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Effective Knowledge and Conservation of Continental Molluscs in Brazil, South America, With Special Emphasis in Land Gastropods: The Current Situation

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Currently, around 700 species of terrestrial gastropod molluscs are known to continental geographic territories of the Brazilian country and South America together [1]. Of these, only "twelve native terrestrial species" (Figure 1 and Table 1) are officially listed in the List and Red Book of Brazilian Fauna Threatened with Extinction [2], as well as resulting in "Reflections Legislatures, State Red Books and Thematic Maps" parallel generated [3-5], all belonging to the subclass Pulmonata and order Stylommatophora, included in the families Bulimulidae (3 species), Megalobulimidae (5 species), Streptaxidae (1 species) and Strophocheilidae (3 species).

These register forms for their turn (more ... not all, "contradictorily"), are properly related to the Endangered Species of the "International Union for Conservation of Nature – IUCN" [6]. Obviously, in practice, said numbers resulting are critically weak and highly undervalued.

Today there is general consensus among those who work with the group of continental gastropods in particular that "... all species of molluscs native trees are in serious threat of extinction ... including species that do not come to know ..."[7].

The reasons why these tiny "twelve species" (Table 1) are already part of the list, the Red Book and Mapping commented before are "very well co-nised" all of us:

... the destruction and alteration of natural environments, mainly caused by deforestation and the spread of agricultural plantations,

Figure 1: *Megalobulimus grandis* (Martins, 1885) specimen from Santa Catarina State/ SC, one of the twelve neotropical species of land snail threatened in Brazil [18].

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Table 1: Terrestrial Gastropod Molluscs Officially Listed in the List and Red Book of Brazilian Fauna Threatened with Extinction Systematic based in SIMONE (2006) [25].

Family	Species	Threat Status
BULIMULIDAE	*Biotocus turbinatus*	EX (IUCN) – VU (Brazil)
	Digerus gibberulus	EX (IUCN) – VU (Brazil)
	Drymaeus henselii *	? (IUCN) – VU (Brazil)
MEGALOBULIMIDAE	*Megalobulimus cardosoi*	EX (IUCN) – EN (Brazil)
	Megalobulimus grandis(fig. 1)	CR (IUCN) – EN (Brazil)
	Megalobulimus lopesi	EN (IUCN) – EN (Brazil)
	Megalobulimus parafragilior	EN (IUCN) – EN (Brazil)
	Megalobulimus proclivis	CR (IUCN) – EN (Brazil)
STREPTAXIDAE	*Rectartemon depressus*	? (IUCN) – VU (Brazil)
STROPHOCHEILIDAE	*Gonyostomus gonyostomus*	CR (IUCN) – ? (Brazil)
	Gonyostomus insularis	VU (IUCN) – EN (Brazil)
	Mirinaba curytibana	CR (IUCN) – EN (Brazil)

EX = Extinct VU = Vulnerable EN = In Danger CR = Critically Endangered

* This species, *Drymaeus henselii* (Martens, 1868) by SIMONE (2006: 138-Fig. 455 – BULIMULIDAE), can be found in the literature under the following synonyms: *Anthinus henselii* (Martens, 1868) (– STROPHOCHEILIDAE); *Bulimulus henselii* Martens, 1868 (– BULIMULIDAE); *Drymaeus henseli* (Martens, 1868) (– BULIMULIDAE); *Gonyostomus henseli* (Martens, 1868) by Brazilian Red Data Book and List (– STROPHOCHELIDAE); *Gonyostomus* (*Anthinus*) *henseli* (Martens, 1868) (– STROPHOCHELIDAE) ...

growing parallel involving indiscriminate use of agro-chemicals, added to all this perceived lack of studies that point effectively to the knowledge of the size of their remaining populations in nature.

It is worth mentioning also the factor of the introduction of exotic species for commercial purposes, such as *Achatina* (*Lissachatina*) *fulica* Bowdich, 1822 [8], terrestrial gastropod native of Africa that ended in spreading wildlife throughout the vast Brazilian territory... and beyond [8-10].

It is believed firmly that today the introduction of exotic forms is one of the most serious threats that our malacofauna faces as much as the rampant anthropogenic degradation/ distortion of natural environments previously commented. However, and the root of public hasty attempts "misguided" aimed at eradication and control of this specific alien species in particular of the nature, came with large and growing force (... since at least the year 2003 !) plus another "unexpected and serious threat" to our already suffering and vulnerable fauna native and endemic molluscs:

... their destruction at the hands of unconscious people, terrified by terrorists truly public campaigns conducted through the news media that link "indiscriminately" without any criteria or balancing of reasonable technical basis in practice, any "snail" that appears ahead, as a "dangerous enemy to be quickly banished/ destroyed" [11,12].

The modest referential [13-25] focuses particularly situation experienced in the southern region of Brazil, States of Santa Catarina/ SC and Rio Grande do Sul/ RS, largely reflects the general situation ventilated for the Brazilian territory in general, that it

needs immediate urgent attention and intervention "necessary public clarification" in practice by the relevant authorities seeking joint solutions truly effective, viable and weighed that can solve the "catastrophic environmental conflict now underway".

Conclusively, on the global scale of priorities as to the question "conservation", limnic/ freshwater mollusks immediately represent the most significant threat to the natural environment, the root of many human actions that are being generated recklessly to the detriment of their restricted and fragile habitats, soon followed closely by land/ terrestrial species and, in last place, the marine forms; ... but, contradictorily in practice, as a general rule of technical evaluation exercise, whenever the item "conservation status of molluscs in Brazil" is approached, traditionally - or rather "almost invariably" - the immediate center of attention is directed in the first instance to marine species, followed soon after by continental limnic/ freshwater forms, leaving only the last place in the ranking of interest to suffered representatives occurring in terrestrial spaces, a situation that invariably explained/ justified immediately by the "epidemic lack of incentives aimed at researchers and study of this group" [1], as well as the consequent lack of required "minimum ecological data and population", so whichever sensitive and worrying lack today clearly reflected, for example, through catalogs, books and red lists of threatened fauna available nationally and abroad.

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