

E1.3c Mediterranean annual-rich dry grassland

Summary

This habitat is an ephemeral response to the yearly cycle of spring rains and summer drought through the Mediterranean zone where a high diversity of small annual plants make a brief colourful appearance on bare patches of mainly base-rich soils. The species composition varies greatly, according to the particular regional terrain and climate. Abandonment of traditional grazing and control of fires allow encroachment of shrubs and trees, overgrazing may promote nitrophilous plants, and other threats include ploughing for arable cultivation, afforestation and urban development. Loss of extent has been slight but there has been substantial decline in quality over a proportion of the range. Fire plays an important positive role for the conservation of this habitat type together with traditional pastoralism.

Synthesis

The habitat is assigned to the category Near Threatened (NT) for both EU28 and EU28+, because of a significant qualitative decrease. However, this trend is accompanied by a slight quantitative decrease and is based on relatively few data, with quality data lacking for Spain, the country that reported the largest area. Due to the habitat's wide distribution, the Extent of Occurrence is very large. On the other hand, the Area of Occupancy is relatively small, but still too high for the assignment of a higher threat level. It should be considered, however, that the sites actually covered by these short-sized annual grasslands are patchy and very restricted and they may be easily overestimated.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	CD1	Near Threatened	CD1

Sub-habitat types that may require further examination

No sub-habitats have been distinguished for further assessment.

Habitat Type

Code and name

E1.3c Mediterranean annual-rich dry grassland



Mediterranean annual-rich dry pasture dominated by *Plantago lagopus*, Crete (Photo: Ute Bergmeier).



Mediterranean annual-rich dry grassland with *Stipa capensis* and *Lagurus ovatus* on the island of Koufonisi, south-east off Crete (Photo: Ute Bergmeier).

Habitat description

These grasslands are composed mainly by short annual plants with a short winter-spring vegetative cycle. There is a large inter-annual variation in the development of plant communities that is attributed to climatic fluctuations and especially to the amount of precipitation during spring; usually in summer they become dry. They grow mainly in the Mediterranean macrobioclimate, extending into the Temperate one, but mostly within its Submediterranean variant. These nano-therophytic, often ephemeral, communities exhibit extremely rich plant diversity that is mainly composed by species of the families *Leguminosae*, *Rubiaceae*, *Compositae*, *Umbelliferae* and *Gramineae*. Consequently, the high plant species diversity results in a high communities' diversity. Floristic composition and plant diversity of these communities depends on geographical location, substrate, climatic factors and human activities. Most of them are pioneer, xerophytic, basophilous communities that develop on various substrata (limestone, clay, gypsum, dolomite, serpentines, mafic) with lithosols or slightly eutrophic soils. Occasionally, they occupy areas close to the sea, regardless of the substrate. The grasslands of this habitat type are found mainly in South Mediterranean countries and are considered as an ultimate stage in the degradative succession of xeric Mediterranean forests and shrub communities. Traditional practices such as logging, fires and grazing led to the degradation of forests and evergreen scrublands of the Mediterranean area, which gradually turned to grasslands. Abandonment of the traditional practices, mainly of grazing, facilitates the encroachment of woody species, a fact that may alter the character of this grassland habitat type.

Indicators of good quality:

- extensive grazing, without signs of abandonment,
- absence of crevice-like erosion,
- absence (or low cover) of nitrophilous species,
- absence of signs of secondary succession (e.g. encroachment of chamaephytes or shrub species)

Characteristic species:

Vascular plants: *Clinopodium acinos* (= *Acinos alpinus*), *Aegilops geniculata*, *Aizoon hispanicum*, *Ajuga iva*, *Allium pentadactyli*, *Alyssum alyssoides*, *Alyssum simplex* (= *A. minus*), *Ammoides pusilla*, *Androsace elongata* subsp. *breistrofferi*, *Arenaria capillipes*, *Arenaria pomelii*, *Arenaria modesta* subsp. *modesta*, *Arenaria retusa* subsp. *arundana*, *Arenaria retusa* subsp. *retusa*, *Arenaria serpyllifolia*, *Atractylis cancellata*, *Avena barbata*, *Trachynia distachya* (= *Brachypodium distachyon*), *Anisantha fasciculata* (= *Bromus fasciculatus*), *Buglossoides incrassata* subsp. *incrassata* (= *B. arvensis* subsp. *gasparrinii*), *Bupleurum baldense*, *Bupleurum gerardi*, *Bupleurum gracile*, *Bupleurum semicompositum*, *Callipeltis cucullaria*, *Campanula dichotoma* (incl. subsp. *afra*) *Campanula dichotoma* subsp. *semisecta*, *Campanula erinus*, *Catapodium rigidum*, *Cerastium brachypetalum* subsp. *tenoreanum* (= *C. tenoreanum*), *Chaenorhinum macropodium*, *Chaenorhinum grandiflorum* subsp. *carthaginense*, *Microrrhinum minus* (= *Chaenorhinum minus*), *Chaenorhinum rubrifolium* subsp. *raveyi*, *Chaenorhinum rubrifolium* subsp. *rubrifolium*, *Clypeola jonthlaspi* (= *C. microcarpa*), *Coronilla scorpioides*, *Crepis neglecta*, *Crucianella angustifolia*, *Daucus durieua*, *Echinaria capitata*, *Erodium recoderi*, *Eryngium grossii*, *Erysimum incanum* subsp. *matritense*, *Euphorbia exigua*, *Euphorbia falcata*, *Euphorbia sulcata*, *Filago eriocephala*, *Filago pyramidata*, *Gastroidium ventricosum*, *Geranium molle*, *Geranium columbinum*, *Moraea sisyrrinchium* (= *Gynandrisis sisyrrinchium*), *Hedysarum spinosissimum* subsp. *capitatum* (= *H. glomeratum*), *Helianthemum angustatum*, *Helianthemum salicifolium*, *Hippocrepis biflora*, *Hippocrepis ciliata*, *Hornungia petraea*, *Hypericum perforatum* subsp. *veronense*, *Hypochoeris achyrophorus*, *Iberis fontqueri*, *Jasione montana* subsp. *blepharodon* (= *J. blepharodon*), *Jasione penicillata*, *Lactuca viminea*, *Lathyrus sphaericus*, *Limonium echioides*, *Linaria huteri*, *Linaria micrantha*, *Linaria oblongifolia*, *Linaria platycalyx*, *Linaria salzmannii* var. *flava*, *Linaria saturejoides* var. *angustealata*, *Linaria saturejoides* var. *saturejoides*, *Linaria simplex*, *Linum strictum*, *Lotus ornithopodioides*, *Medicago littoralis*, *Medicago minima*, *Melilotus neapolitana*, *Minuartia hamata*, *Minuartia hybrida*, *Minuartia mediterranea*, *Minuartia montana*, *Medicago rigidula*, *Micropus*

supinus, *Neatostemma apulum*, *Nepeta ucranica* subsp. *braun-blanquetii*, *Nepeta ucranica* subsp. *hispanica*, *Odontites kaliformis*, *Odontites longiflorus* subsp. *lateritia*, *Odontites viscosus* subsp. *oscensis*, *Omphalodes commutata*, *Omphalodes linifolia*, *Onobrychis caput-galli*, *Ononis pubescens*, *Ononis ornithopodioides*, *Ononis pendula* subsp. *boissieri*, *Ononis reclinata*, *Ononis viscosa* subsp. *breviflora*, *Anacamptis coriophora* subsp. *fragrans* (= *Orchis fragrans*), *Orlaya grandiflora*, *Parapholis incurva*, *Petrorhagia saxifraga*, *Pistorinia breviflora*, *Plantago albicans*, *Plantago amplexicaulis*, *Plantago bellardi* subsp. *bellardi*, *Plantago bellardi* subsp. *deflexa*, *Platycapnos tenuilobus* subsp. *paralelus*, *Polygala monspeliensis*, *Ptilostemon stellatus*, *Romulea columnae*, *Scabiosa stellata* subsp. *simplex*, *Scandix stellata* subsp. *velutina*, *Silene almolae*, *Silene germana*, *Silene inaperta* subsp. *serpentinicola*, *Silene psammitis* subsp. *lasiostyla*, *Thymelaea passerina*, *Trachynia distachya*, *Trifolium campestre*, *Trifolium cherleri*, *Trifolium scabrum*, *Trifolium stellatum*, *Trisetaria loeflingiana* (= *Trisetum loeflingianum*), *Trisetaria scabriuscula* (= *Trisetum scabriusculum*), *Sedum sexangulare*, *Sideritis romana*, *Silene conica*, *Stipa capensis*, *Valerianella eriocarpa*, *Valerianella multidentata*, *Valerianella rimosa*, *Velezia rigida*, *Vulpia ciliata*, *Vulpia hispanica* subsp. *montana*, *Wangenheimia lima*.

Classification

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

EUNIS:

E1.31 West Mediterranean xeric grassland

E1.32 Southwestern Mediterranean perennial pastures

E1.33 East Mediterranean xeric grassland

Euroveg Checklist:

Asterisco-Velezion rigidae (Rivas Goday 1964) S. Brullo 1985

Brachypodion distachyi Rivas-Mart. 1978

Dauco-Catananchion luteae S. Brullo 1985

Hypochoeridion achyrophori Biondi et Guerra 2008

Omphalodion commutatae Rivas-Mart. et al. ex Izco. 1976 corr. Pérez Raya et al. 1991

Onobrychido-Ptilostemion stellati S. Brullo et al. 2001

Sedo-Ctenopsion gypsophilae Rivas Goday et Rivas-Mart. ex Izco 1974

Stipion retortae Br.-Bl. et O. Bolòs ex O. de Bolòs 1957

Vulpio ciliatae-Crepidion neglectae Poldini 1989

Xeranthemion annui Oberd. 1954.

Annex 1:

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

Emerald:

E1.3 Mediterranean xeric grassland

MAES:

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

Mediterranean

Justification

These annual dry grasslands are typical of the Mediterranean region, where they find optimal climatic conditions for their development.

Geographic occurrence and trends

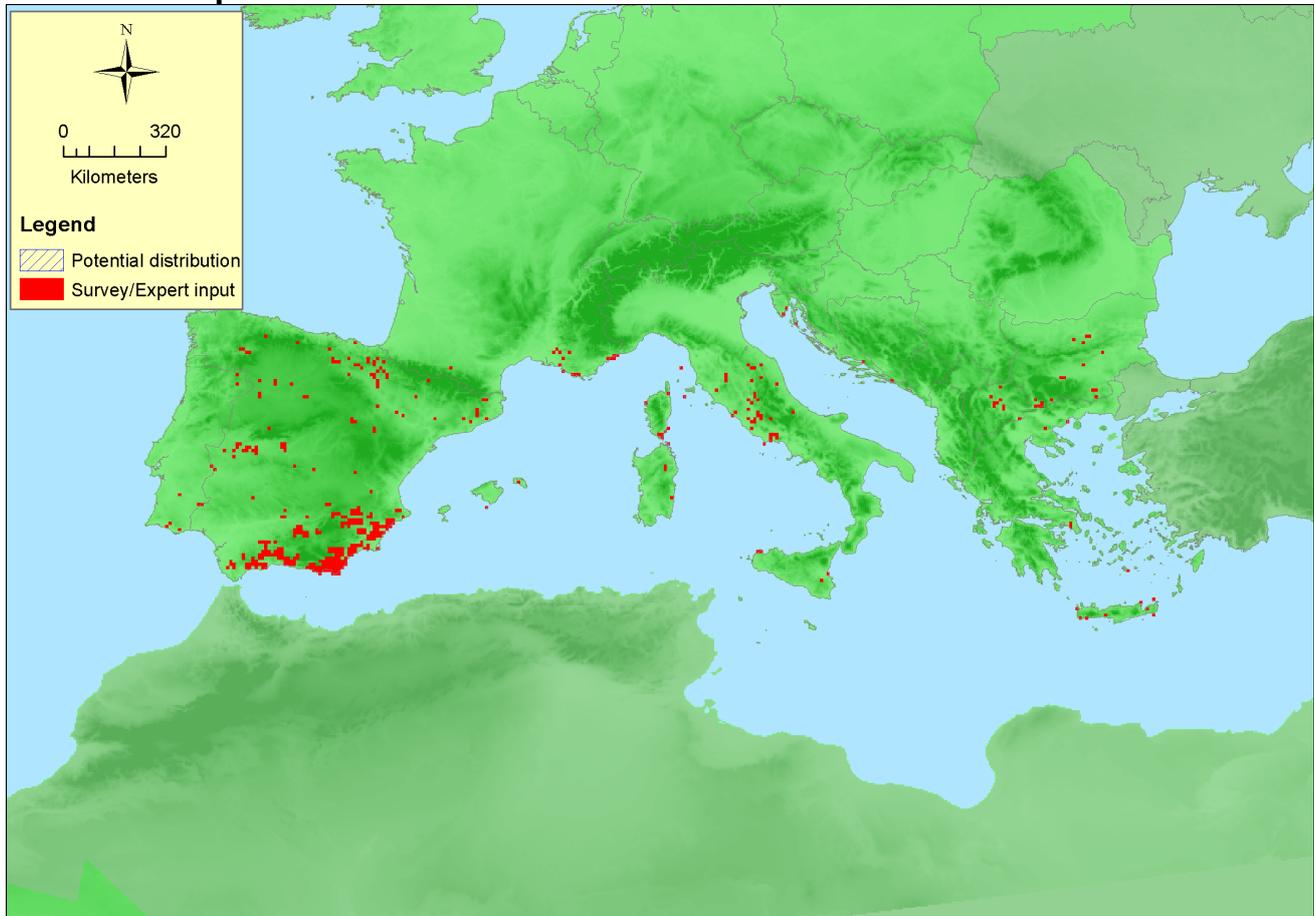
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Bulgaria</i>	Present	Unknown Km ²	Decreasing	Decreasing
<i>Croatia</i>	Present	Unknown Km ²	Decreasing	Decreasing
<i>Cyprus</i>	Present	23 Km ²	Unknown	Unknown
<i>France</i>	Corsica: Present France mainland: Present	Unknown Km ²	Decreasing	Decreasing
<i>Greece</i>	Crete: Present East Aegean: Present Greece (mainland and other islands): Present	420 Km ²	Stable	Unknown
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	244 Km ²	Decreasing	Decreasing
<i>Malta</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Portugal</i>	Madeira: Uncertain Portugal Azores: Uncertain Portugal mainland: Present Savage Islands: Uncertain	200 Km ²	Stable	Unknown
<i>Spain</i>	Balearic Islands: Present Canary Islands: Uncertain Spain mainland: Present	819 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>	Present	Unknown Km ²	Unknown	Unknown
<i>Bosnia and Herzegovina</i>	Present	6 Km ²	Decreasing	Decreasing
<i>Former Yugoslavian Republic of Macedonia (FYROM)</i>	Present	Unknown Km ²	Unknown	Unknown
<i>Kosovo</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Montenegro</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Serbia</i>	Uncertain	Unknown 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
EU 28	2389800 Km ²	434	1,706 Km ²	
EU 28+	2506800 Km ²	447	1,712 Km ²	

Distribution map



The map is very incomplete, depending on availability of data in the EVA database, but relatively good for Spain. Data sources: EVA, NAT.

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

More than 99% of the currently known distribution area of this habitat type lies inside the EU28 territory. Out of EU28, only a very small area is reported from Bosnia-Herzegovina. The presence in other countries EU28+ has not been confirmed but it is highly probable. Further detailed data can likely increase the proportion of area of this habitat type out of the EU28 territory.

Trends in quantity

In spite of large values of the Extent of Occurrence and Area of Occupancy, this habitat type naturally tends to cover small patches, often forming a mosaic with perennial vegetation. The quantitative trend over the last 50 years is slightly decreasing (4% on average). Bulgaria and Croatia reported high rates of decrease (about 30% and 20%, respectively), however Greece, Spain, Italy and Portugal, which account for most of the known habitat's area, indicated a slighter decline, between 0 and 10%.

- 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 geographical range of the habitat (EOO) is very wide and the decline in extent has been moderate.

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

No

Justification

The geographical range of the habitat (EOO) is very wide.

Trends in quality

The qualitative trend for this habitat type is generally declining, with a degree of severity that ranges from slight to severe (about 55% on average), affecting 31% of the total habitat's area in EU28 and 30% in EU28+. It should be noted that data from Spain, Portugal and Greece, countries which account for most of the total distribution area, did not include qualitative trends if not for Spain, only reporting on a general decreasing trend without any detail about extent and severity. Further detailed information is needed to proceed with a more complete qualitative assessment.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The main pressures acting on this habitat type include both the lack of grazing and the overgrazing. On one side, the abandonment of traditional pastoral systems and the consequent biocenotic evolution and succession promote a drastic change in the structure and floristic composition of the habitat. On the other side, an excess of grazing, either caused by a prolonged stay of the animals in an area or by an excessive number of animals, increases the number of nitrophilous species, promotes ruderalization and thus alters the local ecological conditions (e.g. soil erosion or compaction by trampling). Also fire plays an important role for the conservation of this habitat type; fire represents a very effective tool to block the succession, and the lack of natural or controlled fires can accelerate the shrub encroachment within the habitat's area. In general, for a sustainable balance, a low degree of disturbance is needed for the maintenance of this habitat and for halting the natural succession, although the successional processes are not so fast due to the presence of shallow and poor soil. The absence of such disturbance regime leads to the development of the other competing vegetation types (e.g. perennial grasslands, scrub vegetation, etc.). Locally, intensive agricultural and livestock-breeding, expansion of arable lands, urbanization, reforestation and pollution can cause a quantitative and qualitative decline.

List of pressures and threats

Agriculture

Agricultural intensification

Grassland removal for arable land

Intensive grazing

Abandonment of pastoral systems, lack of grazing

Sylviculture, forestry

Forest planting on open ground

Natural System modifications

Fire and fire suppression

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession
Species composition change (succession)

Conservation and management

A balanced management including extensive grazing and controlled fire can represent an effective way to maintain this habitat type. Promotion and even reintroduction of the traditional pastoral systems is nowadays the only realistic approach for a correct conservation of these annual dry grasslands.

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 I:

6220: ALP XX, CON U1, MED U1

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
Through intervention

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-4 %	Unknown %	Unknown %	Unknown %
EU 28+	-4 %	Unknown %	Unknown %	Unknown %

The average quantitative trend for the last 50 years shows a very slight reduction of about 4%. In Greece and Portugal the habitat appears stable, while in other SE-European countries (e.g. Bulgaria, Croatia, Bosnia-Herzegovina) far higher declining trends are reported (from 20% to 40%); however, many of these countries couldn't provide figures about the past and present distribution area, making it impossible to evaluate the real quantitative loss. No data are available for the application of the other criteria.

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	Unknown	>50	Yes	Yes	Unknown	Unknown
EU 28+	>50000 Km ²	Yes	Yes	Unknown	>50	Yes	Yes	Unknown	Unknown

The ongoing tendency to abandon the traditional pastoral systems represents a threatening process likely to cause continuing decline in quantity and/or abiotic and biotic quality for this habitat type, within the next 20 years. However, the values of Extent of Occurrence and Area of Occupancy largely exceed the highest thresholds 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	30 %	55 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	31 %	55 %	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%

Only few countries reported figures about the qualitative decline. On average, it affects an extent of 31% of the total surface in EU28 and 30% in EU28+, with a degree of severity of about 55%. So, the qualitative trend for this habitat type is generally declining. It should be noted that data from Spain, Portugal and Greece, countries which account for most of the total distribution area, did not include qualitative trends, but only reported a general decreasing trend without any details about extent and severity. On the ground of the available data, according to the Criterion C/D1, this habitat type can be considered as Near Threatened (NT), but there is large uncertainty on this assessment due to the large data gaps.

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	LC	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	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
Near Threatened	CD1	Near Threatened	CD1

Confidence in the assessment

Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

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