Additions to the freshwater malacofauna of Jamaica

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The documented information on the freshwater malacofauna of Jamaica is sparse (Adams 1849, 1850, 1851a, 1851b, Boon *et al.* 1986, Paul *et al.* 1993). The following species are non-indigenous to Jamaican freshwaters having been introduced to the island from elsewhere and in one case, *Thiara gramfera*, having become extremely widely distributed and abundant.

Class **Gastropoda**
Subclass Prosobranchia
Family Thiaridae

Thiara (Tarebia) granifera (Lamark 1822). Abbott (1952) records the natural distribution of this species to include India and Ceylon, east to the Philippine and Hawaiian islands, north to the small islands south of Japan and south to the Society Islands. The species was first introduced to Florida between 1940 and 1947 and has spread through the islands of the Caribbean from 1954 onwards. There is no indication of its exact date of introduction to Jamaica. The species was, however, very widespread and abundant by 1996. The few studies which have taken place on Jamaican rivers make no mention of its presence (Boon *et al.* 1986). Nor do Paul *et al.* (1993) mention its presence in the Wallywash Pond, suggesting that either the species was overlooked or its introduction occurred in the late 1980s, early 1990s.

The current situation is that *T. granifera* is present in most Jamaican river systems, although it tends to be excluded from areas of high altitude (> l000 m.a.s.l.) and from areas of elevated salinity (>0.5 ppt). *T. granifera* has also been observed to occur in lentic habitats (e.g. Moneague Lake) where specimens attain a greater than normal size. Unpublished data on the density of' *T. granifera* in the Rio Cobre river, St. Catherine, Jamaica shows densities of up to 411 individuals m^2 regularly occur.

Perera *et al.* (1994) observed that *T. granifera* played a significant role in control of *Biomphalaria peregrina* in Cuba and Butler *et al.* (1980) observed that the species displaced *B. glabrata* to the upper and lower reaches of streams in Puerto Rico. The effects of this widespread and abundant species on the indigenous planorbid fauna of Jamaican rivers are currently being documented but would appear to be negative.

Melanoides tuberculota (Muller 1779). This species is recorded as being native to eastern and southern Africa, south-east Asia, China and the islands of the Indo-Pacific (Dudgeon 1986). It was first noted in the Caribbean region from Puerto Rico between 1964 and 1966 and has spread to various islands in the region during the 1970s and 1980s. The spread of this species has been greatly assisted by active programmes of introduction to the Lesser Antilles to exploit its potential for biological control of the schistosome vectors, *Biomphalaria* spp. (Pointer and McCulloch 1989).

In Jamaica no precise data exists on the time of introduction but the time frame is likely to be similar to that of *Thiara granifera* for the same reasons. *M. tuberculata* is less common and widespread in Jamaican rivers and where this species and *T. granifera* occur together, the latter usually dominates. However in selected locations M *tuberculata* may be present in large numbers.

Subclass Pulmonata
Family Planorbidae

Planorbella duryi (Wetherby 1879). This species is known to be endemic to the Florida Peninsula (Rader 1994). It has been observed to be widely introduced around the world

(Thompson pers. comm.) and Perera *et al.* (1990) have recorded its presence in Cuba. The species was first observed in Jamaica in 1996 in several artificial ponds in the vicinity of Kingston. This suggests that the species may have been artificially introduced from Florida, either directly or with aquatic plants or this may have occurred from elsewhere in the region as the species has been utilized as a competitor to *Biomphalara* schistosome host (Andrade 1979). Subsequent specimens were collected from Fresh River, St. Catherine, Jamaica. This location is a short coastal river with largely potamic conditions. The species is nowhere abundant but is considerably larger in size than the indigenous planorbid species.

Specimens of all three species are held in the Department of Life Sciences, University of the West Indies. In addition specimens of *P. duryi* have been placed with the Florida Museum of Natural History.

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