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Introduction risk of alien species: *Helisoma duryi* (Wetherby, 1879) (Gastropoda: Planorbidae) in Argentina (*)

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ABSTRACT

Helisoma duryi *(Wetherby, 1879) is a North American species, introduced into South America by aquarists. In 1995, the first specimens of* H. duryi *arrived at the La Plata Museum, collected from water plants bought at aquaculturists shops in Mar del Plata, Argentina. A more stringent control should be exerted on transport and commerce of exotic biota, to avoid the unintentional introduction of species that are potentially aggressive for the local fauna.* H. duryi *may become another agent of degradation for the autochthonous freshwater biodiversity.*

RESUMEN

Riesgo de introducción de especies exóticas: *Helisoma duryi* (Wetherby, 1879) (Gastropoda: Planorbidae) en Argentina.

Helisoma duryi (Wetherby, 1879), especie de América del Norte, fue introducida en América del Sur por acuaristas. En 1995, los primeros especímenes de *H. duryi* se registran en el Museo de La Plata provenientes de un establecimiento comercial de flora y fauna acuáticas de Mar del Plata, Argentina. Sería importante ejercer un mayor control en el transporte y comercialización de flora y fauna exóticas, a los efectos de prevenir la introducción involuntaria de especies potencialmente agresivas para la fauna local. *H. duryi* podría transformarse en otro agente de degradación de la biodiversidad autóctona.

Genus Helisoma *Swainson, 1840 extends from North America to the Neotropical Region, including the Antilles. Throughout North America, Middle America and South America (from Venezuela to Southwestern Peru) (World Health Organization, 1968). The type locality* Helisoma duryi *(Wetherby, 1879) is in the Everglades in Florida, USA. In South America it was found under natural conditions to the East of the Andes in Peru, Ecuador and Colombia. In 1972, this species was found for the first time in South America at the Lagoa da Pedra, Santa Rosa District, Goiás, Brazil, where it was introduced by aquarists (Paraense, 1976).*

Comparative studies on fecundity (in the laboratory and in the field), between H. duryi *and the natural hosts of schistosomiasis in South America, i. e.,* Biomphalaria glabrata *(Say, 1818),* B. straminea *(Dunker, 1848) and* B. tenagophila *(d'Orbigny, 1835), showed that* H. duryi *has a higher reproductive potential than others. Therefore, it was employed as a biological control agent of biomphalarias (Milward-de-Andrade, 1978; Milward-de-Andrade* et al., *1978). The control experiences were performed in relatively small and closed habitats and are not easily extrapolable to the macrofluvial complex of Del Plata Basin, which is the probable way of expansion of schistosomiasis to Argentina. On the other hand, Abdallah & Nasr (1973) observed experimentally that* H. duryi *can segregate a development inhibitory substance (eggs and young) of* Bulinus truncatus *(Audouin, 1827) and* Biomphalaria alexandrina *(Ehrenberg, 1831). The eventual spread of such an aggressive species as* H. duryi *in the Argentinian natural environments might cause the displacement of native freshwater snails, including* Biomphalaria spp.

In 1995, seven specimens of Helisoma duryi arrived *at the La Plata Museum (Collection number: MLP 5650) for identification. They came from water plants of an aquaculture shop at Mar del Plata City, Buenos Aires Province. They were relaxed in 10% Nembutal and sacrificed in water at 70°C. The soft parts were fixed in Raillet-Henry solution. The genital complex was*

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studied under a stereoscopic microscope.
The shell of Helisoma duryi is planispiral with a diameter larger than 18 mm; 8.5 mm in widthtaken in the aperture and 5.5 mm high on the beginning of the external whorl. Five rounded whorlson the right side, with a tendency to stress the convexity in the internal whorls and a certain degree of flattening in the external one. Concave right side, a little excavated left side, tending to flattening. Well marked sutures on both sides. Cordiform to deltoid aperture. The male complex and the prostata of Helisoma *is very different from another genus present in Argentina:* Biomphalaria *Preston, 1910;* Drepanotrema *Fischer & Crosse, 1880;* Acrorbis *Odhner, 1937 and Antillorbis Harry & Hubendick, 1964.* Helisoma duryi *showed a few (about 4-8) prostatic diverticula branch repeatedly, so that each of them looks like a compact arborescent cluster of intermingling tubules. The penis sheath is pear-shaped, externally it is marked off from the prepuce by a constriction; internally, the two organs show a well developed diaphragm. The preputial organ hangs from the inner wall of the prepuce, to which it is attached by a short stalk. It accommodates to the preputial cavity much like a closed boxing glove. It has a duct which originates in the depression near the distal end of the sole, runs to the stalk and pierces the wall of the prepuce; it perforates the wall of the penis sheath just above the*

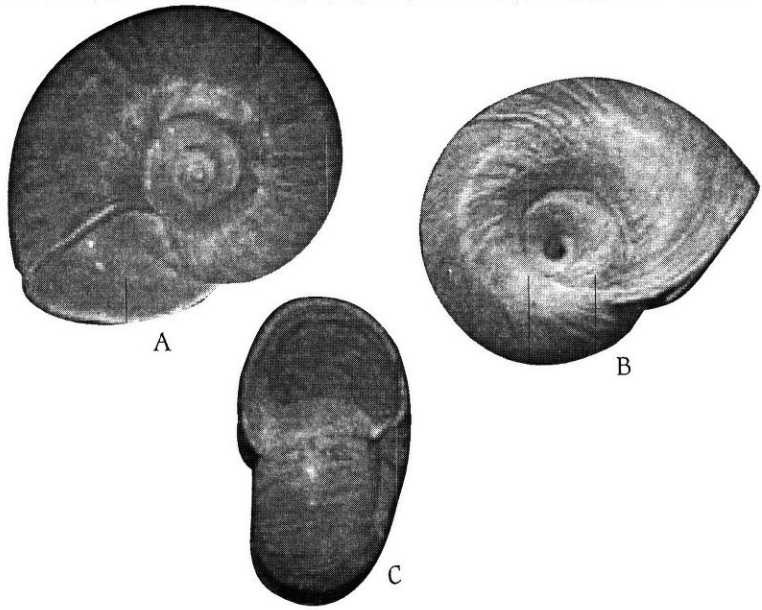

Figure 1

Shell of Helisoma duryi *(larger diameter 11.05 mm): A: Left view. B: Right view. C: Ventral view.*

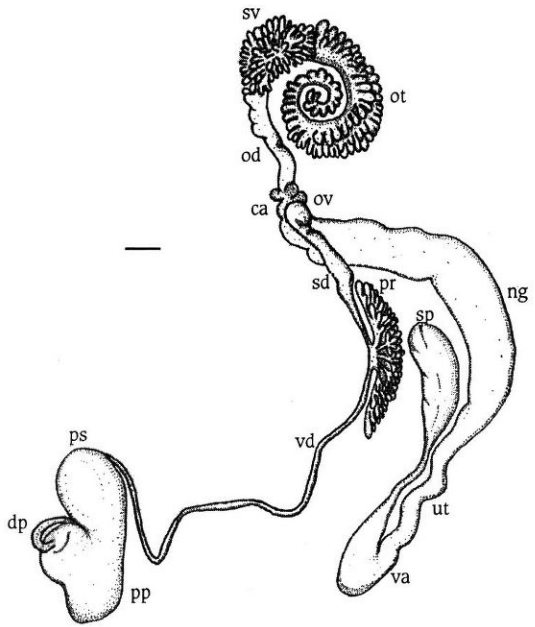

Figure 2

Reproductive system of Helisoma duryi. *ca: carrefour: dp: duct of preputial organ; ng: nidamental gland; od: ovispermiduct; ot: ovotestis; ov: oviduct; pp: prepuce; pr: prostate; ps: penis sheath; sd: spermiduct; sp: spermatheca; sv: seminal vesicle; ut: uterus; va: vagina; vd: vas deferens; Bar: 1 mm.*

diaphragm and opens into the sheath lumen. The penis is cone-shaped and shows at its point a small papilla provided with a very minute stylet. The sperm canal opens laterally (Paraense, op. cit.). The collected materials fits, in its shell and genital complex characteristics, the description given by Paraense (1975, 1976) (Figs. 1 and 2). They presented the following shell dimensions: $\bar{x}$= 11.1 mm in larger diameter (± SD 1.09 mm), with a range of 9.5-12.5 mm; $\bar{x}$= 9.03 mm in smaller diameter (± SD 1.35 mm), with a range of 7-10.4 mm; $\bar{x}$= 6.33 mm high at the aperture (± SD 0.7 mm), with a range of 5.35-7 mm).

Taking into account the risks derived from unintentional introductions of alien species, we advocated more stringent control measures on transport and trade of exotic flora and fauna. Helisoma duryi *is an aggressive invader that may become harmful for the local freshwater fauna, contributing to the degradation of the autochthonous biodiversity.*

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