Abstract

The White Carpathian meadows are among the species richest plant communities in the world, yet a large area of them has been ploughed in the past. Despite the abandonment of intensive farming and the subsequent effort to restore the original species richness of the former arable land over the last 20 years, there are still differences between the meadows which were previously used for agricultural production and the well-preserved ancient reference meadows. To understand why this is so, it may be helpful to measure the dynamics of plant biomass production over the year and whether it differs between these two types of meadows.

The research was conducted in three pairs of White Carpathian meadows on two dates – at the beginning of the growing season in May and right before mowing in June 2023. In all pairs of meadows, occurring in close proximity to each other, one of the meadows was restored after previous ploughing and the other was ancient. At each meadow, I have sampled aboveground biomass in five 40 × 40 cm plots and sorted it into functional groups (graminoids, legumes, and forbs – i.e. non-leguminous dicots) and into dead biomass, dried and weighed.

In average, more biomass tended to occur in the restored meadows, but this difference was formed mainly by dead biomass, which was more abundant in the restored meadows. In terms of total living biomass, both meadow types were fully comparable. The meadows differed in the relative distribution of the functional groups of living biomass. I have observed a greater proportion of forbs in the ancient meadow, whereas graminoids and legumes were more dominant in the restored meadows.

The comparable total biomass of the two meadow types in both sampling dates indicates that the total productivity of the restored meadows is not the main cause of their lower biodiversity. Rather, it can be found in the higher dominance of graminoids and the greater amount of dead biomass, which probably leads to the suppression of less competitive forbs.