G3.1c Mediterranean mountain Abies woodland

Summary

This habitat comprises three distinctive xerophytic coniferous woodlands with either A*bies pinsapo, A. nebrodensis* or *A. cephalonica* occurring on shallow, drought-prone soils within the lower to mid-altitudinal belts of the Mediterranean climatic zone. There, these firs of very limited, sometimes relictual, distribution are able to maintain a competitive advantage against other trees and dominate in woodlands of highly distinctive character, each with its own associated flora. This habitat has been widely used in the past for wood and firewood productions and this, together with grazing, were significant threats. Now climate change-related seems to prime danger. A significant portion of the habitat is currently protected inside protected areas. For relictual and isolated populations of the dominant tree the main conservation need is to ensure regeneration.

Synthesis

The habitat is considered as Least Concern (LC) given the small changes in quality and quantity of the habitat for the last 50 year period. No analysis has been posible for historical period due to lack of data.

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

The habitat includes three subtypes, and at least two of these merit further analysis. First of all the *Abies pinsapo* forests that are only present in south of Spain and north of Morocco. The species *A. pinsapo* has been assessed by IUCN Red List of Threatened Species as Endangered. Secondly, forests with *Abies nebrodensis*, only present in Sicily. The species has been assessed by IUCN Red List of Threatened Species as Critically Endangered.

Habitat Type

Code and name

G3.1c Mediterranean mountain Abies woodland

A. cephalonica woodlands in Mount Menalon, central Peloponnisos, Greece (Photo: Panayotis Dimopoulos).

A. nebrodensis in Madonie mountains. Sicily, Italy (Photo: Corado Marcenó).

Habitat description

These are xerophytic coniferous woodlands of shallow, drought-prone soils within the lower to mid-altitudinal belts of the Mediterranean climatic zone, where firs of very limited, sometimes relictual, distribution are able to maintain a competitive advantage against other trees and dominate in woodlands of highly distinctive character.

Abies pinsapo persists in three small enclaves in southern Andalusia on relatively humid northerly slopes between 1000 and 1800 m, stands on limestone having *Quercus ilex* and *Q. faginea* in the canopy and a sparse shrub layer with *Berberis vulgaris* subsp*. australis, Rosa micrantha, Juniperus oxycedrus* and *Ulex baeticus.* Some stands on limestone have *Paeonia broteroi* and *P. coriacea* as distinctive field layer elements, others on serpentine are distinguished by *Bunium alpinum* subsp. *macuca.*

On the southern Greek mainland and some Ionian and Aegean islands *A. cephalonica* dominates, often growing tall and dense, sometimes with *Pinus nigra* intermixed. Usually only in gullies away from dense shading does the field layer attain any richness with such distinctive species as *Geocaryum parnassicum, Lilium heldreichii, Cardamine graeca, Neotinea maculata, Helictotrichon convolutum, Iris unguicularis* and *Carex macrolepis.*

On a fog-bound slope in the Madonie mountains of Sicily a relict population of *Abies nebrodensis* survives on embryonic quartzite soils with an understorey of *Juniperus hemisphaerica*, occasional *Acer pseudoplatanus* and *Sorbus graeca* and a field layer with *Silene sicula, Plantago humilis, Galium venustum* and *Armeria nebrodensis*.

Characteristic species

As listed above for the different regional examples.

Indicators of quality:

· Distinctive relationship with extreme topography and associated Mediterranean flora.

· Absence of signs of exploitation by felling.

· Natural composition of canopy.

· Structural diversity/ complexity with (semi)natural age structure or completeness of layers.

· Typical flora and fauna composition of the region.

· Presence of old trees and a variety of dead wood (lying or standing) and the associated flora, fauna and fungi.

· Presence of natural disturbance such as treefall openings with natural regeneration.

· Long historical continuity (ancient woodland) with high species diversity.

· Survival of larger stands of forest without anthropogenic fragmentation and isolation (to support fauna which need large undisturbed forests).

· Absence of non-native species in all layers (flora & fauna).

· No man-induced very high population levels of ungulates.

Characteristic species:

Abies alba ssp. *apennina*, *Abies borisii-regis, Abies cephalonica, Abies nebrodensis, Abies pinsapo*

Classification

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

following typologies.

EUNIS:

G3.1 Abies and Picea woodland

EuroVegChecklist (alliances):

Abietion cephalonicae Horvat et al. 1974

Paeonio broteroi-Abietion pinsapo (Rivas-Mart. 1987) Rivas-Mart. et al. 2002

Berberido aetnensis-Pinion laricionis (S. Brullo et al. 2001) Mucina et Theurillat nom.nov.hoc.loco.

Geranio striati-Fagion Gentile 1970

Annex 1:

9510* Southern Apennine Abies alba forests

9520 *Abies pinsapo* forests

Emerald:

G3.15 Southern Apennine Abies alba forests

G3.19 Abies pinsapo forests

MAES:

Woodland and forest

IUCN:

1.4 Temperate Forest

EFT:

10.6 Mediterranean and Anatolian fir forest

EVM:

K2 Meso- and supra-Mediterranean fir forests (*Abies pinsapo, A. cephalonica*)

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

Regions
Mediterranean

Justification
Distinctive relationship with extreme topography and associated Mediterranean flora. This group is composed of relictual Mediterranean forest types associated with Mediterranean mountains.

Geographic occurrence and trends

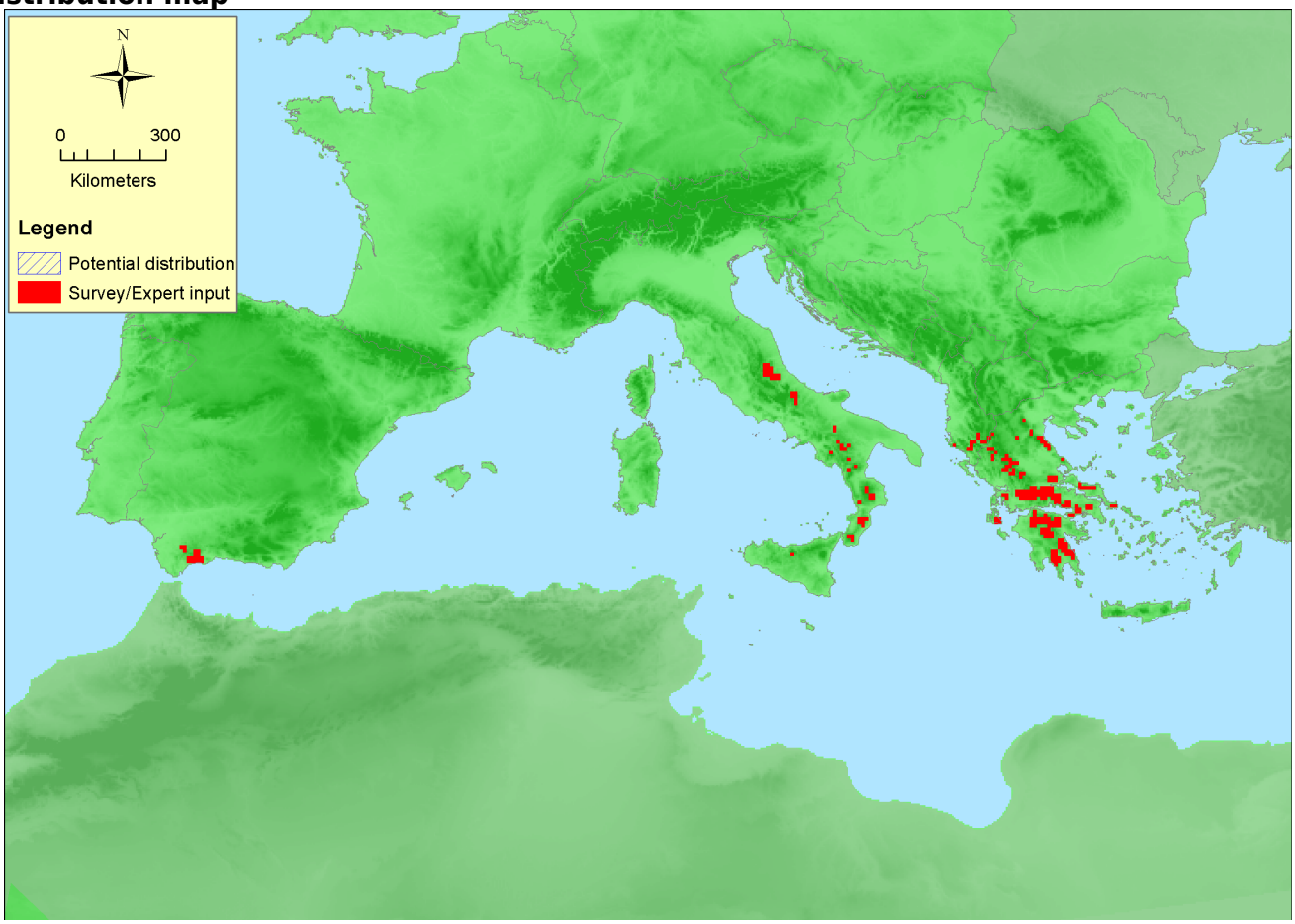
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Greece	Greece (mainland and other islands): Present	2000 Km^2	Stable	Stable
Italy	Italy mainland: Uncertain Sicily: Present	4 Km^2	Decreasing	Decreasing

EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Spain	Spain mainland: Present	11 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	960950 Km^2	245	2015 Km^2	EOO and AOO need to be confirmed after correction of map.
EU 28+	960950 Km^2	255	2015 Km^2	

Distribution map



The map is rather complete. Data sources: EVA, Art17, BOHN.

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

About 40% of the current distribution of the habitat type lies within the EU 28, considering also *Abies cilicica*, with infered distribution of 3,307 km^2; *A. pinsapo* subsp *marocana* and *A. numidica* with 30 km^2 each.

Trends in quantity

The overall trend in quantity is a slight reduction. This varies among countries and subtypes (+/-5%). There is not information to assess the trends from historic times, neither the future projections.

- 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 is spread in all major Mediterranean mountains.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  -

Trends in quality

The overall trend in qualiity for the 3 countries is stable. This situation varies among countries and subtypes. For example in Spain, the situation for A.pinasapo is reported to be improving while Italian experts highlight that during the last 50 years, a severe degradation (80% severity) has affected 50% of the *surface of A. nebrodensis* stands.

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

Pressures and threats

The most significant past threats for the habitat were grazing and forest exploitation. These past threats seem to be now substituted by climate change-related stressors like the presence of diseases and changes in abiotic conditions (including precipitation regimes and aridity).

List of pressures and threats

Agriculture

Grazing

Sylviculture, forestry

Forest exploitation without replanting or natural regrowth
Grazing in forests/ woodland

Natural System modifications

Fire and fire suppression
Burning down

Natural biotic and abiotic processes (without catastrophes)

Introduction of disease (microbial pathogens)

Climate change

Changes in abiotic conditions
Droughts and less precipitations

Conservation and management

Very large proportion of the habitat are currently located inside protected areas. For the very small, relictual and isolated populations of the dominant species the germplasm conservation might be opportune.

List of conservation and management needs

Measures related to forests and wooded habitats

Restoring/Improving forest habitats

Measures related to spatial planning

Legal protection of habitats and species

Measures related to special resouce use

Regulating/Management exploitation of natural resources on land

Conservation status

Annex I:

9510: MED U1

9520: MED U1

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

The Mediterranean *Abies* species have shown capable of recolonizing severely damaged areas (e.g. after agricultural colonization and abandonment) and the rest of habitat species may slowly follow given nearby refugia. As all forest types, slow time lapses apply for recovery.

Effort required

50+ years	200+ years
Through intervention	Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-1 %	Unknown %	Unknown %	Unknown %
EU 28+	-1 %	Unknown %	Unknown %	Unknown %

Based on territorial dataset provided by territorial experts, the overall quantitative reduction is negligible.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	1838900 Km^2	No	No	No	1407	No	No	No	No
EU 28+	1838900 Km^2	No	No	No	1645	No	No	No	No

Based on distribution data and maps, both EOO and AOO largely exceed the thresholds for the application of 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	1 %	20 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	1 %	20 %	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%

Based on territorial datasheet provided by the project team, an overall negligible qualitative decline was reported with an average severity of 20%, both in EU28 and EU28+. It is worth to mention that the habitat stands in Sicily show a decline in quality of 80% severity in the last 50 years.

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)

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