

REEVALUATION AND EMENDED DIAGNOSIS OF *ILLIOSENTIS* AND *I. HETERACANTHUS* (ACANTHOCEPHALA: ILLIOSENTIDAE)

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ABSTRACT: Information on putative synapomorphies was used to distinguish between *Dollfusentis*, *Illiosentis*, and *Tegorhynchus*. Members of *Tegorhynchus* and *Illiosentis* possess a thick padlike vestibular muscle on the inner posterior wall of the trunk of female worms. The 2 genera differ in that the proboscis of members of *Illiosentis* have ventral hooks in the posteriormost circle that are greatly enlarged and male worms have a heavy muscular sheath covering the urogenital duct, both of which are absent in members of *Tegorhynchus*. Based on these features, *Illiosentis* is formally reestablished, and the diagnosis of the genus is emended. *Dollfusentis* is characterized by members having vestibular muscles that are bandlike rather than padlike, normal-sized hooks in the poster ring of the proboscis, and a crescent of 6 large hooks on the ventral proboscis, separated posteriorly from the posteriormost ring of hooks. The heavy muscular sheath covering the urogenital duct is not present in male worms of species of *Dollfusentis*. Type specimens of *D. heteracanthus*, originally described as *I. heteracanthus* but later transferred from *Illiosentis* to *Dollfusentis*, and the material included in a recent redescription of *D. heteracanthus* possess the padlike vestibular muscle, greatly enlarged ventral proboscis hooks in the posteriormost circle, and heavy muscular sheath covering the urogenital duct that is characteristic of other members of *Illiosentis* and lack the features characteristic of the other species assigned to *Dollfusentis*. Thus, *D. heteracanthus* is removed from *Dollfusentis* and reinstated as *I. heteracanthus*.

The genus *Tegorhynchus* Van Cleave, 1921, was designated to accommodate *T. brevis* Van Cleave, 1921, collected near the Juan Fernandez Islands, Chile (Van Cleave, 1921). Among the distinguishing features of the genus, female worms of *T. brevis* possess a thick padlike (originally called fanlike) muscle on the inner posterior wall of the trunk which, when tensed, forms a genital vestibule. *Illiosentis* Van Cleave and Lincicome, 1939, later was erected to contain *I. furcatus* Van Cleave and Lincicome, 1939. Female members of *Illiosentis* also possess a similar padlike vestibular muscle. However, the authors (Van Cleave and Lincicome, 1939) did not mention this similarity and only noted that a conspicuous investing cuticula over the surface of the proboscis was a common feature of the 2 genera and that they could be distinguished on the basis of the basal circle of proboscis hooks (unspecialized hooks in *Tegorhynchus* and greatly enlarged in *Illiosentis*). Subsequent authors (Van Cleave, 1945a; Golvan, 1956, 1960; Cable and Linderth, 1963; Amin and Sey, 1996), who made additions to *Illiosentis* (*I. centratus* Van Cleave, 1945; *I. africanus* Golvan, 1956; *I. edmondsi* Golvan, 1960; *I. longispinus* Cable and Linderth, 1963; *I. heteracanthus* Cable and Linderth, 1963; *I. ctenorhynchus* Cable and Linderth, 1963, and *I. holospinus* Amin and Sey, 1996), also did not mention any similarity in this feature between *Tegorhynchus* and *Illiosentis*. Ambiguity in the definition of the genus led Golvan (1969) to remove several species (*I. longispinus*, *I. ctenorhynchus*, and *I. heteracanthus*) from the genus and transfer them to a newly proposed genus, *Dollfusentis* Golvan, 1969. *Illiosentis* later was considered to be a junior synonym of *Tegorhynchus* based on the abstract of an unpublished work presented at a meeting (Bullock and Mateo, 1970). Although only informally delivered, the synonymy has received some acceptance (Buckner et al., 1978; Amin, 1985; Amin and Sey, 1996), but it has been questioned by others (Leotta et al., 1982; Monks et al., 1997; Monks, 2001). However to date, the arguments either in favor of or against the validity of this synonymy (Leotta et al., 1982; Amin and Sey, 1996; Monks and

Pérez-Ponce de León, 1996; Monks et al., 1997; Monks, 2001) have been relatively brief.

Illiosentis heteracanthus Cable and Linderth, 1963, was described originally from relatively few immature specimens found in 4 species of marine fishes. As mentioned above, this species was later transferred to *Dollfusentis*, although Golvan (1969) did not provide justification for the move. Mature specimens of the species remained uncollected until Amin and Dailey (1996) found specimens in a fifth species of host, *Albula vulpes* Linnaeus. These authors expanded the original description to include additional features as well as details concerning reproductive structures that were not fully developed in the type specimens. However, other than mention of the genus in which the species was originally placed, Amin and Dailey (1996) did not address the taxonomic placement of the taxon by Cable and Linderth (1963) or evaluate the appropriateness of Golvan's (1969) transfer of *I. heteracanthus* to *Dollfusentis*. As part of an ongoing study of phylogenetic relationships among acanthocephalans (Monks, 2001), the type specimens of *I. heteracanthus* and the specimens collected by Amin and Dailey (1996) were examined and found to possess features of *Illiosentis* Van Cleave and Lincicome, 1939, as originally noted by Cable and Linderth, 1963, and discussed below, rather than those of *Dollfusentis*. The purpose of the present paper is to review selected synapomorphies for *Tegorhynchus*, *Illiosentis* and *Dollfusentis* and to reinstate and emend *Illiosentis* based on the possession of characters distinct from those of *Tegorhynchus* and *Dollfusentis*. *Illiosentis heteracanthus* is reinstated based on the possession of characters of *Illiosentis* by specimens of the type series and by those collected by Amin and Dailey (1996). The species is redescribed from the aforementioned specimens.

MATERIALS AND METHODS

The following specimens were examined: holotype and paratypes of *Tegorhynchus brevis* (Naturhistoriska Riksmuseet, Stockholm, Sweden [NHR]-4766, NHR-4767, NHR-4768, United States National Parasite Collection [USNPC]-37535, USNPC-81405); holotype and paratypes of *Illiosentis heteracanthus* (USNPC-60343) from *Gerres cinereus* (Walbaum), *Bathygobius soporator* (Cuvier and Valenciennes), *Labrisomus nuchipinnis* (Quoy and Gaimard), and *Platophrys ocellatus* (Agassiz) collected in Curaçao; voucher specimens of *I. heteracanthus* (USNPC-

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