Botanical monitoring (Action D3) in the framework of „Conservation of dry grasslands in Central Hungary" Life+ Nature (LIFE NAT/HU/001028)

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We surveyed the vegetation of the sites restored between the autumn of 2014 and the winter of 2018, to evaluate restoration success. We performed the monitoring of restoration actions in the following Natura 2000 sites:

'Alsó-Tápió és patakvölgyek' Natura 2000 site (Tápiósági földvár),
'Gödöllői-dombság peremhegyei' Natura 2000 site (Fóti Somlyó),
'Érd-tétényi plató' Natura 2000 site (Tétényi-fennsík).
'Epöli szarmata vonulat' Natura 2000 site (Gyermely-Máriahalom)

Botanical surveys were conducted in June 2019. Detailed results of the surveys can be found in Appendices 1-4.

- In the 'Alsó-Tápió és patakvölgyek' Natura 2000 site we monitored the fifth-year vegetation composition in a former arable field restored by hay transfer in the autumn of 2014. We found a fast and promising grassland recovery. We found that 44 target species established in the past five years. The mean cover of target species was as high as 91%. The protected species, *Centaurea sadleriana* is present in several plots, with a mean cover of 2.9%. The protected *Ajuga laxmannii* has become very abundant at the edge of the restored grassland. The dominant target grasses are *Arrhenatherum elatius*, *Festuca rupicola* and *F. pratensis.* The cover of weeds was 24%, but they were mostly annual species which can be easily suppressed by proper management. The cover of invasive species remained below 1%, but it is crucial to regularly control the encroachment of *Asclepias syriaca* even in the early phase.
- In the 'Gödöllői-dombság peremhegyei' Natura 2000 site we sampled the vegetation in the plots designated in 2014. (i) We sampled the vegetation of a mesophilous old-field invaded by *Solidago gigantea.* Despite of the applied management actions, the cover of *Solidago gigantea* is still high (46%). The encroachment of shrubs is a threat for the site, but their total cover decreased to 12% due to mechanical shrub removal

actions. Despite the threatening factors, several target species of sandy grasslands are present in the old-field. In the forthcoming years, higher management intensity, more focused grazing and mechanical shrub removal would be important. (ii) We sampled the vegetation of an abandoned roadside with spontaneous grassland recovery. The abandonment of the road was favourable for spontaneous grassland recovery. The vegetation is characterised by a high cover of perennial graminoids and the decreased cover of disturbance-tolerant species. However, the complete recovery of natural grasslands requires more time.

- In the 'Érd-tétényi plató' Natura 2000 site we sampled (i) the vegetation of a road abandoned in 2014 and (ii) the vegetation of sites where shrubs were cut in the early spring of 2016 and 2017. (i) We found that the abandonment of the road facilitated spontaneous grassland recovery, the vegetation cover increased considerably and the vegetation was dominated by target species. (ii) In five sites, shrubs were removed in 2016, in two sites shrub removal was done in 2017. We found a moderate resprouting of shrubs in the sites; thus, current conditions seem favourable for the recovery of grasslands. For the long-term maintenance of the restoration success, regular control of re-sprouting shrubs is crucial.
- In the 'Epöli szarmata vonulat' Natura 2000 site we sampled the vegetation of (i) three former black locust groves and (ii) two former blackthorn thicket stands; where shrub removal took place in the winter of 2018. In the former black locust groves, the cover of resprouting woody vegetation was low; however, the vegetation was dominated by weedy species. In the former blackthorn thicket, the cover of resprouting shrubs was higher, but the target species of the loess grasslands, including the protected species *Adonis vernalis*, *Astragalus austriacus* and *Phlomis tuberosa* were present in higher cover. For the complete restoration of the target grasslands, regular removal of the resprouting shrubs will be necessary.