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**RECENT TERRESTRIAL AND FRESHWATER MOLLUSCS OF
RIO GRANDE DO SUL STATE, RS, SOUTHERN BRAZIL REGION:
A COMPREHENSIVE SYNTHESIS AND CHECK LIST**

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Recent Terrestrial and Freshwater Molluscs of Rio Grande do Sul State, RS, Southern Brazil Region: A Comprehensive Synthesis and Check List

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Located in the Brazilian Southernmost region, Rio Grande do Sul State is the largest geo-political portion of the South area of the country (Fig. 1), geographically integral close to the remaining States of the Brazilian Southern region, Santa Catarina - SC (Agudo-Padrón, 2008a; Agudo-Padrón & Bleicker, 2009: 10) and Paraná - PR (Agudo, 2008a) and the neighboring countries of Uruguay (Agudo, 2008b) and Argentina, of the denominated “Atlantic Slope of the Southern Cone of South America”, placed in the oriental face of the Andean Mountain range (Agudo-Padrón, 2008b, 2009e).

Occupying a total area of 282.062 km², and a large Atlantic sandy coast with more than 622 kilometers of extension, Rio Grande do Sul possesses a soft, super-humid subtropical, mesothermal climate, with hot summer. The annual medium temperature oscillates between 16 and 20°C. The average of the hottest month is between 22°C and 26°C and the average of the coldest month between 10 and 15°C. The annual pluviometric precipitation varies between 1000 and 1500 mm and the number of frosts a year varies from 1°, in “Torres” - emblem with coast Atlantic of Santa Catarina’s State - SC, to the North, until more than 15° in “Santa Vitória do Palmar”, in the close interior to the southern end of the State.

The Metropolitan area of Porto Alegre, also known like “Great Porto Alegre” (or Great POA), geographically located between the Central Depression and the portion of the intern and external Coastal Plains that outline the hydrographic delta of the Jacuí River, the “Guaíba Lake” and it leaves of

the “Patos Lagoon” (Menegat et al., 2006) (Fig. 2). It gathers 31 of the Municipal districts of RS, in intense process of urban occupation, a term that refers to the extension of the capital Porto Alegre, forming with its bordering Municipal districts a continuous urban stain, in a mixture of areas typically urban, agricultural rural spaces and representative several remainders of the original natural environment, now integrating 9.800,194 km².

On the continental molluscs species, Rio Grande do Sul State - RS is today the best studied throughout the Southern Brazil region. However, the opinion shared by local experts researchers is that “... it is difficult to estimate the number of species that occur, because still lots of information are missing about the regional (“gaúcha”) malacofauna.” (Mansur et al., 2003; Drügg-Hahn et al., 2007: 253). For freshwater bivalves, for example, there are citations of species in excess to the same locations, with analyses on data of the shell surface, generating conflicts and contradictions (Avelar, 1999: 66). We were able to verify, in the course of the preparation of this work, the complicated reality of this situation.

Since the year 2004, we developed a modest continental test inventory (a tentative schedule, with revisions of recent bibliography and field studies, monitoring in parallel form the excellent and constant work being performed by prominent researchers) of freshwater/limnic and terrestrial mollusk fauna present in this territory that makes border with the State of Santa Catarina, SC, (Fig. 1), including some one-off localities – for an overview, see Agudo-Padrón et al. (2009 a), with a total up to

now confirmed, included the elements of the present report and by discounting synonyms, of 201 species and subspecies (101 terrestrial – 18 slugs and 83 snails – and 100 limnic/freshwater – 45 mussels/clams and 55 gastropods), systematically included in 2 classes, 39 families – 34 GASTROPODA and 5 BIVALVIA – and 94 genera – 78 GASTROPODA and 16 BIVALVIA. Of these, at least 19 are invasive alien species (15 GASTROPODA – 6 slugs and 9 snails – and 4 BIVALVIA).

Once again, the classification was based on the contributions of Bouchet & Rocroi (2005) – *apud* Poppe & Tagaro (2006), Simone (2006, 2008),

Heydrich (2007), Thomé et al. (2006, 2007) and Machado et al. (2008), for the general gastropod species; Simone (2006) and Amaral et al. (2008), specifically for the freshwater bivalve forms.

The chronological results of this regional research are: Agudo-Padrón (2007, 2008a-c), Agudo-Padrón & Oliveria (2008a-b), Agudo-Padrón & Silveira (2008), Agudo-Padrón et al. (2009a-b), and Agudo-Padrón (2009a-e).



Figure 1. Rio Grande do Sul State, RS, territory (left & bottom), in the geographical context of Brazil and the Atlantic Slope of the Southern Cone of South America (right).

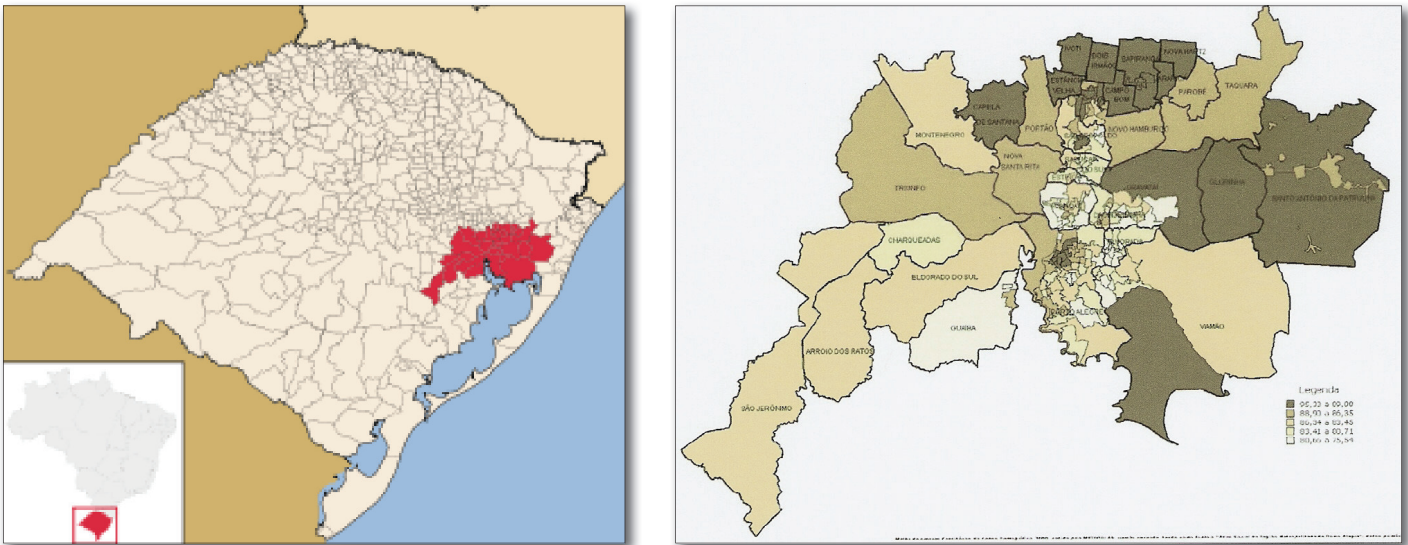


Figure 2. The “Great Porto Alegre” territory (right), in the geographical context of Rio Grande do Sul State, RS (left).

SYSTEMATIC SPECIES LIST

Class GASTROPODA

Subclass PROSOBRANCHIA / CAENOGASTROPODA

Family HELICINIDAE

- *Helicina* species
- *Oxyrhombus densestriatus* H. Wagner, 1910

Family AMPULLARIIDAE

- *Asolene platae* (Maton, 1809)
- *Asolene commissionis* (Ihering, 1898)
- *Asolene spixi* d’Orbigny, 1838
- *Pomacea canaliculata* (Lamarck, 1819)
- *Pomacea pulchra* Gray, 1834
- *Pomella americanista* (Ihering, 1919)
- *Pomella megastoma* (Sowerby I, 1825)
- *Felipponea elongata* (Dall, 1921)
- *Felipponea iheringi* (Pilsbry, 1933)
- *Felipponea neritiformis* Dall, 1919
- *Marisa cornuarietis* (Linnaeus, 1758)

Family PLEUROCERIDAE

- *Doryssa schuppi* (Ihering, 1902)

Family HYDROBIIDAE

- *Potamolithus catharinae* Pilsbry, 1911

- *Potamolithus jacuhyensis* Pilsbry, 1899
- *Potamolithus orbigny* Pilsbry, 1896
- *Potamolithus philippianus* Pilsbry, 1911
- *Potamolithus ribeirensis* Pilsbry, 1911
- *Heleobia robusta* Silva & Veitenheimer-Mendes, 2004
- *Littoridina australis* (d’Orbigny, 1835)
- *Littoridina bertoniana* Pilsbry, 1911
- *Littoridina charruana* d’Orbigny, 1843
- *Littoridina cuzcoensis* (Pilsbry, 1911)
- *Littoridina davisii* (Silva & Thomé, 1985)
- *Littoridina nana* Marcus & Marcus, 1963
- *Littoridina parchappei* (d’Orbigny, 1835)
- *Littoridina piscium* (d’Orbigny, 1835)

Subclass GYMNOPHILA

Family VERONICELLIDAE

- *Belocaulis angustipes* (Heynemann, 1885)
- *Belocaulis willibaldoi* Ohlweiler, Mota & Gomes, 2009 (Fig. 3)
- *Phyllocaulis renschi* Thomé, 1965
- *Phyllocaulis soleiformis* (d’Orbigny, 1835) (Fig. 4)
- *Phyllocaulis tuberculatus* (E. von Martens, 1868) (Fig. 5)
- *Phyllocaulis variegatus* (Semper, 1885)
- *Sarasinula dubia* (Semper, 1885)

- *Sarasinula linguaeformis* (Semper, 1885)
- *Sarasinula marginata* (Semper, 1885)
Thomé, 1973
- *Sarasinula plebeia* (P. Fischer, 1868)
Thomé, 1971

Subclass PULMONATA

Family ANCYLIDAE

- *Anisancylus obliquus* (Broderip & Sowerby II, 1832)
- *Burnupia ingae* Lanzer, 1991
- *Ferrisia gentilis* Lanzer, 1991
- *Gundlachia ticaga* (Marcus & Marcus, 1962)



Figure 3. Native slugs *Belocaulus willibaldoi* Ohlweiler, Mota & Gomes, 2009 of the State (Photos: Paulo Lenhard / Agudo-Pradrón).



Figure 4. Native common garden slugs *Phyllocaulis soleniformis* (d'Orbigny, 1835) of the State (Photos: Paulo Lenhard / Agudo-Pradrón).



Figure 5. Rare giant native slug *Phyllocaulis tuberculatus* (E. von Martens, 1868) of the State (Photo: Gerson Kittler da Costa / Paulo Lenhard / Agudo-Padrón).

- *Hebetancylus* (= *Gundlachia*) *moriciandi* (d'Orbigny, 1837)
- *Laevapex* species
- *Uncancylus* (= *Gundlachia*) *concentricus* (d'Orbigny, 1835)

Family CHILINIDAE

- *Chilina fluminea* (d'Orbigny, 1835)
- *Chilina globosa* Frauenfeld, 1881
- *Chilina parva* E. von Martens, 1868
- *Chilina rushii* Pilsbry, 1896

Family PHYSIDAE

- *Aplexa* (*Stenophysa*) *marmorata* (Guilding, 1828)
- *Physa acuta* (= *cubensis*) Draparnaud, 1805

Family LYMNAEIDAE

- *Lymnaea* (= *Pseudosuccinea*) *columella* Say, 1817
- *Lymnaea viatrix* (d'Orbigny, 1835)

Family PLANORBIDAE

- *Antillorbis nordestensis* (Lucena, 1954)

- *Biomphalaria glabrata* (Say, 1818)
- *Biomphalaria oligoza* Paraense, 1975
- *Biomphalaria peregrina* (d'Orbigny, 1835)
- *Biomphalaria tenagophila tenagophila* (d'Orbigny, 1835)
- *Biomphalaria tenagophila guaibensis* Paraense, 1984
- *Biomphalaria straminea* (Dunker, 1848)
- *Drepanotrema anatinum* (d'Orbigny, 1935)
- *Drepanotrema cimex* (Moricand, 1839)
- *Drepanotrema depressissimus* (Moricand, 1839)
- *Drepanotrema heloicum* (d'Orbigny, 1835)
- *Drepanotrema kermatoides* (d'Orbigny, 1835)
- *Drepanotrema lucidum* (L. Pfeiffer, 1839)
- *Drepanotrema pfeifferi* (Strobel, 1874)

Family SUCCINEIDAE

- *Omalonyx brasiliensis* (Simroth, 1896)
- *Omalonyx convexus* (Heynemann, 1868)
- *Succinea burmeisteri* Döring
- *Succinea meridionalis* d'Orbigny, 1837



Figure 6. Exotic invasive slugs *Milax valentianus* J. Férussac, 1821 (left) and *Milax* cf. *gagates* (Draparnaud, 1801) (right) of the State (Photos: Paulo Lenhard / Agudo-Padrón).

Family **ACHATINIDAE**

- *Achatina (Lissachatina) fulica*
(Bowdich, 1822)

Family **MILACIDAE** (Fig. 6)

- *Milax* cf. *gagates* (Draparnaud, 1801)
- *Milax valentianus* J. Férussac, 1821

Family **LIMACIDAE**

- *Limacus* (= *Limax*) *flavus* (Linnaeus, 1758)
- *Limax maximus* Linnaeus, 1758 (Fig. 7)

Family **AGRIOLIMACIDAE**

- *Deroceras laeve* (O. F. Müller, 1774)

Family **PHILOMICIDAE**

- *Pallifera* species

Family **BULIMULIDAE**

- *Bulimulus angustus* Weyrauch, 1966
- *Bulimulus dukinfieldi* Melvill, 1900
- *Bulimulus tenuissimus* (d'Orbigny, 1835)
- *Bulimulus sporadicus* (d'Orbigny, 1835)
- *Drymaeus henselii* (E. von Martens, 1868)
- *Drymaeus interpunctus*
(E. von Martens, 1866)
- *Drymaeus muelleggeri* Jaekel, 1927
- *Drymaeus oreades* (d'Orbigny, 1835)
- *Drymaeus papyraceus* (Mawe, 1823)
- *Drymaeus papyrifactus* Pilsbry, 1898
- *Eudioptus citrinovitreus* (Moricand, 1836)



Figure 7. Exotic invasive slugs *Limax maximus* Linnaeus, 1758 of the State (Photo: Paulo Lenhard / Agudo-Padrón).

- *Mesembrinus interpunctus*
(E. von Martens, 1887)
- *Rhinus felipponei* (Ihering, 1928)
- *Rhinus koseritzi* (Clessin, 1888)
- *Rhinus thomei* (Weyrauch, 1967)

Family AMPHIBULIMIDAE

- *Simpulopsis decussata* L. Pfeiffer, 1856
- *Simpulopsis gomesae* Silva & Thomé, 2006
- *Simpulopsis ovata* Sowerby I, 1822
- *Simpulopsis promatensis* Silva & Thomé, 2006
- *Simpulopsis sulculosa* (J. Férussac, 1821)

Family MEGALOBULIMIDAE

- *Megalobulimus abbreviatus*
(Bequaert, 1948) (Fig. 8)
- *Megalobulimus globosus*
(E. von Martens, 1876)
- *Megalobulimus gummatus* (Hidalgo, 1870)
- *Megalobulimus musculus* Bequaert, 1948
- *Megalobulimus proclives*
(E. von Martens, 1888)
- *Megalobulimus oblongus* O. F. Müller, 1775

Family STROPHOCHEILIDAE

- *Anthinus albolabiatus* (Jaekel, 1927)
- *Gonyostomus henselii*
(E. von Martens, 1868)
- *Mirinaba erythrosoma* (Pilsbry, 1895)
- *Mirinaba fusoides* (Bequaert, 1948)

Family ODONTOSTOMIDAE

- *Cyclodontina catharinae* (L. Pfeiffer, 1856)
- *Cyclodontina tudiculata*
(E. von Martens, 1868)
- *Macrodontes koenigwaldi* (Thiele, 1906)
- *Macrodontes simplex* (Thiele, 1906)

Family SUBULINIDAE

- *Discus alternatus* (Say, 1816)
- *Lamellaxis gracilis* (Hutton, 1834)
- *Obeliscus obeliscus* (Moriciand, 1833)
- *Rumina decollata* (Linnaeus, 1758)
- *Subulina octona* (Bruguière, 1792)



Figure 8. Native giant snail *Megalobulimus abbreviatus* (Bequaert, 1848) of the State (Photo: Eduardo Schmidt / Agudo-Padrón).



Figure 9. Native micro-snails *Prohappia besckei* (Dunker, 1847) of the State (Photos: Paulo Lenhard / Agudo-Padrón).

Family SYSTROPHIIDAE

- *Drepanostomella* species
- *Happia ammoniformis* (d'Orbigny, 1835)
- *Happia iheringi* (Clessin, 1888)
- *Happiella grata* (Thiele, 1927)
- *Prohappia besckei* (Dunker, 1847) (Fig. 9)
- *Tamayoa banghaasi* (Thiele, 1927)
- *Wayampia* species

Family CHAROPIDAE

- *Radioconus pilsbryi* (Hylton-Scott, 1957)
- *Radiodiscus bolachaensis* Fonseca & Thomé, 1994
- *Radiodiscus costellifer* Scott, 1957
- *Radiodiscus cuprinus* Fonseca & Thomé, 2000
- *Radiodiscus promatensis* Miquel, Ramírez & Thomé, 2004
- *Radiodiscus reticulatus* Fonseca & Thomé, 1994
- *Radiodiscus tenellus* Hylton-Scott, 1957
- *Radiodiscus thomei* Weyrauch, 1965
- *Retidiscus reticulatus* Fonseca & Thomé, 1995
- *Rotadiscus amancaezensis* (Hidalgo, 1869)
- *Rotadiscus schuppi schuppi* (Suter, 1900)
- *Stephanoda iheringi* Ancey, 1899
- *Stephanoda patagonica* (Suter, 1900)
- *Zilchogyra gordurasensis* (Thiele, 1927)
- *Zilchogyra zulmae* Miquel, Ramírez & Thomé, 2004

Family PUNCTIDAE

- *Paralaoma servilis* (Shuttleworth, 1852) (Fig. 10)
- *Punctum pilsbryi* (Hylton-Scott, 1957)

Family CHONDRINIDAE

- *Gastrocopta iheringi* (Suter, 1900)
- *Gastrocopta servilis oblonga* (L. Pfeiffer, 1853)

Family PYRAMIDULIDAE

- *Pyramidula compacta* Suter, 1900



Figure 10. Exotic invasive micro-snails *Paralaoma servilis* (Shuttleworth, 1852) of the State (Photo: Paulo Lenhard / Agudo-Padrón).



Figure 11. Exotic invasive garden snails *Helix (Cornu) aspersa* O. F. Müller, 1774 of the State (Photos: Paulo Lenhard / Agudo-Padrón).



Figure 12. Exotic invasive little snails *Bradybaena similaris* (J. Férussac, 1821) of the State (Photos: Paulo Lenhard / Agudo-Padrón).

Family **HELMINTHOGLYPTIDAE**

- *Epiphragmophora semiclausa*
(E. von Martens, 1868)

Family **HELICIDAE**

- *Helix (Cornu) aspersa* O. F. Müller, 1774
(Fig. 11)

Family **BRADYBAENIDAE**

- *Bradybaena similaris* (J. Férussac, 1821)
(Fig. 12)

Family **ZONITIDAE**

- *Zonitoides arboreus* (Say, 1816)

Family **STREPTAXIDAE**

- *Martinella prisca* Thiele, 1927
- *Rectartemon depressus* (Heynemann, 1868)

Family **EUCONULIDAE**

- *Euconulus fulvus* (O. F. Müller, 1774)
- *Guppya* species
- *Habraconus angueinus* (Ancy, 1892)
- *Habroconus (Pseudoguppya) semenlini*
(Moricand, 1845)

Family **VALONIIDAE**

- *Pupisoma discoricola* (H. Adams, 1845)
- *Pupisoma minus* Pilsbry, 1920

Class **BIVALVIA**Order **UNIONOIDA**Family **HYRIIDAE**

- *Castalia inflata* d'Orbigny, 1835
- *Castalia martensi* (Ihering, 1891)
- *Castalia psammoica* (d'Orbigny, 1835)
- *Diplodon delodontus* (Lamarck, 1819)
- *Diplodon ellipticus* (Wagner in Spix, 1827)
- *Diplodon expansus* (Küster, 1856)
- *Diplodon multistriatus* (Lea, 1834)
- *Diplodon rhuacoicus* (d'Orbigny, 1835)
- *Diplodon parallelipipedon* (Lea, 1834)
- *Diplodon uruguayensis* (Lea, 1840)
- *Rhipidodonta charruana* (d'Orbigny, 1835)
- *Rhipidodonta grata* (Lea, 1866)

Family **MYCETOPODIDAE**

- *Anodontites clessini* (P. Fischer, 1890)
- *Anodontites elongatus* (Swainson, 1823)
- *Anodontites ferrarisi* (d'Orbigny, 1835)
- *Anodontites obtusus* (Spix, 1927)
- *Anodontites patagonicus* (Lamarck, 1819)
- *Anodontites tenebricosus* (Lea, 1834)
- *Anodontites trapesialis* (Lamarck, 1819)
- *Anodontites trapezeus* (Spix, 1827)
- *Anodontites trigonus* (Spix, 1827)
- *Fossula fossiculifera* (d'Orbigny, 1835)
- *Lamproscapha ensiformis* (Spix, 1827)
- *Leila blainvilleana* (Lea, 1835)
- *Monocondylaea corrientesensis*
d'Orbigny, 1835
- *Monocondylaea minuana* d'Orbigny, 1835
- *Monocondylaea paraguayana*
d'Orbigny, 1835
- *Mycetopoda legumen*
(E. von Martens, 1888)
- *Mycetopoda siliquosa* (Spix, 1827)

Order **VENEROIDA**Family **CORBICULIDAE**

- *Cyanocyclus (= Neocorbicula) limosa*
(Maton, 1809)
- *Cyanocyclus obsoleta* (Deshayes, 1854)
- *Corbicula fluminea* (O. F. Müller, 1774)
- *Corbicula fluminalis* (O. F. Müller, 1774)
- *Corbicula largillierti* (Philippi, 1844)

Family **SPHAERIDAE**

- *Eupera elliptica* Ituarte & Dreher-
Mansur, 1993
- *Eupera klappenbachi* Mansur &
Veitenheimer, 1975
- *Musculium argentinum* (d'Orbigny, 1835)
- *Pisidium forense* Meier-Brook, 1967
- *Pisidium globulus* Clessin, 1888
- *Pisidium observationis* (Pilsbry, 1911)
- *Pisidium punctiferum* (Guppy, 1867)
- *Pisidium sterkianum* Pilsbry, 1897
- *Pisidium vile* Pilsbry, 1897
- *Sphaerium cambaraense* Mansur,
Meier-Brook & Ituarte, 2008

Order MYTILOIDA

Family MYTILIDAE

- *Limnoperna fortunei* (Dunker, 1857)

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