
Summary

Newly formed woody stands differ in species composition from ancient ones, which can be due to differing ecological preference of species under altered abiotic conditions in secondary stands or a limited ability of species to spread into newly formed habitats. Forest species are generally considered to be slow colonisers that prefer old forests. Not only forests but also local ancient hedges can serve as refugia for forest species, as they can serve as a source of forest-species propagules after a landscape is abandoned by humans. Shrubby stands of differing age can therefore serve as a suitable model for the study of dispersal of forest species and the relative importance of abiotic factors and biological traits of individual species for the evolution of the forest ecosystem.

Areas in which large-scale changes in land use have occurred are suitable for the study of processes in hedges. Military areas in the Czech Republic are a good example. This study has been carried out in the Doupovské hory hills in West Bohemia, where a military practice area was founded in 1953, bringing an end to farming. Secondary shrubby vegetation colonised vast parts of the area. The objective of this study was to establish the differences in species composition in the herb layer of hedges with different continuity, the importance of other environmental variables (i. e., geomorphological and soil properties), and the ability of forest species to colonise newly formed habitats.

I have excerpted data on vegetation continuity from maps of the stable cadaster from 1842 and from aerial images from between 1952 and 1999 and thus derived three different continuity classes. I determined the species composition of individual vegetation types using phytocenological methods. To determine the chemical properties of soil, I collected soil samples from within every phytocenological plot and subjected them to chemical analysis. In order to establish the migration ability of forest herbs, I surveyed in detail an area of 500×500 metres in which both ancient and newly formed woody stands were present. I recorded the occurrence of selected forest herbs in a 10×10 metre grid.

I have discovered that true forest herbs are mostly represented in the oldest stands. My second finding is that stands of moderate and the largest continuity are the closest to each other in terms of vegetation. Regarding the remaining habitat variables affecting vegetation, the most significant are: elevation, slope angle, slope shape (concave or convex), potential direct radiation, relative rock surface, and actual pH. After the effect of these variables was filtered out, only the least vegetation continuity is significant. Soil conditions in stands of differing age differ only in carbon and nitrogen content, which increases with age, and in the carbon to nitrogen ratio, which is largest in stands with moderate continuity. Actual pH, which significantly affects overall species composition, does not differ in soils in stands with different continuity. Migration of forest herb species is successful in the area under study. I have established speeds of migration between 1.2 metres per year in *Impatiens parviflora* and 2.5 metres per year in *Lapsana communis*.