



Digital supplementary material to

RICHTER, A., HITA GARCIA, F., KELLER, R.A., BILLEN, J., KATZKE, J. BOUDINOT, B.E., ECONOMO, E.P. & BEUTEL, R.G. 2021: The head anatomy of *Protanilla lini* (Hymenoptera: Formicidae: Leptanillinae), with a hypothesis of their mandibular movement. – Myrmecological News 31: 85-114.

The content of this digital supplementary material was subject to the same scientific editorial processing as the article it accompanies. However, the authors are responsible for copyediting and layout.

## Supplementary material captions to Richter et al. 2021

**Figure S1:** Horizontal histological sections through the head of *Protanilla lini*, used to measure sarcomere length of fibers of M. craniomandibularis internus (Omd1). **A** was used to measure lateral thread attached fibers, **B** was used to measure directly attaching fibers and a thread attached occipital fiber and **C** was used to measure a thread attached occipital fiber.

**Table S1:** Data of examined specimens.

**Table S2:** Sarcomere length measurements of some of the fibers of M. craniomandibularis internus (Omd1). Individual fibers are separated in individual data sheets with names based on fiber type (direct and thread attached) and rough location (lateral: lat; occipital: occ).

**Video S1:** Animation of the mandibular movement of *Protanilla lini* in oblique frontal view.

**Video S2:** Animation of the mandibular movement of *Protanilla lini*. Detail view of the articulatory process with transparent structures.

**Video S3:** Three trials of movement experiments of the mandible of *Protanilla lini* using a 3D-printed model. Note the slight differences in each trial indicating the difficulty of moving the mandible in the precise correct way so that it does not lose contact with its dorsal and ventral articulations. The inferred movement described in the text is based on many such trials.

**Video S4:** Video recording of *Protanilla rafflesi* mandible movement example 1, taken from Youtube (<https://www.youtube.com/watch?v=yqpGo5Ka36w>) with permission by Mark K. L. Wong.

**Video S5:** Video recording of *Protanilla rafflesi* mandible movement example 2, taken from Youtube ([https://www.youtube.com/watch?v=Ot7ZXNa\\_tic&list=PLoL53O8G3HroVeFwbS4-EVuS3hbYnDf8k&index=4](https://www.youtube.com/watch?v=Ot7ZXNa_tic&list=PLoL53O8G3HroVeFwbS4-EVuS3hbYnDf8k&index=4)) with permission by Mark K. L. Wong.