

L. Lapini & P. Paolucci

*ARVICOLA TERRESTRIS SCNERMAN* (SHAW, 1801)  
IN NORTH-EASTERN ITALY (*MAMMALIA*, *ARVICOLIDAE*).

Key words: *Arvicola terrestris scherman*, *A.t.italicus*,  
Distribution, North-eastern Italy

## INTRODUCTION

*Arvicola terrestris* (LINNÉ, 1758) is a medium-sized palaeartic *Arvicolidae* with fossorial or semiaquatic habits. It is a polytypic species widely distributed in most of Europe, Siberia and south-western Asia (MILLER, 1912; CORBET, 1978), and it has been subdivided into two principal morphogroups (VAN DEN BRINK, 1955). The "*scherman* group" gathers the smaller races, with proodont upper incisors and nocturnal servi-fossorial habits, dwelling in mountain habitats of central and south-eastern Europe; the "*terrestris* group" gathers the bigger races, more or less orthodont with diurnal semiaquatic habits, dwelling in wet lowlands and hills of Europe and Asia. The validity and distribution of the European subspecies of the water vole are not always clear (see REI-CHSTEIN, 1982 for a synthesis), but only *A. t. italicus* SAVI, 1839 has been recorded in northern Italy (TOSCHI, 1965). Nevertheless there is a single record of *A. t. exitus* (MILLER, 1910) in north eastern Italy (LAPINI, 1988) which seems to show that at least one race of the "*scherman* group" dwells on the Carnic Alps (north-eastern Italy, Friuli-Venezia Giulia region).

## METHODS

A small sample of *A. terrestris* (9 adults) from the lowlands of north eastern Italy (Friuli-Venezia Giulia and Veneto regions) has been compared to 7 specimens (2 youngs and 5 adults) from the Carnic Alps (Friuli-Venezia Giulia) particularly with regard to some morphological features, pelt-colouring, shape and measurements of mandibulae and skulls. Both originai and bibliographic chorological data (LAPINI, 1989; PAOLUCCI, 1994) were then organized in a provisional UTM (10x 10 km) square grid synthesis of the distribution of *Arvicola terrestris* in Friuli-Venezia Giulia (fig. 1). All the studied specimens belong to private collections or to the theriological collections of the Museo Friulano di Storia Naturale (Udine) and of Padua University (see LAPINI, 1988 and PAOLUCCI, 1987; 1994).

## RESULTS AND DISCUSSION

Our preliminary results clearly shows that two well distinct races of *Arvicola terrestris* live in north-eastern Italy (fig. 1).

In our sample of alpine water voles the incisors are always considerably proodont (fig. 1) and the mandibulae shows the typical shape of fossorial forms (short *processus angularis* and sub-trapezoidal *processus articularis*). Their pelt-colouring ranges from black-brownish-yellowish (young) to brown-yellowish or reddish (adults), with very soft fur, blackish (bicoloured) and short tails (up to 1/2 head-body length) and blackish dark-brownish feet. The condylobasal length of the adults is quite similar to that of south Austrian alpine water voles (REICHSTEIN, 1982: 223), ranging from 30 to 35 mm SE=0,41 ; n=5). However, due to the small size of our sample it was impossible to obtain exhaustive information on the range of morphological variability of these alpine water voles, which seem to be similar to the Austrian and Slovenian ones (REICHSTEIN, 1982; KRYSZTOFEK, 1991). From a taxonomic point of view, however, they probably belong to *A. t. schermani*; the imperfectly known form *exitus*, in fact, has a characteristic whitish tail and very small hind feet pads.

Our lowland sample of *Arvicola terrestris*, instead, belongs to *italicus*, having greater skull measurements (Cbl: 36,8-38,7 mm,  $\bar{x}$ =37,5, SE=0,37, n=9), longer tails (nearly up to 2/3 head-body length), darker pelt colouring (often black-brownish), more or less orthodont incisors (fig. 1) and mandibulae with the characteristic shape of semiaquatic forms (very long *processus angularis* and sub-rectangular *processus articularis*).

The distribution of these races of *Arvicola terrestris* in north-eastern Italy (fig. 1) seems to be correlated to very different ecological conditions.

While the smaller form lives in grassland mountain habitats (700-1700 m a.s.l.; 100% of the localities in grassland ecotones of *Fagetum* or *Abieti-Fagetum*), the bigger one lives in low wetlands environments with ditches, ponds, lakes and rivers (100% of the localities) up to 300 m a.s.l.

## ACKNOWLEDGEMENTS

We wish to thank L. Dublo (Udine, I) for helping with the graphics, A. Fabbro (Udine, I) for some data from *Strix aluco* pellets, and C. Castellani (Udine, I) for the revision of the English form of the manuscript.

## SUMMARY

The Authors report on the first data on morphology and distribution of *Arvicola terrestris scherman* and *A. i. italicus* in north eastern Italy.

## RIASSUNTO

Gli Autori riferiscono i primi dati su morfologia e distribuzione di *Arvicola terrestris scherman* e *A. i. italicus* nell'Italia nord orientale.

Parole chiave: *Arvicola terrestris scherman*, *A. i. italicus*, Distribution, North-eastern Italy

## BIBLIOGRAFIA

- CORBET G.B., 1978. The Mammals of the Palaearctic Region. A Taxonomic Review. *trustees of the British Museum (N.H.), The Chaucer Press. Ltd.*, Bungay, Suffolk.
- KRYSTUFEK B., 1991. Sesalci Slovenije. *Prirodoslovni muzej Slovenije publ.*, Ljubljana.
- LAPINI L., 1988. Catalogo della Collezione Teriologica del Museo Friulano di Storia Naturale. *Edizioni del Museo Friulano di Storia Naturale, Pubbl. 35*, Udine.
- LAPINI L., 1989. I Mammiferi. In: CALZAVARA M. & TURCO E. (Eds.), 1989-Stella. Le ri sorgive e il suo parco. *Vattori publ.*, Tricesimo: 157-177, Udine.
- MILLER G.S., 1912. Catalogue of the mammals of western Western Europe (Europe exclusive of Russia). *British Mus. (N.H.) publ.*, London.
- PAOLUCCI P., 1987. Micromammiferi della Foresta di Tarvisio I. In: Aa.Vv., 1987-Vertebrati della Foresta di Tarvisio. *Min. Agr. e Foreste publ.*: 147-225.
- PAOLUCCI P., 1994. Catalogo della Collezione Teriologica della Cattedra di Zoologia Forestale, Venatoria e Acquicoltura dell'Università di Padova. *Gortania, Atti del Museo Friul. di Storia Nat.*, 15 ('93), in press.
- REICHSTEIN H., 1982. *Arvicola terrestris* (Linnaeus, 1758) - Schermaus. In: NIETHAMMER J. & KRAPP F. (Eds.), 1982-Handbuch der Säugetiere Europas. Band 2/I Nagetiere II. *Akademische Verlagsgesellschaft*, Wiesbaden: 217-252.
- TOSCHI A., 1965. Fauna d'Italia. *Mammalia (Lagomorpha, Rodentia, Carnivora, Artiodactyla, Cetacea)*. *Calderini publ.*, Bologna, vol. 7, 647 pp.
- VAN DEN BRINK F.H., 1955. Zoogdierengids. *Elsevier publ.*, Amsterdam. (Italian translation: 1969- Guida dei mammiferi d'Europa. *Labor publ.*, Milano).

Indirizzi degli Autori/Author's addresses:

L. Lapini - Museo Friulano di Storia Naturale - Via Grazzano 1, - 33100 UDINE

R. Paulucci - Istituto di Entomologia agraria dell'Università - Via Gradenigo, 6 - 35131 PADOVA

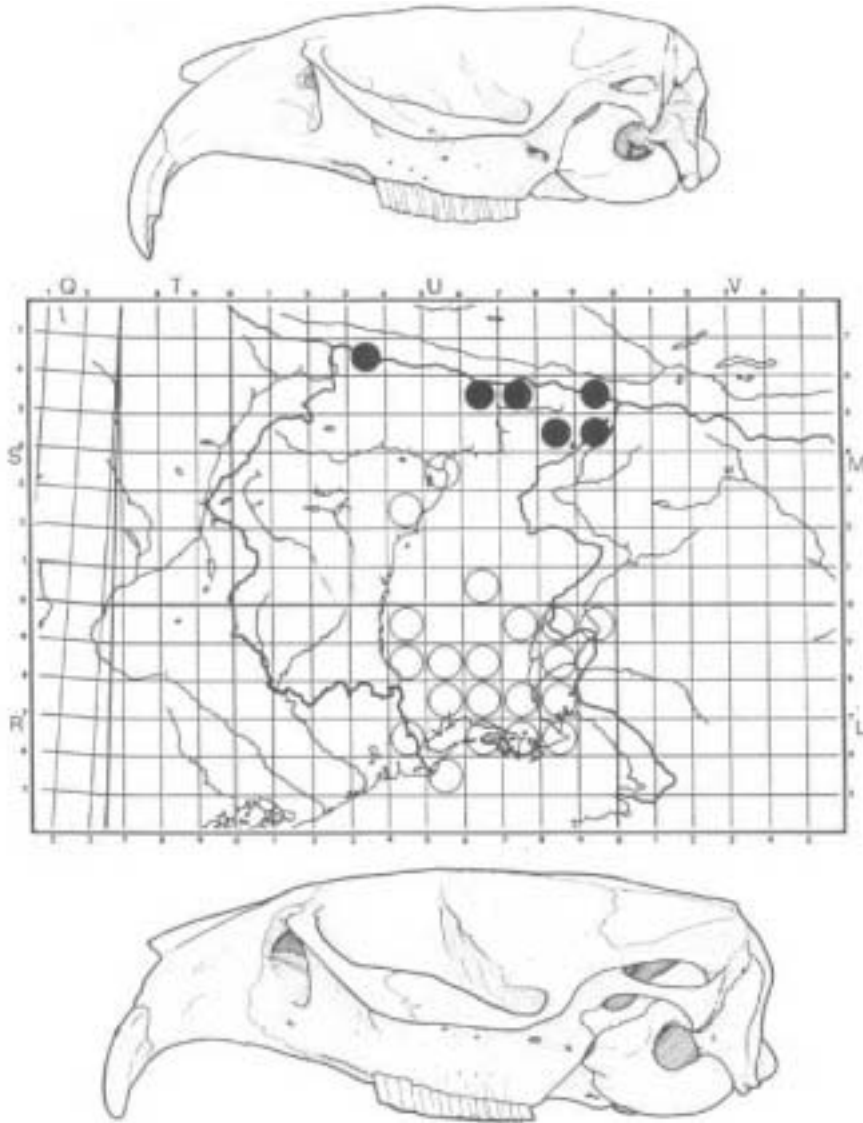


Fig. 1 - Provisional UTM (10s 10 km) grid system synthesis of the distribution of *Arvicola terrestris scherman* (■) [Collina; Val Dolce; Tarvisio dint; Prato Rank (from *Strix aluco* pellets); Cave del Predil; Malborghetto] and *A. t. italicus* (○) [Risorgive dei F. Stella (various specimens from *Tyto alba* pellets) presso Flambro, Bertolo, Biauzzo, Talmassons, Virco, Lonon, Codroipo; Camino a! Tagliamento; Foci del Como e dello Zellina, Laguna di Marano; Risorgive del Corno presso Castello di Gonars; Fiume Natisono presso Mancano; Argini del F. [gonzo presso Gorizia; Canale Ledra, Udine; Argini del F. Isonzo presso Gradisca; Isola della Cona, foci dei F. Isonzo; Argini del F. Tagliamento presso Turrada di Sedegliano; F. Ausa, Cervignano (from *Tyto alba* pellets); F. Natissa, Aquileia; Fossalon, Grado; Risorgive di Schiavetti, Staranzano; Canali presso Isola Morosini; Paludi del T. Versa, Preval; Canali presso Russiz; Roggia Manganizza, Buttrio; Lago di Cavazzo; Argini del F. Tagliamento presso Venzone; Argini del F. Tagliamento presso Comino; Argini del F. Tagliamento presso Pertegada; Argini del F. Tagliamento presso Lignano] in north-eastern Italy. Above: skull of *A. t. scherman* from Cave del Predil. Tarvisio, Udine; below: skull of *A. t. italicus* from Flambro, Talmassons, Udine.