

## H2.4 Temperate high-mountain baserich scree

### Summary

This habitat consists of calcareous and calcschist screes occurring at high altitudes and cool sites in high mountain ranges through the nemoral zone of Europe. The screes are colonised by mostly perennial basiphilous species, comprising often rich assemblages with many local and endemic species. The habitat is threatened by tourist activities and infrastructure, particularly the re-shaping of ski-runs with associated tracks and roads and, at lower altitudes also by quarrying. This habitat type has no specific management requirements except leaving it undisturbed as within protected areas.

### Synthesis

Despite a variable level of data quality among countries and the lack of quantitative data, this habitat is assessed as Least Concern since it is widespread in Europe and the reductions in quantity (around 3%) and quality (slight decline, severity 33% affecting 6% of the extent of the habitat) over the past 50 years have been small and resulted in limited degradation.

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

No subhabitats have been distinguished for further analysis.

### Habitat Type

#### Code and name

H2.4 Temperate high-mountain baserich scree



A calcareous scree from the *Thlaspion rotundifoliae* alliance with characteristic species *Papaver rhaeticum* in the Dolomites, Italy (Photo: John Janssen).



A calcareous subalpine scree below cliffs, which regularly release rock elements, in Bauges, France (Photo: Alexis Mikolajczak).

### Habitat description

Calcareous and calcschist screes of high altitudes (mainly over 1000 m alt.) and cool sites in mountain ranges of the nemoral zone of Europe, including the Alps, Pyrenees, Carpathians, central and eastern parts of Balkan Peninsula, Apennines, etc. Scree habitat consists of rock fragments with different forms and sizes covering the frost-shattered summits of mountains or accumulating on slopes below calcareous cliffs. Calcareous and calcschist screes consist of base-rich rocks including limestone, dolomites, calcareous-

schists, and marbles.

The screes are colonised by a set of mostly perennial species. The vegetation consists of assemblages of calcicole and basiphilous species, the composition of which depends on altitude and geographical ranges. Geographical isolation and limited size of high-altitudinal screes are explanations for the high level of specification found in the flora of calcareous screes, resulting in many relic and local endemic species. Also many vegetation alliances have limited ranges on the slopes of European mountains, for example in the Carpathians (*Papverion tatrtici* and *Papavero-Thymion pulcherrimi*), the Dinarides (*Bunium alpini* and *Saxifragion prenjae*), the Pirin Mountain in Bulgaria (*Veronico-Papaversion degenii*), the Pyrenees (*Iberidion spathulatae*, *Iberido apertae-Linarion propinqua*, *Saxifragion praetemirsae* *Androsacion ciliatae*), and the Apennines (*Linario-Festucion dimorphae*, *Thlaspion stylosi*). Some vegetation alliances, like the *Thlaspion rotundifolii* and *Drabion hoppeanae* (on slates), are more widespread in the Alps and Carpathians. The vegetation of high-mountain and subalpine, relatively humid, fine limestone and marl screes belongs to the alliance *Petasition paradoxii*. Here many fern species (*Polystichum lonchitis*, *Dryopteris submontana*, *D. villarii*, *Asplenium fissum*) are found as well as large number of calcicolous mosses.

Indicators of quality:

- Occurrence of natural erosion processes.
- High species richness of the cliffs.
- Presence of rare, relict or endemic species.
- Absence of human activities, including grazing.
- Absence of alien species.

Characteristic species:

Vascular plants: *Achillea atrata*, *A. clusiana*, *A. oxyloba*, *Adenostyles alpina*, *Adonis distorta*, *Alchemilla decumbens*, *Alhtamanta cretensis*, *Alyssum cuneifolium*, *A. ovirense*, *A. repens*, *Anthemis carpaica*, *Aquilegia pyrenaica*, *Arabis alpina*, *A. caerulea*, *A. ferdinandi-coburgii*, *Arenaria bertolonii*, *A. ciliata*, *Aplenium fissum*, *Borderea pyrenaica*, *Bunium alpinum*, *Campanula cochlearifolia*, *C. pulla*, *C. velebica*, *Cardaminopsis neglecta*, *Centaurea parlatoris*, *C. rupestris*, *Cerastium carinthiacum*, *C. tomentosum*, *C. transsilvanicum*, *Clorocrepis staticifolia*, *Cochlearia tatrae*, *Crepis pygmaea*, *Cystopteris montana*, *Degenia velebica*, *Delphinium oxysepalum*, *Doronicum carpaticum*, *Draba fladnizensis*, *Dryopteris submontana*, *D. villarii*, *Hypochaeris robertia*, *Iberis spathulata*, *Festuca dimorpha*, *F. glacialis*, *F. pyrenaica*, *F. pulchella*, *Galium baldense*, *G. megalospermum*, *G. noricum*, *G. pyrenaicum*, *G. stojanovii*, *Gypsophila repens*, *Leucanthemum atratum*, *Ligusticum ferulaceum*, *Linaria purpurea*, *Minuartia certastifolia*, *Moerrihngia ciliata*, *M. muscosa*, *Myosotis ambigens*, *Omalotheca hoppeana*, *O. pichleri*, *Papver alpinum*, *P. pyrenaicum*, *P. suaveloens*, *Petasites paradoxus*, *Phyllitis scolopendrium*, *Poa minor*, *P. pirinica*, *Rumex scutatus*, *Polystichum lonchitis*, *Pritzelago alpina*, *Ranunculus carinthiacus*, *R. oreophilus*, *R. parnassifolius*, *Reseda glauca*, *Rhodiola rosea*, *Salix retusa*, *Saxifraga aizoides*, *S. bryoides*, *S. carpatica*, *S. glabella*, *S. moschata*, *S. oppositifolia*, *S. pedemontana*, *S. sedoides*, *S. wahlenbergi*, *Sedum atratum*, *Seseli malyi*, *Thlaspi bellidifolium*, *T. kernerii*, *T. rotundifolium*, *T. stylosum*, *Thymus pulcherrimus*, *Trisetum distichophyllum*, *T. spicatum*, *Valeriana bertisceae*, *V. elongata*, *Veronica aragonensis*, *V. baumgartenii*, *V. nummularia*, *V. satureoides*, *Viola grisebachiana*, *V. magelensis*, *Xatardia scabra*

Mosses: *Blepharostoma trichophyllum*, *Conocephalum conicum*, *Homalothecium lutescens*, *Pohlia cruda*, *Polytrichum alpinum*, *Sanionia uncinata*

Reptiles: *Podarcis muralis*

Birds: *Alectoris graeca*, *Tichodroma muraria*, *Prunella collaris*, *Monticola saxatilis* Mammals: *Chionomys nivalis*

## Classification

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

EUNIS:

H2.4 Temperate-montane calcareous and ultra-basic screes

EuroVegChecklist:

*Thlaspion rotundifolii* Jenny-Lips 1930

*Papaverion tatrici* Pawlowski et al. 1928 corr. Valachovic 1995

*Papavero-Thymion pulcherrimi* Pop 1968

*Iberidion spathulatae* Br.-Bl. 1948

*Iberido apertae-Linarion propinqua* Penas et al. ex Díaz González et Fernández Prieto 1994

*Saxifragion praetermissae* Rivas-Mart. 1977

*Linario-Festucion dimorphae* Avena et Bruno 1975

*Thlaspion stylosi* Feoli-Chiapella et Feoli 1977

*Saxifragion prenjae* Lakušić 1970

*Bunion alpini* Lakušić 1970

*Veronico-Papaverion degenii* Mucina et al. 1990

*Drabion hoppeanae* Zollitsch in Merxmüller et Zollitsch 1967

*Androsacion ciliatae* Rivas-Mart. 1988

*Petasition paradoxo* Zollitsch ex Lippert 1966

*Arabidion alpinae* Béguin in Richard 1972

Annex 1:

8120 Calcareous and calcschist screes of the montane to alpine levels

Emerald:

H2.4 Temperate-montane calcareous and ultra-basic screes

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?**

Yes

Regions

Alpine

Justification

This habitat type occurs mostly in the high mountains of Europe because the underlying conditions

(functioning) are found best at high elevations (frost-shattered cliffs). Moraines also represent a major part of this habitat types in alpine and nival levels.

## Geographic occurrence and trends

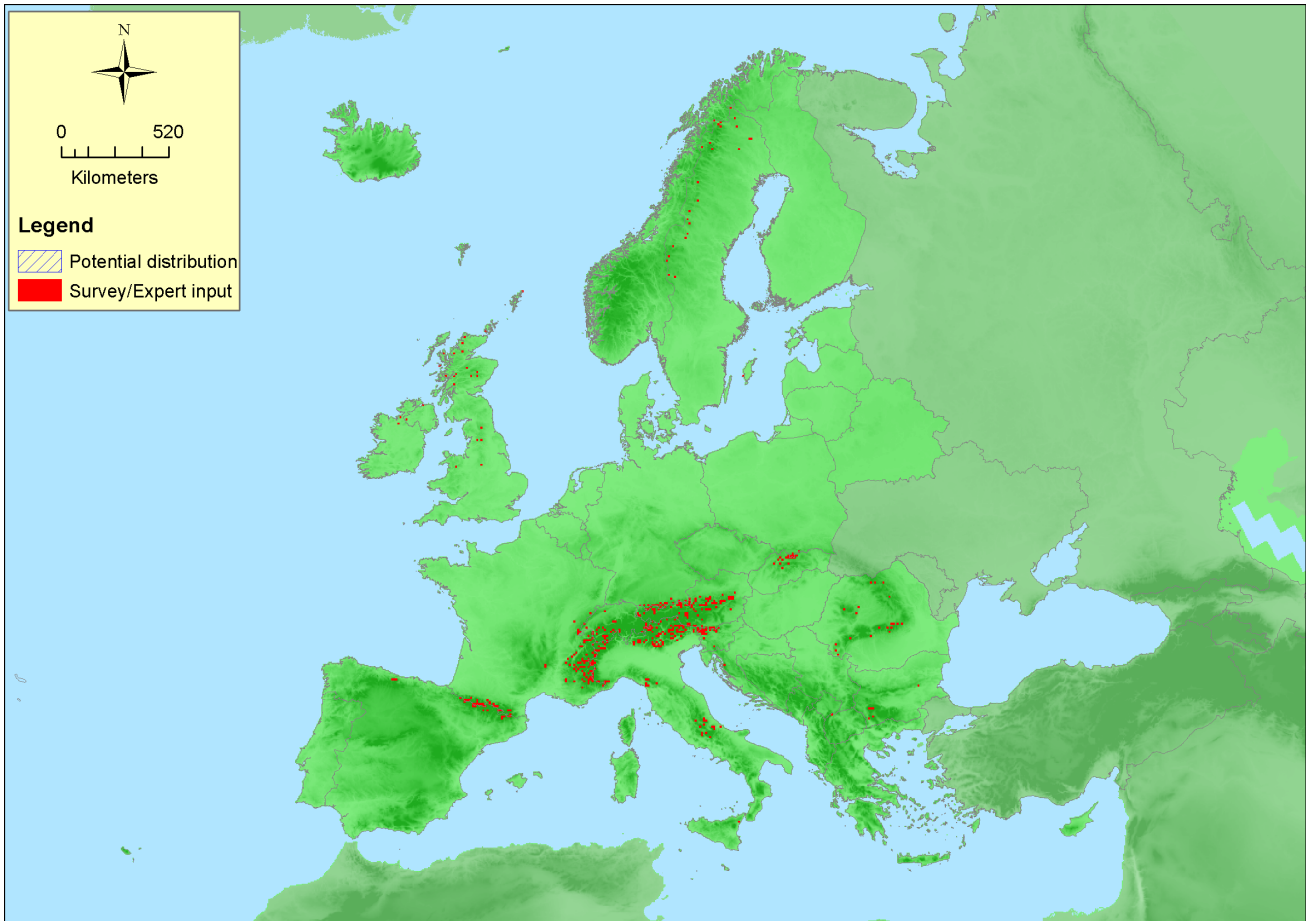
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Austria</i>	Present	963 Km <sup>2</sup>	Stable	Stable
<i>Bulgaria</i>	Present	20 Km <sup>2</sup>	Decreasing	Stable
<i>Croatia</i>	Present	2 Km <sup>2</sup>	Stable	-
<i>France</i>	France mainland: Present	500 Km <sup>2</sup>	Stable	Stable
<i>Germany</i>	Present	100 Km <sup>2</sup>	Decreasing	Decreasing
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	1058 Km <sup>2</sup>	Stable	Decreasing
<i>Poland</i>	Present	0.5 Km <sup>2</sup>	-	-
<i>Romania</i>	Present	1.5 Km <sup>2</sup>	Decreasing	Unknown
<i>Slovakia</i>	Present	5 Km <sup>2</sup>	Decreasing	Unknown
<i>Slovenia</i>	Present	15 Km <sup>2</sup>	Stable	Stable
<i>Spain</i>	Spain mainland: Present	132 Km <sup>2</sup>	Stable	Stable

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>Bosnia and Herzegovina</i>	Present	3 Km <sup>2</sup>	Stable	Stable
<i>Former Yugoslavian Republic of Macedonia (FYROM)</i>	Present	Unknown Km <sup>2</sup>	Unknown	Unknown
<i>Switzerland</i>	Present	750 Km <sup>2</sup>	Stable	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>	5646500 Km <sup>2</sup>	456	2800 Km <sup>2</sup>	
<i>EU 28+</i>	5646500 Km <sup>2</sup>	474	3551 Km <sup>2</sup>	

## Distribution map



The map is complete for the EU, but incomplete for the Balkan and Switzerland. Data sources: EVA, Art17.

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

Of the current distribution of the habitat, 80 % lies within the EU 28, if one considers that this habitat's native vegetation biota is limited to phytosociological alliances of Europe.

### Trends in quantity

The current trend in quantity is stable at the European scale because this habitat is found in mountainous regions, which are weakly affected by human activities. There has been a slight decline in the last 50 years, with a 3% reduction in quantity. This reflects local destructions by the developments of ski complexes, constructions of roads as well as quarrying. The decrease caused by the natural process of scree stabilization (i.e. favouring the establishment of grasses and shrubs) may have played a role over the historical period (250 years) but there is no available data to calculate precise values. The future trend is expected to be stable or slightly decreasing.

- 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*

This habitat has a wide distribution and does not show a sharp recent regression.

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

No

*Justification*

This habitat type occupies large areas across high-mountain regions of Europe.

## Trends in quality

A decrease in quality has been observed over the last 50 years but quite locally in the EU 28 (extent 6%) and with limited degradation (severity 33%). The reduction in quality is largely due to a loss of functionality of screes as a result of nearby constructions. When crossing screes, roads and ski runs reduce the mobility of scree materials (stones) by cutting their slow downward movement. Erosion and alteration of cliffs above screes - by regularly releasing materials - are also needed for good scree functioning. Securing works (e.g. wire nets placed on or below cliffs) of such cliffs are very likely to prevent screes from functioning normally. Historical trend might have followed the same evolution but not enough data are available to estimate precise values. Future trends in quality will certainly continue to decrease locally because of constructions. Climate change and higher temperatures will probably influence quality in the future but little is known about the possible outcomes at the European scale.

- Average current trend in quality

EU 28: Stable

EU 28+: Stable

## Pressures and threats

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The main threat in Western Europe is the construction of many sorts of facilities in the mountain environment (high altitudes): ski complexes with ski runs, tracks and roads. Of particular concern is the reshaping of ski runs, which consists of leveling the terrain surface by grinding stones so as to make it as smooth as possible ('boulevard' ski runs). At lower altitudes quarrying is also a source of threats. Stabilization of screes and subsequent natural succession occurs also naturally when erosion of cliffs above stops, but this natural process is hard to quantify. Finally, climate change is reported as a threat by many countries; a slow but gradual change in species composition is already on-going.

### List of pressures and threats

#### **Mining, extraction of materials and energy production**

Mining and quarrying

#### **Human intrusions and disturbances**

Sport and leisure structures

#### **Natural biotic and abiotic processes (without catastrophes)**

Biocenotic evolution, succession

#### **Climate change**

Changes in abiotic conditions

## Conservation and management

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Screes are important natural features of the mountain environment. Therefore this habitat type has no specific management requirement to remain except leaving it undisturbed and undestroyed. Conservation is then effective when free evolution is possible, like within protected areas. 'Manage landscape features' refers to the need to better protect this kind of habitats with a high degree of naturalness in land-use planning, especially when no specific regulation can be applied (no protected species or habitat, outside a protected area, outside a Natura 2000 site).

### 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:

8120: ALP FV, ATL U1, BOR FV, CON FV, MED FV

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

The habitat has some capacity to recover naturally, but it is dependent on particular geomorphological processes which are very slow (erosion). As far as we know there is no experiment of restoration of screes.

## Effort required

200+ years
Naturally

## Red List Assessment

### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-3.5 %	Unknown %	Unknown %	Unknown %
EU 28+	-3.1 %	Unknown %	Unknown %	Unknown %

There has been a very slight reduction in quantity in Europe in the past 50 years. The values reported above were calculated with territorial data. There is no available quantitative data on historical or future reductions in quantity and this habitat is therefore assessed as Least Concern under Criterion A.

### Criterion B: Restricted geographic distribution

Criterion B	B1			B2				B3	
	EOO	a	b	c	AOO	a	b		c
EU 28	>50000 Km <sup>2</sup>	No	No	> 10	253	No	No	> 10	> 10
EU 28+	> 50000 Km <sup>2</sup>	No	No	> 10	253	No	No		

The habitat is widespread, its extent of occurrence (EOO) is larger than 50,000 Km<sup>2</sup> and the area of occupancy (AOO) is 253. Since the major threat to this habitat is infrastructure construction, it is estimated to occur at well more than ten locations. This habitat is therefore assessed as Least Concern under Criterion B.

### 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	6 %	33 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	7 %	32 %	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%

There has been a reduction in quality with a slight decline (approximately 30% severity) affecting 6-7% of the extent of the habitat in the last 50 years. The values reported above were calculated using only territorial data. There is no information on historical or future trends in quality and this habitat. This habitat is therefore assessed as Least Concern under Criterion C/D.

### 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 and it is therefore assessed as Data Deficient under Criterion E.

### 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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**References**

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