The world’s human population, at approximately seven billion, has led to a huge demand for the production of food and hence an intensification in all aspects of agriculture. Over the next 50 years, a further increase in the demand for food could result in 10 billion hectares of natural ecosystems converted into agricultural land to offset the increase in population numbers (Tilman et al., 2001). However, with advances in agricultural technologies and the influences of policies such as the European Union’s Common Agricultural Policy (CAP), the focus of production has shifted to increased intensification on more fertile land and land abandonment in less-productive areas has become common (MacDonald et al 2000).

Located in south-eastern Transylvania, the Tarnava Mare region of Romania is one of Europe’s most important cultural and natural landscapes. It exists due to farming practices that have continued over centuries to produce a unique landscape of species-rich grasslands and other habitats. However, these practices are vulnerable due to pressures to increase produce.

The Tarnava Mare Natura 2000 area offers a unique opportunity to study the ecology of small mammals in a traditional, yet vulnerable farming system. These systems provide a mosaic of habitats for several small mammal species, such as yellow-necked mouse, striped field mouse, field vole. The habitats include species-rich grassland, cultivated fields and woodlands which are under threat from both land intensification and abandonment.

The threat of encroaching scrub due to land abandonment has become a major concern for the conservation of the species-rich grassland. Little is known about the small mammal assemblages of the Tarnava Mare. Data are needed on utilisation of these habitat mosaics by small mammal communities or how small mammals are responding to shrub encroachment and changes in farming practices.

The general aim of this project is to assess the small mammal communities in different habitats, but especially in grasslands. The grasslands can be broadly categorised as low, medium or high nature value due to past and current management practices. Dissertation students will assist the ecologists in the collection of small mammal data at approximately 32 grassland sites of different nature value and current use.

At each site, 20 or more small mammal traps are set up in a grid format and checked daily. Capture-mark-recapture techniques are used to assess population size, breeding dynamics and habitat preference. In 2014 eight species of small mammal were captured: lesser white-toothed shrew (*Crocidura suavedens*), wood mouse (*Apodemus sylvaticus*), striped field mouse (*Apodemus agrarius*), yellow-necked mouse (*Apodemus flavicollis*), common vole (*Microtus arvalis*), field vole (*Microtus agrestis*), bank vole (*Myodes glareolus*), bi-coloured white toothed shrew (*Crocidura leucodon*).
At each sampling site, several habitat measurements will be taken (slope, aspect, sward height, plant species diversity, and percentage scrub) to help relate mammal densities and assemblages to habitat type and quality. The conservation of small mammal habitats is not only important for the small mammals themselves but is important for the range of predators that rely on them for prey. Species like the Lesser-spotted Eagle are of major conservation concern and voles are known to be an important part of their diets. Assessing mammal distribution and densities throughout the Tarnava Mare is important to help monitor the efficacy of the Natura 2000 management schemes in conserving this fragile ecosystem.

**Project Specific Reading**


Michaux, J .R., R Libois and M-G Filippucci So close and so different: comparative phylogeography of two small mammal species, the Yellow-necked fieldmouse (*Apodemus flavicollis*) and the Woodmouse (*Apodemus sylvaticus*) in the Western Palearctic region. *Hereditity* (2005) 94, 52–63. doi:10.1038/sj.hdy.6800561 Published online 25 August 200


**General Tarnava Mare Reading**


Lambin, E. F., Turner, B. L., Geist, H. J., Agbola, S. B., Angelsen, A., Folke, C., … Veldkamp, T. A. (2001). The causes of land-use and land-cover change : moving beyond the myths, 11, 261–269.


