Annex 4. Distribution and suitability maps of the revised EUNIS heathland, scrub and tundra habitat types

The coding and names shown in the Annex are the ones proposed by the project and therefore reveal differences from the ones included in the final revision of heathland, scrub and tundra habitats at level 3 after the consultation. The final revision including codes and names is visible in Annex 1.

Modelling of each habitat followed two different approaches, assuming biased or non-biased data. The selection of the best modelling for each habitat type was based on expert knowledge.

<table>
<thead>
<tr>
<th>EUNIS-3 code</th>
<th>EUNIS-3 habitat name</th>
<th>Background data pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1.1</td>
<td>Shrub tundra</td>
<td>Study area</td>
</tr>
<tr>
<td>F1.2</td>
<td>Moss and lichen tundra</td>
<td>No data</td>
</tr>
<tr>
<td>F2.1</td>
<td>Subarctic and alpine dwarf Salix scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F2.2a</td>
<td>Alpine and subalpine ericoid heath</td>
<td>Study area</td>
</tr>
<tr>
<td>F2.2b</td>
<td>Alpine and subalpine Juniperus scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F2.2c</td>
<td>Balkan subalpine genistoid scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F2.3</td>
<td>Subalpine deciduous scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F2.4</td>
<td>Subalpine Pinus mugo scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F3.1a</td>
<td>Lowland to montane temperate and submediterranean Juniperus scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1b</td>
<td>Temperate Rubus scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1c</td>
<td>Lowland to montane temperate and submediterranean genistoid scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1d</td>
<td>Balkan-Anatolian submontane genistoid scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1e</td>
<td>Temperate and submediterranean thorn scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1f</td>
<td>Low steppic scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F3.1g</td>
<td>Corylus avellana scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F3.1h</td>
<td>Temperate forest clearing scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F4.1</td>
<td>Wet heath</td>
<td>Study area</td>
</tr>
<tr>
<td>F4.2</td>
<td>Dry heath</td>
<td>Study area</td>
</tr>
<tr>
<td>F4.3</td>
<td>Macaronesian heath</td>
<td>No data</td>
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<tr>
<td>F5.1</td>
<td>Mediterranean maquis and arborescent matorral</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F5.3</td>
<td>Submediterranean pseudomaquis</td>
<td>Study area</td>
</tr>
<tr>
<td>F5.4</td>
<td>Spartium junceum scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Location</td>
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<tr>
<td>------</td>
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<tr>
<td>F5.5</td>
<td>Thermo-Mediterranean scrub</td>
<td>Study area</td>
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<tr>
<td>F6.1a</td>
<td>Western basiphilous garrigue</td>
<td>Heathland, scrub, tundra</td>
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<tr>
<td>F6.1b</td>
<td>Western acidophilous garrigue</td>
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</tr>
<tr>
<td>F6.2</td>
<td>Eastern garrigue</td>
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</tr>
<tr>
<td>F6.6</td>
<td>Supra-Mediterranean garrigue</td>
<td>Study area</td>
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<tr>
<td>F6.7</td>
<td>Mediterranean gypsum scrub</td>
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<tr>
<td>F6.8a</td>
<td>Mediterranean halo-nitrophilous scrub</td>
<td>Heathland, scrub, tundra</td>
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<tr>
<td>F6.8b</td>
<td>Caspian Sea halo-nitrophilous scrub</td>
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<tr>
<td>F7.1</td>
<td>Western Mediterranean spiny heath</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F7.3</td>
<td>Eastern Mediterranean spiny heath (Phrygana)</td>
<td>Study area</td>
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<tr>
<td>F7.4a</td>
<td>Western Mediterranean mountain hedgehog-heath</td>
<td>Study area</td>
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<tr>
<td>F7.4b</td>
<td>Central Mediterranean mountain hedgehog-heath</td>
<td>Study area</td>
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<tr>
<td>F7.4c</td>
<td>Eastern Mediterranean mountain hedgehog-heath</td>
<td>Study area</td>
</tr>
<tr>
<td>F7.4d</td>
<td>Canarian mountain hedgehog-heath</td>
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<tr>
<td>F8.1</td>
<td>Canary Island xerophytic scrub</td>
<td>No data</td>
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<tr>
<td>F8.2</td>
<td>Madeiran xerophytic scrub</td>
<td>No data</td>
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<tr>
<td>F9.1a</td>
<td>Arctic, boreal and alpine riparian scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F9.1b</td>
<td>Temperate riparian scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>F9.2</td>
<td>Salix fen scrub</td>
<td>Heathland, scrub, tundra</td>
</tr>
<tr>
<td>F9.3</td>
<td>Mediterranean riparian scrub</td>
<td>Heathland, scrub, tundra</td>
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<tr>
<td>B1.5a</td>
<td>Atlantic and Baltic coastal Empetrum heath</td>
<td>Study area</td>
</tr>
<tr>
<td>B1.5b</td>
<td>Atlantic coastal Calluna and Ulex heaths</td>
<td>Study area</td>
</tr>
<tr>
<td>B1.6a</td>
<td>Atlantic and Baltic coastal dune scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>B1.6b</td>
<td>Mediterranean and Black Sea coastal dune scrub</td>
<td>Study area</td>
</tr>
<tr>
<td>B1.6c</td>
<td>Macaronesian coastal dune scrub</td>
<td>No data</td>
</tr>
<tr>
<td>B2.5</td>
<td>Shingle and gravel beaches with scrub</td>
<td>Study area</td>
</tr>
</tbody>
</table>
B1.5a - Atlantic and Baltic coastal Empetrum heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data
Coastal sand dunes and sea shores according to Bohn map (P1)

Statistics from Maxent modelling

AUC training (0-1) 0.9983
AUC test (0-1) 0.9978

Contribution variables to the Maxent model (%)
- Distance to water 65.288
- Temperature seasonality (stdev * 100) 16.857
- Precipitation of warmest quarter 9.181
- pH (water) 3.1799
- Volume % of coarse fragments (> 2 mm) 1.8697
- Soil organic carbon content (%) 1.6373
- Mean temperature of wettest quarter 0.9176
- Weight in % of silt particles (0.0002-0.05 mm) 0.4938
- Weight in % of clay particles (<0.0002 mm) 0.4169
- Annual precipitation 0.0401
- Cation Exchange Capacity 0.0174
- Solar radiation 0.0154
- Weight in % of sand particles (0.05-2 mm) 0
- Bulk density (kg/m³) 0
- Potential evapotranspiration 0
- Precipitation seasonality (coef. of var.) 0

Remarks
Inland prediction should be ignored. Hardly any prediction in the Baltic region.
Coastal habitats are difficult to model and often deliver unsatisfying results. There are various reasons for this. 1) The area in which the habitat occurs is very small, 2) Some observations do not match with all environmental layers and are therefore left out of the analysis, 3) lack of observation data in large parts of the potential area.
B1.5b - Atlantic coastal Calluna and Ulex heaths

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data
Coastal sand dunes and sea shores according to Bohn map (P1)

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Factor</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance to water</td>
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<td>Temperature seasonality (stdev * 100)</td>
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<tr>
<td>pH (water)</td>
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<tr>
<td>Precipitation of warmest quarter</td>
<td>5.0517</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>3.4666</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>3.0278</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>1.711</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
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<tr>
<td>Precipitation seasonality (coef. of var.)</td>
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<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
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<tr>
<td>Annual precipitation</td>
<td>0.3312</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>0.1383</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>0.061</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.0525</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>0</td>
</tr>
</tbody>
</table>

Remarks
Inland prediction should be ignored. Hardly any prediction in the along the French coast. Coastal habitats are difficult to model and often deliver unsatisfying results. There are various reasons for this. 1) The area in which the habitat occurs is very small, 2) Some observations do not match with all environmental layers and are therefore left out of the analysis, 3) lack of observations in large parts of the potential area.
B1.6a - Atlantic and Baltic coastal dune scrub

*Distribution based on vegetation relevés*

*Model prediction. Background data randomly selected from study area*
Geographic restriction distribution data
Coastal sand dunes and sea shores according to Bohn map (P1)

Statistics from Maxent modelling
- AUC training (0-1) 0.9944
- AUC test (0-1) 0.9974

Contribution variables to the Maxent model (%)
- Temperature seasonality (stdev * 100) 41.757
- pH (water) 23.949
- Soil organic carbon content (%) 9.389
- Volume % of coarse fragments (> 2 mm) 7.6674
- Distance to water 5.2114
- Precipitation seasonality (coef. of var.) 4.9242
- Bulk density (kg/m³) 2.5775
- Potential evapotranspiration 2.0785
- Cation Exchange Capacity 0.7106
- Weight in % of silt particles (0.0002-0.05 mm) 0.5353
- Weight in % of clay particles (<0.0002 mm) 0.4876
- Mean temperature of wettest quarter 0.3381
- Precipitation of warmest quarter 0.2755
- Solar radiation 0
- Weight in % of sand particles (0.05-2 mm) 0
- Annual precipitation 0

Remarks
Inland prediction should be ignored. Hardly any prediction in the along the French coast.
Coastal habitats are difficult to model and often deliver unsatifying results. There are various reasons for this. 1) The area in which the habitat occurs is very small, 2) Some observations do not match with all environmental layers and are therefore left out of the analysis, 3) lack of observations in large parts of the potential area.
B1.6b - Mediterranean and Black Sea coastal dune scrub

*Distribution based on vegetation relevés*

*Model prediction. Background data randomly selected from heathland-scrub-tundra data set***
Geographic restriction distribution data
Coastal sand dunes and sea shores according to Bohn map (P1)

Remarks
Insufficient data to create a model
B2.5 - Shingle and gravel beaches with scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data
Coastal sand dunes and sea shores according to Bohn map (P1)

Statistics from Maxent modelling

| AUC training (0-1) | 0.9905 |
| AUC test (0-1)    | 0.9929 |

Contribution variables to the Maxent model (%)

- Temperature seasonality (stddev * 100) 34.36
- pH (water) 29.884
- Soil organic carbon content (%) 9.6488
- Weight in % of silt particles (0.0002-0.05 mm) 5.8407
- Distance to water 5.4668
- Bulk density (kg/m³) 5.0144
- Precipitation seasonality (coef. of var.) 4.0617
- Potential evapotranspiration 2.2699
- Volume % of coarse fragments (> 2 mm) 0.8194
- Cation Exchange Capacity 0.7953
- Weight in % of clay particles (<0.0002 mm) 0.7418
- Mean temperature of wettest quarter 0.47
- Weight in % of sand particles (0.05-2 mm) 0.4136
- Precipitation of warmest quarter 0.1644
- Solar radiation 0
- Annual precipitation 0

Remarks
Inland prediction should be ignored. Hardly any prediction in large parts of the potential area. Coastal habitats are difficult to model and often deliver unsatisfying results. There are various reasons for this. 1) The area in which the habitat occurs is very small, 2) Some observations do not match with all environmental layers and are therefore left out of the analysis, 3) lack of observations in large parts of the potential area.
F1.1 - Shrub tundra

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data
Arctic polar deserts and Arctic tundras according to the Bohn map (A1 & B1)

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>AUC training (0-1)</th>
<th>0.9958</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC test (0-1)</td>
<td>0.9854</td>
</tr>
</tbody>
</table>

Contribution variables to the Maxent model (%)

- Soil organic carbon content (‰)   67.523
- Annual precipitation             15
- Mean temperature of wettest quarter 11.312
- Distance to water                2.3658
- Solar radiation                 1.9878
- Weight in % of clay particles (<0.0002 mm) 1.6928
- Precipitation of warmest quarter 1.0834
- pH (water)                      0.8214
- Potential evapotranspiration    0.1833
- Volume % of coarse fragments (> 2 mm) 0.0186
- Weight in % of silt particles (0.0002-0.05 mm) 0
- Weight in % of sand particles (0.05-2 mm) 0
- Precipitation seasonality (coef. of var.) 0
- Temperature seasonality (stdev * 100) 0
- Cation Exchange Capacity        0
- Bulk density (kg/m³)            0

Remarks
-
F1.2 - Moss and lichen tundra

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
**Geographic restriction distribution data**
Arctic polar deserts and Arctic tundras according to the Bohn map (A1 & B1)

**Remarks**
Insufficient data to create a model
F2.1 - Subarctic and alpine dwarf Salix scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9564
AUC test (0-1) 0.9398

Contribution variables to the Maxent model (%)

- Soil organic carbon content (%) 63.908
- Weight in % of silt particles (0.0002-0.05 mm) 16.818
- Weight in % of sand particles (0.05-2 mm) 9.0678
- Precipitation of warmest quarter 7.7665
- Cation Exchange Capacity 3.4397
- pH (water) 1.7674
- Weight in % of clay particles (<0.0002 mm) 1.2574
- Volume % of coarse fragments (> 2 mm) 1.2559
- Precipitation seasonality (coef. of var.) 1.1556
- Solar radiation 1.0445
- Annual precipitation 0.6612
- Mean temperature of wettest quarter 0.5955
- Temperature seasonality (stdev * 100) 0.5363
- Potential evapotranspiration 0.4298
- Bulk density (kg/m³) 0.162
- Distance to water 0.0459

Remarks
F2.2a - Alpine and subalpine ericoid heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

- **AUC training (0-1)**: 0.901
- **AUC test (0-1)**: 0.8861

**Contribution variables to the Maxent model (%)**

- Annual precipitation: 33.527%
- Volume % of coarse fragments (> 2 mm): 18.106%
- Weight in % of sand particles (0.05-2 mm): 14.302%
- Precipitation of warmest quarter: 9.6382%
- Soil organic carbon content (%o): 3.6068%
- Bulk density (kg/m³): 2.8496%
- pH (water): 1.8458%
- Weight in % of clay particles (<0.0002 mm): 1.2887%
- Solar radiation: 1.0794%
- Temperature seasonality (stdev * 100): 1.0636%
- Weight in % of silt particles (0.0002-0.05 mm): 0.6931%
- Cation Exchange Capacity: 0.6751%
- Mean temperature of wettest quarter: 0.5933%
- Precipitation seasonality (coef. of var.): 0.1903%
- Potential evapotranspiration: 0.1302%
- Distance to water: 0%

Remarks

Prediction in eastern part of Europe (Caucasus) uncertain due to lack of data for that area.
F2.2b - Alpine and subalpine Juniperus scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9745
AUC test (0-1) 0.8935

Contribution variables to the Maxent model (%)
- Weight in % of sand particles (0.05-2 mm) 28.459
- Volume % of coarse fragments (> 2 mm) 19.039
- Temperature seasonality (stddev * 100) 15.818
- Annual precipitation 12.893
- Bulk density (kg/m³) 7.0208
- Soil organic carbon content (%) 5.0007
- Solar radiation 4.0254
- Precipitation of warmest quarter 2.9895
- Cation Exchange Capacity 2.2118
- Potential evapotranspiration 1.9823
- Weight in % of silt particles (0.0002-0.05 mm) 1.363
- Mean temperature of wettest quarter 0.9385
- Weight in % of clay particles (<0.0002 mm) 0.5595
- Precipitation seasonality (coef. of var.) 0.3548
- pH (water) 0.0419
- Distance to water 0.004

Remarks
Prediction in eastern part of Europe (Caucasus, Turkey) uncertain due to lack of data for that area.
F2.2c - Balkan subalpine genistoid scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data
Balkan region

Remarks
Insufficient data to create a model
F2.3 - Subalpine deciduous scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9336
AUC test (0-1) 0.9223

Contribution variables to the Maxent model (%)

- Precipitation of warmest quarter 24.867
- Weight in % of sand particles (0.05-2 mm) 17.447
- Annual precipitation 16.908
- Temperature seasonality (stdev * 100) 13.929
- Soil organic carbon content (%) 8.9444
- Solar radiation 5.4636
- Precipitation seasonality (coef. of var.) 4.0239
- Cation Exchange Capacity 3.7884
- Mean temperature of wettest quarter 2.2471
- Potential evapotranspiration 1.591
- Volume % of coarse fragments (> 2 mm) 1.1602
- Weight in % of silt particles (0.0002-0.05 mm) 1.0955
- Distance to water 0.6474
- Bulk density (kg/m³) 0.6196
- pH (water) 0.5388
- Weight in % of clay particles (<0.0002 mm) 0.4739

Remarks
Prediction in Germany should be ignored.
Prediction in eastern part of Europe (Caucasus) uncertain due to lack of data for that area.
F2.4 - Subalpine Pinus mugo scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Contribution variables to the Maxent model (%)</th>
<th>Weight in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitation of warmest quarter</td>
<td>43.953</td>
</tr>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>13.165</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>11.199</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>9.3161</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>7.3518</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>2.9277</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>2.7221</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
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</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>1.8856</td>
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<tr>
<td>Mean temperature of wettest quarter</td>
<td>1.5025</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>1.415</td>
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<tr>
<td>Solar radiation</td>
<td>0.952</td>
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<tr>
<td>Cation Exchange Capacity</td>
<td>0.9019</td>
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<tr>
<td>Distance to water</td>
<td>0.7246</td>
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<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.3665</td>
</tr>
<tr>
<td>pH (water)</td>
<td>0.069</td>
</tr>
</tbody>
</table>

Remarks
Pinus mugo does not occur in Scandinavia and therefore the prediction in this area should be ignored.
Prediction in eastern part of Europe (Caucasus) uncertain due to lack of data for that area.
F3.1a - Lowland to montane temperate and submediterranean Juniperus scrub

*Distribution based on vegetation relevés*

*Model prediction. Background data randomly selected from study area*
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>AUC training (0-1)</th>
<th>0.9294</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC test (0-1)</td>
<td>0.9168</td>
</tr>
</tbody>
</table>

Contribution variables to the Maxent model (%)

- Temperature seasonality (stdev * 100): 47.288
- Annual precipitation: 16.928
- Soil organic carbon content (‰): 11.68
- Solar radiation: 11.098
- Weight in % of sand particles (0.05-2 mm): 6.1532
- Volume % of coarse fragments (> 2 mm): 4.1454
- Precipitation of warmest quarter: 3.0896
- Bulk density (kg/m³): 2.8954
- Weight in % of silt particles (0.0002-0.05 mm): 2.8708
- Precipitation seasonality (coef. of var.): 1.7383
- Mean temperature of wettest quarter: 1.1727
- pH (water): 0.4748
- Potential evapotranspiration: 0.3306
- Weight in % of clay particles (<0.0002 mm): 0.2259
- Cation Exchange Capacity: 0.1047
- Distance to water: 0.0476

Remarks

- Prediction in eastern part of Europe (Caucasus, Turkey) uncertain due to lack of data for that area.
F3.1b - Temperate Rubus scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9025
AUC test (0-1) 0.8724

Contribution variables to the Maxent model (%)

Temperature seasonality (stdev * 100) 45.024
Soil organic carbon content (%) 22.813
Precipitation of warmest quarter 16.322
Mean temperature of wettest quarter 4.7928
Cation Exchange Capacity 3.1905
Precipitation seasonality (coef. of var.) 2.4142
Solar radiation 1.4328
Weight in % of silt particles (0.0002-0.05 mm) 0.9949
Bulk density (kg/m³) 0.9704
Weight in % of clay particles (<0.0002 mm) 0.8803
Annual precipitation 0.8323
Volume % of coarse fragments (> 2 mm) 0.4803
Distance to water 0.4007
Potential evapotranspiration 0.2595
pH (water) 0.2441
Weight in % of sand particles (0.05-2 mm) 0.1634

Remarks
Poor model, too much affected by the distribution of input data with a high concentration in NL and CZ.
Prediction in eastern part of Europe (Caucasus, Turkey) uncertain due to lack of data for that area.
F3.1c - Lowland to montane temperate and submediterranean genistoid scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1)  0.9059
AUC test (0-1)     0.8732

Contribution variables to the Maxent model (%)

- Temperature seasonality (stdev * 100) 66.106
- Potential evapotranspiration               9.5905
- Soil organic carbon content (‰)           6.821
- Bulk density (kg/m³)                       4.9566
- Precipitation seasonality (coef. of var.) 2.9731
- Precipitation of warmest quarter           2.3412
- Solar radiation                            2.3055
- Volume % of coarse fragments (> 2 mm)      2.1861
- Weight in % of silt particles (0.0002-0.05 mm) 1.6297
- Mean temperature of wettest quarter       1.2798
- Weight in % of clay particles (<0.0002 mm) 1.1946
- Annual precipitation                        0.4269
- Weight in % of sand particles (0.05-2 mm)   0.2346
- pH (water)                                  0.0545
- Cation Exchange Capacity                   0.0476
- Distance to water                          0.0257

Remarks
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F3.1d - Balkan-Anatolian submontane genistoid scrub

**Distribution based on vegetation relevés**

**Model prediction. Background data randomly selected from heathland-scrub-tundra data set**
Geographic restriction distribution data

Remarks
Insufficient data to create a model
F3.1e - Temperate and submediterranean thorn scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.8197
AUC test (0-1) 0.8155

Contribution variables to the Maxent model (%)

- Temperature seasonality (stdev * 100) 56.525
- Precipitation of warmest quarter 11.908
- Soil organic carbon content (‰) 11.747
- Bulk density (kg/m³) 5.5983
- Solar radiation 4.3068
- Cation Exchange Capacity 4.2608
- Annual precipitation 3.2244
- Potential evapotranspiration 1.965
- Weight in % of sand particles (0.05-2 mm) 1.0066
- Mean temperature of wettest quarter 0.9434
- Precipitation seasonality (coef. of var.) 0.8685
- Distance to water 0.7498
- Weight in % of clay particles (<0.0002 mm) 0.5767
- pH (water) 0.2574
- Volume % of coarse fragments (> 2 mm) 0.112
- Weight in % of silt particles (0.0002-0.05 mm) 0.0726

Remarks

Poor model, too much affected by the distribution of input data with a high concentration in NL and CZ.

Prediction in eastern part of Europe (Caucasus, Turkey) uncertain due to lack of data for that area.
F3.1f - Low steppic scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9839
AUC test (0-1) 0.9817

Contribution variables to the Maxent model (%)

- Temperature seasonality (stdev * 100) 70.284
- Weight in % of sand particles (0.05-2 mm) 11.889
- Annual precipitation 6.7421
- pH (water) 6.1524
- Mean temperature of wettest quarter 5.0984
- Potential evapotranspiration 4.5709
- Soil organic carbon content (%) 2.3728
- Weight in % of clay particles (<0.0002 mm) 1.4129
- Volume % of coarse fragments (> 2 mm) 0.8514
- Weight in % of silt particles (0.0002-0.05 mm) 0.6615
- Precipitation of warmest quarter 0.4852
- Precipitation seasonality (coef. of var.) 0.3781
- Distance to water 0.3029
- Bulk density (kg/m³) 0.2286
- Cation Exchange Capacity 0.1622
- Solar radiation 0.0496

Remarks
Prediction in eastern part of Europe uncertain due to lack of data for that area.
F3.1g - Corylus avellana scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
**Geographic restriction distribution data**

- 

**Statistics from Maxent modelling**

<table>
<thead>
<tr>
<th>AUC training (0-1)</th>
<th>0.9214</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC test (0-1)</td>
<td>0.9127</td>
</tr>
</tbody>
</table>

**Contribution variables to the Maxent model (%)**

- Temperature seasonality (stdev * 100) 38.479
- Annual precipitation 21.375
- Soil organic carbon content (%) 13.466
- Bulk density (kg/m³) 6.9894
- Weight in % of clay particles (<0.0002 mm) 6.0154
- Volume % of coarse fragments (> 2 mm) 4.1324
- Precipitation of warmest quarter 3.8228
- Solar radiation 2.1368
- Cation Exchange Capacity 1.5709
- Precipitation seasonality (coef. of var.) 1.4767
- Mean temperature of wettest quarter 0.5229
- Weight in % of silt particles (0.0002-0.05 mm) 0.4396
- Distance to water 0.3184
- Potential evapotranspiration 0.2333
- pH (water) 0.1342
- Weight in % of sand particles (0.05-2 mm) 0.0344

**Remarks**

Prediction in eastern part of Europe uncertain due to lack of data for that area.
F3.1h - Temperate forest clearing scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th></th>
<th>AUC training (0-1)</th>
<th>AUC test (0-1)</th>
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</thead>
<tbody>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
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<td>Soil organic carbon content (‰)</td>
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<td>Precipitation of warmest quarter</td>
<td>6.175</td>
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<td>Potential evapotranspiration</td>
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<td>Volume % of coarse fragments (&gt; 2 mm)</td>
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<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
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<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
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<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>1.2624</td>
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</tr>
<tr>
<td>Solar radiation</td>
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<tr>
<td>Bulk density (kg/m³)</td>
<td>1.0246</td>
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<tr>
<td>Precipitation seasonality (coef. of var.)</td>
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<td>Annual precipitation</td>
<td>0.7647</td>
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<td>pH (water)</td>
<td>0.6205</td>
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</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.4204</td>
<td></td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.1205</td>
<td></td>
</tr>
<tr>
<td>Distance to water</td>
<td>0.0265</td>
<td></td>
</tr>
</tbody>
</table>

Remarks
Prediction in eastern part of Europe uncertain due to lack of data for that area.
F4.1 - Wet heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9118
AUC test (0-1) 0.9158

Contribution variables to the Maxent model (%)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Contribution</th>
</tr>
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<tbody>
<tr>
<td>Temperature seasonality (stddev * 100)</td>
<td>74.655</td>
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<tr>
<td>Potential evapotranspiration</td>
<td>6.5263</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>5.217</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>4.9738</td>
</tr>
<tr>
<td>pH (water)</td>
<td>4.9587</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>1.1275</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>0.6302</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.6261</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>0.5099</td>
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<tr>
<td>Precipitation of warmest quarter</td>
<td>0.3854</td>
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<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.3431</td>
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<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
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</tr>
<tr>
<td>Annual precipitation</td>
<td>0.1603</td>
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<tr>
<td>Distance to water</td>
<td>0.0314</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.0011</td>
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<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>0.001</td>
</tr>
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Remarks
F4.2 - Dry heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Contribution variables to the Maxent model (%)</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>72.114</td>
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<tr>
<td>Potential evapotranspiration</td>
<td>11.395</td>
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<tr>
<td>Soil organic carbon content (‰)</td>
<td>9.17</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>3.1502</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>1.5042</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.4387</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>0.432</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>0.3866</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>0.3832</td>
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<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>0.303</td>
</tr>
<tr>
<td>pH (water)</td>
<td>0.2384</td>
</tr>
<tr>
<td>Precipitation of warmest quarter</td>
<td>0.1225</td>
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<tr>
<td>Solar radiation</td>
<td>0.117</td>
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<tr>
<td>Distance to water</td>
<td>0.0888</td>
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<tr>
<td>Cation Exchange Capacity</td>
<td>0.0446</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.0238</td>
</tr>
</tbody>
</table>

Remarks

Prediction in eastern part of Europe uncertain due to lack of data for that area.
F5.1 - Mediterranean maquis and arborescent matorral

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.896
AUC test (0-1) 0.8916

Contribution variables to the Maxent model (%)
- Precipitation of warmest quarter 43.13
- Soil organic carbon content (%) 19.031
- Weight in % of clay particles (<0.0002 mm) 15.644
- Solar radiation 12.614
- Precipitation seasonality (coef. of var.) 7.0148
- Potential evapotranspiration 5.0247
- Temperature seasonality (stdev * 100) 2.3359
- Cation Exchange Capacity 2.3304
- Weight in % of sand particles (0.05-2 mm) 2.1861
- Distance to water 1.3011
- Mean temperature of wettest quarter 1.0568
- Annual precipitation 0.7252
- Bulk density (kg/m³) 0.7121
- pH (water) 0.3943
- Weight in % of silt particles (0.0002-0.05 mm) 0.1041
- Volume % of coarse fragments (> 2 mm) 0.1013

Remarks
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F5.3 - Submediterranean pseudomaquis

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9786
AUC test (0-1) 0.9577

Contribution variables to the Maxent model (%)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>27.217</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>13.35</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>11.811</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>11.161</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>10.129</td>
</tr>
<tr>
<td>pH (water)</td>
<td>8.4849</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>6.334</td>
</tr>
<tr>
<td>Precipitation of warmest quarter</td>
<td>5.0467</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>3.2053</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>2.2254</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>1.046</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>0.7049</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.3314</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>0</td>
</tr>
<tr>
<td>Distance to water</td>
<td>0</td>
</tr>
</tbody>
</table>

Remarks

Bad model, because of prediction in Ireland, England, and Hungary. The reason for this is that this habitat type has a poor relation to climatic factors.

Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F5.4 - Spartium junceum scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
**Geographic restriction distribution data**

**Statistics from Maxent modelling**

- **AUC training (0-1)**: 0.9873
- **AUC test (0-1)**: 0.9804

**Contribution variables to the Maxent model (%)**

- Weight in % of clay particles (<0.0002 mm): 26.326
- Temperature seasonality (stdev * 100): 22.785
- Solar radiation: 20.5
- Annual precipitation: 18.903
- Potential evapotranspiration: 13.457
- Mean temperature of wettest quarter: 6.4925
- Precipitation seasonality (coef. of var.): 3.7847
- pH (water): 2.8043
- Precipitation of warmest quarter: 2.6968
- Bulk density (kg/m³): 1.4665
- Volume % of coarse fragments (> 2 mm): 0.7765
- Soil organic carbon content (%): 0.0964
- Distance to water: 0.0908
- Cation Exchange Capacity: 0.0768
- Weight in % of silt particles (0.0002-0.05 mm): 0.0555
- Weight in % of sand particles (0.05-2 mm): 0.0156

**Remarks**

Due to lack of data there is a poor prediction for Spain. Spartium junceum occurs throughout that country.

Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F5.5 - Thermo-Mediterranean scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9874
AUC test (0-1) 0.9814

Contribution variables to the Maxent model (%)

- Temperature seasonality (stdev * 100) 38.237
- Precipitation of warmest quarter 28.105
- Precipitation seasonality (coef. of var.) 11.85
- Mean temperature of wettest quarter 7.9066
- Weight in % of clay particles (<0.0002 mm) 3.5663
- Soil organic carbon content (%) 2.799
- pH (water) 2.5521
- Potential evapotranspiration 2.0164
- Weight in % of silt particles (0.0002-0.05 mm) 0.7747
- Volume % of coarse fragments (> 2 mm) 0.7313
- Weight in % of sand particles (0.05-2 mm) 0.655
- Bulk density (kg/m³) 0.3056
- Solar radiation 0.2875
- Annual precipitation 0.0773
- Distance to water 0.0443
- Cation Exchange Capacity 0

Remarks

-
F6.1a - Western basophilous garrigue

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC training (0-1)</td>
<td>0.9066</td>
</tr>
<tr>
<td>AUC test (0-1)</td>
<td>0.8951</td>
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</table>

Contribution variables to the Maxent model (%)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Contribution</th>
</tr>
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<tbody>
<tr>
<td>Soil organic carbon content (%)</td>
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</tr>
<tr>
<td>pH (water)</td>
<td>14.171</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>13.27</td>
</tr>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>13.257</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>8.9195</td>
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<tr>
<td>Precipitation seasonality (coef. of var.)</td>
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<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
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<tr>
<td>Precipitation of warmest quarter</td>
<td>4.066</td>
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<tr>
<td>Bulk density (kg/m³)</td>
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<td>Weight in % of sand particles (0.05-2 mm)</td>
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<tr>
<td>Potential evapotranspiration</td>
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<tr>
<td>Distance to water</td>
<td>0.4612</td>
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<tr>
<td>Cation Exchange Capacity</td>
<td>0.3458</td>
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<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.3284</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>0.2318</td>
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<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>0.077</td>
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</table>

Remarks
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F6.1b - Western acidophilous garrigue

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

| AUC training (0-1) | 0.9756 |
| AUC test (0-1)     | 0.9415 |

Contribution variables to the Maxent model (%)

- Precipitation of warmest quarter: 49.165%
- Soil organic carbon content (‰): 16.059%
- Precipitation seasonality (coef. of var.): 13.554%
- Weight in % of clay particles (<0.0002 mm): 6.2395%
- Solar radiation: 5.8264%
- Bulk density (kg/m³): 5.8124%
- Weight in % of sand particles (0.05-2 mm): 3.5449%
- Mean temperature of wettest quarter: 2.3443%
- Temperature seasonality (stddev * 100): 2.1301%
- Volume % of coarse fragments (> 2 mm): 1.9674%
- Weight in % of silt particles (0.0002-0.05 mm): 0.8768%
- Annual precipitation: 0.8398%
- pH (water): 0.4292%
- Potential evapotranspiration: 0.3234%
- Cation Exchange Capacity: 0.14%
- Distance to water: 0.0443%

Remarks

Predictions in the east Mediterranean area should be ignored.
F6.2 - Eastern garrigue

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9923
AUC test (0-1) 0.9916

Contribution variables to the Maxent model (%)

- Annual precipitation 39.947
- Precipitation seasonality (coef. of var.) 37.282
- Solar radiation 13.916
- Potential evapotranspiration 11.44
- Temperature seasonality (stdev * 100) 3.8421
- Precipitation of warmest quarter 2.5152
- Weight in % of clay particles (<0.0002 mm) 1.8396
- Weight in % of silt particles (0.0002-0.05 mm) 0.7661
- Soil organic carbon content (%) 0.633
- Distance to water 0.4519
- Volume % of coarse fragments (> 2 mm) 0.0504
- Cation Exchange Capacity 0.0256
- pH (water) 0.0137
- Mean temperature of wettest quarter 0.0112
- Weight in % of sand particles (0.05-2 mm) 0.0046
- Bulk density (kg/m³) 0

Remarks
Prediction in the Iberian Peninsula should be ignored.
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F6.6 - Supra-Mediterranean garrigue

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Description</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>35.536</td>
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<td>Volume % of coarse fragments (&gt; 2 mm)</td>
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<td>Annual precipitation</td>
<td>8.7275</td>
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<td>Weight in % of sand particles (0.05-2 mm)</td>
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<td>Bulk density (kg/m³)</td>
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<td>Precipitation seasonality (coef. of var.)</td>
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<tr>
<td>Potential evapotranspiration</td>
<td>3.9178</td>
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<tr>
<td>Soil organic carbon content (%)</td>
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<tr>
<td>Mean temperature of wettest quarter</td>
<td>2.6417</td>
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<tr>
<td>Precipitation of warmest quarter</td>
<td>2.4728</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>2.2173</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>2.1144</td>
</tr>
<tr>
<td>pH (water)</td>
<td>1.0109</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>0.0835</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.0665</td>
</tr>
<tr>
<td>Distance to water</td>
<td>0.0067</td>
</tr>
</tbody>
</table>

Remarks
F6.7 - Mediterranean gypsum scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9961
AUC test (0-1) 0.9968

Contribution variables to the Maxent model (%)

- Potential evapotranspiration 21.138
- Bulk density (kg/m³) 17.271
- Soil organic carbon content (%) 15.464
- Annual precipitation 3.5452
- Distance to water 2.2883
- Weight in % of sand particles (0.05-2 mm) 2.0027
- Precipitation seasonality (coef. of var.) 1.9717
- Temperature seasonality (stdev * 100) 1.3211
- Solar radiation 1.063
- Cation Exchange Capacity 0.3305
- Volume % of coarse fragments (> 2 mm) 0.3214
- Weight in % of silt particles (0.0002-0.05 mm) 0.2797
- Precipitation of warmest quarter 0.0221
- Mean temperature of wettest quarter 0
- Weight in % of clay particles (<0.0002 mm) 0
- pH (water) 0

Remarks

-
F6.8a - Mediterranean halo-nitrophilous scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

- AUC training (0-1): 0.9759
- AUC test (0-1): 0.911

**Contribution variables to the Maxent model (%)**
- Soil organic carbon content (%): 39.169
- Precipitation of warmest quarter: 16.086
- Weight in % of clay particles (<0.0002 mm): 9.1065
- Annual precipitation: 6.3801
- Solar radiation: 4.6929
- Bulk density (kg/m³): 3.8742
- Temperature seasonality (stdev * 100): 3.4085
- Precipitation seasonality (coef. of var.): 3.2556
- Mean temperature of wettest quarter: 2.8701
- Weight in % of sand particles (0.05-2 mm): 1.4553
- Distance to water: 0.5444
- Cation Exchange Capacity: 0.3583
- Potential evapotranspiration: 0.3013
- pH (water): 0.2237
- Volume % of coarse fragments (> 2 mm): 0.0369
- Weight in % of silt particles (0.0002-0.05 mm): 0

Remarks
Prediction in eastern part of Europe uncertain due to lack of data for that area.
F6.8b - Caspian Sea halo-nitrophilous scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Remarks
Insufficient data to create a model
F7.1 - Western Mediterranean spiny heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.9931
AUC test (0-1) 0.9766

Contribution variables to the Maxent model (%)

- Precipitation of warmest quarter: 50.929
- Precipitation seasonality (coef. of var.): 20.775
- pH (water): 8.6147
- Temperature seasonality (stdev * 100): 7.3093
- Annual precipitation: 5.8502
- Solar radiation: 2.5222
- Weight in % of clay particles (<0.0002 mm): 2.1209
- Potential evapotranspiration: 0.5715
- Weight in % of silt particles (0.0002-0.05 mm): 0.5677
- Distance to water: 0.5286
- Soil organic carbon content (%o): 0.1832
- Bulk density (kg/m³): 0.0243
- Cation Exchange Capacity: 0.0036
- Weight in % of sand particles (0.05-2 mm): 0
- Mean temperature of wettest quarter: 0
- Volume % of coarse fragments (> 2 mm): 0

Remarks

-
F7.3 - Eastern Mediterranean spiny heath (Phrygana)

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>AUC training (0-1)</th>
<th>0.9935</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC test (0-1)</td>
<td>0.9902</td>
</tr>
</tbody>
</table>

Contribution variables to the Maxent model (%)

- Precipitation seasonality (coef. of var.) 49.153
- Precipitation of warmest quarter 23.755
- Temperature seasonality (stdev * 100) 13.081
- Soil organic carbon content (%) 10.193
- Weight in % of clay particles (<0.0002 mm) 1.3448
- Potential evapotranspiration 0.6572
- Volume % of coarse fragments (> 2 mm) 0.2328
- Bulk density (kg/m³) 0.1621
- Mean temperature of wettest quarter 0.1344
- Weight in % of sand particles (0.05-2 mm) 0.1124
- Weight in % of silt particles (0.0002-0.05 mm) 0.0856
- Cation Exchange Capacity 0.0163
- pH (water) 0.0147
- Distance to water 0.0032
- Solar radiation 0
- Annual precipitation 0

Remarks
Prediction in the Iberian Peninsula should be ignored.
F7.4a - Western Mediterranean mountain hedgehog-heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
**Geographic restriction distribution data**

**Statistics from Maxent modelling**

<table>
<thead>
<tr>
<th>Contribution variables to the Maxent model (%)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature seasonality (Stdev * 100)</td>
<td>44.113</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>23.984</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>11.42</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>6.6428</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>4.8498</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>4.481</td>
</tr>
<tr>
<td>Precipitation of warmest quarter</td>
<td>1.9568</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>1.069</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>0.4649</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>0.4291</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>0.3837</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.1845</td>
</tr>
<tr>
<td>pH (water)</td>
<td>0.17</td>
</tr>
<tr>
<td>Distance to water</td>
<td>0.1268</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>0.0604</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.0109</td>
</tr>
</tbody>
</table>

**Remarks**

Prediction in Germany should be ignored.
F7.4b - Central Mediterranean mountain hedgehog-heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

- AUC training (0-1) 0.9961
- AUC test (0-1) 0.9995

Contribution variables to the Maxent model (%)
- Distance to water 31.316
- Volume % of coarse fragments (> 2 mm) 19.27
- Temperature seasonality (stdev * 100) 13.329
- Precipitation of warmest quarter 11.369
- Weight in % of clay particles (<0.0002 mm) 10.382
- Soil organic carbon content (%) 5.9573
- Cation Exchange Capacity 2.2802
- Annual precipitation 1.9425
- Solar radiation 1.9071
- Precipitation seasonality (coef. of var.) 0.6398
- Mean temperature of wettest quarter 0.5679
- pH (water) 0.2645
- Potential evapotranspiration 0.2598
- Weight in % of sand particles (0.05-2 mm) 0.204
- Bulk density (kg/m³) 0
- Weight in % of silt particles (0.0002-0.05 mm) 0

Remarks
Poor prediction, should be restricted to southern Europe.
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F7.4c - Eastern Mediterranean mountain hedgehog-heath

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

AUC training (0-1) 0.991
AUC test (0-1) 0.9575

Contribution variables to the Maxent model (%)

- Mean temperature of wettest quarter 23.244
- Volume % of coarse fragments (> 2 mm) 18.863
- Annual precipitation 15.578
- Precipitation of warmest quarter 8.5922
- Weight in % of sand particles (0.05-2 mm) 7.6495
- Soil organic carbon content (%) 7.5398
- Potential evapotranspiration 7.4881
- Precipitation seasonality (coef. of var.) 6.2742
- Solar radiation 2.1758
- Bulk density (kg/m³) 2.1347
- Temperature seasonality (stdev * 100) 1.0485
- Weight in % of clay particles (<0.0002 mm) 0.6099
- Cation Exchange Capacity 0.3437
- Distance to water 0.3099
- Weight in % of silt particles (0.0002-0.05 mm) 0.2446
- pH (water) 0.0592

Remarks
Prediction in the Iberian Peninsular should be ignored.
Prediction in eastern part of Europe (Turkey) uncertain due to lack of data for that area.
F9.1a - Arctic, boreal and alpine riparian scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

- 

Statistics from Maxent modelling

AUC training (0-1) 0.9784
AUC test (0-1) 0.9554

Contribution variables to the Maxent model (%)

- Soil organic carbon content (‰) 39.457
- Temperature seasonality (stdev * 100) 15.736
- Mean temperature of wettest quarter 13.372
- Precipitation of warmest quarter 5.4374
- Weight in % of clay particles (<0.0002 mm) 4.7988
- Bulk density (kg/m³) 3.9422
- Cation Exchange Capacity 3.8722
- Precipitation seasonality (coef. of var.) 2.7475
- Solar radiation 2.6305
- Annual precipitation 2.062
- Weight in % of sand particles (0.05-2 mm) 1.6505
- Distance to water 0.0549
- Volume % of coarse fragments (> 2 mm) 0.0194
- Potential evapotranspiration 0.0006
- pH (water) 0
- Weight in % of silt particles (0.0002-0.05 mm) 0

Remarks

Prediction in eastern part of Europe (Caucasus) uncertain due to lack of data for that area.
F9.1b - Temperate riparian scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from study area
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Contribution variables to the Maxent model (%)</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>35.708</td>
</tr>
<tr>
<td>Precipitation of warmest quarter</td>
<td>18.048</td>
</tr>
<tr>
<td>Distance to water</td>
<td>16.398</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>12.726</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>4.8341</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>4.7908</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>2.9534</td>
</tr>
<tr>
<td>pH (water)</td>
<td>1.3926</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>0.8483</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>0.6835</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.4779</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>0.3478</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>0.336</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.3013</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>0.1545</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>0.0724</td>
</tr>
</tbody>
</table>

Remarks
Prediction in eastern part of Europe (Caucasus, Turkey) uncertain due to lack of data for that area.
F9.2 - Salix fen scrub

Distribution based on vegetation relevés

Model prediction. Background data randomly selected from heathland-scrub-tundra data set
Geographic restriction distribution data

Statistics from Maxent modelling

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Contribution (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>32.125</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>31.06</td>
</tr>
<tr>
<td>Precipitation of warmest quarter</td>
<td>11.818</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>5.6519</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>5.1577</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>4.558</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>3.6013</td>
</tr>
<tr>
<td>pH (water)</td>
<td>2.8443</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>2.8352</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>2.4878</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>1.8138</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>1.6898</td>
</tr>
<tr>
<td>Distance to water</td>
<td>1.0777</td>
</tr>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>1.0261</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>1.021</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.2901</td>
</tr>
</tbody>
</table>

Remarks
Prediction in eastern part of Europe uncertain due to lack of data for that area.
F9.3 - Mediterranean riparian scrub

Distribution based on vegetation relevés

*Model prediction. Background data randomly selected from heathland-scrub-tundra data set*
Geographic restriction distribution data

Statistics from Maxent modelling

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AUC training (0-1)</td>
<td>0.972</td>
</tr>
<tr>
<td>AUC test (0-1)</td>
<td>0.9649</td>
</tr>
</tbody>
</table>

**Contribution variables to the Maxent model (%)**

<table>
<thead>
<tr>
<th>Contribution Variable</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precipitation of warmest quarter</td>
<td>38.061</td>
</tr>
<tr>
<td>Bulk density (kg/m³)</td>
<td>35.246</td>
</tr>
<tr>
<td>Soil organic carbon content (%)</td>
<td>7.2959</td>
</tr>
<tr>
<td>Weight in % of clay particles (&lt;0.0002 mm)</td>
<td>7.2877</td>
</tr>
<tr>
<td>Solar radiation</td>
<td>6.5436</td>
</tr>
<tr>
<td>Precipitation seasonality (coef. of var.)</td>
<td>3.1528</td>
</tr>
<tr>
<td>Weight in % of silt particles (0.0002-0.05 mm)</td>
<td>3.1492</td>
</tr>
<tr>
<td>Potential evapotranspiration</td>
<td>2.3526</td>
</tr>
<tr>
<td>pH (water)</td>
<td>0.8838</td>
</tr>
<tr>
<td>Mean temperature of wettest quarter</td>
<td>0.8456</td>
</tr>
<tr>
<td>Volume % of coarse fragments (&gt; 2 mm)</td>
<td>0.5201</td>
</tr>
<tr>
<td>Annual precipitation</td>
<td>0.4784</td>
</tr>
<tr>
<td>Distance to water</td>
<td>0.1944</td>
</tr>
<tr>
<td>Temperature seasonality (stdev * 100)</td>
<td>0.1564</td>
</tr>
<tr>
<td>Weight in % of sand particles (0.05-2 mm)</td>
<td>0.0878</td>
</tr>
<tr>
<td>Cation Exchange Capacity</td>
<td>0.0865</td>
</tr>
</tbody>
</table>

Remarks

Prediction in eastern part of Europe uncertain due to lack of data for that area.