

F6.7 Mediterranean gypsum scrub

Summary

This highly distinctive open scrub is confined to gypsum-rich substrata occurring in a dry to semiarid Mediterranean climate, mostly distributed in the central and south-eastern Iberian Peninsula and with small outliers in Sicily and Cyprus. Basiphilous plants predominate, many of them gypsophytes, with numerous narrow endemics, there is a hard lichen crust and an ephemeral grassland element that develops after spring rains. Natural succession is slow on such a peculiar substrate and moderate sheep grazing can be borne. The habitat is used for quarrying, as landfill and windfarm sites, for recreation, misguided restoration of woodlands and urbanisation. Legal protection with no intervention is the best conservation approach.

Synthesis

The gypsaceous hills in central and eastern Spain constitute the main proportion of this habitat in the EU 28 and EU 28+ and also encompass its highest quality areas. These hills have been traditionally used for grazing by sheep and goats and nowadays are being simply abandoned. Some of them have suffered artificial pine plantations and there are gypsum quarries in a few places and some areas have suffered from urbanisation, but the majority of those areas are conserved in good conditions. Only the effects of the release of the grazing pressure could, in a medium-long term, lead to an evolution towards tall shrub or forest habitats due to succession. So far there is no danger of severe reduction of this habitat and its threat category is Least Concern but it is recommended to include these habitat into protected areas in order that an appropriate policy for conservation could be applied. The habitat representations of Sardinia, Sicily and Cyprus should deserve more concern in conservation effort due to their isolation.

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 relevant sub-habitats are considered.

Habitat Type

Code and name

F6.7 Mediterranean gypsum scrub



A gypsum scrub (*aljezar*) at Nuez de Ebro, Ebro valley, Spain (Photo: Javier Loidi).



Ononis tridentata near Lerín, Navarre, Ebro valley, Spain (Photo: Javier Loidi).

Habitat description

Open scrub on gypsum-rich substrata growing in dry to semiarid Mediterranean climate, mostly distributed in the central and south-eastern Iberian Peninsula and with small representations in some Mediterranean islands (Sicily and Cyprus). It develops on sedimentary evaporitic bedrocks rich in gypsum (gypsisols in the FAO soil classification), locally called aljezares (from Arabic aljez = gypsum) of Triassic, Oligocene and Miocene ages. Many of the species of this type are linked to this particular edaphic conditions, being called gypsophytes or gypsophilous species. Many of them are narrow endemics of Iberian or even more restricted distribution, particularly among the scrub species, but also some of the annuals. A few of them are also present in North Africa (*Helianthemum squamatum*, *Lepidium subulatum*, *Ononis tridentata*) or in other countries in the Mediterranean Europe (*Chaenorhinum exile*, *Ctenopsis gypsicola*). The richness of endemics is higher in the centre and the south of the Iberian Peninsula than in the northern part of the habitat's range (Ebro Depression), being highest in the southeast (Almeria, Murcia and Alicante). In addition to the gypsophytes, a number of basiphilous scrub plants of wider distribution and ecology occur, such as *Rosmarinus officinalis* and *Thymus* species. Remarkably, also among the lichens, one endemic exists: *Diplotomma rivas-martinezii*. Other lichen species of the habitat have a wide distribution over the Middle East and Central Asian arid territories, suggesting an old connection with these areas during the desiccation of the Mediterranean Sea in the Messinian episode (Upper Miocene). The EU28 area of this type is restricted to parts of peninsular Spain where gypsum outcrops occur under severe dry climatic conditions and tiny representations in Cyprus and Sicily. It occurs also in some areas of North Africa.

The typical structure of this habitat is formed by three main elements: (1) a chamaephytic scrub of low height (5-60 cm) and low cover in a dispersed formation, (2) a hard lichen crust covering the soil in between the shrubs, and (3) an ephemeral therophytic community appearing in rainy springs, populating the space between shrubs in early summer. This state is quite stable and natural succession is slowed down because of the extreme conditions of soil, slope and severe drought. A moderate sheep grazing pressure is compatible with an optimal state for preventing succession towards shrubland (maquis with *Juniperus* and *Quercus coccifera*) and perennial grassland (*Machrochloa tenacissima*, *Brachypodium retusum*). The appearance of this habitat, humble, dry and open, entails an idea of poverty and aridity largely extended in the mentality of most of the human society. For that reason, very often those gypsum scrubs have been despised and its area used as landfills, for wind turbines, for quarrying gypsum, and other uses, even after the approval of the Habitat Directive by the European Union in which they were declared as a Priority Habitat. In addition to this and despite its importance, many attempts have been made to perform restoration of woodlands, mostly with pines (*Pinus halepensis*), which have mostly failed due to the severe soil and climate conditions.

Indicators of good quality:

The following characteristics may be considered as indicators of good quality, but these indicators differ in different regions:

- Presence of gypsophytes, particularly endemics, including threatened species
- Scrub of low height and low cover
- High cover of open soil covered by lichen crust
- Low to moderate cover of vascular plant vegetation, particularly chamaephytes
- Low cover of encroaching tall grasses and shrubs

Characteristic species:

Vascular plants: Gypsophytes: *Astragalus castroviejoi* (**), *Boleum asperum* (**), *Brassica repanda* subsp. *gypsicola* (**), *Brassica villosa* subsp. *tinaei* (**), *Campanula fastigiata* (t), *Centaurea hyssopifolia* (**),

Chaenorhinum exile (t), *Chaenorhinum grandiflorum* subsp. *grandiflorum* (t**), *Chaenorhinum reyesii* (t**), *Coris hispanica* (**), *Ctenopsis gypsicola* (t), *Diplotaxis harra* subsp. *crassifolia*, *Erysimum metlesicsii* (**), *Euphorbia minuta* subsp. *moleri* (**), *Ferula loscosii* (**), *Gypsophila struthium* subsp. *struthium* (**), *Gypsophila struthium* subsp. *hispanica* (**), *Hedysarum boveanum* subsp. *palentinum* (**), *Helianthemum alypoides* (**), *Helianthemum marifolium* subsp. *conquense* (**), *Helianthemum squamatum*, *Herniaria fruticosa* (**), *Koeleria vallesiana* subsp. *castellana* (**), *Lepidium subulatum*, *Limonium aragonense* (**), *Limonium lobetanicum* (**), *Limonium mansanetianum* (**), *Limonium viciosi* (**), *Narcissus pachybolbus*, *Ononis tridentata* subsp. *angustifolia* var. *angustifolia*, *Ononis tridentata* subsp. *angustifolia* var. *edentula* (**), *Ononis tridentata* subsp. *crassifolia* (**), *Ononis tridentata* subsp. *tridentata*, *Orobanche georgii-reuteri* (on *Lepidium subulatum* **), *Orobanche gypsogena* (**), *Orobanche resedarum* (**), *Reseda stricta* subsp. *funkii* (t**), *Reseda stricta* subsp. *stricta* (t), *Reseda suffruticosa* (t**), *Santolina viscosa* (**), *Sedum gypsicola*, *Teucrium balthazaris* (**), *Teucrium lepicephalum* (**), *Teucrium libanitis* (**), *Teucrium pumilum* (**), *Teucrium turredanum* (**), *Thymus lacaitae* (**).

t = therophytes, ** narrow endemics.

Frequent non gypsophytes: *Brachypodium retusum*, *Genista scorpius*, *Helianthemum syriacum*, *Lithodora fruticosa*, *Rosmarinus officinalis*, *Thymus vulgaris*.

Mosses: *Aloina aloides*, *Crossidium crassinerve*, *Riccia crustata*, *Tortula revolvens* var. *obtusata*, *Trichostomum crispulum*. Lichens: *Acarospora placodiiformis*, *Acarospora reagens*, *Buellia zoharyi*, *Diploschistes diacapensis*, *Fulgensia desertorum*, *Lecidea gypsicola*, *Lepraria isidiata*, *Psora decipiens*, *Squamarina lentigera*, *Teloschistes lacunosus*, *Toninia sedifolia*.

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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EuroVegChecklist (alliances):

Lepidion subulati Bellot et Rivas Goday in Rivas Goday et al. 1957

Thymo-Teucrium libanitidis Rivas Goday in Rivas Goday et al. 1957 nom. mut.

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

Annex 1:

1520* Iberian gypsum steppes

Emerald:

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MAES-2:

Heathland and shrub

IUCN:

3.8. Mediterranean-type Shrubby Vegetation

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

Yes

Regions

Mediterranean

Justification

Gypsum scrub occurs only under severe Mediterranean conditions (high summer drought) on substrates rich in gypsum. If rainfall surpasses a certain threshold, the physiological effect of the gypsum-rich soil water solution vanishes and no specialized plants occur. For that reason, this habitat needs to have a severe Mediterranean climate together with the existence of the gypsum outcrop.

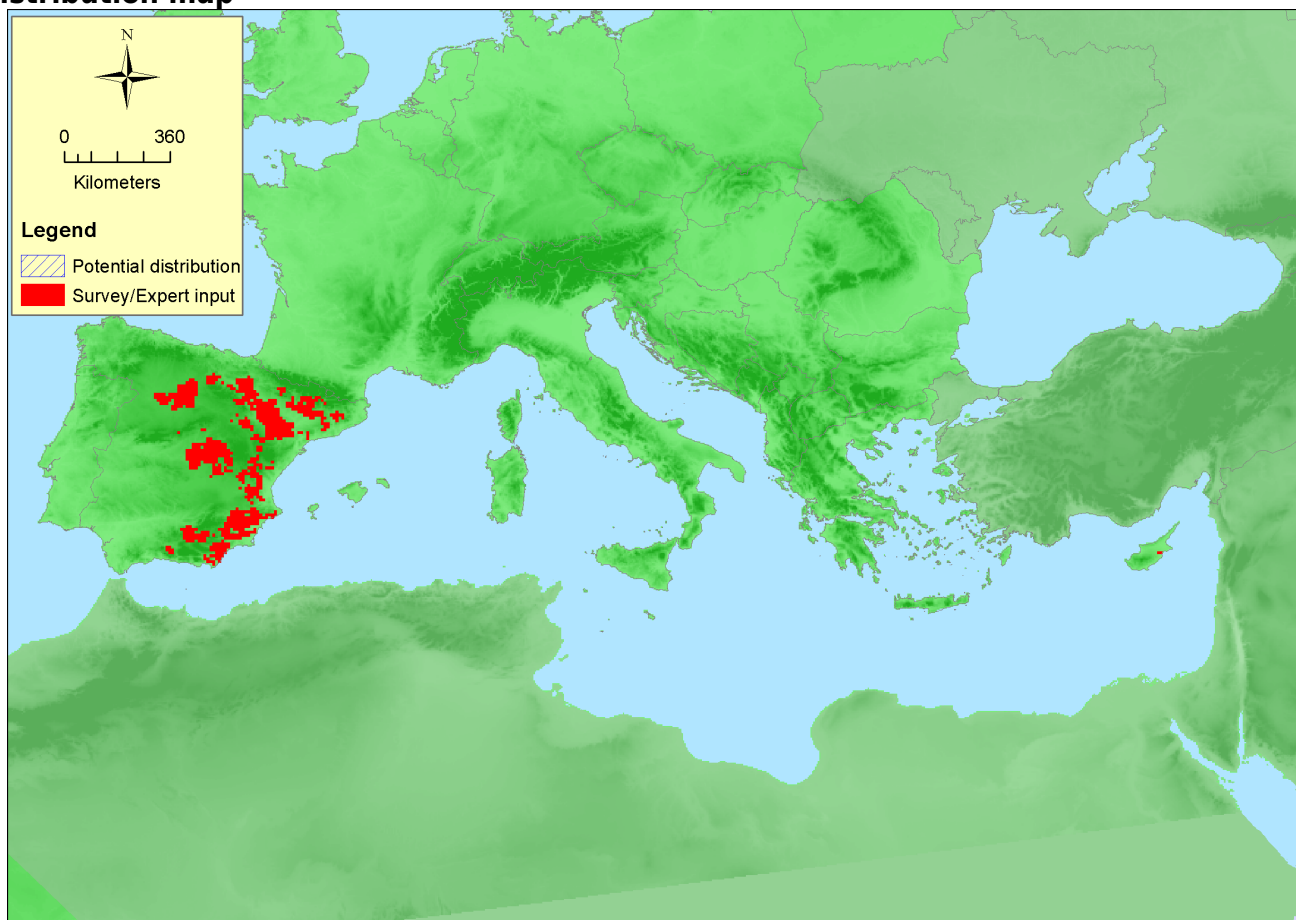
Geographic occurrence and trends

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>Cyprus</i>	Present	0.01 Km ²	Stable	Stable
<i>Italy</i>	Sicily: Present	Unknown Km ²	Unknown	Unknown
<i>Spain</i>	Spain mainland: Present	1411 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>	1219050 Km ²	791	1416.5 Km ²	Almost all of this area is concentrated in Spain
<i>EU 28+</i>	1219050 Km ²	791	1416.5 Km ²	Almost all of this area is concentrated in Spain

Distribution map



Map is complete for Spain, but the indicated small occurrences on Sicily and Cyprus are lacking in the map.

Data source: NAT, EVA.

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

Probably about 80% will be within the limits of the EU. A non estimated quantity occurs in Mediterranean North Africa.

Trends in quantity

The trend is slight reduction due to quarrying and to pine plantations in some areas.

- 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

Regression has been not very severe and the range of the habitat is maintained in a major part

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

No

Justification

This habitat is widely represented in Spain.

Trends in quality

The quality of the habitat has been basically stable in the recent past with a slight decline due to the abandonment of the traditional land use with grazing and fire. Pine (*Pinus halepensis* mainly) plantations are a threat in some areas.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

Forestry: pine (*Pinus halepensis* mainly) and other species afforestation has been a cause of important retreat in some areas. The recreational and sport uses (paths, tracks, cycling tracks, motorcycles, quad-bikes) have increased in the recent time and gypsum quarries are locally a destructive circumstance. Building of roads, urban areas, etc. also has affected this habitat locally.

List of pressures and threats

Sylviculture, forestry

Artificial planting on open ground (non-native trees)

Mining, extraction of materials and energy production

Open cast mining

Transportation and service corridors

Paths, tracks, cycling tracks

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Conservation and management

The best conservation policy for this habitat is “hands off” and maintaining a low sheep grazing pressure. The abandonment of traditional land use has meant the release of sheep grazing and the secondary succession in many areas occupied by this habitat. This entails a degradation of the quality and a retreat of the occupancy of these gypsum scrubs; a moderate disturbance regime, mostly by means of sheep grazing, is necessary to keep this habitat in a stable high quality situation. Control of pine plantations, development of urban areas and gypsum quarrying is also necessary.

List of conservation and management needs

Measures related to spatial planning

Establish protected areas/sites

Measures related to special resource use

Regulating/Management exploitation of natural resources on land

Conservation status

Annex 1:

1520 MED U1

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

As it is a scrub accompanied by annual communities in the open gaps, the recovery after severe damage is relatively quick and spontaneous if seed sources are available.

Effort required

10 years	20 years	50+ years	200+ years
Through intervention	Naturally	Naturally	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-5 %	unknown %	unknown %	unknown %
EU 28+	-5 %	unknown %	unknown %	unknown %

The retreat in quantity has been slight.

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

The habitat has a large occupancy over a large area of occurrence where gypsum outcrops occur under severe Mediterranean conditions.

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	10 %	25 %	unknown %	unknown %	unknown %	unknown %
EU 28+	10 %	25 %	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 quality decline has been relatively moderate to moderately severe with the exception of the areas affected by quarries and urbanisation.

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)

Assessors

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