



***Polymorphus arctocephali* Smales, 1986, a synonym of *Corynosoma cetaceum* Johnston & Best, 1942 (Acanthocephala: Polymorphidae)**

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Abstract

Polymorphus arctocephali (Acanthocephala: Polymorphidae) was differentiated from *P. cetaceum* based on patterns in the trunk spine distribution and slight morphometric differences. The comparison of both species involved samples from South Australia and did not include *P. cetaceum* from South America. In this paper we re-examine the systematic position of *P. arctocephali* based on a more detailed morphological and geographical analysis. Results indicate that *P. arctocephali* does not differ in trunk spine distribution with respect to *P. cetaceum*, and that its morphometric differences can be subsumed under the natural variation found within *P. cetaceum* populations. Therefore, *P. arctocephali* becomes a junior synonym of *P. cetaceum*. *P. cetaceum* was transferred from *Corynosoma* to *Polymorphus* due to the absence of genital spines in both sexes. However, adopting the less restrictive definition of genital spines used by several authors, females of *P. cetaceum* could be considered as bearing genital spines. Species of the genus *Andracantha* also have genital spines, but specimens of *P. cetaceum* possess a continuous field of trunk spines, which precludes the assignment of this species to *Andracantha*. Other generic level characters, as well as ecological data, support clearly the transference of *P. cetaceum* back to *Corynosoma*. Therefore, this species becomes *Corynosoma cetaceum* Johnston & Best, 1942.

Introduction

Polymorphus cetaceum (Johnston & Best, 1942) Schmidt & Dailey, 1971 and *P. arctocephali* Smales, 1986 are the only species of *Polymorphus* Lühe, 1911 reported from marine mammals (Amin, 1992). *P. cetaceum* was originally described from *Delphinus delphis* (L.) (type-host) and *Tursiops truncatus* Montagu collected in South Australia (Johnston & Best, 1942). The species has been subsequently reported from other dolphin species off the South American coasts (Schmidt & Dailey, 1971; Kagei et al., 1976; Figueroa & Puga, 1990; Torres et al., 1992; Aznar et al., 1994). *P. arctocephali* has been reported only from the fur seal *Arctocephalus pusillus doriferus* (Schreber) in South Australia (Smales, 1986). Smales (1986) separated *P. arctocephali* from *P. cetaceum* based mainly on morphometric differences: a longer proboscis, a larger maximum length of hook thorn (i.e., blade), a larger maximum length of trunk spines

and a higher ratio of length of hook root to length of thorn. Furthermore, just posterior to the unarmed neck, specimens of *P. arctocephali* have a bare region on the dorsal trunk surface; that region is armed in *P. cetaceum*. Finally, males of *P. arctocephali* have a larger portion of the posterior trunk devoid of spines (25% vs 20% in *P. cetaceum*); females lack spines on the ventro-lateral trunk in the region at about 75% of the body length, a trait not observed in *P. cetaceum*. Despite these apparent differences, the status of *P. arctocephali* is doubtful for two reasons. First, no mature individuals of this species have been reported thus far. This raises the possibility that infections in fur seals are accidental. Second, Smales (1986) did not consider whether the morphological peculiarities of *P. arctocephali* might be related to various sources of intraspecific variability within *P. cetaceum* populations, i.e., differences in age and size of the worms, host-induced effects or geographical influences (see

Shostak et al., 1986). In fact, Smales (1986) compared specimens of *P. arctocephali* with the original description of *P. cetaceum* from South Australia, but not with published descriptions of *P. cetaceum* from South America that were available, i.e., Schmidt & Dailey (1971) and Kagei et al. (1976). In this paper we adopt a comprehensive morphological and geographical analysis, including samples of *P. cetaceum* from South Australia and South America, in order to re-examine the specific status of *P. arctocephali*.

Smales (1986) also noted that *P. cetaceum* and *P. arctocephali* exhibit a combination of morphological characters that do not agree with any of the current generic diagnoses within the family Polymorphidae Meyer, 1931. These species differ from most species of *Corynosoma* Lühe, 1904 only in lacking genital spines (Smales, 1986) and from most species of *Andracantha* Schmidt, 1975 only in lacking genital spines and two fields of spines in the ventral foretrunk (see Schmidt, 1975; Zdzitowiecki, 1989). *P. cetaceum* was formerly assigned to *Corynosoma*, but it was subsequently transferred to *Polymorphus* Lühe, 1911 because 'the presence of genital spines is the only criterion separating *Corynosoma* from *Polymorphus*' (Schmidt & Dailey, 1971). This criterion, however, has not been unanimously endorsed: several species apparently lacking genital spines in both sexes are currently included within *Corynosoma*, e.g., *C. fallacatum* Van Cleave, 1953, *C. sudsuche* Belopolskaja, 1959 and *C. septentrionalis* Treshtchev, 1966 (see references in Golvan, 1994). This inconsistency requires consideration of two problems, the concept of genital spines and the morphological differences between species of *Corynosoma* and *Andracantha*.

Van Cleave (1945) defined genital spines as those immediately adjacent to the genital pore. Apparently, Schmidt & Dailey (1971) and Smales (1986) adopted this criterion to exclude *P. cetaceum* and *P. arctocephali* from *Corynosoma*. However, Van Cleave (1953) considered that spines reaching the vicinity of the genital pore could be considered also as genital spines. This definition is conflicting because it establishes an imprecise boundary to identify spines as being genital. Such a definition was followed by, *inter alia*, Munro et al. (1995). Finally, Schmidt (1975) considered that genital spines could also be shifted to the ventral surface of the anterior trunk as a small, isolated group of spines. In fact, *Andracantha gravida* Alegret, 1941 (see Schmidt, 1975) does not have the genital spines in the vicinity of the genital pore, but in the

middle of the hindtrunk. Therefore, the definition of what are genital spines is somewhat ambiguous.

Concerning the second problem, the genus *Andracantha* is composed of six species previously included within *Corynosoma* that are now separated by a single distinctive attribute, i.e. the presence of two fields of trunk spines divided by either a bare area or an area with smaller spines (Schmidt, 1975; Zdzitowiecki, 1989). However, this area is very small and difficult to observe in some species and, therefore, it was often overlooked previously, even after *Andracantha* was erected (Zdzitowiecki, 1986a, 1989; Munro et al., 1995). On the other hand, some species were also described and re-described without a genital armature (see Schmidt, 1975; Zdzitowiecki, 1986a). Apparently, many individuals of all *Andracantha* species, unlike *Corynosoma*, lack these spines (Schmidt, 1975; Zdzitowiecki, 1989). Therefore, only a careful examination of trunk spine patterns can provide a reliable way of assigning species to either *Andracantha* or *Corynosoma*. This point is particularly relevant for the three species of *Corynosoma* without genital spines and *P. cetaceum*, because these species were described before the erection of *Andracantha*. In this paper we also re-examine critical generic-level characters in samples of *P. cetaceum* and *P. arctocephali* in order to resolve the taxonomic conflict noted by Smales (1986) regarding these species.

Materials and methods

The specific status of P. arctocephali

Specimens examined in this section are listed in Table I. Sample 1 is composed of specimens chosen randomly from an extensive collection of material from Argentina (see Aznar et al., 1994); the remaining samples were borrowed from different institutions. Specimens of sample 9 had been identified as *P. cetaceum*. However, they were collected in the same host species and from the same locality as *P. arctocephali*, but prior to the description by Smales (1986); they too were immature. Preliminary examination of these specimens revealed a close resemblance to the type-material of *P. arctocephali* (see also below). Therefore, we treated sample 9 as *P. arctocephali*. Samples 1, 6 and 7 of *P. cetaceum* were composed of both mature and immature specimens and the rest of mature specimens only.

We examined the spine distribution and morphometric traits used by Smales (1986) to separate *P. arc-*