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New species of the genus *Tanidromites* (Decapoda: Brachyura: Tanidromitidae) from the Oxfordian of Poland

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STARZYK N. 2015. New species of the genus *Tanidromites* (Decapoda: Brachyura: Tanidromitidae) from the Oxfordian of Poland. *Acta zool. cracov.*, **58**(2): 129-136.

Abstract. Brachyuran crabs of the genus *Tanidromites* are very common in Oxfordian localities of southern Poland. Four species were described previously from this region; another new species is described herein, *T. alexandrae*. The augenrest of this species differs from other representatives of the genus *Tanidromites* – it is deep with elevated upper and suborbital margins.

Key words: Brachyura, *Tanidromites*, Oxfordian, augenrest.

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I. INTRODUCTION

The collection of Jurassic decapods housed in the Museum of the Institute of Systematics and Evolution of Animals (ISEA), Polish Academy of Sciences in Kraków, Poland (ISEA PAS, I-F/MP) contains 7000 specimens of brachyurans (STARZYK et al. 2011, 2012; STARZYK 2013; STARZYK 2015) and anomurans (FRAAIJE et al. 2012a, b, c; KRZEMIŃSKA et al. 2015) collected from several Oxfordian localities in the Polish Jura Chain.

Twelve brachyuran species from the superfamily Homolodromioidea were described by me from these localities. They belong to three families: Goniodromitidae BEURLEN, 1932 (STARZYK et al. 2012; STARZYK 2015), Tanidromitidae SCHWEITZER & FELDMANN, 2008 (STARZYK 2013) and Bucculentidae SCHWEITZER & FELDMANN (STARZYK et al. 2011).

The genus *Tanidromites* from the family Tanidromitidae is abundantly represented in the Polish Jura Chain (804 specimens in the collection of ISEA). Four species of this genus, known from the literature, were recorded before (STARZYK 2013): *Tanidromites insignis* VON MEYER, 1860; *T. etalloni* COLLINS in COLLINS & WIERZBOWSKI, 1985; *T. scheffnerae* SCHWEIGERT & KOPPKA, 2011 and *T. sculpta* QUENSTEDT, 1857. Herein a new species is described, unique among species of the genus in having a deep augenrest protected by elevated upper and suborbital margins.

II. LOCALITIES AND STRATIGRAPHY

The material described below originates from four localities in the southern Polish Uplands, northwest of Kraków (Poland): Bzów, Kroczyce, Niegowonice and Ogrodzieniec. The localities and their stratigraphy were characterized previously (FRAAIJE et al. 2012a, 2012b, 2012c; KRZEMIŃSKA et al. 2015) therein also the map is provided (FRAAIJE et al. 2012c: fig. 1).

The age of the localities is summarized below:

Bzów (a prolongation of the large quarry in Ogrodzieniec) – the Middle Oxfordian (Transversarium Zone) to the Upper Plicatilis Zone (MATYJA & WIERZBOWSKI 1994).

Kroczyce – the Late Oxfordian (Bifurcatus to Bimammatum Zone) (GŁOWNIAK & WIERZBOWSKI 2007).

Niegowonice – the Middle and Late Oxfordian (Upper Elisabethae Subzone to the Upper Wartae Subzone) (GŁOWNIAK 2006).

Ogrodzieniec – the Early to Middle Oxfordian (all the zones and subzones from the Cordatum to the Transversarium are represented with the exception of the discontinuous Mariae Zone) (GŁOWNIAK 2006, 2012).

Specimens of the new species studied herein and other material described before were collected by a family of amateur collectors: Iwona, Robert and Karolina BOREK.

III. MATERIAL AND METHODS

Specimens of the new species come from the collection of the Museum of the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences in Kraków, Poland (ISEZ PAN, I-F/MP). 264 carapaces of a new species were identified; 23 out of the best preserved specimens listed in this paper are the basis for description and measurements. Mostly anterior parts of carapaces are represented as in the representatives of this genus the posterior part is usually damaged which is probably caused by a thinner cuticle on the posterior part.

Measurements helpful for diagnostic purposes were taken in apical view from the photographs of specimens positioned horizontally under the binocular microscope (Fig. 1), and are the same as previously used (STARZYK 2013; fig. 3):

RtC – length from the rostrum to the cervical groove; AtC – length from the end of the outer augenrest angle (outer orbital spine if present) to the cervical groove; L – length of the carapace; W – maximum width of the carapace.

Photographs were made by a camera Canon EOS 600 installed on binocular Leica M165C.

The structures of the carapace: hepatic tubercles, hepatic pits, cervical pits and anterior grooves were characterized by STARZYK (2013).

IV. SYSTEMATIC PALEONTOLOGY

Order: **Decapoda** LATREILLE, 1802

Infraorder: **Brachyura** LINNAEUS, 1758

Section: **Dromiacea** DE HAAN, 1833

Superfamily: **Homolodromioidea** ALCOCK, 1900

Family: **Tanidromitidae** SCHWEITZER & FELDMANN, 2008

Genus: ***Tanidromites*** SCHWEITZER & FELDMANN, 2008

1835 *Prosopon* VON MEYER: p. 329 (part).

1842 *Pithonoton* VON MEYER: p. 71 (part).

1861 *Coelopus* ÉTALLON: p. 148 (part).

Type species: *Prosopon insigne* VON MEYER, 1860, by original designation.

Tanidromites alexandrae n. sp.

Figs 1, 2

D i a g n o s i s. Species of small carapace size (maximal length 9.64 mm). The carapace is widest across the hepatic region. The distance from posterior end of the augenrest anterior part of carapace is short (AtC equals 0.21-0.26x RtC; Fig. 1). The augenrest is long (length equals1.3x width), very deep, with distinct orbital spine. Upper orbital margin is sharp with two grooves: anterior groove at the intersection of the border of the rostrum and the upper orbital margin, and posterior groove anterior to the outer orbital spine. The margin between them is bordered with spines. Suborbital margin is smooth. Cervical pits are crescent-shaped. Hepatic tubercles are absent on the surface devoid of cuticle, but in their place shallow depressions are present. Hepatic pits are faint.

E t y m o l o g y. The trivial name is dedicated to my sister Aleksandra, with deep gratitude for all her help.

T y p e m a t e r i a l. Holotype: I-F/MP/**3949**/1533/08; type locality: Bzów; age: Middle Oxfordian (Transversarium Zone). Coll.: I.K.R. BOREK.

P a r a t y p e s: I-F/MP/**1568**/1509/08; I-F/MP/**1699**/1517/08; I-F/MP/**1851**/1517/08; I-F/MP/**4632**/1534/08; locality: Bzów. Coll.: I.K.R. BOREK.

A d d i t i o n a l m a t e r i a l. Specimens from Bzów: I-F/MP/**1902**/1517/08. Specimens from Kroczyce: I-F/MP/**6247**/1588/11. Specimens from Niegowonice: I-F/MP/**3050**/1532/08; I-F/MP/**3354**/1532/08; I-F/MP/**4544**/1534/08; I-F/MP/**4678**/1534/08; I-F/MP/**4681**/1534/08;

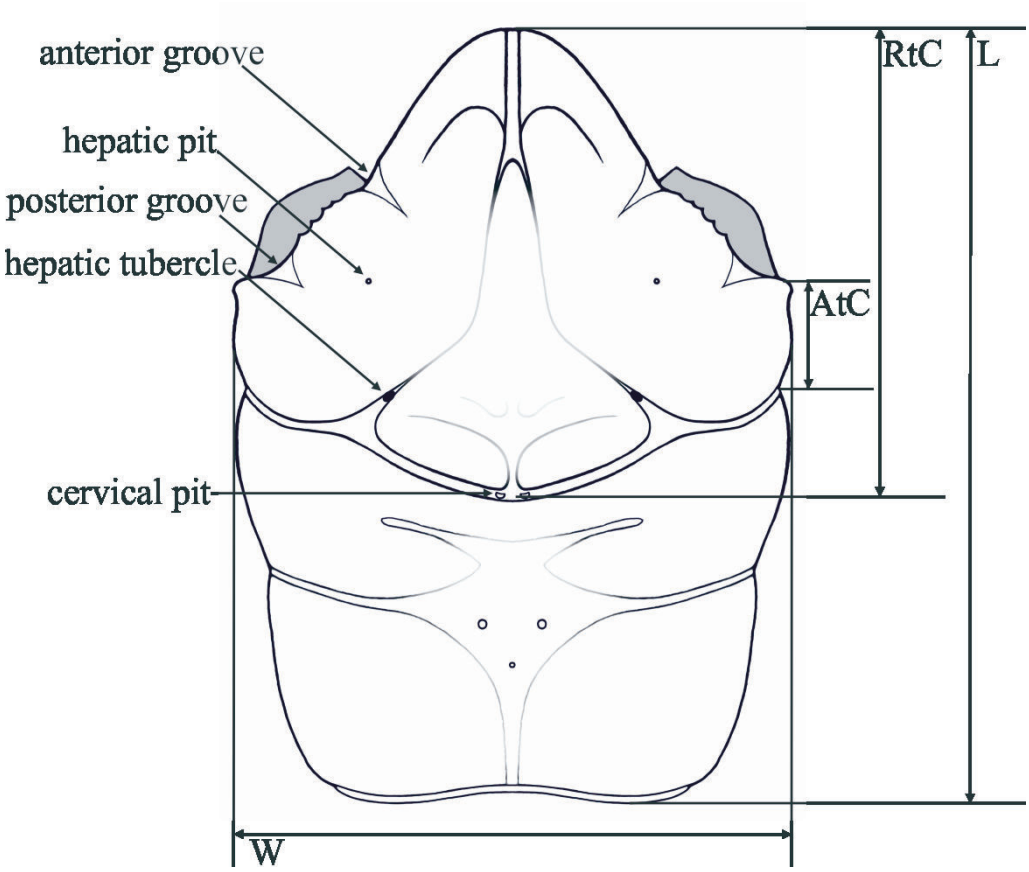

Fig. 1. *Tanidromites alexandrae* n. sp. Analysed measurements and terminology.

I-F/MP/**4794**/1534/08; I-F/MP/**5056**/1543/09; I-F/MP/**5268**/1543/09; I-F/MP/**5418**/1543/09; I-F/MP/**5442**/1543/09; I-F/MP/**6237**/1588/11. Specimens from Ogrodzieniec: I-F/MP/**543**/1497/08; I-F/MP/**571**/1502/08; I-F/MP/**607**/1502/08; I-F/MP/**722**/1502/08; I-F/MP/**744**/1502/08. Coll.: I.K.R. BOREK.

(Further on in the text only the numbers in bold are provided).

D i m e n s i o n s. The width across the epibranchial region ranges from 2.5-6.8 mm; the length of the biggest specimen is 9.6 mm.

D e s c r i p t i o n. The carapace is flattened, narrowing posteriorly and widest across the hepatic region. Lateral borders are smooth except the outer orbital spine. The section AtC is very short (0.21-0.26 of RtC) (Fig. 2A, B).

The rostrum is long, downturned with a blunt end (Fig. 2C). The axial groove is deep and broad, and reaches the anterior tip of the rostrum.

The augenrest is long (1.3x the width), bordered, deep, ending with a distinct outer orbital spine (Fig. 2A, B, F, G). The upper orbital margin has two shallow grooves, the ante-

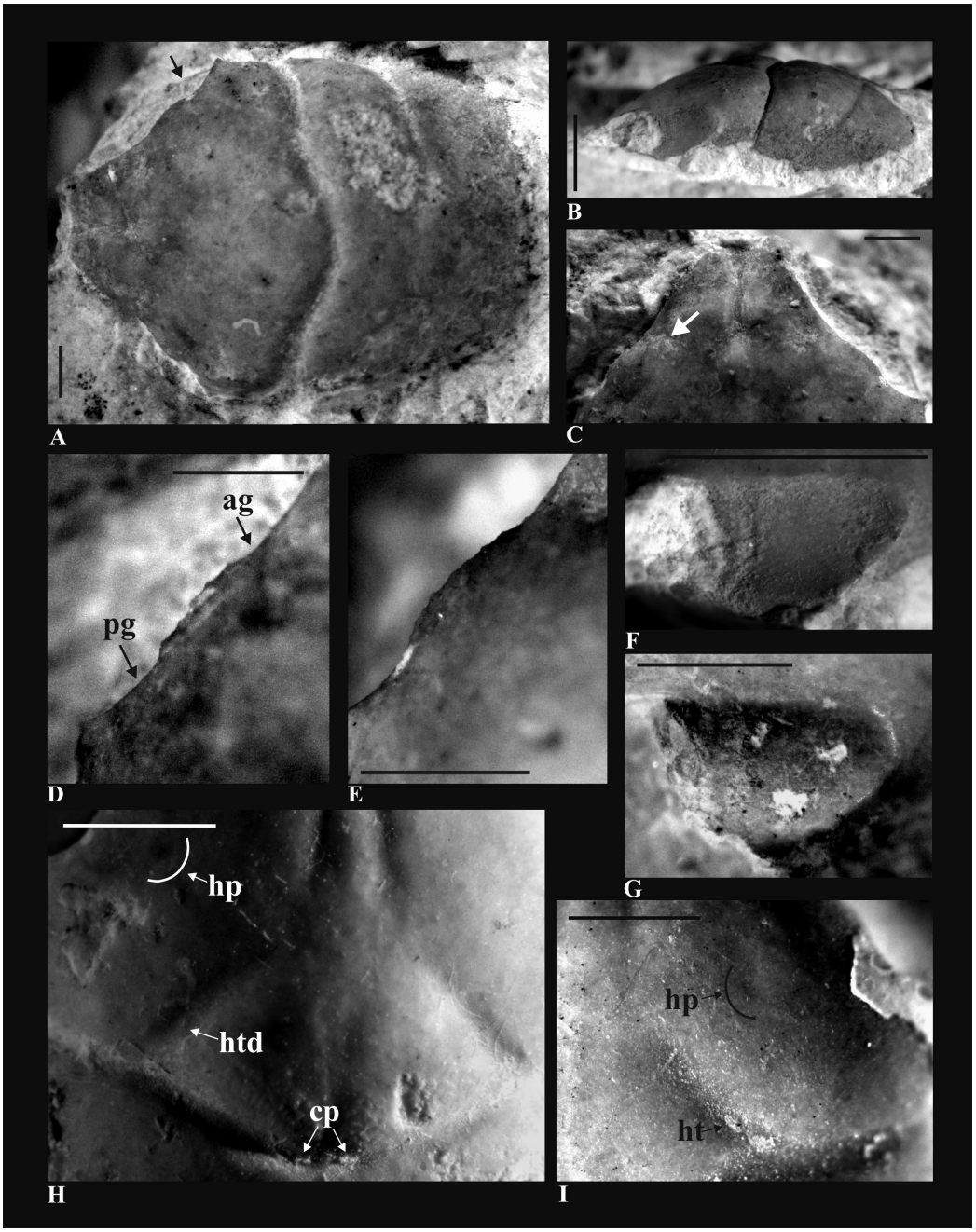

Fig. 2. *Tanidromites alexandrae* n. sp. **A** – holotype (#3949, Bzów); **B** – lateral view (#6237, Niegowonice); **C** – rostrum, anterior groove marked by an arrow (#3949); **D**, **E** – upper orbital margin with grooves: anterior (ag) and posterior (pg), distinct spines between grooves (D -4678, Niegowonice; E – #3949); **F**, **G** – augenrest, anterior view (F - #6237; G – #1851, Bzów); **H, I** – hepatic pores (hp), cervical pits (cp), hepatic tubercles (ht) and depressions of hepatic tubercles (htd) (H - #3949, Bzów; I - #3354, Niegowonice). Scale bars – 1 mm.

rior one in the intersection of the border of the rostrum and the upper orbital margin, and the posterior in front of the outer orbital spine (Fig. 2D). The margin between them is convex and finely serrate (Fig. 2D, E). The suborbital margin is smooth, projecting beyond the upper orbital margin (Fig. 2A).

The mesogastric region is bottle-shaped, distinctly bordered by grooves in the anterior and posterior part, less pronounced in the middle. Anterior (narrow) and posterior (wide) part of the region are more or less equal in length. The posterior part of this region has a small central incision. Gastric muscle scars are elongated, weakly developed, positioned on both sides of this incision and extend across the entire posterior border of the mesogastric region. Proximally they are accompanied by a parallel pair of smaller scars which are very weakly visible. Cervical pits are crescent-shaped (Fig. 2H).

There are two shallow depressions (Fig. 2H: htd), positioned exactly as the hepatic tubercles in other species of *Tanidromites* (STARZYK 2013). In the specimens of *T. alexandrae* n. sp. with preserved cuticle (example: #3354, Fig. 2I) a small tubercle in the depression is visible, formed by the remnants of cuticle. Its position is homologous to that of the hepatic tubercles in *T. insignis* and other congeners in which hepatic tubercles are prominent also beneath the cuticle (compare STARZYK 2013: fig. 4C, 6A, F).

Cervical pits are crescent. Hepatic pits are faint. Epigastric regions are elongated. There is a small tubercle on the urogastric region. The cardiac region is poorly delimited and bears two tubercles in the anterior part, and one in the posterior part.

The epibranchial region is strongly convex, short; the branchial region is more flattened and longer (Fig. 2A, B).

The cervical groove is deep; the branchiocardiac groove is deeper laterally (parallel to the cervical groove) and almost obsolete in the middle.

CONCLUDING REMARKS

Tanidromites is the second, after *Goniodromites*, most numerously represented genus in the Polish Jura Chain, and *Tanidromites alexandrae* n. sp. is the most common species of its genus in the localities discussed here. Localities with the most numerous specimens of this species are: Niegowonice (94 specimens), Ogrodzieniec (60) and Bzów (57). The second abundant congeneric species is *Tanidromites sculpta* QUENSTEDT, 1857 (Niegowonice – 99 specimens, Ogrodzieniec – 22, Bzów – 36), which is most similar to *T. alexandrae* n. sp. Both species are very small. The length of the biggest specimen of *T. alexandrae* n. sp. is 9.6 mm, and of *T. sculpta* is 12.85 mm. The maximal width of *T. alexandrae* n. sp. is 6.8 mm, and of *T. sculpta* – 10.97 mm. The overall shape of the carapace is similar, flattened and slightly narrowing posteriorly in both species. The distance from the outer orbital spine to the cervical groove is relatively small (AtC distance of *T. alexandrae* n. sp. is 0.21-0.26 of the RtC distance, in *T. sculpta* – 0.18-022).

The main difference is visible in the augenrest. The shape is similar in both species, but *Tanidomites alexandrae* n. sp. has a longer and deeper augenrest, while the augenrest of *T. sculpta* is shorter and flattened (see STARZYK 2013: fig. 7). This character is new for the genus. All other species of *Tanidromites* have a shorter and more flattened augenrest.

Tanidromites alexandrae n. sp. is the fifth species of the genus described from the Oxfordian of southern Polish Uplands. The species differ from each other by the size, shape of the carapace, augenrest and rostrum. Such a diversity of species from one genus proves multitude of niches appropriate for these small brachyurans. As it is known in recent fauna, closely related species, living in the same area, develop different feeding and other specializations related with the niches they are occupying. Also genital organs and mating habits might differ between closely related species sharing the same area.

The co-occurrence of congeneric species was reported from the mentioned localities (three species of the genus *Goniodromites*, STARZYK et al. 2012) and also from other Jurassic localities (see STARZYK et al. 2012).

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