

A new record for the American Bullfrog, *Lithobates catesbeianus* (Shaw, 1802) (Amphibia Anura Ranidae), near Rome (Latium, Italy)

Mauro Grano^{1*} & Cristina Cattaneo²

¹Via Valcenischia 24, 00141 Roma, Italy; e-mail: elaphe58@yahoo.it

²Via Eleonora d'Arborea 12, 00162 Roma, Italy; e-mail: cristina.cattaneo76@libero.it

*Corresponding author

ABSTRACT

The American Bullfrog, *Lithobates catesbeianus* (Shaw, 1802) (Amphibia Anura Ranidae) is native to North America. In Italy the introduction of this species dates back to the thirties of last century and in few years the bullfrog expanded to the point that, at the end of the eighties the species was known in more than 160 sites. In this paper, a new site of presence in Italy of the *L. catesbeianus* is recorded in some ponds at Monterotondo Scalo, a locality near Rome.

KEY WORDS

American bullfrog; *Lithobates catesbeianus*; invasive alien species; Latium; Rome.

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INTRODUCTION

Lithobates catesbeianus (Shaw, 1802) is an amphibian of family Ranidae, native to North America. It is a big frog because is able to exceed 30 cm in length and 1600 g of weight. A very large and obvious tympanic membrane is present in the temporal area.

In Europe its presence is confirmed, as well as for Italy, also for Belgium, France (Bordeaux), Germany (Baden-Wurttemberg), United Kingdom (Surrey), Greece, Holland (Breda) and Spain (Cáceres). In Italy the introduction of *L. catesbeianus* dates back to the thirties of the last century and seems to be related to food purposes. Indeed, it can be seen from the literature that the first where this amphibian was released was Mantova and, subsequently, it would spread in short time in other territories thanks to some peasants who would have used it for edible purposes (Albertini & Lanza, 1987).

In few years the bullfrog expanded to the point that, at the end of the eighties the species was known in more than 160 sites (Scali, 2010).

Currently the presence of bullfrog in Italy is less considerable, but reports remain for Lombardy (Bergamo, Brescia, Cremona and Pavia), Veneto (Verona and Rovigo), Piedmont (Asti and Torino), Emilia-Romagna (Bologna, Modena, Ferrara, Piacenza and Reggio Emilia), Tuscany (Firenze and Pistoia) and Latium (in the province of Rome: Maccarese, Torre in Pietra, Pomezia and Tor San Lorenzo). In the year 2000 it was assumed that the populations of Latium were extinct (Bagnoli, 2000), but a subsequent paper confirmed its presence at Maccarese (Pizzuti Piccoli & Cattaneo, 2008).

MATERIAL AND METHODS

The new site where the American Bullfrog was detected, is located on the Via Salaria in locality

Semblera, Monterotondo Scalo, about twenty kilometers from Rome. It is a wetland of ten acres that consists of four ponds adjacent to the left bank of Tevere river (Fig. 1).

Originally these were clay quarries used by a brick factory. At the end of the eighties these quarries were abandoned, filled with waste materials and subsequently with water. Initially, one of these small lakes were used for sport fishing. Later were no more used and this has allowed the rooting of luxuriant vegetation (Fig. 2).

The hydrobiotope arisen is of some interest not only for the existence of another species of amphibian, *Pelophylax klepton hispanicus* (Bonaparte, 1839), but also for the significant presence of avifauna that is stationed there.

RESULTS AND CONCLUSIONS

The sightings and detections of the croaking of *L. catesbeianus* were carried out in all of the four lakes. Geographic coordinates are the following: 42°03'52.91"N; 12°35'07.83"E.

It has not been possible to quantify numerically the presence of this frog (Figs. 3, 4), but it was assumed, through visual and auditory detections, that the population can be significant. The American Bullfrog is an alien species considered damaging for native amphibian populations, both for the large size it can reach, and for its voracity (Scali, 2010).

L. catesbeianus besides is also a vehicle for the spread of the dangerous fungus *Batrachochytrium dendrobatidis* (Hanselmann et al., 2004; Garner et



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Figure 1. The study area (by Google earth). Figure 2. The study area. Figure 3. *Lithobates catesbeianus* from Monterotondo Scalo (courtesy by Alessandro Crea). Figure 4. *L. catesbeianus* from Monterotondo Scalo (courtesy by Alessandro D'Alessio).

al., 2006; Dejean et al., 2010; Ficetola & Scali, 2010), which is one of the most important causes of rarefaction of numerous species of amphibians in the world (Blaustein & Kiesecker, 2002; Kats & Ferrer, 2003).

Recent studies (Ficetola et al., 2008) have shown that the Italian populations of bullfrog have originated from a considerably small strain, (less than six females), thus highlighting the large expansion capacity and rooting of this invasive species (Scali, 2010).

Therefore, it is necessary to carry out regular monitoring activities in order to record in time and to avoid eventual invasive processes, especially in the colonization of new sites also due to the strong impact which may exert on ecology and community structure of native amphibians (Andreone & Marocco, 1999; Bologna et al., 2000). The greatest danger is represented for native populations of green frog, either as direct prey of *L. catesbeianus*, or as being subject to infection by the fungus *B. dendrobatidis*.

Previously it was mentioned that the introduction of *L. catesbeianus* in Italy is related exclusively to food purposes. On the contrary, the spread of bullfrog in Latium is attributable exclusively to the passive transport by humans. Individuals imported at Maccarese and Torre in Pietra in 1974, came from Castel d'Ario (Mantova) place of origin of the managers of three lakes used for sport fishing in Latium (Bagnoli, 2000). It is surely known that it was common practice to populate the lakes used for sport fishing with a mixture of juvenile fish coming from the areas around Mantova, where the American bullfrog was certainly present with well established populations, hence, together with the fry there may have been many tadpoles of *L. catesbeianus* (Andreone, 2005; Ferri, 2006).

This made it possible that this alien species colonized new areas. Therefore, it could easily be assumed that the presence of bullfrog in this site should be related to the previous use of some of these ponds for the practice of sport fishing.

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Addendum

While the present contribution was in printing, the authors have received a report of the presence of the American Bullfrog, *L. catesbeianus*, in a new site, still in the province of Rome. The new report refers to some quarries currently filled with water, located along the Via Flaminia in Civitella San Paolo. Also these quarries are placed nearby the Tevere river and are about twenty kilometers from the old quarries of Monterotondo Scalo.

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