

## Review

# Dangerous Brazilian environmental controversy involving exotic and native land snails

A. Ignacio Agudo-Padrón

Project "Avulsos Malacológicos", Caixa Postal, P.O. Box 010, 88010-970, Centro, Florianópolis, Santa Catarina, SC, Brasil. E-mail: [ignacioagudo@gmail.com](mailto:ignacioagudo@gmail.com).

Accepted 8 November, 2012

**A diagnostic about the conservation status of the Brazilian native land snails, severely threatened by human actions and attempts for the eradication of the invasive exotic mollusc species *Achatina (Lissachatina) fulica* (Bowdich, 1822) is presented. Purposely introduced in the country in 1988 for human food purposes (continental malacoculture), this species ended up being officially banned later in 2003, triggering hasty public actions, directly involving the "unprepared" Brazilian population through the means of social communication, aimed at their control and eradication of the environment. Consequence of this procedure, premature and alarmist, today many species of native and endemic terrestrial snails, poorly known scientifically, are under increased threat of extinction in Brazil and, very probably, in other South American countries.**

**Key words:** Exotic mollusc, eradication, native snails, conservation, Brazil.

## INTRODUCTION

A serious and worrying malacological conflict of conservation is present today in Brazil (and other South American countries): on behalf of public funding carried forward in an attempt to control and eradicate the vast Brazilian territory of exotic invasive African snails *Achatina (Lissachatina) fulica* (Bowdich, 1822), representative of the Family ACHATINIDAE Swainson, 1840, controversially together large and medium endemic native terrestrial snails, currently in evident situation of threatened extinction, are being indiscriminately decimated for the population as a result of public alarmist campaigns (Agudo-Padrón, 2011a: 42, 2012) (Plate 1). Even small arboreal native species poorly known are being interchanged, collected and destroyed in the last years (Aquino, 2011c) (Plate 2). This disastrous situation should be occurring, simultaneously, in other locations and countries of the continent.

## ANALYSIS OF THE CONTEMPLATED SITUATION

Based on the available technical literature (Simone, 2006), we have besides the most traditional families of South American giant and medium native and endemic gastropods, including the Families: MEGALOBULIMIDAE

Leme, 1973 genus *Megalobulimus* (Miller, 1878) (Plate 4) and STROPHOCHEILIDAE, (Thiele 1926 (genus *Strophocheilus* Spix, 1827, *Anthinus* (Albers, 1850), *Mirinaba* (Morretes, 1952) and *Speironepion* (Bequaert, 1948), involved at least 82 forms each. Besides, we have some native forest snails of the Family BULIMULIDAE Tryon, 1896 (Plate 2), mainly the Subfamily ORTHALICINAE (Albers, 1850), all native species which are just more similar, phenotypically, to the invasive exotic African snail (Aquino, 2011a, 2012) (Plate 3). These snails sum up to a total of approximately 21 forms taxonomically recognized in the territory of Brazil and South America. More snails not well known or studied and virtually all have been included in some degree of danger. These are classified and included in the genera *Orthalicus* (10 species), *Sultana* (2 species) and *Corona* (9 species).

Due to their appearance, eventually species of the genus *Thaumastus* (Albers, 1860) (16 species), forestal snails representatives of the Subfamily BULIMULINAE (Tryon, 1867; Simone, 2006; Colley, 2012), may become also endangered (Coelho, 2005).

Some other species of native snails, family BULIMULINAE, *Auris bilabiata* for example (Broderip and



**Plate 1.** Encouraged by public campaigns “badly conducted” , the population “unprepared” capture and destroys indiscriminately every snail that is on its way (upper). Following growth of the exotic *Achatina* (*Lissachatina*) *fulica* (Bowdich, 1822): as in size, native snail species can become easily confused with the ones in Plate 2. Source: Agudo-Padrón (2011).



**Plate 2.** Small native arboreal snails *Drymaeus papyraceus* (Maw e, 1823) (BULIMULIDAE). Source: Agudo-Padrón (2011).



**Plate 3.** Florestal native snails *Orthalicus* cf. *prototypus* Pilsbry, 1899 captured “simultaneously” with African snails in semi-rural areas in Northeastern Brazil. Source: Aquino (2011).



**Plate 4.** Native south american sandbanks megasnails *Megalobulimus elongatus* (Bequaert, 1948) and invasive African snails *Achatina (Lissachatina) fulica* (Bowdich, 1822) ... who is who for the laymen ? Source: Agudo-Padrón (2010).

Sowerby, 1829) reared for beauty and scarcely known scientifically are being destroyed in the frenzy created by collective panic (Aquino, 2011 b).

The “fatal” potential visual confusion caused by the invasive African snail with native endemic species (Plates 2, 3, 4) have been singled out by experts in the literature (Thiengo and Fernandez, 2005; Coelho, 2005; Colley and Fischer, 2009; Pimpão, 2010).

## DISCUSSION AND CONCLUSION

The conservation status of native continental molluscs and the parallel occurrence of invasive alien species in the southern region of the country have been subject of extensive discussions and questions in recent times (Agudo-Padrón, 2009, 2010, 2011 b-g; Agudo-Padrón and Lenhard, 2010).

Today, the exotic invasive *Achatina (Lissachatina) fulica* is present in all Brazilian territory (with exception of “Pampa” biome, in the southernmost), and the Atlantic Slope of the Southern Cone already settled in the neighboring country of Argentina (Gregoric et al., 2011), beyond the Paraguay and other South American territories (Borrero et al., 2009).

Observing the current situation in practice (referential notices and field experience), the public “badly conducted actions” for the control and eradication of *Achatina (Lissachatina) fulica* in Brazil, officially opened in 2003 with the “prohibition” of the species in the country – initially introduced in 1988 through the Paraná State, PR, Southern region (Globo, 1992, 1994; Teles and Fontes, 2000; Thiengo et al., 2007; Colley and Fischer, 2009), and a second time at the beginning of the 1990s, through the “Santos” Port in “Praia Grande”, São Paulo State, SP, Southeastern region (Armellini and Santana, without specific date) and consequent “premature release” into the environment of animals in livestock management regime (continental malacoculture or “escargot” farming) for fear of possible law sanctions, today these situation are becoming an important element much more

damaging to our suffered native and endemic terrestrial molluscs, itself occurring as wildlife amongst the giant African invasive snail, unconsciously accelerating the extinction process of the first, which must urgently be re-evaluated and re-oriented by the corresponding and/or responsible authorities.

## ACKNOWLEDGEMENT

Our sincere thanks goes to MD Veterinarian Maurício Carneiro Aquino, University Federal of Alagoas - UFAL, Maceió, Alagoas, Northeastern Brazil, for their timely regional informations and photographic materials.

## REFERENCES

- Agudo-Padrón AI (2009). Endangered continental mollusks of Santa Catarina State, Southern Brazil: an brief overview. FMCS Newsletter Ellipsaria, 11(2): 7-8.
- Agudo-Padrón AI (2010). The mollusc fauna of Santa Catarina State, Southern Brasil: knowledge gained from 13 years of research. IUCN/SSC Newsletter Tentacle, (18): 32-37.
- Agudo-Padrón AI (2011 a). Evaluative summary of the Santa Catarina's State mollusk fauna, Central Southern Brazil, after 15 years of research. FMCS Newsletter Ellipsaria, 13(4): 37-46.
- Agudo-Padrón AI (2011 b). Exotic molluscs in Santa Catarina's State, Southern Brazil region (Mollusca, Gastropoda et Bivalvia): check list and regional spatial distribution knowledge. Biodiversity J., 2(2): 53-58.
- Agudo-Padrón AI (2011 c). Threatened freshwater and terrestrial mollusks of Santa Catarina State, Southern Brazil (Mollusca, Gastropoda et Bivalvia): check list and evaluation of regional threats. Biodiversity J., 2(2): 59-66.
- Agudo-Padrón AI (2011 d). Mollusc fauna of Santa Catarina State, Central Southern Brasil: current state of knowledge. IUCN/SSC Newsletter Tentacle, (19): 22-24.

- Agudo-Padrón AI (2011 e). Mollusca and environmental conservation in Santa Catarina State (SC, Southern Brazil): current situation. *Biodiversity J.*, 2(1): 3-8.
- Agudo-Padrón AI (2011 f). The continental molluscs of Santa Catarina State, Central Southern Brasil: need for more population studies. *IUCN/SSC Newsletter Tentacle*, (19): 24-26.
- Agudo-Padrón AI (2011 g). Current knowledge on population studies on five continental molluscs (Mollusca, Gastropoda et Bivalvia) of Santa Catarina State (SC, Central Southern Brazil region). *Biodiversity J.*, 2(1): 9-12.
- Agudo-Padrón AI (2012). Conservation situation of native land snails threatened by "actions for eradication" of exotic species in Brazil, South America. *Biol. Evidence*, 2(1): 1-2.
- Agudo-Padrón AI, Lenhard P (2010). Introduced and invasive exotic molluscs in Brazil: an brief overview. *IUCN/SSC Newsletter Tentacle*, (18): 37-41.
- Aquino MC (2011 a). E agora IBAMA?. Informativo *AchatinafulicaNEWS*, (9): 8-11. <http://smtpilimitado.com/kennel/caracol9.pdf>
- Aquino MC (2011 b). A Imprensa: o maior inimigo da malacofauna mundial. Maceió, AL: Projeto Caracol Africano, 07/10/2011. <http://projetcaramujoafricano.blogspot.com.br/2011/10/imprensa-o-maior-inimigo-da-malacofauna.html>
- Aquino MC (2011 c). Mais um flagrante de ignorância e preconceito. Maceió, AL: Projeto Caracol Africano, 29/10/2011. <http://projetcaramujoafricano.blogspot.com.br/2011/10/mais-um-fragrante-de-ignorancia-e.html>
- Aquino MC (2012). Um exemplo flagrante de desserviço da Rede Globo em Sergipe contra a malacofauna nativa: e aí IBAMA???. Maceió, AL: Projeto Caracol Africano, 17/10/2012. <http://projetcaramujoafricano.blogspot.com.br/2012/10/sergipe-problema-serio-com-globo.html>
- Armellini FAB, de Santana E (without specific date). Prazer na mesa e lucro no bolso - sua excelência o Escargot. *Helicicultura Kapiatan*, São Paulo, p.144
- Borrero FJ, Breure ASH, Christensen MC, Ávila VM (2009). Into the Andes: three new introductions of *Lissachatina fulica* (Gastropoda, Achatinidae) and its potential distribution in South America. *IUCN/SSC Newsletter Tentacle*, (17): pp. 6-8.
- Coelho LM (2005). Informe técnico para o controle do caramujo africano (*Achatina fulica*, Bowdch 1822 em Goiás. AGENCIARURAL, Goiânia, 12 pp.
- Colley E (2012). Nova espécie de *Thaumastus* da Floresta Atlântica do Paraná, Brasil (Mollusca, Gastropoda, Pulmonata, Bulimuloidea). *Iheringia, Sér. Zoologia*, 102(1): 43-47.
- Colley E, Fischer ML (2009). Avaliação dos problemas enfrentados no manejo do caramujo gigante africano *Achatina fulica* (Gastropoda: Pulmonata) no Brasil. *Zoologia*, 26(4): 674-683.
- Globo (1992). Escargot - Caracol Tropical. *Globo Rural*, 7(75): 31-32.
- Globo (1994). Escargot - mais que um simples caracol. *Globo Rural*, 10(101 – Especial): 24-34.
- Gregoric, DEG Núñez, V Vogler, R Rumi, A (2011). Invasion of the argentinean paranense rainforest by the gian african snail *Achatina fulica*. *Am. Malacolog. Bull.*, 29(1-2): 135-137.
- Pimpão DM (2010). Caramujo-africano no Amazonas: "*Megalobulimus fulica*" ou "*Pomacea fulica*". *Informativo SBMa*, 41(172): 13-14.
- Simone LRL (2006). Land and freshwater molluscs of Brazil. FAPESP, São Paulo, 390 pp.
- Teles HMS, Fontes LR (2000). Implicações da introdução e dispersão de *Achatina fulica* Bowdich, 1822 no Brasil. *Bol. Inst. Adolfo Lutz*, 12(1): 3-5.
- Thiengo SC, Faraco FA, Salgado NC, Cowie RH Fernandez MA (2007). Rapid spread of an invasive snail in South America: the giant African snail, *Achatina fulica*, in Brazil. *Biol. Invasions*, 9(6): 693-702.
- Thiengo SC, Fernández MA (2005). *Achatina fulica* in Brazil: the current situation. *IUCN/SSC Newsletter Tentacle*, (13): 7.