks, where the larvae build galleries made of sand grains and detritus. Only three species are known from Denmark: the common *T. waeneri* L. mainly living in lakes, *T. pallidulus* McLachlan found in clean streams and the very rare *T. unicolor* Pictet which is known from only a few streams on Bornholm.

At first only larvae were found at two hygropetric localities. These were preliminarily identified as *T. maclachlani* Kimmins according to Edington and Hildrew, 1981. This species is known to be hygropetric, but was certainly not expected to occur in Denmark

as it is only found in southwestern Europe and the British Isles (Botosaneanu & Malicky, 1978). To be sure of the identity of the species the localities were visited again in the middle of July 1984. Several new localities were detected and adults, pupae and larvae were collected. Based on adults the species could be identified with certainty – it was indeed *T. maclachlani*.

This finding is most surprising. There are two possible explanations why the species occurs on Bornholm. One is that it has been overlooked and therefore is much more widespread than expected. The larval galleries are very similar to those of certain *Chironomidae* and may possibly be mistaken as such by trichopterologists (Edington & Hildrew, 1981).

Another explanation is that the mild winter climate in the middle of the Baltic Sea in combination with the warm micro-climate of the western exposed rock faces have favoured the survival of the species since the warm post-glacial period approximately 6.000 years before present. At that time the climate in Denmark was similar to e.g. the climate of northern France, where the species occur today. Therefore the population of *T. maclachlani* on Bornholm could be regarded as a relict of a former more northern distribution of the species.

Biological remarks

Usually the species is confined to hygropetric localities, but in England it occasionally inhabits streams in places where there is no competition from other species of *Tinodes* (Edington and Hildrew, 1981). On Malta the species is found in irrigation canals (Botosaneanu, 1981). Alderson (1969) found that *T. maclachlani* has a one-year life cycle in England with a continuous growth of the larvae during the winter. It is therefore interesting to study the life cycle of the population on Bornholm.

Notes on distribution

The species has a southwestern distribution in Europe (Botosaneanu & Malicky, 1978). Although the distribution is poorly known, it seems to be distributed northwards to near the Atlantic coast where the climate is mild during the winter (fig. 2). The species should therefore be searched for at the southwestern coast of Norway and on the Faroes.

Nomenclature

Before 1966 *T. maclachlani* was named *T. pusillus* MacLachl., 1862 or *T. aureola* (Zetterstedt, 1840), but both names proved to be based on inadequate descriptions of other species (Forsslund, 1929; Kimmins, 1966). Therefore the species was described by Kimmins in 1966. It is named in honour of Robert McLachlan, the pioneer of European trichopteroLOGY.

Material collected

Dania, Bornholm: Stone with 4 larvae in galleries and 8 larvae, 1 km north of Vang, 18.v.1984, M. Stoltze leg.; 2 males, *ibid.*, 19.vii.1984; 3 larvae, below Hammershus Ruin, 20.v.1984, M. Stoltze leg.; 1 male, 4 females, 10 larvae and 13 pupae, *ibid.*, 18.vii.1984; 2 males, 3 females, 1 pupa and 1 larva, Møllevigen, 18.vii.1984, M. Stoltze leg.; 3 males, 6 females, 3 larvae and 1 pupa, Jons Kapel, 19.vii.1984, M. Stoltze leg.

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maclachlani under observation during June and July 1984.

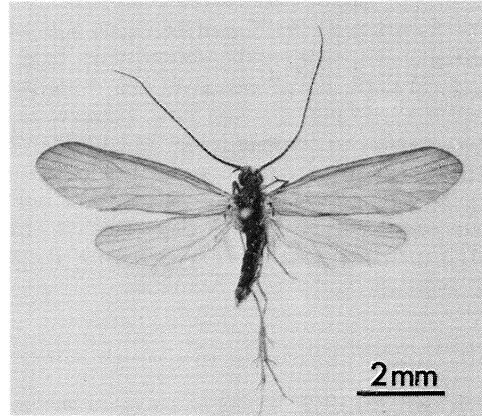


Fig. 1: *Tinodes maclachlani* ♂, Dania, Bornholm, Jons Kapel, 15.viii.1984, M. Stoltze leg.



Fig. 2: Approximate distribution of *Tinodes maclachlani* Kimmins in Europe.

Sammendrag

Vårfluen *Tinodes maclachlani* Kimmins (Trichoptera, Psychomyiidae) er fundet som ny for Danmark. Den lever på klipper der vædes af fremsivende grundvand, dvs. hygropetriske lokaliteter, ved Bornholms nordvestkyst.

Fundet af denne art i Danmark er yderst overraskende. *T. maclachlani* er udbredt i

de vestlige middelhavslande og mod nord langs Atlanterhavskysten til England og Irland (fig. 2). Hvis ikke arten er overset, kan forekomsten på Bornholm betragtes som et postglacialt varmerelikt. Bornholms beliggenhed midt i Østersøen giver øen et særligt mildt kystklima, der kan have betinget artens overlevelse her som reliket fra en tidligere mere nordlig udbredelse under den postglaciale varmetid. Hvis arten især kræver høje vintertemperaturer, bør den efterses på hygropetriske lokaliteter ved kysten i det sydvestlige Norge og på Færøerne.

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