H3.2g Mediterranean ultramafic inland cliff

Summary

Ultramafic rocks and cliffs away from the coast in the Mediterranean have a very scattered distribution and sustain a sparse but highly distinctive flora of a few ferns, vascular plants and cryptogams especially adapted for growing in the fissures and crevices of this specialised substrate. This habitat type is only slightly affected by human activities, especially on mountain stands or rather inaccessible sites but some disturbance may be caused by mining and quarrying (at lower elevations), and/or transport infrastructures. Knowledge and scientifically-based management of this habitat type is needed.

Synthesis

Both quantity and quality (past, historical and future) cannot be estimated due to the lacking of territorial data and other information, as well as inconsistencies and uncertainties in data provided by countries. Therefore, this habitat type is classified as Data Deficient (DD). Improved knowledge and information (both qualitative and quantitative) is extremely needed, since this habitat type is very rare in Europe.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Data Deficient	-	Data Deficient	-

Sub-habitat types that may require further examination

No subhabitats for further analysis have been distinguished.

Habitat Type

Code and name

H3.2g Mediterranean ultramafic inland cliff

Serpentine cliff in Sierra Bermeja, Málaga, Spain, with *Asplenium adiantum-nigrum* var *corunnense* (Photo: B. Díez Garretas and Alfredo Asensi).

Crevice on perodotote cliff in Sierra bermeja, Málaga, Spain, with the nickel hyperaccumulator *Alyssum serpyllifolium* subsp. *malacitanum* (Photo: B. Díez Garretas and Alfredo Asensi).

Habitat description

Ultramafic (igneous and mostly igneous-metamorphic rock with high magnesium and iron content) rocks and cliffs in the Mediterranean with few vascular plant species and cryptogams growing in rock fissures and crevices. The cliffs may be textured as ophiolite or like a breccia. Many ophiolites are built of ultramafic rocks such as peridotite and, after transformation, serpentinite. The high magnesium and iron

content, and the frequently elevated amounts of chromium and nickel are toxic to most plants. Due to this unmitigated toxic effect only few adapted plants are able to grow on ultramafic cliffs.

The vegetation is mainly composed of small ferns of the genera *Allosorus* and *Asplenium*, together with *Paragymnopteris marantae* and others. The plant composition is unique. It consists of highly specialised species and rare ecotypes of more common and widespread species. Plant cover is low.

Mediterranean ultramafic cliffs, though widely distributed, are local phenomena and occur in restricted hilly and mountainous areas of the Iberian Peninsula, southern France, Corsica, Sardinia, Sicily, Italian Peninsula, western and southern Balkans, Aegean, Cyprus, Mediterranean Turkey (Anatolia) and northern Africa (Cyrenaica, Tunisia, Algeria, and Morocco).

Indicators of quality:

The vegetation of Mediterranean ultramafic cliffs consists chiefly of highly specialised ferns and other plants (serpentinophytes). Any of these, and sometimes their hybrids, indicate favourable habitat quality. Although cliff habitats generally enjoy protection through inaccessibility, quarrying destroys the habitat and its populations of specialised plants. While most serpentinophytes are restricted largely to primary cliff habitats, some, such as *Paragymnopteris marantae* and a few bryophytes, occur occasionally on abandoned gravel heaps. The following characteristics may be used as indicators of favourable quality:

- Occurrence of rare species, in particular serpentinophytes,
- Presence of different aspects of rock walls, different exposure, moisture and rock structures such as rock shelters and ledges
- Contact with natural habitats such as serpentine screes and dry metal-rich grasslands
- Absence of mining and quarrying
- Absence of rock control structures and garbage dumping

Characteristic species:

Vascular plants: *Allosorus guanchicus, Allosorus pteridioides, Asplenium balearicum, Asplenium foreziense, Asplenium obovatum, Cosentinia vellea, Paragymnopteris marantae, Pellaea calomelanos, Rosularia serpentinica, Viola sandrasica*

Bryophytes: *Coscinodon cribrosus, Mielichhoferia mielichhoferiana*

Lichens: *Acarospora sinopica, Lecanora (epanora, handelii, subaurea), Lecidea silacea, Rhizocarpon (furfurosum, oederi, ridescens), Scoliciosporum umbrinum, Stereocaulon nanodes*

Classification

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

EUNIS:

H3.2 Basic and ultra-basic inland cliffs

EuroVegChecklist:

Phagnalo saxatilis-Cheilanthion maderensis Loisel 1970 corr. Pérez-Carro et al. 1989

Annex 1:

8210 Calcareous rocky slopes with chasmophytic vegetation

Emerald:

H3.2 Basic and ultra-basic inland cliff

MAES-2:

Sparsely or unvegetated land

IUCN:

6 Rocky areas

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

Regions
Mediterranean

Justification
The habitat represents an outstanding example for the Mediterranean biogeographic region for the occurrence of a pool of species, mostly endemic, characterized by a high ecological specialization and a remarkable phytogeographical value.

Geographic occurrence and trends

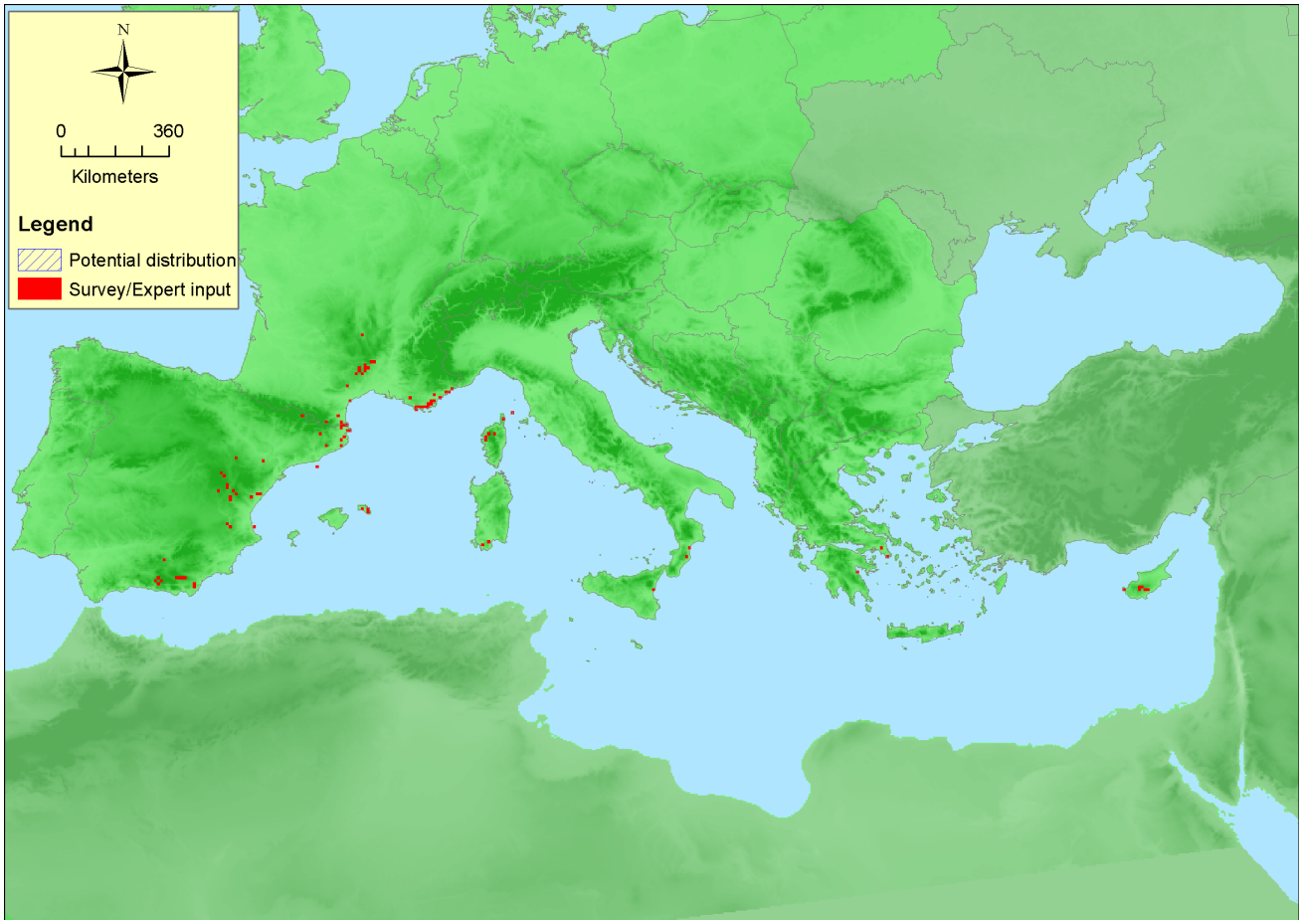
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Cyprus	Present	unknown Km^2	Unknown	Unknown
Greece	East Aegean: Uncertain Greece (mainland and other islands): Present	4 Km^2	Unknown	Unknown
Italy	Italy mainland: Present	unknown Km^2	Decreasing	Decreasing
Portugal	Madeira: Uncertain Portugal Azores: Uncertain Portugal mainland: Present Savage Islands: Uncertain	24 Km^2	Increasing	Unknown
Spain	Balearic Islands: Uncertain Canary Islands: Uncertain Spain mainland: Present	7 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	Uncertain	unknown Km^2	Unknown	Unknown

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	1490250 Km^2	96	34 Km^2	Data have many gaps and inconsistencies among countries
EU 28+	1490250 Km^2	96	34 Km^2	Data have many gaps and inconsistencies among countries

Distribution map



The map gives an underestimate of the distribution due to data gaps. Data sources: EVA, Art17, GBIF.

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

>90%

Trends in quantity

Based on the provided data, the extent of this habitat type over the last 50 years is increased (EU28: +25,5%; EU28+: +25,5%). But this figure is not realistic at all, since most of the data are missing, figures (when provided) are very small (thus any evaluation is untrustworthy), and many inconsistencies among countries are occurring. No figure or estimation is provided for the future trends.

- Average current trend in quantity (extent)
  EU 28: Unknown
  EU 28+: Unknown
- Does the habitat type have a small natural range following regression?
  No
  Justification
  Based on the provided data, no decline occurred over the last 50 years.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  Yes
  Justification
  This habitat cannot occur everywhere, since its establishment requires very specific geo-pedological features (i.e. ultramafic rocks). Given that, the total area occupied is naturally extremely small.

Trends in quality

Based on the provided data, quality of this habitat type cannot be evaluated. In particular, most of the

data are missing, figures (when provided) are rather unreliable, and many inconsistencies among countries do occur.

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

Pressures and threats

This habitat type is slightly affected by human activities, especially on mountain stands or rather inaccessible sites. Despite this, some disturbance may be caused by mining and quarrying (at lower elevations) and/or infrastructures (e.g. road, motorways, etc.),

List of pressures and threats

Mining, extraction of materials and energy production

Mining and quarrying

Transportation and service corridors

Roads, motorways
Railway lines, TGV

Conservation and management

The best management for this highly natural habitat is to leave it simply untouched, just avoiding any human interference with its natural processes. Increase public awareness about the biological relevance of such apparently inhospitable environments is important in order to make more effective conservation efforts. Some very peculiar taxa exclusively linked to this habitat type should be protected, through specific actions aiming at their preservation.

List of conservation and management needs

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species
Manage landscape features

Conservation status

Annex I:

8210: MED XX

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

Unless physically destroyed, recover of ultramafic cliff is possible provided that it is potentially connected with similar environments. But, given the very small area occupied and very scattered distribution, this sounds very unlikely without human intervention (e.g. species reintroduction).

Effort required

10 years	20 years	50+ years
Through intervention	Through intervention	Through intervention

Red List Assessment

Criterion A: Reduction in quantity

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

Based on the limited provided territorial data, average European reduction in quantity cannot be evaluated.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50.000 Km^2	Unknown	Unknown	unknown	>50	Unknown	Unknown	unknown	unknown
EU 28+	>50.000 Km^2	Unknown	Unknown	unknown	>50	Unknown	Unknown	unknown	unknown

Both EOO and AOO are well above the thresholds. AOO is not far above the 50 grid cell threshold, but the calculated value of 96 is likely to be an underestimate, with real values higher than 100 (and therefore not potentially qualifying for Near Threatened).

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	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	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%

Past, historical and future trends cannot be estimated due to the lacking of data/information.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unknown
EU 28+	unknown

No data to evaluate risk of collapse is available.

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	DD	DD	DD	DD	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	LC	LC	LC	DD	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
Data Deficient	-	Data Deficient	-

Confidence in the assessment
Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

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References

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