G1.9b Mediterranean mountain Betula and Populus tremula woodland on mineral soil

Summary

This habitat includes a variety of deciduous *Betula* and *Populus tremula* woodlands growing at the sub-alpine level in the high mountain ranges of southern Europe and Mediterranean islands, where the short growing season, prevalence of frost and high exposure limit both the possible dominants and the structure of the woodland. Silicate and strongly acidic soils predominate and unstable or raw substrates such as rock falls and volcanic cinders can be colonised but the habitat can also be found as relics on deep colluvium in remote gorges. Land abandonment and decline of grazing have led to an increase in extent except in Sicily. Appropriate silviculture and control of grazing are important conservation measures.

Synthesis

Even although this is a very poorly studied habitat type (compared to other forest types), there is an overall consensus in the expert opinion that the trends in both quantity and quality are stable. For this reason, the assessment of this habitat considers it as Least Concern. The exception to this tendency is the subtype present in Sicily that may require special attention, not only for the presence of *Betula aetnensis* but also for the degrading tendency reported both in surface and in quality. If assessed separately, this subtype would probably qualify as threatened under criteria B.

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

Sicily presents the special subtype of *Betula aetnensis*, with a restricted distribution of less than 4km^2.

Habitat Type

Code and name

G1.9b Mediterranean mountain Betula and Populus tremula woodland on mineral soil

Betula aetnensis on Monte Etna, Sicily, Italy (Photo: John Janssen).

Betula pubescens woodland on big blocks scree in Benasque valley, Pyrenees, Spain (Photo: Javier Loidi).

Habitat description

This habitat includes a variety of deciduous birch and aspen woodlands growing at the sub-alpine level in the high mountain ranges of southern Europe. In such situations, the short growing season, the prevalence of frost and high exposure limit both the possible dominants and the structure of the woodland. Silicate soils predominate, strongly acidic and often podzolised.

In the Pyrenees and the more humid Cantabrian mountains of Spain, there are woodlands in the subalpine belt with canopies of other birches of variously contested taxonomy: *B. pubescens* subsp. *pubescens* (= *B. carpatica*), *B. pubescens* subsp*. celtberica* (*B. celtiberica*) and *B. pendula* subsp. *fontqueri* (*B. fontqueri*). Here birch is often a secondary invader, colonising spontaneously after avalanches, fire and clear cutting, but it can form more permanent woodlands on boulder scree where there is much winter snow accumulation.

Betula pendula forms extensive belts of woodland on rapidly eroding soils at the upper forest limit on the high mountains of Corsica

Between 1400 and 2000m on the north-eastern slopes of Etna in Sicily, an open canopy of *B. aetnensis* develops over volcanic cinders in a severe montane climate subject to frequent volcanic events such as ash rains. *Pinus nigra, Quercus dalechampii* and *Q. congesta* occur occasionally with a species-poor field layer of *Pteridium aquilinum, Festuca circummediterranea, Achillea ligustica, Genista aetnensis, Astragalus siculus, Tanacetum siculum* and *Carlina nebrodensis.*

This habitat also includes high mountain woodlands dominated by *Populus tremula.* On Etna, this tree dominates in small humid valley woodlands above 900m where there is a quite rich mesophytic flora including *Brachypodium sylvaticum, Lathyrus pratensis, Daphne laureola* and *Agropyron panormitanum.*

Relict aspen forests can also be found on deep colluvial soils in humid foothill and mountain gorges from 600-1500m in the central and southern Apennines. There distinctive associates are *Acer obtusatum, Laburnum anagyroides, Sorbus aria, Euonymus latifolius, Prunus avium, Lonicera etrusca, Rosa arvensis, R. agrestris, Rubus hirtus, Daphne laureola* and *Chamaecytisus hirsutus* with *Sanicula europaea, Primula vulgaris, Euphorbia amygdaloides, Fragaria vesca* and *Melica uniflora.*

Indicators of quality:

- Woodland permanent not a successional stage
- Dominance by either birch or aspen
- Presence of the distinctive woody associates and field layer

Characteristic species:

Trees: *B. pubescens* ssp. *pubescens* (= *B. carpatica*), *B. pubescens ssp. celtiberica* (*B. celtiberica*) and *B. pendula* ssp. *fontqueri* (*B. fontqueri*).

Classification

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

EUNIS:

G1.9 Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia]

EuroVegChecklist alliances:

Betulion carpatico-pubescentis Rivas-Mart. et Costa in Rivas-Mart. et al. 2002

Betulion fontquerio-celtibericae Rivas-Mart. et Costa in Rivas-Mart. et al. 2002

Aceri obtusati-Populion tremulae Taffetani 2000

Annex 1:

-

Emerald:

-

MAES:

-

Woodland and forest;

IUCN:

1.4 Temperate Forest

EFT:

13.4 Other birch forest

13.5 Aspen forest

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

Justification
Although the distribution of this habitat is mostly in sub-alpine ranges of Mediterranean mountain region, the extreme conditions (mineral soil, short growing season, permanent frost) makes the functioning of the habitat more similar to alpine or boreal habitats than to the geographically closer Mediterranean types.

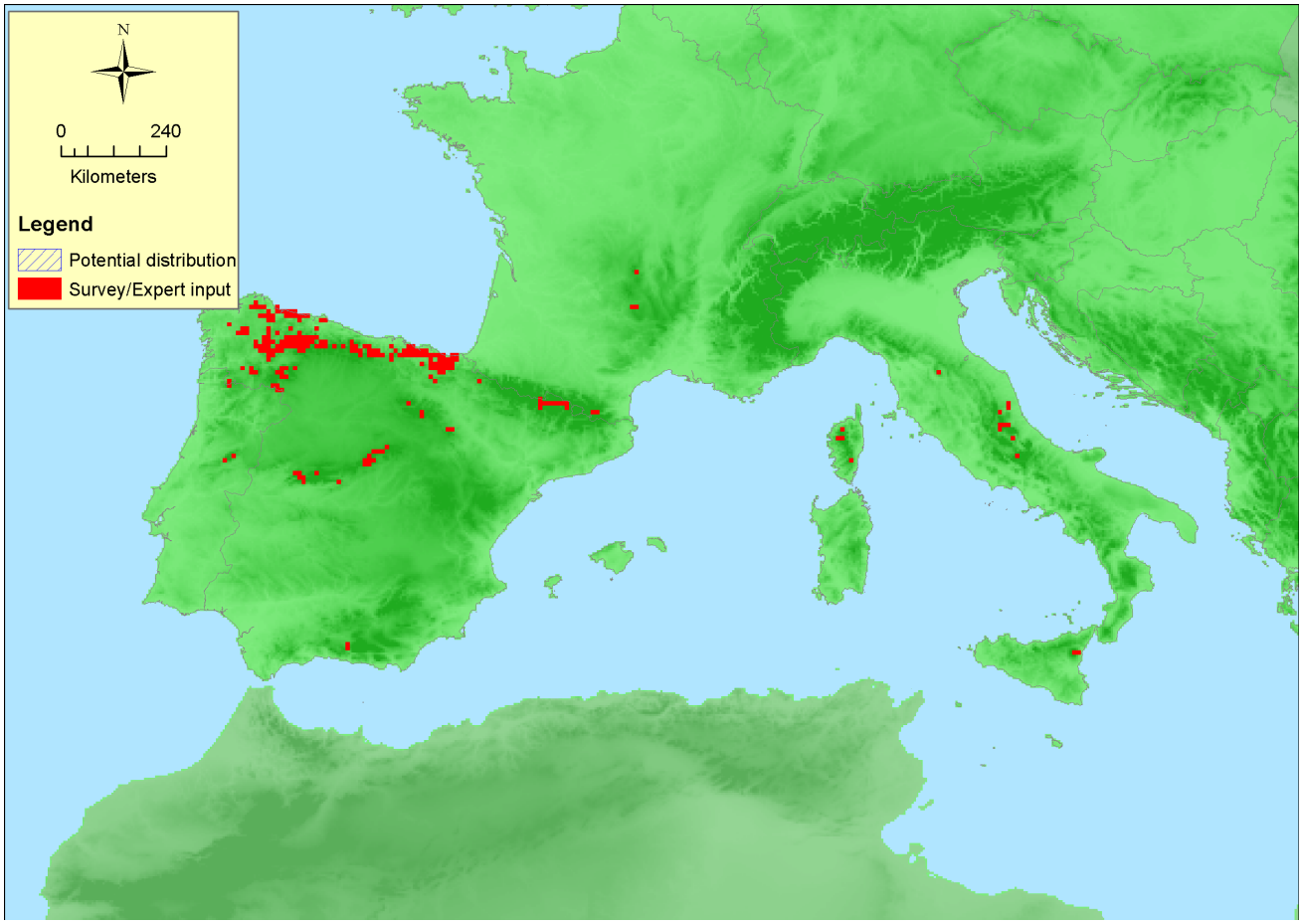
Geographic occurrence and trends

EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
France	Corsica: Present France mainland: Uncertain	6 Km^2	Increasing	Unknown
Italy	Italy mainland: Present Sicily: Present	6 Km^2	Decreasing	Decreasing
Spain	Spain mainland: Present	25 Km^2	Increasing	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	1399250 Km^2	230	125 Km^2	
EU 28+	1399250 Km^2	230	125 Km^2	

Distribution map



The map may underestimate the distribution, due to data gaps, especially in Italy, but in Basque country and in the north of the Iberian peninsula it overestimates the presence, while the occurrences in Central and Southern Spain are doubtful. Data sources: EVA, NAT.

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

100%

Trends in quantity

Habitat is reported in 3 countries with total area of 37 Km2. It is present in Spain (25 km2, representing 68% of the total surface), Italy (6 km2, representing 16% of total surface) and France (also 6 km2). It seems to be especially delicate to differentiate between permanent woodland in mineral soil and successional stages after disturbance colonized by birch and aspen. Therefore this total surface is subjected to revision if area division among these two types is reviewed in the future. The evolution of surface occupied by this habitat in last 50 years is reported to be slightly increasing in Spain and France, stable in continental Italy, and decreasing in Sicily. Since the surface in Sicily represents only 11% of total surface (4km2), with relative small regression (5% in last 50 years); this trend is compensated by the increase in other countries (10 % in last 50 years in Spain and 10% in France). Therefore the overall trend in surface in last 50 years is increasing by 5%. Historic trends in surface from 1750 are unknown, and there is no sufficient data to estimate future trends.

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

The area is increasing and the range is bigger that the threshold of 50.000 km2

- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  The habitat may occur in large stands.

Trends in quality

There are no concrete studies that evaluate the trends in quality over the last 50 years, but the trend has been estimated by territorial experts in 3 countries. This estimation differs considerably among countries. It is considered as degrading in Sicily for the last 50 year period (40% relative severity affecting 20% of Italian surface). This negative trend is eclipsed by the tendency of Spain (with 68% of total surface) where the tendency is stable. There is no data about trends in France, so it has been extrapolated as following the same pattern, resulting that only 3% of habitat surface has degraded in the last 50 years. There is no data for historic (last 250 years) and there is no sufficient data to estimate future trends.

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

Pressures and threats

The main threats identified by national experts are listed below, even the ones that to date seems to be of minor importance for the persistence of this habitat. The following list includes threats derived directly from human activities (grazing, silviculture), and indirect (climate change and succession towards maturity). It is important to recall that Sicilian woodlands of B.aetnensis are subjected to special threats due to volcanic activity and vulnerability to diseases.

List of pressures and threats

Agriculture

Grazing

Sylviculture, forestry

Forest and Plantation management & use

Natural System modifications

Fire and fire suppression

Geological events, natural catastrophes

Volcanic activity

Climate change

Changes in abiotic conditions

Conservation and management

Main intervention approaches may include the control of grazing and forestry practices replacing this habitat with forest plantations (mainly conifers). Special conservation plan may be needed for the Silician subtype, and its recommended to include fighting against microbial pathogens as part of it.

List of conservation and management needs

Measures related to forests and wooded habitats

Other forestry-related measures

Conservation status

NO DATA : 9040 Annex 1 type is not reported for Spain, France or Italy.

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

The habitat is well adapted to react to disturbances and, therefore, is likely that it will recover after disturbances. If severity is high over a long period of time, human intervention will certainly help the recovery. The effort required indicatd below is a pure estimation that may need further verification.

Effort required

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

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	5 %	Unknown %	Unknown %	Unknown %
EU 28+	5 %	Unknown %	Unknown %	Unknown %

Overall the surface increased by approximately 5%, calculated using territorial data from Spain, France and Italy.

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

AOO, EOO and number of locations are beyond the thresholds for criteria under 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	3 %	40% %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	3 %	40% %	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%

Calcuations based on information from Spain, France and Italy. Only 20% of Italian surface shows degrading trends (about 3% of total surface). The rest is stable .

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

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