

# Distribution of field mice (*Apodemus*) (Mammalia: Rodentia) in Anatolia

by Boris Kryštufek and Vladimír Vohralík

**Abstract.** We mapped the distribution of three sibling *Apodemus* species in Anatolia: *Apodemus witherbyi*, *A. uralensis* and *A. flavicollis*. *Apodemus witherbyi* is the most widespread and *A. uralensis* has the smallest range, being restricted to the Black Sea Mountains as far west as Mt. Uludağ. *A. flavicollis* inhabits the Black Sea Mountains, Aegean Anatolia, and Taurus, and is the most common species in Hatay. In a sample of 1,885 small mammals collected throughout Anatolia, the three *Apodemus* species contributed 51.6% to the total rodent number and 78.2% to all Murinae combined. They were by far the most abundant murins in the Black Sea Mountains (90.3%), where all three species are broadly sympatric. We provide a determination key for the identification of these species in Anatolia.

**Key words:** Turkey, *Sylvaemus*, *Apodemus flavicollis*, *Apodemus uralensis*, *Apodemus witherbyi*, abundance, determination key.

## Introduction

The taxonomy of western Palaearctic field mice has advanced significantly in the last two decades and has profoundly altered knowledge of species richness within the genus *Apodemus*, particularly in the Near and Middle East (MUSSEY & CARLETON 1993, 2005). Aside from the morphologically distinct *A. mystacinus*, the remaining field mice (hereafter referred to as the *Sylvaemus*-group sensu MARTIN et al. 2000) were previously clumped largely into two size classes, the larger *A. flavicollis* and the smaller *A. sylvaticus* (ELLERMAN & MORRISON-SCOTT 1951, CORBET 1978, NIETHAMMER & KRAPP 1978). This taxonomy frustrated students of *Apodemus* in the Caucasus and the Near East, who as early as the 1950s recognised the existence of a third morphotype, which they interpreted as a hybrid between *A. flavicollis* and *A. sylvaticus* (LARINA 1958, LARINA & GOLIKOVA 1959, LEHMANN 1966). In the late 1970s, STEINER (1978) demonstrated the existence of *A. flavicollis* and *A. microps* (junior synonym of *A. uralensis*; MUSSEY & CARLETON 2005) in north-eastern Anatolia through hybridisation experiments. His results were, however, largely missed by subsequent students. Real breakthroughs have been achieved by the application of various genetic techniques, firstly electrophoretic analyses of allozymes (MEZHHERIN 1987, VORONTOV et al. 1989, 1992, FILIPPUCCI et al. 1989, 1996) and more recently by nuclear and mitochondrial markers as well (MARTIN et al. 2000, MICHAUX et al. 2002, BELLINIA 2004). While the systematics (MACHOLÁN et al. 2001, FILIPPUCCI et al. 2002) and nomenclature (KRYŠTUFEK 2002, MUSSEY & CARLETON 2005) have stabilised in the last few years, the distribution patterns of the newly defined species remain imperfectly known. Until now, reliable identifications of sibling *Apodemus* species have been largely provided by genetic studies, which were based on relatively small samples. Although morphological traits enable museum specimens to be identified (FILIPPUCCI et al. 1996, KRYŠTUFEK 2002, ÖZKAN & KRYŠTUFEK