

A new British mayfly: *Baetis atlanticus* (Soldán & Godunko, 2006) (Ephemeroptera: Baetidae)

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ABSTRACT

Baetis atlanticus (Soldán & Godunko, 2006) is reported as new to the British mayfly fauna. A key to separating nymphs of *B. atlanticus* from *B. rhodani* (Pictet, 1843) is provided.

Keywords: Ephemeroptera; *Baetis atlanticus*, new records, nymphs, key, Britain

INTRODUCTION

With 100 genera and over 900 species, the Baetidae are one of the most speciose families of Ephemeroptera in the world. In the UK the family is represented by 14 species in four genera. *Baetis rhodani* (Pictet, 1843) is one of the most common and abundant mayflies of swift running waters in the British Isles. Williams, Ormerod & Bruford (2006) revealed that *B. rhodani* is in fact a complex of cryptic species, while recent research suggests that *B. atlanticus* (Soldán & Godunko, 2006), may also occur in the United Kingdom (Rutschmann *et al.* 2014) as it corresponds to haplotype VII of Williams, Ormerod & Bruford (2006).

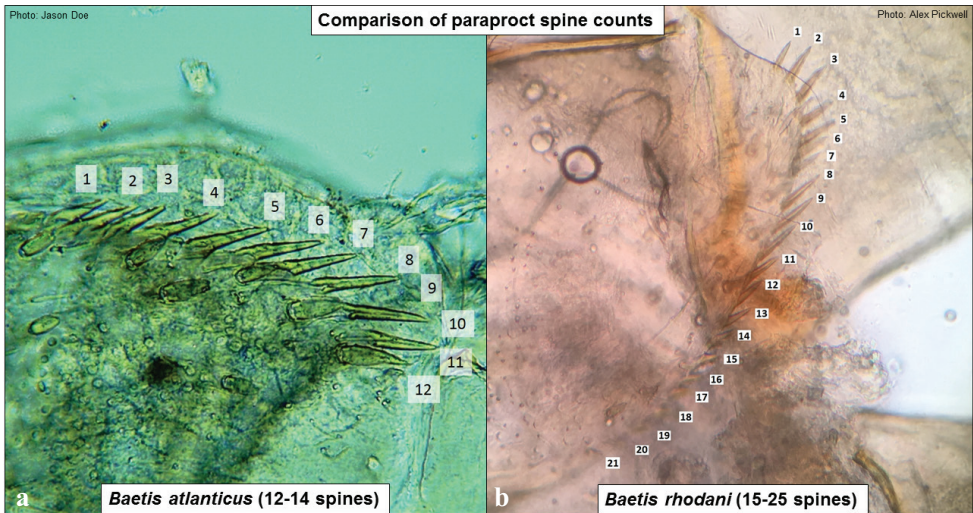
COMPARING *BAETIS RHODANI* AND *B. ATLANTICUS*

The differences between these two species are slight. Full descriptions of *B. atlanticus* are provided by Soldán & Godunko (2006) and Bauernfeind & Soldan (2012). A re-description of *B. rhodani* was undertaken by Gattolliat & Sartori (2008). A comparison of these descriptions shows that the most reliable feature for separating nymphs of these species is the number of spines on the inner edge of the paraprocts. The separation of adults is particularly difficult. Adults of *B. atlanticus* are generally smaller (4.8 to 5.2mm forewing length) than *B. rhodani* (7.5 to 13.8mm). The pterostigma of *B. rhodani* has a number of anastomosed veins whereas in *B. atlanticus* there are between 5 and 9 simple cross veins. The remaining differences are in the form of the genitalia in the male imago. In *B. atlanticus* the second segment of the forceps is expanded distally along half to two-thirds of its length and the third segment is egg-shaped. In *B. rhodani* the second segment is subcylindrical and the third segment is spherical.

Rutschmann *et al.* (2014) found that *Baetis atlanticus* conforms to haplotype VII of Williams, Ormerod & Bruford (2006), which was reported from throughout the United Kingdom and across Europe. To confirm the presence of this species the



Fig. 1. — Confirmed records of *Baetis atlanticus* from England (red circles).



Feature according to Bauernfeind, E. & Soldán, T. (2012) *The Mayflies of Europe (Ephemeroptera)*. Ollerup, Denmark: Apollo Books

Photos: Jason Doe & Alex Pickwell

Fig. 2. — Paraprocts of *Baetis* spp. nymphs: a, *Baetis atlanticus*; b, *Baetis rhodani*.

paraprocts of nymphs collected by the Environment Agency are now routinely examined to identify whether *B. atlanticus* is present in samples.

RECORDS

Confirmed records of *B. atlanticus* are all of nymphs and have been made from the Rivers Cray, Little Stour, Dudwell and Leybourne Stream in Kent and East Sussex, West Glen in Lincolnshire and the Tees and Coquet in the North East of England. (Fig. 1). Further work is required to determine the habitat preferences of *B. atlanticus* in British waters; however, initial impressions are that there appears to be some separation between these species, with *B. rhodani* occurring in smaller watercourses than *B. atlanticus*, although the species do co-occur at some locations.

Key to separating nymphs of *B. atlanticus* from *B. rhodani*

To separate nymphs of *B. atlanticus* from *B. rhodani* the current British key to Ephemeroptera nymphs (Elliott & Humpesch 2010) should be followed to couplet 10. The following couplets should then be used to separate the wide-bodied *Baetis* species:

- 10(6) Long pointed spines occur intermittently amongst the hair-like setae on the edge of each gill (fig. 18a); stout, blunt spines occur on the abdominal tergites, both on the surface (among the scales) and along the posterior edge; similar spines occur on the basal segments of the antennae (fig. 18b) 11
 – No spines occur on the gills, abdominal tergites, or on the basal segments of antennae 12
- 11 Inner margin of paraproct with 12 to 14 spines (Fig. 2a); middle tail half the length of the outer tails; tails yellowish-brown *Baetis atlanticus*
 – Inner margin of paraproct with 15 to 25 spines (Fig. 2b); middle tail about three-quarters the length of the outer tails; tails with blackish tips and indistinctly blackish in the middle *Baetis rhodani*
- 12 As couplet 11 in Elliott & Humpesch (2010) 13
 – 14
- 13 As couplet 12 in Elliott & Humpesch (2010) *Baetis scambus*
 – *Baetis fuscatus*
- 14(12) As couplet 13 in Elliott & Humpesch (2010) *Baetis buceratus*
 – *Baetis vernus*

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