ANNEXES

Annex 1. Generalised Simplified Evaluation of Grassland Habitat Quality (S. Rūsiņa)

The Annex summarises the characteristics of grassland habitats that can serve to define their condition ("health"). These parameters indicate the success or problems in the conservation of biodiversity in the habitat. The table can be used for initial habitat evaluation, for decision making on whether it needs restoration, as well as for the assessment of restoration and management of the habitat.

This assessment only includes the indications that can be determined and used by any grassland owner or manager. A detailed evaluation of the grassland requires the use of a comprehensive methodology (Anon. 2016) by an expert with appropriate experience and education. Therefore, the limitations of the use of this table must be taken into consideration:

- the status of the grassland cannot be determined by statistically calculating the sum of particular parameters (☺, ☺ or ☹);
- none of the parameters can be used as the only one for making conclusions on the health of the grassland;
- long-term management measures may not be based on only one of the parameters, without the evaluation of these measures on other parameters;
- to develop a scheme of nature-friendly management for a longer period of time, a comprehensive assessment of a grassland is necessary. In most cases it means the involvement of an expert in the evaluation of the grassland. A comprehensive methodology that has been developed under the supervision of the Nature Conservation Agency for the purpose of Natura 2000 monitoring and grassland assessment, mapping and inventory must be used for this purpose (Anon. 2016).

☺ – this parameter indicates favourable condition, no restoration activities are needed (it should be taken into account that some other parameters can indicate that restoration is needed);

☺ – this parameter indicates unfavourable (inadequate) condition, restoration is recommended;

☹ – this parameter indicates unfavourable (bad) condition, restoration is necessary.

The table summarises parameters that must be assessed in order to determine the health status of a habitat, as well as indicators of those parameters (in the column "Rating"), pointing either to favourable or unfavourable condition.

Para-meter	Rating
Processes (natural and human induced processes that are important for grassland ecosystems)	
Previous and current management (evaluated over the last 5 years)	
☺	Semi-natural grassland for more than 50 years. Less commonly also a 20–50 year-old grassland, if the period of ploughing was short and non-intensive. Management that is optimal for the particular habitat for at least the last five years (in most habitats it is grazing or mowing with the gathering of hay, and grazing in the aftermath).
☺	A 30–50 year-old semi-natural grassland, being an improved grassland or arable land in the past. Suboptimal (but not optimal) management for the particular habitat for at least the last five years (in most habitats it is grazing or mowing with the gathering of hay, without grazing).
☹	A recent grassland (ex-arable land) – up to 15 years old, being an improved grassland or arable land in the past. Inappropriate management (for instance, mowing and leaving the grass, including the mulching of grass) for the last five years, or the grassland has not been managed for more than 3 years (optimal management – included in the description of particular habitat type).
Grazing pressure (assessed only if the grassland is grazed and grazing has been used for at least 3 years)	
☺	Grazing pressure is adequate to the capacity of the ecosystem (see habitat descriptions), a typical pasture vegetation mosaic with grazed and non-grazed patches is observed.
☺	The grazing pressure is too high, or indicators of overgrazing dominate in the vegetation (*Plantago major*, *Trifolium repens*), a lot of trampled paths, soil erosion.
☹	Grazing pressure is too low, or the grassland gets overgrown with shrubs or expansive herbaceous species.

Table (continued)

Para-meter	Rating
Frequency and time of mowing in places important for birds (it is only evaluated, if the main use of the grassland has been mowing and if it has been implemented for at least 3 years)	
🙂	Mowing in the second half of July and August continued by grass removal. If mown in June and the first half of July, animal repelling devices must be used.
😐	Mowing once or twice per year (first mowing in June – July) with the collection of grass, or mowing once per year with aftermath grazing; moderate grazing during the entire season or year-round grazing.
🙁	Mowing less frequently than once a year, or mowing with mulching, or mowing more frequently than twice per year by maintaining a lawn-like landscape.
Frequency and time of mowing in places significant for plants and vegetation (it is only evaluated, if the principal use of the grassland has been mowing and if it has been implemented for at least 3 years)	
🙂	Mowing once or twice per year (first mowing in June – July) with drying and collection of hay, or mowing once per year followed by aftermath grazing.
😐	Mowing in late July – August with the grass removal.
🙁	Mowing less frequently than once per year or mowing with mulching. Mowing more frequently than twice per season (creation of a lawn).
Fertilisation	
🙂	Not fertilised, or fertilised once during several years with animal manure to compensate for nutrient removal (instead of doing that for the purpose to considerably increase productivity), on average up to 30 kg N ha^{-1}.
😐	Fertilisation with manure 30–50 kg N ha^{-1}.
🙁	Fertilised with manure or mineral fertilisers in the amount of above 50 kg of N ha^{-1}.
Hydrological regime	
🙂	The hydrological regime is appropriate for the needs of the habitat. If the land is drained with drains or ditches, the vegetation has adapted to the new conditions and the habitat is stable – conforms to the criteria of EU protected habitat type; spring floods in the floodplain occur every year or with the frequency characteristic of a river or its section.
😐	The moisture has increased recently (over a period of a few years), indicators of paludification are observed (*Comarum palustre*, high sedge tussocks, *Sphagnum* mosses); floods seldom occur in the floodplain, because it has been regulated with ditches.
🙁	The hydrological regime has changed by recent drainage (digging of ditches, drains), the vegetation is atypical, there are signs of drainage (peat decomposition); spring floods do not occur in the floodplain, because the floodplain is regulated or the grassland is located in a polder.
Habitat Structure and Species	
Turf	
🙂	Dense turf, developed over several decades.
😐	Partially developed turf, in some places it is loose, in others it is dense.
🙁	Poorly developed loose turf, and signs of ploughing are observed.
Litter layer and its depth. The litter consists of dead, non-decomposed and partially decomposed above-ground parts of the plants.	
🙂	There is no litter, or it covers less than 20% of the soil surface (if it covers more, then it is thin, loose and even the seedlings of the smallest plants can grow through it).

Table (continued)

Para-meter	Rating
😐	Continuous or slightly disrupted layer of litter, (up to 50% of the territory does not have litter or the amount of litter is low), it is 3–5 cm thick.
😞	continuous layer of litter, which is thicker than 5 cm.

Trees and shrubs

😃	There are no trees and shrubs, or they cover no more than 10% of the area.
😐	Shrubs cover 10–25% of the area and are as a result of overgrowth.
😞	Remarkable overgrowth (more than 25%).

Decrease of grassland area due to overgrowing from sides

😃	No tree and shrub overgrowth from grassland edges or in depressions, or on steep slopes.
😐	Some tree and hrubs encroaching from edges, depressions or steep slopes. It is possible to control it by mowing.
😞	Significant overgrowth with trees and shrubs from edges (several meters with young tree and shrub vegetation), in depressions, or on steep slopes. As a result, grassland area has decreased. It is not possible to remove the overgrowth wih mowing or grazing, but cutting is necessary.

Invasive species (see Annex 3)

😃	Invasive species are absent.
😐	Invasive species occur, but they do not dominate.
😞	Invasive species dominate (over 25% of the cover, at least 10% of the area).

Expansive species (see Annex 3)

😃	Expansive species are absent or occur in small quantities (they do not dominate – there are no patches dominated by expansive species).
😐	Expansive species occur throughout the entire grassland or part of it, but their domination in the sward occurs in less than 10% of all the grassland area.
😞	Expansive species dominate in a large portion of the grassland (more than 10% of its area).

Number and abundance of semi-natural grassland indicator species (see Annex 4 for the list of indicator species)

😃	There are 10 or more indicator species throughout the entire area of grassland, and most of them occur frequently throughout the grassland.
😐	There are 5–9 indicator species and only a few of them occur frequently throughout the entire area of the grassland, others are represented by individual specimens or their groups.
😞	There are less than 5 indicator species, mostly there are only a few specimens, located at the forest edges or roadsides and they do not occur throughout the entire grassland.

Dominant species

😃	Species characteristic of grassland habitat dominate the sward.
😐	Habitat specific species and sown grasses or legumes, or expansive species are equally represented in the vegetation.
😞	Sown grasses and/or legumes or expansive species dominate the sward.