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SUPPLEMENTARY ONLINE MATERIAL FOR

**The largest ghost shrimps ever: evidence from the fossil record and implications for the maximum size estimate of callianassoid burrowing ghost shrimps**

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**Supplementary Online Material**

**SOM: Table.** Documented ghost shrimp specimens reaching at least 100 mm of total length; available at [http://app.pan.pl/SOM/app70-Hyzny\\_etal\\_SOM/SOM\\_table.xlsx](http://app.pan.pl/SOM/app70-Hyzny_etal_SOM/SOM_table.xlsx).

**Comments on selected specimens**

**Repositories of specimens presented in the table**

**References**

## Comments on selected specimens

TL = total length; CL = carapace length

Poore and Suchanek (1988) described a female of *Glypturus motupore* (= *G. armatus*) with a TL of 101 mm and a CL of 21 mm. They only provided the museum (MNHN) but no collection number. This may be the same individual mentioned by Dworschak (2018) as having the number MNHN Th-915, however Dworschak (2018), while giving the same TL of 101 mm, gives a different CL of 28 mm. Here, we list them as two separate specimens.

Sakai (1999) described an individual of *Neotrypaea gigas* (as *Callinassa gigas*, SCU) with a TL of 11.5 mm and a CL of 25.5 mm. Obviously, it is impossible for both to be true at the same time. Since *N. gigas* is a rather large animal, and in no other specimen in the same publication is the TL reported to decimal mm, we here assume that it should really be 115 mm. The specimen is included in the table.

Sakai (1999) described an individual of *Kraussilichirus kraussi* (as *Callichirus kraussi*, RMNH D 12002) with a TL of 173 mm and a CL of 12.5 mm. This would be a spectacularly long individual with a very unusual TL/CL ratio, we assume this is due to the accidental insertion of a “1” and the TL only is 73 mm, which fits much better with the CL provided. The specimen is not included in the table.

Sakai (1999) described an individual of *Lepidophthalmus louisianensis* (NHMW 6976) with a TL of 90 mm and a CL of 66 mm. If true, that would be the longest CL for any ghost shrimp ever recorded. However, it would result in a highly unusual TL/CL ratio. We therefore assume that the TL provided is correct and the CL reported is erroneous. The specimen is not included in the table.

Sakai (1999) described the holotype of *Neocallichirus natalensis* (SAM 8339) as having a TL of 10.6 mm and a CL of 24.6 mm. It is impossible for both to be true at the same time, but Dworschak (2011a) described the same specimen and confirmed the real TL was 106 mm.

Also, Sakai (1999) considered this individual to be a *N. indicus* (= *N. jousseaumei*). However, according to Dworschak (2011a) the species is really *N. natalensis*. The specimen is included in the table.

Sakai and Türkay (2014) reported 17 specimens (10 females, 7 males) of *Lepidophthalmus turneranus* (ZMH K 26371). They provided the measurements as ranges separately for females (TL/CL, 131/28–142/28 mm) and for males (TL/CL, 145/40–152/35 mm). One of us (DK) re-measured the specimens both when stretched out and when curled up. Measurements slightly differed not only from those given by Sakai and Türkay (2014) but also between those of stretched out and curled up specimens; the TL values if specimens are curled up are 10 mm higher than those if specimens are stretched out. According to our measurements, the ranges are (TL/CL, 126/27–147/27 mm) for females and (TL/CL, 150/33–162/32 mm) for males. Re-measured values (when stretched out) are listed in the table.

Sakai and Türkay (2014) reported *Glypturus armatus* (ZMH K 8366) with CL/TL being 34/136 mm. Re-examination of the specimen revealed it was broken into two pieces. While the re-measured CL is the same as indicated by Sakai and Türkay (2014), the rest of the body is 112 mm long. Thus, TL is 146 mm. Re-measured value is included in the table.

ZMH K 38197 (*Glypturus armatus*): When measured along the backline of the curled up specimen, the TL value is 158 mm, while it is only 147 mm when measured stretched out. The CL value is 38 mm if including the soft tissue part connecting the posterior portion of the carapace with the first pleonal somite while it is only 35 mm if measuring to the posterior margin of the hard part of the carapace. Lower values are reported in the table.

### **Repositories of specimens presented in the table**

AM – Australian Museum, Sydney, Australia

AMNZ – Auckland Museum, New Zealand

CBM – Natural History Museum and Institute, Chiba, Italy

IBUSP – Departamento de Ecologia General, Instituto de Biociências, Universidade de São Paulo, Brazil

MCZH – Museum of Comparative Zoology, Harvard University, United States of America

MNHN – Muséum national d'Histoire naturelle in Paris, France

MZUC-UCCC – Museo de Zoología de la Universidad de Concepción, Chile

NHML – Natural History Museum London, United Kingdom

NHMW – Naturhistorisches Museum Wien, Austria

NMV – Museum of Victoria, Melbourne, Australia

NTM – Northern Territory Museum, Darwin, Australia

QM – Queensland Museum, Australia

RMNH – National Museum of Natural History, Leiden, the Netherlands

SAM – South African Museum, Cape Town, South Africa

SCU – Southern California University, California, United States of America

SMF – Forschungsinstitut Senckenberg, Frankfurt am Main, Germany

ULLZ – Zoological collections of the University of Louisiana, Lafayette, United States of America

USNM – United States National Museum, Smithsonian Institution, Washington, D.C., United States of America

ZMB – Zoologisches Museum Berlin, Germany

ZMG – Zoologisches Museum Göttingen, Germany [at present, the crustacean collection of ZMG is on permanent loan to SMF (Türkay 1988)]

ZMH – Zoologisches Museum Hamburg, Germany

ZMUC – Zoological Museum, University of Copenhagen, Denmark

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