

B1.6b Mediterranean and Black Sea coastal dune scrub

Summary

This is scrub and thicket vegetation dominated by a diversity of low to tall shrubs and small trees found on stabilized or semi-stabilized dune sands along the Black Sea and Mediterranean coasts and the Atlantic round to mid-Portugal. They form a part of the coastal vegetation zonation, mainly related to an environmental sea-inland gradient and are often found in mosaics with dune grassland and woodland, with a ground flora comprising elements of both. Major threats are urbanization, land clearance for agriculture and afforestation, but also intense trampling, fires, invasion of exotic species invasion and off-road vehicles. Restoration should involve planting of regionally appropriate shrubs.

Synthesis

The habitat type is assessed as Vulnerable under Criterion A3 both at the EU28 and the EU28+ levels, as the habitat has experienced a substantial historic reduction (since ca. 1750) of 55%.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	A3	Vulnerable	A3

Sub-habitat types that may require further examination

No sub-habitats have been distinguished for further analysis.

Habitat Type

Code and name

B1.6b Mediterranean and Black Sea coastal dune scrub



Fixed dunes with *Juniperus* species in Portugal (Photo: Jorge Capelo).



Mediterranean scrub in the northern part of the Lazio coast in Italy (Photo: Silvia Del Vecchio).

Habitat description

Scrub and thicket on stabilized or semi-stabilized dune systems of the Mediterranean, thermo-Atlantic (southern Portugal) and Black Sea coasts. The dominant shrubs and herbaceous species are diverse and may vary from site to site. These scrub and thickets often constitute the transition between grey dunes and coastal woodlands. In the Mediterranean region the most widespread coastal scrub and thickets are dominated by *Juniper* species: *Juniperus phoenicea* and *Juniperus oxycedrus* (subsp. *macrocarpa*, subsp.

trastagana). In the warmest areas of the thermo-Mediterranean climate, various sclerophyllous, lauriphyllous or drought-deciduous scrub and thickets are found, from the classes *Ononido-Rosmarinetea*, *Quercetea ilicis*, *Cisto-Lavanduletea*, *Retametea raetami*, *Cisto-Micromerietea*. These communities dominated by shrubs and thickets and vegetation cover could be very close but in some cases it could be also relatively open. On open spots, many herbaceous species from the surrounding dune grasslands are common between the shrubs. Along the Black Sea coast several deciduous shrubs may dominate, such as *Paliurus spina-christii*, *Osyris alba* and *Carpinus orientalis*, but also some small evergreen species, such as *Ruscus aculeatus* and *Jasminum fruticans* may participate in the scrub or form very large stands on the dunes. Dunes with communities of *Hippophae rhamnoides*, which are typical for north-western Europe, are restricted to northern Italy in the Mediterranean and to the Danube Delta in the Black Sea region. Some anciently cultivated plants, like *Ziziphus jujuba*, represent semi-natural shrub plantations in the dunes of the Southern Black Sea coast. Invasive species, like *Eucalyptus* sp., *Amorpha fruticosa*, *Eleagnos angustifolia* may expand with important impacts on native vegetation.

Indicators of good quality:

In good conditions these scrubs and thickets are dominated by native species. They could be subjected to the natural succession (expanding of forest vegetation), often related to stabilization of the dune systems.

The following characteristics may be considered as indicators of good quality:

- High species richness and prevalence of native shrubs and herbaceous species
- Absence of communities dominated by invasive species
- Absence of forest plantations and forest expansion
- Long-term stability of the relative proportions of scrub and grasslands in the mosaics of the dune landscape

Characteristic species:

Flora: *Anthyllis hermaniae*, *Artemisia campestris*, *Asparagus acutifolius*, *Asparagus aphyllus*, *Bupleurum semicompositum*, *Calamagrostis epigejos*, *Carpinus orientalis*, *Catapodium rigidum*, *Centaurea pumilio*, *Cistus creticus*, *Cistus laurifolius*, *Cistus salviifolius*, *Clematis flammula*, *Corema album*, *Coridothymus capitatus*, *Dactylis glomerata*, *Daphne sericea*, *Erica manipuliflora*, *Erica multiflora*, *Erodium laciniatum*, *Ephedra fragilis*, *Jasminum fruticans*, *Juniperus phoenicea* subsp. *turbinata*, *Juniperus oxycedrus* subsp. *macrocarpa*, *Juniperus navicularis*, *Hippophae rhamnoides* subsp. *caucasica*, *Halimium halimifolium*, *Helichrysum conglobatum*, *Helichrysum italicum*, *Helichrysum stoechas*, *Ephedra campylopoda*, *Ephedra distachya*, *Lagurus ovatus*, *Lonicera implexa*, *Limonium graecum*, *Limonium hyssopifolium*, *Limonium ocymifolium*, *Limonium echioides*, *Lycium schweinfurthii*, *Melica minuta*, *Myrtus communis*, *Osyris alba*, *Paliurus spina-christii*, *Periploca graeca*, *Pistacia lentiscus*, *Phagnalon graecum*, *Phillyrea angustifolia*, *Prasium majus*, *Pseudorhiza pumila*, *Quercus coccifera*, *Rhamnus alaternus*, *Rhamnus lycioides* ssp. *oleoides*, *Reichardia picroides*, *Rubia peregrina*, *Rubia tenuifolia*, *Ruscus aculeatus*, *Silene colorata*, *Smilax aspera*, *Teucrium fruticans*, *Teucrium capitatum*, *Trachynia distachya*, *Tuberaria guttata*, *Valantia hispida*, *Vulpia fasciculata*.

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:

Helichryson picardii (Rivas-Mart., Costa et Izco in Rivas-Mart. et al. 1990) Rivas-Mart., Fernández-González

et Loidi 1999

Sileno thymifoliae-Jurineion kilaeae Géhu et Uslu ex Mucina in Mucina et al. 2012

Cynodonto-Teucrium polii Korzhenevsky et Klyukin 1990

Oleo-Ceratonion siliquae Br.-Bl. ex Guinochet et Drouineau 1944

Juniperion turbinatae Rivas-Mart. 1975 corr. 1987

Quercion fruticosae Rothmaler 1954

Rubo longifoliae-Coremation albi Rivas-Mart. in Rivas-Mart. et al. 1980

Rhamno graeci-Juniperion lyciae Costa et al. 1984

Coremation albi Rothmaler 1943

Cistion laurifolii Rivas Goday in Rivas Goday et al. 1956

Teucrium mari (Gamisans et Muracciole 1984) Biondi et Mossa 1992

Carpinion orientalis Horvat 1958

Annex I:

2160 Dunes with *Hippophae rhamnoides* (marginal, only in Danube Delta)

2250 Coastal dunes with *Juniperus* spp

2260 Cisto-Lavenduletalia dune sclerophyllous scrubs

Emerald:

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MAES-2:

Coastal

IUCN:

3.8. Mediterranean-type Shrubby Vegetation

13.3. Coastal Sand Dunes

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

Yes

Regions

Black Sea

Mediterranean

Justification

Some outstanding examples of typical characteristics of the Mediterranean biogeographic region could be highlighted such as Montalto di Castro in the Lazio Region (Italy), the Sardinian island in Italy and the Tróia Peninsula in Portugal. As far as the Black Sea is concerned, Kamchia Sands and Ropotamo in Bulgaria could be mentioned.

Geographic occurrence and trends

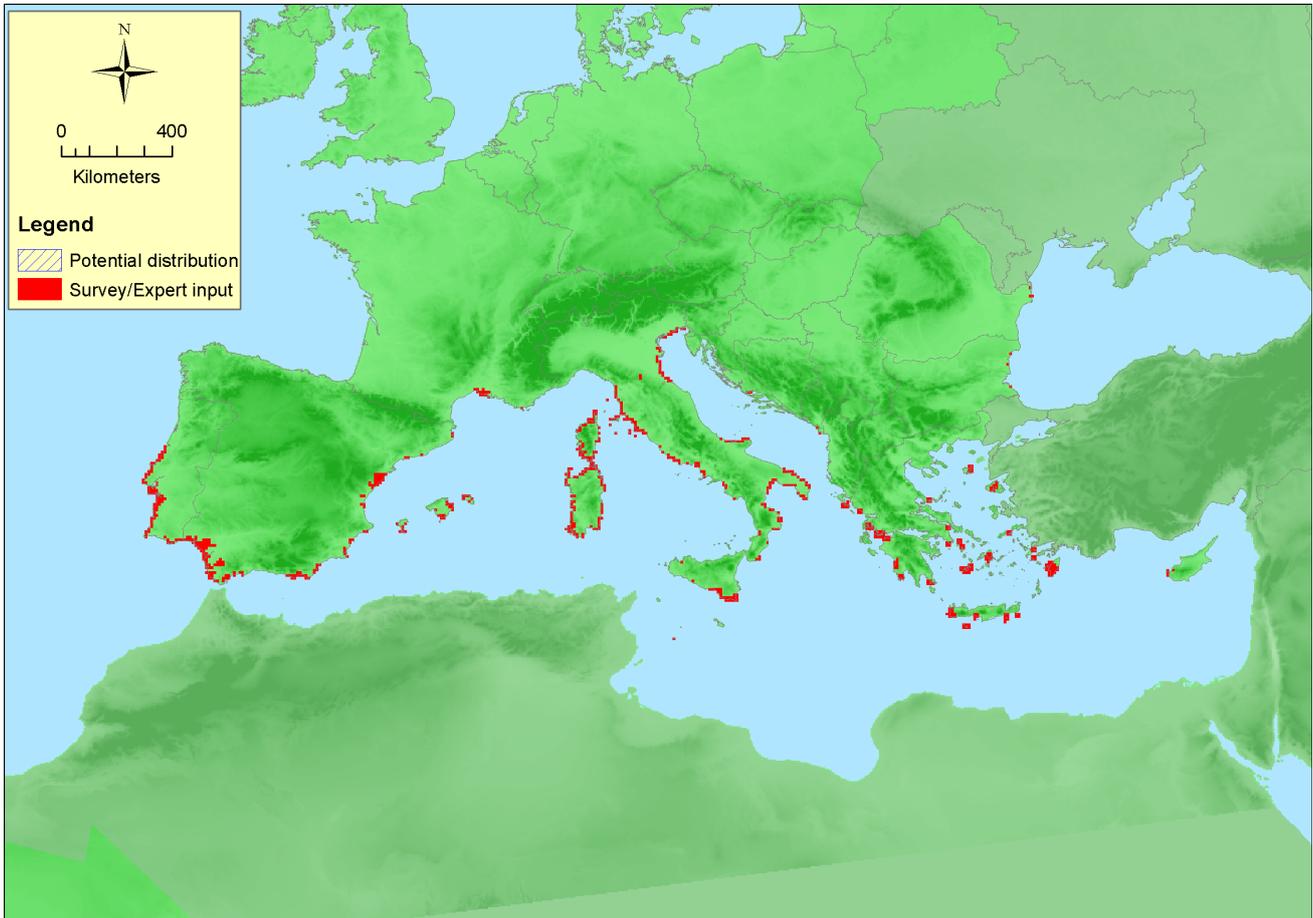
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Bulgaria</i>	Present	Unknown Km ²	Decreasing	Decreasing
<i>Croatia</i>	Uncertain	Unknown Km ²	Unknown	Unknown
<i>Cyprus</i>	Present	0.3 Km ²	Unknown	Stable
<i>France</i>	Corsica: Present France mainland: Present	42 Km ²	Decreasing	Unknown
<i>Greece</i>	Crete: Present East Aegean: Present Greece (mainland and other islands): Present	23 Km ²	Increasing	Decreasing
<i>Italy</i>	Italy mainland: Present Sardinia: Present Sicily: Present	205 Km ²	Decreasing	Decreasing
<i>Portugal</i>	Madeira: Uncertain Portugal Azores: Uncertain Portugal mainland: Present Savage Islands: Uncertain	14 Km ²	Decreasing	Decreasing
<i>Romania</i>	Present	2 Km ²	Increasing	Decreasing
<i>Spain</i>	Balearic Islands: Present Canary Islands: Present Spain mainland: Present	33 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)
<i>Albania</i>	Present	Unknown Km ²	Unknown	Unknown
<i>Montenegro</i>	Uncertain	Unknown Km ²	Unknown	Unknown

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>	3365550 Km ²	963	320 Km ²	
<i>EU 28+</i>	3365550 Km ²	967	320 Km ²	

Distribution map



The map is rather complete, with maybe some gaps in Albania and Croatia. Data sources: Art17, EVA.

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

About 70% of the habitat type is within the EU28. Outside the EU28 the habitat occurs in the eastern and southern Mediterranean coasts as well (a.o. Northern Africa).

Trends in quantity

The average past trend in quantity (over the past 50 years) is a decline of 15.6%. The largest reduction in extent affected France, Greece, Italy and Portugal (from 15 to 50%). The habitat has been subjected to intense human pressure: urbanization, land clearing for agriculture and woody plantations, but also intense trampling, fires, transit of off-road vehicles and exotic species invasion. Since 50-250 years ago about 54% of the potential area has been lost in Italy and Spain. Historical trends have not been indicated for other countries. This negative trend is expected to continue in the near future with a predicted average decrease of 10.1%.

The recent, future and historical trends have been calculated on the basis of the available territorial data (km²). These data are referred to different years, but we assume that the habitat area is the same in the year of reference as in the year where the data was provided.

- 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
Both EOO and AOO are above the thresholds.

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

No

Justification

The habitat occurs in large stands.

Trends in quality

The damage in quality affect important areas especially in Bulgaria and Portugal. In other countries the degraded area is lower, but the severity of degradation is even so moderate-severe. The average degraded area in the last 50 years is about 18% with a severity of about 43%, as has been calculated from territorial data in a 1-5 scale (from stable-slight to severe). The trends in quality have been calculated on the basis of the available territorial data (km²). These data are referred to different years, but we assume that the habitat area is the same in the year of reference as in the year where the data was provided.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The habitat is threatened in both the Mediterranean and the Black Sea biogeographic regions. In the last 50 years the composition and structure of this typical coastal dune habitat have been modified with a moderate reduction in extent and quality of the habitat. However, note that the historical decline of the habitat is more than 50%. In particular, the habitat has been subjected to intense human pressure: urbanization, land clearing for agriculture and woody plantations (e.i. *Pinus* and *Eucalyptus* afforestations), but also intense trampling, fires, transit of off-road vehicles and alien species invasion. In the Black Sea region the invasion of alien species is an important threat (*Eucalyptus* spp., *Amorpha fruticosa*, *Robinia pseudacacia*, *Eleagnus angustifolia*, *Yucca gloriosa*). Moreover, coastal erosion with the increasing exposure to sea spray and modifying dune water dynamics also have a negative impact on this habitat.

List of pressures and threats

Agriculture

Cultivation

Sylviculture, forestry

Forest and Plantation management & use

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Invasive, other problematic species and genes

Invasive non-native species

Natural System modifications

Burning down

Conservation and management

Legal protection of habitats and species is needed. In particular, a general legislation to prevent construction of new infrastructures and land clearing at expense of this habitat should be shared by all the EU countries. Moreover, establishing new protected areas/sites and restoring strongly degraded coastal areas are also important. In these cases, specific single species (*Juniperus* sp.) or species group (*Juniperus*

spp.) management measures could be highlighted.

List of conservation and management needs

Measures related to forests and wooded habitats

Restoring/Improving forest habitats

Measures related to wetland, freshwater and coastal habitats

Restoring coastal areas

Measures related to spatial planning

Establish protected areas/sites

Legal protection of habitats and species

Measures related to hunting, taking and fishing and species management

Specific single species or species group management measures

Conservation status

Annex I:

2160: BLS U1

2250: CON U2, MED U2

2260: CON U2, MED U2

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

As the habitat is dominated by woody species such as *Juniperus* spp., special conservation measures are suggested. In particular, in heavily degraded areas planting *Juniperus* spp. using regionally collected plant material could be mentioned.

Effort required

20 years
Through intervention

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-16 %	-10 %	Unknown %	-55 %
EU 28+	-16 %	-10 %	Unknown %	-55 %

The recent, future and historical trends have been calculated on the basis of the available territorial data (km²). These data are referred to different years, but it is assumed in this assessment that the habitat area is the same in the year of reference as in the year where the data was provided. The percentage of area declining in extent over the past 50 years (Criterion A1) is about 15.6%. The estimated future reduction in extent for the next 50 years (Criterion A2a) is about 10%. This habitat has suffered historically a much larger reduction in quantity due to human pressure, especially in Italy and Spain. The average historical reduction in quantity (since 0-250 years ago) was estimated of about 54.6% (Criterion A3). This value was based on data from only two countries (Spain, Italy), but it covered about 75% of the reported area. Thus,

the habitat is assessed as Vulnerable under Criterion A3.

Criterion B: Restricted geographic distribution

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

Both the extent of occurrence (EOO) and the area of occupancy (AOO) are above the thresholds. The subcriteria B1a/B2a are met because there is a continuing serious decline in biotic (ii) and abiotic (iii) quality. It is likely that a threatening event will cause continuing declines within the next 20 years. The number of locations is probably very large. Thus, this habitat is assessed as Least Concern under 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	19 %	44 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	19 %	44 %	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%

The trends in quality have been calculated on the basis of the available territorial data. These data are referred to different years, but it is assumed in this assessment that the habitat area is the same in the year of reference as in the year where the data was provided. There is only data available for Criterion C/D1. Based on the territorial data provided, the reduction in quality over the last 50 years affected about 19% of the current area, with a relative severity of degradation of 43%. The reduction was in both biotic and abiotic quality. Thus, this habitat is assessed as Least Concern under Criterion C/D.

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. Thus, this habitat is 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	LC	DD	VU	LC	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	LC	DD	VU	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
Vulnerable	A3	Vulnerable	A3

Confidence in the assessment

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

Assessors

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Contributors

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Reviewers

Nieto, A.

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Date of review

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