Natura 2000 habitat 6410 : Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae)


(photo Inverde/Wim Massant)

Habitat 6410 is made up of hayfields on nutrient poor soils (very little phosphorous nor nitrogen). As biomass production is low, in many cases the grass can only be cut once a year. In winter these fields can be covered with a little bit of water, in summer they dry out superficially. The vegetation exists thanks to the influx of groundwater, more or less rich in minerals, which can be even calcareous. As the grass is cut annually purple moor-grass (Molinia caerulea) cannot develop into big tussocks and these grasslands can be very rich in species.

In Dutch language these hayfields are called “blue grasslands” due to a lot of species with bleuish leaves or flowers : purple moor-grass (Molinia caerulea), carnation sedge (Carex panicea), glaucous sedge (Carex flacca), tawny sedge (Carex hostiana), heath grass (Danthonia decumbens), and devil’s-bit (Succisa pratensis). This habitat should not be confused with degraded wet heathlands dominated by tussocky purple moor grass, which are not managed, acid and very poor in species

In literature Molinia meadows are divided into on the one hand more alkaline vegetations with for example flea sedge (Carex pulicaris) and orchids like marsh helleborine (Epipactis palustris), and on the other hand more acid situations with whorled caraway (Carum verticillatum) and dwarf viper’s-grass (Scorzonera humilis). Grasslands on more acid soils with a lot of sharp-flowered rush (Juncus acutiflorus) are part of this habitat too.

Where to find it?

Habitat 6410 is widely distributed over Europe, from Sweden to Portugal and from Ireland to Bulgaria. These hayfields occur from plain to montane levels, on clayey-silt laden soils, but also peaty soils occur. But it is one of the habitats which has suffered the biggest decline during the 20th century.

Typical species

The following typical plants are mentioned in the European habitat description :

- purple moor-grass (Molinia caerulea)
- Cambridge milk parsley (Selinum carvifolia)
- tuberous thistle (Cirsium tuberosum)
- autumn crocus (Colchicum autumnale)
- Irish fleabane (Inula salicina)
- British yellowhead (Inula britannica)
- pepper saxifrage (Silaum silaus)
- great burnet (Sanguisorba officinalis)
- saw-wort (Serratula tinctoria)
- dragon's teeth (Tetragonolobus maritimus)
- fen violet (Viola persicifolia = V. stagnina)
- marsh violet (Viola palustris)
- fen bedstraw (Galium uliginosum)

- meadow thistle (Cirsium dissectum)
- marsh hawk's-beard (Crepis paludosa)
- common woodrush (Luzula multiflora)
- compact rush (Juncus conglomeratus)
- adder's-tongue (Ophioglossum vulgatum)
- big trefoil (Lotus uliginosus)
- maiden pink (Dianthus deltoides)
- tormentil (Potentilla erecta)
- creeping cinquefoil (Potentilla anglica)
- pale sedge (Carex pallescens)

The following species mentioned is not present in the wild in Belgium :

- fringed pink (Dianthus superbus)

Typical animals :

- marsh fritillary (Euphydryas aurinia)
- small pearl-bordered fritillary (Boloria selene)
- water-meadow grasshopper (Pseudochorthippus montanus)

Management and threats

The hayfields of habitat 6410 were part of the old agricultural landscape which was totally changed in the 20th century because of modern agriculture techniques. These meadows were not ploughed nor reseeded. Manure was hardly used and pesticides were not yet known. One cut a year was enough motivation for the farmers in former centuries to continue to manage this landscape. This habitat is very sensitive to import of nutrients like phosphorous (in manure) and nitrogen (in manure, airborn or through flooding with nutrient-rich water).

(photo Willy Verbeke)

To maintain habitat 6410 a correct influx of ground-water with minerals is also very important. It means that not only the internal management has to be maintained, but also the hydrology of the surrounding landscape, strong drainage being very negative. As the situation cannot become too acid, rainwater has to be drained superficially to let the mineral-rich ground water sufficiently influence the vegetation.

If not mown habitat 6410 develops into tall herb communities and eventually woodlands, causing the disappearance of the typical species. Many of them have become very rare or extinct in most European countries in the last century, which makes restoring these vegetations even harder. These Molinia meadows have to be mown with evacuation of the biomass; mostly one harvest in summer is enough to maintain them. For the fauna (typical insects and others) it is important not to cut everything at once but to leave at least 15% unmown each time.

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