



A cryptic complex of *Transversotrema* species (Digenea: Transversotrematidae) on labroid, haemulid and lethrinid fishes in the Indo–West Pacific Region, including the description of three new species

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Abstract

Sequences of ITS2 rDNA of 36 individuals of 16 host/parasite/location combinations of transversotrematids from labrid, scarid, haemulid and lethrinid fishes from Heron and Lizard Islands on the Great Barrier Reef and Ningaloo Reef Western off Australia comprised four distinct genotypes. One genotype was associated with three species of Labridae at Heron Island, the second with eight species of Scaridae at Heron Island, the third with two species of Scaridae from Ningaloo, and the fourth with two species of Lethrinidae and one of Haemulidae from Lizard Island. All four forms are broadly morphologically similar to *Transversotrema haasi* Witenberg, 1944. The two genotypes from scarids differed at only a single base position and were morphologically indistinguishable; all other combinations of genotypes differed by at least 3 bases. Comparisons between specimens from labrids, scarids, and haemulids and lethrinids revealed consistent differences in the number of vitelline follicles enclosed by the cyclocoel and in the relative sizes of the testes. We conclude that these three forms should be considered distinct species. The species associated with labrids is broadly consistent with and has previously been identified as *T. haasi* which was originally reported from an unknown fish from the Red Sea. As no molecular comparison can be made between the original *T. haasi* and the three similar forms from Australia, we propose three new species: *Transversotrema elegans* n. sp. from labrids, *T. gigantea* n. sp. from scarids, and *T. lacerta* n. sp. from haemulids and lethrinids.

Key words: Digenea, Transversotrematidae, *Transversotrema*, *Transversotrema elegans*, *Transversotrema gigantea*, *Transversotrema lacerta*, cryptic, Great Barrier Reef, Ningaloo Reef, WA

Introduction

The Transversotrematidae Witenberg, 1944 is a morphologically distinctive family of digenean trematodes that presently has just four recognized genera and 11 species (Cribb *et al.* 1992; Hunter & Cribb 2010). The family is characterised by a two-host life cycle, and the cercarial form which, where known, has a body that resembles the adult and has a tail that has unique arm-like processes at its base (Cribb 2002). Confirmed accounts place transversotrematids in marine waters of the Indo-West Pacific region and in freshwater bodies on landmasses that border these oceans

A recent study of the Transversotrematidae from fishes from the Indo–west Pacific region (see Hunter & Cribb 2010) in particular the Great Barrier Reef, suggest that four distinct lineages are present: (1) *Crusziella formosa* Cribb, Bray & Barker, 1992 (Cribb *et al.* 1992); (2) a complex of species related to and resembling *Transversotrema licinum* Manter, 1970; (3) a complex of species associated with mullid fishes and (4) a complex of species resembling *Transversotrema haasi* Witenberg, 1944. Here we consider the species level composition of transversotrematids morphologically similar to *T. haasi*.

Transversotrema haasi is the type-species of *Transversotrema* Witenberg, 1944. This species was discovered in a “basin containing fish brought from the Red Sea” (Witenberg 1944). The nature of the