

# Mollusca, Bivalvia, Corbiculidae, *Corbicula fluminea* (Müller, 1774): First record for the Caatinga biome, northeastern Brazil

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**ABSTRACT:** *Corbicula fluminea* is native mollusk from China. In Brazil, this species was first recorded in Rio Grande do Sul state in the late 70's, being also recorded in the Amazonia basin between 1997 and 1998. The present note reports the occurrence of *C. fluminea* for the first time in the Caatinga biome and extends considerably the geographical distribution of this invading species in Brazil and consequently in South America.

The Asian mollusk *Corbicula fluminea* (Müller, 1774) is a fresh water bivalve belonging to Corbiculidae (Bivalvia), being native to Southern China (Avelar 1999; McMahon 1982). It is a species with fast population growth, early sexual maturity, and a short life cycle (Sousa *et al.* 2008). These characteristics provide an elevated potential of invasion, making it capable of colonizing habitats with varied hydric regimens and different physicochemical conditions (Sousa *et al.* 2008).

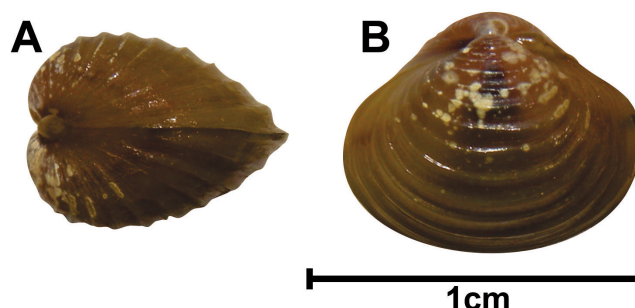
*Corbicula fluminea* was introduced in North America around 1920 to serve as food for the human population (Suriani *et al.* 2007). Its first record in South America occurred in the 1960 and 1970 decades in Río de La Plata waters (Argentina) (Darrigran 2002). In Brazil, this species was first recorded in the state of Rio Grande do Sul in the end of the 1970 decade (Veitenheimer-Mendes 1981; Mansur *et al.* 2004), being also recorded in the Amazonia basin between 1997 and 1998 (Beasley *et al.* 2003); probably introduced through ships that visited the Manaus and Belem ports (Pimpão and Martins 2008). *Corbicula fluminea* also was identified in the Southeast (Suriani *et al.* 2007; Vianna and Avelar 2010; Maroneze *et al.* 2011), Center-West (Callil and Mansur 2002; Rodrigues *et al.* 2007) and North region of the country (Pimpão and Martins 2008).

Its introduction in natural habitats provokes large disturbances to the biological communities, contributing for the reduction of diversity in continental aquatic ecosystems (Suriani *et al.* 2007); besides this ecological problem, it also generates economical impacts (Darrigran 2002; Mansur *et al.* 2004). One of the large problems involving this species is the obstruction of condenser tubes and water pipes in rivers, rivulets and dams used for provision. In these locations, the tubes and heat swappers in hydroelectric plants are frequently obstructed (macrofouling) because of the high densities reached by

these mollusks, thus reducing the efficiency of energy production (Hakenkamp and Margaret 1999; Aldridge and Muller 2001; Mansur *et al.* 2004).

The present study relates the occurrence of *C. fluminea* (Figure 1) in two localities influenced by the São Francisco River, in Caatinga area in northeast Brazil. The first record corresponds to the analysis of sediment samples from the stretch in the proximity of the Cajueiro Settlement (9°41'60"S and 37°39'48"W), locality within the perimeter of the State Unit of Conservation Natural Monument Grota do Angico (Figure 2), downstream from Xingó Hydroelectric on the São Francisco River, in Sergipe. Collecting permits were granted by SEMARH/SE with number 2011.04.0204/00127-026.

The specimens were collected through a cylindrical PVC sampler (core), with 883.5 cm<sup>3</sup>, in June, 2011. Six samples of sediment were randomly collected at a depth of approximately 2 m. In a laboratory, the sediment was taken in a strainer with 200 µm mesh, in which the material retained by the strainer was preserved in ethanol 70%. Later, the organisms were identified with the aid of specialized bibliography, based on Mansur (1970), Mansur *et al.* 1987 and Martins *et al.* 2004.



**FIGURE 1.** *Corbicula fluminea* (CMUnB 320). A – Rear View. B – External view. Photo by Daniel Oliveira Santana.

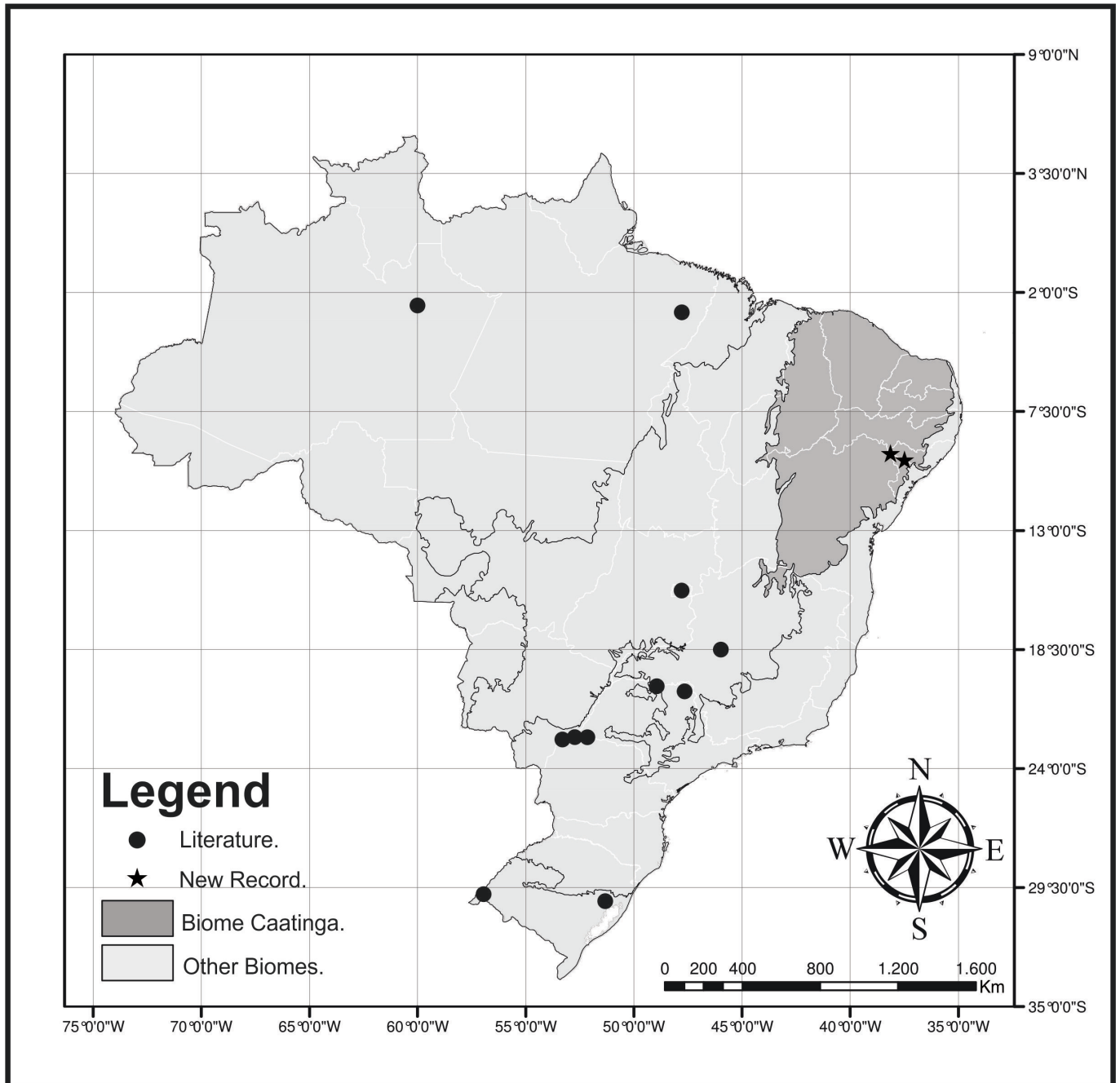


FIGURE 2. Geographic distribution of *Corbicula fluminea* in Brazil.

The second record corresponds to the collections realized in September, 2010 and February, 2011 at the margins of the dam of the Hydroelectric Complex Paulo Afonso, Bahia (9°26'00"S; 38°13'45"W and 9°25'45"S; 38°13'30"W) (Figure 2). The first point corresponds to the area of bank with scarce marginal vegetation and the presence of trash, while the second is flat, without vegetation, and utilized as an area of bathing by the local population. The samples were collected between 15 and 50 cm of depth, in a sandy sediment through trawl using a net in D (25 µm mesh) and a strainer. Whole specimens of the mollusks were identified in a laboratory. The specimens collected were deposited in the Coleção Malacológica da Universidade de Brasília (CMUnB 320 –29).

The occurrence of the bivalve *C. fluminea* is reported for

the first time in the Caatinga biome. It amplifies considerably the geographical distribution of this invading species to northeast region of the country in South America and in Brazil. Until the present moment, only *C. largillierii* had been registered in this region, in the state of Ceará (Mansur et al. 2004). The locations of records of *C. fluminea* here related present sandy substrates and are shallow, similar to those sampled by Zilli and Marchese (2011) in southeast Brazil.

Considering its occurrence in areas of environmental conservation, the presence of this exotic invading species represents a potential risk for the native biodiversity. Thus, this record not only amplifies the distribution, but also will be essential for future administrative decisions that may be implemented in order to protect habitats and local biodiversity.

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