



## Review of *Agrenia* Börner, 1906 with descriptions of four new species from North America (Collembola, Isotomidae)

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### Abstract

The eight known species of *Agrenia* are reviewed and new distributional data are added. Two species groups are suggested for the genus: a *bidenticulata*-group with a mucronal seta and an *agilis*-group without a mucronal seta. Four new species of the second group are described from North America: *A. falcula*, *A. parkeri*, and *A. tarashchukae* from forest streams of the Appalachian Mountains in Tennessee, North Carolina, and New York, and *A. extrema* from glaciers in Washington and Alaska. The head of the maxilla is introduced as a useful character for separation of some species. A key to all species is given.

**Key words:** allometry, cyclomorphosis, Holarctic, key to species, sexual dimorphism

### Introduction

From the time of its description in 1906 until 1986 the genus *Agrenia* Börner, 1906 was considered monotypic with the type species, *Isotoma bidenticulata* Tullberg, 1876, described from Novaja Zemlja, Russia. Fjellberg (1986) described six new species from various parts of the Holarctic region. A seventh species was later described from Pennsylvania (Fjellberg 1988). *Agrenia* spp. are restricted to colder, wetter regions of the Holarctic and usually found along small mountain streams. In eastern North America, the genus extends south into the higher elevations of the southern Appalachian Mountains. The diversity of the genus appears to reach a maximum in the mountainous parts of the eastern and western states of the US and Canada, where currently five species are found. A further two Holarctic species are found in Alaska and northern Canada, and one possibly endemic species is found in Japan. In the present paper three more species are described from edges of forest streams in the Appalachian mountains of Tennessee, North Carolina and New York, and a fourth species is described from glacier ice in Washington and Alaska. In the descriptions below, we refer to the antennal segments as Ant. I, II, III, IV and to the abdominal segments as Abd. I, II, III, IV, V, VI. The claw index is the length of the claw divided by the length of the tunica (Fjellberg 1986).

### *Agrenia* Börner, 1906

#### Diagnosis

Characters that differentiate *Agrenia* from other genera of Isotomidae are the presence of dorsal tubercles and a prolonged subapical seta on the dens, fused dorsal basal teeth of the claws forming a prominent tunica, trifurcate maxillary palp lacking sublobal setae, and a large number of setae in the proximal and basomedial