

PART II PLANNING OF GRASSLAND HABITAT MANAGEMENT AND ASSESSING ITS SUCCESS

CHAPTER 5. Definition of Habitat Conservation and Management (S. Rūsiņa, A. Priede)

Different terms have been used in the guidelines to refer to activities that focus on the provision of favourable conservation status of habitats. **Habitat conservation** in the widest sense includes various active and passive measures aimed at the conservation of nature values – establishment of protected nature areas and micro-reserves, various forms of certain prohibitions

and restrictions, nature conservation measures and development planning (the guidelines do not include those aspects), as well as active, targeted ecological restoration and management of degraded habitats and creation and maintenance of habitats in favourable conservation status.

The term **habitat management** includes their maintenance as well as ecological restoration and creation (Mayer, Rietkerk 2004) (Fig. 5.1).

The use of the term **ecological restoration** in the context of semi-natural grassland management in Lat-



Fig. 5.1. Management approaches in semi-natural grassland conservation.

via has changed a lot to date. In practice, restoration has often been understood as only first-time actions, for example, cutting of shrubs, and immediately after cutting the grassland has been considered as restored, although the species composition and structure characteristic of the habitat have not been developed yet. This book adheres to the more strictly defined boundaries of the use of the ecological restoration concept (Fig. 5.2).

Semi-natural grassland ecological restoration (hereinafter referred to as restoration) is the set of biotechnical measures in a place where some of the grassland habitat type features or processes remain. The result of these actions is a restored semi-natural grassland. For example, restoration of grassland in a floodplain overgrown with shrubs is floodplain grassland restoration. Processes important for the existence of habitat have been preserved in such a place – the soil composition and chemical properties, flooding activity, usually also some floodplain grassland characteristic species; they either grow on forest edges and in the scrub itself or are preserved as seeds in the soil. The concept “ecological restoration” is the opposite of the grassland restoration concept used in agronomy, which implies grassland ploughing followed by the creation of new sown grassland.

Ecological restoration measures are usually one-time, for example, felling of trees and shrubs or grinding of roots. They can also involve measures that are repeated until recovery is achieved. For example, mowing shrub regrowth for several years until no additional time and expenses are necessary and control is achieved by regular maintenance mowing. Complete ecological restoration is not always possible, therefore its term also includes activities aimed at the improvement (rehabilitation) or partial recovery of the habitat (Groom et al. 2006) (Fig. 5.2).

Creation of semi-natural grassland is a set of biotechnical measures in a place where no habitat in-

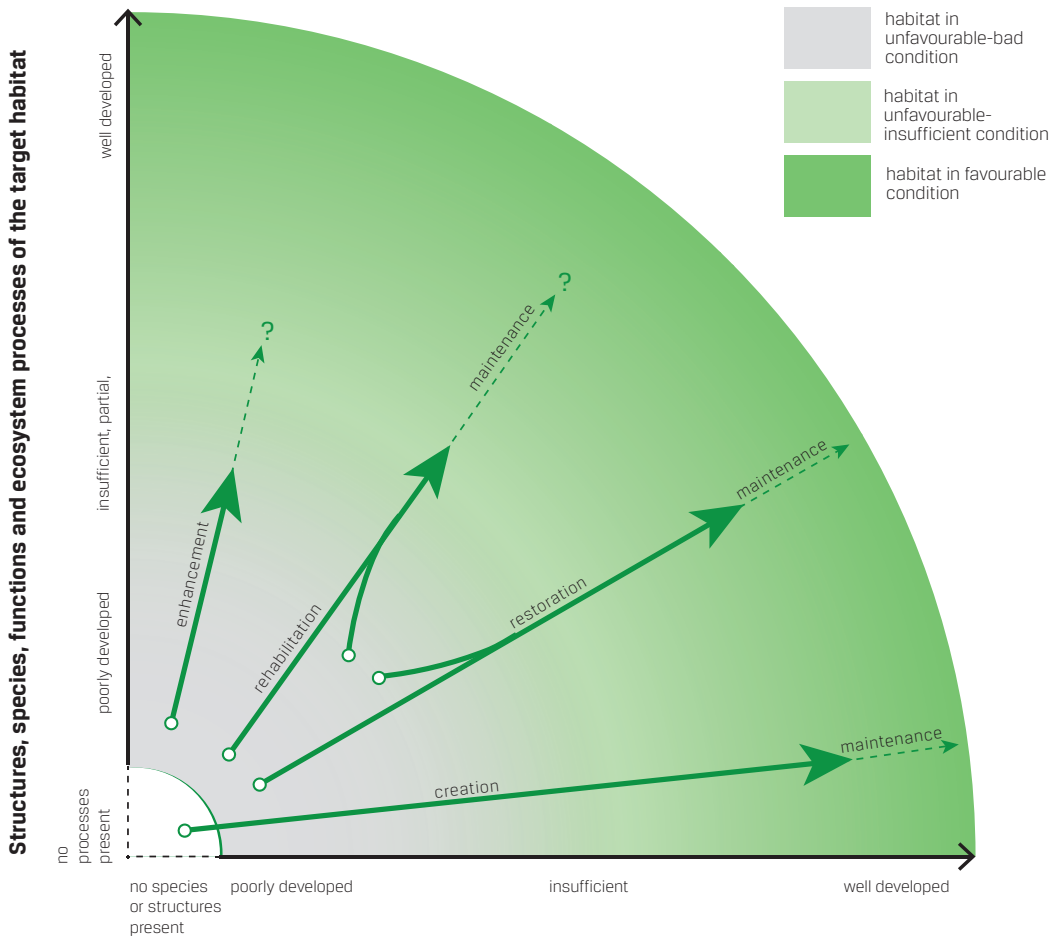
dications or important processes remain or where the habitat has never existed. The aim of these actions is to create the environmental conditions and structure necessary for the habitat and to introduce the habitat characteristic species. Targeted action can create or improve the conditions to the extent that leads to an increase in biodiversity after some time. It is expected that the creation of habitats may become more relevant in Latvia, as the current semi-natural grassland area is smaller than the area that can provide favourable conservation status for semi-natural grassland species and communities. Furthermore, the existing area is decreasing due to abandonment and cultivation (see Chapter 4.3). The creation of new habitats is not a goal in itself, but in some cases in certain habitat types it can at least partially compensate for the consequences of semi-natural grassland destruction and EU protected habitat area reduction.

For example, in a site that was once a floodplain with a floodplain grassland, but was later fully drained, had no flooding for several decades and was used as arable land, the creation of a floodplain grassland is actually new habitat creation, because all components must be recreated from scratch – flooding action needs to be restored, soil properties need to be changed and characteristic species of the habitat need to be introduced, since they are not preserved at the site.

Ecological restoration or the creation of semi-natural grassland habitat is a time-consuming process. Restoration can only happen relatively quickly (within 1-2 years) in the case if most of the grassland characteristic species are still present and all the required ecological processes are taking place. However, in most cases, the restoration process takes at least 5-10 years. In the first years of restoration it is likely that the grassland will not resemble the target habitat. This especially applies to situations, where the grassland has been almost completely altered, for example, transformed into scrubland or forest, drained and cul-

Examples of successful grassland restoration in Europe

In Norway calcareous meadows recovered in ex-arable land after 23 years of mowing (Austrheim, Olsson 1999). In the Netherlands a calcareous meadow restored in an ex-arable field after 30 years still featured species composition of a transitional phase between a typical calcareous meadow and ex-arable land (Willems 2001), which can be explained by two reasons: the lack of typical semi-natural grasslands around this meadow and the existence of arable field for several decades before meadow restoration – lack of seed bank. In the Swiss mountains, the restoration of wet calcareous sedge meadows was equally successful in places which were abandoned for four years and 35 years ago. After only two years of mowing, their species diversity increased significantly (Billeter et al. 2007) and reached approximately the same level as in adjacent meadows that were mown in the long term. Such results are explained by the fact that no substantial soil factor changes had taken place in the abandoned meadows, the hydrological regime had not been changed artificially, there was no fertilisation and the seeds of plant species typical of the habitat had been preserved in the vegetation or at least the soil seed bank. Furthermore, the introduction of woody plants in mountain meadows is typically slower than in lowlands.



Structures, species, functions and ecosystem processes of the target habitat

Figure 5.2. Creation, ecological restoration and maintenance of an EU protected grassland habitat (after Groom et al. 2006, modified).

tivated, fully overgrown with expansive forb species (e.g., *Anthriscus sylvestris*, *Aegopodium podagraria*, *Callamagrostis epigeios*).

In order to recognise grassland to be created or restored as a protected grassland habitat, it should meet the minimum quality criteria defined for EU grassland habitats (Auniņš (ed.) 2013). To consider that the grassland has been completely restored, it must meet the favourable condition as defined for the corresponding EU protected habitat (Rūsiņa 2013). Once the habitat has been restored (or created), it should be maintained in a favourable condition.

Semi-natural grassland maintenance in the context of nature conservation is a set of biotechni-

cal (also agrotechnical) measures carried out on an annual basis with the aim of preserving and maintaining the circulation of matter, species composition and structure characteristic for a semi-natural grassland ecosystem (maintenance of an ecosystem in a certain natural variability range). The desired result of maintenance is semi-natural grassland in a favourable condition. In this context, the term “**management**” is often used in Latvia. Since the use of this term is very broad and vague, in these guidelines it is only used as a broader notion that includes restoration, creation and maintenance activities. Restoration and maintenance measures are often not strictly separated, but they may occur at the same time.