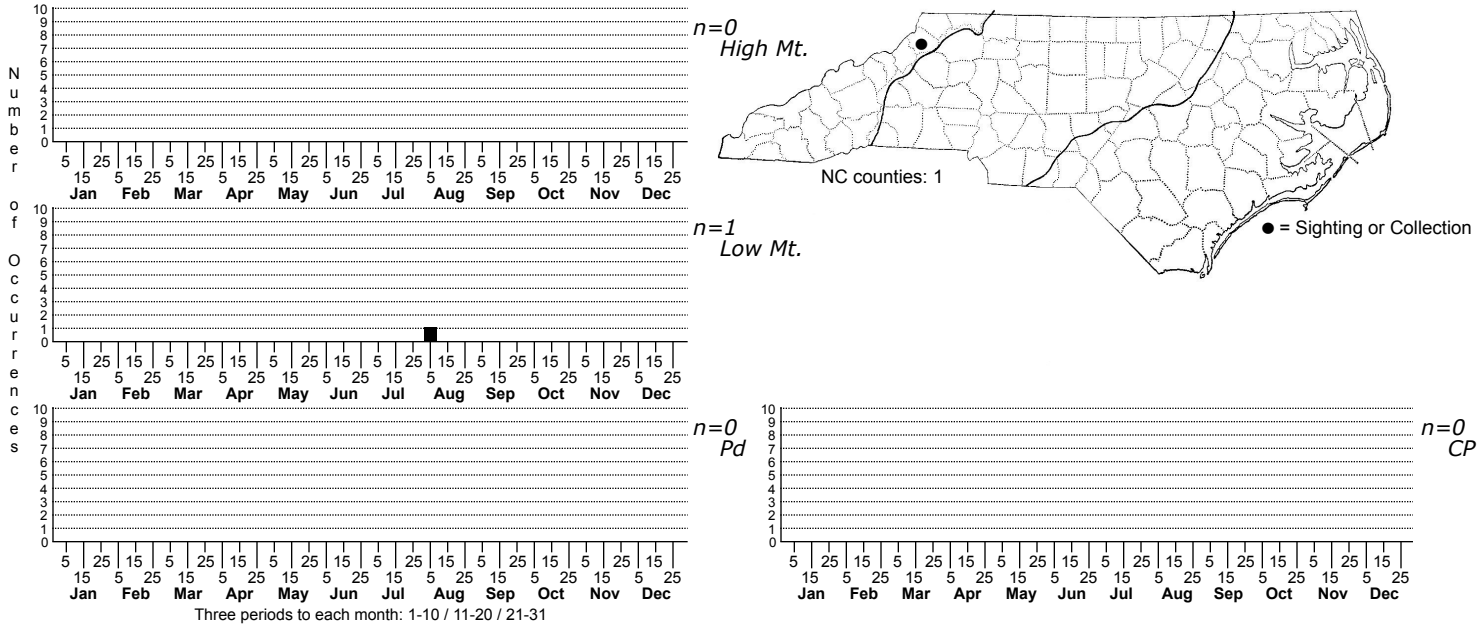
Paramacrobiotus aff. richtersi



FAMILY: Macrobiotidae

TAXONOMIC COMMENTS: Transferred from Macrobiotus by Guidetti et al. 2009. Integrative taxonomy and an amended description reported by Guidetti et al. 2019. This is part of a cryptic species complex. The only morphological differences between species in the P. areolatus complex are in the egg sculpturing.

SPECIES COMMENTS: This specimen was recorded by one of the founding fathers of modern tardigrade research, Walter Maucci. However, this collection occurred when the species was considered cosmopolitan and no genetic evidence was available. P. richtersi s.s. is now known to occur only in Ireland. It is likely that this record is actually P. halei, but we will never know for sure. Here we have chosen to name it Paramacrobiotus aff. richtersi.

ID COMMENTS: Neotype. Specimen 487.6 μm in length (morphometric data in Table 2, Additional file 1: Table S3). Male. Without eyes. Lactescent. Cuticle smooth, without pores. Fine granulation of small non-uniform granules (max diameter 0.5–0.6 μm) on the distal and lateral surface of the first three pairs of legs and, more visible, on the medial and posterior part on the hind legs (Fig. 2e, f). Mouth surrounded by large and square-shaped peribuccal lamellae. Buccal armature in the oral cavity: anterior band at the beginning of the buccal ring (at the base of the peribuccal lamellae) with 3–4 rows of many small round teeth of different size; posterior band at the beginning of the buccal tube with a crown of triangular or bicuspid strong teeth; transverse crests: dorsally three long crests, ventrally two very short lateral crests and a line of three round teeth of similar size instead of the median crest (Fig. 2c, d). Buccal tube 43.7 μm in length and 9.1 μm in internal width, with an evident ventral lamina. Stylet supports inserted at 35.2 μm from the beginning of the buccal tube (pt 80.5). Stylet furca well developed. Slightly oval pharyngeal bulb containing large triangular apophyses, followed by three rod-shaped macroplacoids, the third with an evident caudal constriction, and an evident microplacoid (Fig. 2b). Macroplacoid row length 26.1 μm (pt 59.7), first macroplacoid 9.5 μm in length (pt 21.7), second 7.8 μm (pt 17.9), third 9.0 μm (pt 20.6). Between the third macroplacoid and the microplacoid a thin sclerified line present. Microplacoid 4.6 μm in length, similar to a grape-seed (apex backwards), not in line with the curvature of the macroplacoids but parallel to the axis of the buccal tube and positioned at a long distance (longer than the microplacoid length) from the third macroplacoid. Claws of hufelandi type, with a small triangular basal tract without internal septum defining a distal part, and a very thin base (Fig. 2e, f). Evident accessory points in the main claw branches. Small smooth lunules in the first three pairs of legs, larger in the hind legs. External claw on the third pair of legs, measured including the evident accessory points, 14.5 μm in length (pt 33.2); posterior claw on the fourth pair of legs 13.3 μm in length (pt 30.5). Weak transverse bar under the two claws but at a distance from them in the first three pairs of legs (Fig. 2e).

Eggs (Figs. 5, 6, 9, Additional file 4: Figure S1) ornamented, 70–75 μm in diameter excluding processes, and laid freely. Egg processes high and very often as inverted funnels ending with a very short and wide tube, in few cases as elongated truncated cones, or cones. Distal part of the processes flat or rounded at the end, slightly corrugated with SEM. Processes 12–18 μm high with an inner diameter at their base of 17–21 μm (Table 2). Number of processes per hemisphere varying from 13 to 17 (Table 2). With LM, process wall reticulated (due to inner trabecular structures), with meshes increasing in size with the length of the process and passing from the base to the top. With SEM, surface of the processes often with concentric circles. Egg shell among the processes tiled (areolate), with 9–11 hollow tiles around each process, not in contact with one another but separated by fine meshes (with LM). The inner part of the tiles sculptured with small round pits of different size and not uniformly distributed.

-Guidetti et al. 2019

DISTRIBUTION: Please refer to the dot map.

HABITAT: Moss and turf.

OBSERVATION METHODS: DIC, PC, SEM.