

The tunnel structure of blind mole rats (genus *Spalax*) in Turkey

(Rodentia: Spalacidae)

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Abstract. The structure of the tunnels and burrows of mole rats (genus *Spalax*) was examined in Central and Southeastern Anatolia in the years 2002-2009. There are two types of mounds: linear ones and scattered ones. While a one-layer tunnel structure is observed in nearly all parts of Turkey, we also found three-layer tunnels, which were made in soft and moist soil. The tunnels made in moist soil were deeper than the ones made in hard soil. We found that mole rats blend the soil with their urine and produce a sticky mud with a bad odour in order to strengthen the walls of the opened galleries.

Key words. *Spalax leucodon*, *S. ehrenbergi*, *Nannospalax*, burrow, ecology, Turkey.

Introduction

Blind mole rats, family Spalacidae, are well-adapted to living underground. They are distributed in the Balkans, across Anatolia and Transcaucasia to the Middle East and North Africa (HARRISON & BATES 1991, MUSSER & CARLETON 2005), where they prefer steppe habitats and make underground burrows by digging tunnels. Since they feed generally on the subterranean edible parts of plants (i.e. corns, bulbs, tubers, and roots of plants such as carrot, potato, garlic, sugar beet, clover, onion etc.) which they collect while burrowing through the ground and hoard in nest-mound stores, they are considered to be agricultural pests in the Middle East (NEVO 1961). Their taxonomy has been the subject of dispute over recent decades. We follow here KRYŠTUFEK & VOHRALÍK (2009), who recognise three species from Turkey: *Spalax leucodon* Nordmann, 1840 in Thrace, *S. xanthodon* Nordmann, 1840 in the Asian part of Turkey with the exception of the south-east, and *S. ehrenbergi* (Nehring, 1898) in Southeastern Anatolia. Based on karyologic studies, it was found that more than 30 different karyological forms of *Spalax* occur in Turkey (NEVO et al. 1995, COŞKUN et al. 2009).

Although there are many studies on the distribution, dispersion, breeding mound and tunnel structure, ecology and population structure of mole rats from Israel and former Yugoslavia (NEVO 1961, SAVIĆ 1973, MIKES et al. 1982, NEVO et al. 1982, HETH 1991), there are few such studies in Turkey (COŞKUN & ULUTÜRK 2004, SÖZEN 2005). The aims of this study were to present the tunnel digging and burrowing activity of mole rats from Central and Southeastern Anatolia and to make a contribution to the ecology of these species.

Material and methods

This study is based on the analysis of a total of 956 mole rat tunnels (924 in Central Anatolia, 32 in Southeastern Anatolia) situated in dry-soiled open areas, gardens and fields which are