

Antrobathynella stammeri (Jakobi, 1954) : the first record of Bathynellacea (Crustacea : Syncarida) in Belgium

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The suborder Bathynellacea Chappuis, 1954 is a small crustacean group (up to 200 species known) of extant Syncarida Packard, 1886 living nearly exclusively in the interstia of subterranean freshwater habitats (1). Ever since their discovery at the end of the 19-th century they have been considered as rare animals although they show a world wide distribution. Because of their interstitial way of living and their small size (mostly less than 1.5mm) they probably have often been overlooked (2).

The study of crustaceans in Belgium has a long history, but Bathynellacea have never been reported until 2003 when *Antrobathynella stammeri* (Jakobi, 1954) was mentioned in PEETERS et al. (3). The information, based upon unpublished data, was not accompanied with details about sample localities and morphology.

The samples in which *A. stammeri* was detected are :

Stat. WAL 470. Hyporheos of the Crupet rivulet near Pierauchamps (Assesse, Province Namur). Coordinates (Lambert) : 191.000, 115.200; altitude : 170m. 10L water sample with the Bou-Rouch pump, about 30cm deep. Filtered through a hand net with a 100µm mesh size. Leg. G. Michel & Th. Kuyken, 06-08-2002. *A. stammeri* : 2 males, 1 female and 1 juvenile. Co-occurring crustaceans : Copepoda : *Diacyclops belgicus* Kiefer, 1936, *Attheyella (A.) crassa* (Sars, 1863), *Bryocamptus (B.) minutus* (Claus, 1863).

Stat WAL 438. Trou Balza (Cave). Small cavern – partially natural, partially anthropogenic modified – near Ivoi (Assesse, Province Namur) giving access to the saturated karst (Viséan limestone). Pool at the end of the gallery 6m long, 2m wide, 30cm deep. Coordinates (Lambert) : 191.31, 117.320; altitude : 225m. Approximately 5L of water collected with a hand pump between the debris at the bottom of the pool. Filtered through a hand net with a 90µm mesh size. Leg. P.- A. Duchesne & F. Fiers, 08-11-2002. *A. stammeri* : 1 female. Co-occurring crustaceans : Copepoda : *Diacyclops belgicus* Kiefer, 1936; Ostracoda : *Pseudocandona* spec.; Amphipoda : *Niphargus schellenbergi* Karaman, 1932; Isopoda : *Proassellus cavaticus* (Leydig, 1871).

Samples were fixed with buffered formaldehyde up to a concentration of roughly 5%. Observations were performed on temporary slides with a Leitz Diaplan light microscope. One 1 male (from stat. WAL 470) was partially dissected (uropods, furca, thoracopod (= pereopod) VIII and pleiopods, mounted on 3 slides), partially preserved in alcohol. All other specimens were preserved in

alcohol. The material is deposited in the crustacean collection of the Royal Belgium Institute of Natural Sciences (Invent. Number : 29.687)

A complete description of all appendages can be consulted in HUSMANN (4) while NOTENBOOM & DE BOOM (5) and SERBAN & GLEDHILL (6) provided specific details about Dutch and English specimens, respectively. The morphology of the Belgian specimens generally coincides with that of the German, English and Dutch populations but deviate in some details. The following differences were observed : (a) the male thoracopod VIII exopodite bears 5 setae (1 inner, 2 apical and 2 outer : Fig. 1A) as in the German and English specimens while the same structure has only 4 setae (1 inner, 2 apical and 1 outer) in the Dutch populations; (b) the 4 spines on the sympodite of the uropod (Fig. 1D) are ornamented with spinules along the distal 3/4 of the stem as in the German and English specimens while only a few spinules are present in the Dutch specimens; (c) the exopodite of the uropod bears 5 setae (6 in the Dutch and 4 in the German and English specimens); (d) the pleiopods (Fig. 1B) have only 4 elements instead of 6 or 7 as seen in the German and English specimens (situation unknown for the specimens from the Netherlands); and (e) as in the Dutch specimens the Belgian males lack a sexual dimorphic element on the mandibular palp (modified in the German and English specimens).

In addition, the Belgian specimens possess a large hyaline structure on the outer margin of the furca (Fig. 1C) which can be considered as homologous with the “Furkalorgan” often observed in representatives of the Parabathynellacea (2). Because of its transparency, this structure is hardly visible and probably has been overlooked in previous descriptions.

Although, aquatic animals from various subterranean habitats in Belgium have been studied from the early thirties of the former century on (7, 8) bathynellids have never been mentioned. However, the presence of these syncarids in Belgium was suspected and more particularly in the watershed of the river Meuse since NOTENBOOM & DE BOOM (5) found several specimens of *A. stammeri* in the alluvial deposits of that river in its Dutch part. Moreover, *A. stammeri* among other bathynellids have been frequently found in the alluvia of the river Rhine and its tributaries (4) of which the watershed of the river Meuse formed part until the end of the Mindel Glaciation (0.4mYr).

Bathynellids are in most cases found together with representatives of the harpacticoid copepod families Parastenocarididae Chappuis, 1933 and Chappuisiidae Chappuis, 1940. This mesopsammal community has been referred to as the *Bathynella-Parastenocaris*-biocenosis

(9). No representatives of these taxa were present in Belgian localities. The sample from Trou Balza (WAL 438) contained exclusively subterranean animals (viz. Cyclopoida, Amphipoda and Isopoda) while the sample of the Crupet rivulet (WAL 470) clearly is a mix of both subterranean (*D. belgicus*) and exogenous animals (*Attheyella* (*A.*) *crassa* and *Bryocamptus* (*B.*) *minutus*).

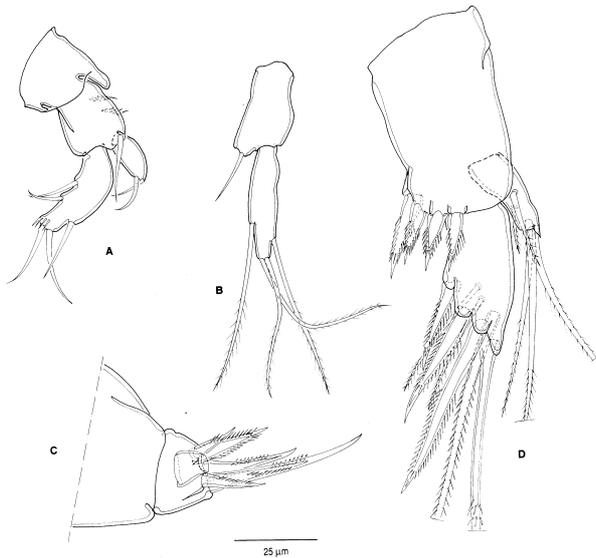


Fig. 1. – *Antrobathynella stammeri* (Jakobi, 1954), male. A. Thoracopod VIII (basipodid omitted); B. Left pleiopod; C. Furca (outer lateral view); D. Right uropod.

Rivulet Crupet receives its water mainly from the drainage of tertiary and quaternary deposits and partially from the overflow of a natural seep (water catchment) at the southern border of a limestone massive (Visiaan age). Trou Balza, situated north of the catchment is an outcrop of this limestone massive.

The presence of *A. stammeri* in the saturated zone of the Trou Balza indicates that this animal thrives in the vast domain of the limestone massive and that the speci-

mens found in the rivulet Crupet probably represent strays washed from the main population living in the limestone massive.

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