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## Rodent Behaviour – Session 2

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### **Burrow system architecture and use by Thomas' pine vole, *Microtus thomasi* (Rodentia: Arvicolinae)**

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*Microtus thomasi* is a fossorial vole, endemic to SW Balkans, which uses a variety of substrates from sea level to high altitudes. Even though the remarkable chromosomal variability of this species is well-studied, very little is known regarding the vole's underground behaviour. This was the goal of this study, starting with the scholastic uncovering of eight burrow systems in different localities of NW Peloponnese, Greece. In particular, several measurements and notes were taken, regarding those burrow systems (e.g. total tunnel length, average tunnel width and depth, number of nests, food caches, soil mounds etc.) and their complexity was calculated in terms of Fractal Dimension, based on the box-counting method (e.g. the Fractal Dimensions of the least and the most complex systems were estimated to 1.1795 and 1.4787, respectively). Moreover, several key coordinates from these systems were recorded with a differential GPS device, allowing their detailed mapping, using the QGIS software. Soil samples from each studied site were used for particle size analysis and estimations of CaCO<sub>3</sub>, TC, TOC, TN, H and TP content. Also, the vegetation type of each site was described. Our results showed in overall that extension and complexity of the vole's burrow systems are rather more correlated with food availability and neighbouring burrow system density in the regions where they occurred than with altitude or soil composition i.e. in areas with many other already established systems and/or restricted food availability smaller total lengths and more food caches were comparatively observed than in systems of scarcely populated areas and/or with ample food resources. In comparison to older studies, interesting differences were also recorded, regarding the social behaviour of voles that lived together in a single burrow system. Finally, an effort was made to statistically distinguish those parameters that influence the measured burrow system features of *Microtus thomasi*.

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Jens Jacob, Jana Eccard (Editors)

6<sup>th</sup> International Conference of Rodent  
Biology and Management  
and  
16<sup>th</sup> Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



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