

F2.2a Alpine and subalpine ericoid heath

Summary

The habitat type comprises ericoid dwarf-shrub communities in arctic-boreal, alpine and subalpine regions, occurring on mostly siliceous bedrocks with acidic soils and thick raw humus. The vegetation is typically species-poor, dominated by various ericoid sub-shrubs and often with an extensive bryophyte and/or lichen carpet, and its composition varies with differences in regional and local climate, particular with the degree of exposure/shelter from wind and cold and with substrate. It is also often influenced by grazing, which if intensive can result in a more open and grassy character. Abandonment of nomad livestock rearing in mountains can allow its spread and encroachment of shrubs. Tourism and recreation in the uplands also threaten the habitat which needs legal protection where vulnerable.

Synthesis

We consider this habitat least concerned. It is relatively widespread across Europe and a slight increase in area has been observed over the past 50 years. The calculated decrease in quality is below the thresholds to qualify this habitat as Near threatened. The geographic distribution is also not restricted.

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

Calluna and *Erica* heaths (Austria), *Empetrum* and *Arctostaphylos* communities (Bulgaria), *Calluna* heaths (Finland), *Vaccinium myrtillus*-*Racomitrium lanuginosum* heath, *Calluna vulgaris*-*Vaccinium myrtillus*-*Sphagnum capillifolium* heath, *Mastigophora woodsii*-*Herbertus aduncus* ssp. *hutchinsiae* heaths (UK).

Habitat Type

Code and name

F2.2a Alpine and subalpine ericoid heath



Bruckenthalia spiculifolia heath on Osogovo Mountain in Macedonia (Photo: Vlado Matevski).



Communities dominated by *Vaccinium gaultherioides* are typical for windswept ridges in subalpine and alpine belt, like here in the High Tatras of Slovakia (Photo: Jozef Šibík).

Habitat description

Dwarf-shrub communities in arctic-boreal, alpine and subalpine regions dominated mostly by Ericaceous species such as *Calluna vulgaris*, *Empetrum hermaphroditum*, *Loiseleuria procumbens*, *Vaccinium myrtillus*, *V. gaultherioides*, *V. vitis-idaea*. Some chamaephytes, as well as hemicryptophytes occur constantly, usually with lower abundance values. The unit comprises mainly natural, partly semi-natural (or secondary distributed), acidophilous communities of dwarf-shrub heaths on siliceous bedrock. In some cases, the stands from calcareous bedrock are included as well, because of their distinctive physiognomy or/and soil characteristics that are different from those that are supposed to be on limestone bedrock because of the thick layer of undecomposed humus. These communities are nearly always mono-dominant and relatively species poor. Also here, species from the families Ericaceae and Empetraceae play an important role, as well as species from the genus *Dryas*. *Rhododendron*-heath in sheltered sites and *Loiseleuria*-heath on exposed ridges build close stands mainly in the southern part of the distributional range and only rarely in the arctic, due to ecological differences between arctic and high-alpine habitats, such as greater amounts of snow in alpine areas, and the relatively long, cold nights of the alpine summer compared to the continuous daylight of the arctic growing season. The vegetation of this habitat is mainly classified within the class *Loiseleurio-Vaccinietea* that comprises arctic-boreal tundra dwarf shrub and relict (sub)alpine acidophilous heathlands. Based on habitat variability, e.g. mass and length of snow cover and thickness and quality of soil, the communities can be divided into several subtypes: cryo- and xerophilous communities on shallow soils and mesophilous communities on deeper soils. Subalpine acidophilous, mesophilous communities of the *Rhododendro-Vaccinion* with a vicariate West Carpathian unit *Vaccinion myrtilli* (sometimes synonymised with the *Genisto-Vaccinion*), and the Balkan unit *Bruckenthalion spiculifoliae* represent another side of variability in comparison with the xero-, cryophilous communities of the *Loiseleurio procumbentis-Vaccinion*, which occur on windswept slopes and summits. All these vegetation types occupy mainly shallow and skeletal acidic soils and rarely basic bedrocks in places with a thick layer of litter and/or raw humus. In cold atlantic and subcontinental regions also heath communities of the alliance *Genisto-Vaccinion (Calluno-Ulicetea)* in montane to subalpine belts are included, heaths tolerating humid to hyperhumid climate. Further, communities belonging to the *Ericion carneae (Rhododendro hirsuti-Ericetea carneae)* from the subalpine and alpine zone, representing dwarf heath and short 'krummholz' on rocky calcareous soils, outcrops, lapies ('karren') and boulders are included into this habitat type. Finally, within this habitat type, plant communities of the order *Kobresio-Dryadetalia (Carici rupestris-Kobresietea)* may be found. These comprise chionophobic dwarf-shrub and cushion shaped wind-exposed fjell-field vegetation on the ridges and plateaus. The habitat is found almost in all mountains of Eurasia from the Balkan Peninsula to the Arctic (Pyrenees, Apennines, Alps, Carpathians, Dinarides, Scandinavia) and in montane regions of Eurasia and North America.

Indicators of quality:

This vegetation can be threatened by (over)grazing, burning, extirpation of shrub for cultivation, global warming and increased nutrient content. In the areas, where it presents secondary vegetation, it may be subject to afforestation or natural succession towards woodland.

The following characteristics are considered as indicators of good quality:

- dense stands of diagnostic Ericaceous species
- absence or low cover of tree species
- absence of tall and dense scrubs
- no indication of overgrazing
- presence and high cover of lichens (*Cladonia* and *Cetraria* species)
- absence of nutrient-demanding species

Characteristic species:

Flora:

Vascular plants: *Agrostis rupestris*, *Antennaria dioica*, *Arctostaphylos uva-ursi*, *Avenella flexuosa*, *Avenula versicolor*, *Belardiochloa variegata*, *Brachypodium genuense*, *Bruckenthalia spiculifolia*, *Calluna vulgaris*, *Carex curvula*, *Chamaerion angustifolium*, *Daphne striata*, *Dryas integrifolia*, *Dryas octopetala*, *Empetrum hermaphroditum*, *Erica carnea*, *Festuca supina*, *Genista germanica*, *Genista radiata*, *Hieracium alpinum*, *Huperzia selago*, *Juncus trifidus*, *Juniperus sibirica*, *Loiseleuria procumbens*, *Luzula luzuloides*, *Molinia arundinacea*, *Nardus stricta*, *Oreochloa disticha*, *Pedicularis lanata*, *Polygonum viviparum*, *Potentilla erecta*, *Pteridium aquilinum*, *Rhododendron ferrugineum*, *Rhododendron hirsutum*, *Rhododendron myrtifolium*, *Rhodothamnus chamaecistus*, *Salix glauca*, *Sesleria comosa*, *Solidago virgaurea*, *Vaccinium myrtillus*, *Vaccinium gaultherioides*, *Vaccinium vitis-idea*.

Mosses and lichens: *Alectoria ochroleuca*, *Cetraria islandica*, *C. nivalis*, *Cladonia arbuscula*, *C. coccifera*, *C. pyxidata*, *C. rangiferina*, *Dicranum scoparium*, *Fissidens osmundoides*, *Hylocomium splendens*, *Pleurozium schreberi*, *P. alpinum*, *Polytrichum strictum*, *Tortella fragilis*.

Classification

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

EUNIS:

F2.2 Evergreen alpine and subalpine scrub

EuroVegChecklist:

Caricion nardinae Nordhagen 1936

Dryadion integrifoliae Ohba ex Daniëls 1982

Loiseleurio-Arctostaphylion Kalliola 1939

Phyllodoco-Vaccinion myrtilli Nordhagen 1943

Loiseleurio-Vaccinion Br.-Bl. in Br.-Bl. et Jenny 1926

Rhododendro ferrugineae-Vaccinion Schnyder 1930

Bruckenthalion spiculifoliae Horvat 1949

Rhododendron caucasici Onipchenko 2002

Salici kazbekensis-Empetrion nigrae Onipchenko 2002

Ericion carneae Rübél ex Grabherr et al. 1993

Genisto pilosae-Vaccinion Br.-Bl. 1926

Vaccinion myrtilli Krajina 1933 (sensu Kliment et al. 2010)

Annex 1:

4060 Alpine and Boreal heaths

(small parts may have been assigned under 4030)

Emerald:

F2.22 Alpine acidocline *Rhododendron* heaths

F2.26 *Bruckenthalia* heaths

MAES-2:

Heathlands and scrubs

IUCN:

3.1 Subarctic shrubland

3.3 Boreal shrubland

3.4 Temperate shrubland

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

Yes

Regions

Alpine

Boreal

Justification

Dwarf-shrub communities are present in arctic-boreal, alpine and subalpine 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)
<i>Austria</i>	Present	2950 Km ²	Stable	Stable
<i>Bulgaria</i>	Present	Unknown Km ²	Increasing	Decreasing
<i>Croatia</i>	Present	3 Km ²	Stable	Decreasing
<i>Czech Republic</i>	Present	6 Km ²	Stable	Stable
<i>Denmark</i>	Present	Km ²	-	-
<i>Estonia</i>	Uncertain	Km ²	-	-
<i>Finland</i>	Finland mainland: Present	6700 Km ²	Stable	Decreasing
<i>France</i>	France mainland: Present	1300 Km ²	Increasing	Unknown
<i>Greece</i>	Greece (mainland and other islands): Present	165 Km ²	Stable	Stable
<i>Italy</i>	Italy mainland: Present	1562 Km ²	Stable	Decreasing
<i>Latvia</i>	Uncertain	Km ²	-	-
<i>Lithuania</i>	Uncertain	Km ²	-	-
<i>Romania</i>	Present	601 Km ²	Stable	Stable
<i>Slovakia</i>	Present	15 Km ²	Stable	Stable
<i>Slovenia</i>	Present	70 Km ²	Decreasing	Stable
<i>Spain</i>	Spain mainland: Present	3.5 Km ²	Stable	Stable
<i>Sweden</i>	Present	Km ²	-	-
<i>UK</i>	Northern Island: Present United Kingdom: Present	415 Km ²	Stable	Stable

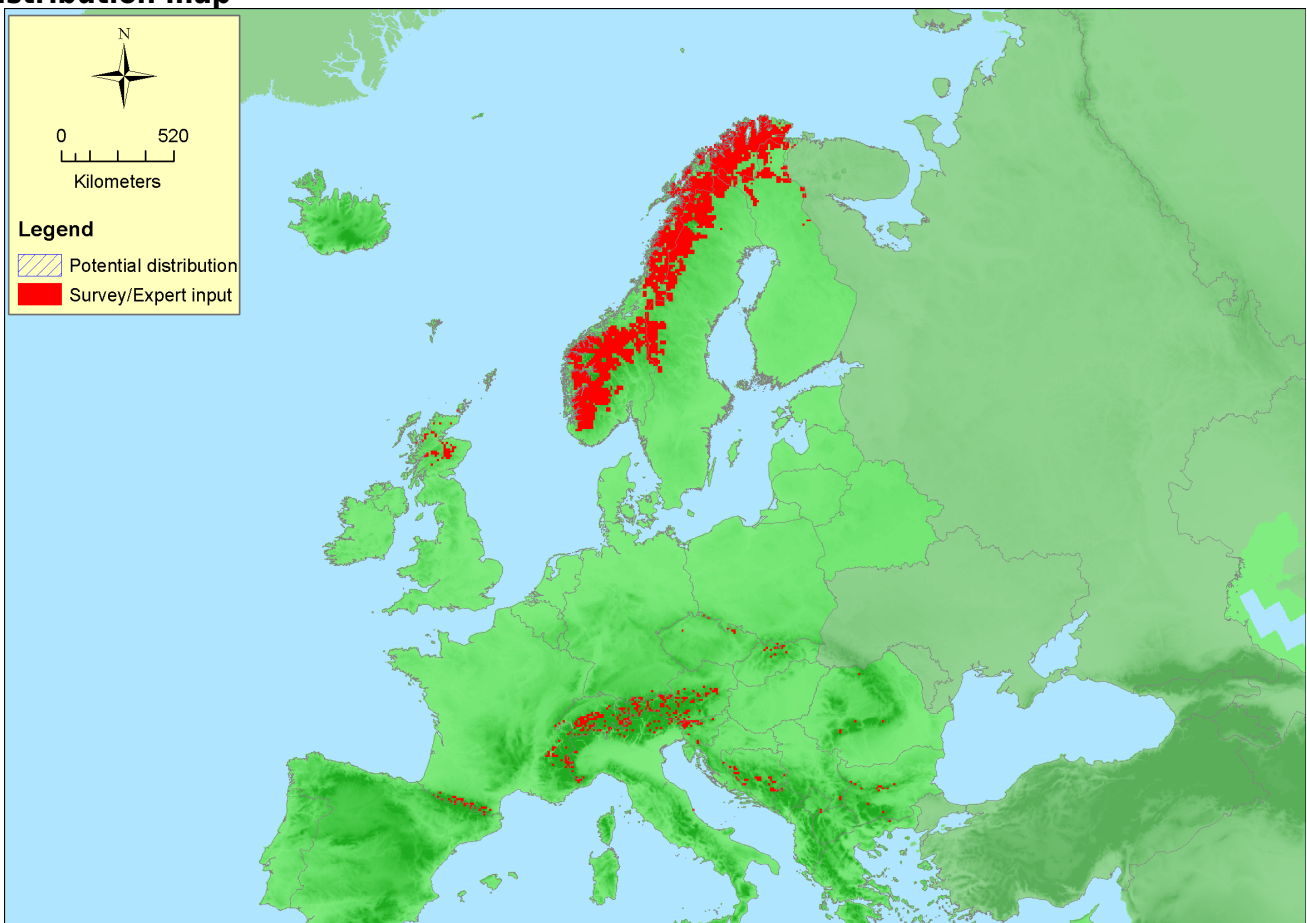
EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
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EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Bosnia and Herzegovina</i>	Present	30 Km ²	Increasing	Increasing
<i>Norway</i>	Norway Mainland: Present Svalbard: Present	Km ²	-	-
<i>Switzerland</i>	Present	1100 Km ²	Stable	Stable

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>	5153500 Km ²	1195	13959 Km ²	
<i>EU 28+</i>	5310300 Km ²	3098	15089 Km ²	

Distribution map



The map is rather complete, but has data gaps in the Carpathians and the Balkan mountains. Data sources: NAT, EVA, BOHN.

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

There are no data available for Norway where this habitat type has large occurrences outside EU28. About 40% of the habitat lies within Europe and about 30% in the EU28.

Trends in quantity

The recent trend over the past 50 years consists of two contrary components, at least in the Alps: (1) a significant increase of mesophilous communities belonging to Rhododendro-Vaccinion since 1970 due to

grazing abandonment. (2) a local decrease of very low ericoid shrubs of *Loiselerio-Vaccinion* and *Arctospahyllo-Cetrarion* due to reshaping of ski pistes. Altogether, the rate of increase overshoots the rate of decrease. The overall trend in quantity over the last 50 years is an increase of 6.0% (EU28) and 5.2% (EU28+).

- 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 habitat has a wide range of distribution in Europe, the EOO is > 50000 km².

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

No

Justification

The habitat type occurs in arctic-boreal, alpine and subalpine regions only. Anyway, it has a large natural distribution.

Trends in quality

Over the past 50 years, an average decline in both biotic and abiotic habitat quality has been observed by territorial experts, which was mainly due to overgrazing, secondary succession after abandonment of grazing and reshaping of ski pistes. Among recently monitored sites in the U.K., more than 25% of the extent of the habitat was found to be in unfavourable condition, largely as a result of the effects of grazing/trampling and burning; some of this in declining condition and some recovering. There is almost no information available regarding the historic reduction of quality.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The habitat type is threatened both by overgrazing/trampling and natural succession after abandonment of grazing on secondary sites. The former occurs on gentle slopes and easy reachable locations, the latter on steeper slopes and more remote locations. Intensive grazing weakens the structure and function of the habitat. Another major threat comes from sport and leisure structures, mainly the construction of skiing complexes and reshaping of ski pistes. Furthermore, the habitat is supposed to be affected by climate change as global warming will affect the tree line and increase the growth of bushes.

List of pressures and threats

Agriculture

Intensive grazing

Human intrusions and disturbances

Skiing, off-piste

Skiing complex

Trampling, overuse

Natural biotic and abiotic processes (without catastrophes)

Erosion

Climate change

Droughts and less precipitations

Conservation and management

Many occurrences of this habitat type are in Natura 2000 sites and they are legally protected.

List of conservation and management needs

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species

Measures related to special resource use

Regulating/Management exploitation of natural resources on land

Conservation status

Annex 1 types:

4060: ALP FV, ATL U2, BOR U1, MED XX

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

-

Effort required

10 years	20 years	50+ years	200+ years
Through intervention	Through intervention	Naturally	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-39.8 %	unknown %	unknown %	unknown %
EU 28+	-51.1 %	unknown %	unknown %	unknown %

The figures for A1 have been calculated from the territorial data sheets. The calculated trend over the past 50 years results in category Least concern (LC). Criteria A2a, A2b and A3 have not been evaluated due to a lack of data.

Criterion B: Restricted geographic distribution

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

The AOO and EOO are much larger than the thresholds for criteria 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	2.36 %	slight= %	unknown %	unknown %	unknown %	unknown %
EU 28+	2.19 %	slight= %	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 for C/D1 have been calculated from the territorial data sheets. The calculated figures result in the category Least concern (LC). It is likely that there will be a future decline in quality because of global warming. However, it is unsure whether the thresholds for C/D2 will be met, therefore these criteria have been assessed as unknown.

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	DD	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	DD	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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