B1.5a Atlantic and Baltic coastal Empetrum heath

Summary

Coastal heath dominated by *Empetrum nigrum* (with or without *Calluna vulgaris* and with *Erica tetralix* in dune slacks) is characteristic of stabilised acidic dune sands along the northern cooler coastlines of north-west Europe, including northern Norway, Baltic Russia and possibly Iceland outside the EU. Other sub-shrubs may occur with an associated flora that is often indistinguishable from lowland *Empetrum* heath inland. The habitat is persistent where wind-exposure and light grazing prevent further succession to scrub and woodland but decline in extent and quality can occur with abandonment of pastoralism, tree planting and tourism

Synthesis

Based on a large historical decline in area, especially in Denmark where most of the surviving extent occurs, and a serious decline in quality affecting more than 50% of the area in the last 50 years, the habitat is assessed as Vulnerable.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	A3, C/D1	Vulnerable	A3, C/D1

Sub-habitat types that may require further examination

Wet dune slacks dominated by *Empetrum nigrum* may be considered as a separate habitat type and is likely to be more threatened.

Habitat Type

Code and name

B1.5a Atlantic and Baltic coastal Empetrum heath

Coastal dunes with mixture of *Calluna vulgaris* and *Empetrum nigrum* on the east coast of Jutland, Denmark (Photo: Henriette Bjerregaard).

Empetrum nigrum dominated dunes on the small island of Anholt in the Kattegat, Denmark (Photo: Henriette Bjerregaard).

Habitat description

This habitat comprises decalcified fixed dunes dominated by relatively low *Empetrum nigrum* heaths along the cooler parts of the northern Atlantic and Baltic coasts, south to the mainland Dutch dunes, north to northern Norway (Finnmark) and Iceland. It includes both dry dunes as well as moist dune slacks with

dominant *Empetrum nigrum,* both of which are late succession stages in the development of stable dunes and dune slacks, and which may be long maintained under light grazing pressure or other factors (like salt spray) which limit the development of scrub and woodland. In northern Estonia, and possibly also in Iceland, some sites of the habitat are dominated by *Empetrum hermaphroditum*.

In the dry dune subtype *Calluna vulgaris* may co-dominate, but *Calluna*-heath without *Empetrum nigrum* is considered under B1.5b Atlantic coastal *Calluna* and *Ulex* heath. Especially in the Wadden Sea area and the Baltics it may be difficult to distinguish between these two types but the presence of *Empetrum* may be considered to assign communities to this habitat B1.5a. Within this geographical range *Calluna vulgaris*-dominated heathlands without *Empetrum nigrum* occur often more locally on dunes, as in relatively old grey dunes, where cover of *Calluna* can slowly increase. *Empetrum nigrum* in general is able to outcompete *Calluna* on slightly deeper and better soils and on more moist sites such as north-facing slopes. In dry dunes, mosses and lichens form an important part of the plant diversity.

In the wet dune slack subtype, *Erica tetralix* may grow as a co-dominant and *Empetrum nigrum* may actually be absent, but in such cases these heathlands can still be included here, as the complete species composition is not very different. In some situations, the non-native cranberry *Oxycoccus macrocarpus* (=*Vaccinium macrocarpon*) may become dominant, providing an important food source for man and animals. In relatively stable hydrological conditions, *Sphagnum* spp. may reach high cover. In dune slack heathlands *Carex trinervis* is a common associate, within the small range of its distribution.

Indicators of good quality:

An optimal state of this habitat type is a low scrub formed by heaths, sedges and grasses, and mosses and lichens, with few open patches and without non-native species, trees or tall shrubs. Indicators of good quality are:

- relatively low, closed structure
- dominance by heath sub-shrubs
- presence of high diversity of mosses and lichens
- absence of non-native, invasive species
- absence or low abundance of trees and tall shrubs
- occurring both in dry dunes and dune slacks

Characteristic species

Vascular plants: *Calluna vulgaris, Carex arenaria, Carex trinervis, Empetrum nigrum, Erica tetralix, Genista tinctoria, Hieracium umbellatum, Polypodium vulgare, Pyrola minor, Pyrola rotundifolia, Salix repens, Vaccinium macrocarpon, Vaccinium uliginosum, Vaccinium vitis-idaea*

Mosses*: Dicranum scoparium, Hypnum jutlandicum, Pleurozium schreberi, Sphagnum spp.* and several species of *Hepaticae*

Lichens: *Cladina spp., Cladonia spp.*

Classification

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

EUNIS:

B1.5 Coastal dune heaths

Annex 1:

2140 Decalcified fixed dunes with Empetrum nigrum

Emerald:

B1.5 Coastal dune heaths

MAES-2:

Heathland and shrub

IUCN:

13.3. Coastal Sand Dunes

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

Regions
Atlantic
Boreal

Justification
The habitat is most widespread in coastal dunes along the Baltic Sea (part of the Boreal region), but the largest areas are found along the northern coasts of the North Sea (Atlantic region).

Geographic occurrence and trends

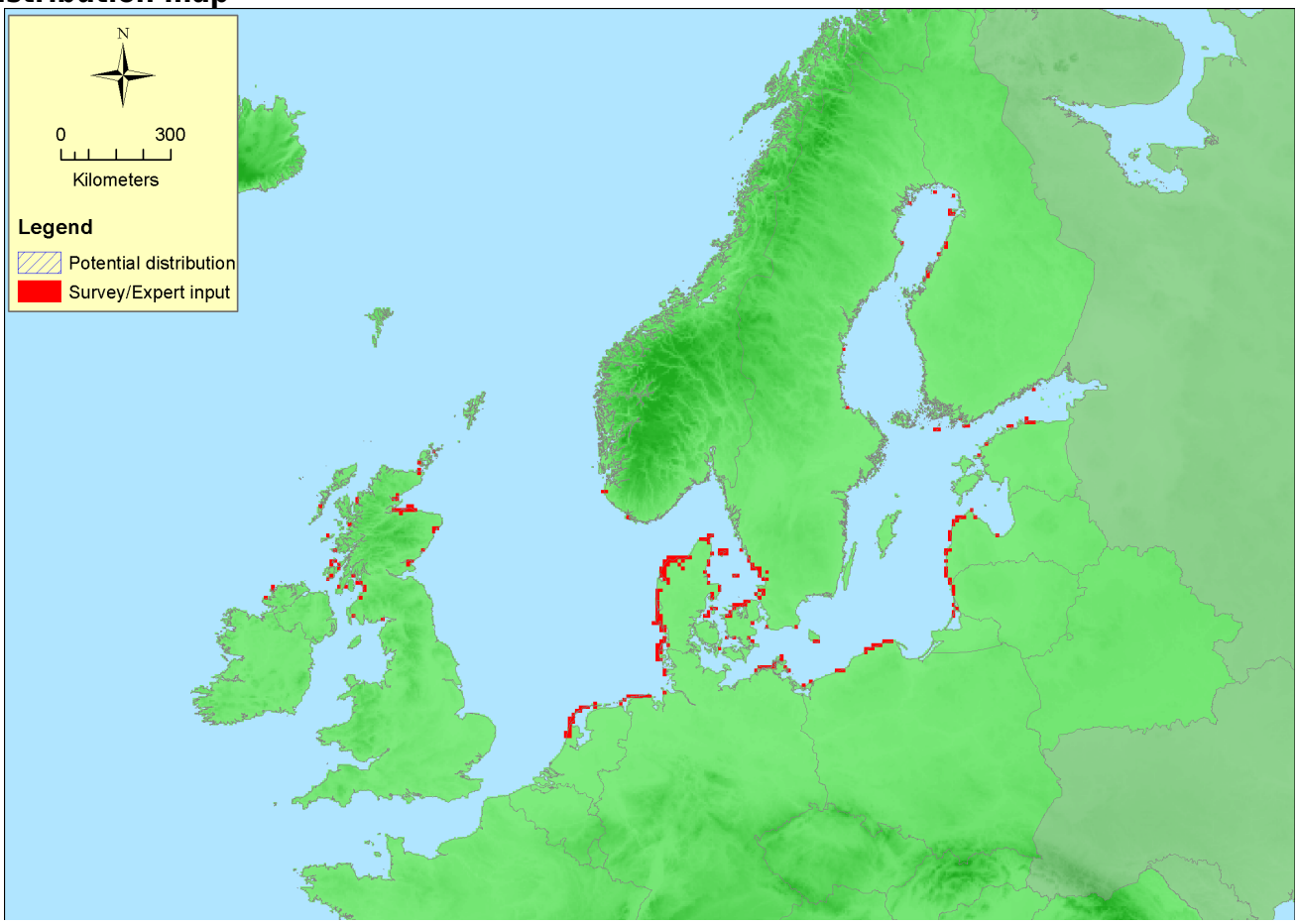
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Denmark	Present	238 Km^2	Decreasing	Stable
Estonia	Present	0.6 Km^2	Stable	Stable
Finland	Aland Islands: Uncertain Finland mainland: Present	0.4 Km^2	Decreasing	Decreasing
Germany	Present	15 Km^2	Decreasing	Stable
Ireland	Present	0.01 Km^2	Unknown	Stable
Latvia	Present	0.7 Km^2	Stable	Decreasing
Lithuania	Present	0.2 Km^2	Decreasing	Decreasing
Netherlands	Present	25 Km^2	Increasing	Stable
Poland	Present	0.1 Km^2	Decreasing	Decreasing
Sweden	Present	3 Km^2	Unknown	Decreasing
UK	Northern Island: Uncertain United Kingdom: Present	3.2 Km^2	Unknown	Unknown

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Iceland	Uncertain	Unknown Km^2	Unknown	Unknown
Kaliningrad	Uncertain	Unknown Km^2	Unknown	Unknown
Norway	Norway Mainland: Present	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	1821000 Km^2	286	285 Km^2	
EU 28+	1821000 Km^2	289	290 Km^2	

Distribution map



Map complete, but maybe habitat also occurring in Iceland. Data sources: Art17, EVA.

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

>95%. The habitat is almost restricted to the EU28+ with only some marginal occurrences in Norway, Baltic Russia (including Kaliningrad) and possibly in Iceland.

Trends in quantity

Based on quantitative data from 9 of the 13 EU-countries in which the habitat is found, there is an average decline in about the last 50 years of 9% of the area but this average value is completely dominated by data from Denmark, where more than 75% of the present extent is found. The long-term historical trend in quantity is a large reduction, about 57%, again determined largely by a decline in Denmark since about 1850. Presently the trend has stabilised in the countries with the highest proportion of the extent, Denmark, The Netherlands, Germany. The EU28+ trend is the same as the EU28 trend.

- 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

The habitat is found from the Netherlands up to the northern regions in the Baltic.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  This relatively widespread area is found in large stands in the dune areas of Denmark. In countries with relatively small areas of dunes, also the area of this habitat in many cases is small.

Trends in quality

Over the last 50 years there is a decrease in quality with about half the extent affected, with intermediate severity. The occurrences outside the EU28 are marginal, and therefore the trend in the EU28+ is the same as the EU28 trend.

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

Pressures and threats

Natural succession is indicated by most of the countries as an important threat, sometimes as a result of abandonment of low intensity grazing in traditional pastoral land-use, but enhanced by aerial nitrogen input and a lack of natural dynamics. On the other hand disturbance, overuse and erosion are also mentioned as a problem, mainly due to recreation and outdoor sports. In Denmark, the building of houses in dune areas is a pressure. Several countries report encroachment of invasive non-native species. Finally, planting of trees in dune areas is a problem in some countries.

List of pressures and threats

Agriculture

Abandonment of pastoral systems, lack of grazing

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Human intrusions and disturbances

Outdoor sports and leisure activities, recreational activities

Invasive, other problematic species and genes

Invasive non-native species

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession

Conservation and management

In general little management is needed to sustain coastal dune heath, but in areas where dunes become too stabilised, nitrogen build-up in the soils is high and plantations with non-native trees can be close, some measures may be needed to prevent invesion of shrubs and trees and succession towards forest. The best management seems the traditional extensive grazing, but additional removal of trees or non-native species may be required.

List of conservation and management needs

Measures related to agriculture and open habitats

Maintaining grasslands and other open habitats

Measures related to spatial planning

Establish protected areas/sites

Conservation status

Annex I:

2140 ATL U1, BOR U1, CON U1

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

The habitat can spontaneously regenerate after some disturbance in coastal dune landscapes where the sands have become stabilised.

Effort required

10 years	20 years
Naturally	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-9.4 %	unknown %	unknown %	-57 %
EU 28+	-9.4 %	unknown %	unknown %	-57 %

Data were reported by all 13 EU-countries in which the habitat is found, and though no data were provided from outside the EU occurrences there are only marginal. The average decline over the last 50 years was about 9% of the area, a value that is strongly dominated by figures from Denmark, where more than 75% of the present extent is found. Also the long-term historical trend was dominated by Denmark, and on average it is about -57%. The Danish data was based on Levin & Normander (2008) and expert knowlegde. Presently the trend has stabilised in the countries with the highest amount of the area - Denmark, The Netherlands, Germany.

Criterion B: Restricted geographic distribution

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

The AOO and EOO are much larger than the thresholds for criterion B, and the habitat occurs in many locations.

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	59 %	50 %	unknown %	unknown %	unknown %	unknown %

Criteria C/D	C/D1		C/D2		C/D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28+	59 %	50 %	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 decline in quality over the last 50 years affected about 59% of the area with a severity of 50% (based on quantitative data of 8 out of 11 EU-countries). The decline is both in abiotic conditions and biotic quality parameters. No historical or future trends are known. These figures result in the Red List category Vulnerable.

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	VU	LC	LC	LC	VU	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	VU	LC	LC	LC	VU	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
Vulnerable	A3, C/D1	Vulnerable	A3, C/D1

Confidence in the assessment

Medium (evenly split between quantitative data/literature and uncertain data sources and assured expert knowledge)

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