

F6.2 Eastern garrigue

Summary

This is open, low scrub dominated by sclerophyllous shrubs and sub-shrubs that is derived from degraded evergreen forest and maquis in the eastern Mediterranean including the Black Sea coast, and sustained by summer aridity, grazing and fire. The floristic composition is diverse and dependent on geographical position across the range, altitude and the particularity of human impact. Abandonment or intensive grazing are the main threats and no particular conservation measures are needed if traditional agriculture is maintained.

Synthesis

Relatively few quantitative data exist, but all information indicates that the habitat is Least Concern (LC), as declines in quality are relatively small and the habitat is widespread and increasing in area in the Eastern Mediterranean.

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

Various communities and associations have been identified within the distribution range of the habitat, which might be considered geographically and ecologically distinguished sub-habitat types and would require further examination.

Habitat Type

Code and name

F6.2 Eastern garrigue



Secondary, east Mediterranean garrigues with *Ballota acetabulosa*, *Helichrysum orientale* and *Phlomis fruticosa* interdigitated with *Quercus coccifera* low maquis communities in Lefka Ori, Crete (Photo: F. Xystrakis).



Garrigues mainly composed by low evergreen shrub species close to their northern distribution border at Lastva near Trebinje, Bosnia and Herzegovina (Photo: E. Milanović).

Habitat description

Evergreen, open, low scrub communities of the meso-, thermo- and occasionally supra-Mediterranean zones of Greece, southern Albania, western and eastern coasts of the Adriatic Sea, Cyprus and southern

Anatolia, Black Sea coasts in Crimea, southern Bulgaria, European part of Turkey and northern Anatolia, as well as in the Mediterranean-Steppic zone of southern Thrace. Here are included all the sclerophyllous communities with scanty and low physiognomy due to the increased summer aridity and human pressure. The scrub communities with: a) conspicuous spiny cushion structure (F7), b) abundant thermo-Mediterranean shrub species (F5.5) and c) *Erica arborea* and *Arbutus* spp. forming high macchia vegetation (F5.2) are excluded from this unit.

This habitat type includes:

- a) garrigues dominated by *Quercus coccifera*, the most widespread xerophyllous scrub communities in the eastern meso-Mediterranean,
- b) xerophyllous low scrub communities with *Cistus* spp., *Rosmarinus officinalis* of the eastern Ionian, Aegean and eastern Mediterranean coastlands and more to the inland,
- c) low scrub communities (garrigues) of the western and eastern coasts of the Adriatic Sea (Illyrian garrigues) dominated by, *Erica manipuliflora*, *Erica multiflora*, *Rosmarinus officinalis*, *Spartium junceum* and dwarf shrubs like *Cistus* spp. and *Dorcynium hirsutum*,
- d) Mediterranean-type xerophyllous open low scrub communities (Black Sea garrigues) dominated mostly by *Cistus incanus* and *Cistus salvifolius* (distributed along the Black Sea coasts - in Crimea, southern Bulgaria, and European part of Turkey and northern Anatolia, as well as of the Mediterranean-Steppic zone of southern Thrace). The most typical Mediterranean species, including evergreen shrubs like *Myrtus communis*, *Arbutus unedo* and *A. andrachne*, occur at the Anatolian coast of the Black Sea. Specific communities (not typical garrigues, as the dominant species are perennial herbs and short semi-shrubs) are distributed on flysch slopes of the Crimean Peninsula.

All the types of garrigues assigned to the habitat F6.2, as geographically and floristically/ecologically differentiated above, are dominated by (or are rich in) *Quercus coccifera*, *Rosmarinus officinalis*, *Erica manipuliflora*, *Cistus incanus*, *C. salvifolius* and *Dorcynium hirsutum*, low shrubby *Juniperus oxycedrus*, or *J. phoenicea*, *Lavandula stoechas* or *L. angustifolia*, labiate shrubs or robust perennials like *Teucrium fruticans*, *Phlomis* spp., *Salvia triloba*, *S. argentea*, *S. eichlerana*, *S. pomifera*, *Stachys* spp., broom-like shrubs of the genera *Genista*, *Chamaecytisus*, *Teline*, *Ebenus cretica* (in Crete), dwarf, shrubby composites of the genera *Helichrysum*, *Phagnalon*, *Scorzonera*, shrubs dominated by *Erica manipuliflora*, low bushes of *Arbutus andrachne*, *Globularia alypum*, dwarf shrubs of the genera *Helianthemum* or *Fumana*, shrubs of the genus *Thymelaea*, *Bupleurum fruticosum* shrubs and, finally, the low, pre-desert formations with *Ziziphus* spp., *Acacia albida*, *Capparis spinosa*, *Rhamnus palaestina*, *Rhus tripartita* of the Levant and southern Anatolia.

Garrigues are the result of retrogressive succession after degradation of evergreen Mediterranean forest and macchia (maquis) vegetation and maintained by grazing and fire. The floristic composition of garrigues reflects the diverse geographical position, altitudinal zones and human impact. The garrigues at the Black Sea coasts represent one of the latest stages of degradation of the mixed xerothermic oak forests and pseudomaquis in areas with transitional-Mediterranean climate. They differ from the typical Mediterranean garrigues by the prevalence of deciduous species and the absence of typical Mediterranean species.

Indicators of quality:

- Low levels of soil compactness and absence of active secondary succession
- Communities rich in perennial and annual herb species, shrub and semi-shrub species
- Presence and abundance of a given set of typical (diagnostic) species or functional traits (i.e. morphological, physiological and life history characteristics)

- Dominance of low shrub and semi-shrub species
- Open habitat conditions
- Moderate grazing
- Absence of fire
- Absence of alien, invasive and/or ruderal species
- Occurrence of rare and/or threatened species mostly with Mediterranean origin
- Sporadic presence of maquis and forest species.

Characteristic species:

Arbutus andrachne, *Bupleurum fruticosum*, *Capparis spinosa*, *Cistus creticus*, *C. laurifolius*, *C. salvifolius*, *Dorcyinium hirsutum*, *Ebenus cretica*, *Erica manipuliflora*, *E. multiflora*, *Fumana* spp., *Globularia alypum*, *Helianthemum* spp., *Helichrysum* spp., *Juniperus oxycedrus*, *J. phoenicea*, *Lavandula angustifolia*, *L. stoechas*, *Phagnalon graecum*, *Phlomis cretica*, *P. floccosa*, *P. fruticosa*, *P. lanata*, *Quercus coccifera*, *Rhamnus palaestina*, *Rhus tripartita*, *Rosmarinus officinalis*, *Salvia argentea*, *S. eichlerana*, *S. pomifera*, *S. triloba*, *Stachys cretica*, *Teucrium fruticans*, *Thymelaea tartonraira*, *Ziziphus lotus*, *Z. spina-christi*

Classification

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

EUNIS:

F6.2 Eastern garrigues

F6.3 Illyrian garrigues

F6.4 Black Sea garrigues

EuroVegChecklist:

Cisto cretici-Ericion manipuliflorae Horvatic 1958

Cisto eriocephali-Ericion multiflorae Biondi 2000

Arbuto andrachnae-Quercion cocciferae Barbero et Quézel 1979

Quercion ilicis Br.-Bl. ex Molinier 1934 (only the secondary *Quercus coccifera* and *Arbutus andrachne* communities of garrigues should be considered).

Annex I:

-

Emerald:

-

MAES:

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

Black Sea

Mediterranean

Justification

The habitat is distributed in Mediterranean zones of Greece, Cyprus and southern Anatolia, in southern Albania, in western and eastern coasts of the Adriatic Sea, Black Sea coasts in Crimea, southern Bulgaria, European part of Turkey and northern Anatolia, as well as in the Mediterranean-Steppic zone of southern Thrace.

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	Km ²	-	-
<i>Croatia</i>	Present	812 Km ²	Increasing	Stable
<i>Cyprus</i>	Present	unknown Km ²	Unknown	Unknown
<i>Greece</i>	Crete: Present East Aegean: Uncertain Greece (mainland and other islands): Present	6000 Km ²	Increasing	Increasing
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	unknown Km ²	Stable	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>Albania</i>	Present	Unknown Km ²	Unknown	Unknown
<i>Bosnia and Herzegovina</i>	Present	3 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>	1483850 Km ²	256	>20.000 Km ²	The current estimated total area is based only on the territorial data provided in combination to the literature available for the <i>Quercus coccifera</i> scrublands in the Mediterranean.
<i>EU 28+</i>	1583050 Km ²	295	unknown Km ²	

Distribution map



The map is very incomplete with data gaps throughout the range. Data sources: EVA.

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

More than 80% of the current distribution of the habitat lies within the EU 28.

Trends in quantity

The area covered by the habitat is increasing due to the forest degradation after grazing and forestry activities in the past; the current trend in quantity is increasing due to the secondary succession of vegetation after abandonment of traditional agro-silvo-pastoral activities. This estimation is based on literature and our expert judgement opinion, due to the unavailable territorial data.

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

-

Justification

No decline, that could lead to a small natural range of the habitat has been recorded.

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

No

Justification

The habitat is rather widely distributed in the Eastern part of the Mediterranean biogeographical zone; it is altitudinally arranged at the thermo-, meso- and occasionally supra-Mediterranean zones of Greece, southern Albania, western and eastern coasts of the Adriatic Sea, Cyprus and southern Anatolia, Black Sea coasts in Crimea, southern Bulgaria, European part of Turkey and northern Anatolia, as well as in the Mediterranean-Stepic zone of southern Thrace.

Trends in quality

The territorial data provided by the countries where the habitat occurs are rather incomplete; thus could only partly be used to conclude on the trend in quality. However based on the literature and the data provided it is concluded that the trend is stable to increasing and only in the case of Bosnia & Herzegovina a decreasing trend in quality has been reported. The forest degradation due to the livestock breeding had positive effects to the habitat (abiotic and biotic).

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

The main pressures and threats for the habitat are related to the intensive grazing from the one side and the lack of grazing from the other, that activate either the deterioration of the structure and functions of the habitat or activate the ecological succession towards woodland communities respectively. Changes in land cover/land uses and changes in species composition due to urbanization of any pattern, forest and plantation management (reforestation projects) & use, as well as due to restructuring agricultural land holding are also pressures which might become threats for the habitat's conservation in the long term.

List of pressures and threats

Agriculture

Grazing

Intensive grazing

Abandonment of pastoral systems, lack of grazing

Restructuring agricultural land holding

Sylviculture, forestry

Forest and Plantation management & use

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession

Species composition change (succession)

Conservation and management

Currently and as far as it is known from literature, no conservation measures/actions are implemented to safeguard the structure and functions of the habitat and its favorable conservation status. This is also related to the fact that the Eastern garrigues are not corresponding to any Annex I habitat type of the Dir. 92/43/EC.

List of conservation and management needs

No measures

No measures needed for the conservation of the habitat/species

Measures related to special resource use

Regulating/Management exploitation of natural resources on land

Conservation status

The habitat is not corresponding to any of the Annex I habitat types of the Directive 92/43/EC.

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

In case of fire, the only indirect measures to be taken in order that the restoration of the habitat becomes possible, are related to the prevention of grazing and other legislative regulations to prevent land cover/land use changes and changes in species composition towards the establishment of woodland communities, through ecological succession.

Effort required

10 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	increasing %	unknown %	unknown %	unknown %
EU 28+	increasing %	unknown %	unknown %	unknown %

The available data are incomplete, but Greece (the country with the largest area) reported a large increase since 1960.

Criterion B: Restricted geographic distribution

Criterion B	B1			B2				B3	
	EOO	a	b	c	AOO	a	b		c
EU 28	>50000 Km ²	No	Unknown	No	>50	No	Unknown	No	No
EU 28+	>50000 Km ²	No	Unknown	No	>50	No	Unknown	No	No

The habitat has not a restricted geographic distribution. On the contrast it is relatively widespread in the Eastern Mediterranean zones (Greece, Cyprus, Southern & Northern Anatolia), in the Adriatic Sea and the Black-Sea coastal areas in Crimea, in some Balkan countries (southern Albania, southern Bulgaria), the European part of Turkey as well as in the Mediterranean-Steppic zone of southern Thrace.

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	small %	low %	unknown %	unknown %	unknown %	unknown %
EU 28+	small %	low %	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 scattered information is provided by the territorial experts, but it is clear that only a very small part of the extent (0-5%) has declined in Greece, Bulgaria, Albania, and Croatia. Only Bosnia & Herzegovina (having a small area of the habitat) reported a negative trend over the whole range, but with low severity. Overall, the current trend in biotic and abiotic quality of the habitat is stable to increasing.

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 to estimate 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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