

ON SUBSPECIFIC TAXONOMY OF *MICROTUS SAVII*
(RODENTIA, ARVICOLIDAE)

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RIASSUNTO - Sulla tassonomia sottospecifica di *Microtus savii* (Rodentia, Arvicolidae). Viene riveduta e riassunta la situazione tassonomica sottospecifica di *Microtus (Terricola) savii*, anche tramite la descrizione di due nuovi taxa: *Microtus (Terricola) savii tolfetanus*, dei Monti della Tolfa e *Microtus (Terricola) savii niethammericus*, del Gargano.

Parole chiave: Tassonomia, sottospecie, *Microtus (Terricola) savii*, Italia.

Microtus (Terricola) savii (de Sélys Longchamps, 1838) is probably the most widespread species of its subgenus in Italy; moreover, it is near the sole known *Terricola* species occurring in the middle – southern range of the Italian peninsula, with the exception of *M. (T.) brachycercus* in Calabria (Galleni, 1995; Galleni *et al.*, 1992, 1994 and 1998) and a problematic population of *M. (T.) multiplex* in the Abruzzi highlands (Amori *et al.*, 1986); note that the living populations of Salento (Puglia) show some character morphae (*e. g.*, in the M₁ fore part) quite similar to those of the fossil taxon *M. (T.) tarentinus* Brunet – Lecomte, 1988 from Villa Castelli (Taranto, Puglia).

The differences among local populations of *M. (T.) savii*, even if quite important among biotopes at the boundaries of the species range, usually appeared to be continuous and gradual (Contoli, 1980; Krapp, 1982). In fact, the frequency of the “persimplex” morphae of M³ increases towards the sou-

thernmost boundaries of the geographic range (*e. g.* Contoli, 1980 and Battisti, 1990); even the proportions in the “fore complex” of M₁ (*e.g.* Brunet Lecomte and Chaline, 1990) seem to change progressively, at least along the Adriatic coast, showing an increase of some “mediterranean” morphae (*e. g.*, Pasa, 1951 and 1959).

We still lack an exhaustive caryologic and genetic knowledge in this field.

Nevertheless, there are some local differences that seem to be relatively more sharp and discrete, with a possible systematic meaning at the subspecific rank.

It is well known that the importance of subspecific taxonomy is still questionable; nevertheless, in the specific context of *M. (T.) savii* some forms were signaled under various taxonomic meanings. Thereafter, one of them was considered at species level, when others were not adequately characterized from a taxonomic perspective. Trying to summarize and reviewing this situation, this work has a nearly exclusively heuristic pur-

pose, in order to stimulate new researches in this field.

THE SUBSPECIES of *Microtus (Terricola) savii* (de Selys Longchamps, 1838).

Microtus (Terricola) savii savii (de Selys Longchamps, 1838).

SYNONIMY: *Pitymys savii savii*, Ellerman and Morrison-Scott, 1951. Checklist of Palaearctic and Indian Mammals 1758 to 1946, Trustees of Brit. Mus.: 688.

Microtus (Pitymys) savii savii, Krapp, in Niethammer and Krapp, 1982. Handbuch der Säugetiere Europas, 2/1: 432.

Microtus savii savii, Galleni, Stanyon, Tellini, Giordano and Santini, 1992. Cytogenetics and Cell Genetics, 59: 290-292.

LOCUS TYPICUS: surroundings of Pisa (Italy).

DISTRIBUTION: Italian peninsula, perhaps with exception of the Calabria and Puglia subpeninsulae.

Microtus (Terricola) savii nebrodensis (Minà Palumbo, 1868).

SYNONIMY: *Arvicola nebrodensis*, Minà-Palumbo 1868. Ann. Agric. Sc. Sicil. (sez. 2): 61.

Pitymys nebrodensis, Miller, 1912. Catalogue of the Mammals of Western Europe, Trustees of Brit. Mus.: 770.

Pitymys savii nebrodensis, Miller, 1913. Proc. Soc. Biol. Washington, 26: 81.

Pitymys savii nebrodensis, Ellerman and Morrison-Scott, 1951. Checklist of

Palaearctic and Indian Mammals 1758 to 1946, Trustees of Brit. Mus.: 688. . *Microtus (Pitymys) savii nebrodensis*, Krapp, in Niethammer and Krapp, 1982. Handbuch der Säugetiere Europas, 2/1: 432.

LOCUS TYPICUS: Madonie mountains, Sicily.

DISTRIBUTION: Sicily.

Microtus (Terricola) savii tolfetanus, subspecies nova.

DERIVATIO NOMINIS: from the popular name of people inhabiting the *locus typicus* of this subspecies.

SYNTYPI: 25 skulls preserved in microtheriological collection of Longino Contoli), presently at the Zoological Museum, Department of Animal and Human Biology, University of Rome "La Sapienza": "La Farnesiana" locality, included "Allumiere station" (Contoli *legit*), "Bufalareccia" and "Saracinesca" (Aloise *legit*) sites; 1973 – 1977; specimens nr.: 0a – 0f, 378, 379, 425, 427, 675, 731, 732, 761, 766, 767, 879, 885, 1211, 1124, 2861, 2864, 2866, 2868, 2869. Figured in Contoli, 1980.

LOCUS TYPICUS: "La Farnesiana", Tolfa hills, Allumiere, Roma Province.

DISTRIBUTION: "Monti della Tolfa" (Tolfa hills) and their surroundings, a volcanic district NW of Rome, in the antiapenninic and coastal range of NE Latium.

DESCRIPTION AND DIAGNOSTIC CHARACTERS: a relatively big Savi's pine vole (22,9 < CB < 26,8 mm (Tab. 1; Contoli, 1980), with some uncommon morphological features. In fact, three M³ cha-

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racters mainly show morphae that are usually uncommon in the nominal subspecies: “Typica”, “joined 2th fields” and “M³ > M² in length”; while morphological variation in the species is customarily quite gradual, a marked step of size decreasing is observed at the borders of the subspecies range. Nevertheless, in the above area the characteristic *M. (T.) savii* caryotype was recorded (Contoli *et al.*, 1978).

Microtus (Terricola) savii niethammericus,
subspecies nova.

DERIVATIO NOMINIS: from J. Niethammer, which first recorded some outstanding features of demes from the Gargano.

TAXONOMIC NOTE: due to an unfortunate misprint, the taxon was firstly indicated as “*Microtus (Terricola) savii niethammeri*” (Contoli, 2000); note that the subspecific name “*niethammeri*” was already utilized for a subspecies of *Microtus multiplex* [*Microtus (Terricola) multiplex niethammeri* Brunet - Lecomte and Volobouev, 1994]; moreo-

ver, according to ICZN (2000, art. 16.4), the name “*Microtus (Terricola) savii niethammeri*” is not available because not accompanied by the fixation of name - bearing types (the paper was submitted and accepted before 2000). For this reason, in the present paper I proposed to name this subspecies as “*Microtus (Terricola) savii niethammericus* ssp. nova”.

SYNTYPI: series of 21 specimens; J. Niethammer *legit*, 1980 (1981. Säugetierk. Mitt., 29: 45-48; Museum A. Koenig, Bonn: 2003.916 - 2003.936).

LOCUS TYPICUS: “Foresta Umbra” woodland and its surroundings (m.t Sant’Angelo etc.).

DISTRIBUTION: Foresta Umbra, on Gargano highlands, Apulia, Italy. According Galleni *et al.* (1998) the range of this form could extend southwards, at least as far as Metaponto (Potenza).

DESCRIPTION AND DIAGNOSTIC CHARACTERS: according to Niethammer (1981), a middle sized Savi’s pine vole; main differences with respect to *M. s. savii* are in relation to the breast (2 fore and 1 hind pairs), the M³ often showing a

Table 1 - Skull measurements (0.1 mm) and character’s prevailing forms (in %) of *M. (T.) savii tolfetanus* (see Contoli, 1980) at the *locus typicus*. N: number of specimens; min: minimum value; x: average; max: maximum value; SD: standard deviation.

	min	\bar{x}	max	SD	N	%
Diastem length	66	75	82	0.06	42	
Mandible length	145	156	171	0.09	40	
Condyllo – basal length	229	249	268	0.18	22	
M ³ “complex” <i>s. l.</i> (e. g., including “typica”)					55	58.0
M ³ > M ²					33	60.6

trend towards the "Typica" morpha, highly variable M_1 , acrocentric "X" chromosome ($2N = 54$; n.f. = 60; elsewhere, this karyotype was recorded for this species in a specimen from the surroundings of Metaponto, not so far from the Gargano); it is noticeable that, in the neighbouring districts of Taranto and Foggia, M^3 "simplex" or, even, with a good frequency, "persimplex" morphae were found (Battisti, 1990), while M_1 seems more constantly of a "mediterranean" type (cfr. Brunet-Lecomte and Chaline, 1990); moreover, while the morphology of the "fore complex" of M_1 seems to vary continuously from the north to the south, (Contoli, unpub. data) according to a nearly hysometric trend, the Gargano demes seems to be less aligned to the general pattern.

Unfortunately, there are no hybridological nor genetical data on this form. So, it is convenient to follow Niethammer (1981) and Krapp (1982) and rely the above Gargano demes to *M. (T.) savii*.

KEY OF THE SUBSPECIES

- 1 - Acrocentric "X" chromosome (NF = 60); normally, 6 breasts; morphae of M^3 "simplex" to "typica": *niethammericus*.
- Metacentric "X" chromosome (NF = 62); normally, 4 breasts: 2.
- 2 - M^3 mainly in the "persimplex" morpha; braincase quite high and rounded; skull quite short, especially in its post – rostral portion: *nebrodensis*.
- M^3 mainly not in the "persimplex" morpha; skull not as above: 3.
- 3 - M^3 "simplex" to "typica", up to "complex" *s. l.*; skull quite large (nor-

mally: CB > 24 mm, DS > 7 mm, Md > 15 mm): *tolfetanus*.

- M^3 normally "simplex"; skull smaller (normally: CB < 24 mm, DS < 7 mm, Md < 15 mm): *savii*.

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