

E7.3 Mediterranean wooded pasture and meadow

Summary

This habitat includes open wooded landscapes created and maintained through combinations of traditional grazing, hay-making and tree management in the Mediterranean region. Variations in the local climate, topography and interventions, and the accumulation of long cultural traditions of use have resulted in a variety of highly distinctive types such as the dehesas of Spain and montados of Portugal. Typically the tree canopy is of evergreen *Quercus* and/or other broadleaved trees, variously with veterans, pollards or coppice, often with elements of sclerophyllous scrub beneath, and perennial and annual grasses and herbs in the field layer. In some traditions, there can even be small arable areas. The biggest threats are abandonment, forest encroachment and afforestations, less severe threats are fire suppression or in some places burning or conversion to arable land. Wood pastures and meadows) have a combined exploitation system and modern agriculture has started to dislocate these integrated practices as the habitat is not so productive in the short term. Conservation management should focus on the maintenance of traditional use or on reintroducing new ways of sustaining management. Old trees should be protected as they provide habitat for many rare epiphytic species. Less damaged examples have a high capacity to recover if grazing/mowing and tree management are reintroduced but, if untouched, there is no regeneration as areas turn slowly or quickly into forest and scrub.

Synthesis

The habitat is assessed as Near Threatened (NT), because the estimated decline in area is around 30% in the last 50 years, combined with a decrease in quality, and continuing threatening processes.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	A1, C/D1	Near Threatened	A1, C/D1

Sub-habitat types that may require further examination

Several regional and cultural varieties may be distinguished.

Habitat Type

Code and name

E7.3 Mediterranean wooded pasture and meadow



Valonia oak (*Quercus ithaburensis* subsp. *macrolepis*) wood-pasture in Xiromero,



Dehesa with sparse holm oaks (*Quercus rotundifolia*) and Black Iberian pigs,

Habitat description

These are open wooded landscapes created and maintained through traditional grazing, hay-making and woodland (tree) management. Variations in land use and disturbance regime as well as in their abiotic environment make wooded pastures and meadows very diverse and dynamic. Due to their semi-open and patchy character, as well as to their habitat continuity, they accommodate numerous species, many of which are rare and endangered. The species composition and structure are strongly influenced by the conscious management by the owners/herders. Traditional wooded pastures and wooded meadows express part of the local social and economic history and are therefore of considerable cultural significance. These habitats have a high nature and cultural value and considered as high nature value farmland areas. These are threatened by various factors, most of them related to land-use change.

The Mediterranean wooded pastures and meadows are typical in Spain, Portugal, Greece, South-Italy and South-France, and some parts of the Balkan. These have separated into old-growth wooded pasture; scrub and coppice wooded pasture. In the western Mediterranean the most extensive wooded pastures are the dehesas (Spain) and montados (Portugal), where scattered evergreen trees coexist with pastures and arable lands. These habitats are dominated by scattered evergreen oaks *Quercus ilex*, *Q. rotundifolia*, *Q. suber*, *Q. coccifera*, while in other mediterranean wooded pasture are featured by *Q. cerris*, *Q. frainetto*, *Q. ithaburensis*, *Q. petraea* and *Q. pubescens*, *Castanea sativa*, *Olea europea*, *Carpinus orientalis*, and *Fraxinus ornus*.

The shrub layer is characterized by evergreen sclerophyllous bush and scrub (maquis, garrigue, matorral, phrygana sensu lato) as *Retama sphaerocarpa*, *Cytisus multiflorus*, *Phillyrea angustifolia*, *Cistus ladanifer*, *Cistus creticus*, *Q. coccifera*, *Pistacia lentiscus*, *Lavandula stoechas* ssp., *Genista hirsuta*, *Daphne gnidium*, *Asparagus acutifolius*, *Fumana* sp., *Halimium* sp., *Helianthemum annua*, *Tuberaria* sp.. The herbaceous layer is usually composed of native annual and perennial vegetation (grasses - *Lolium*, *Bromus*, *Hordeum* etc., legumes - clovers, medicagos, serradela [*Ornithopus* sp.] etc., crucifers) which are used for grazing. Sometimes cultivated cereals (oat, barley, wheat, rye) are grown. Based on the management of the wooded component wooded pastures can be separated into old-growth with or without pollarding or coppice wood and shrub wooded pasture. The old-growth includes Sclerophyllous pastoral woodland, including the dehesa type, of *Quercetea ilicis* landscapes in Mediterranean Europe and Deciduous pastoral woodland of *Quercetea ilicis* landscapes in the Mediterranean. Coppice wood and shrub wooded pastures are mainly located in Spain, France, Italy and the Balkans. These types are the following: Grazed macchia/matorral of *Quercetea ilicis* landscapes in the Mediterranean; Rangeland mosaic with sclerophyllous or mixed scrub of the pseudomacchia type in southern and south-eastern Europe; Low evergreen open scrub-pastures of the garrigue type in *Quercetea ilicis* landscapes, interspersed with scattered sclerophyllous, coniferous and deciduous shade-giving trees and small groves, in the Mediterranean lowlands and lower mountains; Rangeland mosaic of montane grassland with sclerophyllous broadleaved trees and/or conifers, frequently lopped or pollarded, in the Mediterranean mountains.

Indicators of quality: High presence and abundance of old-growth, veteran trees; Regeneration of tall broad-canopy tree; Regular and deliberate management along with high nature and cultural value farmland guidelines; Forest regrowth, shrub encroachment, wood succession decrease the quality through the loss of the typical physiognomy followed by a decrease in small-scale habitat diversity; No land-use intensification (removal of the structural elements to enlarge the grassland; use of fertilizer and artificial seeding; too high livestock densities); No spread of non-native trees from planted stock or naturally invasive sources.

Characteristic species: *Quercus rotundifolia*, *Q. suber*, *Q. coccifera* s.l., *Q. ilex*, *Castanea sativa*, *Arbutus unedo*, *A. andrachne*, *Erica arborea*, *Pinus* sp., *Juniperus oxycedrus*, *Fraxinus ornus*, *Carpinus orientalis*,

Acer sempervirens, *Cupressus sempervirens*, *Pistacia lentiscus*, *Ceratonia siliqua*, *Olea europea*, *Phillyrea latifolia*, *Pyrus spinosa*, *Retama sphaerocarpa*, *Cytisus multiflorus*, *Cistus ladanifer*, *C. salviaefolius* and *C. monspeliensis*, *C. crispus*, *Phillyrea angustifolia*, *Lavandula ssp.*, *Genista hirsuta*, *Daphne gnidium*, *Asparagus acutifolius*, *Sarcopoterium spinosum*, *Prunus dulcis*, *Narcissus cantabricus*, *Ornithogalum orthophyllum subsp. baeticum*, *Romulea ramiflora*, *Fritillaria lusitanica*, *Evax pymaea*, *Tolpis barbata*, etc.

Classification

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

EUNIS:

X.09 Pasture woods (with a tree layer overlaying pasture)

EuroVegChecklist (alliances):

Wood pastures have been rarely described as phytosociological units. This habitat has affinities with alliances from the classes *Quercus ilicis*, *Quercetalia calliprini*, *Quercetalia calliprini*, *Quercetalia pubescentis* and *Pino-Juniperetalia*

Annex 1:

6310 Dehesas with evergreen *Quercus* spp.

Other wooded pasture and wooded meadow types may be partly matching with the following Natura 2000 habitat types, or it may not be represented at all (Bergmeier et al. 2010): 5230 Arborescent matorral with *Laurus nobilis*, 9240 *Quercus faginea* and *Quercus canariensis* Iberian woods, 9260 *Castanea sativa* woods, 9290 *Cupressus* forests (Acero-Cupression), 9310 Aegean *Quercus brachyphylla* forests, 9320 *Olea* and *Ceratonia* forests, 9330 *Quercus suber* forests, 9340 *Quercus ilex* and *Quercus rotundifolia* forests, 9350 *Quercus macrolepis* forests, 9390 Scrub & low forest vegetation with *Quercus alnifolia*, 93A0 Woodlands with *Quercus infectoria* (Anagyro foetidae-Quercetum infectoriae), 9540 Mediterranean pine forests with endemic Mesogean pines, 9590 *Cedrus brevifolia* forests (Cedrosetum brevifoliae).

Emerald:

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MAES:

Woodland & Forest

Grassland

IUCN:

2. Savanna

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

Yes

Regions

Mediterranean

Justification

This type of wood-pastures are restricted to the Mediterranean (by definition). Some types are typical examples of the traditionally managed Mediterranean landscape.

Geographic occurrence and trends

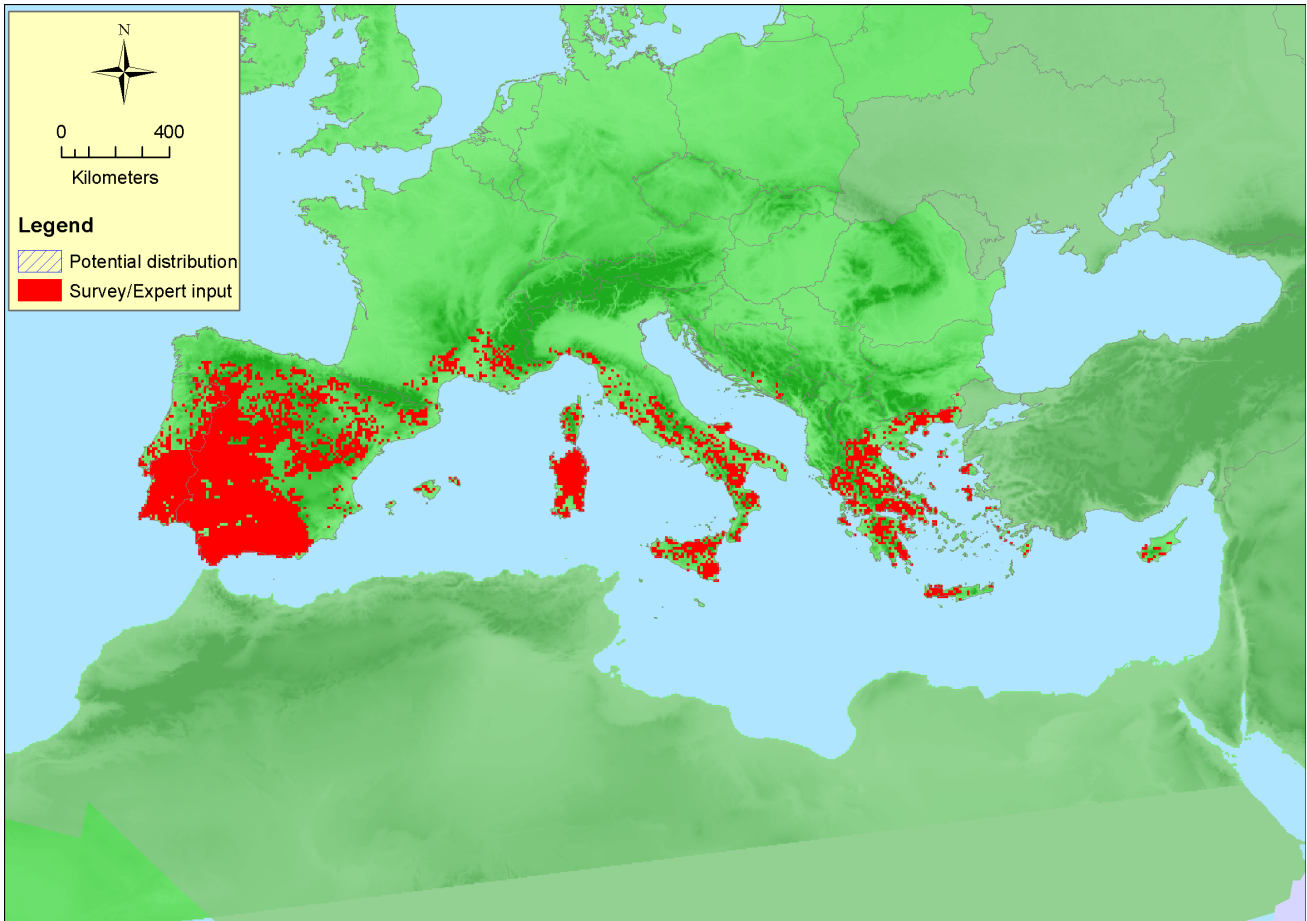
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Croatia</i>	Present	unknown Km ²	Decreasing	Decreasing
<i>Italy</i>	Italy mainland: Present Sardinia: Present	1126 Km ²	Decreasing	Decreasing
<i>Portugal</i>	Madeira: Present Portugal mainland: Present	10700 Km ²	Decreasing	Decreasing
<i>Spain</i>	Canary Islands: Present Spain mainland: Present	15491 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>Bosnia and Herzegovina</i>	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
<i>EU 28</i>	2820900 Km ²	4712	26717 Km ²	+ Greece ca. 10 000km ² ??
<i>EU 28+</i>	2820900 Km ²	4724	26717 Km ²	+ Greece ca. 10 000km ² ??

Distribution map



Map is based on 'dehesas' and data from the European project AGFORWARD (for wooded pastures), and is likely to be rather complete, except for non-EU countries. Data sources: Art17, NAT, AGFOR.

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

Probably more than 50%. There are extensive stands in Northern Africa and Turkey.

Trends in quantity

The calculated decrease is about 11% for EU28. A decrease in the distribution area has been observed by all territorial experts, however, quantitative past data are rarely available. The assessor estimates a decrease of ca. 30% over the last 50 years. Above 50% decrease is expected in most countries in the upcoming decades as abandonment processes are accelerating.

- 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 is widespread in the Mediterranean region.

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

No

Justification

The habitat can occur in large stands.

Trends in quality

Extent of degradation: 16%, Severity of degradation: 25%, but both were calculated from data of two

countries only. Complete past data are not available, but a decline in quality has been observed by all territorial experts.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The biggest threats are abandonment, forest encroachment and afforestations, less severe threats are fire suppression or in some places burning or conversion to arable land.

List of pressures and threats

Agriculture

Grassland removal for arable land

Abandonment of pastoral systems, lack of grazing

Sylviculture, forestry

Forest planting on open ground (native trees)

Artificial planting on open ground (non-native trees)

Natural System modifications

Burning down

Suppression of natural fires

Natural biotic and abiotic processes (without catastrophes)

Biocenotic evolution, succession

Conservation and management

Wood pastures (and wood meadows) have a combined exploitation system. Modern agriculture has started to erode these habitats as they are not so productive in the short term. Conservation management should focus on the maintenance of traditional use or on reintroducing new ways of sustaining management. Old trees should be protected as they provide habitat for many rare species.

List of conservation and management needs

Measures related to agriculture and open habitats

Maintaining grasslands and other open habitats

Conservation status

Annex I:

6310: MED U2

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

The habitat has a high capacity to recover if grazing and human (tree) management is reintroduced. If untouched, there is no regeneration as areas turn slowly or quickly into forest/shrubland.

Effort required

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

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-10/15 %	unknown %	unknown %	unknown %
EU 28+	-10/15 %	unknown %	unknown %	unknown %

Only three countries report quantitative figures for decline in area (Italy, Portugal, Bosnia & Herzegovina), and these figures range between 10-15%. It is not clear whether this is also the average European trends, as important data from Spain and Greece is missing. Based on expert knowledge the trend is estimated to be larger (>30% for A1, and >50% for A2a).

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km ²	No	Yes	no	>50	No	Yes	no	
EU 28+	>50000 Km ²	No	Yes	no	>50	No	Yes	no	

EOO, AOO and number of locations are much larger than the thresholds for 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	16 %	25 %	unknown %	unknown %	unknown %	unknown %
EU 28+	16 %	25 %	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%

C/D1 values were calculated from data of two countries only. Complete past data are not available, but a decline in quality has been observed by all territorial experts. It doesn't seem to be extreme large, however.

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
Near Threatened	A1, C/D1	Near Threatened	A1, C/D1

Confidence in the assessment

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

Assessors

Zs. Molnár

Contributors

Habitat description: Zs. Molnár & A. Varga

Territorial experts: E. Agrillo, F. Attorre, S. Bagella, J. Capelo, L. Casella, D. Espírito-Santo, J. Loidi, Z. Škvorc, V. Stupar, D. Viciani

Working Group Grasslands: I. Biurrun, J. Dengler, D. Gigante, Z. Molnar, D. Paternoster, J. Rodwell, J. Schaminée, R. Tzonev

Reviewers

J. Janssen & E. Bergmeier

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References

Bélaïr C., Ichikawa K., Wong B.Y. L., and Mulongoy K.J. (Eds.) (2010). Sustainable use of biological diversity in socio-ecological production landscapes. Background to the 'Satoyama Initiative for the benefit of biodiversity and human well-being.' Secretariat of the Convention on Biological Diversity, Montreal. Technical Series no. 52, pp.184.

Bergmeier, E., Petermann, J., & Schröder, E. (2010). Geobotanical survey of wood-pasture habitats in Europe: diversity, threats and conservation. *Biodiversity and Conservation*, 19, 2995-3014.

Bergmeier, E., Roellig, M. (2014). Diversity, threats and conservation of European wood-pastures. In: Hartel, T., Plieninger, T. (Eds.). *European wood-pastures in transition: A social-ecological approach*.

Routledge, London and New York, 19-38. pp.

Garbarino, M., & Bergmeier, E. (2014). Plant and vegetation diversity in European wood-pastures. In: Hartel, T., Plieninger, T. (Eds.). *European wood-pastures in transition: A social-ecological approach*. Routledge, London and New York 113-125. pp.

Joffre, R et al. (1999). The dehesa system of southern Spain and Portugal as a natural ecosystem mimic. *Agroforestry Systems* 45: 57-79.

Hartel, T., Plieninger, T., (2014). *European wood-pastures in transition: A social-ecological approach*. Routledge, London and New York. 322 pp.

Rois-Diaz, M., Mosquera-Losoda, M.R. & Rigueiro-Rodríguez, A. (2006). Biodiversity Indicators on Silvopastoralism across Europe. EFI Technical Report 21, European Forest Institute.

Rodríguez, A. R., McAdam, J., & Mosquera-Losada, M. R. (Eds.). (2008). *Agroforestry in Europe: current status and future prospects* (Vol. 6). Springer Science & Business Media. pp. 450.

Díaz & Pulido 2009: xx.

Bagella et al. (2013, 2014a); Rossetti & Bagella (2014); ISPRA, 2013; N2000 Sites Management Plans; <http://cdr.eionet.europa.eu/it/eu/art17/envupyjhw>; ftp://ftp.dpn.minambiente.it/Natura2000/TrasmissioneCE_2014/; Biondi et al. (2009, 2012); Blasi (2010); Blasi et al. (2014); CLC 2006; Carta Natura (ISPRA, 2009-2014); Genovesi et al. (2014)

Stefanović et al. (1983): xx.

Stupar et al. (2015): xx.