F5.5 Thermomediterranean scrub

Summary

This habitat comprises scrub, the mature stages of succession in the most arid areas of southern Europe, the Near East and Mediterranean North Africa. Sclerophyllous and deciduous shrubs and, in South Spain and Northwest Africa, dwarf palms predominate, often forming a patchy cover, with herbs and subshrubs between forming a matrix of xerophile garrigue. The bedrocks are diverse but the soils are always dry. It develops in the absence of disturbance, and is sensitive to fire, firewood harvesting and goat grazing, which were the main causes of the retreat of this habitat in the past. Now it needs protection from intensive agriculture, afforestation and urbanisation.

Synthesis

The habitat has been assessed to be Vulnerable (VU) due to the decline reported from its main area in Spain. The areas reported from Sicily are also declining, while Cyprus accounts for a stable trend. These latter areas are smaller, but represent insular versions of this habitat which need special conservation concern, because of the phytogeographical and evolutionary significance. This habitat deserves a clear conservation effort in the sense of implementing a sound conservation policy in order to preserve its biodiversity.

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

Sub-habitat types that may require further examination

The insular areas, Sicily, the South Aegean and Cyprus, are distant from each other and the main area of SE Spain and deserve particular conservation concern, also considering that in Sicily a remarkable reduction in quantity was reported.

Habitat Type

Code and name

F5.5 Thermomediterranean scrub

Periploca angustifolia at Carboneras, Almería, Spain (Photo: Javier Loidi).

Ziziphus lotus shrubs with *Asparagus horridus*, *Noaea mucronata* and *Phagnalon rupestre* in the Rizoelia National Forest Park near Larnaka, South-East part of the island of Cyprus (Photo: C.S. Christodoulou).

Habitat description

Low to medium-sized scrub in the arid and semiarid South Mediterranean areas in southeast Spain, south Sicily, the southern Aegean islands, and south Cyprus, further in lowland Mediterranean North Africa and the Near East. They often form dense or sometimes more widely spaced, frequently spiny shrub patches. Open ground in between supports numerous xerophilous herbaceous plants and subshrubs. Sclerophyllous species are dominant (e.g., *Pistacia lentiscus*, *Periploca angustifolia*) as well as deciduous shrubs (e.g., *Zizyphus lotus*) and dwarf palms (*Chamaerops humilis*). Depending on the region and aspect of the vegetation, formations have been referred to as retamal (dominated by broom shrubs; mainly covered by habitat F3.1c), palmetto (dwarf palm), tomillar (dominated by needle-leaved or otherwise microphyllous *Labiatae*) or garrigue (dominated by *Cistus*, *Pistacia* and other shrubs). Most types of thermo-Mediterranean arid scrub are 2-3 metres tall, and they occur abundantly along the arid to semiarid North African Mediterranean coasts, being represented only in a few areas in Europe. Woodlands of *Tetraclinis* and *Ziziphus* reach 5-6 m.

Thermo-Mediterranean arid scrub occurs on a wide variety of bedrock and exclusively on dry soils. Rocky calcareous or dolomitic lithosols, sandy soils or eroded marly, gypsum and argillite sites are most common. On marly and argillaceous soils it is often affected by soil flow-off. The scrub is frequently wind-exposed, sometimes moderately halophytic if on sea cliff tops. Some subtypes of thermo-Mediterranean scrub may be replaced by woodland in the course of succession but scrub of the most arid and most exposed sites tends to be stable under current conditions and is considered natural or seminatural vegetation, particularly in SE Spain (*Murciano-Almeriense* province). Some stands are hardly accessible and thus only little affected by human influence. Many of the stands are however browsed by domestic animals (goats), sometimes severely.

Due to the extremely variable species composition and wide geographical range, thermo-Mediterranean scrub forms numerous plant associations and alliances and is part of several phytosociological classes. Dominant plants are *Periploca angustifolia*, *Tetraclinis articulatus*, *Gymnosporia europaea* and *Zizyphus lotus*, but in all the cases the shrubland is extremely dense, inextricable and spiny, being practically impenetrable. It produces abundant organic matter which favors the soil formation, being a valuable habitat type for soil protection and against erosion. Among the widespread plant communities occurring in this habitat are some of those dominated by *Pistacia lentiscus* (throughout the South Mediterranean), and most stands of *Euphorbia dendroides* (from the Balearic Islands to the East Mediterranean) and *Periploca angustifolia* (from Spain and Northwest Africa to the South Aegean). Many other habitat-specific shrubs, dominant or not, are restricted to single islands or island groups, such as *Euphorbia melitensis* dwarf shrublands on Malta, *Cytisus aeolicus* in Sicily, *Genista ephedroides* in Sardinia and *Genista majorica* on the Balearic island of Mallorca.

Indicators of good quality:

- Absence of greenhouse farming
- No construction or building works, garbage dumping, solar panels, traffic, or other serious habitat impact.
- No evidence of overgrazing
- Absence of alien species such as *Oxalis pes-caprae* (the latter recognizable above ground only in early spring)

Characteristic species:

Vascular plants: *Ampelodesmos mauritanicus*, *Asparagus abus, Asparagus horridus, Calicotome intermedia, Chamaerops humilis, Cytisus aeolicus, Euphorbia dendroides*, *Euphorbia melitensis, Genista ephedroides*, *Genista majorica, Maytenus europaeus, Periploca angustifolia, Osyris quadripartita, Pinus halepensis, Pistacia lentiscus, Retama raetam* subsp*. gussonei, Rhamnus angustifolius, Tetraclinis articulatus, Zizyphus lotus*.

Classification

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

EUNIS:

F5.5 Thermo-Mediterranean arid scrub

EuroVegChecklist (alliances):

Asparago albi-Rhamnion oleoidis Rivas Goday ex Rivas-Mart. 1975

Periplocion angustifoliae Rivas-Mart. 1975

Annex 1:

5220 * Arborescent matorral with Zyziphus

5330 Thermo-Mediterranean and pre-desert scrub

Emerald:

F5.171 Iberian arid zone Ziziphus matorral

F5.52 Euphorbia dendroides formations

F5.53 Ampelodesmos mauritanica -dominated garrigues

F5.54 Chamaerops humilis brush

F5.55 Mediterranean pre-desert scrub

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
This type is one of the most specific habitats of the Mediterranean region arid and semi-arid areas, particularly in North Africa but also in some small areas of soutgern Europe sich as SE Spain, southern Sicily and Cyprus, where aridity is higher.

Geographic occurrence and trends

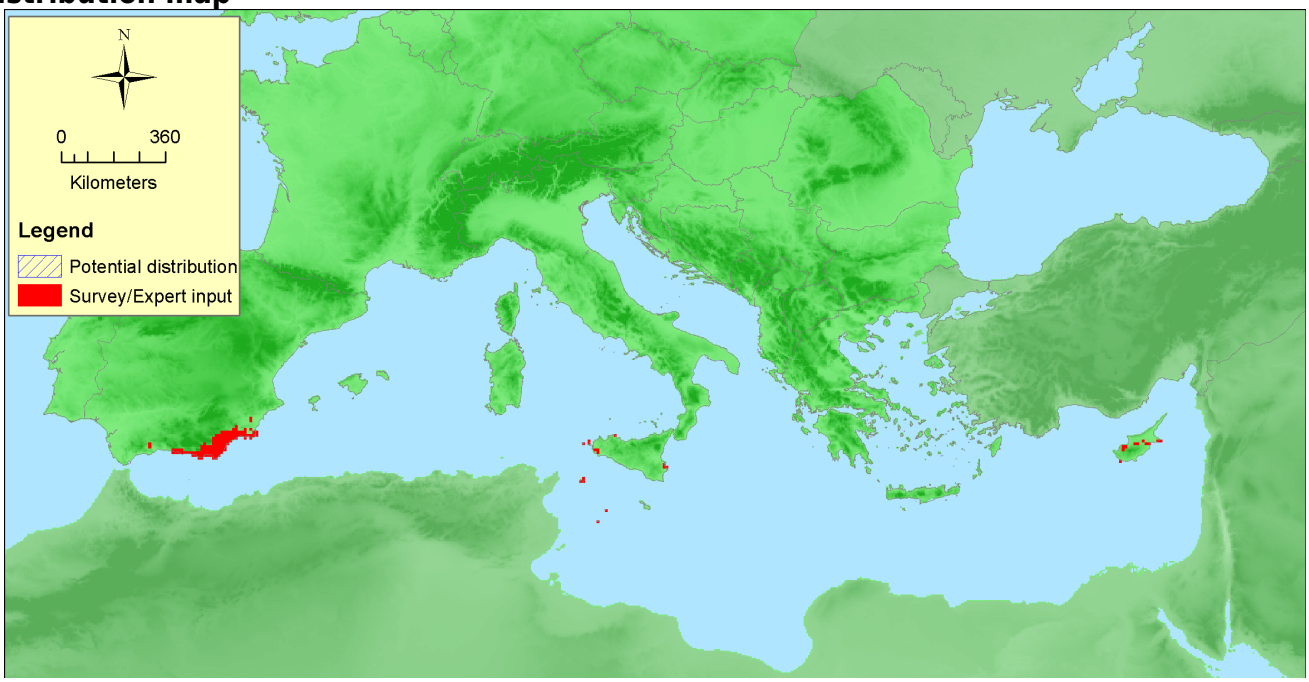
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Cyprus	Present	2.5 Km^2	Increasing	Increasing
Greece	East Aegean: Present Greece (mainland and other islands): Uncertain	Unknown Km^2	Unknown	Unknown
Italy	Sicily: Present	23 Km^2	-	-

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	Balearic Islands: Present Spain mainland: Present	89 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
EU 28	740100 Km^2	140	114 Km^2	Area in Malta and Greece unknown
EU 28+	740100 Km^2	140	114 Km^2	Area in Malta and Greece unknown

Distribution map



The map is incomplete for some of the Mediterreanean Islands, especially the Aegean Islands. Data sources: EXP, ART17, EVA.

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

This habitat is widely distributed in the Maghreb countries: Morocco, Algeria, Tunisia and Libya. An estimated 7% of the total habitat is found within the EU28.

Trends in quantity

Considering the estimations provided, this habitat is currently suffering a severe decline in general terms due to modern greenhouse farming and tourism. In the past this maquis suffered a substantial decrease due to high human pressure: grazing by goats, fire and firewood harvesting.

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

This habitat has been severely reduced by grazing, firewood harvesting and currently by greenhouse farming and by the development of touristic resorts.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  Yes
  Justification
  This habitat has a narrow natural range in the EU28 area as climatic arid-semiarid thermomediterranean areas are small in Europe

Trends in quality

In general it can be detected a certain decrease in quality due to the uses of the land with waste production and the introduction of ruideral exotic species

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

Pressures and threats

The process of urbanization for touristic resorts and housing is one of the important pressures together with the development of greenhouse and irrigation intensive agriculture. In a lower extent, another threat are the invasive non-native species as well as the expansion of conifer and eucalypt plantations. Some recreational activities, such as outdoor sports and leisure activities (mountain bike, etc.) can also be counted among the threats. Grazing and firewood harvesting have been historically important activities causing a decrease of this habitat in the past.

List of pressures and threats

Agriculture

Non intensive grazing

Sylviculture, forestry

Artificial planting on open ground (non-native trees)

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Human intrusions and disturbances

Sport and leisure structures

Conservation and management

Preventing from being urbanized and occupied by intensive agriculture resorts (greenhouses). Preventing from pine and eucalypt plantations. If a well dveloped type is desired, then no disturbance should be assured, particularly repeated fires, firewood extraction and grazing. Including in protected areas.

List of conservation and management needs

Measures related to spatial planning

Establish protected areas/sites

Conservation status

Annex 1 types 5220, 5330. Overall 2 U2, 1 FV.

When severely damaged, does the habitat retain the capacity to recover its typical

character and functionality?

The recovery speed of these shrublands is slow due to the climatic arid or semi-arid conditions of the area, provided sufficient period of time without disturbance taking place.

Effort required

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

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-33 %	unknown %	unknown %	unknown %
EU 28+	-33 %	unknown %	unknown %	unknown %

The current trend is a substantial decrease due to the urban development for tourism, urban areas and greenhouse-irrigation farming.

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
EU 28+	>50000 Km^2	Unknown	Unknown	unknown	>50	Unknown	Unknown	unknown	unknown

The EOO is larger than 50000, and AOO larger than 50, so this habitat should be assessed as LC on the ground of criterion B1.

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	29 %	72 %	unknown %	unknown %	unknown %	unknown %
EU 28+	29 %	72 %	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 reduction in quality is caused by human intervention and exotic species introduction.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unkown
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	VU	DD	DD	DD	LC	LC	DD	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	VU	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	A1	Vulnerable	A1

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

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