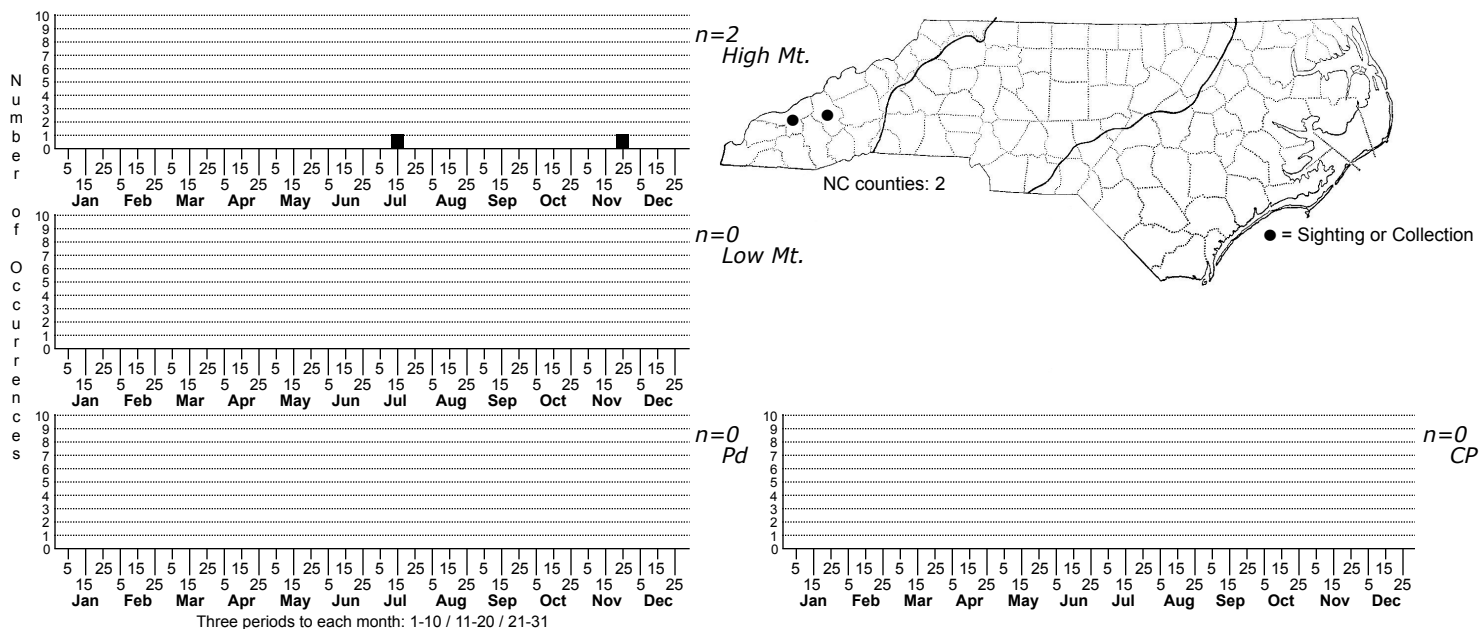


## *Mesocrista spitzbergensis*



FAMILY: Itaquasconidae SUBFAMILY: Itaquasconinae

TAXONOMIC COMMENTS: Morphologically matches species from Svalbard amended by Gasiorek et al. 2016 with integrative taxonomy. No DNA data for smokies population. Family designation follows Tumanov & Tsvetkova (2023).

SPECIES COMMENTS: Terrestrial. Has been reported from scattered locations around the world and US, but DNA is needed to verify diagnosis.

ID COMMENTS: Genus diagnosis: Peribuccal structures absent. Apophyses for the insertion of stylet muscles in the shape of wide and flat ridges symmetrical with respect to the frontal plane and with well developed caudal processes pointing diagonally (backwards and sideways). Bucco-pharyngeal apparatus elongated, with a flexible pharyngeal tube, two long and thin macroplacoids, and a comma-shaped microplacoid. Drop-like thickening between the buccal and the pharyngeal tube, and the pharyngeal apophyses, absent. Pharyngeal tube with double annulation &ndash; that is, closely arranged pairs of rings separated by spaces without annulation (visible with SEM only, under PCM the annulation appears single). Claws of the Hysibius type &ndash; that is, asymmetrical both with respect to the sequence of primary and secondary branches (2&ndash;1-2&ndash;1) and with respect to the size, with external and posterior claws being always clearly larger than internal and anterior claws. Basal claws and secondary branches form a hooked curve. Primary branches with accessory points. Eggs smooth, deposited in exuviae (oviposition synchronised with moulting).

*M. spitzbergensis* diagnosis: Body elongated, cylindrical, yellowish, covered with smooth cuticle &ndash; that is, without pores or granulation (Figure 1). Cribriform areas unidentifiable under PCM. Eyes absent in live animals. Bucco-pharyngeal apparatus of the *Mesocrista* type, elongated (Figure 2(a&ndash;b)). Oral cavity armature visible both under PCM (Figure 2(a), arrowhead) and under SEM (Figure 2(c)), composed of the second and the third band of small teeth in the posterior of the oral cavity (the first band of teeth in the anterior of the cavity is absent). In PCM, the teeth of both bands appear as single rows of densely arranged dots, with the dots of the second band being clearly smaller than those of the third band (Figure 2(a), arrowhead). SEM shows that the second band of teeth is composed of 5&ndash;6 irregular rows of small- and medium-sized conical teeth, whereas the third band of teeth comprises a single row of large conical teeth (Figure 2(c)). Two distinct porous areas on the lateral sides of the buccal crown (visible in SEM only). Furcae robust, triangular, with swollen and rounded apices (Figure 2(b)). Macroplacoid length sequence  $1 < 2$ , with the second macroplacoid being more than twice as long as the first macroplacoid. Second macroplacoid slightly broadened and rounded in the posterior part and with a slight subterminal constriction (Figure 2(b)). Although under PCM the annulation of the pharyngeal tube appears single, it is clearly double under SEM (compare Figure 2(a and b)). Double annulation regular, only occasionally a ring from an adjacent pair joins with the closest ring of the neighbouring pair to form a triple ring (Figure 2(d)). Claws of the Hysibius type, very slender, with slightly widened bases and with pronounced accessory points on the primary branches (Figure 3). The posterior primary branches are clearly longer than the external primary branches I&ndash;III. Three cuticular bars/thickenings on legs I&ndash;III present. The most distal bar is placed transversally between claw bases, and it is usually very short, roundish, almost dot-like (Figure 3(a), arrowhead). The second bar runs along the proximal side of the internal claw and is in the shape of a thin crescent with fuzzy margins (Figure 3(a), filled arrow). The most proximal bar is a mirror image of the second bar, is placed at a distance of 5&ndash;8  $\mu\text{m}$  and is the faintest of the three bars (Figure 3(a), empty arrow). On the hind legs, a single transverse bar between the anterior and posterior claw is present, always clearly separated from the basal portion of the posterior claw (Figure 3(b), arrowhead). -Gasiorek et al. 2016

DISTRIBUTION: Please refer to the dot map.

HABITAT: Soil and tree moss.

OBSERVATION METHODS: DIC and PC.