

E1.3b Mediterranean tall perennial dry grassland

Summary

These are grasslands of impoverished, base-rich soils over various calcareous bedrocks through the Mediterranean region, where grazing and trampling sustain open or closed swards generally dominated by tall, dense tussock grasses that lend a steppe-like character. Summer drought and disturbance help prevent reversion to woodland but can encourage the invasion of aliens. Abandonment of traditional agriculture, improvement for more productive farming and urbanisation are the main threats, particular along developing coastal zones. Losses of extent have been slight, though there is widespread modest decline in quality. Two key factors for maintenance are the re-introduction of traditional pastoral systems and the establishment of protected areas, especially on the islands. Once destroyed or severely damaged the restoration of the habitat type through natural processes is expected to take very long time, due to soil erosion.

Synthesis

The habitat has been assigned to the category Least Concern (LC) both for EU28 and EU28+. It covers a large area, as it is extended all over the Mediterranean region, and it has only been reduced by 3% in the last decades. As regards reduction in quality, 7% of its area has suffered degradation with a severity of 40%. So, although it cannot be assigned in any category of threat, the application of light conservation measures in the future, such as the maintenance of extensive grazing in many areas and the control of urbanization and disturbances especially in coastal areas and islands should be considered.

| Overall Category & Criteria | | | |
|-----------------------------|-------------------|-------------------|-------------------|
| EU 28 | | EU 28+ | |
| Red List Category | Red List Criteria | Red List Category | Red List Criteria |
| Least Concern | - | Least Concern | - |

Sub-habitat types that may require further examination

No sub-habitats have been distinguished for further assessment.

Habitat Type

Code and name

E1.3b Mediterranean tall perennial dry grassland



Mediterranean tall perennial dry grassland on the Askio Mountain in northwestern Greece (Photo: Georgios Fotiadis).



Brachypodium retusum dominated grassland in southern Navarre, Spain (Photo: Itziar García-Mijangos).

Habitat description

The habitat type includes mainly basophilous, xerophytic, tall, tufted, dense or short open grasslands (pseudosteppes) with a wide Mediterranean distribution. They are dominated by plant species which are adapted to the xerothermic climatic conditions, the poor soil conditions and human-made disturbances such as grazing, trampling etc. This habitat type includes several plant communities of dry grasslands, differentiated mostly by the geographical region (western, central or eastern Mediterranean area) and the geological substrate (calcareous, magnesite, dolomite) or the soil types (deep or shallow, sandy, clay or ultramafic soils). Physiognomically, they usually look like steppes even if no *Stipa* species occur (pseudosteppes). Their floristic composition can be fairly differentiated depending on specific communities, but generally they are dominated by grasses such as *Lygeum spartum*, *Brachypodium retusum*, *Hyparrhenia hirta*, *Stipa* spp. etc. Alien species, adapted to xerothermic conditions, are often found with high abundance, like *Opuntia* spp. Grazing or other disturbances, such as wildfires, maintain these grasslands, which are – in several cases – the result of the degradation of forests or evergreen shrublands. Invasion by alien species, transformation to agricultural land and urbanization are the major threats for this habitat type.

Indicators of quality:

This habitat type is characterized by steppe-like grasslands. Subsequently, the most important quality indicators are: (a) dominance of grass species, (b) absence or very low cover of nitrophilous or alien species, (c) no signs of primary succession (e.g. encroachment of chamaephytes or shrub species), (d) presence of properly adjusted, extensive grazing, (e) absence of indications of significant, crevice-like, erosion.

Characteristic species:

Dominant species:

Andropogon distachyos, *Brachypodium boissieri*, *B. retusum*, *Cachrys pungens*, *Dactylis glomerata* subsp. *hispanica*, *Festuca capillifolia*, *F. scariosa*, *Helictochloa bromoides*, *Helictotrichon filifolium* s.l., *Heteropogon contortus*, *Hyparrhenia hirta*, *H. sinaica*, *Lygeum spartum*, *Macrochloa tenacissima*, *Magydaris pastinaca*, *Stipa barbata*, *S. cazorlensis*, *S. iberica*, *S. juncea*, *S. lagascae*, *S. offneri*, *S. parviflora*, *S. pauneroana*, *Trisetum velutinum*.

Diagnostic species: *Allium pallens*, *A. sphaerocephalon*, *Aristida adscensionis* subsp. *caerulescens*, *Arrhenatherum album*, *Carlina corymbosa*, *C. graeca*, *Cenchrus ciliaris*, *Convolvulus althaeoides*, *Dichanthium annulatum*, *Echinophora tenuifolia*, *Eryngium dichotomum*, *E. triquetrum*, *Euphorbia terracina*, *Ferula communis*, *Festuca humifusa*, *Ferulago nodosa*, *Helictochloa gervaisii*, *Lapiedra martinezii*, *Moricandia arvensis*, *Phagnalon rupestre* subsp. *graecum*, *P. saxatile*, *Rhaponticum coniferum*, *Sanguisorba verrucosa*, *Scorzonera cretica*, *Stipa bufensis*, *S. capillata*, *S. gussonei*, *Thapsia pelagica*, *Tricholaena teneriffae*.

Invasive: *Pennisetum setaceum*.

Classification

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

EUNIS:

E1.3 Mediterranean xeric grassland

E1.4 Mediterranean tall-grass and [Artemisia] steppes

EuroVegChecklist alliances:

Agropyro pectinati-Lygeion sparti Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez et al. 1999

Cymbopogono Brachypodion ramosi Horvatic 1963

Festucion scariosae Martínez-Parras et al. 1984

Hyparrhenion hirtae Br.-Bl. et al. 1956

Leontodonto tuberosi-Bellion sylvestis Biondi et al. 2001

Moricandio-Lygeion sparti S. Brullo et al. 1990

Reichardio maritimae-Dactylidion hispanicae Biondi et al. 2001

Scorzonero creticae-Lygeion sparti S. Brullo et al. 2002

Stipion parviflorae De la Torre et al. 1996

Stipion tenacissimae Rivas-Martínez 1984

Thero-Brachypodion retusi Br.-Bl. 1925

Trisetto velutini-Brachypodion boissieri Rivas-Martínez et al. 2002

Annex 1:

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

Emerald:

E1.3. Mediterranean xeric grassland.

MAES:

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 xeric grasslands are typical of the Mediterranean region. They also occur in the Macaronesian region.

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>Croatia</i> | Present | 301 Km ² | Decreasing | Decreasing |
| <i>Cyprus</i> | Present | Unknownn Km ² | Unknown | Unknown |
| <i>France</i> | Corsica: Present France mainland: Present | Unknownn Km ² | Unknown | Decreasing |

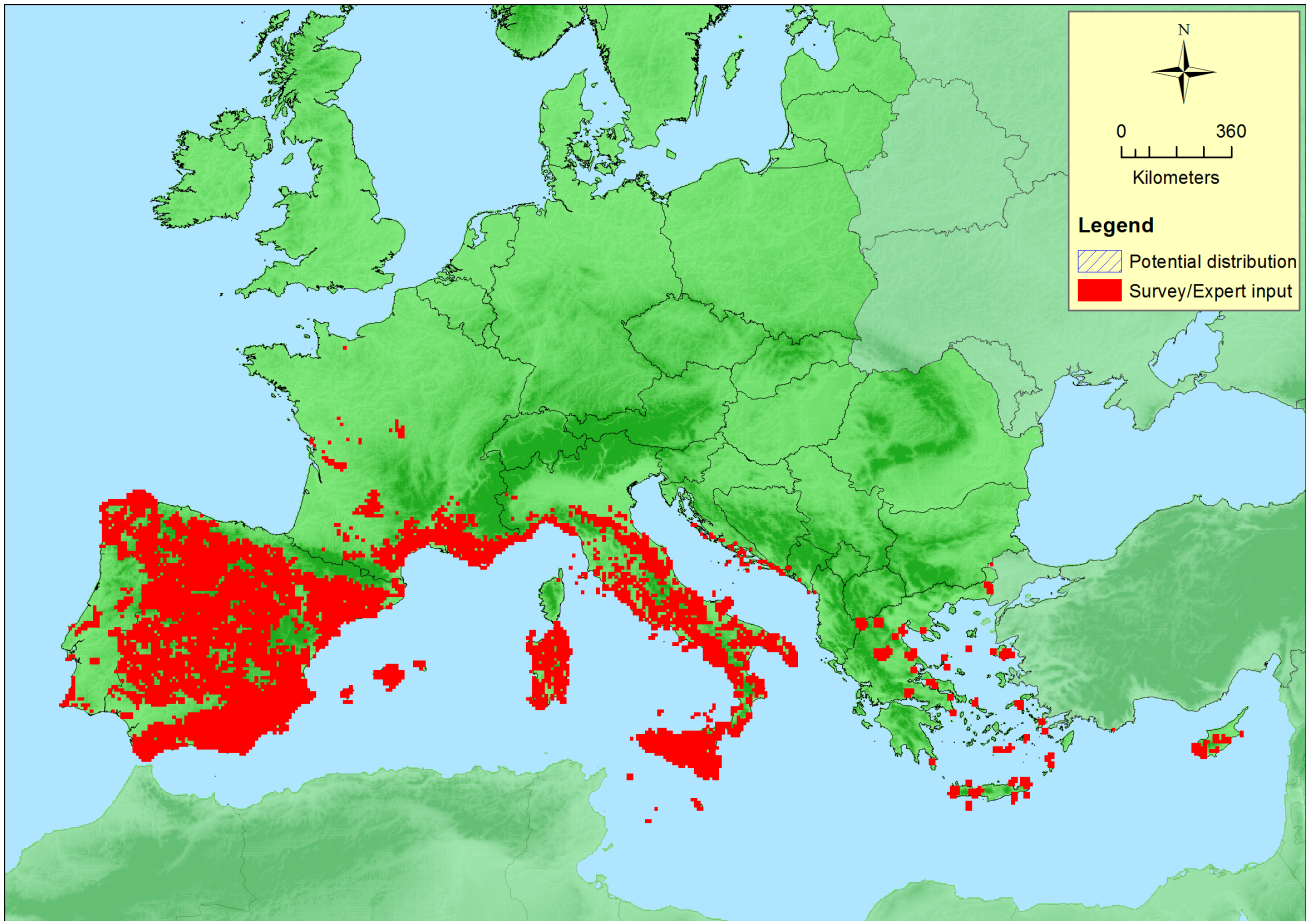
| EU 28 | Present or Presence Uncertain | Current area of habitat | Recent trend in quantity (last 50 yrs) | Recent trend in quality (last 50 yrs) |
|-----------------|--|--------------------------|--|---------------------------------------|
| <i>Greece</i> | Crete: Present East Aegean: Present Greece (mainland and other islands): Present | 520 Km ² | Unknown | Unknown |
| <i>Italy</i> | Italy mainland: Present Sardinia: Present Sicily: Present | 1489 Km ² | Decreasing | Decreasing |
| <i>Malta</i> | Present | Unknownn Km ² | Unknown | Unknown |
| <i>Portugal</i> | Madeira: Present Portugal mainland: Present Savage Islands: Uncertain | 121 Km ² | Decreasing | Unknown |
| <i>Spain</i> | Balearic Islands: Present Canary Islands: Present Spain mainland: Present | 7882 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) |
|---|-------------------------------|-------------------------|--|---------------------------------------|
| <i>Albania</i> | Present | Unknown Km ² | Unknown | Unknown |
| <i>Bosnia and Herzegovina</i> | Present | 5 Km ² | Decreasing | Decreasing |
| <i>Former Yugoslavian Republic of Macedonia (FYROM)</i> | Present | 180 Km ² | Decreasing | Decreasing |

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> | 3797000 Km ² | 6319 | 10313 Km ² | The area occupied by the habitat in France is not known |
| <i>EU 28+</i> | 3797000 Km ² | 6366 | 10498 Km ² | Albania did not sent data |

Distribution map



The map is rather complete with some gaps outside the EU on the Balkan, and data gaps for Macaronesia. Data sources: Art17, EVA.

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

It is not easy to give an estimate of the proportion of the habitat's area within the EU28, as it is also present in northern Africa and western Asia, across the entire Mediterranean region. A rough estimation of the proportion of habitat's area within EU 28 is approximately 50%.

Trends in quantity

Average Trend in EU28: -3.2% over the last decades (since 1960-1974)
 Average Trend in EU28+: -3.2% over the last decades (since 1960-1974)

The extent of this habitat has been slightly decreased since the middle of the 20th century, from 10114 km² to 9793 km² in EU countries and thus over the last 50 years the loss of habitat's area is estimated approximately at 3% in EU28 and EU28+ countries. This decline is rather heterogeneous. Portugal, Bosnia and Croatia have reported an important decrease, but the countries where the habitat occupies large areas have reported only a slight decrease (Italy), or no decrease (Spain). Greece and France did not report any data about recent trends, but France has reported a strong decrease over the last century. The regression was mainly due to scrub encroachment, change to agricultural land, urbanization and afforestation. Regarding future trends, most countries estimate that the area of the habitat will remain more or less stable or it will be slightly decreased.

- Average current trend in quantity (extent)
 EU 28: Stable
 EU 28+: Stable
- Does the habitat type have a small natural range following regression?

No

Justification

The extent of occurrence is larger than 50000 km², and the decline during the last 50 years has not been very important.

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

No

Justification

The extent of occurrence is larger than 50000 km².

Trends in quality

Less than 10% of the habitat area in Europe has been subjected to slight up to moderate degradation over the last 50 years. The trends over larger historical periods are not known. France has reported degradation that has been caused by fragmentation and scrub encroachment. This trend in France is expected to continue in the future due to the abandonment of extensive grazing systems, which is also the main reason of the recent degradation. The calculated extent of degradation in EU28 is 7% with a severity of 41%. EU28+ shows similar trends, but severity is slightly lower (40%).

- Average current trend in quality

EU 28: Stable

EU 28+: Decreasing

Pressures and threats

The grasslands included in this habitat are mainly threatened by the abandonment of the traditional form of extensive grazing, which initiates the succession process and finally enhances scrub encroachment within grasslands. Characteristic light-demanding species disappear during this process, and grasses lose their dominance. Change of grasslands to arable lands or forests (by afforestation) can also decrease their area. Furthermore, nitrification can affect their quality, as it increases the cover of nitrophilous and even alien species. The latter are especially dangerous in the warmest areas of habitat's distribution (mainly in islands). *Pennisetum setaceum* is an outstanding example of an alien grass which invades these grasslands. Finally, another important threat is urbanization, which affects the grasslands especially in coastal areas. These threats are similar along all EU28 and EU28+ countries.

List of pressures and threats

Agriculture

Modification of cultivation practices

Grassland removal for arable land

Abandonment of pastoral systems, lack of grazing

Sylviculture, forestry

Forest planting on open ground

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Natural biotic and abiotic processes (without catastrophes)

Species composition change (succession)

Conservation and management

The maintenance of traditional silvopastoral systems is very important for the conservation of this habitat.

Extensive grazing is a basic feature of these systems, and management practices should focus on this key factor. In regions where these grasslands are more endangered their change to arable lands and tree plantations should be minimized.

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, ATL U2, BLS U1, MED U1, CON U1.

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

These grasslands grow on many types of soils, but as they occur in dry climates, their degradation is often caused by soil erosion and thus their restoration may need very long time, depending on the degree of erosion. If the habitat degradation is due to management abandonment and the consequent shrub encroachment, it can be restored by the re-introduction of traditional forms of extensive grazing.

Effort required

| |
|----------------------|
| 50+ years |
| Through intervention |

Red List Assessment

Criterion A: Reduction in quantity

| Criterion A | A1 | A2a | A2b | A3 |
|-------------|--------|-----------|-----------|-----------|
| EU 28 | -3.2 % | Unknown % | Unknown % | Unknown % |
| EU 28+ | -3.2 % | Unknown % | Unknown % | Unknown % |

The values of criterion A1 were calculated from the territorial data sheets. All the countries that reported data for the habitat were used for the calculation, except France, which did not reported data neither on area nor on trend, and Greece, which did not reported data on trend. The habitat has decreased over the last decades in EU28 countries from 10 % in Italy to 40 % in Portugal. In Spain, the most important country for this habitat, no negative trend has been reported, but this is a very coarse estimate, as there are not data of area extent 50 years ago. In total, the extent of the habitat was reduced from 10114 km² to 9793 km² in EU28 countries. There is no quantitative information on longer historical trends, although France has reported a strong decrease over the last century. Regarding future trends, most countries estimate that the area will remain more or less stable or will be slightly decreased, but quantitative data are not available.

Criterion B: Restricted geographic distribution

| Criterion B | B1 | | | | B2 | | | | B3 |
|-------------|------------------------|---------|---------|---------|-----|---------|---------|---------|---------|
| | EOO | a | b | c | AOO | a | b | c | |
| EU 28 | >50000 Km ² | Unknown | Unknown | Unknown | >50 | Unknown | Unknown | Unknown | Unknown |
| EU 28+ | >50000 Km ² | Unknown | Unknown | Unknown | >50 | Unknown | Unknown | Unknown | Unknown |

Both values of the extent of occurrence and area of occupancy are very big and do not meet criterion B. Sub-criteria have not been evaluated because the above-mentioned values are well above the thresholds.

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 | 7 % | 41 % | Unknown % | Unknown % | Unknown % | Unknown % |
| EU 28+ | 7 % | 40 % | 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 overall extent and severity of degradation are the weighted average calculated from reported data from Spain, Italy and Croatia for EU28 (93.8% of the known area in EU28), plus Bosnia and Herzegovina and FYR Macedonia for EU28+ (93.9% of the known area in EU28+). The changes in quality are both abiotic and biotic, so C/D1 has not been split into C1 and D1.

The involved countries could not provide enough information on long historical or future trends in quality (C/D2, C/D3).

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 | LC | DD | DD | DD | LC | LC | LC | LC | DD | DD | DD | DD | DD | DD | DD | DD | DD |
| EU28+ | LC | DD | DD | DD | LC | LC | LC | LC | 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 |
| Least Concern | - | Least Concern | - |

Confidence in the assessment

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

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References

- Apostolova, I., Dengler, J., Di Pietro, R., Gavilán, R.G. and Tsiripidis, I. 2014. Dry grasslands of southern Europe: syntaxonomy, management and conservation. *Hacquetia* 13(1): 5-18.
- Bergmeier, E., Konstantinou, M., Tsiripidis, I. and Sýkora, V. 2009. Plant communities on metalliferous soils in northern Greece. *Phytocoenologia* 39(4): 411-438.
- Brullo, S., Giusso del Galdo, G. and Guarino, R. 2002. Phytosociological notes on the *Lygeum spartum* grasslands from Crete. *Lazaroa* 23: 65-72.
- Brullo, C., Brullo, S., Giusso del Galdo, G., Guarino, R., Minissale, P., Scuderi, L., Siracusa, G., Sciandrello, S. and Spampinato, G. 2010. The *Lygeo-Stipetea* in Sicily. *Annali di Botanica* (IV Serie) 0: 57-84.
- Costa, J.C., Capelo, J., Jardim, R., Sequeira, M., Lousa, M., Espírito-Santo, M.D. and Rivas-Martínez, S. 2004. Catálogo sintaxonómico e florístico das comunidades vegetais da Madeira e do Porto Santo. *Quercetea* 6: 61-185.
- De la Torre, A., Alcazar, F. and Vicedo, M. 1996. *Stipion parviflorae* all. nova, pastizales vivaces subnitrófilos y calcícolas Mediterráneo-Iberolevanticos. *Acta Botanica Malacitana* 21: 297-302.
- Ríos, S. and Salvarod, F. 2009. 6220 Pastizales xerofíticos mediterráneos de vivaces y anuales (*). In: VV.AA., *Bases ecológicas preliminares para la conservación de los tipos de hábitats de interés comunitario en España*. Madrid: Ministerio de Medio Ambiente y Medio Rural y Marino. 88 pp.
- Rivas-Martínez, S. 2011. Mapa de series, geoserias y geopermaseries de vegetación de España. Parte II.

Itinera Geobotanica 18: 5-800.

San Miguel, A. 2008. Management of Natura 2000 habitats. 6220 *Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea*. European Commission.

www.prodromo-vegetazione-italia.org (access 21/9/2015)