

## Fragments of steppe vegetation in roadsides and railway verges in the Great Hungarian Plain

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In agricultural landscapes of the Great Hungarian Plain the original vegetation often survived only in verges (boundaries, roadsides, field margins). Verges are few (on average 2-15, max. 50) meters wide lawn strips running along roads, railways, borderlines and ditches. Two main types of the verges can be distinguished in the landscape. The primary verges take a slice of the original vegetation with several protected or endangered plant species of Pannonian loess steppe. The secondary ones are abandoned from arable field, valuable species are only rarely found on these habitats. Our study was undertaken in the Csanádi-hát loess region (SE Hungary) (approx. 940 km<sup>2</sup>). During the 10-year long investigation in each mapping unit of the Central Europaeen Flora Mapping System (approx. 6.5×5.5 km) the average number of the protected plant species was 5.5. Among these species 1.0 (18.6%) species was found only in coherent areas (meadow, forest, arable land etc.), 0.4 species (6.6%) occurred both in coherent areas and verges and 4.2 species (74.9%!) occurred only in verges. In the Csanádi-hát region 90-100% of populations of the protected plant species *Adonis vernalis*, *Ajuga laxmannii*, *Anchusa barrelieri*, *Clematis integrifolia*, *Inula germanica*, *Oxytropis pilosa*, *Prunus tenella*, *Silene bupleuroides* and *Vinca herbacea* were found in the verges. At present, these fragments are in general not protected – in the study area in each mapping unit of the flora mapping system 71,0% of the protected plant species was found in unprotected verges only. These narrow grassland fragments are supposedly also of great importance in other loess lowland areas (e.g. Central and E Hungary, W Romania, N Serbia). The verges are highly endangered because of lack of treatment (mowing, grazing), shrubs, ploughing and pollution. The preservation of the steppe fragments of verges needs new nature conservation strategies in the Pannonian Biogeographical Region.