

F5.3 Submediterranean pseudomaquis

Summary

Submediterranean pseudomaquis with both evergreen and deciduous woody species occurs in the lowlands and submontane belt of southern Europe, especially to the east and it represents a transition between Mediterranean evergreen maquis and continental deciduous schibljak. In most cases, it has developed through degradation of deciduous, broadleaved forests by fire, grazing and unregulated logging or clear cutting and the associated flora is of herbs from such forests. Substrates are mostly calcareous and the soils are shallow and rocky. The main pressure is abandonment allowing reversion to forest though fortunately, the extreme climate means that succession is rather slow. Overgrazing (especially by goats) and fires, urbanization and infrastructure developments also threaten. Management means maintaining the successional stage through continuance of traditional activities.

Synthesis

The habitat is assessed as Least Concern (LC), as it is widespread and showed only small declines in quality and quantity. It is found in a large geographical range with many local appearances and the provided data and trends vary a lot between countries. The habitat presents secondary vegetation and therefore in the future further development towards forest may be expected, causing declines. No quantitative data on this process exist, however, and other pressures (like overgrazing) may cause opposite trends.

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 type is quite diverse through the range. It contains *Buxus* stands that have been distinguished as a separate habitat under the Habitats Directive.

Habitat Type

Code and name

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Submediterranean pseudomaquis thrive under influence of the Mediterranean



Pseudomaquis is a mixture of evergreen and deciduous trees and scrub, Demir

Habitat description

Submediterranean pseudomaquis are distributed at the southern part of Europe and especially in its eastern part. They comprise transition vegetation between Mediterranean evergreen maquis scrub and continental deciduous schibljak scrub (Mucina et al. 2014) and they are characterized by the co-occurrence of evergreen and deciduous woody species (e.g. Adamović 1906, Horvat et al. 1974). The former species are more thermophilous and tolerant to drought, while the latter are more demanding in soil moisture and nutrients, but also more frost tolerant. Pseudomaquis are distinguished mainly on the basis of their physiognomy (mixed scrub formations with evergreen and deciduous species) and they correspond to different plant communities (Bergmeier 1990), which have been classified within different orders, such as *Quercetalia ilicis*, *Fraxino orni-Cotinetalia*, *Quercetalia pubescenti-petraeae* and *Prunetalia spinosae* (Rodwell et al. 2002). However, they are usually characterized by the occurrence of the evergreen species *Quercus coccifera*, *Juniperus oxycedrus*, *Phillyrea latifolia* and *Buxus sempervirens*, and the one of the deciduous species *Carpinus orientalis*, *Ostrya carpinifolia*, *Fraxinus ornus*, *Quercus pubescens* and *Acer monspessulanum*. Furthermore, the herb flora of pseudomaquis is usually characterized by the occurrence and high frequency and cover of deciduous forests species (e.g. species of *Quercion frainetto*).

In most cases, the occurrence of pseudomaquis is not considered as climax vegetation, but the result of degradation of deciduous, broadleaved forests, because of disturbances like fire, grazing and unregulated logging or clear cuttings. Although pseudomaquis are more often found on calcareous substrates, they occur also on siliceous ones. The soil, regardless the substrate, is usually rocky and of small depth. They occur in low altitudes (e.g. 100 m), but more often are found within the lower part of mountain belts (e.g. 500-800 m).

Indicators of good quality:

- No fragmented canopy of the shrub layer;
- Regeneration of the dominant woody species;
- Herb layer composed mainly of species of forest habitats;
- Absence or low cover of ruderal or light-loving species;
- Low levels of soil compactness, absence of trampling and erosion (especially in the form of rills and gullies), high cover of litter and well developed Ah horizon.

Characteristic species:

Acer campestre, *Acer monspessulanum*, *Asparagus acutifolius*, *Brachypodium sylvaticum*, *Buxus sempervirens*, *Campanula trachelium*, *Carpinus orientalis*, *Cornus mas*, *Cotinus coggygria*, *Crepis fraasii*, *Fraxinus ornus*, *Hedera helix*, *Helleborus cyclophyllus*, *Hippocrepis emerus*, *Juniperus communis*, *Juniperus oxycedrus*, *Lathyrus laxiflorus*, *Ligustrum vulgare*, *Lithospermum purpureocaeruleum*, *Melica uniflora*, *Ostrya carpinifolia*, *Paliurus spina-christi*, *Phillyrea latifolia*, *Physospermum cornubiense*, *Pistacia terebinthus*, *Potentilla micrantha*, *Quercus cerris*, *Quercus coccifera*, *Quercus pubescens*, *Rosa arvensis*, *Ruscus aculeatus*, *Stipa bromoides*, *Syringa vulgaris*, *Viola alba*.

Classification

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

EUNIS:

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EuroVegChecklist (*alliances*):

Carpinion orientalis Horvat 1958

Berberido creticae-Prunion cocomiliae Bergmeier 1990

Syringo-Carpinion orientalis Jakucs (1959) 1960

Jasmino-Juniperion excelsae Didukh et al. in Didukh 1996

Fraxino orni-Ostryion Tomažič 1940

Oleo sylvestris-Quercion rotundifoliae Barbero, Quézel et Rivas-Mart. in Rivas-Mart. et al. 1986 nom. invers. propos.

Annex 1:

5110 Stable xerothermophilous formations with *Buxus sempervirens* on rock slopes (*Berberidion* pp)

Emerald:

F3.12 *Buxus sempervirens* thickets

F3.245 Eastern Mediterranean deciduous thickets

MAES-2:

Heathland and shrub

IUCN:

3.8 Mediterranean-type Shrubby Vegetation

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

Yes

Regions

Atlantic

Continental

Mediterranean

Justification

Submediterranean maquis appear in areas with mild climate that allow the occurrence of evergreen and deciduous species. That means that the climatic conditions during winter should allow evergreen vegetation to survive the cold period and on the other hand the summer drought should not be too pronounced so that deciduous species can grow.

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)
<i>Belgium</i>	Present	0.3 Km ²	Stable	Stable
<i>Bulgaria</i>	Present	unknown Km ²	Decreasing	Decreasing
<i>Croatia</i>	Present	unknown Km ²	Stable	Stable
<i>France</i>	France mainland: Present	312 Km ²	Increasing	Stable
<i>Greece</i>	Greece (mainland and other islands): Present	14 Km ²	Stable	Stable
<i>Italy</i>	Italy mainland: Present	128 Km ²	Decreasing	Decreasing
<i>Romania</i>	Present	2100 Km ²	Decreasing	Decreasing

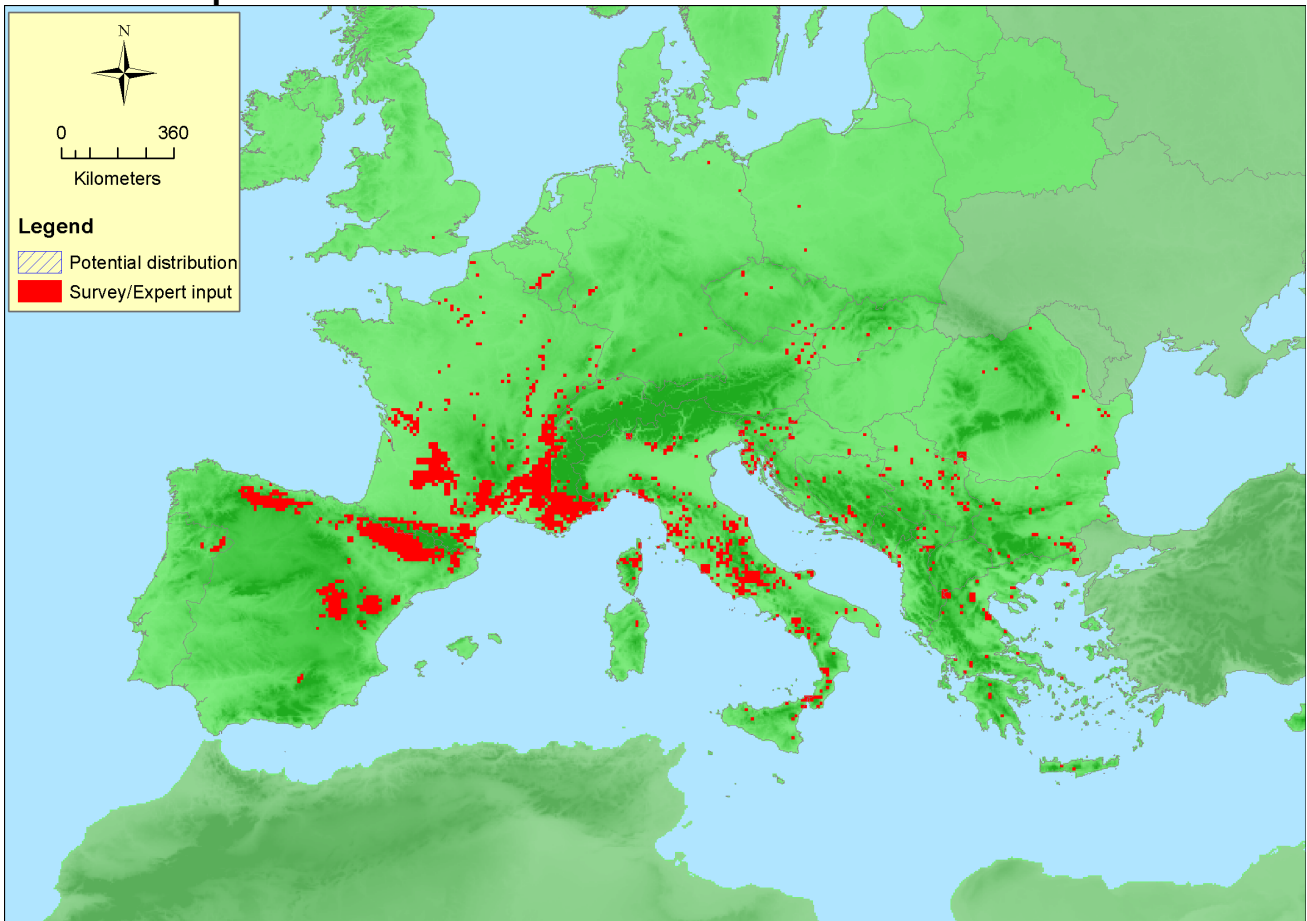
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Spain</i>	Spain mainland: Present	5.5 Km ²	Stable	Stable
<i>UK</i>	United Kingdom: Present	10 Km ²	Stable	Decreasing

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Bosnia and Herzegovina</i>	Present	80 Km ²	Increasing	Stable
<i>Former Yugoslavian Republic of Macedonia (FYROM)</i>	Present	145 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
<i>EU 28</i>	4053900 Km ²	1693	2569 Km ²	
<i>EU 28+</i>	4053900 Km ²	1810	2797 Km ²	

Distribution map



The map provides a good indication of the range, maybe spreading slightly too much northwards (for example in Bulgaria). Distribution may be overestimated in Spain and France, while data gaps exist for the Balkan and possibly for Romania, that reported a huge area. Data sources: Art17, NAT.

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

About 70% of the surface lies within the EU28 and 80% within EU28+. Additional area of this habitat can be found on the limit from Mediterranean to continental climate around the Mediterranean Sea.

Trends in quantity

The habitat is in the slight decrease of 10% in EU 28, the same is valid (8.3%) also for EU 28+. The data are rather unhomogeneous. An increase has been reported from France, Bosnia & Herzegovina and the Republic of Macedonia (cf. Čarni & Matevski 2015), a decrease in Bulgaria and Romania, and in other countries the habitat area is rather stable. According to this data we could estimate that the decrease is the most pronounced in the eastern part of the Balkan, but we can detect the stable situation or increase in the rest of the area.

- 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 can be found in the Atlantic region, as well as at the border between Mediterranean and continental regions.

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

No

Justification

The habitat is widely distributed in the EU28 and EU28+.

Trends in quality

On average, the habitat is slightly degraded in EU28 and slightly to moderate degraded in EU28+.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

There are several pressures on this habitat. As this habitat does not represent the potential vegetation in most cases, natural succession can lead to its replacement by forest. Overgrazing (especially by goats) can degrade the habitat significantly. Fire comprises also a possible threat for the habitat. In some cases the habitat has been destroyed because of the establishment of tree plantations and the construction of infrastructure (e.g. roads, railways). As the habitat develops in transitional climatic areas, climate change may negatively affect it in a very large area of its distribution.

List of pressures and threats

Agriculture

Intensive goat grazing

Sylviculture, forestry

Forest replanting

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Natural System modifications

Fire and fire suppression

Natural biotic and abiotic processes (without catastrophes)

Species composition change (succession)

Climate change

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

Conservation and management

Management of the habitat should aim at the prevention of natural succession of the habitat to forest. However, no urgent conservation measures are needed if site conditions prevent a fast development of thermophilous deciduous forests. Overgrazing and fires could destroy this habitat in a relatively short period of time and thus should be avoided.

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

Manage landscape features

Measures related to urban areas, industry, energy and transport

Specific management of traffic and energy transport systems

Conservation status

Annex I:

5110: ALP U1, ATL U1, CON FV, MED XX

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

This habitat can recover relatively fast, if the subsoil is not destroyed or removed and connectivity is not significantly damaged; in such cases it may recover in 10 years.

Effort required

10 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-10.0 %	unknown %	unknown %	unknown %
EU 28+	-8.3 %	unknown %	unknown %	unknown %

The most pronounced decrease has been detected in the eastern part of the Balkan Peninsula; in other parts of Europe no decrease in quantity has been recorded or the decrease is very small. On average the decline is about 10% for EU28, and slightly smaller for EU28+.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>500000 Km ²	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	Unknown
EU 28+	>500000 Km ²	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	Unknown

The habitat is widely distributed in EU28 and EU28+ with a large EOO and AOO, and it occurs at 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	18 %	slightly %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	18.7 %	slightly-moderate %	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 quantitative territorial data from 5 countries the overall trend is a relatively small decrease in quality.

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	LC	DD

Overall Category & Criteria			
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Least Concern	-	Least Concern	-

Confidence in the assessment

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

Assessors

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Date of assessment

09/09/2015

Date of review

22/02/2016

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