G3.4c Mediterranean montane Pinus nigra-Pinus sylvestris woodland

Summary

Pinus nigra has been widely planted through the Mediterranean, but it remains the natural dominant tree in this habitat in more drought-prone situations, at scattered localities through the mountains of Spain, Corsica, southern Italy, and at higher elevations further south where altitude moderates the effects of the Mediterranean climate. *P. sylvestris* can be co-dominant in the canopy, except in the far south and on the Mediterranean islands. From place to place, the habitat is threatened by wildfires, forestry management and plantations, urbanization and outdoor sports. Consideration of natural dynamics, with diversified age structure is needed in the management of the habitat

Synthesis

The overall assessment of this habitat is based on data from the recent past (last 50 years). Based on the geographical stability, large area of occupancy, and no signs of extended degradation, the overall assessment is Least Concern (LC). There is neither sufficient data about historical trends, nor sufficient information to estimate future trends, and data on habitat quality trends are very limited, so this assessment may change in the future under the light of new information and 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

This habitat includes some peculiar endemic vegetation types, like the one dominated by *Pinus nigra* ssp. *calabrica*, wich is present only in Sicily (33,23 km^2) and Calabria (38,4 km^2).

Habitat Type

Code and name

G3.4c Mediterranean montane Pinus nigra-Pinus sylvestris woodland

Vegetation of *Pinus nigra* spp *larici*o in Corsica, France (Photo: John Janssen).

Pinus nigra spp *laricio* in Corsica, France (Photo: John Janssen).

Habitat description

Pinus nigra has been widely planted through the Mediterranean, but it remains the natural dominant tree species that forms forests in more drought-prone situations, at scattered localities through the mountains of Spain, Corsica, southern Italy, and at higher elevations further south where altitude moderates the effects of the Mediterranean climate. *P. sylvestris* can be co-dominant in the canopy, except in the far south and on the Mediterranean islands.

Vicariant forms of the black and Scots pines are recognised in different localities. In Spain, for example, *P. nigra* ssp. *salzmannii* forms stands with so-called *P. sylvestris* ssp. *nevadensis,* and *P. sylvestris* var. *iberica.* On Corsica, *P. nigra* ssp. *laricio* is a pioneer species occupying open ground or clear-felled areas within the zone of beech and fir, but it also dominates on rocky, south-facing slopes, which are too dry for beech and fir to compete black pine. In such sites, black pine can attain a magnificent height in closed canopy, with shorter *Betula pendula* and *Ilex aquifolium* individuals in the understory, and a field layer with *Avenella flexuosa, Brachypodium pinnatum, Sanicula europaea, Galium rotundifolium, Veronica officinalis* and endemic species such as *Helleborus lividus, Crocus corsicus, Carlina macrocephala, Galium corsicum* and *Stachys corsica.* More open stands can have a denser understory of *Synonym of Juniperus communis subsp. Nana, Genista lobelii* and *Berberis aetnensis.*

Indicators of quality:

·   Maintenance of natural woodland structure and distinctive

·   Absence of signs of exploitation by logging and grazing which leads to to the increase of grasses cover

·   No fragmentation of cover by quarrying or gravel extraction.

·   Structural diversity/ complexity with (semi)natural age structure or the existence of different vegetation layers

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

Characteristic species:

Tree canopy: *P. nigra, P. sylvestris;*

Understory: *Amelanchier ovalis, Juniperus communis* (including ssp. *hemisphaerica*), *Cotoneaster tomentosus, Berberis vulgaris, Buxus sempervirens* and many endemic species in the herb layer.

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

EUNIS:

G3.4 Pinus sylvestris woodland south of the taiga

G3.5 Pinus nigra woodland

EuroVegChecklist:

Junipero hemisphaericae-Pinion sylvestris Rivas-Mart. 1983

Avenello ibericae-Pinion ibericae Rivas-Mart. et J.A. Molina in Rivas-Mart., Fernández-González et Loidi 1999

Junipero sabinae-Pinion sylvestris Rivas Goday in Rivas Goday et Borja 1961 nom. invers. propos.

Juniperion thuriferae Rivas-Mart. 1969

Galio rotundifolii-Fagion Gamisans 1975

Annex 1:

9530 (Sub-) Mediterranean pine forests with endemic black pines

Emerald:

G3.5 Pinus nigra woodland

MAES:

Woodland and forest

IUCN:

1.4 Temperate Forest

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

<u>Regions</u>
Mediterranean

<u>Justification</u>
This Mediterranean subtype of *P. nigra* and *P. sylvestris* (G3.4c) occurs, by definition, only in Mediterranean. The temperate type (3.4b) spreads in other biogeographical regions, and for this reason limits between this two types is sometimes difficult and subjected to interpretation

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: Present	297 Km^2	Stable	Stable
Italy	Italy mainland: Present Sicily: Present	409 Km^2	Stable	Stable
Portugal	Portugal mainland: Present	1 Km^2	Stable	Stable
Spain	Spain mainland: Present	4317 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
EU 28	1067000 Km^2	669	5000 Km^2	
EU 28+	1067000 Km^2	669	5000 Km^2	

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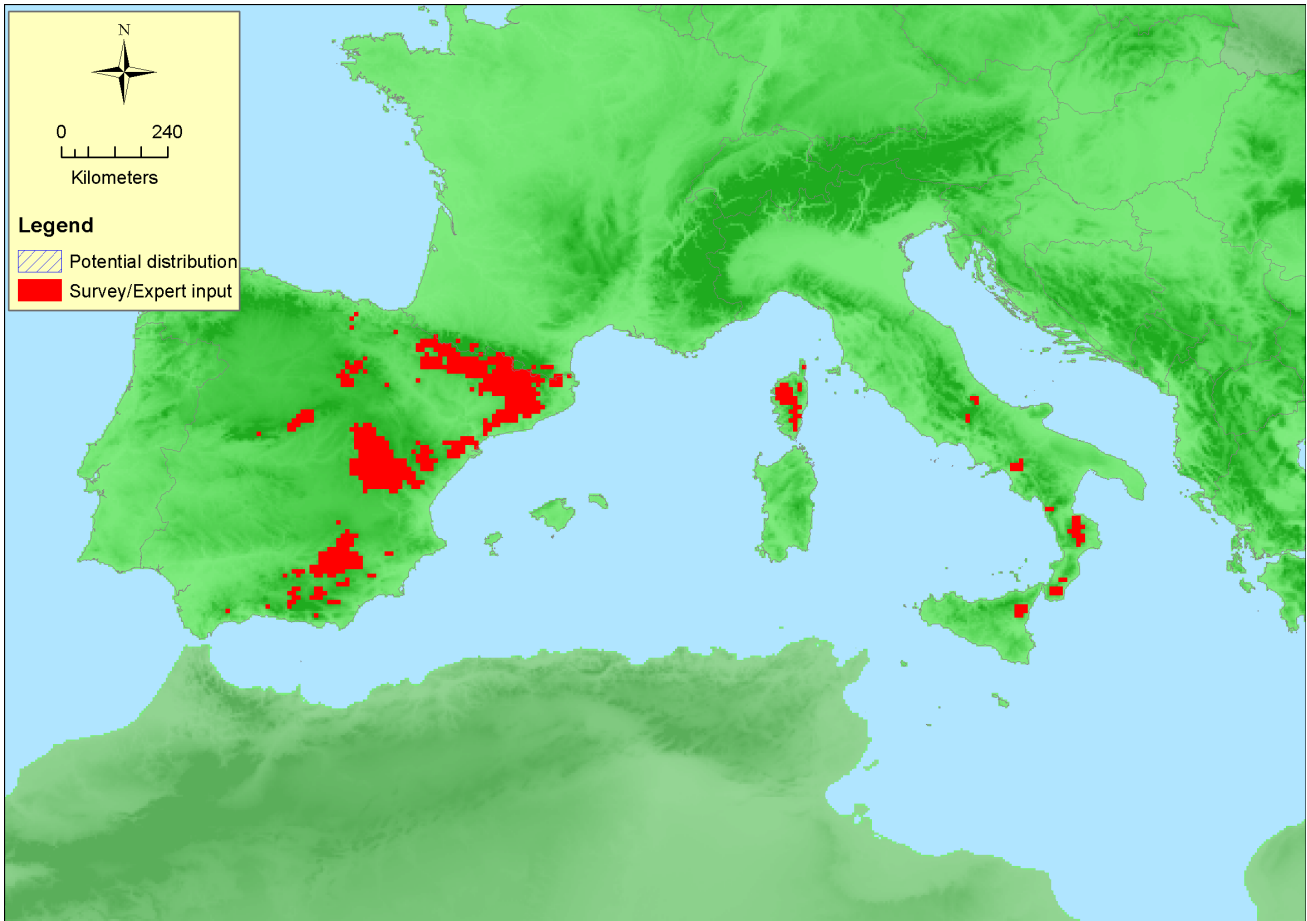
The map is rather complete. Data sources: EVA, Art17, ETS.

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

The exact area that lies within EU28 is unknown. Delimitation with the temperate type is often subjected to interpretation, and extent or occurrence outside EU 28 are unclear. In any case this habitat type is not limited to EU28, but it has isolated occurrences in Rif (Morocco), in ex-Yugoslavia, Turkey, and Crimea (delimitation with 3.4b is to be reviewed here).

Trends in quantity

The historic trend of this habitat is unknown, but the territorial experts reported a constant stable recent trend in the last 50 years.

- Average current trend in quantity (extent)
  EU 28: Stable
  EU 28+: Unknown
- Does the habitat type have a small natural range following regression?
  No
  Justification
  Large natural range
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  Large natural range

Trends in quality

The territorial datasheet shows slight differences between countries. This may be caused by real

differences between countries, but it is probably influenced by the different perceptions of quality trends between national experts.

All the four countries reported stable trend in quantity (surface), and three of them (Portugal, Spain, and Italy) also reported stable trend in quality.

Only France reported 20% degradation in quality during the last 50 years, mainly due to repeated fires and introgressive hybridization. This trend is not expected to continue in the future in France. Extraction (logging) of old trees is also identified as cause of quality decline, mainly in Corsica.

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

Pressures and threats

The territorial experts have reported different threats among the countries. The most common threats among countries are: Wildfires and forestry management and plantation. Less commonly reported are threats concerning cutting of old trees and urbanization (including road, paths, human habitation, and outdoor sports).

List of pressures and threats

Sylviculture, forestry

Forest and Plantation management & use

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Human intrusions and disturbances

Outdoor sports and leisure activities, recreational activities

Geological events, natural catastrophes

Fire (natural)

Climate change

Droughts and less precipitations
Changes in biotic conditions

Conservation and management

The management of this habitat has been traditionally addressed towards wood production and watersheds protection. Application of Habitat Directive, with inclusion of 9530 type has changed this tendency in some places. Consideration of natural dynamics, with diversified age structure, and presence of deadwood is needed (see quality indicators) in the management of the habitat type. Some of the relict subtypes merit special wildfire protection measures.

List of conservation and management needs

Measures related to forests and wooded habitats

Restoring/Improving forest habitats
Adapt forest management

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species

Conservation status

Annex I:

9530: ALP U1, CON U1, MED U1

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

The dominant *Pinus* species show a pioneer behaviour, but the other species of flora and fauna of the habitat type require longer periods without disturbances, and the presence of an adequate network of mature & ancient forests that may serve as gene-pool. Design of an adequate network of reserves may significantly improve the recovery of typical species and ecological functions of the habitat type.

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	0 %	Unknown %	Unknown %	Unknown %
EU 28+	0 %	Unknown %	Unknown %	Unknown %

The trend for criterion A1 was calculated on the basis of the data from the Territorial datasheets, provided by national experts. The countries that have been taken into account in the calculation were the ones with current and recent-past (last 50 years) data (Spain; Portugal; Italy; and France). A stable trend is reported.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50.000 Km^2	-	-		>50	-	-		
EU 28+	>50.000 Km^2	-	-		>50	-	-		

The Area of Occupancy and Extent of Occupancy are very large, beyond the criteria B threshold.

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	1.5 %	50 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	1.5 %	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%

Data extracted from territorial datasheets. Only two countries reported degradation trends in quality (C/D1). Spain reported no degradation and France reported reduction in quality 20% with a moderate severity. Thus, the proportion of the habitat type declining represents only 1.5% of its total surface and the severity of degradation in this fraction is moderate.

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

Assessors
M. Valderrabano

Contributors
Habitat description: J Rodwell.

Territorial data: E. Agrillo, O. Argagnon, S. Armiraglio, S. Assini, F. Attorre, G. Buffa, J.Capelo, L. Casella, D. Espírito-Santo, C. Giancola, G. Giusso Del Galdo, J. Loidi, C. Marcenò, J. Reymann, S. Sciandrello.

Working Group Forests: F. Attore, R-J. Bijlsma, M. Chytrý, P. Dimopoulos, B. Renaux, A. Ssymank, T. Tonteri, M. Valderrabano

Reviewers
I. Tsiripidis

Date of assessment
18/12/2015

Date of review
05/05/2016

References

Bohn, U., Gollub, G. Hettwer, C., Neuhauslova, Z., Rause, T., Schlüter, H. & Weber, H. (2004) *Map of the Natural Vegetation of Europe*. Bonn: Bundesamt für Naturschutz. Council of Europe (2010), *Interpretation Manual of the Emerald Habitats*. Strasbourg: Council of Europe.

Davies, C.E., Moss, D. & Hill, M.O. (2004), *EUNIS Habitat Classification, revised.* Report to the European Topic Centre, European Environment Agency.

European Commission DG Environment (2007), *Interpretation Manual of European Union Habitats.* Strasbourg: European Commission DG Environment.

European Environment Agency (2006), *European Forest Types*, EEA Technical report No9/2006, Copenhagen: European Environment Agency.

Schamineé, J.H.J., Chytrý, M., Hennekens, S., Jiménez-Alfaro, B., Mucina, L. & Rodwell, J.S. (2013), *Review of EUNIS forest habitat classification, Report EEA/NSV/13/005*. Copenhagen: European Environment Agency.