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Abstract

Egle Robineau-Desvoidy is a modest-sized genus of small blackish anthomyiids with a Holarctic and northern Oriental distribution. They are univoltine, interacting closely with the host plants of their seed-feeding larvae, mainly species of willow (*Salix*), but also poplar (*Populus*) and false tamarisk (*Myricaria*) support some species. Summaries are given of adult and larval habits based on published and new observations. Adult mouth part structure in relation to pollen feeding is treated in some detail. A taxonomic revision with illustrated descriptions and an identification key to males and females is given for all known West Palearctic species and a few more from Greenland and Central Asia. Seven new species are described: *Egle anderssoni*, *E. ignobilis* and *E. suwai* from Denmark and Sweden, *E. inermoides* from Spain, *E. groenlandica* from Greenland, *E. setiapicoides* from Uzbekistan, and *E. subarcticoides* from Israel. *Egle polychaeta* Griffiths, 2003 is considered identical with *E. steini* Schnabl, 1911 (syn. nov.). *Egle groenlandica* sp. nov. is only known from females and may be the first known case of a calyptrate fly reproducing parthenogenetically.

Key words: Diptera, Anthomyiidae, *Egle*, new species, Europe

Introduction

Anthomyiids of the genus *Egle* are univoltine, with a flight period closely synchronized with the period of flowering and seed development of their hosts. All species apparently have seed-feeding larvae with a narrow host range. At the same time the adult flies tend to serve as specialized pollinators of their larval hosts that are, with few exceptions, species of willow (*Salix* spp.). Accordingly, most species of *Egle* are active from the very beginning of the season and among the first calyptrate flies to emerge from overwintering puparia. They can easily be observed and collected, often in large numbers, on and around shrubs of flowering willow. Even so, the genus is very poorly understood in respect to taxonomy and life history. One reason could be that these often small to minute, darkish anthomyiids are largely deprived of external diagnostic characters and thus often impossible to identify without terminalia dissection. On top of this, dry-mounted specimens often suffer from shrinking and distortions due to their relatively thin cuticle.

The present paper attempts to upgrade taxonomic knowledge about the fauna of *Egle* species occurring in Europe and adjoining landmasses. Seven new species are described and a serious attempt is made to identify and match females with males for all species. One should keep in mind though that the genus, due to its early-season occurrence, is badly underrepresented in collections of Anthomyiidae. More collecting, especially in less accessible parts of the region, will certainly bring additional new species to light.

The *Egle–Salix* interrelationship is only one among many components of the intricate miniature ecosystem formed by the male and female inflorescences of willow and their diverse insect community (Urban & Kopelke 2004). Still, it embraces several basic ecological topics such as mutualism, resource partitioning, coexistence and competition. It is my hope that the present paper will prove helpful to community ecologists and others interested in the multi-faceted interactions between *Egle* species and their willow hosts. Especially the observation that an amazing diversity of *Egle* species often occurs together in suitable localities, all apparently with larvae exploiting the same host resource, simply calls for investigations of the underlying mechanisms.