

# The Biting Midge *Culicoides impunctatus* Goetghebuer, 1920 (Diptera: Ceratopogonidae) recorded from the Faroes

Bitmýggið *Culicoides impunctatus* Goetghebuer, 1920  
(Diptera: Ceratopogonidae) skrásett í Føroyum

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## Úrtak

Bitmýggið *Culicoides impunctatus*, hefur ikki verið staðfest í Føroyum fyrr, men tað er nú staðfest í ljósfellum, sum hava staðið í Gerðinum, við Mýrarnar, og í Hoyvík í Streymoy. Hetta slagið er víða um, og er í Asia og Evropa, t.d. í Bretlandi (eisini Orknoyum), Danmark og Noregi, men vit vita einki um, at tað er funnið í Íslandi og Grønlandi. *C. impunctatus*, verður vanlig sett í samband við mýrulendi, og serliga nógvar var eisini til við Mýrarnar. Miðal kampa (antennu) lutfallið (lutfallslið av samanløgdu longdunum av fimm teimum uttastu kampaliðunum sammett við samanløgdu longdirnar av teimum innastu kampaliðunum) á honum var greitt lægri enn miðalvirðini í Bretlandi og Danmark. Hetta bendir á, at kroppurin á hesum dýrum er minni í Føroyum. Hetta mýggjabitaslagið er sera áhaldandi at bíta og tað legst vanlig á fólk og stórri dýr. Í Føroyum kann tað vera fólk, neyt, seyður og møguliga hara. Hesi bitálop á fenaðin kunnu vera til miklan ampa. Hjá neytum kann tað hava við sær ovurviðkvæmi og hjá rossum kunnu bitini elva til beinleiðis bruna í húðini av ovurviðkvæmi. Við staðfestingini av *C. impunctatus* leggja vit samstundis aftur at listanum við bitflogkyktum í Føroyum.

## Summary

The biting midge, *Culicoides impunctatus*, not hitherto recorded from the Faroes, was collected in light traps operated at Gerðinum, Mýrarnar, and Hoyvík, Streymoy. The species is widespread, occurring in Asia and Europe, e.g. in Britain (including Orkney), Denmark and Norway, but it is not known from Iceland and Greenland. *C. impunctatus*, which is associated with bogland, was particularly abundant at Mýrarnar. The mean antennal ratios (the ratio of the sum of the length of the apical five segments of the antennal flagellum to the sum of the basal segments) of Faroese female specimens was significantly lower than mean ratios recorded from Britain and Denmark, indicating smaller absolute body size. The species is an extremely persistent biter, feeding on man and large mammals. In the Faroes man, cattle, sheep and possibly the arctic hare are potential hosts. The feeding on livestock may cause considerable distress, in cattle hypersensitivity to the bites may develop and in horses the biting may give rise to an allergic dermatitis. The record of *C. impunctatus* adds a troublesome biting fly to the Faroese fauna.



## Introduction

The biting midges (*Culicoides* Latreille) are minute (wing length rarely >2mm), mainly crepuscular nematocerous flies. The females usually require a blood meal for the successful development of eggs. In some cases the biting activity of female *Culicoides* is a nuisance to animals and man and the species *Culicoides impunctatus* is a particularly troublesome biter. This paper reports on the first record of the species from the Faroes.

## Materials and methods

Insects were collected by means of a portable, battery-operated light trap (Ento-Tech light weight trap, 11 Watt fluorescent PL-light tube Osram Delux/color; Olsen *et al.*, 1984). Collecting was done in three sites on Streymoy: 1. At the settlement Gerðinum (at sea level), Vestmanna. The light trap was placed on the outskirts of the settlement, about 40 m from human habitations and operated for four nights (July 29 – August 1, 2001). In the site the moist soil was covered with grass and moss; horses were grazing in the pastures. 2. Mýrarnar (mountains about 400 m above sea level; trap operated for four nights, July 25–28, 2001). Predominant habitats: moist rocks covered with moss and bogland with peat-based mire vegetation made up of grass and bog moss (*Sphagnum* spp). The latter area provided summer pasture for sheep. 3. Further, among insects collected in a light trap placed at Hoyvík on the outskirts of Tórshavn a male and a female *C. impunctatus* were found (June 24 – July 16, 1991, leg. Peter Gjelstrup and Svend Kaaber).

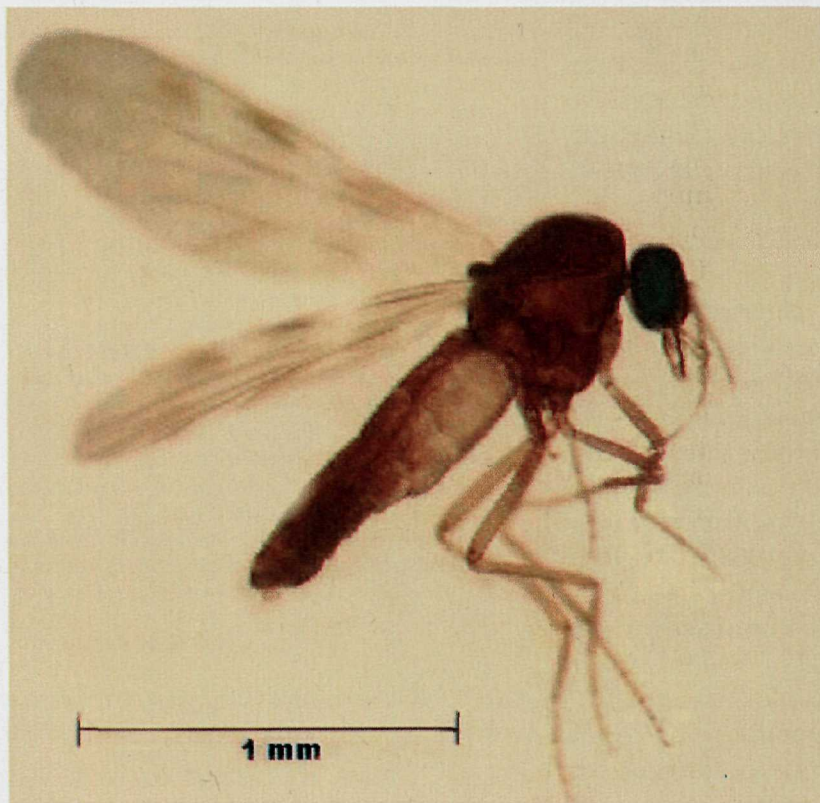
## Results and discussion

A total of 142 specimens (2♂♂, 140♀♀) of *C. impunctatus* were trapped, viz. at Gerðinum 2♀♀ and at Mýrarnar 2♂♂, 138♀♀. Thus nearly all specimens were collected in the site Mýrarnar, which reflects that *C. impunctatus* is a bogland species breeding in oligotropic, peaty sites characterized by bog moss (*Sphagnum* spp.)(Kettle, 1984).

*C. impunctatus* is widespread, occurring in Europe and Asia (Remm, 1988); in Europe it is recorded from e.g. Britain (including Orkney), Denmark and Norway (Campbell and Pelham-Clinton, 1960; Nielsen, 1964; Halldorsdottir *et al.*, 1989). The species is not known from Iceland and Greenland.

In some species of *Culicoides* the female antennal ratio (the ratio of the sum of the length of the apical five segments of the antennal flagellum to the sum of the basal segments) has been found to vary in relation to absolute size, generally increasing with increasing body size (Campbell and Pelham-Clinton, 1960). The mean antennal ratio of Faroese *C. impunctatus* ( $n = 9$ ,  $0.981 \pm 0.028$ ) is significantly lower than the mean ratios recorded from Britain (Campbell and Pelham-Clinton, 1960; North Britain:  $n = 13$ ,  $1.057 \pm 0.0080$ ,  $p < 0.001$ ; South Britain:  $n = 15$ ,  $1.016 \pm 0.0071$ ,  $p < 0.001$ ) and Denmark (Nielsen, 1964;  $n = 26$ ,  $1.02 \pm 0.039$ ,  $p < 0.01$ ), but seems, if anything, comparable to the ratios recorded from e.g. France, Slovakia, and the former Soviet Union (Kremer, 1965; Országh, 1976; Glukhova, 1989). However, since the Faroese specimens were all





*Culicoides impunctatus*  
(female) from Mýrarnar  
(Photo: Søren Achim  
Nielsen).

trapped in the same period and site, it is doubtful whether they represent a random sample.

*C. impunctatus* is an opportunistic feeder on man and large mammals; in Scotland bovine hosts are most common, followed by deer and sheep (Blackwell *et al.*, 1994). In the Faroes particularly man, cattle and sheep, and possibly the arctic hare (*Lepus timidus* L.) are potential hosts. However, it is significant that in Scotland *C. impunctatus* females are autogenous for the first egg batch (Blackwell, 2000; Blackwell *et al.*, 1992); the same might apply to Faroese specimens.

In most parts of highland Britain *C. impunctatus* is an extremely troublesome human biter. In highland Scotland the biting attacks on man may restrict or even prevent outdoor industries and tourist activities and intense blood feeding on livestock may cause considerable distress and even lead to economic loss (Blackwell, 2000). In cattle a hypersensitivity to the bites of *Culicoides* spp. may develop and in horses the biting midges may give rise to a chronic, recurrent, seasonal, allergic dermatitis (sweet itch, summer eczema, summer dermatitis, Queensland itch) (Halldorsdottir *et al.*, 1989; Akey *et al.*, 1990; Anderson *et al.*,



1993). In Fennoscandia and Denmark Icelandic horses imported from Iceland frequently develop *Culicoides* hypersensitivity, in some cases presumably caused by *C. impunctatus* (Halldorsdottir *et al.*, 1989). Finally biting midges are also potential vectors of a variety of pathogens of livestock

Hitherto only two identified species of biting flies have been published from the Faroes, i.e. a blackfly (Simuliidae) and a biting midge (Ceratopogonidae, *Culicoides*); no species of mosquitoes (Culicidae), horse flies (Tabanidae) or Stomoxysine biting flies (Muscidae) have been recorded (Lyneborg, 1968; Pedersen, 1971). The record of *C. impunctatus* adds a persistent human and animal biter to the Faroese fauna.

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