

Distribution extension of *Dasyonchocotyle dasyatis* (Yamaguti, 1968) Boeger & Kritsky, 1989 (Monogenea: Hexabothriidae) in *Dasyatis longa* (Garman, 1880) (Myliobatiformes: Dasyatidae) from Sinaloa, México

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Abstract: The collection of 13 specimens of *Dasyonchocotyle dasyatis* (Yamaguti, 1968) Boeger & Kritsky, 1989 on the coast of Sinaloa, México extends the geographic distribution of the species from the original locality (Hawaii, U.S.A.) eastward to at least the Pacific Coast of Mexico. The species is a parasite of *Dasyatis longa* (Garman, 1880), a common stingray of the tropical eastern Pacific. This species has not been reported since the original description in 1968.

Key words: Parasite, Platyhelminthes, longtail stingray, Pacific Ocean.

Adults of *Dasyatis longa* (Garman, 1880) (Longtail Stingray; Dasyatidae) inhabit rocky and coral reefs in the Eastern Pacific Ocean, and along the coasts of North and South America from the Gulf of Cortés, the Galapagos Islands, to Ecuador, and often are found on soft and sandy bottoms. Adults grow to a maximum of 260 cm in total length and have a short tail with a well-developed caudal fin. Its color is variable but distinctive, dorsally either light-on-dark or dark-on-light reticulations forming spots and blotches, but individuals can rapidly change the tonality of this coloration to improve its camouflage (Fishbase 2014).

These stingrays are attractive, so it is obvious that the general public would give more attention to them than to their parasites, but, as discussed by Zaragoza-Tapia *et al.* (2013), helminths are an important component of our biodiversity, even though their hosts are the principle focus of most conservation efforts. It has long been known and documented (Price 1980 and citations within) that the number of species of parasites exceeds the number of species of free-living organisms. Nonetheless, society places more importance on the conservation of these organisms (the hosts) than on their parasites. In a recent study, Justine *et al.* (2012) found that the number of species of parasites per species of coral reef fish (hosts) was at least 10 times greater. Thus, they concluded that the extinction of a species coral reef fish eventually would result in the coextinction of a minimum of 10 species of parasites.

The present report is a part of the process of documenting the re-discovery of little-known species of helminths before they become extinct (Brooks *et al.* 2002).

As part of an ongoing inventory of the helminths of Mexican elasmobranchs, 7 adults of *Dasyatis longa* have been collected from the Pacific Coast of México; 1 from La Puntilla, Mazatlán, Sinaloa (2004) and 6 from Bahía de Acapulco, Guerrero (2011), with the help of local fishermen. Individual stingrays were maintained on ice until necropsied, when the intestinal tract was removed and examined according to Monks *et al.* (1996) and ectoparasites according to Pulido-Flores and Monks (2005). All ecto- and endohelminths were fixed and then transferred to 70% ethyl alcohol. Monogeneans were stained using Mayer's carmalum stain, cleared in Methyl Salicylate, and mounted in Canada balsam for examination as whole mounts. Specimens were deposited in the Colección Nacional de Helmintos, Instituto de Biología, Universidad Nacional Autónoma de México (CNHE-9361) and the Harold W. Manter Laboratory, University of Nebraska-Lincoln, U.S.A (HWML-75115).

The species was first described as *Hexabothrium dasyatis* by Yamaguti (1968) from *Dasyatis* sp., possibly *Dasyatis diptera* (Jordan & Gilbert, 1880), collected in Hawaii (Yamaguti 1968). Boeger and Kristky (1989) emended the description and transferred the species to *Dasyonchocotyle* Hargis, 1955. For purposes of identification, this species is relatively large, 4–10.5 mm in length and maximum width of 0.4–0.9 mm, with a ventroterminal oral sucker that is surmounted by a pre-oral lobe (Yamaguti 1968) (Figure 1). The intestinal ceca have numerous lateral diverticula in the anterior portion, and the posterior portion extends into the haptor appendix. The distal end of the elongate cirrus has pyriform spines and a round prostatic vesicle is present (Figure 1). Two genital pores are present, connected to parallel vaginas that run posteriorly. The most obvious feature is the large symmetrical haptor, laterally widened, with 3 pairs of suckers armed with sclerites (Figure 1); the posteriormost and middle suckers (numbers 1 and 2) are approximately the same size and the anteriormost pair (number 3) is the largest and most robust (Figure 1) (see

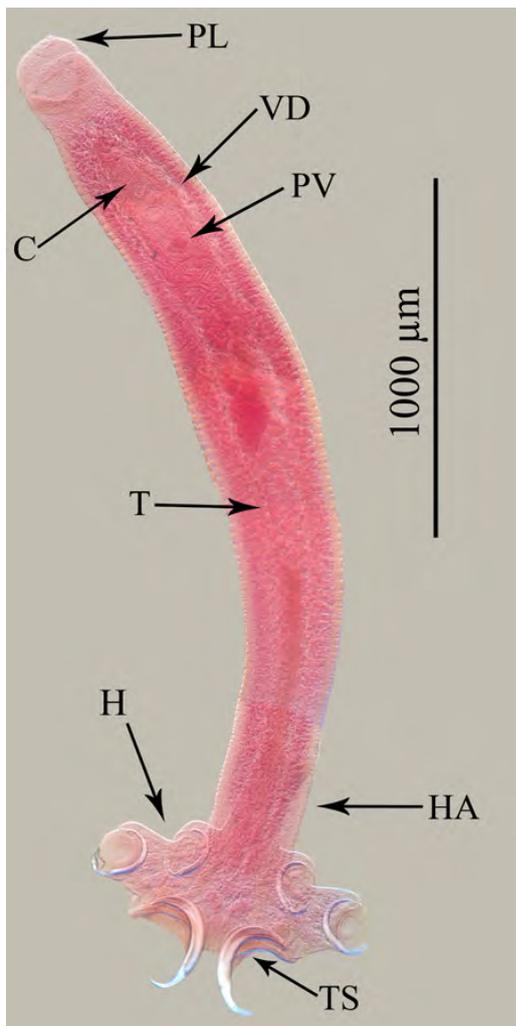


Figure 1. *Dasyonchocotyle dasyatis* (Yamaguti, 1968) Boeger & Kristky, 1989 from *Dasyatis longa* (Garman, 1880) (longtail stingray), in La Puntilla, Mazatlán, Sinaloa, México. C = Cirrus; H = Haptor; HA = Haptoral appendix; PL = Preoral lobe; PV = Prostatic vesicle; T = Testes; TS = Third pair Suckers; VD = Vaginal ducts. Bar = 1000 μ m.

Boeger and Kristky 1989 for more detail). The specimens that we collected (Figure 1) conform to this description in these and the other features of the species, but the worms are slightly smaller and not gravid. Until the present account, there has not been a second report of the species.

Dasyonchocotyle spiniphallus Hargis, 1955 has been reported from the northern Gulf of Mexico (U.S.A.), but to date it has not been found on the Mexican coast of the Gulf. It has 17 testes and *D. dasyatis* has 25–44 testes, so it is easy to distinguish between the 2 species even in unstained specimens (Hargis 1955). In stained material, the vaginal ducts of *D. dasyatis* can be seen to run parallel, with 2 types of tissue, while in *D. spiniphallus* they are in Y-shaped and of only a single type of tissue (Yamaguti 1968; Boeger and Kristky 1989).

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