E3.4b Moist or wet mesotrophic to eutrophic pasture

Summary

The pastures belonging to this habitat type are found on moist to wet, mesotrophic to eutrophic soils, that are generally inundated during winter and spring, but which may become dry in summer. Their main occurrences are in floodplains, along the shores of lakes and other large water bodies (including along the shores of the Baltic Sea) and more fragmentarily along ditches, where the natural conditions have been strongly affected by hydrological measures such as drainage and intensification of agricultural use. The soils can be sandy to clayey, even peaty or sometimes brackish. Grazing is mostly by cattle which can strongly affect the nutrient status and compaction of the soil and plants tolerant of inundation and trampling dominate here with a paucity of attractive flowers and a poor associated invertebrate fauna.. Though still extensive and widely distributed in the temperate lowlands of Europe, there have been substantial losses of extent and quality. Protecting or restoring what remains demands appropriate hydrological conditions and not too intensive grazing regimes.

Synthesis

Based on a strong reduction in quantity over the past 50 years, this habitat type is Endangered (EN) in both EU28 and EU28+. A substantial reduction in biotic and abiotic quality results in a status Vulnerable (VU) for EU28 and Near Threatened (NT) for EU28+.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Endangered	A1	Endangered	A1

Sub-habitat types that may require further examination

No sub-types in need of further examination. The reduction in quantity and quality refers to the whole range of the habitat type.

Habitat Type

Code and name

E3.4b Moist or wet mesotrophic to eutrophic pasture

Eutrophic moist grasslands are, in spite of large-scale drainage, still widespread in the Netherlands, like here in the Eemland area, south of the IJsselmeer (Photo: Joop Schaminée).

Inula brittanica is a characteristic species of eutrophic grasslands, although the striking flowers, under a grazing regime, are often eaten and therefore not seen (Photo: Joop Schaminée).

Habitat description

Pastures or trampled grasslands on mesotrophic to eutrophic, wet to moist sites in the temperate regions

of Europe. Naturally such grasslands occur in floodplains and on shores of lowland lakes, in poorly drained places that are grazed by wild animals or cattle. More anthropogenic they are found along banks of ditches, and in wet grasslands in sites where cattle gathers or that are inundated a long time of the year. The soil may vary from clayey, sandy to peaty and sometimes is brackish. The sites are inundated during winter and spring, but fall dry in summer. The habitat is most common in riverine areas, and may occupy large areas under natural flooding regimes. Embanking of floodplains and regulating of water courses may result in a loss of area of the habitat. On the other hand, intensive grazing of grasslands may result in the species composition of this habitat on the lower and most trampled sites. The species combination consists of plants that endure long periods of inundation (and trampling) very well, like *Potentilla anserina*, *Trifolium fragiferum*, *Trifolium repens*, *Plantago major*, *Agrostis stolonifera*, *Mentha pulegioides*. They develop and flower in the dry periods. Some of them are able to quickly occupy empty sites by stolones or rhizomes. Other plants in the communities are especially resistant to grazing by being unpalatable, like *Juncus inflexus* and *Rumex crispus*. Most species of the habitat are common and widespread, but a few rare and more restricted species are characteristic, amongst which *Apium repens*, *Blysmus compressus*, *Alopecurus bulbosus*, *Carex vulpina* and *Teucrium scordium*. The habitat has some species in common with pioneer communities of river shores (type C3.5a), with which type transitions and mosaics occur, but in general type E3.4b is a more closed community, really a grassland type. On the higher site it may form mosaics with Cynosurion-pastures (habitat E2.1a) or moist or wet hay meadows (habitat E3.4a). Some other species are in common with tall-herb communities on moist sites, like *Mentha longifolia*. The habitat occurs widespread throughout the temperate European lowlands. In most of the Mediterranean region it is replaced by communities of habitat E3.2a Mediterranean short moist grassland of lowlands. In the continental parts of Europe the habitat is rare, and restricted to sites with long-term high water levels. Similar communities occur on the brackish, higher parts of Atlantic and Baltic saltmarshes, but in that case they are included under habitat A2.5b or A2.5c. Also inland salt pan communities of the Lolio-Potentillion are excluded, as they are considered under type E6.2 or E6.3.

Indicators of good quality:

• Natural flooding regime

• Long term inundation during winter and spring

• Maintenance of grazing pressure

• Absence of non-native plant species

Characteristic species:

Flora: Vascular plants: *Agrostis stolonifera*, *Alopecurus bulbosus*, *Alopecurus geniculatus*, *Blysmus compressus*, *Cardamine parviflora*, *Carex otrubae* (= *C. cuprina*), *Carex vulpina*, *Carex hirta*, *Eleocharis uniglumis*, *Festuca arundinacea*, *Gratiola officinalis*, *Glyceria fluitans*, *Inula brittanica*, *Juncus articulatus*, *Juncus compressus*, *Juncus effusus*, *Juncus inflexus*, *Lolium perenne*, *Mentha longifolia*, *Mentha pulegium*, *Mentha suaveolens*, *Oenanthe fistulosa*, *Plantago major* ssp. *intermedia*, *Poa trivialis*, *Potentilla anserina*, *Potentilla reptans*, *Pulicaria dysenterica*, *Pulicaria vulgaris*, *Ranunculus repens*, *Ranunculus sardous*, *Rorippa* (*Nasturtium*) *microphylla*, *Rorippa sylvestris*, *Rumex conglomeratus*, *Rumex crispus*, *Teucrium scordium*, *Trifolium fragiferum*, *Trifolium repens*, *Triglochin palustris*.

Classification

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS:

E3.4 Moist or wet eutrophic and mesotrophic grassland

EuroVegChecklist:

Potentillion anserinae Tx. 1947

Juncion inflexi Knapp 1971

Annex I:

-

Emerald:

-

MAES-2:

Grassland

IUCN:

4.4. Temperate grassland

Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?
No

Justification
The type has a wide distribution thoughout Europe. It has been recorded in 31 countries.

Geographic occurrence and trends

EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Austria	Present	75 Km^2	Decreasing	Decreasing
Belgium	Present	Km^2	-	-
Bulgaria	Present	Km^2	Decreasing	Decreasing
Croatia	Present	35 Km^2	-	-
Czech Republic	Present	9 Km^2	Decreasing	Decreasing
Estonia	Present	16 Km^2	Unknown	Decreasing
Finland	Finland mainland: Present	40 Km^2	-	-
France	France mainland: Present	2100 Km^2	Decreasing	Decreasing
Germany	Present	Km^2	Decreasing	Decreasing
Hungary	Present	400 Km^2	Decreasing	Decreasing
Ireland	Present	12354 Km^2	Unknown	Unknown
Italy	Italy mainland: Present	143 Km^2	Decreasing	Decreasing
Latvia	Present	95 Km^2	Decreasing	Decreasing
Lithuania	Present	90 Km^2	Decreasing	Decreasing
Netherlands	Present	25 Km^2	Stable	Decreasing
Poland	Present	8 Km^2	Unknown	Decreasing
Romania	Present	200 Km^2	Decreasing	Decreasing
Slovakia	Present	10 Km^2	Stable	Decreasing

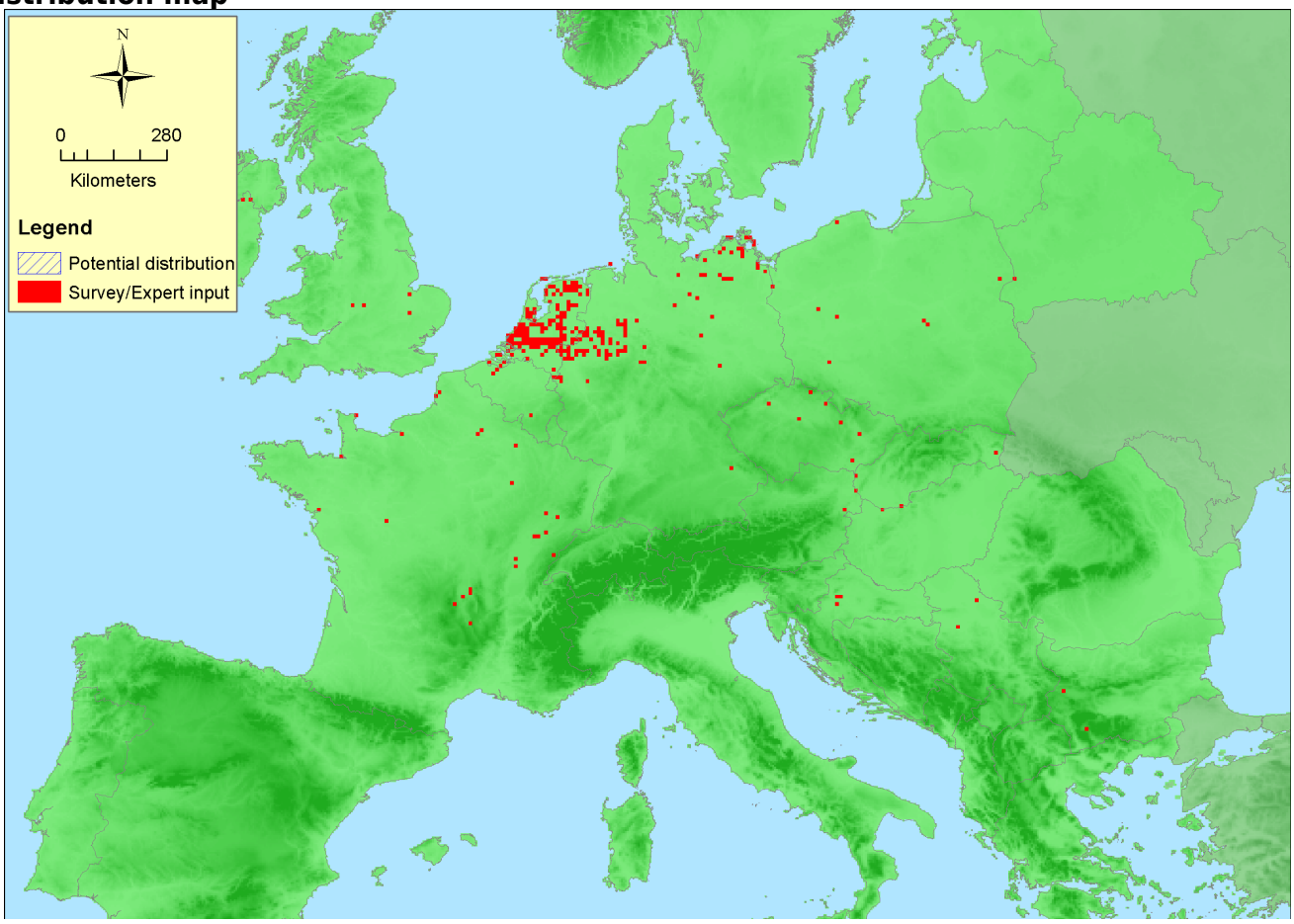
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Spain	Spain mainland: Present	81 Km^2	Stable	Unknown
UK	United Kingdom: Present	30 Km^2	Decreasing	Decreasing

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Bosnia and Herzegovina	Present	3 Km^2	Decreasing	Decreasing
Switzerland	Present	350 Km^2	Stable	Decreasing

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	2363550 Km^2	291	15700 Km^2	
EU 28+	2363550 Km^2	296	16060 Km^2	

Distribution map



The map is very incomplete due to large data gaps, and it is reflecting mainly availability of data in the EVA database. Especially the Atlantic countries Ireland and United Kingdom are strongly underrepresented. Data sources: EVA.

How much of the current distribution of the habitat type lies within the EU 28?

About 80% (rough estimate).

Trends in quantity

Recent trend EU28 = -54.3%; Recent trend EU28+ = -51.5%. Although data from some of the countries where the habitat type is widely distributed are missing, the calculated figures seem to be correct. A remark has to be made for Latvia, where the loss is defined at 96%, contributing quite a lot to the overall figure.

Future trend (EU28 and EU28+): the decrease will continue, but at a lower rate than over the last twenty years; quite some countries are reporting a stable situation at present, where there has been a decrease in the past (e.g. Germany and France).

Historical trend (EU28 and EU28+): few quantitative data are available, but reported data show a large decrease in the past (e.g. UK: >97%, Hungary: 80-90%).

- Average current trend in quantity (extent)
  EU 28: Decreasing
  EU 28+: Decreasing
- Does the habitat type have a small natural range following regression?
  No
  Justification
  The EOO is larger than 50000 km^2.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  The habitat type has a wide distribution throughout Europe (it has been recorded from 31 countries). The surface of the sites can be quite large, up to several hectares.

Trends in quality

Within EU28 about 50% of the total area are degraded with a weighted severity of 50%. Within EU28+ 45% are degraded with a weighted severity of 50%. Calculations are based on average values from data provided by 10 (out of 20) EU28 countries and 2 additional EU28+ countries.

- Average current trend in quality
  EU 28: Decreasing
  EU 28+: Decreasing

Pressures and threats

The main threats are agricultural intensification (fertilisation, drainage) and changes in water regimes of the major river systems in Europe, like the Danube and the Rhine. Other major losses are due to direct habitat destruction (e.g. by urbanisation).

List of pressures and threats

Agriculture

Agricultural intensification
Fertilisation

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Natural System modifications

Flooding modifications
Water abstractions from groundwater

Conservation and management

Although these pastures are still available over large areas, there are ongoing risks for further degradation. To preserve the still existing grasslands, safeguarding the appropriate hydrological conditions is a prerequisite. To restore degraded grasslands, the pressure from agricultural use (applying of fertilizers) has to be reduced.

List of conservation and management needs

Measures related to agriculture and open habitats

Maintaining grasslands and other open habitats

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving the hydrological regime

Conservation status

There is no Annex I type assigned to this habitat type.

When severely damaged, does the habitat retain the capacity to recover its typical character and functionality?

Depending on the type of damage, different forms of restoration are required. When the sites are overgrown with shrubs and trees, these woods have to be cleared; when grasslands still exist but the typical species are absent, a reduction of the amount of fertilizer is needed. In all cases, grazing regimes must be set up, whereas the hydrological conditions have to be appropriate (waterlogged soils by periodic inundation).

Effort required

20 years
Through intervention

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-54.0 %	unknown %	unknown %	unknown %
EU 28+	-51.4 %	unknown %	unknown %	unknown %

The values for A1 have been calculated from the territorial data sheets. The calculated trend over the last 50 years leads to category Endangered (EN) both for EU28 and EU28+. No data (percentages) available for A2a, A2b and A3.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km^2	Yes	Yes	No	>50	Yes	Yes	No	No
EU 28+	>50000 Km^2	Yes	Yes	No	>50	Yes	Yes	No	No

EOO and AOO are well above the thresholds for evaluating Criterion B.

Criterion C and D: Reduction in abiotic and/or biotic quality

Criteria C/D	C/D1		C/D2		C/D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	50 %	50 %	unknown %	unknown %	unknown %	unknown %
EU 28+	45 %	50 %	unknown %	unknown %	unknown %	unknown %

Criterion C	C1		C2		C3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion D	D1		D2		D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%
EU 28+	unknown %	unknown%	unknown %	unknown%	unknown %	unknown%

The values for C/D1 have been calculated from the territorial data sheets, which we obtained from 31 countries. The calculated figures lead to categories Vulnerable (VU) for EU28 and Near threatened (NT) for EU28+. No data available for C/D2 and C/D3. The degradation in quality refers to both biotic features and abiotic circumstances.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unknown
EU 28+	unknown

There is no quantitative analysis available that estimates the probability of collapse of this habitat type.

Overall assessment "Balance sheet" for EU 28 and EU 28+

	A1	A2a	A2b	A3	B1	B2	B3	C/D1	C/D2	C/D3	C1	C2	C3	D1	D2	D3	E
EU28	EN	DD	DD	DD	LC	LC	LC	VU	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	EN	DD	DD	DD	LC	LC	LC	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Endangered	A1	Endangered	A1

Confidence in the assessment

Medium (evenly split between quantitative data/literature and uncertain data sources and assured expert knowledge)

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