B3.1b Mediterranean and Black Sea rocky sea cliff and shore

Summary

This habitat occurs as linear, narrow and often broken stretches of vegetated crevices, ledges and cliff-tops along the coasts of the Mediterranean and Atlantic round to mid-Portugal, and more locally, the Black Sea. Exposed bedrock dominates the habitat and its variable composition and structure determines the character of available surfaces, the height and slope of the cliffs influencing the input of salt spray which, on exposed coasts, can be very high close to the sea. This combination of local climatic and topographic conditions determines the often strong zonation of crevice vegetation and grasslands found on the cliffs, with regional climate also affecting the flora, with many endemics characterising the Mediterranean element. It is threatened by natural erosion and also by recreation and urbanisation. No specific conservation measures are needed, except on frequently visited and degraded areas, where coastal restoration programmes can limit access and damage.

Synthesis

All provided data lead to the conclusion that the habitat qualifies as Least Concern (LC) because the negative trends in quantity and in quality are small, and the habitats has a wide geographical distribution.

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

A Black Sea versus a Mediterranean sub-type can be considered, due to biogeographic, floristic and ecological differences. Salinity and salt spray exposure are lower in the Black Sea than in the Mediterranean, and the Mediterranean subtype contains much more narrow-endemic *Limonium* species.

Habitat Type

Code and name

B3.1b Mediterranean and Black Sea rocky sea cliff and shore

Ryolitic cliffs of the Scandola Nature Reserve, Corsica (Photo: Frédéric Bioret).

Astragalus tragacantha vegetation in Cabo de Sao Vicente region, Portugal (Photo: Frédéric Bioret).

Habitat description

This habitat type comprises open, halo-chasmophytic communities developing on the cliffs along the thermo-Atlantic, Mediterranean and Black Sea coasts. These coenoses develop under the influence of salt spray from the sea, especially in the supralittoral parts. Vertical to gently sloping bedrock and stable boulders in the supralittoral (or splash zone) of the majority of rocky shores are typically characterised by diverse maritime communities of yellow and grey lichens, such as *Xanthoria parietina*, *Caloplaca marina*, *Lecanora atra* and *Ramalina* spp. The black lichen *Verrucaria maura* is also present, but usually in lower abundance than in the littoral fringe zone. In wave exposed conditions, where the effects of salt spray extend further up the shore, the lichens generally form a wide and distinct band. The higher parts of sea cliffs are colonized by disjunct assemblages of salt-tolerant, halophytic or even halo-nitrophilous crevice plants (chasmophytes) or by more or less closed salt-tolerant grasslands (mainly on the cliff top). Perennial herbs are dominant, but also some annuals occur. There are processes of aridisation of the vegetation on the top of the higher rocks where the floristic composition is richer in different species depending upon the neighbouring dominant vegetation. The floristic composition depends also on the bedrock types, which are very diverse in the different part of habitat's range. The main two groups are calcareous and silicate (often with volcanic origin) rocks and even loess-sand low cliffs along the Romanian Black Sea coast. Rare and endemic plants as well as widely distributed and ruderal nitrophilous species occur in the species composition. The vegetation belongs to the class *Crithmo-Staticetea* and the character species *Crithmum maritimum* is common everywhere in the habitat's range. The Mediterranean sea cliffs harbour numerous endemics of extremely local occurrence, in particular many species belonging to the genus *Limonium*, which comprises at least 43 and probably 120 to 150 Mediterranean cliff species, many of which restricted to a few localities. Several of these species are seriously threatened, like for instance *Limonium remotispiculum* of southern Italy and *Limonium strictissimum* of Corsica and Caprera. Some stable and high coastal cliffs are inhabited by shrub communities of *Ficus carica*, *Colutea arborescens* and *Ulmus minor*.

Indicators of good quality:

In good conditions this habitat is rich in regional endemic species and the natural floristic structure is given by salt-tolerant chasmophytic species and halophytes. It is threatened by natural causes: the abrasive activities of sea waves leading to the natural destruction of the rocks. Other threats are the tourist development of the coastal areas, pollution and nitrification of the coastal cliffs and increase of not typical ruderal or alien species.

Characteristic species:

Flora

Vascular plants: *Allium commutatum, Ameria ruscinonensis, Anthemis rigida, Anthyllis barba-jovis, Asteriscus maritimus, Atriplex hastata, Atriplex tatarica, Bellium crassifolium, Bellium minutum, Brassica insularis, Brassica tyrrhena, Catapodium marinum, Centaurea cineraria, Centaurea filiformis, Cephalaria mediterranea, Cichorium intybus, Cichorium spinosum, Crithmum maritimum, Convolvulus lineatus, Crucianella rupestris, Daucus carota, Daucus gingidium, Dianthus sardous, Ecballium elaterium, Elymus pycnanthus, Euphorbia pithyusa, Halimione verrucifera, Frankenia hirsuta, Frankenia laevis, Frankenia pulverulenta, Helichrysum litoreum, Helichrysum pseudolitoreum, Helichrysum rupestre, Hyoseris taurina, Genista tyrrhena, Goniolimon collinum, Kochia prostrata, Lactuca saligna, Leuzea salina, Limonium sp.pl., Lotus cytisoides, Melilotus officinalis, Parapholis incurva, Phleum crypsoides, Phleum exaratum, Phleum subulata, Plantago weldenii, Prangos ferulacea, Psilurus incurvus, Reichardia picroides, Sagina maritima, Scolymus hispanicus, Sedum litoreum, Senecio bicolor, Senecio cineraria, Seseli bocconii, Silene caliacrae, Silene compacta, Silene martinolii, Silene sedoides, Valantia muralis, Xanthium spinosum*.

Lichens: *Caloplaca marina, Lecanora atra, Ramalina sp.pl. Verrucaria maura, Xanthoria parietina*

Fauna

Invertebrates: *Ligia italica, Littorina neritoides*.

Birds: *Apus apus, Calonectris diomedea, Falco eleonorae, Hydrobates pelagicus, Larus audouinii, Phalacrocorax aristotelis, Puffinus yelkouan, Sturnus roseus, Oenanthe pleshanca*

Mammals: *Monachus monachus.*

Classification

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

EUNIS:

B3.1 Supralittoral rock (lichen or splash zone)

B3.2 Unvegetated rock cliffs, ledges, shores and islets

B3.3 Rock cliffs, ledges and shores, with angiosperms

Annex 1:

1240 Vegetated sea cliffs of the Mediterranean coasts with endemic *Limonium* spp.

EuroVegChecklist alliances:

Crithmo-Staticion Molinier 1934

Limonion anfracti-cancellati (Horvatic 1934) Mucina nom nov (=Staticion dalmaticum Horvatic 1934)

Crithmo-Limonion graeci Géhu et al 92 (= Crithmo-Frankenion hirsutae Mayer 1995)

Kochio prostratae-Limonion meyeri Korzhenevsky 1987

Dactylido hispanicae-Helichrysion stoechadis Géhu et Biondi in Géhu 1984

Astragalion tragacanthae (Folch ex Rivas-Mart., Fernández-González et Loidi 1999) Rivas-Mart. et al. 2002

Launaeion cervicornis (O. de Bolòs et Vigo ex Gil et Llorens 1995) Rivas-Mart., Fernández-González et Loidi 1999

Euphorbion pithyusae Biondi et Géhu in Géhu et Biondi 1994

Anthyllidion barbae-jovis S. Brullo et De Marco 1989

Plantagini-Thymelaeion hirsutae Bartolo et S. Brullo in Bartolo et al. ex Mayer 1995

Crucianellion rupestris S. Brullo et Furnari 1990

Emerald:

B3.3 Rock cliffs, ledges and shores, with angiosperms

MAES:

Coastal

IUCN:

13.1 Sea Cliffs and Rocky Offshore Islands

Does the habitat type present an outstanding example of typical characteristics of one

or more biogeographic regions?
Yes

Regions
Black Sea
Mediterranean

Justification
Although this habitat is well represented in most of the EU28 countries, it is typical of the Mediterranean and Baltic regions.

Geographic occurrence and trends

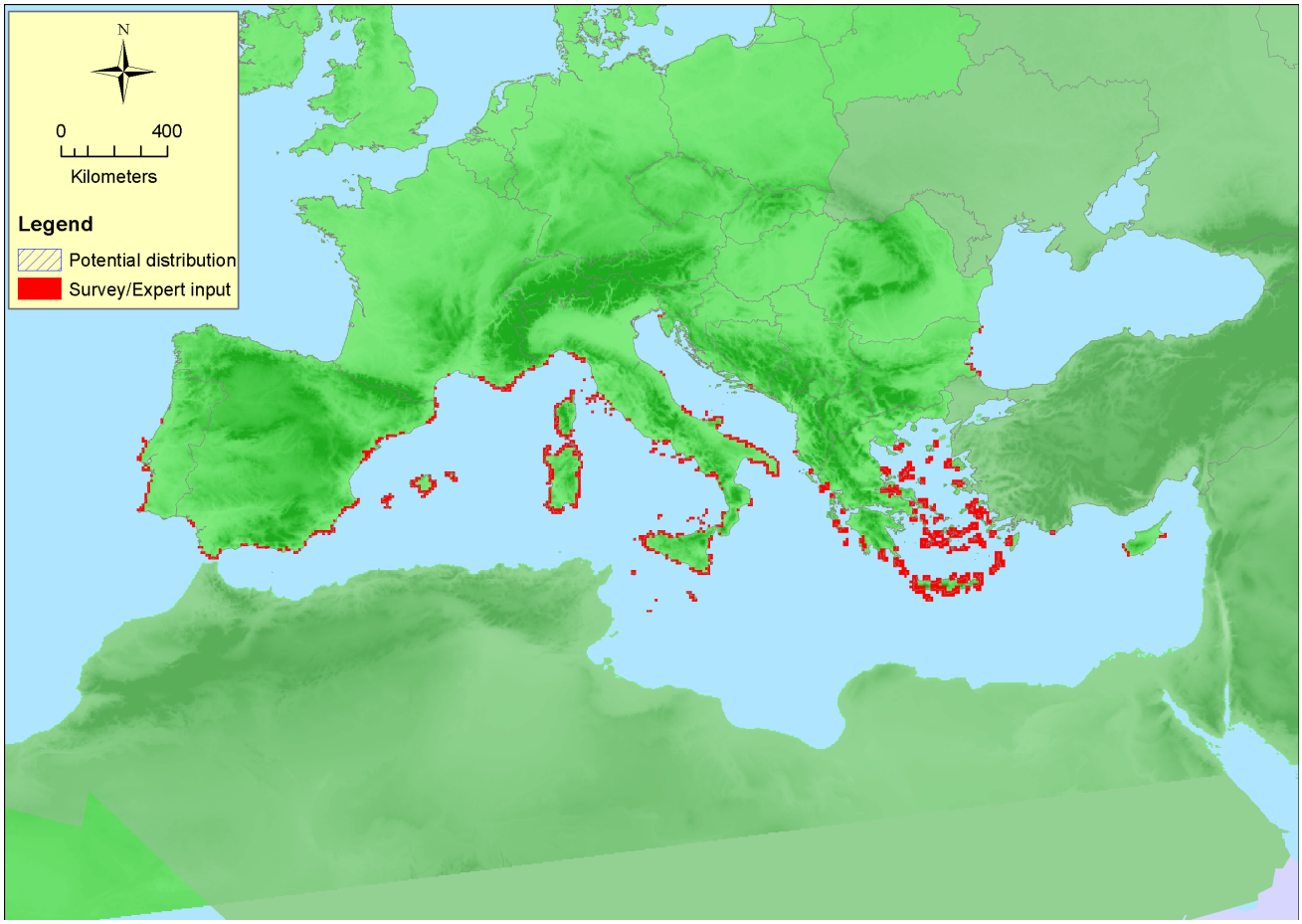
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Bulgaria	Present	0.85 Km^2	Decreasing	Decreasing
Croatia	Present	12 Km^2	Decreasing	Decreasing
Cyprus	Present	1 Km^2	Stable	Unknown
France	Corsica: Present France mainland: Present	57 Km^2	Decreasing	Decreasing
Greece	Crete: Present East Aegean: Present Greece (mainland and other islands): Present	305 Km^2	Stable	Decreasing
Italy	Italy mainland: Present Sardinia: Present Sicily: Present	97 Km^2	Decreasing	Decreasing
Malta	Present	Unknown Km^2	Unknown	Unknown
Portugal	Portugal mainland: Present	0.3 Km^2	Decreasing	Decreasing
Romania	Present	0.1 Km^2	Stable	Decreasing
Slovenia	Present	0.03 Km^2	Stable	Stable
Spain	Balearic Islands: Present Spain mainland: Present	16 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)
Albania	Present	Unknown Km^2	-	-
Bosnia and Herzegovina	Present	0.65 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	3241450 Km^2	1317	490 Km^2	Based on existing data provided by EU member States.
EU 28+	3241450 Km^2	1322	491 Km^2	The provided quantitative data are not complete.

Distribution map



Map is complete for EU28, but with data gaps for Croatia (where the habitat is widespread), Montenegro and Albania. Data sources: Art17, NAT.

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

About 40 to 50% (estimation) of the habitat distribution lies within the EU28.

Trends in quantity

The trend in quantity is decreasing in almost all the countries of occurrence, especially those where the habitat is well represented (Italy, France, Croatia, Spain,, Greece), but in general decreases are relatively small.

- 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
  Although quantitatively declining, this habitat type has a huge range, as attested by its EOO larger than 50000 km^2 and AOO larger than 50km^2.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  This habitat type has a huge range, as attested by its EOO larger than 50000 km^2 and AOO larger than 50km^2. It also occurs in large (linear) stands.

Trends in quality

In most of the EU28 countries, the trend in quality is decreasing.

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

Pressures and threats

Several threats have been reported. The most significant ones are the increasing urbanisation and frequentation linked to tourism expansion.

List of pressures and threats

Urbanisation, residential and commercial development

Continuous urbanisation
Dispersed habitation

Human intrusions and disturbances

Walking, horseriding and non-motorised vehicles
Motorised vehicles
Mountaineering & rock climbing
Golf course
Trampling, overuse

Pollution

Nutrient enrichment (N, P, organic matter)

Conservation and management

In protected areas, the fencing of degraded places and control of freqentation allow the natural regeneration of this habitat.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring coastal areas

Conservation status

Annex I:

1240: MED U1, CON FV, BLS U1

Small parts are assigned under 1230

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

The recovery process of degraded areas is quite rapid if the frequantation is organised and controled.

Effort required

10 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-9 %	unknown %	unknown %	unknown %
EU 28+	-9 %	unknown %	unknown %	unknown %

Over the last 50 years, the overall reduction in quantity is slight (-9%), based on the EU28 countries of occurrence. The quantitative values for applying Criterion A1 are calculated from territorial data provided by 10 EU28 countries, including those with the largest areas. For A2 and A3, there is no possibility to evaluate since the provided data are incomplete. No quantitative data are available for EU28+ countries. The application of Criterion A1 leads to Least Concern status.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km^2	Yes	Unknown	unknown	>50	Yes	Unknown	unknown	unknown
EU 28+	>50000 Km^2	Yes	Unknown	unknown	>50	Yes	Unknown	unknown	unknown

This habitat is widespread in 11 EU28 and 3 EU28+ countries; the values of its EOO and AOO are far too large to meet the thresholds for the threatened categories under Criterion B. For these reasons, based on its geographic distribution, the habitat is assessd as 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	4 %	22 %	unknown %	unknown %	unknown %	unknown %
EU 28+	4 %	22 %	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%

Values have been calculated from territorial data provided by 10 EU28 countries, including the countries with the largest areas. Several countries reported a slight to moderate decrease in quality (the highest values were recorded in Portugal, Bulgaria and Italy), in some others the qualitative trend is more or less stable (e.g. Greece, Slovenia, Romania). Over the last 50 years, the overall reduction in abiotic/biotic quality was rather low (-22%), affecting a very small extent (4%). No data were available for additional

EU28+ countries. Based on the application of Criterion C/D1, the habitat is assessed as Least Concern.

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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