

Abstract

In this thesis, I explored the relationships among morphological characteristics of European land snail's shells, their environment and life strategies. I assembled a database of morphological traits, characteristics of the environment and life strategies of land snails from literary sources. This file was merged with unique dataset from field sampling along a latitudinal gradient through Europe and the morphological characteristics of each species were averaged on real populations from particular sites. This package was analyzed by multivariate linear regression (GLM). In this work I demonstrate that the color pattern is affected by latitude and occurs mainly in gastropods with wider shell. Wide shell also appears mainly in snails with a smooth shell surface and shallower suture. Snails at lower altitudes mostly have calcified shell lips. A snail species with teeth in the mouth of shell, with ribs on the shell surface, and larger relative height of the shell, live in areas with higher calcium content in the leaf litter. Deep sutures on the shell are more frequent in shells from sites with higher rainfall seasonality. Especially in areas with higher rainfall seasonality we can find less gastropods with periostracal structures on the shell, however, their occurrence increase in areas with canopy forests. In the populations of long-lived gastropods fewer species with teeth in shell, with a ribbed shell, and with periostracal structures on the surface of shell were found. In the populations of long-lived snails species of smaller relative height occur. On the other hand, tree and/or rock dwelling snails tend to have the large relative height, but higher abundance of flat-shelled snails were found among them. Tree snails also tend to have ribs on their shells; contrary, ground dwelling snails tend to have smooth shell.