H3.2c Temperate, lowland to montane base-rich inland cliff

Summary

This habitat type includes calcareous or base-rich rock faces and crevices in the lowland to montane belts of European mountains in the temperate region. Though conditions are not so severe as at higher altitudes, plant species growing on these rocks are adapted to extreme habitat conditions, such as strong solar radiation, a low water content, strong fluctuations in day/night and seasonal temperature, strong winds, absence of snow cover, and poorly developed soil. Many endemic and rare species occur here. Losses have been mainly due to quarrying but quality is affected by eisure activities such as rock-climbing and mountaineering that often go along with the cleaning and securing of cliffs. Those activities also affect the behaviour of animal behaviour, such as breeding birds.

Synthesis

The overall Red List status is Least Concern (LC). Decreases in quantity and quality are well below the thresholds to qualify for the Near threatened category. Despite a variable data quality among countries and a lack of important data from Eastern countries, the calculated trends reflect somewhat the reality and, therefore, the assessment can be considered as reliable.

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

Cliffs oustide moutain regions (i.e. in the lowlands) should be assessed separetely beacause they show a larger decrease in quality compared to lowland cliffs within calcareous mountains. Indeed, threats concentrate on a much smaller area.

Habitat Type

Code and name

H3.2c Temperate, lowland to montane base-rich inland cliff

Baserich lowland inland cliffs near Chambéry, Savoie, France (Photo: Alexis Mikolajczak).

Baserich inland cliffs at Golem Grad, Macedonia (Photo: Vlado Matevski).

Habitat description

This habitat type includes calcareous or base-rich rock faces and crevices in lowland to montane belts of European mountains in the temperate bioclimatic region. Plant species growing on these rocks are adapted to extreme habitat conditions, such as strong solar radiation, a low water content, strong fluctuations in day/night and seasonal temperature, strong winds, absence of snow cover, and poorly developed soil. However, the conditions in lower altitudes are not as severe as in high altitudes (habitat H3.2b): radiation is lower, many species grow in more shady places, the fluctuation of temperature is not so extreme, and winds are less strong. Despite this, many endemic and rare species occur in these habitats.

On more sunny rocks we can find communities of the order *Potentilletalia caulescentis*, namely in the Central and Easter Alps and Western Carpathians from the alliance *Potentillion caulescentis* and in the Southern Carpathians from the *Micromerion pulegii.* On more shady rocks communities from the order *Violo biflorae-Cystopteridetalia alpinae* appear, in the Southern Dinarides the alliance *Edraianthion* and in the rest of Europe the alliance *Violo biflorae-Cystopteridion alpinae.*

Indicators of quality:
Many endemic and legally protected species occur in this habitat. The main threats are air pollution, exploitation of limestone, intensive tourism (climbing), grazing, collecting of flowers, erosion, natural destruction of the rocks.
The following characteristics may be considered as indicators of good quality:

- occurrence of natural erosion processes,
- species richness of the cliffs and presence of the characteristic species,
- presence of rare species at their typical frequency.

Characteristic species:
Flora:
Vascular plants: Androsace lactea, Asplenium fontanum, A. ruta-muraria, A. scolopendrium, A. trichomanes, A. viride, Campanula cochlearifolia, C. cespitosa, C. rotundifolia, Cardaminopsis arenosa subsp. borbasii, Carex brachystachys, Ceterach officinarum, Cystopteris fragilis, Draba aizoides, D. norvegica, D. sauteri, Erinus alpinus, Hieracium amplexicaule, H. bupleuroides, H. humile, Globularia cordifolia, Kernera saxatilis, Moehringia muscosa, Polypodium interjectum, Potentilla caulescens, Rhamnus pumila,Valeriana montana, V. tripteris.

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:
Potentilletalia caulescentis Br.-Bl. in Br.-Bl. et Jenny 1926
Potentillion caulescentis Br.-Bl. In Br.-Bl. et Jenny 1926
Micromerion pulegii Boscaiu (1971) 1979
Violo biflorae-Cystopteridetalia alpinae Fernandez Casas 1970
Violo biflorae-Cystopteridion alpinae Fernandez Casas 1970
Edraianthion Lakušić 1968

Annex 1:

8210 Calcareous rocky slopes with chasmophytic vegetation

Emerald:

H3.2 Basic and ultra-basic inland cliff

MAES-2:

Sparsely vegetated land

IUCN:

6 Rocky areas [e.g. inland cliffs, mountain peaks]

Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?
No

Justification
This habitat type has a widespread distribution across several biogeographic 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)
Austria	Present	91 Km^2	Unknown	Stable
Bulgaria	Present	190 Km^2	Stable	Stable
Croatia	Present	15 Km^2	Stable	Stable
Czech Republic	Present	2 Km^2	Stable	Stable
France	France mainland: Present	225 Km^2	Stable	Stable
Germany	Present	30 Km^2	Stable	Decreasing
Hungary	Present	1 Km^2	Stable	Stable
Ireland	Present	2.7 Km^2	Stable	Stable
Italy	Italy mainland: Present	50 Km^2	Stable	Stable
Lithuania	Present	0.01 Km^2	Unknown	Stable
Poland	Present	2.8 Km^2	Decreasing	Decreasing
Romania	Present	2 Km^2	Decreasing	Decreasing
Slovakia	Present	7 Km^2	Decreasing	Decreasing
Slovenia	Present	46 Km^2	Stable	Stable
Spain	Spain mainland: Present	13 Km^2	Stable	Stable
UK	United Kingdom: Present	6 Km^2	Stable	Decreasing

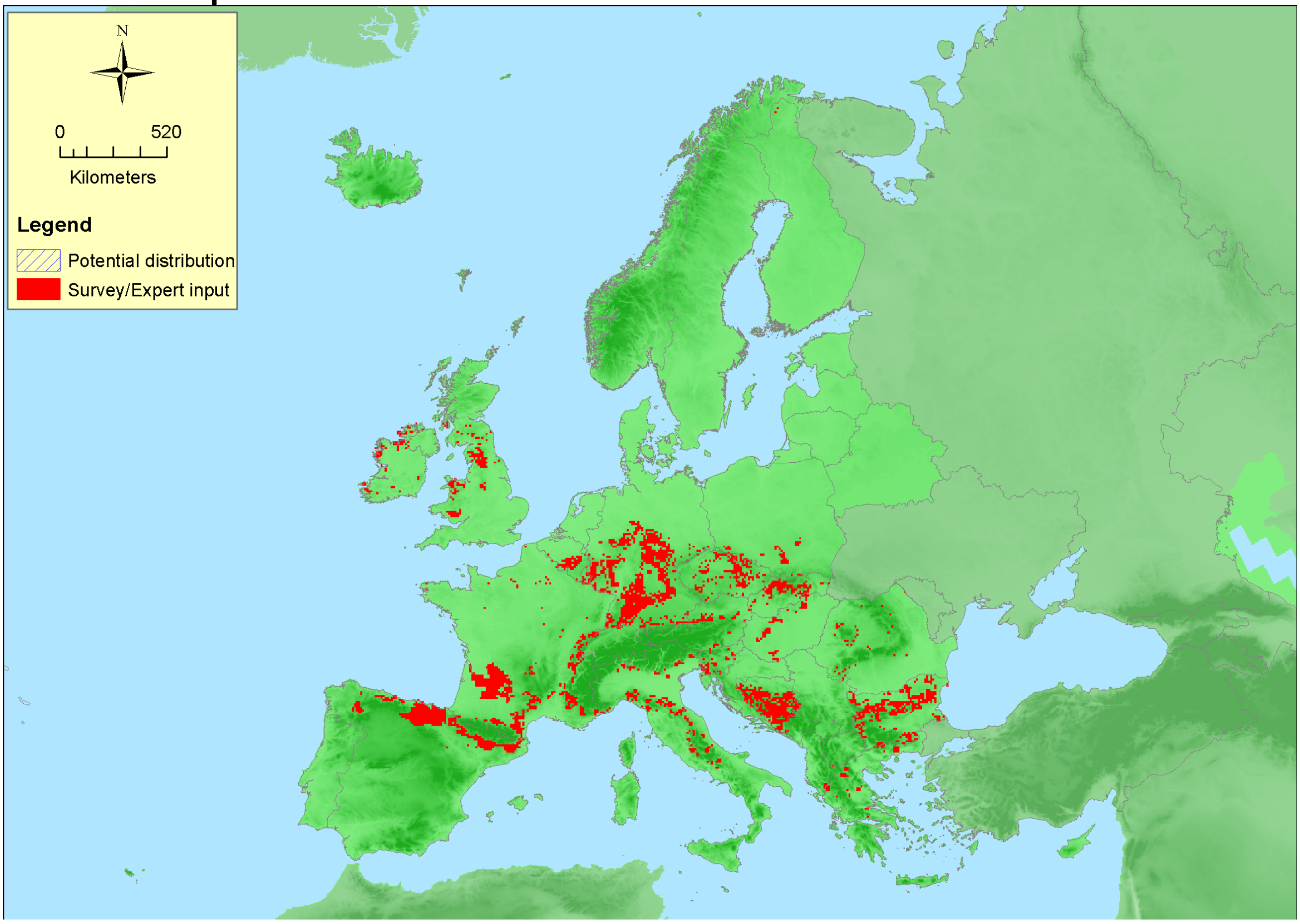
EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Bosnia and Herzegovina	Present	107 Km^2	Stable	Decreasing
Switzerland	Present	250 Km^2	Decreasing	Stable

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	6462400 Km^2	2817	685 Km^2	

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28+	6462400 Km^2	3091	1042 Km^2	

Distribution map



The map is incomplete for the Balkan. Data sources: Art17, NAT.

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

95 %. The native biota (especially plants) have a narrow distribution from a worldwide point of view. The entire distribution lies inside EU28+ countries, except a very small part in the Ukraine.

Trends in quantity

The current trends in quantity have been reported as stable in most countries, except in Switzerland, Bulgaria and Slovakia (slight decreasing trend). There has been a slight decline in quantity over the last 50 years (-5% EU28+; -4% EU28), which is mainly caused by quarrying that simply destroys cliffs and rock outcrops. The reported changes are variable among countries, reflecting a variable level of knowledge and different contexts. The average trend seems nevertheless realistic. The strongest decrease in quantity is reported in Germany (-25/-30%). Taking into account the ranges of values given by some countries, the lower rate of decline in EU28+ would be 2% and the upper 7%. The historical and future trends are stable or slightly decreasing, but no precise figures are available.

- Average current trend in quantity (extent)
  EU 28: Stable
  EU 28+: Stable
- Does the habitat type have a small natural range following regression?
  No
  Justification

The EOO is > 50000 km^2.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  Yes
  Justification
  Compared to high-mountain regions, this habitat type occurs naturally only on small spots in the lowlands and low mountains when habitat conditions are appropriate. So it does have an intrinsically restricted area (of occurrences).

Trends in quality

A recent decrease in quality has occurred quite locally (extent -7 and -12% in EU28 and EU28+) with a limited severity of degradation (28 and 35% in EU28 and EU28+). The reduction in quality is largely due to the alteration of and disturbance to the native biota of base-rich cliffs. Outdoor activities (rock climbing, mountaineering and via ferrata) affect this habitat type due to the cleaning of routes (removing of plants and unstable rocks from itineraries) and by disturbing wildlife. Biocenotic evolution of surrounding habitats (grasslands, scrublands, and forests) brings shade to cliffs and therefore, causes changes in the habitat conditions. The securing of cliffs for security reasons affects this habitat type in pretty the same way as outdoor activities do. A lack of data from important Eastern countries (e. g. Poland) does not allow to say how changes vary across the EU. There is a lack of data to assess historical and future changes. However, lowland countries with few base-rich cliffs, such as Germany, Belgium or Lithuania, tend to report worse severity and extent of degradation.

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

Pressures and threats

The main threat is quarrying that simply destroys this habitat. Secondary threats are outdoor activities, biocenotic evolution and securing of cliffs, which rather cause changes in quality than in quantity. Outdoor activities (rock climbing, mountaineering, via ferrata) affect this habitat type due to the cleaning of routes (removing of plants and unstable rocks from itineraries) and by disturbing wildlife. Biocenotic evolution of surrounding habitats (grasslands, scrublands, and forests) brings shade to cliffs and therefore, causes changes in habitat conditions. The securing of cliffs for security reasons affects this habitat type in pretty the same way as outdoor activities do. The threats are more significant in northern or lowland countries (i.e. non-Mediterranean countries) where this habitat type is much more scattered, which makes it more sensitive to these threats. Problems of invasive species are reported in Ireland (*Epilobium brunnescens*, a plant originating from New Zealand).

List of pressures and threats

Mining, extraction of materials and energy production

Mining and quarrying

Human intrusions and disturbances

Outdoor sports and leisure activities, recreational activities
Mountaineering, rock climbing, speleology

Invasive, other problematic species and genes

Invasive non-native species

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession

Conservation and management

Cliffs are highly natural elements of the mountain environment and of hills dominated landscapes. Therefore, the conservation of this habitat type does not require a specific management but leaving it undisturbed and undamaged. Conservation is effective when free evolution is possible like within protected areas. Unless protected species or habitats are present, the conservation of cliffs is not taken into account in construction projects and land-use planning. In France, natural areas managers mainly seek cooperation with other stakeholders such as climbers and gliders to better control these activities and make people aware of the disturbances they may cause to plants and animals (prevention) instead of segregative conservation approaches.

List of conservation and management needs

Measures related to spatial planning

Manage landscape features

Conservation status

Annex 1 types:

8210: ALP FV, ATL XX, BLS U1, BOR U1, CON U1, MED XX, PAN FV

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

At least for plants, natural recovery of this habitat is rather fast when it is not isolated from habitats of the same type. However, the return of specialized nesting birds after strong disturbances, for example, is less easy.

Effort required

50+ years	200+ years
Naturally	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-4 %	unknown %	unknown %	unknown %
EU 28+	-5 %	unknown %	unknown %	unknown %

The values given above were calculated with the territorial data only, using average values in case ranges were provided. Using the maximum values, the calculated reduction would be 7% (EU28+) and 6% (EU28). Using the minimum values, the calculated reduction would be 3% (EU28+) and 2% (EU28).

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

Sub-criteria of B1 and B2 are not evaluated because the values for EOO and AOO are well above the thresholds.

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	7 %	28% %	unknown %	unknown %	unknown %	unknown %
EU 28+	12 %	35% %	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 values were calculated with the territorial data. They can be regarded as reliable because eleven countries out of thirteen reported on recent changes in quality.

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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