



## Short Note

## The name of the Italian water vole *Arvicola* cf. *amphibius* (Linnaeus, 1758)

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**Abstract**

This paper deals with the correct name of the distinct lineage of *Arvicola* cf. *amphibius* found south of the Alps. It confirms that *Arvicola italicus* Savi, 1838, type locality near Pisa, is the first available name for the Italic water vole. However, the traditional allocation of Italic water voles to two distinct taxa, *italicus* in central-northern Italy and *musignani* de Séllys Longchamps, 1839 in central-southern Italy, cannot be accepted until the identity of Pisa and Maremma populations studied by Paolo Savi is not established.

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Several authors have accepted the validity of a distinct lineage of water vole *Arvicola amphibius* (Linnaeus, 1758) [= *A. terrestris* (Linnaeus, 1758)] in the Italian Peninsula: *Arvicola amphibius italicus* Savi, usually dated 1839 (Amori et al., 1999, 2008; Ellerman and Morrison-Scott, 1966; Miller, 1910, 1912; Toschi, 1965), whose distinctiveness has also been supported by preliminary molecular data, based on cytochrome b (Taberlet et al., 1998). Moreover, most of these authors accept the occurrence of two endemic taxa in Italy: *A. italicus* Savi, 1839 and *A. musignani* de Séllys Longchamps, 1839, with *A. pertinax* Savi, 1839 and *A. destructor* Savi, 1839 as respective synonyms (Cagnin, 2008; Miller, 1912). Following Miller's classical taxonomic account of European mammals (1912), *italicus* (type locality near Pisa) has been regarded as restricted to the central-northern part of Italy and adjacent part of Switzerland, whereas *musignani* (type locality near Rome) was reported from central-southern Italy (Amori et al., 1999;

Cagnin, 2008; Toschi, 1965).

During an investigation of the types of mammals described from Italy (Gippoliti et al., 2010), it became apparent that the nomenclature and taxonomy of Italian water voles need to be better understood, as a first contribution to the conservation of a threatened endemic taxon (Gippoliti and Amori, 2002, 2007). As reviewed by Carleton and Musser (2005, p. 963-964), the taxonomy of *Arvicola amphibius* has long been complicated by recognition, during the 19<sup>th</sup> century, of two different species: *Arvicola amphibius* and *A. terrestris*, both named by Linnaeus (1758), on the same page (p. 61) and now considered conspecific by most authors. Carleton and Musser historical review is essential to understand why Paolo Savi (1838) believed to recognise two distinct species: *A. amphibius* (var. *italicus*) and *A. destructor*, both occurring in Tuscany, as clearly stated in the title of his paper and, incidentally, with both supposed forms already illustrated by Bonaparte (1837) with specimens from the neighbourhood of Rome. Bonaparte's *Arvicola terrestris* from Rome was said by Savi (1838a) to agree perfectly with his *Arvicola destructor*, which

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he had observed in Tuscany since 1837. de Sélys Longchamps (1839b) stated that his description of *A. musignani*, based on the illustration of *A. terrestris* from near Rome in Bonaparte's *Iconografia* (see de Sélys Longchamps 1839a, had appeared in January 1839, one month before Savi's paper (February 1839). These publication dates were accepted by Miller (1912), who maintained two separate species in the *terrestris* group: *Arvicola italicus* Savi, 1839 and *Arvicola musignani* de Sélys Longchamps, 1839. The premise of this taxonomic distinction was a geographic partitioning of the two taxa, *italicus* occurring in north-central and *musignani* in south-central Italy. It is of interest here, however, that Miller based his account on an examination of specimens from Switzerland (Ticino), north Italy and Latium, but not from the type locality of *italicus* (near Pisa) and *destructor* (near Grosseto). His view does not agree with the earlier works reporting two syntopic taxa in both Latium and Tuscany (Bonaparte, 1837; Savi, 1838a), nor with the occurrence of *musignani* in the neighbourhood of Milan and Pavia as reported by the author of that form (de Sélys Longchamps 1839b; see also Trouessart 1910). The two taxa, however, albeit as subspecies of *Arvicola terrestris*, were accepted by all major revisers in the second half of 20<sup>th</sup> century (Corbet, 1978; Ellerman and Morrison-Scott, 1966).

There remains the question concerning the valid name of the distinct Italian *Arvicola* as now recognised by most authors. Assuming that de Sélys Longchamps's specification of the date of publications is correct, the first available name proposed appears to be *Arvicola musignani* de Sélys-Longchamps, 1839, type locality near Rome. However, as already discussed by Violani and Barbagli (2006) in relation to the description of some amphibian species by Savi in the same volume of the journal (Savi, 1838b), reprints of *Nuovo Giornale de Letterati* often appeared the year after the original articles were published. Regarding the description of the above-mentioned amphibians, these authors stated that "Indeed, even though Savi's article was published for the first time in 1838 in the *Nuovo Giornale de Letterati*, it was published again in the following year as a reprint, together with a contribution on mammals by the same author, which had also appeared in the 1838 issue of the said journal (Savi, 1838a), under the title "*Descrizione di alcune nuove specie di mammiferi e rettili italiani*"...". Thus it seems that de Sélys Longchamps based his assumption on the date of publication of the reprint, but 1838 must be accepted as the first date of publication of Savi's paper on Italian *Arvicola*. Thus the synonymy for *Arvicola amphibius* in Italy is at present:

- *Arvicola italicus* Savi, 1838 p. 202, type locality near Pisa.
- *Arvicola pertinax* Savi, 1838 p. 203, type locality near Pisa.
- *Arvicola destructor* Savi, 1838 p. 204, type locality Grosseto, southern Tuscany.
- *Arvicola musignani* de Sélys Longchamps, 1839 p. 8, type locality near Rome.

Assuming that Miller was correct in recognising two distinct taxa along the Italian Peninsula, their correct names cannot be established until a proper study of water voles from Savi's type localities (Pisa and Maremma near Grosseto) is carried out. If the Pisa and Maremma water voles would belong to the same taxon found in Latium, as we are inclined to believe on zoogeographical grounds, this would leave the north Italian taxon recognised by Miller unnamed. Considering the documented local extinction of water voles in several areas of the country (Gippoliti and Amori, 2006; Manganelli et al., 2006), a modern taxonomic revision based on material from the whole Italian Peninsula, and particularly from Tuscany and southern Italy, is urgently needed before a conservation action plan is implemented. 

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