

B1.7b Black Sea broad-leaved coastal dune woodland

Summary

This habitat comprises natural or semi-natural tree and tree-shrub communities distributed along dunes of the Black Sea coast, very limited in Bulgaria, more extensive in Romania where it includes the alluvial forests in the maritime part of Danube’s Delta. These woods can have typical xerothermic features, the trees being small and strongly branched and the species composition of the herbaceous layer is diverse while in other areas low dunes have vegetation like alluvial forest. They are threatened by erosion and degradation, fires, urban development, tourist pressure, over-grazing and afforestation with conifers species. The bulk of the surviving habitat is within well-protected areas and the remainder is in need of strict protection and some restoration activities, like the removal of invasive plants and artificial forest plantations.

Synthesis

The habitat type is assessed as Endangered both at the EU28 and the EU28+ level, as the habitat has a very small range ($EOO \leq 20,000 \text{ km}^2$, criterion B1) and area ($AOO < 20$, criterion B2) in combination with a continuing decline in spatial extent of the habitat. Due to touristic development, invasive plants and artificial forest plantations, the habitat is likely to experience a further decline in quantity and/or quality within the next 20 years.

| Overall Category & Criteria | | | |
|-----------------------------|-------------------|-------------------|-------------------|
| EU 28 | | EU 28+ | |
| Red List Category | Red List Criteria | Red List Category | Red List Criteria |
| Endangered | B1, B2 | Endangered | B1, B2 |

Sub-habitat types that may require further examination

No sub-habitats need to be distinguished.

Habitat Type

Code and name

B1.7b Black Sea broad-leaved coastal dune woodland



Ropotamo Reserve, southern Black Sea coast in Bulgaria (Photo: Rossen Tzonev).



Letea forest in the Danube Delta Biosphere Reserve with *Quercus pedunculiflora*, *Quercus robur*, *Fraxinus pallisae*, *Fraxinus angustifolia*, *Populus alba*, *Populus tremula* and *Ulmus minor*, growing in long, narrow strips (called "hasmac") between sand dunes with psammophilous vegetation (Photo: Marius Fagaras).

Habitat description

Natural or semi-natural tree and tree-shrub communities distributed along the Black Sea coast. The habitat has a very limited distribution in Bulgaria, where it is restricted mainly to two sites with the biggest dune systems: the Kamchia Reserve and the mouth of the Ropotamo River. Besides it is known from the Baltata Reserve. In Romania dunes with alluvial forest vegetation and many lianas are found in the maritime part of Danube's Delta. The habitat was completely destroyed in the places of today's Sunny Beach resort in Bulgaria. In the South-Western Black Sea coast (Ropotamo River) these woodlands occupy mostly the eastern, steep slopes on the biggest dune in Bulgaria, which is about 50 m high. The woods on the dunes have typical xerothermic features, the trees being small and strongly branched. These coenoses are dominated by *Carpinus orientalis*, *Fraxinus ornus*, *Quercus cerris*, *Q. frainetto* and *Q. pubescens*. The shrub layer is well developed and dominated mostly by *Ruscus aculeatus*, but also *Cotinus coggygria*, *Cornus mas* and the liana species *Asparagus acutifolius* participate in the floristic structure. The species composition of the herbaceous layer is diverse. In other areas covered by wooded dunes in Bulgaria and Romania the dunes are low (1.5-2 m) and partly covered by alluvial forest vegetation. Tree species typical for such forests are *Acer campestre*, *Fraxinus oxycarpa*, *Quercus robur*. Climbing species are common, like *Hedera helix*, *Periploca graeca* and *Smilax excelsa*. In good conditions these woodlands are dominated by native species. They are threatened by erosion and degradation. Other threats are fires, urban development, tourist pressure, and forestation with plantations of coniferous species (mostly *Pinus pinaster*). A main threat is the invasion of alien species, like *Amorpha fruticosa*, *Robinia pseudacacia* and *Eleagnus angustifolia*.

Indicators of quality:

- High species richness
- Prevalence of native forest, shrub and herbaceous species
- Absence of invasive species
- Natural structure (absence of forest plantations and forest regeneration)
- Long-term existence of mosaics of woodland, shrubland and psammophytic grasslands on the dune systems

Characteristic species:

Flora, trees: *Carpinus orientalis*, *Fraxinus ornus*, *F. oxycarpa*, *Quercus cerris*, *Q. frainetto*, *Q. pubescens*, *Q. robur*.

Flora, shrub & herb layer, climbers: *Asparagus acutifolius*, *Calystegia silvatica*, *Cotinus coggygria*, *Cornus mas*, *Dactylis glomerata*, *Hedera helix*, *Periploca graeca*, *Ruscus aculeatus*, *Smilax excelsa*

Classification

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

EUNIS:

B1.7 Coastal dune woods

EuroVegChecklist:

Carpinion orientalis Horvat 1958

Alno-Quercion roboris Horvat 1950

Annex 1:

2180 Wooded dunes of the Atlantic, Continental and Boreal region

Emerald:

B1.7 Coastal dune woods

MAES:

Coastal

IUCN ecosystem relationships:

1.4. Temperate Forests

13.3. Coastal Sand Dunes

EFT:

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

Yes

Regions

Black Sea

Justification

The habitat is outstanding example for Black Sea Biogeographic region. These woodlands are rare and with very restricted distribution. Only in Danube Delta they cover larger areas.

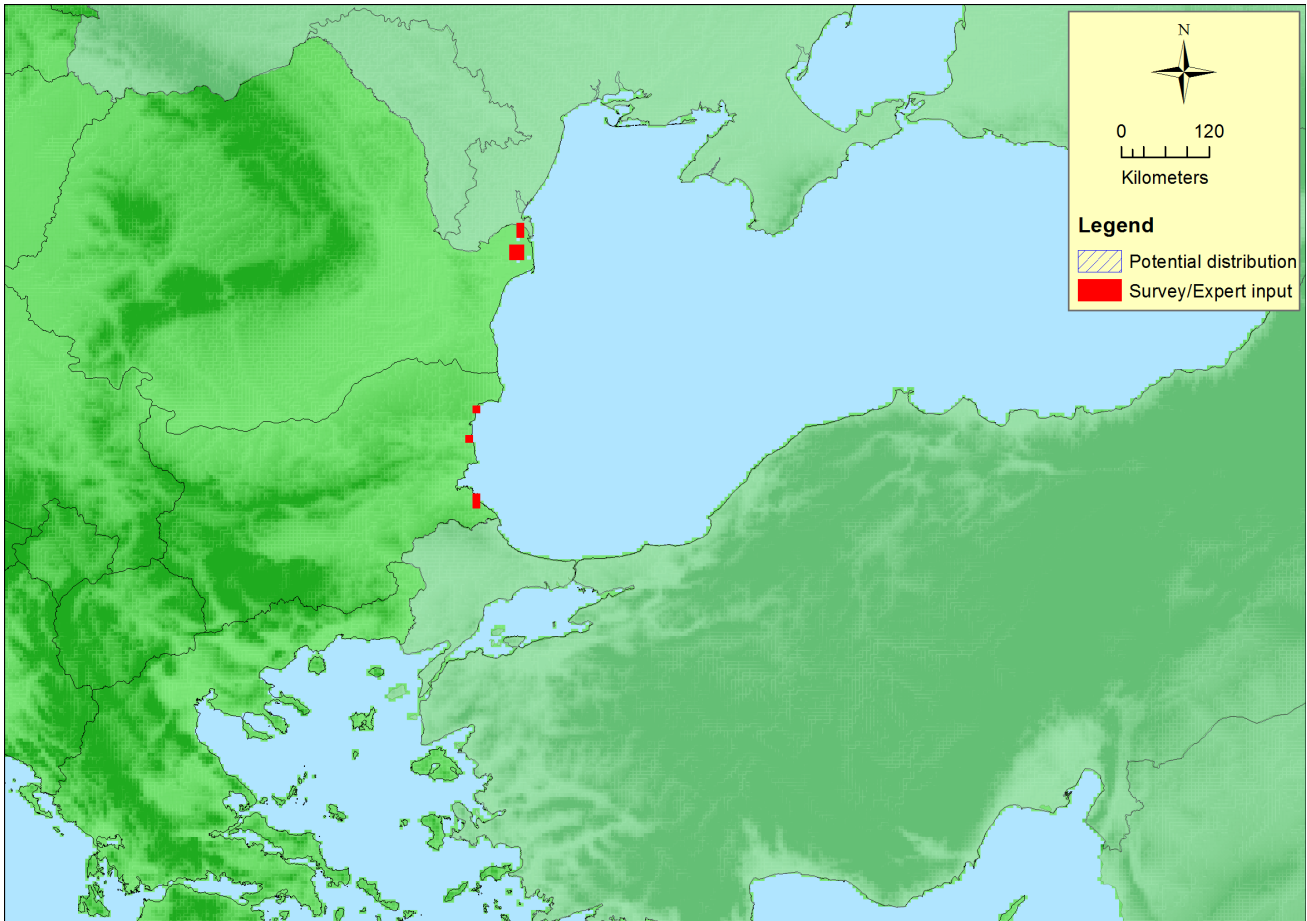
Geographic occurrence and trends

| 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 | 1.15 Km ² | Decreasing | Decreasing |
| <i>Romania</i> | Present | 25 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 | 16350 Km ² | 10 | 26 Km ² | |
| EU 28+ | 16350 Km ² | 10 | 26 Km ² | |

Distribution map



Map rather complete, but maybe data gaps Romania and the southernmost point in Bulgaria is maybe incorrect. Data sources: Art17, Exp.

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

Probably more than 50%. The area of occupancy of the habitat in other Black Sea countries as Turkey, Ukraine, Georgia and Russia is not known. The habitat needs a wide coastal zone bordering with plains. For example, the Turkish coast is mostly unsuitable with mountains and rocky coastline.

Trends in quantity

The decrease is about - 5.2% for EU over about the last 50 years. After 1960 the habitat decreased more than 10% in Bulgaria because of the great touristic development and many new resorts along the coast which impacted the dune systems. The decline in Romania was less - not more than 5%. Now the habitat is more or less stable in Romania because the biggest part is included in large protected areas - mostly in Danube Delta Biosphere Reserve. The decrease is continuing slightly in Bulgaria because of the touristic pressure and forestry practicies. The future trend is probably a slight decrease in Bulgaria and more or less stable in Romania.

- Average current trend in quantity (extent)
 EU 28: Decreasing
 EU 28+: Decreasing
- Does the habitat type have a small natural range following regression?
 Yes
Justification
 The EOO is very small and the area is decreasing.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
 Yes

Justification

The habitat has a small area because is located only in narrow stripe along the Black Sea coast and it is dependent on the local geomorphological structures and climatic conditions.

Trends in quality

Extent of degradation: - 8%. Severity of degradation: 45%.The biggest part of habitat area in Bulgaria (about 70%) has been degraded because of the touristic overexploitation, forestry activities, invasive plants, etc. The expectation is that the degradation will continue in Bulgaria mostly because of touristic pressure. The degradation in Romania is slight, mostly because the overgrazing in Danube Delta. The future trends in the quality in Romania is stable or slight decrease because of overgrazing especially from horses.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

The biggest threats are the forestry practicies, including replanting with artifitial forest plantations, touristic development (new urbanised areas), invasive species (mostly trees), fires and ruderalisation because of the overgrazing especially in Danube Delta.

List of pressures and threats

Sylviculture, forestry

Forest and Plantation management & use

Forest replanting

Grazing in forests/ woodland

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Continuous urbanisation

Discontinuous urbanisation

Invasive, other problematic species and genes

Invasive non-native species

Geological events, natural catastrophes

Fire (natural)

Conservation and management

The most important is a strict protection of preserved dune woodlands. Further projects for the restoration of some dune woodlands areas should be carried out, including the removal of non-typical forest plantations, invasive species, etc.

List of conservation and management needs

Measures related to forests and wooded habitats

Restoring/Improving forest habitats

Adapt forest management

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

Conservation status

Anex 1 type:

2180: BLS U1

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

The habitat has some capacity to recover naturally but it is dependent and from geological processes and from forest restoration. It could be restored in some areas where the artificial forest plantations have been planted or there are invasion of non typical plant species.

Effort required

| 20 years | 200+ years |
|----------------------|------------|
| Through intervention | Naturally |

Red List Assessment

Criterion A: Reduction in quantity

| Criterion A | A1 | A2a | A2b | A3 |
|-------------|--------|-----------|-----------|-----------|
| EU 28 | -5.2 % | unknown % | unknown % | unknown % |
| EU 28+ | -5.2 % | unknown % | unknown % | unknown % |

The habitat decreased about 10% in Bulgaria (now is 1.15 km²) and about 5% in Romania (now is 25 km²) during the last 50 to 60 years. It means that it was at least 1.3 km² in Bulgaria and 26.3 km² in Romania. In total it was reduced from 27.6 km² to 26.2 km², nearly 5.2%. There is no information on longer historical trends. In future a small further decline is expected, but quantitative data is not available.

Criterion B: Restricted geographic distribution

| Criterion B | B1 | | | | B2 | | | | B3 |
|-------------|-----------------------|-----|-----|-----|-----|-----|-----|-----|----|
| | EOO | a | b | c | AOO | a | b | c | |
| EU 28 | 16350 Km ² | Yes | Yes | <10 | 10 | Yes | Yes | <10 | no |
| EU 28+ | 16350 Km ² | Yes | Yes | <10 | 10 | Yes | Yes | <10 | no |

Both values (AOO and EOO) are relatively small and they meet the thresholds for criteria B1 and B2 because of a continuing decline in quantity and quality. The ecosystem exists at less than 10 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 | 8 % | 45 % | unknown % | unknown % | unknown % | unknown % |
| EU 28+ | 8 % | 45 % | 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 overall extent and severity are the weighted average calculated from reported data from Bulgaria and Romania. The involved countries could not provide any information on long historical or future trends in quality (CD2, CD3, C2, C3, and D2). The changes in quality are both abiotic (fires) and biotic (invasive species, forest plantations, overgrazing), so C/D1 has not been split into C1 and 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.

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 | EN | EN | DD | LC | DD | DD | DD | DD | DD | DD | DD | DD | DD |
| EU28+ | LC | DD | DD | DD | EN | EN | DD | 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 |
| Endangered | B1, B2 | Endangered | B1, B2 |

Confidence in the assessment

High (mainly based on quantitative data sources and/or scientific literature)

Assessors

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References

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