GRALLATOTANAI S ANTIPAL, A NEW GENUS AND SPECIES OF THE FAMILY LEPTOCHIELIDAE LANG, 1963
FROM A MARINE CAV IN THE BAHAMAS
(CRUSTACEA: TANAIDACEA, TANAIMORPHA)

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Abstract. Grallatotanais antipal, a new genus and species belonging to the suborder Tanaidomorpha (family Leptocheilidae), is described and illustrated. The main morphological features of the genus consist of the fine-articled peduncle of the antennule and presence of a single seta on the maxillipede basis in females, and the great length of the last three pairs of peripods in males. Grallatotanais antipal n.g., n.sp. is the first record of Tanaidacea from marine caves in the Bahamas.


Keywords: Grallatotanais antipal n.g., n.sp., Leptocheilidae, Marine Caves, Bahamas.

The study of the tanaidacean crustaceans from anchialine and marine caves (Bácsescu, 1980; Güt and Iliffe, 1989a, 1989b, 1997) has led to the description of five species, four belonging to the suborder Aperasomorpha (Apsenus: hemekeus Bácsescu, 1980, A. bowmani Güt and Iliffe, 1989, A. argihis Güt and Iliffe, 1989 and Pseudoscutius apertus Güt and Iliffe, 1997) and one (Necrototanais maculatus Güt and Iliffe, 1989) to the suborder Tanaidomorpha. Of these, only two aperasomorphs (A. hemekeus and A. bowmani) have features which could be considered characteristic to the species from the marine caves environment (Güt and Iliffe, 1989b, 1997). A new species (and, concurrently, a new genus), belonging to the suborder Tanaidomorpha, is here added to the two above-mentioned aperasomorphs.

SUBORDER TANAIMORPHA Sieg. 1980
Family LEPTOCHIELIDAE Lang, 1973

Lang (1973) created a new family, the Leptocheilidae Lang, 1973 to include the new genera Hargesta, Pseudoleptochelia and Pseudotanotanais, together with the previously described Leptocheilidae Dana, 1849 and Heterotanaid G.O. Sars, 1830. Prior to this, the genera Leptochelia and Heterotanaid had been relegated to family Parataenaidae Lang, 1949. Later, Sieg and Heard (1989) rediagnosed the genus Metotanais Dolfus, 1897 and established that it also belonged to the family Leptocheilidae. Subsequently, Güt (1996) described and included the genus 

The main differences between Parataenaidae and Leptocheilidae, as was established by Lang’s diagnoses (op. cit.), are that males of the parataenaid species
have the maxillipeds normally developed, resembling that of females, while in the species of the family Leptocheilidae, males have a reduced maxillipeds, and, always, the females have a small seta on the second article of the maxillipedal palp, placed in the distal outer angle. In addition, in Leptocheilidae, pleopods are always well developed, and the uropod exopodites have more than two articles.

The above-mentioned morphological features also occur in the genera included later in the family Leptocheilidae (Gutu, op. cit.; Stig and Heard, op. cit.), as well as in the new genus described in the present paper.

**Grallatonanais** new genus

Type species: *Grallatonanais antipa* n.sp.

Diagnosis: Body, more or less, cylindrical. Visual elements present, very accentuated in males. Antennule with four-articled peduncle and a short uni-articled flagellum in females, and two-articled peduncle and five-articled flagellum (each article with many aesthetes) in males. Antenna with five-articled peduncle and a short uni-articled flagellum in females, and two-articled peduncle with a multi-articled flagellum, in males. Labium without lobe in females, and reduced in males. Mandible well developed in females, and absent in males. Maxillule with eleven spines (ten strong, and one thin and short); palp, relatively short. Maxilliped in females, well developed, with only a long seta on basis, and three very small spiniform processes on the rostral side of endite; in males, reduced to a small basis and an uni-articled palp. Cheliped relatively similar in both sexes. Pereiopods II-VII, in females, approximately equal in length but with thicker basis in the last three pairs; in males, all pereiopods are thin, the last three pairs being very long (at least two times each than of first three pairs). Pleopods well developed, in five pairs. Uropods, in both sexes, with two-articled exopodite and five-articled endopodite.

Etymology: From the Latin *grallator*, “which walks on stilts” (referring to length of the last three pairs of legs of males), and *tanais*, the name of the genus which gave the name of the order.

**Gender:** masculine.

Remarks: The main morphological features of the genus *Grallatonanais* n.g. consist of: (1) the number of the articles (four) of the antennule peduncle, (2) the presence of a single seta on the basis of the female’s maxillipeds, and (3) the very great length of the last three pairs of the pereiopods in males. The only other genus belonging to the family Leptocheilidae whose maxilliped basis has one seta is *Heiteronanais*, a genus differentiated from *Grallatonanais* n.g. by the other two aforementioned features (1 and 3) as well as by in males, the number of articles (three) of the antennule flagellum and the morphology of chelipeds (especially of the propodus finger). Rarely, species of the genus *Leptocheila* have a four-articled antennule peduncle as does *Grallatonanais*, but differ in the other two characteristics (mentioned in the items 2 and 3).

The great fragility of the last three pairs of legs in males (because of their thinness and great length) suggests that it is strongly bound by the environmental conditions, characteristic to the deep-sea and caves, especially by the absence of the violent marine currents. Under these circumstances, it is possible that species of the genus *Grallatonanais* inhabit the open sea, but only at great depths.
Fig. 1 – *Grallatotanasia antipa* n.g., n.sp., female, holotype (A, C, D, F-J) and male, allotype (B, E, K): A, body, dorsolateral; B, body, lateral; C, antennule; D, antenna; E, antennule and antenna, lateral; F, mandible, right; G, pars maxillaris and maxilliped mobilis of left mandible; H, labium; I, maxillule; J, maxilliped, ventral; K, maxilliped, lateral.

*Grallatotanasia antipa* n.g., n.sp.

(Figs 1-3)

Material: 2 specimens (1 female and 1 male) from South Bight #2 Blue Hole, South Bight, South Andros Island, Bahamas: St. 99-053, 4 October 1999. Specimens were collected with a plankton net and suction bottle from surface of silty bottom sediments at 40 m water depth.

Holotype, female (dissected) deposited in the CoLections of Muzeul Național de Științe și Tehnologică “Grigore Antipa” (Bucharest), No. 250,178.

Allotype, male (dissected), in the same museum, No. 250,179.
Description of the female (holotype)

Body (Fig. 1 A) relatively cylindrical, six times longer than wide. Standard length: 1.1 mm.

Cerapace, little longer than wide, laterally with two small setae; rostrum prominent, rounded anteriorly; visual elements present.

Pereon approximately three times longer than the carapace. Each pereonite (except the fourth one) with a small seta, laterally. First free pereonite shortest; 50% as long as the second or the last one; 40, 25 and 33% as long as the third, the fourth and the fifth, respectively.

Pleon (longer than the carapace, and equal with the first free three pereonites, but shorter than the last two pereonites), with five short pleonites (each with a lateral short seta) and pleotelson, the last also short, triangular, and, terminally, with four small setae.

Antennule (Fig. 1 C), longer than the carapace, with four-articled peduncle and very short uni-articled flagellum. First peduncular article approximately two times longer than the third, and little longer than the fourth; the second peduncular article little longer than the following ones, but shorter than others two. The first three peduncular articles with 1-3 setae, and the fourth with 6-7 setae, terminally.

Antenna (Fig. 1 D), approximately equal with the length of the carapace, with four-articled peduncle and uni-articled flagellum. The first peduncular article 1.5 times longer than the fourth and 3 times longer than the first or second article.
Fig. 3 – *Grallatotanas antipai* n.g., n.sp., male, allotype: A, cheliped; B–peraeopods II–VII.
Manatihes (Fig. 1 F, G), typical of family, with well-developed pars incisiva, lacinia mobilis (of left manatihes) and molar process, the last with grinding surface. 

Labium (Fig. 1 H), relatively triangular, with fine hairs on the rostral side; palpal absent.

Maxillula (Fig. 1 I) with 9 long spines and one thin (setiform); palpal present.

Maxilliped (Fig. 1 J) with a long terminal seta on the basis; palpal four-articled, with five, six, and seven setae on the second, third, and, respectively, fourth, article, as in figures; endite long (to half of the second article of the palp), with three very small spines on the rostral side.

Cheliped (Fig. 2 A; without special features. Merus and carpus with two setal setae. Propodopus (measured without its finger), little smaller than the basis. Dactylus slender. Claw of the fixed finger and dactylus, slightly curved.

Pereiopod II (Fig. 2 B) longer than the following. Basis slender and long, equal with ischiu, merus, carpus and propodopus, measured together. Ischiu short, with a small terminal seta. Merus equal with carpus, each of them shorter than the propodopus; carpus with a small terminal seta, terminally. Propodopus with a strong spine and a seta, subterminal, on the tergal side; sternally, on the second haemal, with a small seta. Dactylus thin and long, with a very long spine; together, dactylus and its claw, are equal with merus and carpus, but longer than the propodopus.

Pereiopod III (Fig. 2 C) relatively similar, but shorter than the previous one. 

Pereiopod IV (Fig. 2 D), shorter but similar with first two pereiopods. Ischiu, merus and carpus with two, one and two, spines, respectively; disposed as in the drawing. Propodopus, terminally, with four small spines. Dactylus and its claw similar to those of the previous pereiopod.

Pereiopods V-VII (Fig. 2 E-G) little longer than pereiopod IV. Basis stronger than the same of previous pereiopods. Ischiu with one-two fine spine. Merus and carpus with a short and very thick spine, rounded terminally, on the terminal end, and one-two acute spines, as in drawings. Propodopus, terminally, with three-four setae and one-two small spines. Dactylus strong; claw acute, shorter than the dactylus.

Pleon (Fig. 2 H) in five pairs, biramous, and well developed; exopodite with six long plumose setae on the caudal side, and one on the rostral margin; endopodite with ten long and plumose setae on the caudal margin.

Uropod (Fig. 2 I) short, biramous; exopodite two-articled, endopodite five-articled.

The male is characterized by a long antennule (with short two-articled peduncle and five-articled flagellum), and the great length of the last three pairs of pereiopods (Figs 1 B, E and 3 E-G). Maxilliped reduced (Fig. 1 K).

Etymology. The species is dedicated to the famous Romanian hydrobiologist Grigore Antipa, who modernized the National Museum of Zoology from Bucharest, which bears his name.

Type locality: South Bight #2 Blue Hole, South Bight, South Andros Island, Bahamas.

Habitat. South Bight #2 Blue Hole is one of a string of underwater cave entrances stretching perpendicularly across South Bight, a broad, saltwater, tidal creek separating South Andros Island from Munroa Cay. These caves were first
explored by diver George Benjamin between 1958 and 1973 (Benjamin, 1970). They lie at the northern end of a 45 km long fault zone that parallels the deep water Tongue of the Ocean and the eastern edge of Andros Island. More than 50 blue holes (entrances to submerged cave systems) have been identified from this fault zone, with several reaching depths in excess of 100 m (Palmer, 1997). The main horizontal passages in the South Bight caves run NW to SSE and are formed along the vertical plane of the fault between 35 and 60 m depth (Palmer, 1986).

South Bight 82 has a vertical shaft entrance that drops to 30 m depth. At the bottom of the entrance pit, passages extend in opposite directions. While the south passage is muddy, the north passage contains less mud but stronger currents. Tides in the cave are out of phase with those with those outside. Slack high tide in the cave occurs three and half hours after the corresponding tide on the surface, while slack low tide is delayed by four to five hours. Other specimens collected from the cave included cumaceans,copepods, amphipods, ostracods, mysids and the holotypic shrimp Janacea antiguenensis.

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GRAŁLATOJANUS ANTIPS UNU NOU GENI ŞI SPECIE DIN FAMILIA LEPTOCHILEIIDAE LANG, 1963 DINTR-O GROTĂ MARINĂ DIN BAHAMAS (CRUSTACEE: TANAIIDACEAE, TANAIIDOMORPHA)

REZUMAT

Este descris Grallatojanus antips, n.g., n.sp., apartind tanaielelor din familia Leptocheiliidae (subfamilia Tanaiidae). Trăsăturile morfologice caracteristice ale noii gen (şi implicit ale noii specii) sunt: la femele, în numărul de pătuţe articole din componenta pedunculului antenii şi prezintă un echiu rău de pe bazală maximilipedului; iar la masculi, printr-o lungă frate mare a unui tarcul care se întinde pe peretele Grallatojanus antips este prima semnaleare a prezenţei tanaielelor în grotă marină din Bahamas.

REFERENCES


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