

E1.A Mediterranean to Atlantic open, dry, acid and neutral grassland

Summary

This habitat is an ephemeral response to the yearly cycle of spring rains and summer drought through the western Mediterranean and more fragmentarily into the Atlantic and Continental zones. In such situations, a high diversity of small annual plants make a brief colourful appearance on bare patches of nutrient-poor, acidic soils. Typically, the habitat occurs as small patches in intimate mosaics with heath and scrub and there has provided a valuable supplementary resource for sheep at lambing time. Over-grazing, shifts to arable cultivation, afforestation and urbanisation all pose threats but the biggest losses in extent and especially of quality have been to abandonment of traditional pastoralism. Fire represents a very effective tool to block the subsequent succession.

Synthesis

In EU28 this habitat type is assessed as Vulnerable (VU) based on a severe qualitative decrease, due to a reduction in abiotic and/or biotic quality (Criterion C/D1) during the last 50 years. Extent and severity are respectively around 54 and 55%. In EU28+, the application of the same Criterion qualifies this habitat type as Near Threatened (NT), due to a comparable qualitative reduction (severity of 51%) affecting 37% of its extent. As concerns the quantitative trend (Criterion A), these grasslands also show a general decrease during the last 50 years, although it is too low (between 11 and 18%, and between 11 and 17%, respectively for EU28 and EU28+) to meet the indicated thresholds. The values of EOO and AOO are very huge, due to a large distribution area of these annual grasslands, and the application of Criterion B does not meet any threshold qualifying for higher threat levels, bringing also in this case to the category LC. It should be considered, however, that the actual area of the spots covered by these short-sized annual grasslands are very restricted and may be easily overestimated. There are no data available for the application of Criterion E.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	C/D1	Near Threatened	C/D1

Sub-habitat types that may require further examination

No sub-habitats have been distinguished for further assessment .

Habitat Type

Code and name

E1.A Mediterranean to Atlantic open, dry, acid and neutral grassland



Mediterranean dry acid grassland with *Trifolium cherleri* on sandy substratum. Hills around Panicarola, Central Italy (Photo: Daniela Gigante).



Mediterranean dry acid grassland with *Tuberaria guttata* near Madrid, Spain (Photo: Rodrigo Alonso).

Habitat description

Siliceous low sized grasslands of low density and biomass, formed by small ephemeral annuals presenting the typical eco-morphological traits syndrome of the pioneer initial stages of succession. Vascular plant species have a short life cycle of less than one year, usually starting in autumn/winter with the germination and seedlings establishment, followed by a fast growth in early spring and a flowering and a rapid seed production in late spring to early summer. After seed dispersal, the plants immediately die (*agostamiento* in Spanish) leaving their offspring in form of dormant seeds lying in the soil seed bank until autumn rainfalls trigger germination and the outbreak of a new generation. The biomass of the vegetative phases of this cycle strongly depends on the rainfall amount during early spring, reaching to have high biomass if abundant precipitations are received in the wet season and remaining practically invisible when drought becomes dominant in spring. In such cases seeds remain dormant in the seed bank until the next germinating period.

Soils are dry, with no gravitational surplus of water and no hydromorphy in their profile. Texture varies from coarse sandy to lime rich and inorganic nutrient content is generally low, with low values of pH. The disturbance regime endured by these grasslands does not include strong nitrification due to artificial fertilization nor soil tilling, keeping soils structured and with low content in nitrogen and phosphate compounds. This habitat almost always occupies small surfaces in mosaic with others, usually shrubby or herbaceous, vegetation types, in the clearings and open spaces between shrubs or other taller perennial herbs or grasses. In the Mediterranean region as well as in other Atlantic areas, the scrub or heathland landscape, resulted from human disturbance, entails such inextricable mosaic between patches of these annual grasslands and the scrub itself that it becomes extremely difficult to disentangle one from the other in the medium to large scale, making it difficult performing separate cartographies. These annual grasslands are considered being the initial stage of succession replacing mature vegetation of mainly *Quercus* forests in disturbed areas submitted to grazing and fire.

This habitat type is the silicicolous replicate of E1.3c being more widely represented in Temperate and

Atlantic Europe as in these areas base poor substrata are more frequent due to the leaching effect on the soils favored by the more abundant summer rainfalls. In spite of its low biomass, this habitat type can reach a high species richness, particularly in Mediterranean countries. The total number of taxa bounded to this habitat type is more than one hundred, most of them with a Mediterranean optimal distribution, with few endemics of restricted area. This habitat, together with the homologous E1.3c of base-rich soils, incorporate the majority of the European annual vascular flora not bound to nitrophilic environments.

These grasslands can represent an appreciable resource for grazing flocks in spring period, when they are exploiting the scrub and heathland areas. They are not a highly valuable pasture in absolute terms, but they increase substantially the values of these scrub areas in spring, when sheep are breeding their lambs; for that reason, these grasslands contribute strategically to satisfy a temporary additional energetic and protein demand of the flocks and are much appreciated by the shepherds.

This habitat type occurs in most of the Temperate and Mediterranean countries of Europe but the highest frequency, quantity and diversity is found in the western Mediterranean area, particularly in the Iberian countries, where there are large areas with siliceous substrata with abundant scrub (matorral, garrigue or phrygana). It is also common in the siliceous territories of North Africa and Middle East.

Indicators of good quality:

- medium disturbance regime
- extensive grazing
- absence of nitrophilous species
- absence of signs of secondary succession (e.g. encroachment of chamaephytes or shrub species)

Characteristic species:

Vascular plants: *Aira caryophyllea* subsp. *caryophyllea*, *Aira caryophyllea* subsp. *multiculmis*, *Aira cupaniana*, *Aira elegantissima*, *Aira praecox*, *Aira tenorii*, *Airopsis tenella*, *Andryala integrifolia* var. *corymbosa*, *Anthoxanthum aristatum*, *Anthyllis lotoides*, *Apera interrupta*, *Aphanes cornucopioides*, *Aphanes microcarpa*, *Arabis nova* subsp. *iberica*, *Asterolinum linum-stellatum*, *Astragalus pelecinus*, *Briza maxima*, *Briza minor*, *Campanula lusitanica*, *Cerastium diffusum*, *Cerastium ramosissimum*, *Cerastium semidecandrum*, *Chamaemelum fuscatum*, *Coronilla dura*, *Corynephorus divaricatus*, *Crassula tillaea*, *Crucianella angustifolia*, *Ctenopsis delicatula*, *Erophila praecox*, *Eryngium tenue*, *Evax carpetana*, *Evax lasiocarpa*, *Evax pygmaea*, *Filago lutescens*, *Galium divaricatum*, *Gaudinia coarctata*, *Gnaphalium teydeum*, *Helianthemum aegyptiacum*, *Helianthemum sanguineum*, *Hispidella hispanica*, *Holcus annuus* subsp. *duriensis*, *Holcus gayanus*, *Hymenocarpos cornicina*, *Hymenocarpos lotoides*, *Hypochoeris glabra*, *Jasione echinata*, *Jasione montana* subsp. *gracilis*, *Jasione montana* subsp. *montana*, *Lathyrus angulatus*, *Lathyrus inconspicuus*, *Lathyrus sphaericus*, *Leontodon longirostris*, *Linaria elegans*, *Linaria intricata*, *Linaria pelisseriana*, *Linaria saxatilis* subsp. *saxatilis*, *Linaria saxatilis* var. *minor*, *Linaria sparteae*, *Linum trigynum*, *Logfia gallica*, *Logfia minima*, *Lolium aristatum*, *Lotus conimbricensis*, *Micropyrum patens*, *Micropyrum tenellum*, *Moenchia erecta*, *Molineriella laevis*, *Molineriella minuta* subsp. *australis*, *Molineriella minuta* subsp. *minuta*, *Myosotis incrassata*, *Myosotis stricta*, *Onobrychis caput-galli*, *Ononis cintrana*, *Ononis varelae*, *Ornithopus compressus*, *Ornithopus perpusillus*, *Ornithopus pinnatus*, *Paronychia cymosa*, *Paronychia echinulata*, *Periballia involucreta*, *Plantago bellardii*, *Psilurus incurvus*, *Pterocephalus diandrus*, *Rostraria azorica*, *Rumex bucephalophorus* subsp. *bucephalophorus*, *Rumex bucephalophorus* subsp. *canariensis*, *Rumex bucephalophorus* subsp. *gallicus*, *Scleranthus delortii*, *Sedum andegavense*, *Sedum arenarium*, *Sedum caespitosum*, *Sedum pedicellatum*, *Sedum willkommianum*, *Senecio minutus*, *Silene mariana*, *Silene portensis*, *Silene psammitis*, *Silene scabriflora* subsp. *megacalycina*, *Silene scabriflora* subsp. *scabriflora*, *Spergula morisonii*, *Spergula pentandra*, *Teesdalia coronopifolia*, *Teesdalia nudicaulis*, *Tolpis barbata*, *Tolpis umbellata*, *Trifolium arvense*, *Trifolium bocconeii*, *Trifolium campestre*,

Trifolium cherleri, *Trifolium phleoides* subsp. *willkommii*, *Trifolium stellatum*, *Trifolium striatum*, *Trifolium strictum*, *Trifolium sylvaticum*, *Trisetum ovatum*, *Tuberaria guttata*, *Veronica dillenii*, *Viola parvula*, *Vulpia bromoides*, *Vulpia ciliata*, *Vulpia muralis*, *Vulpia myuros*, *Vulpia unilateralis*.

Classification

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

EUNIS:

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Euroveg CheckList:

Helianthemion guttati Br.-Bl. in Br.-Bl. et al. 1940

Thero-Airion Tüxen & Oberdorfer 1958 em. Rivas-Martínez 1978

Crassulo tillaeae-Sedion caespitosi de Foucault 1999

Molinerion laevis Br.-Bl. et al. 1952

Sedion pedicellato-andegavensis Rivas-Mart. et al. 1986

Trifolion cherleri Micevski 1972 (Balkans)

Sclerantho-Myositidion incrassatae S. Brullo et al. 2001 (C E mediterranean)

Ornithopo pinnati-Gaudinion coarctatae F. Prieto et Aguiar, in F. Prieto et al. 2012 (Azores)

Vulpion ligusticae Aubert et Loisel 1971

Annex 1:

6220* Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*

Emerald:

-

MAES-2:

Terrestrial - Grasslands

IUCN:

4.4 Temperate grassland

Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?

Yes

Regions

Atlantic

Continental

Mediterranean

Justification

This habitat type occurs in most of the Mediterranean, Atlantic and Continental countries of Europe but the highest frequency, quantity and diversity is found in the western Mediterranean area, where there are large areas with siliceous substrata with abundant scrub (matorral, garrigue or phrygana). It is also common in the siliceous territories of North Africa and Middle East.

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)
<i>Austria</i>	Present	1 Km ²	Decreasing	Decreasing
<i>Belgium</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Bulgaria</i>	Present	457 Km ²	Decreasing	Decreasing
<i>Croatia</i>	Present	0.1 Km ²	Decreasing	Decreasing
<i>Cyprus</i>	Uncertain	Unknown Km ²	Unknown	-
<i>Czech Republic</i>	Present	0.7 Km ²	Decreasing	Decreasing
<i>France</i>	Corsica: Present France mainland: Present	100-1000 Km ²	Decreasing	Unknown
<i>Germany</i>	Present	Unknown Km ²	Unknown	Unknown
<i>Greece</i>	Crete: Uncertain East Aegean: Uncertain Greece (mainland and other islands): Uncertain	Unknown Km ²	Unknown	Unknown
<i>Ireland</i>	Present	0.1-0.5 Km ²	Unknown	Unknown
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	122 Km ²	Decreasing	Decreasing
<i>Luxembourg</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Malta</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Netherlands</i>	Present	Unknown Km ²	Unknown	Unknown
<i>Portugal</i>	Madeira: Present Portugal Azores: Present Portugal mainland: Present	130 Km ²	Decreasing	Unknown
<i>Romania</i>	Present	6 Km ²	Decreasing	Unknown
<i>Slovenia</i>	Present	0.1 Km ²	Stable	Stable
<i>Spain</i>	Canary Islands: Present Spain mainland: Present	364 Km ²	Decreasing	Decreasing

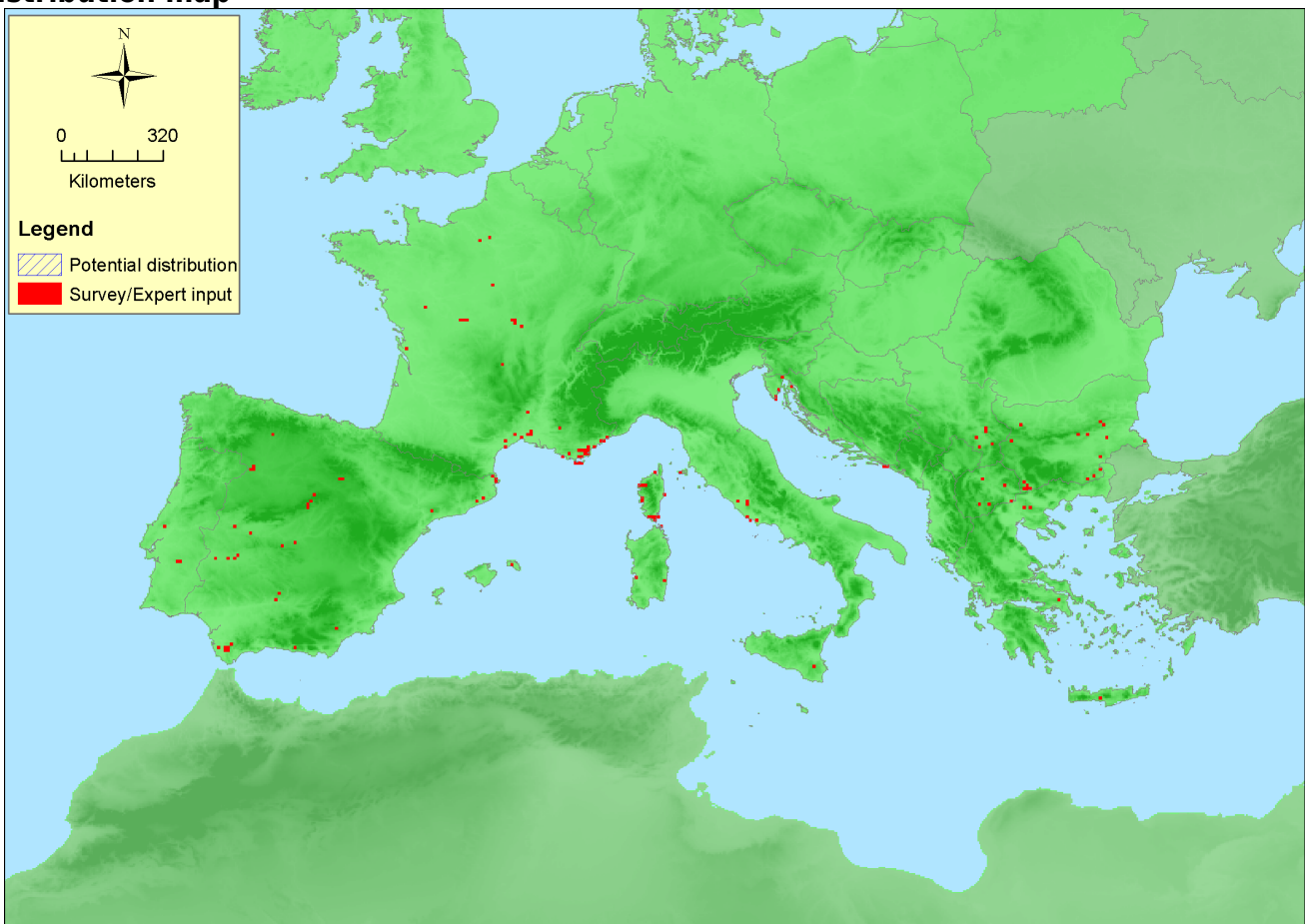
EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Albania</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Bosnia and Herzegovina</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Former Yugoslavian Republic of Macedonia (FYROM)</i>	Present	360 Km ²	Decreasing	Decreasing
<i>Kosovo</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Montenegro</i>	Uncertain	Unknown Km ²	Unknown	Unknown

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Serbia</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Switzerland</i>	Present	1 Km ²	Unknown	Unknown

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
<i>EU 28</i>	3089850 Km ²	123	>2000 Km ²	EOO+AOO to be corrected
<i>EU 28+</i>	3089850 Km ²	139	>2400 Km ²	EOO+AOO to be corrected

Distribution map



The map has many data gaps in all parts of the range, but the overall range is relatively well presented. Especially the distribution for Spain, Portugal and Italy is largely underestimated. Data sources: EVA.

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

Based on the available quantitative data (still missing from several countries, especially from EU28+), more than 3/4 (between 77 and 85%) of the total distribution of this habitat type lies inside the EU28 territory.

Trends in quantity

When considering only the EU28 countries, this habitat type shows a quantitative reduction between 11 and 18% of its former area, considering the last 50 years. Similar trends were recorded at the EU28+ level

(between 11 and 17% of reduction). The most severe reduction rates were reported by France (25%), Austria (30-50%), Czech Republic (65%).

- 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

These grasslands, although suffering for an evident quantitative reduction, have a very large natural range. This habitat type, as well as E1.3c, consist in annual dry grasslands which usually occupy very small patches in between the shrubs or the tufts of perennial herbs, being associated to the scrub and/or the perennial grassland system. This means that their inventory is hindered by this, and reliable data of extent are often difficult to obtain.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

No

Justification

The habitat type has a very large natural range.

Trends in quality

The qualitative decline for this habitat type could be calculated only based on a subgroup of countries reporting figures. In EU28, on average, it affected an extent of 54% of the total area during the last 50 years, with a degree of severity of 55%, showing a seriously declining trend. In some case it reached very high values, for instance in Bulgaria (extent 55%, severity 60%) and Czech Republic (extent 70%, severity 60%). As concerns the EU28+ countries, the qualitative decline is similar, affecting 37% of the total area with a severity degree of 51% in the last 50 years. Data about future or historical trends are not available.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The abandonment of traditional land use and extensive pastoral systems, which affected most of the European range of this habitat type in the last decades, remarkably reduced this habitat from both a quantitative and qualitative point of view and should be considered as its most significant pressure. On the other side, also overgrazing and intensive presence of cattle can represent a serious threat for these oligotrophic grasslands. Overgrowing by shrubs and tree species is a serious threat all over the habitat range, as a consequence of the abandonment, although the successional processes are not so fast due to the presence of shallow and poor soil. Fire represents a very effective tool to block the succession, and the lack of natural or controlled fires can accelerate the shrub encroachment. Changes in the land use, including transformation to arable land, forest planting on open ground, development of urbanized areas, intensification of use (e.g. fertilization, nitrogen input) can seriously damage this habitat type. Also climate change can play a role, with special reference to changes in the pluviometric regime. Invasive non-native species can locally affect the floristic composition.

List of pressures and threats

Agriculture

Modification of cultivation practices

Agricultural intensification

Grazing

Intensive grazing
Abandonment of pastoral systems, lack of grazing

Pollution

Air pollution, air-borne pollutants
Nitrogen-input

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession
Species composition change (succession)

Conservation and management

Maintaining, promoting and reintroducing the traditional pastoral systems are the most effective ways to preserve this habitat type. During the last 50 years, due to the progressive abandonment of a large part of the the areas of occurrence of this habitat type, the successional processes have long acted and in many cases conservation measures should include the mechanical eradication of shrubs, before being used again as extensive pastures. A controlled use of fire can also represent an effective way to maintain this habitat type.

List of conservation and management needs

Measures related to agriculture and open habitats

Maintaining grasslands and other open habitats

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species
Manage landscape features

Conservation status

Annex 1 types:

6220*: CON U1, MED U1, ALP XX

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

This habitat generally develops on shallow rocky soils, even in conditions of strong erosion, so it can rapidly re-colonize empty surfaces, provided that the successional processes are blocked by extensive grazing or controlled fire.

Effort required

10 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-11/-18 %	Unknown %	Unknown %	Unknown %

Criterion A	A1	A2a	A2b	A3
EU 28+	-11/-17 %	Unknown %	Unknown %	Unknown %

When considering only the EU28 countries, this habitat type shows a quantitative reduction between 11 and 18% of its former area, considering the last 50 years. When we take into account the EU28+, the declining trend is similar although a little lower, between 11 and 17%. The reduction rate was very severe in some case (e.g. France 25%, Austria 30-50%, Czech Republic 65%). The reported quantitative trends don't meet the thresholds indicated for the Criterion A, and the assessment results in the category LC. There are no data available to apply Criteria A2 and A3.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	3089850 Km ²	Yes	Yes	Unknown	123	Yes	Yes	Unknown	Unknown
EU 28+	3089850 Km ²	Yes	Yes	Unknown	139	Yes	Yes	Unknown	Unknown

The ongoing tendency to abandon the traditional activities represents a threatening process likely to cause continuing declines in quantity and/or quality for this habitat type, within the next 20 years. However, the values of EOO and AOO, although with some gaps, already largely exceed the highest thresholds indicated for this Criterion and, as a consequence, the assessment results in the category Least Concern.

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	54 %	55 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	37 %	51 %	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 qualitative trend could be calculated only based on the few countries reporting data. On average, during the last 50 years, in EU28 it affected an extent of 54% of the total area, with a degree of severity of 55%, showing a qualitative trend seriously declining, with reference to both abiotic and biotic quality. In the EU28+ countries the only data available are those from Macedonia, which has reported a lower qualitative decline. This results in a an extent of 37% and a relative severity of 51%. On the ground of the available data, according to the Criterion C/D1, this habitat type can be assessed as VU for the EU28, and NT for the EU28+.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

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

No data are available for the application of Criterion E.

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	LC	DD	DD	DD	LC	LC	DD	VU	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	DD	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
Vulnerable	C/D1	Near Threatened	C/D1

Confidence in the assessment

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

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22/04/2016

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