G3.4b Temperate and submediterranean montane Pinus sylvestris-Pinus nigra woodland

Summary

This habitat comprises *Pinus sylvestris* and *P. nigra* forests occurring often as isolated and smallish stands within temperate and submediterranean Europe, often confined to distinctive kinds of terrain. Favoured situations are mostly steep slopes, with many rock outcrops and shallow immature soils. The humidity can vary throughout the growing season from low to moderate. These forests are mostly monodominant or, less commonly, have a mixed canopy with various other conifers and deciduous trees, usually open, the trees often not much taller than 10 m. There can be rich shrub and herbaceous layers and the flora varies considerably through the different mountain ranges and according to the particular substrate. The habitat is threatened mainly by inappropriate forestry management and stone quarrying. To achieve favourable conservation status, in most cases these forests should be left to spontaneous development, protected from logging and from the opening and expansion of stone quarries.

Synthesis

This habitat is assessed as Least Concern (LC), because it has an extensive distribution across several European mountain ranges, the reduction in area has been small (in some areas this habitat type has been stable or even slightly spreading) and the decline in quality only affects a small proportion of the total area.

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

Occurrences at the distribution limit of this habitat, especially in the foothill areas of the large mountain ranges, require special attention. Many of these stands have specific species composition and ecology, but they tend to occur in small patches surrounded by other types of forests and are prone to successional changes.

Habitat Type

Code and name

G3.4b Temperate and submediterranean montane Pinus sylvestris-Pinus nigra woodland

Pinus nigra forest with *Sesleria caerulea* near Gösing in the Eastern Alps in Austria (Photo: Milan Chytrý).

Basiphilous Species-rich pine forest with flowering *Daphne cneorum* in Central Slovakia (Photo: Milan Valachovic).

Habitat description

This habitat is formed by Scots and Black Pine forests (mostly xerophilous, but also some mesophilous), distributed in isolated and not very large stands on calcareous (limestone, dolomite) or ultramafic (serpentine) rocks, in the Alps, Jura, Bohemian-Moravian Highlands, Carpathian, Dinaride and Bulgarian mountains. The Black Pine forests of the Crimean Mountains which are rich in steppe and submediterranean species also belong to this habitat. These communities are mainly relic and limited to specific kinds of terrain. They occur in different vegetation belts, from the xerothermic oak belt, through the mesophilic hornbeam-beech forest belt up to the microthermic coniferous forest belt and hence fall into different climatic and geographical territorial subdivisions. The aspect of the slopes with Black Pine forest can vary but is mainly southern, sometimes eastern or western and the slopes can be very steep. The Scots Pine forests mainly occupy slopes with a northerly exposure and inhabit the low and middle part of mountains and valleys in the Alps, with altitudes between 500 and 1,400 m asl. The terrain is mostly steep or very steep slopes, with many rock outcrops. The soils are mostly shallow immature rendzic leptosols, often eroded. The humidity can vary throughout the growing season from low to moderate. These forests are mostly monodominant or, less commonly, have a mixed canopy with various other conifers, for example *Picea abies* and *Larix decidua*, and deciduous trees including *Sorbus aria*, depending on the neighbouring communities. The forests are open, the trees often not much taller than 10 m, with a rich shrub or herbaceous layer and the flora is characterized by a significant proportion of central and south-European (submediterranean) species; many species of the boreal/continental taiga are absent. On dry alluvial plains and fans, there are more mesophytic pine woodlands with *Salix purpurea*, *S. elaeagnos* and *S. daphnoides* and a grassy field layer with *Calamagrostis varia* and *Molinia arundinacea*. In the western Alps, herbs such as *Ononis rotundifolia*, *Astragalus monspessulanus* and *A. vesicarius* provide a floristic link with the open pine woodlands of the southern slopes of the Pyrenees where *Juniperus communis* subsp. *hermisphaerica*, *Buxus sempervirens* and *Cytisus oromediterraneus* occur in the shrub

layer, accompanied on more siliceous rocks by *Vaccinium myrtillus*, *Arctostaphylos uva-ursi* and *Calluna vulgaris*. The Scots Pine forests of the Southern Alps have a dense understorey of *Erica carnea* (*Erico carneae-Pinion*) while distinctive Scots Pine forests occur locally in the Slovakian Carpathians with endemics such as *Pulsatilla slavica*, *Thymus carpathicus*, *Campanula carpatica*, *Festuca tatrae* (*Pulsatilo slavicae-Pinion*). The Scots Pine forests on amphibolites and limestone in the Southern Carpathians also have a diverse understorey with some relict and submediterranean species such as *Daphne blagayana*, *Arctostaphylos uva-ursi*, *Sesleria rigida*. The forests dominated by Black Pine (*Erico-Fraxinion orni*, *Fraxino orni-Pinion nigrae*, *Chamaecytiso hirsuti-Pinion pallasianae*) are more diverse and have endemic subspecies in the southern part of habitat's range – Italian and Slovenian Alps, Dinarides, Bulgarian mountains and Romanian Carpathians. The dominant species there are represented by different subspecies – subsp*. nigra* to the north, subsp*. pallasiana* to the south, subsp*. dalmatica* as a local endemic in the Croatian Dinarides. The shrubs and herb layers are even more diverse than in Scots Pine forests and include many species from neighbouring deciduous and coniferous forests. On serpentine rocks, there are also some typical serpentinophytes. The age of forests can be 80-100 years, even up to 200 years in some stands. Throughout the range of this habitat, Black and Scots pines are widely cultivated and numerous coniferous plantations exist often alongside the natural forests. These plantations, if occurring at sites where Black or Scots pine forest is not natural vegetation, are not included in the habitat.

Indicators of quality:

• No forest exploitations (if applicable, mainly azonal types with high nature value).
• 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 and fauna).
• No signs of eutrophication or pollution.
• No man-induced very high population levels of ungulates.

Characteristic species:

Vascular plants: *Abies alba*, *Amelanchier ovalis*, *Anthericum ramosum, Anthemis carpatica, Aquilegia einseleana, A. vulgaris, Arctostaphylos uva-ursi, Armeria elongata* subsp*. serpentini, Asperula capitata, Asplenium cuneifolium, Berberis vulgaris, Betula pendula, Biscutella laevigata, Brachypodium pinnatum, Bruckenthalia spiculifolia, Buphthalmum salicifolium, Campanula divergens, Calamagrostis varia, Calluna vulgaris, Campanula carpatica, C. cervicaria, C. kladniana, Carex alba, C. flacca, C. humilis, C. ornithopoda, Carpinus orientalis, Ceterach officinarum, Centaurea rhenana, C. scabiosa, Chamaecytisus supinus, Coronilla vaginalis, Corylus colurna, Cotoneaster integerrimus, C. nebrodensis, Cotinus coggygria, Crocus veluchensis, Cyclamen purpurascens, Daphne blagayana, D. cneorum, Deschampsia flexuosa, Dianthus carthusianorum, D. petraeus, D. spiculifolius, Epipactis atrorubens, Erica carnea, Erythronium dens-canis, Euphorbia amygdaloides, E. glabriflora, E. saxatilis, Festuca xanthina, F. tatrae, Galium lucidum, Genista januensis, G. radiata, Geranium sanguineum, Gymnadenia odoratissima, Globularia aphyllanthes, Goodyera repens, Fagus sylvatica, Festuca xanthina, Fraxinus ornus, Genista radiata, Helianthemum nummularium, Helleborus niger, Hepatica nobilis, Hieracium bifidum, Hippocrepis comosa, Hypericum rochelii, Iris ruthenica, Juniperus communis, Kernera saxatilis, Lembotropis nigricans, Laserpitium krapfii, Leontodon incanus, Linum flavum, Luzula sylvatica, Melampyrum angustissimum, M. pratense, M. sylvaticum, Molinia caerulea, Monotropa hypopitys, Neottia nidus-avis, Ostrya carpinifolia, Phyteuma*

orbiculare, Picea abies, Pimpinella saxifraga, *Pinus nigra*, *P. sylvestris, Populus tremula, Potentilla heptaphylla, Primula auricula ssp. hungarica, Polygala chamaebuxus, Pteridium aquilinum, Pulsatilla slavica, Pyrola chlorantha, Seseli libanotis, Sesleria caerulea* (= *albicans*), *S. rigida, Sorbus aria, Rosa pendulina, Rubus saxatilis, Stachys scardica, Sorbus aria, Symphytum tuberosum, Teucrium chamaedrys, Thymus carpathicus, T. comosus, T. pulcherrimus, Tolpis staticifolia*, *Vaccinium myrtillus*, *Veronica chamaedrys, Vicia villosa.*

Mosses: *Bryum capillare, Dicranum polysetum, D. scoparium, Ditrichum flexicaule, Homalothecium philipeanum, Hypnum cupressiforme, Hylocomium splendens, Leucobryum glaucum, Pleurozium schreberi, Pseudoscleropodium purum, Rhytidiadelphus triquetrus, Rhytidium rugosum, Tortella tortuosa*

Lichens: *Cladonia fimbriata, C. furcata, C. rangiferina, Solorina saccata*

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:

Erico carneae-Pinion Br.-Bl. in Br.-Bl. et al. 1939 nom. invers. propos.
Pulsatillo slavicae-Pinion Fajmonová 1978
Erico-Fraxinion orni Horvat 1959 nom. invers. propos.
Fraxino orni-Pinion nigrae Em 1978
Chamaecytiso hirsuti-Pinion pallasianae Barbero et Quézel ex Quézel 1992
Pinion pallasianae Korzhenevsky 1998
Libanotido intermediate-Pinion sylvestris Didukh 2003

Annex I:

91CA Rhodopide and Balkan Range Scots pine forests

91Q0 Western Carpathian calcicolous Pinus sylvestris forests

91R0 Dinaric dolomite Scots pine forests (Genisto januensis-Pinetum)

9530 (Sub-) Mediterranean pine forests with endemic black pines (*in parts of Greece and Bulgaria*)

Emerald:

G3.43 Inner-Alpine Ononis steppe forests

G3.44 Spring heath Pinus sylvestris forests

G3.4C Southeastern European Pinus sylvestris forests

G3.5 Pinus nigra woodland

MAES-2:

Woodland and forest

IUCN:

1.4 Temperate forests

EFT:

3.3 Alpine Scots pine and Black pine forest

VME:

K1 Xerophytic pine forests and woodlands

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

Regions
Alpine

Justification
These forests are typical of the Alpine biogeographic region, with most occurrences concentrated to this 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)
Austria	Present	700 Km^2	Unknown	Stable
Bulgaria	Present	1,900 Km^2	Decreasing	Decreasing
Croatia	Present	48 Km^2	Stable	Decreasing
Cyprus	Present	33 Km^2	Stable	Stable
Czech Republic	Present	0.6 Km^2	Stable	Decreasing
France	France mainland: Present	5,440 Km^2	Increasing	Stable
Germany	Present	<20 Km^2	Stable	Decreasing
Greece	Greece (mainland and other islands): Present	2,765 Km^2	Stable	Stable
Hungary	Present	0.1 Km^2	Decreasing	Decreasing
Italy	Italy mainland: Present	1,269 Km^2	Stable	Stable
Poland	Uncertain	Unknown Km^2	Unknown	Unknown
Romania	Present	15 Km^2	Stable	Stable
Slovakia	Present	Unknown Km^2	Unknown	Unknown
Slovenia	Present	33 Km^2	Stable	Stable
Spain	Spain mainland: Uncertain	Unknown Km^2	Unknown	Unknown

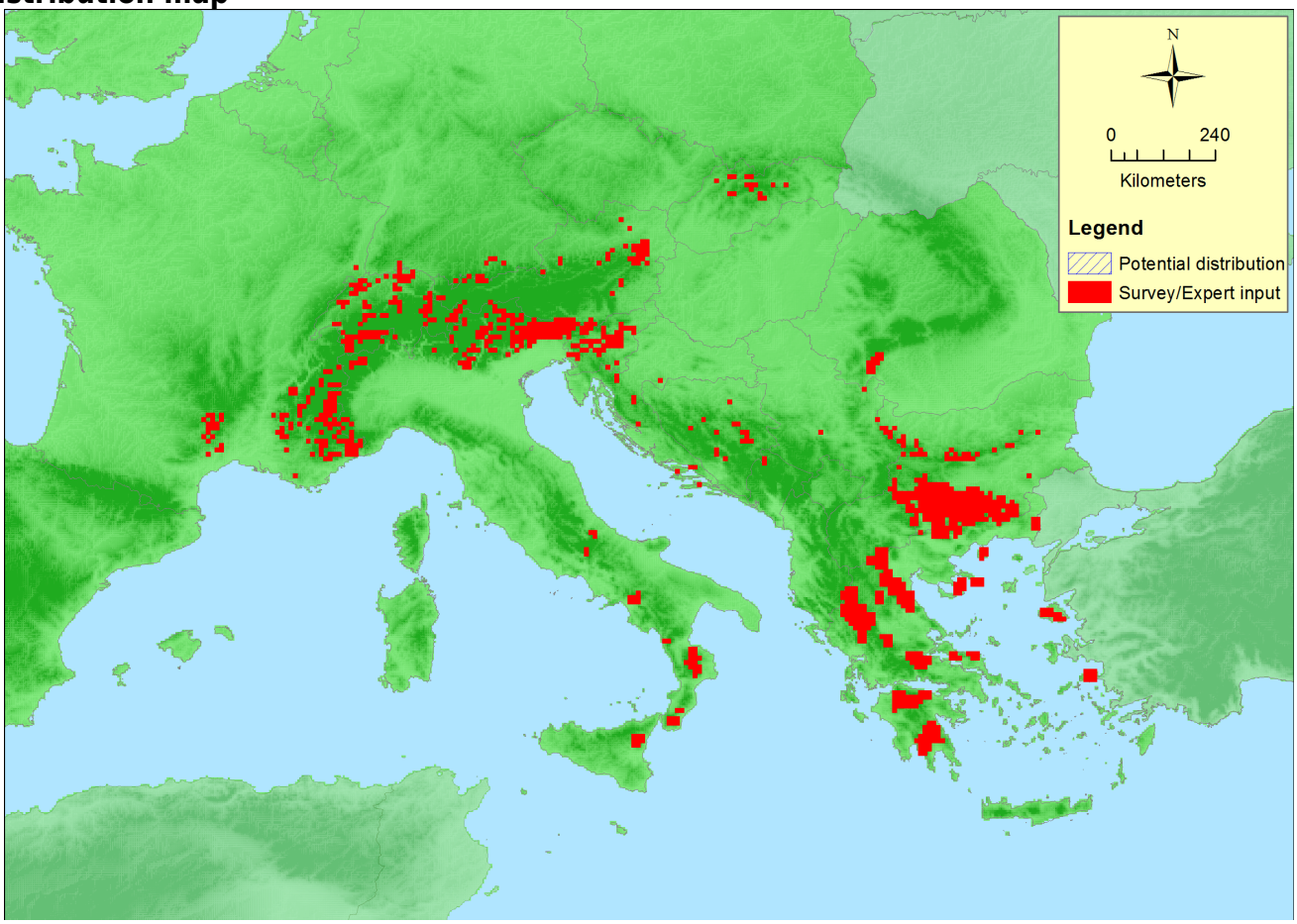
EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Bosnia and Herzegovina	Present	870 Km^2	Stable	Stable
Former Yugoslavian Republic of Macedonia (FYROM)	Present	310 Km^2	Increasing	Stable
Kosovo	Present	Unknown Km^2	Unknown	Unknown
Montenegro	Present	245 Km^2	Decreasing	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)
Serbia	Present	Unknown Km^2	Unknown	Unknown
Switzerland	Present	200 Km^2	Decreasing	Decreasing

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	1691700 Km^2	943	>9,398 Km^2	
EU 28+	1691700 Km^2	1055	>10,742 Km^2	

Distribution map



The map is incomplete in the Balkan countries. Data sources: Art17, EVA, ETS.

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

Of the current distribution of this habitat, approximately 60% lies within the EU 28. This habitat is further distributed in Switzerland, the countries of ex-Yugoslavia, Turkey and Crimea.

Trends in quantity

While in some areas the quantity of this habitat is slightly increasing (e.g. France) or slightly decreasing (e.g. Switzerland), the general trend in quantity of this habitat is stable.

- 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

There has been no significant regression of the natural range of this habitat.

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

No

Justification

The habitat occurs across several mountain ranges.

Trends in quality

The quality of this habitat is stable in the main areas of its distribution (larger mountain ranges), but it is decreasing especially in the marginal areas of its distribution, e.g. at lower altitudes.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The habitat is threatened by logging, fires, inappropriate forestry management, stone quarrying, temperature change, skiing and phytopatogen infestations, especially the pine processionary moth (*Thaumetopoea pityocampa*).

List of pressures and threats

Sylviculture, forestry

Forest and Plantation management & use

Mining, extraction of materials and energy production

Mining and quarrying

Human intrusions and disturbances

Outdoor sports and leisure activities, recreational activities

Skiing, off-piste

Invasive, other problematic species and genes

Problematic native species

Natural biotic and abiotic processes (without catastrophes)

Other forms or mixed forms of interspecific floral competition

Climate change

Temperature changes (e.g. rise of temperature & extremes)

Conservation and management

In most cases these forests do not require any management. They should be protected from logging and destruction by opening and extension of stone quarries.

List of conservation and management needs

Measures related to forests and wooded habitats

Adapt forest management

Conservation status

Annex I:

91CA: ALP U1, CON U1

91Q0: ALP FV

91R0: ALP FV, CON FV

9530: ALP U1, CON U1, MED U1

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

After logging or burning these forests can regenerate within 20 years by natural succession without human intervation.

Effort required

20 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-3.2 %	Unknown %	Unknown %	Unknown %
EU 28+	-3.0 %	Unknown %	Unknown %	Unknown %

Based on country assessments done by national experts, this habitat is considered to have undergone a 3.2% reduction in quantity in the EU 28 over the last 50 years, and a 3% reduction in quantity in the EU 28+ region over the same time period. There is no available information on historic or future reductions and this habitat is therefore assessed as Least Concern under Criterion A.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50,000 Km^2	Yes	Unknown	Unknown	>50	Yes	Unknown	Unknown	Unknown
EU 28+	>50,000 Km^2	Yes	Unknown	Unknown	>50	Yes	Unknown	Unknown	Unknown

Taking into account the large geographic distribution of this habitat, it is assessed as Least Concern under Criterion B. Sources: HT 91Q0 + 91R0 + EVA data.

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	14 %	27 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	14 %	27 %	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%

There has been a slight decline (approximately 27% relative severity) in quality affecting approximately 14% of the extent of this habitat over the past 50 years. This decline in quality was established by summarizing estimates provided by national experts. There is no available information on historic or future reductions in quality, and this habitat is therefore assessed as Least Concern under Criterion C/D1.

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, and it is therefore assessed as Data Deficient under Criterion E.

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. Chytrý

Contributors

Type description: R. Tzonev

Territorial data: O. Argagnon, S. Armiraglio, S. Assini, C. Bita-Nicolae, G. Buffa, A. Čarni, M. Chytrý, R. Delarze, M. Dimitrov, P. Dimopoulos, P. Finck, N. Juvan, Z. Kącki, G. Király, V. Matevski, G. Pezzi, U. Raths, U. Riecken, Ž. Škvorc, A. Ssymank, D. Stešević, V. Stupar, N. Velkovski, D. Viciani, W. Willner

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

M. Valderrabano

Reviewers
M. Calix

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