

Exotic molluscs in State of Paraíba, Northeast Brazil: a bibliographic survey

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Abstract. The control of alien species is the main challenge for the maintenance the integrity of biodiversity. We present a list of exotic mollusc species recorded in the literature from State of Paraíba (PB), Northeast Brazil, as of April 2014. The total number of species of exotic mollusc recorded is seven, two Bivalvia and five Gastropoda. The Class Bivalvia's species was represented by *Isognomon bicolor* (Adams, 1845) and *Corbicula fluminea* (Müller, 1774), and Class Gastropoda's species by *Achatina fulica* (Bowdich, 1822), *Melanoides tuberculata* (Müller, 1774), *Physella acuta* (Draparnaud, 1805), *Aplexa marmorata* (Guilding, 1828) and *Lymnaea columella* (Say, 1817).

Keywords: Alien species, exotic and invasive fauna, Mollusca.

Introduction

As well known and widely accepted, exotic species, also called non-indigenous, or invasive species, are species that have moved beyond their natural geographical range of habitat.

The impacts of introducing exotic species can be divided into two areas: ecological, and economic. These categories, however, are inter-dependent; an exotic species which has an ecological impact also has an economic one, and vice versa. Then, the control of the alien species is the main challenge for the maintenance the integrity of biodiversity.

This paper may be viewed as a sequel to Paz et al. (2013) in which we listed the invasive exotic fauna of the State of Paraíba.

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The presence of a total of seven (7) exotic introduced mollusks species was confirmed to State of Paraíba (PB), a small state within the Northeast Brazil region, as of April 2014.

Materials and Methods

For inclusion in this list, it was considered exotic invasive species of Mollusca that was introduced or settled in an ecosystem or natural or semi-natural habitat, and that is an agent of change or threat to wild biodiversity, either by their behavior attacker, or at risk of genetic contamination.

After defining the criteria for obtaining the sample, surveys were made to the following sources:

- Electronic databases shared on the Internet;
- Local electronic data banks, not shared;
- Regular electronic and print publications.

Various electronic sources that could provide information on exotic species were also consulted:

- www.periodicos.capes.gov.br
- www.portaldapesquisa.com.br
- lattes.cnpq.br
- www.isiknowledge.com
- www.sciencedirect.com

Other tools online search engine (like Google) were also used, primarily for access to pages laboratories, researchers and projects related to invasive alien species, using the following terms:

- Espécies exóticas AND Mollusca AND Paraíba (in Portuguese)
- Água de lastro AND Mollusca AND Paraíba (in Portuguese)
- Ballast water AND Mollusca AND Paraíba
- Exotic species AND Mollusca AND Paraíba
- Alien species AND Mollusca AND Paraíba
- Invasive species AND Mollusca AND Paraíba
- Introduced species AND Mollusca AND Paraíba
- Nova ocorrência AND Mollusca AND Paraíba
- Primeiro registro AND Mollusca AND Paraíba
- First record AND Mollusca AND taxon AND Paraíba
- New record AND Mollusca AND taxon AND Paraíba

Results

We have seven exotic molluscs species recorded in the literature from State of Paraíba (PB), Brazil, as of April 2014, three Bivalvia and five Gastropoda.

Classe BIVALVIA

Family Pteriidae Gray, 1847

Genus *Isognomon* Solander, 1786

Isognomon bicolor (Adams, 1845)

Baía da Traição Municipality; Cabedelo Municipality: Pier de Cabedelo; Conde Municipality: Jacarapé beach, Maceiozinho beach, Jacumã; Tabatinga beach, Coqueirinho beach, Carapibus beach, Tambaba beach; João Pessoa Municipality: Cabo Branco beach; Mataraca Municipality: Barra de Camaratuba; Pitimbu Municipality: Pedras de Galé; Rio Tinto Municipality: Mamanguape river estuary (Dias et al., 2013).

Family Corbiculidae Gray, 1847

Genus *Corbicula* Megerle von Mühlfeld, 1811

Corbicula fluminea (Müller, 1774)

State of Paraíba (Mansur et al. (2004); Triunfo Municipality (Instituto Hórus, 2009).

Class GASTROPODA

Family Achatinidae Swainson, 1840

Genus *Achatina* Lamarck, 1799

Achatina fulica (Bowdich, 1822)

João Pessoa Municipality; Cabedelo Municipality (Paz and Rego, 2006). Considered as one of 100 of the world's worst invasive alien species, by The Invasive Species Specialist Group (ISSG), a specialist group of the Species Survival Commission (SSC) of the World Conservation Union (IUCN).

Family Thiaridae Gill, 1871

Genus *Melanoides* Olivier, 1804

Melanoides tuberculata (Müller, 1774)

João Pessoa Municipality: Solon de Lucena Park's lagoon; Campina Grande Municipality: Bodocongó dam; Santa Luzia Municipality: Santa Luzia dam; São Mamede Municipality: São Mamede dam; Sousa Municipality: São Gonçalo dam (Paz et al., 1995). Campina Grande Municipality: Bodocongó dam (Abílio and Watanabe, 1998; Abílio et al., 2006); São João do

Cariri Municipality: Aveloz stream, Namorado dam; Taperoá Municipality: Taperoá II dam (Abílio et al., 2007).

Family Physidae Fitzinger, 1833

Genus *Physella* Haldeman, 1842

Physella acuta (Draparnaud, 1805)
State of Paraíba (Leão et al., 2011; Paz et al., 2013).

Genus *Aplexa* Fleming, 1820

Aplexa marmorata (Guilding, 1828)
Campina Grande Municipality: Bodocongó dam (Abílio and Watanabe, 1998); Taperoá Municipality: Panati lagoon (Abílio et al., 2007).

Family Lymnaeidae Rafinesque, 1815

Genus *Lymnaea* Lamarck, 1799

Lymnaea columella (Say, 1817)
Campina Grande Municipality, Bodocongó dam (Abílio and Watanabe, 1998; Abílio et al., 2006).

Discussion

The globalization of economies and trade have facilitated the spread of exotic species (Karatayev et al., 2007), including the species listed in this study.

According to Lowe et al. (2000), *Achatina fulica* (Bowdich, 1822) was considered as one of 100 of the world's worst invasive alien species, by The Invasive Species Specialist Group (ISSG), a specialist group of the Species Survival Commission (SSC) of the World Conservation Union (IUCN).

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