

Abstract

The aim of the thesis was to evaluate the possibilities of remote sensing (RS) data with different spatial resolution (UAV data with 5cm resolution, RapidEye satellite data with 5m resolution and Sentinel-2A data with 10m resolution) and of remote sensing methods (unsupervised and supervised classifications, vegetation indices NDVI and TVI) to identify potentially suitable habitats for European ground squirrel. The analyses were first carried out in Velké Pavlovice small area of interest and consequently in a broader area of interest comprised of five regions of Moravia and Slovakia. Data from mapping of biotopes and squirrels' burrows collected within a project „Sysli pro krajinu, krajina pro sysly“ (European ground squirrels for landscape, landscape for European ground squirrels) were also used for the analyses. Remote sensing methods were first tested in Velké Pavlovice area using RapidEye data. The method providing the best results in the detection of European ground squirrel burrows was then used for a burrows detection in the broader area of interest (five regions) using Sentinel-2A data. The accuracy of results was defined as a proportion of the burrows detected by the resulting layer derived from RS data to the overall number of burrows mapped in the field. Best results were obtained for the vegetation index TVI, specifically for the interval derived based on the mean and standard deviation calculation of TVI in places above the burrow locations (68,91% accuracy with 51,69% coverage of Velké Pavlovice area for RapidEye data; 49,89% accuracy with 11,66% coverage of five regions area for Sentinel-2A data). Final outputs were validated using the Finding Database of Nature Conservation and compared with the Consolidated layer of ecosystems of the Czech Republic (the only source used so far by biologists for the determination of potential European ground squirrel occurrence) and with other data sources.

Key words: remote sensing, identification of potentially suitable habitats, European ground squirrel (*Spermophilus citellus*), vegetation indices, RapidEye, Sentinel-2A, Velké Pavlovice, border of Moravia and Slovakia