

New data on the crab *Binkhorstia ubaghsii* (Late Maastrichtian; NE Belgium, SE Netherlands)

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Abstract

Well-preserved material of *Binkhorstia ubaghsii* reveals some additional information that helps clarify the taxonomic affinities with the Tornyommidae of this Late Cretaceous crab from the Maastricht area of Belgium and Netherland

Introduction

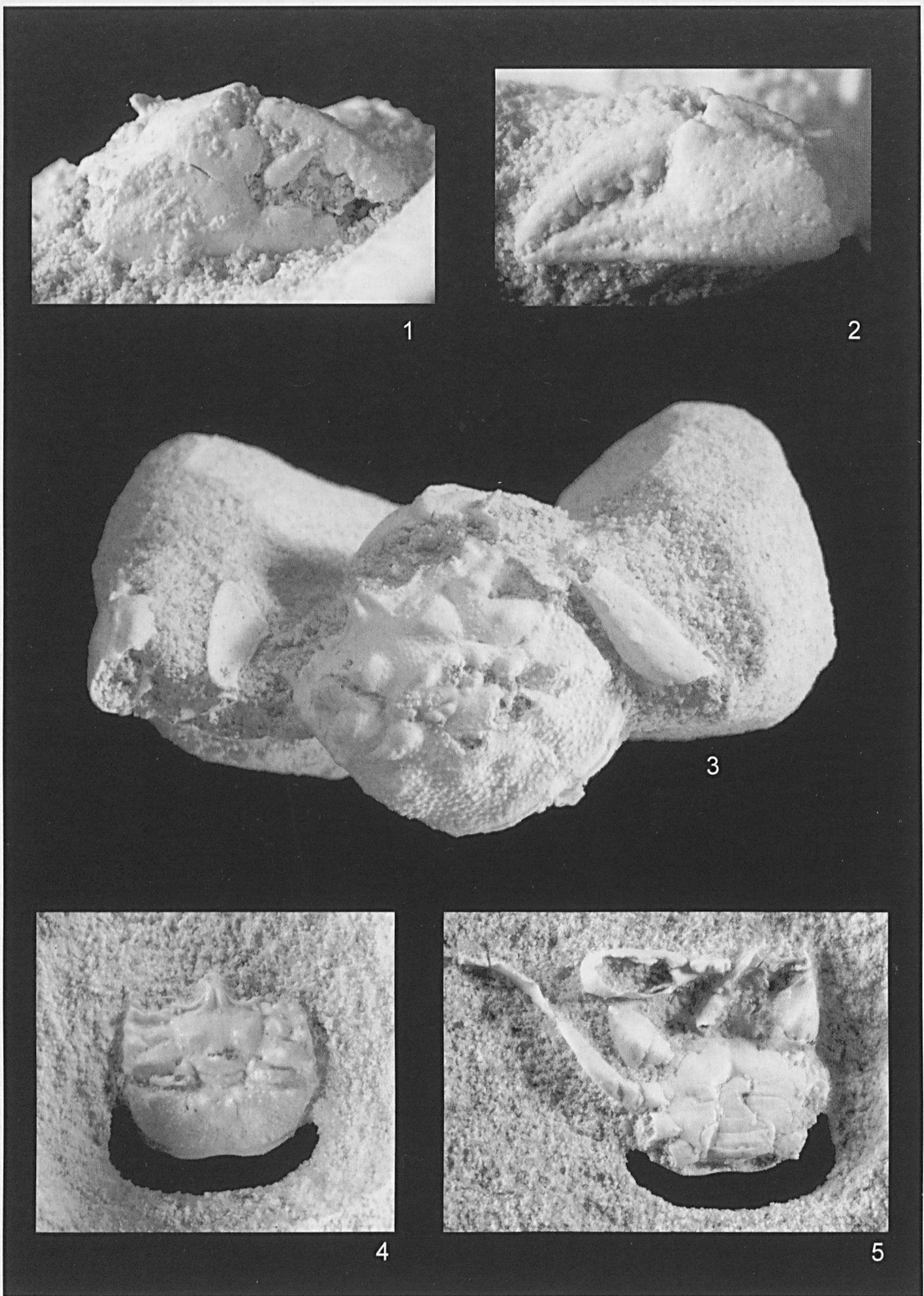
Carcinologists dealing with fossil crabs are often faced with difficulties in classifying their material. With only a single or a handful of specimens available, more often than not consisting of only (partial) carapaces, dorsal carapace characters are the sole features to go on. Classification of extant crabs mostly cannot be applied, since ventral morphology is here of prime importance (Guinot, 1977, 1978). Having come to realize that carapace characters may overlap in representatives of unrelated families, in the past decade paleontologists have used the few cases in which crabs are preserved with well-preserved ventral parts with much success (Karasawa, 2003, Guinot & Tavares, 2001).

Binkhorstia Noetling, 1881, known exclusively from Upper Maastrichtian deposits in the type area of the Maastrichtian Stage (SE Netherlands, NE Belgium), has been placed in different families by various authors. Glaessner (1980) erected the family Tornyommidae (Cyclodorippoidea), and included *Withersella* Wright & Collins, 1972 and *Binkhorstia*. *Withersella* was originally placed in the Carcineretidae Beurlen, 1930, and together with *Binkhorstia* again assigned to the Carcineretidae by later authors (Collins et al., 1995; Fraaye, 1996; Wright,

1997; Jagt et al., 2000). Many new species of and new data for the largely western Tethyan Carcineretidae have been described in the past two decades (Feldmann et al., 1999; Feldmann & Villamil, 2002; Vega & Feldmann, 1991; Vega et al., 1995; Vega et al., 1997; Vega et al., 2001). Feldmann & Villamil (2002) included five genera in the Carcineretidae, namely *Carcineretes* Withers, 1922, *Branchiocarcinus* Vega et al., 1995, *Mascaranada* Vega & Feldmann, 1991, *Ophthalmoplax* Rathbun, 1935 and *Woodbinax* Stenzel, 1952. They suggested that *Binkhorstia* and *Withersella* should be retained in the Cyclodorippidae Ortmann, 1892.

Results

The new material of *Binkhorstia ubaghsii* consists of three more or less complete specimens all collected from the uppermost Nekum Member (Maastricht Formation), at the CBR-Romontbos quarry in Eben Emael, NE Belgium. Here, *B. ubaghsii* is fairly common and is found in association with *Paranecrocarcinus quadriscissus* Noetling, 1881, "*Pseudoraninella*" *muelleri* (van Binkhorst, 1857), *Homolopsis declinata* Collins et al., 1995, *Eumorphocorystes sculptus* (van Binkhorst, 1857), *Paguristes? florum* Collins et al., 1995 and *Lyreidina pyriformis* Fraaye & van Bakel, 1998. Two specimens most likely represent corpses; the third is probably a molt. The best preserved specimen, [NUMBER] has been prepared in detail both dorsally and ventrally, and shows important details at the ventral side with all the abdominal segments, sternites and bases of limbs preserved. The coxae of



the fifth pair of pereopods are diminutive, and situated laterally of the small and slender first abdominal segment, covered by the posterior carapace margin. The second corpse shows both chelipeds, some disarticulated limb fragments, and a well-preserved, broad sternum. The carapace shows the unique spatulated rostrum, a feature that may be diagnostic for the family. Body parts of the third specimen, a presumed molt, lie on top of the carapace, but with the left-hand cheliped preserved the identification as *B. ubaghsii* is indisputed. Pereopods P2, P3 and P4 are partially exposed and extremely flattened, assumed to have served for swimming.

The holotype of *Binkhorstia euglypha* Collins et al., 1995 from the upper Meerssen Member at the former Blom quarry (Berg en Terblijt, SE Netherlands), shows details of the ventral parts as well, though not described in detail in the original description. A re-examination of the original material, together with the new data on *B. ubaghsii*, should provide more information on this little known genus.

The genus most closely resembling *Binkhorstia* is the Late Cretaceous *Torynomma* Woods, 1953. Therefore the correct familial classification of *Binkhorstia* is Torynommidae Glaessner, 1980. The Aptian genus *Withersella* has been considered ancestral to *Binkhorstia* by several authors; we concur. Nevertheless, *Binkhorstia* shows many similarities to the Carcineretidae, and in particular to *Ophthalmoplax*. Glaessner (1960) noted that the relationships between the Dorippidae, Dakoticancriidae and Portunidae should be investigated. The many additions since that paper, together with the new discoveries and a re-examination of published material, could well form the foundation of such a study.

Acknowledgements

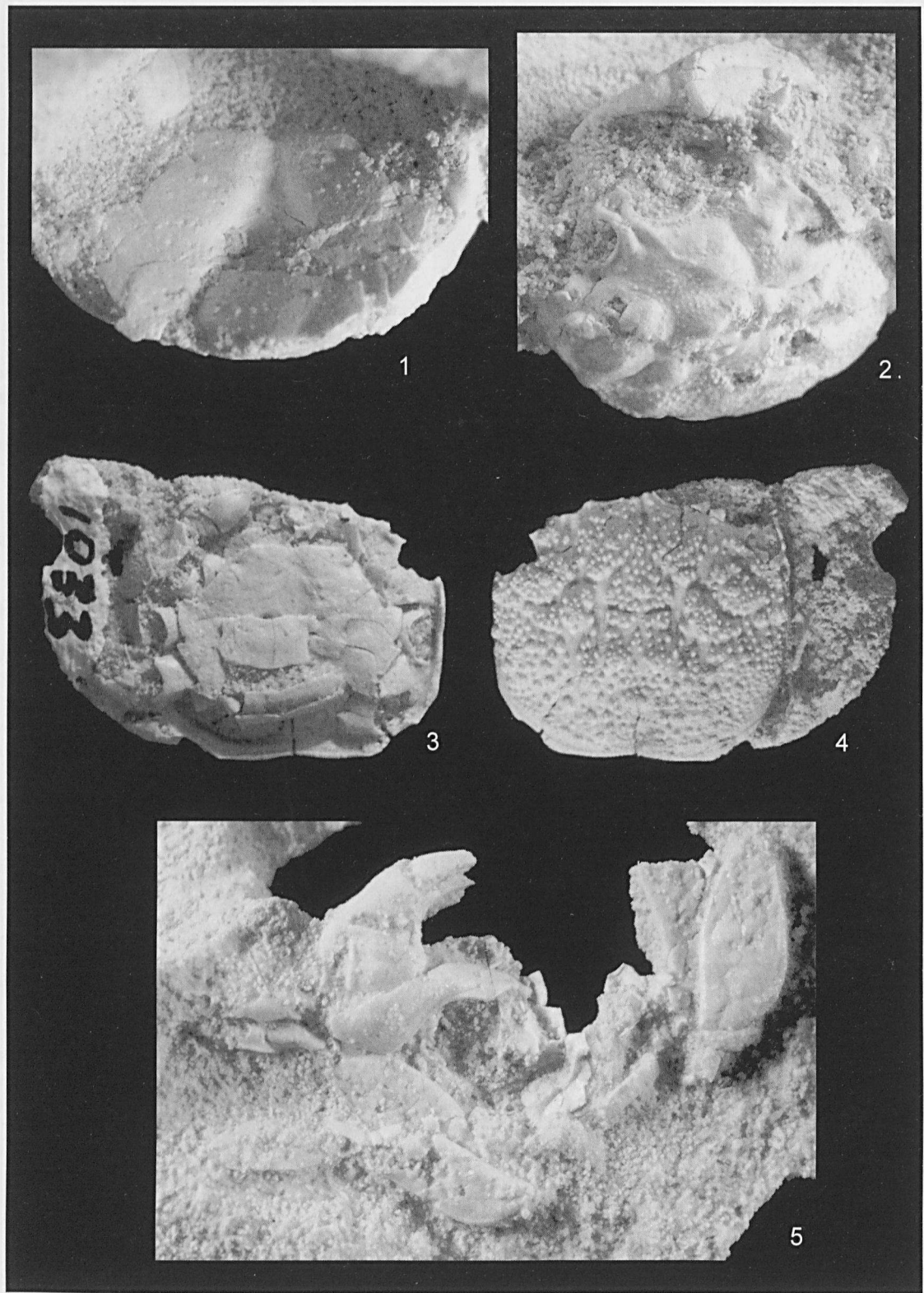
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Fig. 1. *Binkhorstia ubaghsii* (van Binkhorst, 1857); Upper Neokuñ Member (Maastricht formation, Late Maastrichtian) of CBR-Romontbos quarry, Eben Emael (NE Belgium). 1, Right cheliped. 2, Left cheliped of the same specimen. 3, Dorsal view of this specimen, showing complete carapace, both claws and limb fragments. 4, Dorsal view. 5, Ventral view, showing the delicate preservation.



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 Fig. 2. *Binkhorstia ubaghsii* (van Binkhorst, 1857) and *Binkhorstia euglypha* Collins, Fraaye & Jagt, 1995. 1, Ventral view, with details of the sternum of *B. ubaghsii*. 2, Orbital view of this specimen, showing the unique spatulated rostrum. 3, *Binkhorstia euglypha* Collins, Fraaye & Jagt, 1995, ventral view of holotype (MAB. k. 1033) from the upper part of the Meerssen Member (latest Maastricht formation) of the former Blom quarry, Berg en Terblijt (SE Netherlands). 4, Dorsal view of the holotype. 5, Dorsal view of assumed molt, *B. ubaghsii*, showing the left-hand claw, and flattened pereopods.