Distribution and habitat suitability maps of revised EUNIS grassland, heathland, scrub, tundra and forest types

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Context:

The Topic Centre has prepared this Technical paper in collaboration with the European Environment Agency (EEA) under its 2016 work programmes as a contribution to the EEA's work on biodiversity assessments.

Citation:

Disclaimer:

# Contents

1   Habitat suitability modelling

For habitat suitability modelling, the widely used software Maxent for maximum entropy modelling of species' geographic distributions was used. Maxent is a general-purpose machine-learning method with a simple and precise mathematical formulation, and has a number of aspects that make it well-suited for species distribution modelling when only presence (occurrence) data but not absence data are available (Philips et al. 2006). Because EUNIS habitats have a particular species composition, they are assumed to respond to specific ecological requirements, allowing us to generate correlative estimates of geographic distributions. Modelling habitats that have been floristically defined is a well-known procedure for ecological modelling at local scales, and a promising technique to be applied also at the continental level.

The Maxent modelling procedure considers presence data (known observations of a given entity) and the so-called background data. Background data comprise a set of points used to describe the environmental variation of the study area according to the available environmental layers. It is assumed that these layers represent well the most important ecological gradients on a European scale. The layers were selected from meaningful environmental predictors commonly used for modelling non-tropical plant and vegetation diversity, and are not mutually strongly correlated. In addition to what was selected as predictors in previous years (Hennekens 2016, 2017), also so-called RS-EBV's (Remote Sensed Essential Biodiversity Variables; predictors based on remote sensing data), such as LAI, phenology, land cover, chlorophyll content, inundation, vegetation height have now been applied.

It is assumed that by using additional meaningful predictors such as the RS-EBV's, the modelling will result in more realistic suitability maps with less outliers (prediction in areas where the habitat is not expected to be present).

As a side effect of using the RS-EBS's the study area now excludes countries like Russia, Belarus and Ukraine in the east part of Europe. This also has led to better predictions because the very eastern part of Europe is currently not well represented in EVA.

Map 1.1: **Example of a suitability map indicating the geographic area with grey colour that has been taken into account for this study.**
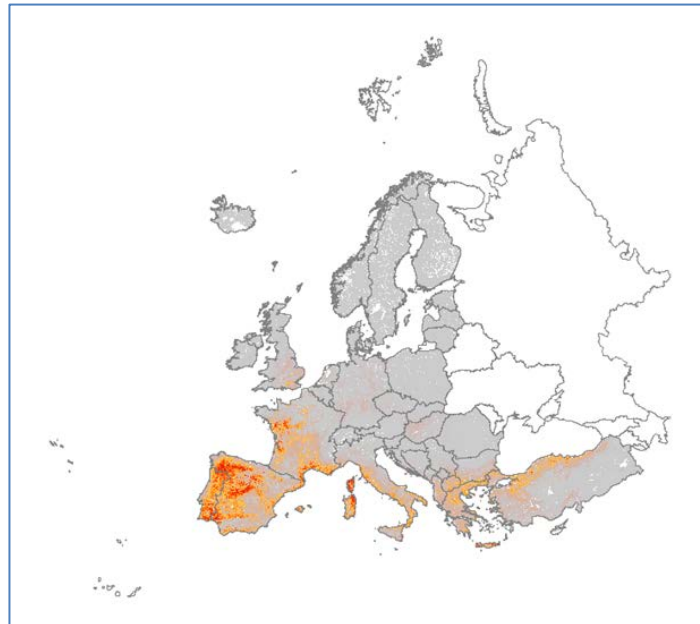
As predictors (and their sources) the following layers have been used:

Climate

- Potential Evapotranspiration
  http://www.cgiar-csi.org/data/global-aridity-and-pet-database

- Solar radiation
  http://www.worldgrids.org/doku.php?id=wiki:inmsre3

- Temperature Seasonality (standard deviation *100)
  http://www.worldclim.org/bioclim

- Mean Temperature of Wettest Quarter
  http://www.worldclim.org/bioclim

- Annual Precipitation
  http://www.worldclim.org/bioclim

- Precipitation Seasonality (Coefficient of Variation)
  http://www.worldclim.org/bioclim

- Precipitation of Warmest Quarter
  http://www.worldclim.org/bioclim

Topography

- Distance to water (rivers, lakes, sea)
  derived from the shapefile 'Inland_Waters.shp'

- Digital Elevation Map (DEM)

Soil

- Bulk density of the soil (kg/m³)
  Hengl et al. 2014

- Cation Exchange Capacity of the soil
  Hengl et al. 2014

- Weight in % of clay particles (<0.0002 mm)
  Hengl et al. 2014

- Volume % of coarse fragments (> 2 mm)
  Hengl et al. 2014

- Soil organic carbon content (‰)
  Hengl et al. 2014

- Soil pH (water)
  Hengl et al. 2014

- Weight in % of silt particles (0.0002-0.05 mm)
  Hengl et al. 2014

- Weight in % of sand particles (0.05-2 mm)
  Hengl et al. 2014

RS-EBV's

- Inundation; occurrence
  Global Surface Water Explorer, 1984-2015, 30m, resampled to 1km (resampling methods: average resampling and mode resampling (selects the value which appears most often of all the sampled points))

- Phenology; End of Season (day number)
  End of Season, defined as the point in time where the NDVI drops below the NDVI at the start of the growing season

- Phenology; Length of season (days)
  Length of season, number of days between EoS and Sos [days]

- Phenology; Low of season (day number)
  Phenology; Low of season (day number with lowest NDVI)

- Phenology; NDVI mean
  Mean NDVI [0..10000]

- Phenology; NDVI seasonality
  Minimum NDVI [0..10000]

- Phenology; Peak of season (day number)
  Phenology; Peak of season (day number with highest NDVI)

- Phenology; Start of Season (day number)
  Start of Season, defined as the point in the year with the largest positive rate of change (maximum of 1st derivative) [day of year 1..365]

- Vegetation height (m)
 3D Global Vegetation Map, 2000, 1km

More information on predictors and particularly on RS-EBS's can be found here: https://www.synbiosys.alterra.nl/nextgeoss/docs/Description_Abiotic_and_RSEBVs.pdf

Maxent is expected to perform well for estimating the geographic distribution of EUNIS habitats in Europe. However, as with any other modelling techniques this method is sensitive to sampling bias, i.e. when the spatial distribution of presence data is reflecting an unequal sampling effort in different geographic regions. In Maxent, it has been proposed that the best way to account for sampling bias (when bias is known or expected to occur) is to generate background data reflecting the same bias of the presence data. When a complete set of presence data is available, a general recommendation is to generate background points from the occurrences of other species/communities that were sampled in a similar way (Elith et al. 2011).

Two different approaches have therefore been followed for the selection of a maximum of 5,000 locations for the background data, assuming biased and non-biased presence data. For the first approach, 5,000 locations were randomly selected by Maxent from the study area, whereas the second approach concerns a random stratified (one sample per 1x1 km grid) selection of 5,000 background locations of plots present in the EVA database. Concerning the observed occurrences of the EUNIS types also a random stratified selection has been applied with a maximum of 5000 observations.

The two modelling approaches (assuming biased and non-biased data) were evaluated for each of the EUNIS habitat types in order to estimate which assumption is more likely. Surprisingly the current study showed that all maps using background data that was randomly selected by Maxent were far more better (by visual inspection) than the maps produced using background randomly derived from the EVA database. Map 1.2a clearly shows on overestimation of habitat type F1.6a (Fagus forest on non-acid soils) in a large part of Europe, whereas Map 1.2b present of more realistic picture

Map 1.2   **Left a: EUNIS type F1.6a; background data based on locations from randomly selected plots n the EVA database**
                     Right b: EUNIS type F1.6a; background data randomly selected from the study area by Maxent
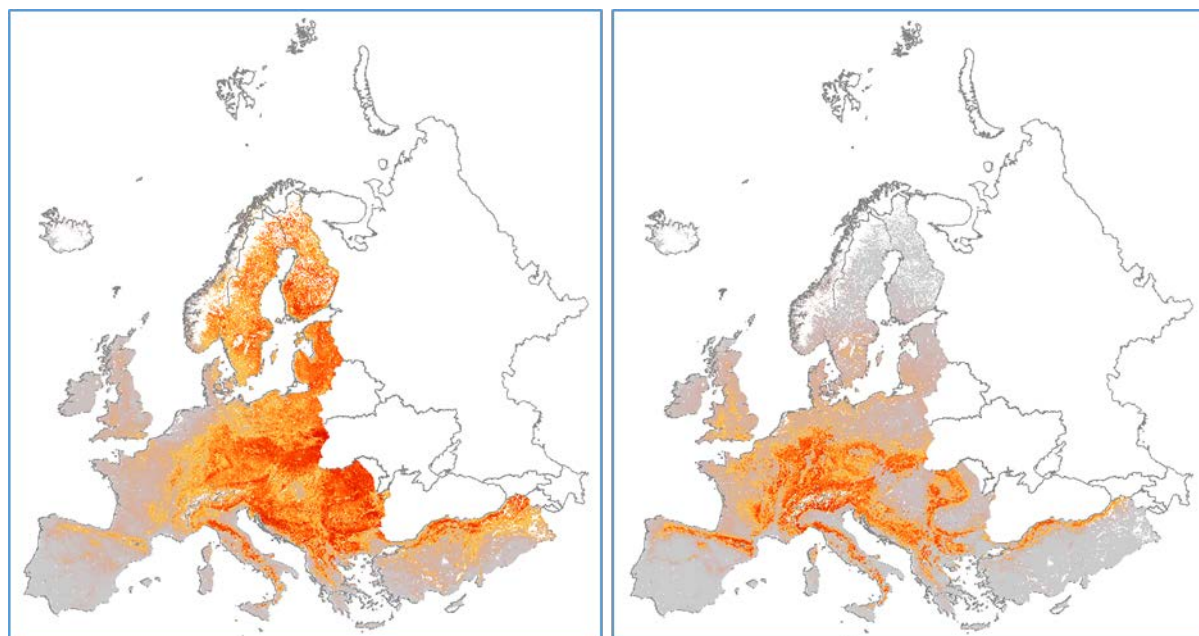
Another test that was performed was running all models with and without the RS-EBV's predictors. In map 1.3a and 1.3b it is shown that leaving out RS-EBS's does not affect the distribution range. However it also shown that including RS-EBS's the suitability is more differentiated.

Map 1.3   **Left a: model without RS-EBV's. Right b: model with RS-EBV's**
              Below Left c: detail of model without RS-EBV's Left d: detail of model with RS-EBV's
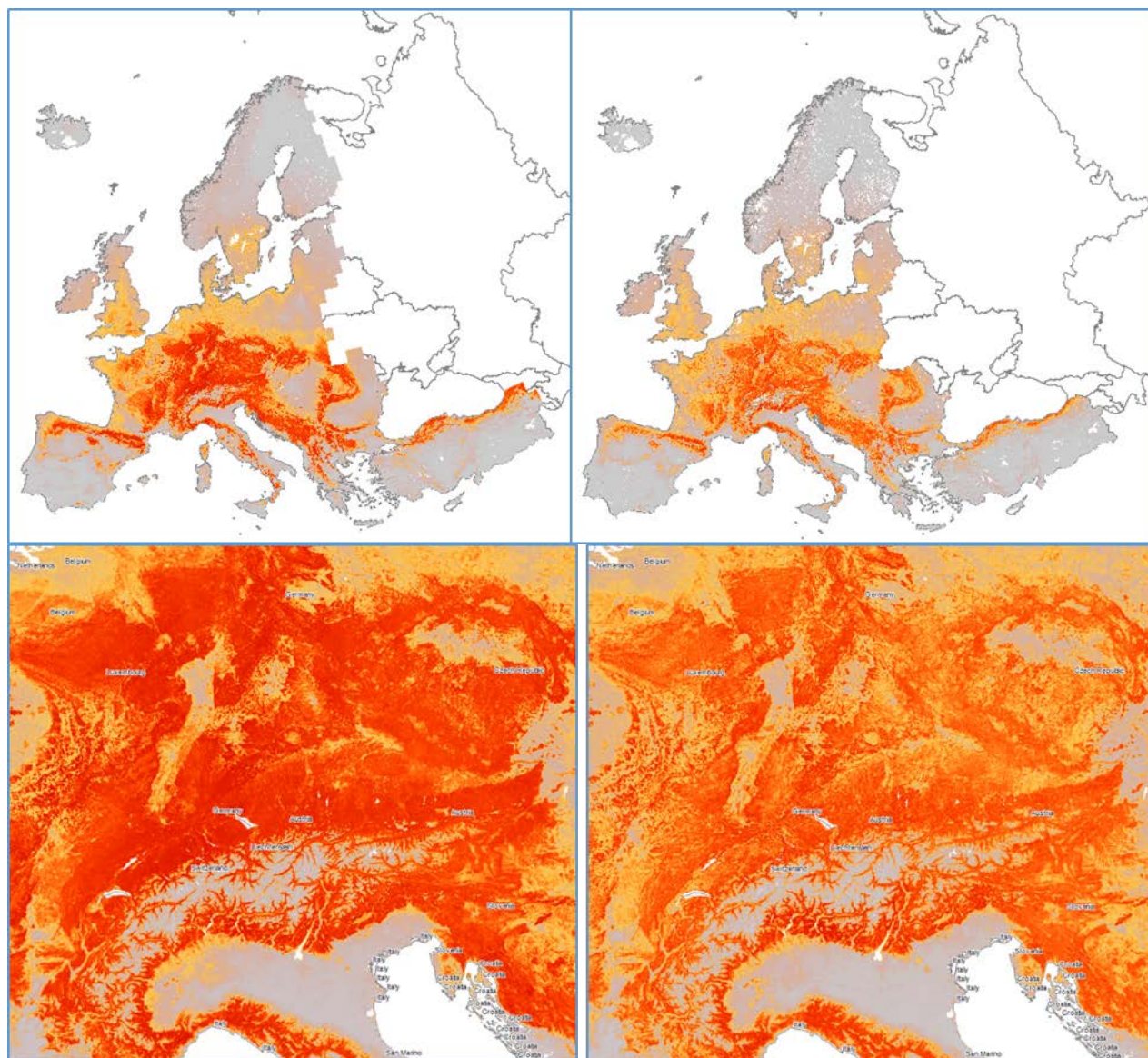
2   Results

Appendix A presents the list of all habitat types included in the revised classification of the EUNIS groups E, F and G with indication if a distribution map and a suitability map are provided.
For a number of habitat types no maps could have been provided because:

- The habitat type cannot be defined on a floristic basis and is therefore excluded from the classification process (e.g. G28 - Broadleaved evergreen plantation of non site-native trees);

- the habitat type occurs outside the study area (e.g. Canary islands);

- insufficient data is available to produce a model.

Then the results of the analysis are presented. For each EUNIS habitat type the following data are presented:

- A distribution map showing the location of the relevés that have been assigned to the EUNIS type concerned and therefore used as presence data.

- A habitat suitability map with colours varying from grey, through orange to red, indicating increasingly favourable ecological conditions for the type (expressing the logistic output of the model between 0 and 1).

- AUC, or the Area Under the Curve, as a general estimate of model performance. This is the probability that the classifier correctly orders two points (a random positive example and a random negative example). In general, AUC values in the range 0.5-0.7 were considered low, 0.7-0.9 were moderate and >0.9 were high, suggesting poor, good and very good model performances, respectively. We provide two estimates of the AUC as calculated by Maxent. 'AUC training' reflects the internal fit between observed and predicted occurrences in the computed model. 'AUC test' provides the mean AUC obtained from a 10-fold cross-validation procedure in which ten different models were computed with a random selection of 90% of data (calibration data set) and 10% for testing the model (validation data set).

- Contribution in percentage of the predictors to the Maxent model. It indicates to what extent the environmental variables contribute to the model.

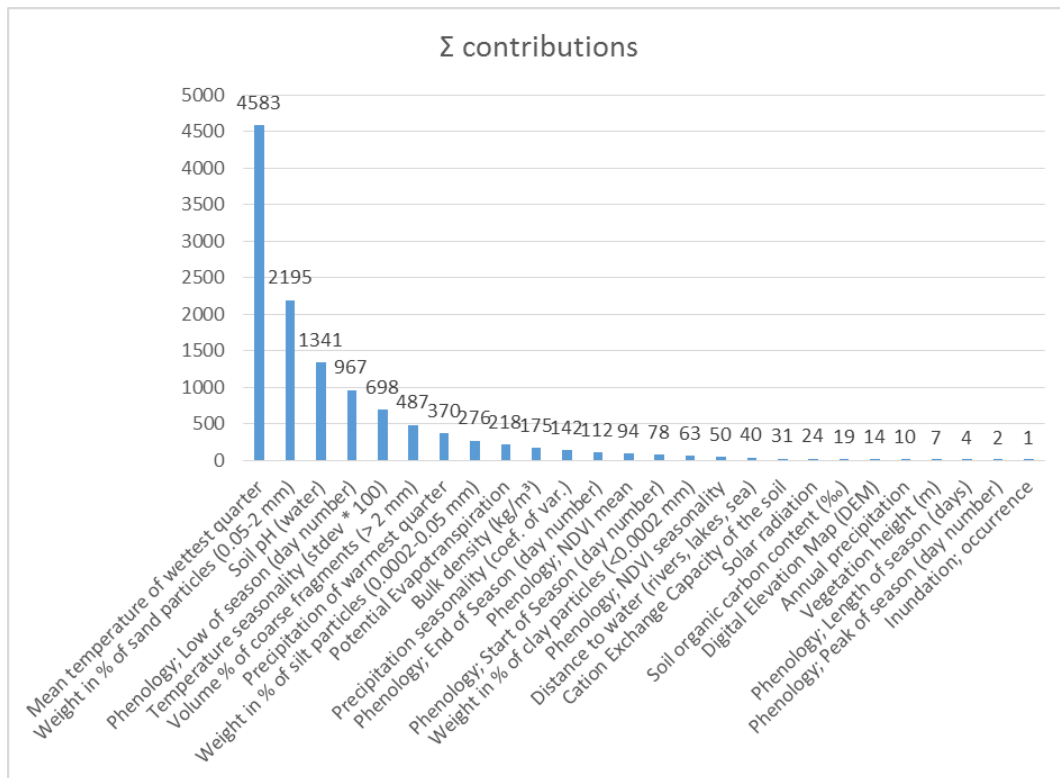- Comment of John Janssen on the distribution maps.

Figure 2.1: Summary of contributions of all suitability models.

Distribution and habitat suitability maps of revised EUNIS grassland, heathland, scrub, tundra and forest types

3   Discussion

In general the range of the **suitability** maps is very much in line with the range of the **distribution** maps. This in contrast to previous reports on the suitability maps of EUNIS habitats (Hennekens 2016, 2017). This effect is probably caused by the fact that the study area in the current reporting does not included a large part of Eastern Europe, an area that is underrepresented in the EVA database.

The addition of RS-EBV's does not affect the overall range of the suitability map as is demonstrated in Maps 1.3a and 1.3 b. The contributions of the predictors to the model seem to underpin this assumption (see Figure 2.1), as in almost all models climate and soil parameters are the main explaining factors (except for RS-EBV 'Phenology; Low of season (day number)' = Day with the lowest NDVI value within a year).

When it comes to details however, Maps 1.3c and 1.3 d show that RS-EBV's do have a significant added value. By including RS-EBV's in the models the distribution becomes much more differentiated.

The suitability maps are the result of a modelling process with all the potential shortcoming associated with it. On the basis of a limited set of predictors (climate and soil parameters, as well as RS-EBV's), and a selection of in situ observations a probability is calculated for each grid cell. This process contains a number of uncertainties:

- The assignment of a plot observation to a EUNIS habitat type is based on expert rules. These rules may need further refinement, which could lead to different results.
- The number of plot observations may be too small to deliver an accountable model, although in most cases this doesn't seem to be a problem in the present study.
- The degree of detail in the predictor maps could be too limited, in other words the maps with a grid size of 1x1km could be too coarse. Plants, that form the basis of a habitat type operate on a much smaller scale then 1x1km. And in the field micro climate and soil parameter may differ significantly over short distances.
- Climate and soil parameters may be well represented in the set of predictors, but there are more factors that determine the suitability of a habitat type. For example chemical soil parameters are very important, but are simply not captured in a map on the European scale.

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Appendix A: List of EUNIS habitat types (group E, F & G) with indication of availability of distribution and suitability maps

Appendix A: List of EUNIS habitat types (group E, F & G) with indication of availability of distribution and suitability maps.

New code	Old code	Habitat name	Distribution map	Suitability map
R11	E11a	Pannonian and Pontic sandy steppe	x	x
R12	E11b	Cryptogam- and annual-dominated vegetation on siliceous rock outcrops	x	x
R13	E11d	Cryptogam- and annual-dominated vegetation on calcareous and ultramafic rock outcrops	x	x
R14	E11e	Perennial rocky grassland of the Italian Peninsula	x	x
R15	E11f	Continental dry rocky steppic grassland and dwarf scrub on chalk outcrops	x	x
R16	E11g	Perennial rocky grassland of Central and South-Eastern Europe	x	x
R17	E11h	Heavy-metal dry grassland of the Balkans	x	x
R18	E11i	Perennial rocky calcareous grassland of subatlantic-submediterranean Europe	x	x
R19	E11j	Dry steppic submediterranean pasture of the Amphi-Adriatic region	x	x
R1A	E12a	Semi-dry perennial calcareous grassland (meadow steppe)	x	x
R1B	E12b	Continental dry grassland (true steppe)	x	x
R1C	E12c	Desert steppe	x	x
R1D	E13a	Mediterranean closely grazed dry grassland	x	x
R1E	E13b	Mediterranean tall perennial dry grassland	x	x
R1F	E13c	Mediterranean annual-rich dry grassland	x	x
R1G	E15a	Iberian oromediterranean siliceous dry grassland	x	x
R1H	E15b	Iberian oromediterranean basiphilous dry grassland	x	x
R1J	E15c	Cyrno-Sardean oromediterranean siliceous dry grassland	x	x
R1K	E15d	Balkan and Anatolian oromediterranean dry grassland	x	x
R1L	E15e	Madeiran oromediterranean siliceous dry grassland	x	x
R1M	E17	Lowland to montane, dry to mesic grassland usually dominated by Nardus stricta	x	x
R1N	E18	Open Iberian supramediterranean dry acid and neutral grassland	x	x

R1P	E19a	Oceanic to subcontinental inland sand grassland on dry acid and neutral soils	x	
R1Q	E19b	Inland sanddrift and dune with siliceous grassland	x	x
R1R	E1A	Mediterranean to Atlantic open, dry, acid and neutral grassland	x	x
R1S	E1B	Heavy-metal grassland in Western and Central Europe	x	x
R1T	E1F	Azorean open, dry, acid to neutral grassland	x	
R21	E21	Mesic permanent pasture of lowlands and mountains	x	x
R22	E22	Low and medium altitude hay meadow	x	x
R23	E23	Mountain hay meadow	x	x
R24	E24	Iberian summer pasture (vallicar)	x	x
R31	E31a	Mediterranean tall humid inland grassland	x	x
R32	E32a	Mediterranean short moist grassland of lowlands	x	x
R33	E32b	Mediterranean short moist grassland of mountains	x	x
R34	E33	Submediterranean moist meadow	x	x
R35	E34a	Moist or wet mesotrophic to eutrophic hay meadow	x	x
R36	E34b	Moist or wet mesotrophic to eutrophic pasture	x	x
R37	E35	Temperate and boreal moist or wet oligotrophic grassland	x	x
R41	E41	Snow-bed vegetation	x	x
R42	E43a	Boreal and arctic acidophilous alpine grassland	x	x
R43	E43b	Temperate acidophilous alpine grassland	x	x
R44	E44a	Arctic-alpine calcareous grassland	x	x
R45	E44b	Alpine and subalpine calcareous grassland of the Balkans and Apennines	x	x
R51	E52a	Thermophilous forest fringe of base-rich soils	x	x
R52	E52b	Forest fringe of acidic nutrient-poor soils	x	x
R53	E52c	Macaronesian thermophilous forest fringe	x	
R54	E53	Pteridium aquilinum vegetation	x	x
R55	E54	Lowland moist or wet tall-herb and fern fringe	x	x
R56	E55	Montane to subalpine moist or wet tall-herb and fern fringe	x	x
R57	E56	Herbaceous forest clearing vegetation	x	x
R61	E61	Mediterranean inland salt steppe	x	x
R62	E62	Continental inland salt steppe	x	x

R63	E63	Temperate inland salt marsh	x	x
R64	E64	Semi-desert salt pan	x	
R65	E65	Continental subsaline alluvial pasture and meadow	x	
R71	E71	Temperate wooded pasture and meadow		
R72	E72	Hemiboreal and boreal wooded pasture and meadow		
R73	E73	Mediterranean wooded pasture and meadow		
S11	F11	Shrub tundra	x	x
S12	F12	Moss and lichen tundra	x	x
S21	F21	Subarctic and alpine dwarf Salix scrub	x	x
S22	F22a	Alpine and subalpine ericoid heath	x	x
S23	F22b	Alpine and subalpine Juniperus scrub	x	x
S24	F22c	Subalpine genistoid scrub of the Amphi-Adriatic region	x	x
S25	F23	Subalpine and subarctic deciduous scrub	x	x
S26	F24	Subalpine Pinus mugo scrub	x	x
S31	F31a	Lowland to montane temperate and submediterranean Juniperus scrub	x	x
S32	F31b	Temperate Rubus scrub	x	x
S33	F31c	Lowland to montane temperate and submediterranean genistoid scrub	x	x
S34	F31d	Balkan-Anatolian submontane genistoid scrub	x	
S35	F31e	Temperate and submediterranean thorn scrub	x	x
S36	F31f	Low steppic scrub	x	x
S37	F31g	Corylus avellana scrub	x	x
S38	F31h	Temperate forest clearing scrub	x	x
S41	F41	Wet heath	x	x
S42	F42	Dry heath	x	x
S43	F43	Macaronesian heath	x	
S51	F51	Mediterranean maquis and arborescent matorral	x	x
S52	F53	Submediterranean pseudomaquis	x	x
S53	F54	Spartium junceum scrub	x	x
S54	F55	Thermomediterranean arid scrub	x	x
S61	F61a	Western basiphilous garrigue	x	x
S62	F61b	Western acidophilous garrigue	x	x
S63	F62	Eastern garrigue	x	x
S64	F65	Macaronesian garrigue	x	
S65	F67	Mediterranean gypsum scrub	x	x
S66	F68a	Mediterranean halo-nitrophilous scrub	x	x
S67	F68b	Aralo-Caspian semi-desert	x	

| S68	F68c	Semi-desert sand dune with sparse scrub	x	
S71	F71	Western Mediterranean spiny heath	x	x
S72	F73	Eastern Mediterranean spiny heath (phrygana)	x	x
S73	F74a	Western Mediterranean mountain hedgehog-heath	x	x
S74	F74b	Central Mediterranean mountain hedgehog-heath	x	x
S75	F74c	Eastern Mediterranean mountain hedgehog-heath	x	x
S76	F74d	Canarian mountain hedgehog-heath	x	
S81	F81	Canarian xerophytic scrub	x	
S82	F82	Madeiran xerophytic scrub	x	
S91	F91	Temperate riparian scrub	x	x
S92	F92	Salix fen scrub	x	x
S93	F93	Mediterranean riparian scrub	x	x
S94	F94	Semi-desert riparian scrub	x	
T11	G11	Temperate Salix and Populus riparian forest	x	x
T12	G12a	Alnus glutinosa-Alnus incana forest on riparian and mineral soils	x	x
T13	G12b	Temperate hardwood riparian forest	x	x
T14	G13	Mediterranean and Macaronesian riparian forest	x	x
T15	G14	Broadleaved swamp forest on non-acid peat	x	x
T16	G15	Broadleaved mire forest on acid peat	x	x
T17	G16a	Fagus forest on non-acid soils	x	x
T18	G16b	Fagus forest on acid soils	x	x
T19	G17a	Temperate and submediterranean thermophilous deciduous forest	x	x
T1A	G17b	Mediterranean thermophilous deciduous forest	x	x
T1B	G18	Acidophilous Quercus forest	x	x
T1C	G19a	Temperate and boreal mountain Betula and Populus tremula forest on mineral soils	x	x
T1D	G19b	Southern European mountain Betula and Populus tremula forest on mineral soils	x	x
T1E	G1Aa	Carpinus and Quercus mesic deciduous forest	x	x
T1F	G1Ab	Ravine forest	x	x
T1G	G1Ba	Alnus cordata forest	x	x
T1H	G1C	Broadleaved deciduous plantation of non site-native trees	x	x
T1J		Deciduous self sown forest of non site-native trees		

T1K		Broadleaved deciduous plantation of site-native trees		
T21	G21	Mediterranean evergreen Quercus forest	x	x
T22	G22	Mainland laurophyllous forest	x	x
T23	G23	Macaronesian laurophyllous forest	x	
T24	G24	Olea europaea-Ceratonia siliqua forest	x	x
T25	G25a	Phoenix theophrasti vegetation	x	
T26	G25b	Phoenix canariensis vegetation	x	
T27	G26	Ilex aquifolium forest	x	x
T28	G27	Macaronesian heathy forest	x	
T29	G28	Broadleaved evergreen plantation of non site-native trees	x	x
T2A		Broadleaved evergreen plantation of site-native trees		
T31	G31a	Temperate mountain Picea forest	x	x
T32	G31b	Temperate mountain Abies forest	x	x
T33	G31c	Mediterranean mountain Abies forest	x	x
T34	G32	Temperate subalpine Larix, Pinus cembra and Pinus uncinata forest	x	x
T35	G34a	Temperate continental Pinus sylvestris forest	x	
T36	G34b	Temperate and submediterranean montane Pinus sylvestris-Pinus nigra forest	x	x
T37	G34c	Mediterranean montane Pinus sylvestris-Pinus nigra forest	x	x
T38	G34d	Mediterranean montane Cedrus forest	x	
T39	G36	Mediterranean and Balkan subalpine Pinus heldreichii-Pinus peuce forest	x	x
T3A	G37	Mediterranean lowland to submontane Pinus forest	x	x
T3B	G38	Pinus canariensis forest	x	
T3C	G39a	Taxus baccata forest	x	x
T3D	G39b	Mediterranean Cupressaceae forest	x	x
T3E	G39c	Macaronesian Juniperus forest	x	
T3F	G3A	Dark taiga	x	x
T3G	G3B	Pinus sylvestris light taiga	x	x
T3H	G3C	Larix light taiga	x	
T3J	G3Da	Pinus and Larix mire forest	x	x
T3K	G3Db	Picea mire forest	x	x
T3L		Coniferous self sown forest of non site-native trees		
T3M	G3F1	Coniferous plantation of non site-native trees		
T3N	G3F2	Coniferous plantation of site-native trees	x	x

T41	G56	Early-stage natural and semi-natural forest and regrowth		
T42	G57	Coppice		
T43	G58	Recently felled areas		

R11 - [E11a] Pannonian and Pontic sandy steppe - distribution
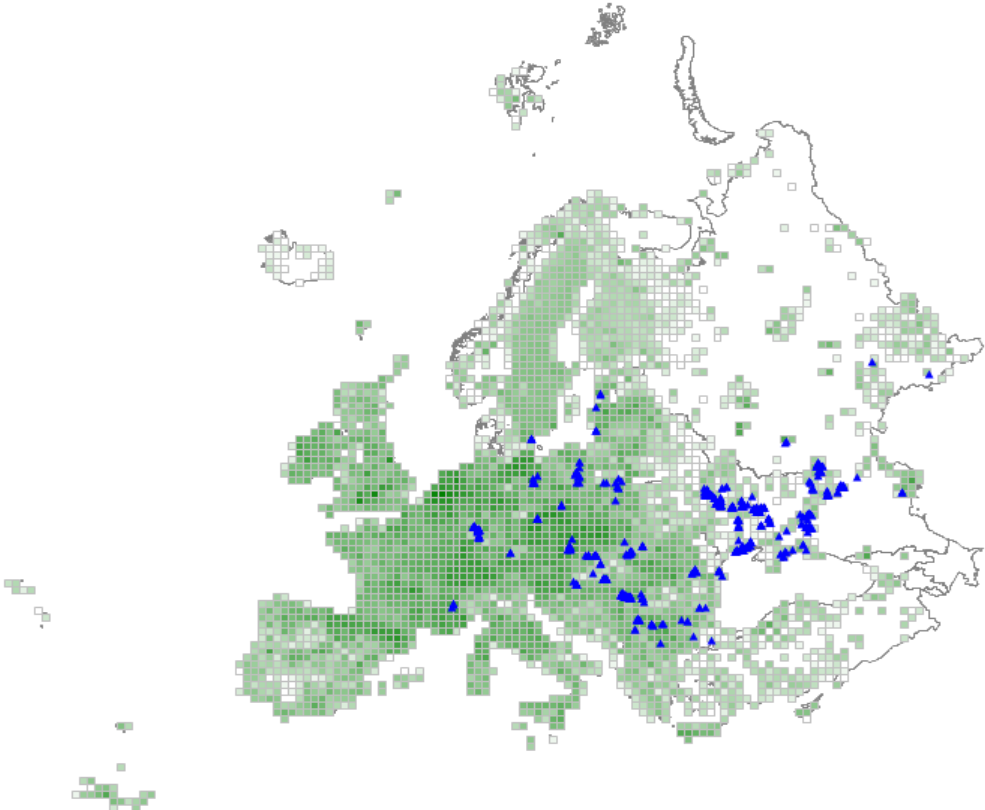
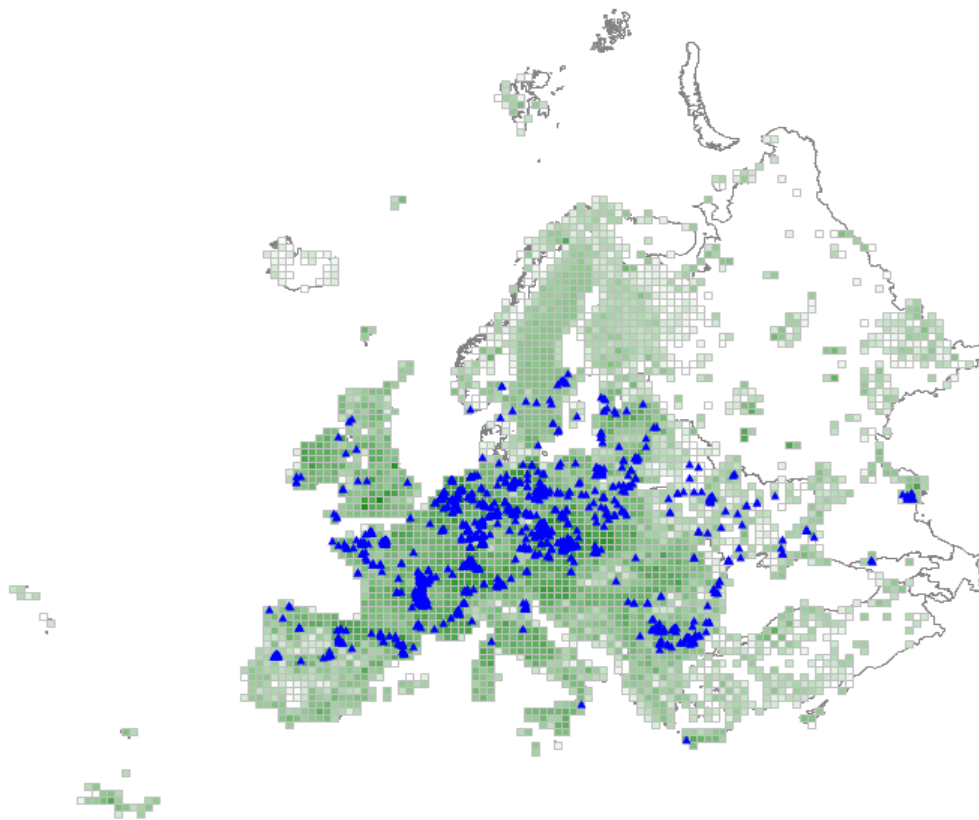# R11 - [E11a] Pannonian and Pontic sandy steppe - suitability
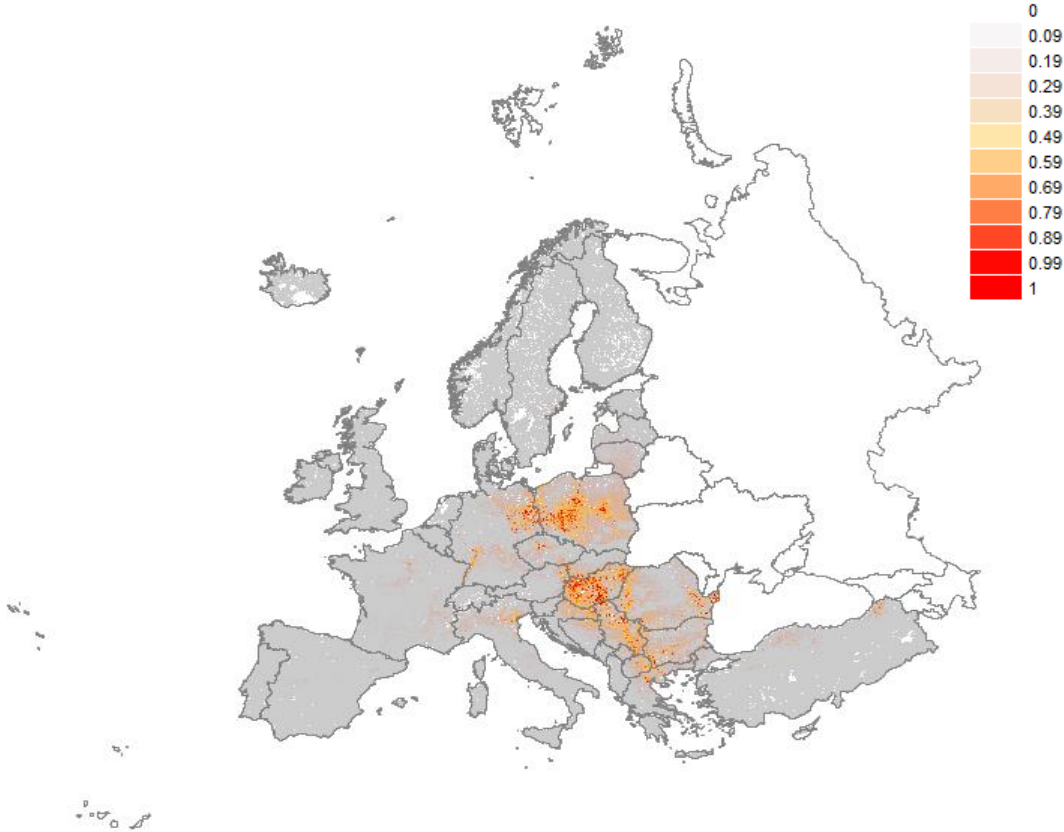
Statistics from Maxent modelling

AUC training (0-1)	0.9668
AUC test (0-1)	0.9276
Contribution variables to the Maxent model (%)	
Mean temperature of wettest quarter	50.1992
Weight in % of sand particles (0.05-2 mm)	9.2657
Soil pH (water)	6.4668
Phenology; Low of season (day number)	4.5394
Temperature seasonality (stdev * 100)	4.3917
Volume % of coarse fragments (> 2 mm)	3.1232
Precipitation of warmest quarter	3.0735
Weight in % of silt particles (0.0002-0.05 mm)	2.4589
Potential Evapotranspiration	2.2161
Bulk density (kg/m³)	2.1435
Precipitation seasonality (coef. of var.)	2.1249
Phenology; End of Season (day number)	2.1219
Phenology; NDVI mean	1.236
Phenology; Start of Season (day number)	0.9044
Weight in % of clay particles (<0.0002 mm)	0.8551
Phenology; NDVI seasonality	0.8537
Distance to water (rivers, lakes, sea)	0.8013
Cation Exchange Capacity of the soil	0.6214
Solar radiation	0.5959
Soil organic carbon content (‰)	0.5804
Digital Elevation Map (DEM)	0.4605
Annual precipitation	0.3809
Vegetation height (m)	0.329
Phenology; Length of season (days)	0.2288
Phenology; Peak of season (day number)	0.0186
Inundation; occurrence	0.0094

Comparison of distribution with Red List maps by John Janssen

The EUNIS definition is much broader than the Red List one; the latter applied the syntaxa within a narrow geographical region

R12 - [E11b] Cryptogam- and annual-dominated vegetation on siliceous rock outcrops - distribution

**R12 - [E11b] Cryptogam- and annual-dominated vegetation on siliceous rock outcrops - suitability**
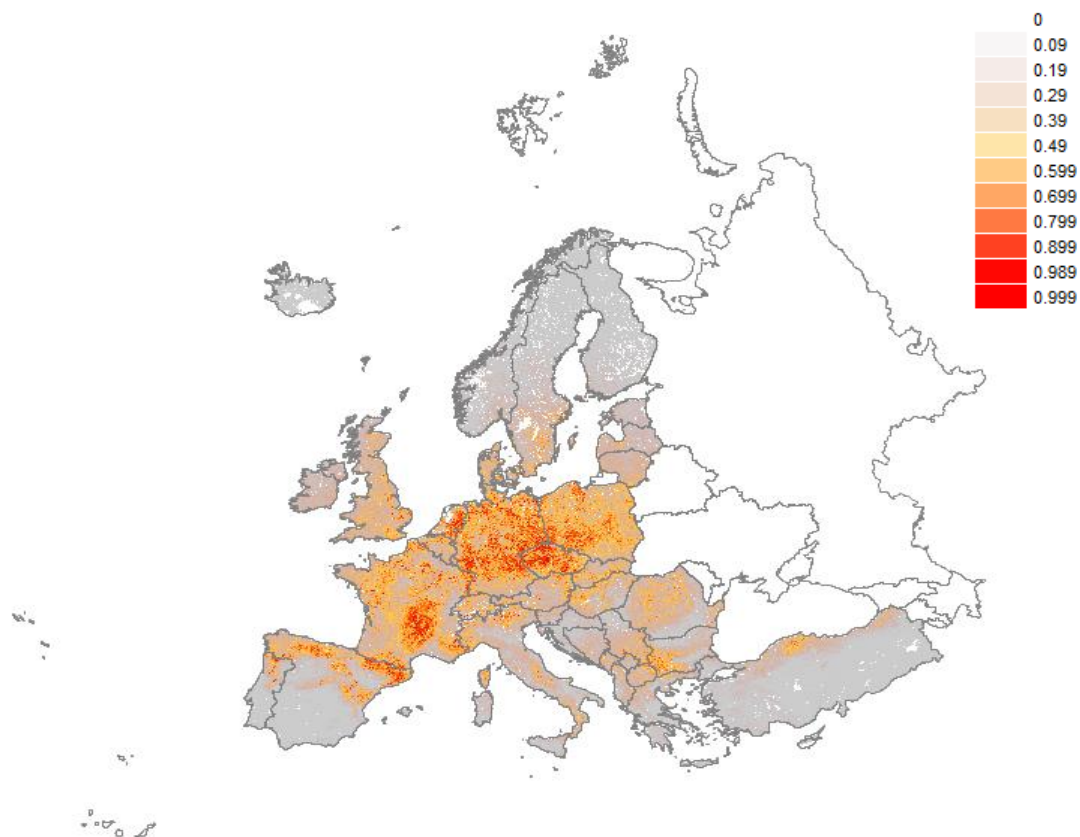
Statistics from Maxent modelling

AUC training (0-1)	0.8577
AUC test (0-1)	0.8251
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	25.1984
Bulk density (kg/m³)	16.1151
Potential Evapotranspiration	11.9708
Temperature seasonality (stdev * 100)	9.6334
Distance to water (rivers, lakes, sea)	5.3581
Soil pH (water)	4.2008
Weight in % of clay particles (<0.0002 mm)	3.8599
Volume % of coarse fragments (> 2 mm)	3.7712
Vegetation height (m)	3.1756
Annual precipitation	2.9339
Phenology; NDVI mean	2.6004
Digital Elevation Map (DEM)	2.5214
Weight in % of sand particles (0.05-2 mm)	2.232
Phenology; NDVI seasonality	1.5277
Mean temperature of wettest quarter	1.2081
Precipitation seasonality (coef. of var.)	0.978
Phenology; Length of season (days)	0.6944
Phenology; Low of season (day number)	0.6401
Phenology; Start of Season (day number)	0.346
Soil organic carbon content (‰)	0.296
Phenology; Peak of season (day number)	0.2887
Weight in % of silt particles (0.0002-0.05 mm)	0.2825
Phenology; End of Season (day number)	0.1025
Cation Exchange Capacity of the soil	0.0551
Inundation; occurrence	0.0051
Solar radiation	0.0047

R13 - [E11d] Cryptogam- and annual-dominated vegetation on calcareous and ultramafic rock outcrops - distribution
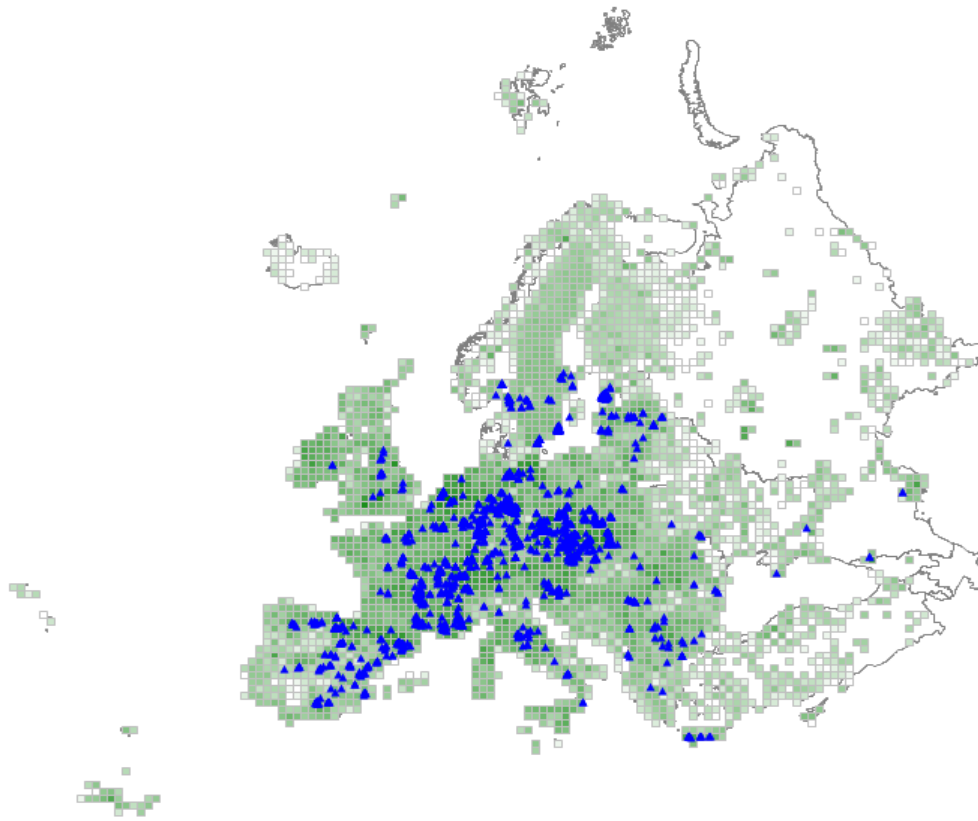
R13 - [E11d] Cryptogam- and annual-dominated vegetation on calcareous and ultramafic rock outcrops - suitability
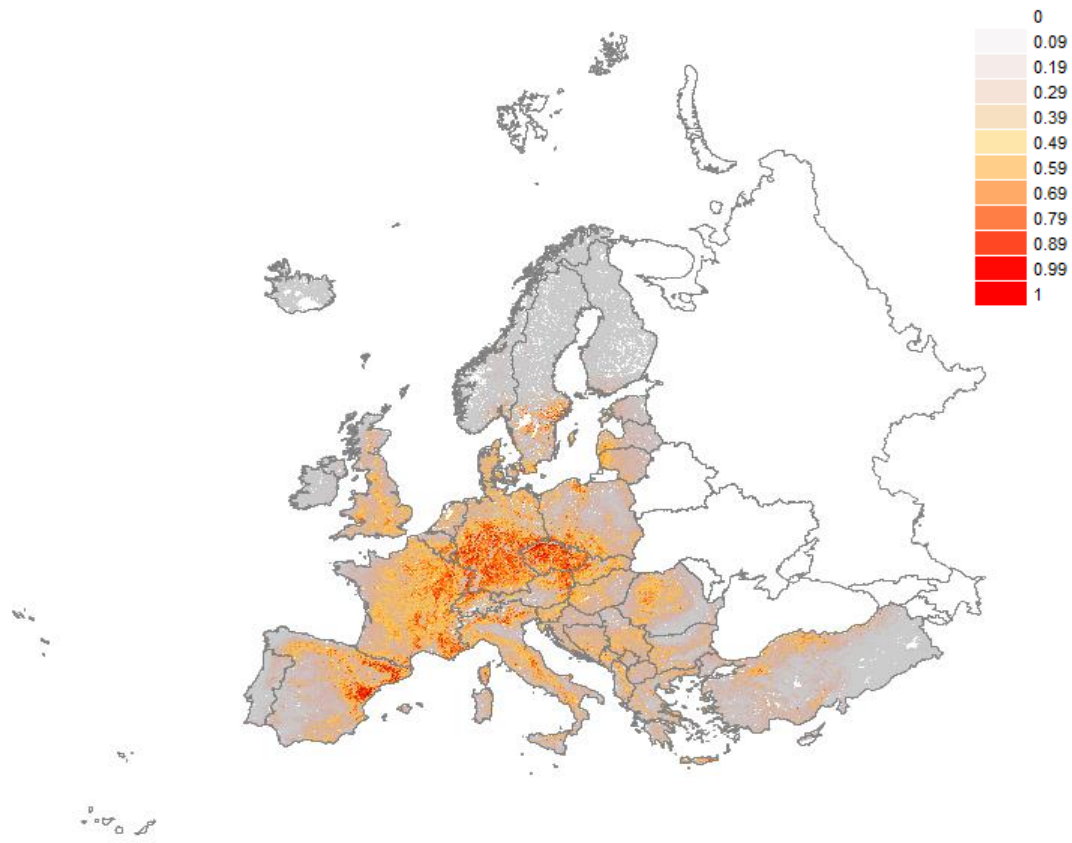
Statistics from Maxent modelling

AUC training (0-1)	0.84
AUC test (0-1)	0.8227
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	25.1818
Precipitation of warmest quarter	13.6443
Weight in % of clay particles (<0.0002 mm)	9.2685
Potential Evapotranspiration	9.2227
Soil pH (water)	7.9788
Phenology; Low of season (day number)	7.0371
Volume % of coarse fragments (> 2 mm)	4.642
Bulk density (kg/m³)	3.0536
Vegetation height (m)	2.7217
Annual precipitation	2.6401
Phenology; NDVI mean	2.4009
Mean temperature of wettest quarter	1.9602
Digital Elevation Map (DEM)	1.7869
Phenology; NDVI seasonality	1.4417
Phenology; Length of season (days)	1.3797
Phenology; Peak of season (day number)	1.2012
Cation Exchange Capacity of the soil	1.1099
Soil organic carbon content (‰)	0.7347
Phenology; End of Season (day number)	0.7326
Precipitation seasonality (coef. of var.)	0.7133
Distance to water (rivers, lakes, sea)	0.642
Weight in % of silt particles (0.0002-0.05 mm)	0.2252
Phenology; Start of Season (day number)	0.1638
Weight in % of sand particles (0.05-2 mm)	0.1124
Inundation; occurrence	0.005
Solar radiation	0

R14 - [E11e] Perennial rocky grassland of the Italian Peninsula - distribution
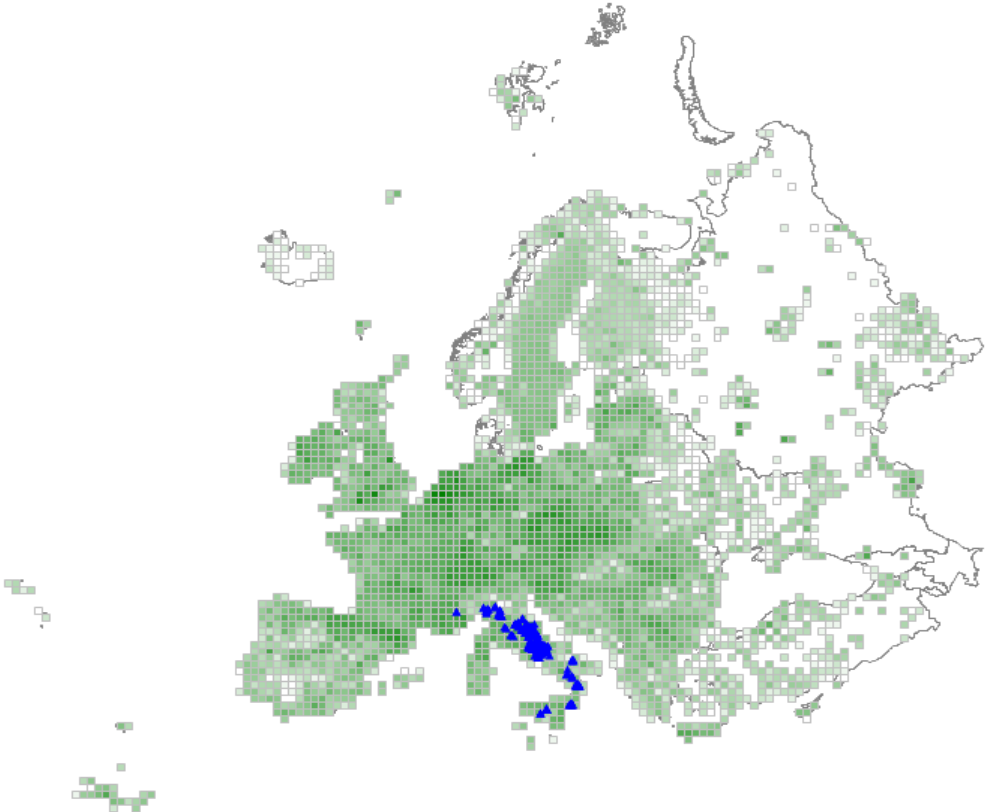
R14 - [E11e] Perennial rocky grassland of the Italian Peninsula - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.971
AUC test (0-1)	0.9646
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	31.3745
Weight in % of clay particles (<0.0002 mm)	16.1783
Temperature seasonality (stdev * 100)	14.7551
Annual precipitation	13.6499
Precipitation of warmest quarter	11.8397
Cation Exchange Capacity of the soil	2.7201
Mean temperature of wettest quarter	2.4082
Potential Evapotranspiration	2.0145
Volume % of coarse fragments (> 2 mm)	1.9932
Precipitation seasonality (coef. of var.)	0.9852
Soil pH (water)	0.9455
Vegetation height (m)	0.3935
Phenology; Start of Season (day number)	0.2028
Soil organic carbon content (‰)	0.1095
Bulk density (kg/m³)	0.0936
Weight in % of sand particles (0.05-2 mm)	0.0838
Phenology; Length of season (days)	0.0736
Phenology; NDVI mean	0.0446
Phenology; Peak of season (day number)	0.0343
Phenology; End of Season (day number)	0.0312
Phenology; Low of season (day number)	0.0204
Phenology; NDVI seasonality	0.0162
Solar radiation	0.0164
Distance to water (rivers, lakes, sea)	0.0115
Inundation; occurrence	0.0044
Weight in % of silt particles (0.0002-0.05 mm)	0

R15 - [E11f] Continental dry rocky steppic grassland and dwarf scrub on chalk outcrops - distribution
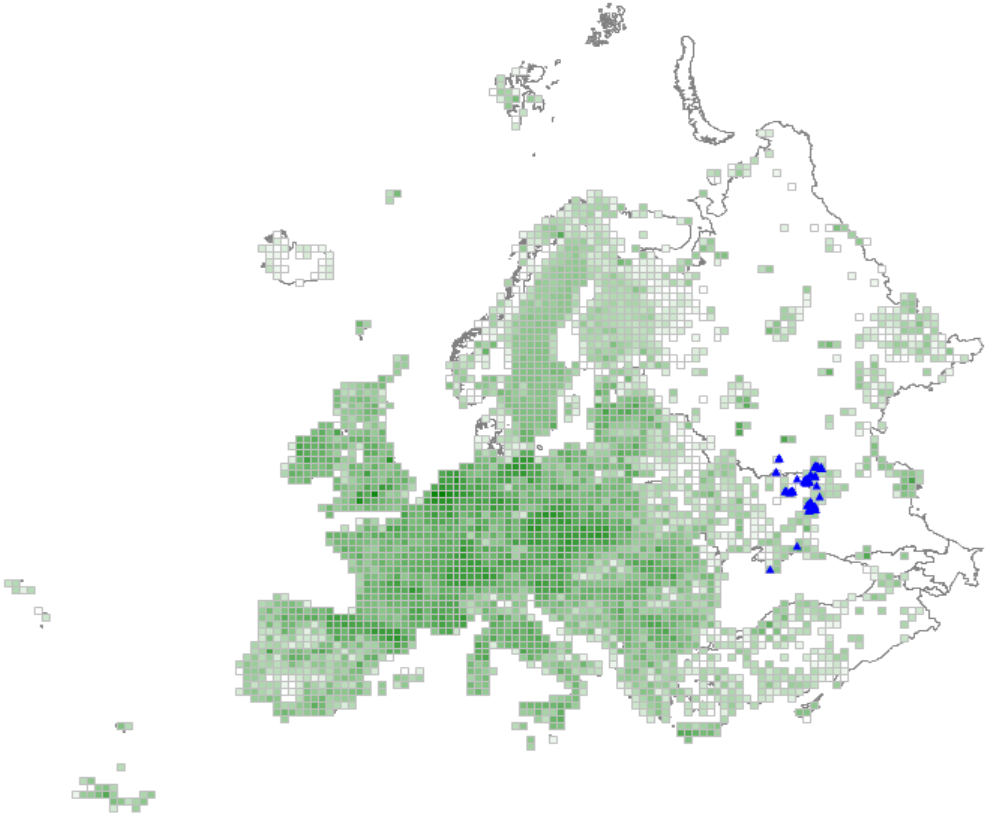
R15 - [E11f] Continental dry rocky steppic grassland and dwarf scrub on chalk outcrops - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

R16 - [E11g] Perennial rocky grassland of Central and South-Eastern Europe - distribution
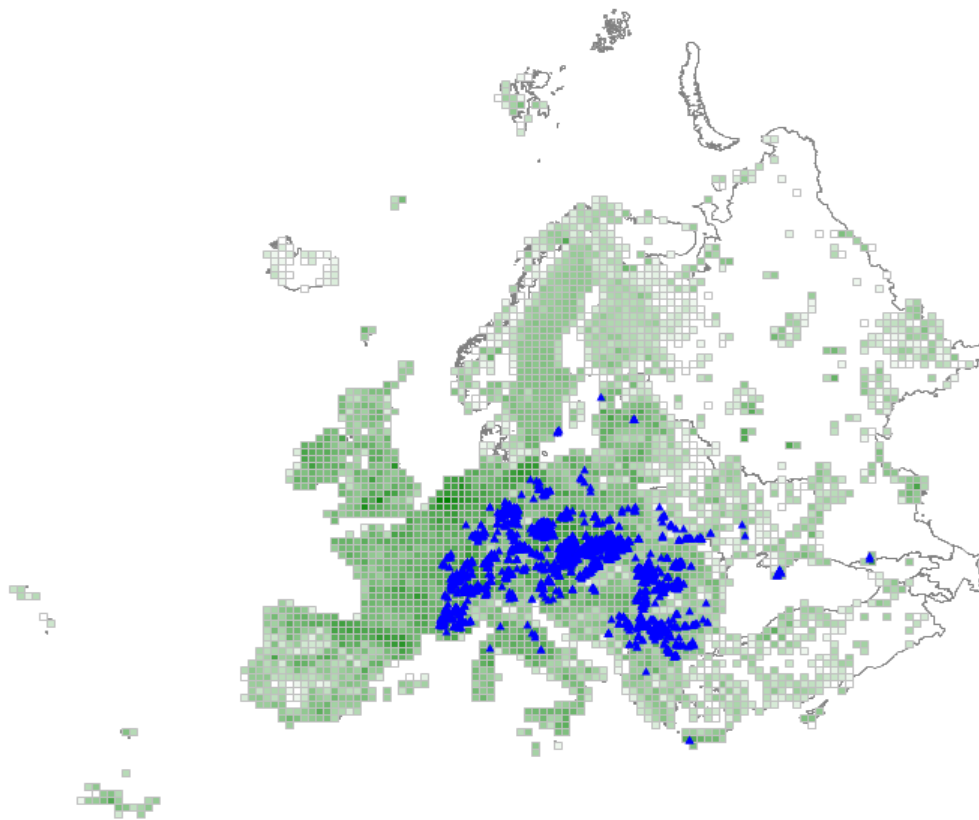
R16 - [E11g] Perennial rocky grassland of Central and South-Eastern Europe - suitability
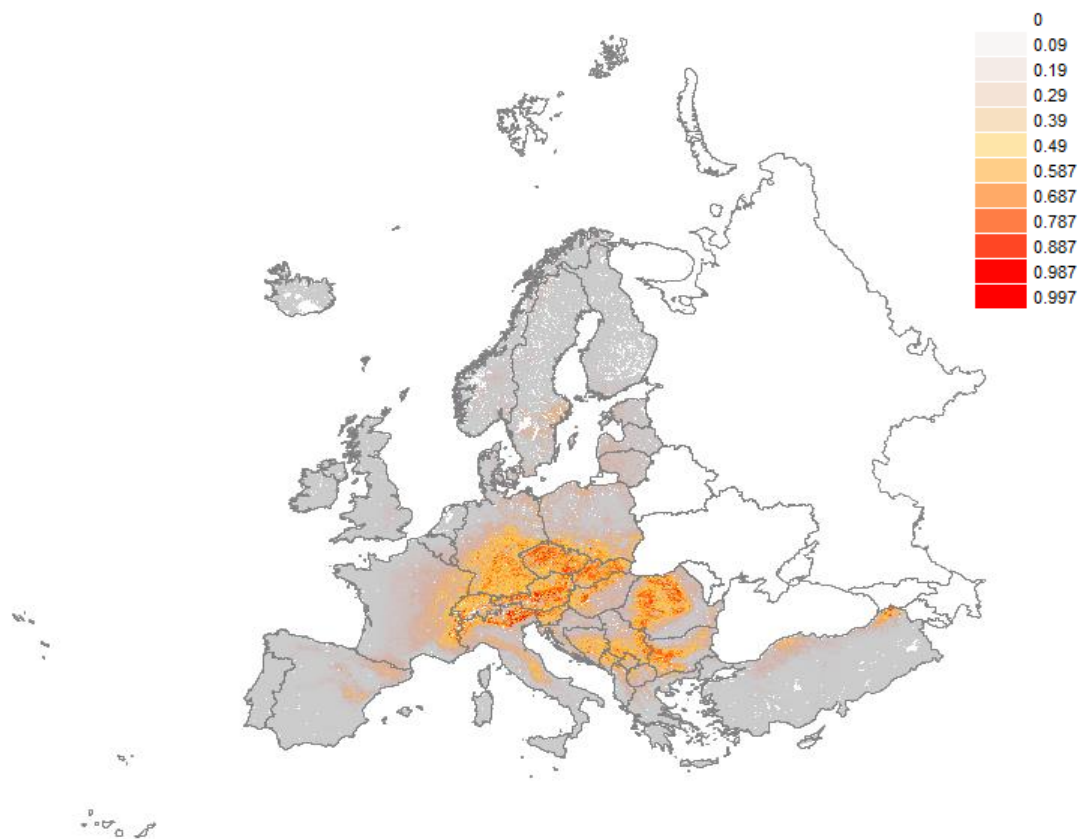
Statistics from Maxent modelling

AUC training (0-1)	0.84
AUC test (0-1)	0.8469
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	27.7792
Weight in % of clay particles (<0.0002 mm)	20.1889
Digital Elevation Map (DEM)	15.6084
Temperature seasonality (stdev * 100)	10.7531
Annual precipitation	5.4175
Potential Evapotranspiration	3.8877
Volume % of coarse fragments (> 2 mm)	2.8681
Mean temperature of wettest quarter	2.584
Phenology; NDVI mean	2.4759
Phenology; NDVI seasonality	1.8899
Phenology; End of Season (day number)	1.6438
Bulk density (kg/m³)	1.631
Soil pH (water)	1.3743
Phenology; Length of season (days)	0.6594
Precipitation seasonality (coef. of var.)	0.3257
Vegetation height (m)	0.255
Cation Exchange Capacity of the soil	0.222
Solar radiation	0.1439
Phenology; Peak of season (day number)	0.0803
Phenology; Low of season (day number)	0.0743
Soil organic carbon content (‰)	0.0545
Weight in % of silt particles (0.0002-0.05 mm)	0.0391
Weight in % of sand particles (0.05-2 mm)	0.0247
Distance to water (rivers, lakes, sea)	0.0143
Inundation; occurrence	0.0046
Phenology; Start of Season (day number)	0

Comparison of distribution with Red List maps by John Janssen

The EUNIS definition is broader than the Red List one, the former including larger regions in Central Europe

R17 - [E11h] Heavy-metal dry grassland of the Balkans - distribution
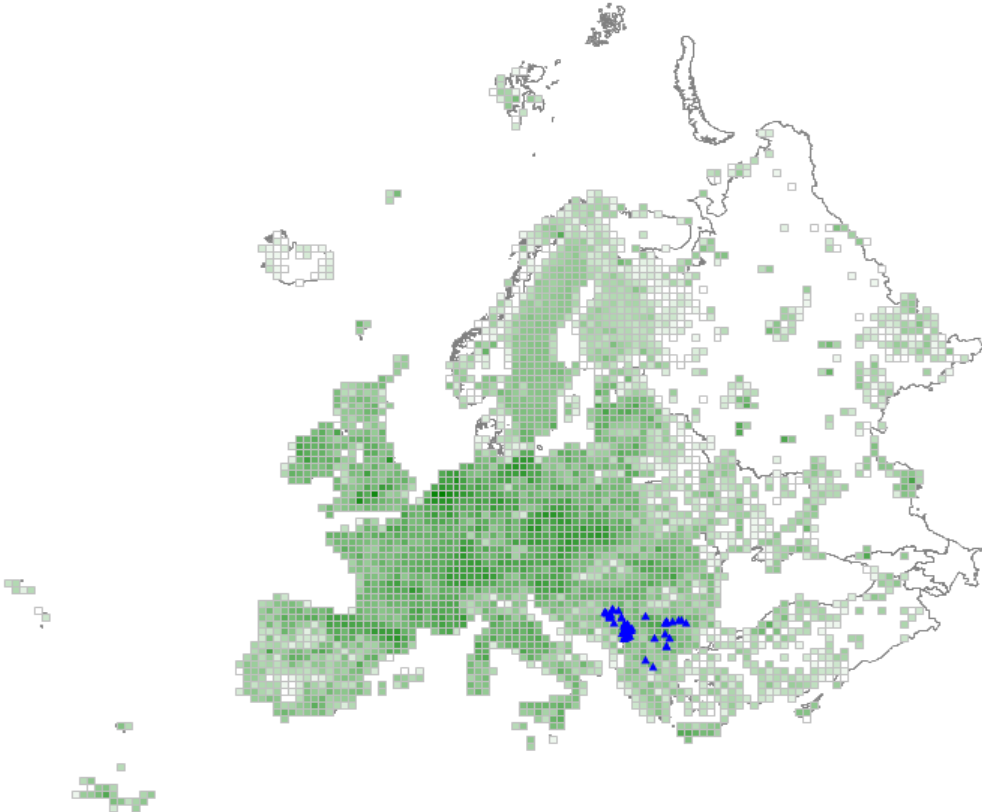
R17 - [E11h] Heavy-metal dry grassland of the Balkans - suitability
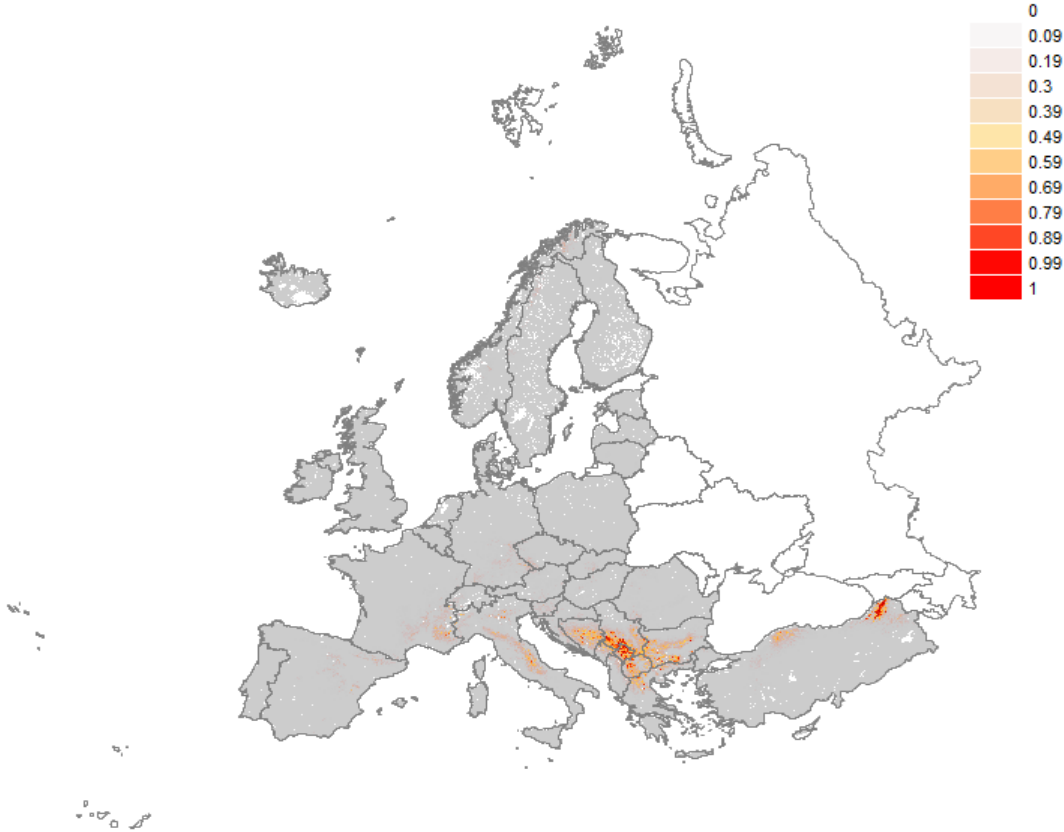
Statistics from Maxent modelling

AUC training (0-1)	0.9886
AUC test (0-1)	0.9826
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	28.9913
Precipitation seasonality (coef. of var.)	22.1298
Temperature seasonality (stdev * 100)	15.8653
Precipitation of warmest quarter	9.3905
Soil pH (water)	6.5376
Vegetation height (m)	4.9396
Weight in % of clay particles (<0.0002 mm)	4.5542
Phenology; NDVI mean	2.662
Annual precipitation	1.8271
Phenology; NDVI seasonality	1.3148
Volume % of coarse fragments (> 2 mm)	0.788
Weight in % of silt particles (0.0002-0.05 mm)	0.3578
Cation Exchange Capacity of the soil	0.2599
Phenology; Length of season (days)	0.2002
Phenology; Low of season (day number)	0.0639
Phenology; Start of Season (day number)	0.0457
Inundation; occurrence	0.0419
Potential Evapotranspiration	0.0185
Mean temperature of wettest quarter	0.008
Phenology; End of Season (day number)	0.0041
Distance to water (rivers, lakes, sea)	0
Weight in % of sand particles (0.05-2 mm)	0
Solar radiation	0
Phenology; Peak of season (day number)	0
Soil organic carbon content (‰)	0
Bulk density (kg/m³)	0

R18 - [E11i] Perennial rocky calcareous grassland of subatlantic-submediterranean Europe - distribution
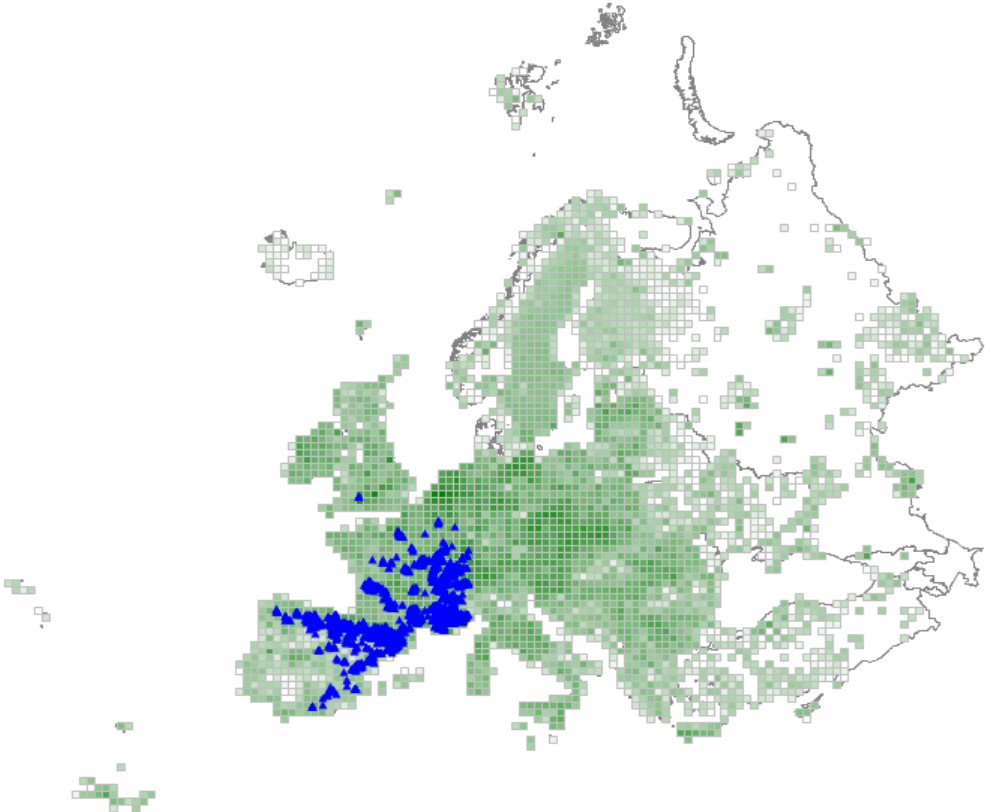
R18 - [E11i] Perennial rocky calcareous grassland of subatlantic-submediterranean Europe - suitability
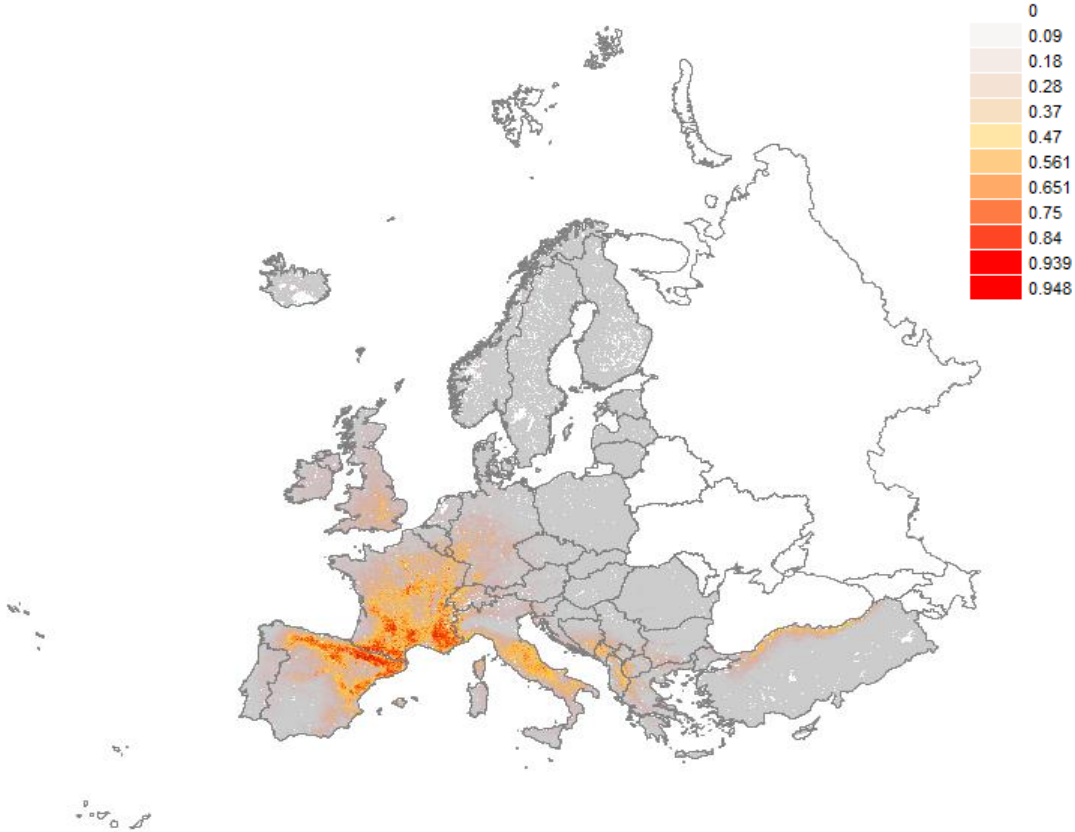
Statistics from Maxent modelling

AUC training (0-1)	0.8474
AUC test (0-1)	0.8361
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	34.1854
Volume % of coarse fragments (> 2 mm)	15.804
Precipitation of warmest quarter	10.5808
Weight in % of clay particles (<0.0002 mm)	8.3367
Precipitation seasonality (coef. of var.)	8.1529
Digital Elevation Map (DEM)	5.4977
Soil pH (water)	4.3326
Phenology; End of Season (day number)	3.4366
Potential Evapotranspiration	2.9056
Weight in % of silt particles (0.0002-0.05 mm)	2.696
Phenology; NDVI seasonality	1.0523
Phenology; Length of season (days)	0.9639
Phenology; NDVI mean	0.6471
Bulk density (kg/m³)	0.2873
Annual precipitation	0.2645
Solar radiation	0.2329
Weight in % of sand particles (0.05-2 mm)	0.1873
Phenology; Peak of season (day number)	0.1272
Soil organic carbon content (‰)	0.0983
Vegetation height (m)	0.088
Distance to water (rivers, lakes, sea)	0.0566
Cation Exchange Capacity of the soil	0.0414
Phenology; Low of season (day number)	0.0098
Phenology; Start of Season (day number)	0.0079
Mean temperature of wettest quarter	0.0071
Inundation; occurrence	0

R19 - [E11j] Dry steppic submediterranean pasture of the Amphi-Adriatic region - distribution
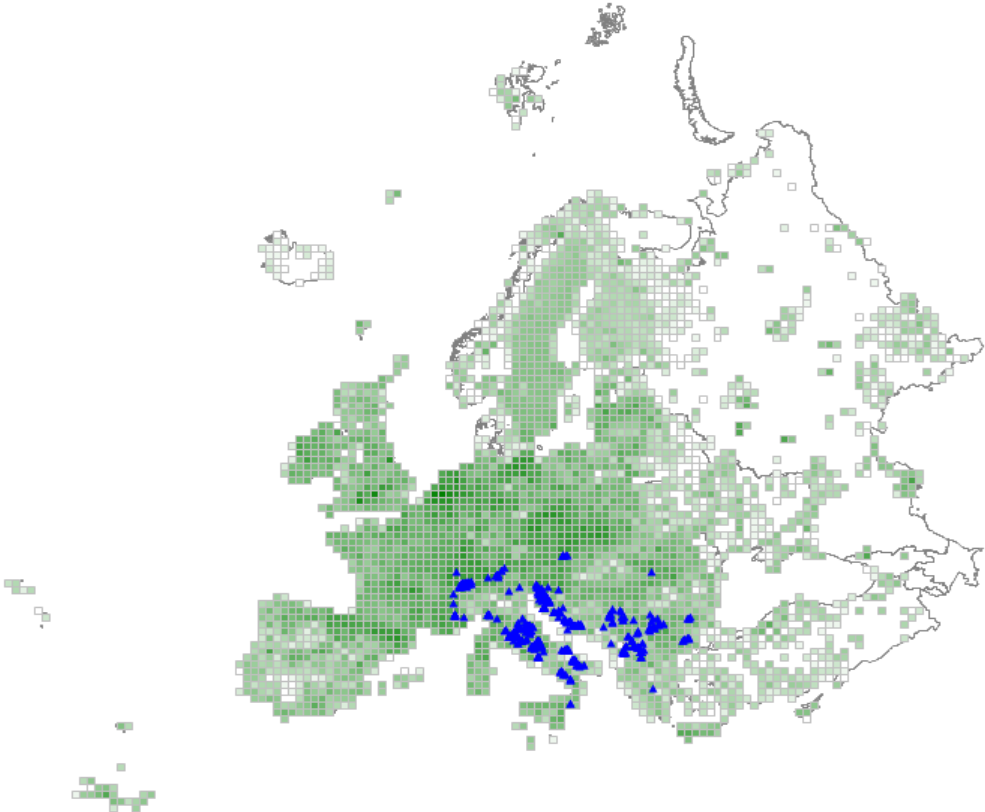
R19 - [E11j] Dry steppic submediterranean pasture of the Amphi-Adriatic region - suitability
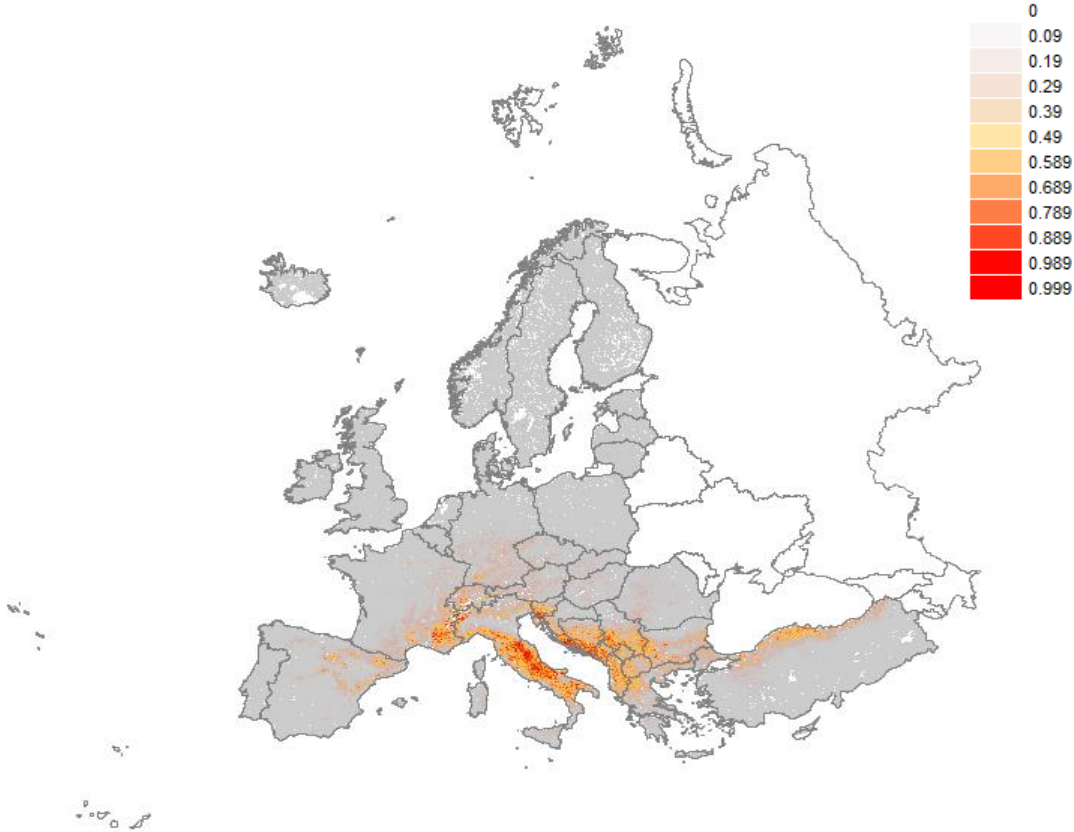
Statistics from Maxent modelling

AUC training (0-1)	0.9484
AUC test (0-1)	0.9356
Contribution variables to the Maxent model (%)	
Soil pH (water)	20.1286
Digital Elevation Map (DEM)	14.8018
Temperature seasonality (stdev * 100)	14.0099
Precipitation of warmest quarter	13.4726
Cation Exchange Capacity of the soil	10.8204
Weight in % of clay particles (<0.0002 mm)	5.9755
Phenology; Length of season (days)	5.0937
Precipitation seasonality (coef. of var.)	3.7139
Weight in % of sand particles (0.05-2 mm)	3.06
Weight in % of silt particles (0.0002-0.05 mm)	1.5727
Volume % of coarse fragments (> 2 mm)	1.1357
Solar radiation	1.1063
Phenology; End of Season (day number)	0.9486
Phenology; NDVI mean	0.9051
Phenology; Low of season (day number)	0.7974
Mean temperature of wettest quarter	0.7023
Annual precipitation	0.4748
Phenology; NDVI seasonality	0.3234
Vegetation height (m)	0.2704
Potential Evapotranspiration	0.2636
Soil organic carbon content (‰)	0.1355
Bulk density (kg/m³)	0.1328
Phenology; Peak of season (day number)	0.0884
Distance to water (rivers, lakes, sea)	0.0666
Phenology; Start of Season (day number)	0
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The EUNIS map covers a slightly broader range, but probably it is a difference in availability of data rather than in using a broader definition

R1A - [E12a] Semi-dry perennial calcareous grassland (meadow steppe) - distribution

R1A - [E12a] Semi-dry perennial calcareous grassland (meadow steppe) - suitability

	0
	0.08
	0.17
	0.25
	0.34
	0.42
	0.502
	0.59
	0.67
	0.758
	0.838
	0.846
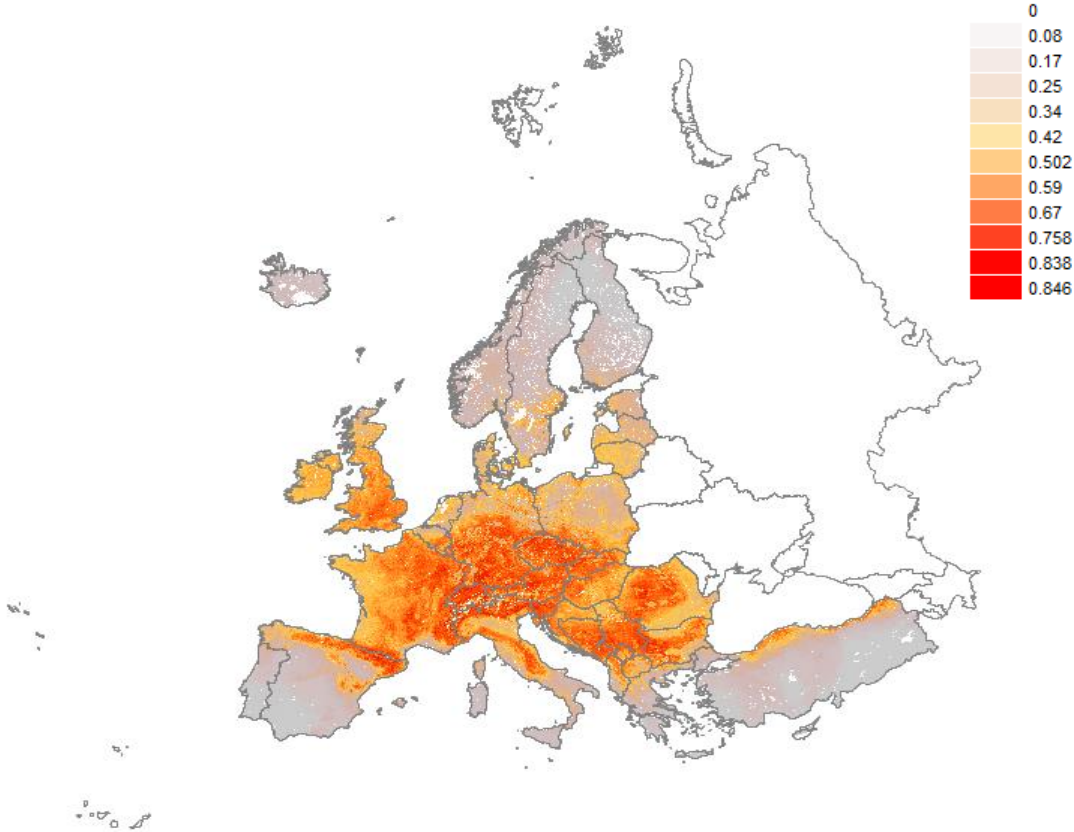
Statistics from Maxent modelling

AUC training (0-1)	0.6444
AUC test (0-1)	0.6463
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	48.1331
Weight in % of clay particles (<0.0002 mm)	23.8843
Temperature seasonality (stdev * 100)	7.1456
Potential Evapotranspiration	5.6295
Soil pH (water)	5.468
Digital Elevation Map (DEM)	3.5887
Annual precipitation	1.4415
Weight in % of silt particles (0.0002-0.05 mm)	1.3028
Volume % of coarse fragments (> 2 mm)	0.8743
Phenology; Length of season (days)	0.3739
Phenology; NDVI mean	0.3715
Phenology; Start of Season (day number)	0.2634
Phenology; NDVI seasonality	0.2212
Bulk density (kg/m³)	0.2104
Cation Exchange Capacity of the soil	0.1773
Phenology; Low of season (day number)	0.1552
Distance to water (rivers, lakes, sea)	0.1449
Phenology; End of Season (day number)	0.1388
Weight in % of sand particles (0.05-2 mm)	0.1327
Soil organic carbon content (‰)	0.1238
Precipitation seasonality (coef. of var.)	0.1172
Mean temperature of wettest quarter	0.0852
Vegetation height (m)	0.014
Phenology; Peak of season (day number)	0.0025
Inundation; occurrence	0
Solar radiation	0

R1B - [E12b] Continental dry grassland (true steppe) - distribution
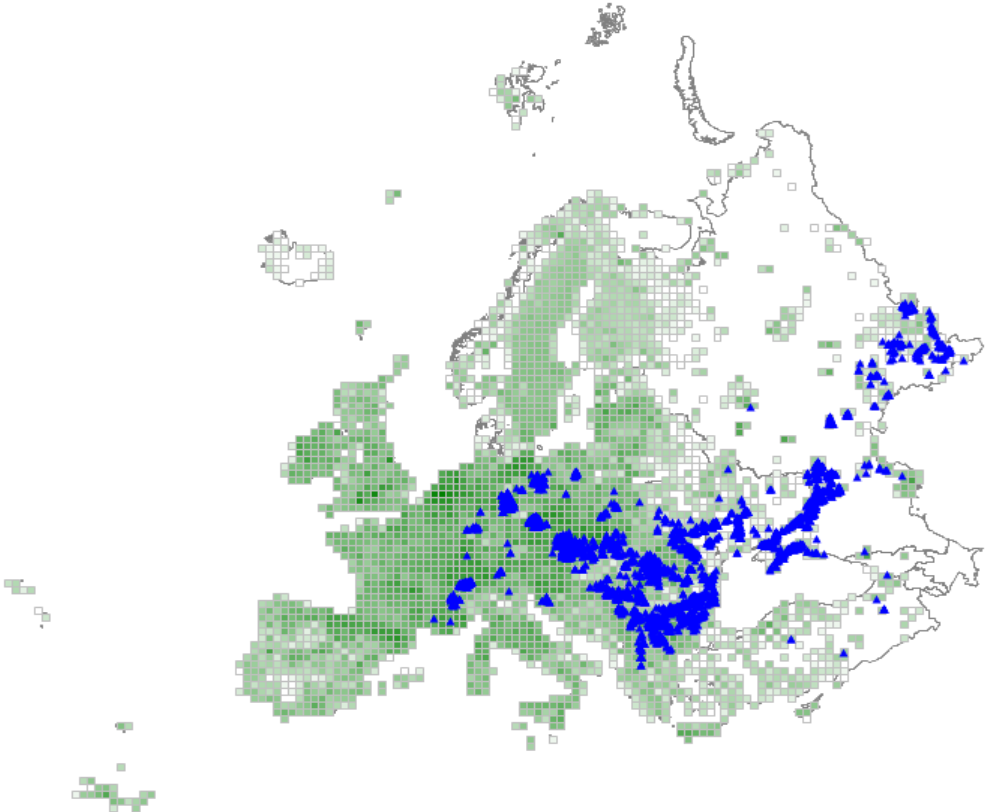
R1B - [E12b] Continental dry grassland (true steppe) - suitability
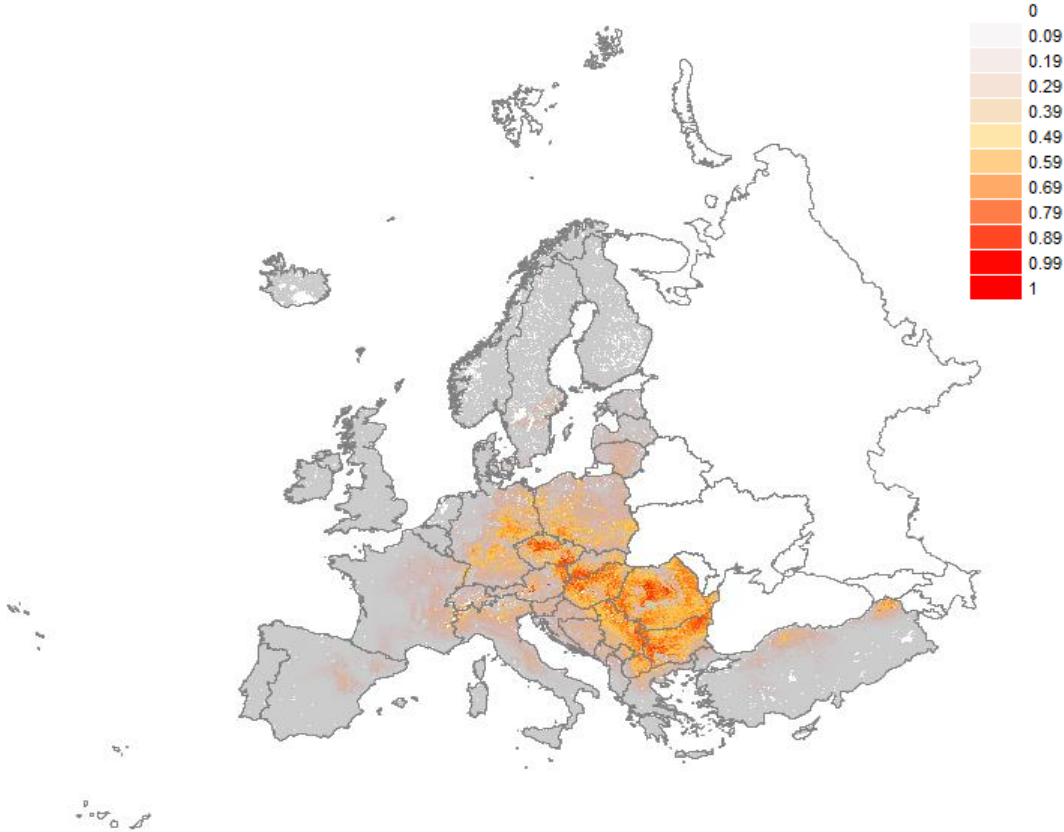
Statistics from Maxent modelling

AUC training (0-1)	0.8465
AUC test (0-1)	0.8447
Contribution variables to the Maxent model (%)	
Mean temperature of wettest quarter	32.5134
Temperature seasonality (stdev * 100)	15.1231
Precipitation of warmest quarter	14.836
Soil pH (water)	8.3712
Weight in % of clay particles (<0.0002 mm)	6.8979
Bulk density (kg/m³)	5.9815
Phenology; Low of season (day number)	3.5015
Annual precipitation	3.4264
Phenology; NDVI seasonality	1.755
Weight in % of silt particles (0.0002-0.05 mm)	1.6017
Phenology; NDVI mean	1.5195
Digital Elevation Map (DEM)	1.0413
Volume % of coarse fragments (> 2 mm)	0.9047
Phenology; Start of Season (day number)	0.5752
Phenology; Length of season (days)	0.3006
Cation Exchange Capacity of the soil	0.2839
Precipitation seasonality (coef. of var.)	0.273
Potential Evapotranspiration	0.264
Phenology; End of Season (day number)	0.2201
Distance to water (rivers, lakes, sea)	0.18
Vegetation height (m)	0.1648
Weight in % of sand particles (0.05-2 mm)	0.0904
Soil organic carbon content (‰)	0.0606
Phenology; Peak of season (day number)	0.0587
Solar radiation	0.0411
Inundation; occurrence	0.0141

R1C - [E12c] Desert steppe - distribution
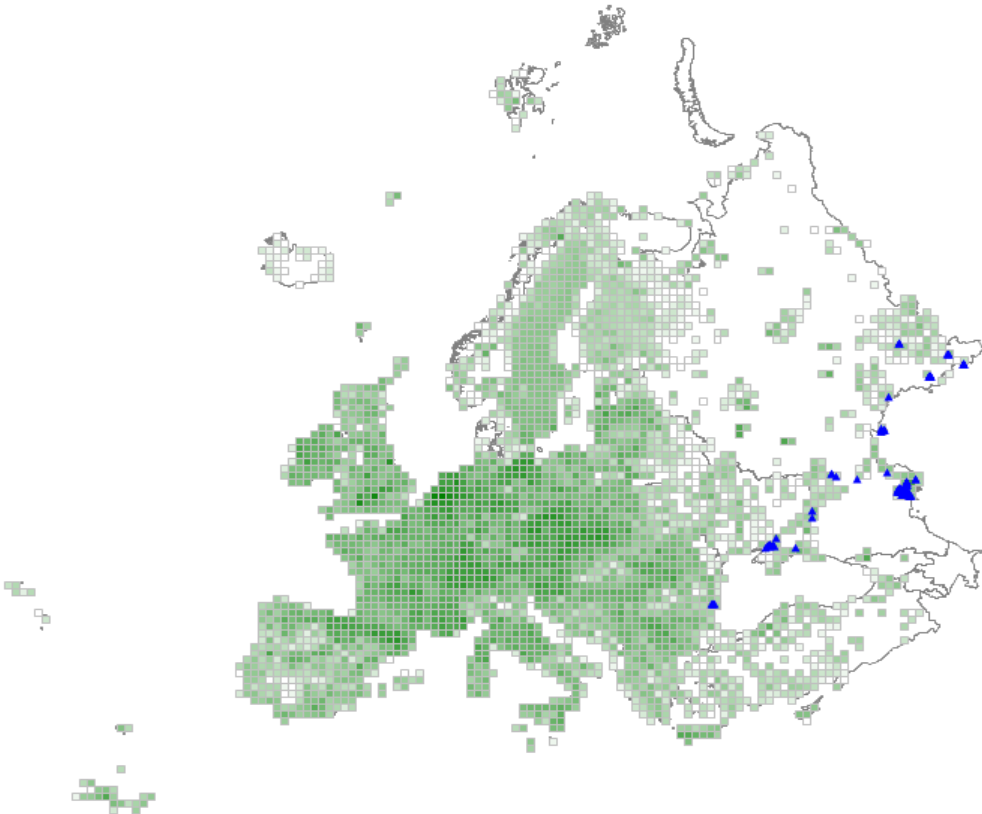
R1C - [E12c] Desert steppe - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

R1D - [E13a] Mediterranean closely grazed dry grassland - distribution
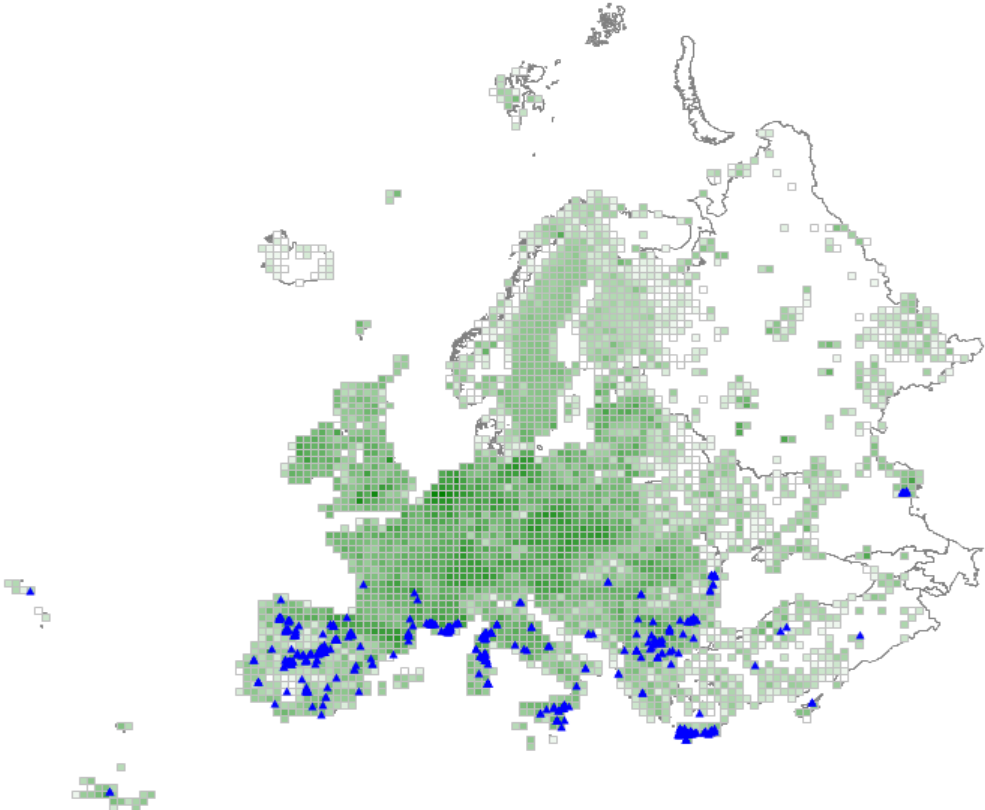
R1D - [E13a] Mediterranean closely grazed dry grassland - suitability
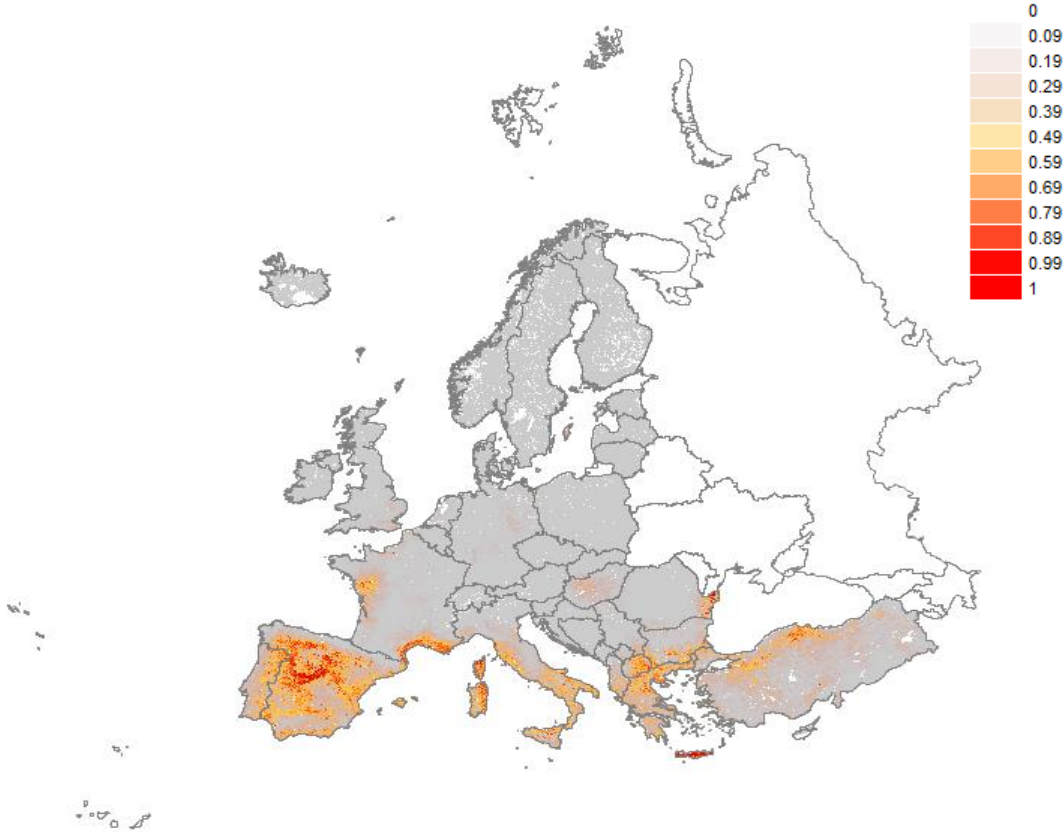
Statistics from Maxent modelling

AUC training (0-1)	0.9381
AUC test (0-1)	0.9242
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	30.6704
Potential Evapotranspiration	17.2217
Soil pH (water)	8.8076
Temperature seasonality (stdev * 100)	7.6008
Phenology; Start of Season (day number)	7.4489
Precipitation seasonality (coef. of var.)	5.485
Weight in % of sand particles (0.05-2 mm)	2.9501
Phenology; End of Season (day number)	2.6932
Soil organic carbon content (‰)	2.4413
Mean temperature of wettest quarter	2.2757
Phenology; Length of season (days)	2.2331
Phenology; Low of season (day number)	2.1381
Digital Elevation Map (DEM)	1.747
Bulk density (kg/m³)	1.4642
Phenology; NDVI seasonality	1.371
Volume % of coarse fragments (> 2 mm)	1.0065
Solar radiation	0.8708
Weight in % of clay particles (<0.0002 mm)	0.4512
Vegetation height (m)	0.399
Phenology; Peak of season (day number)	0.3585
Annual precipitation	0.2164
Inundation; occurrence	0.0813
Phenology; NDVI mean	0.046
Cation Exchange Capacity of the soil	0.0193
Weight in % of silt particles (0.0002-0.05 mm)	0.0029
Distance to water (rivers, lakes, sea)	0

R1E - [E13b] Mediterranean tall perennial dry grassland - distribution
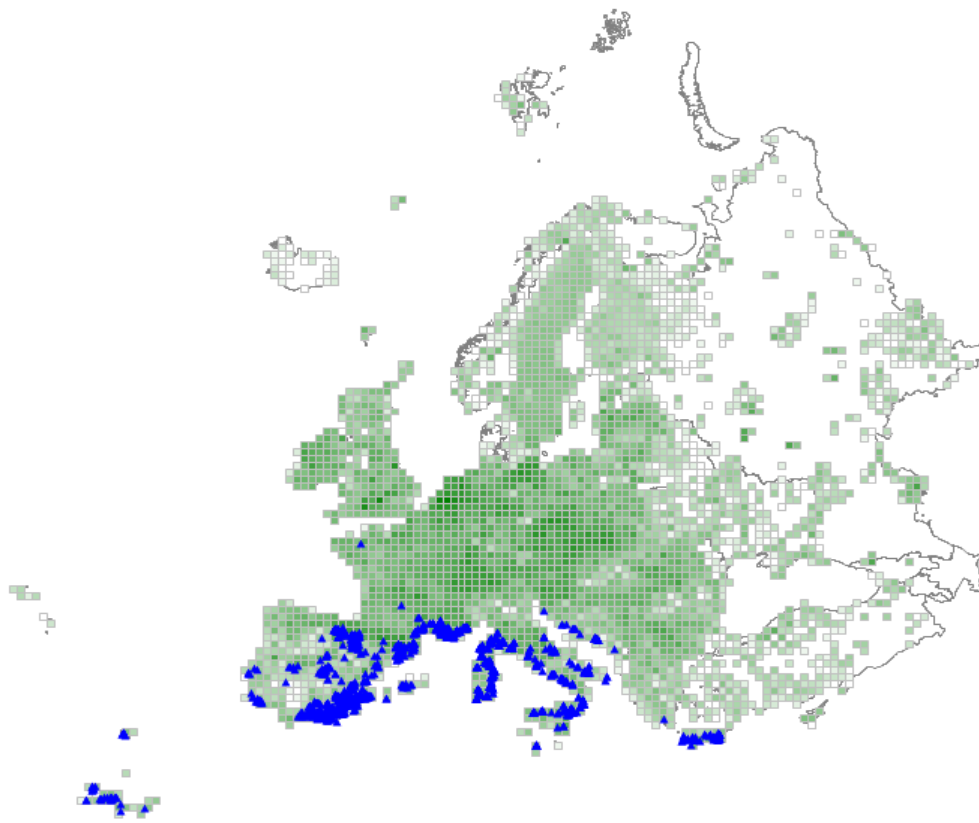
R1E - [E13b] Mediterranean tall perennial dry grassland - suitability
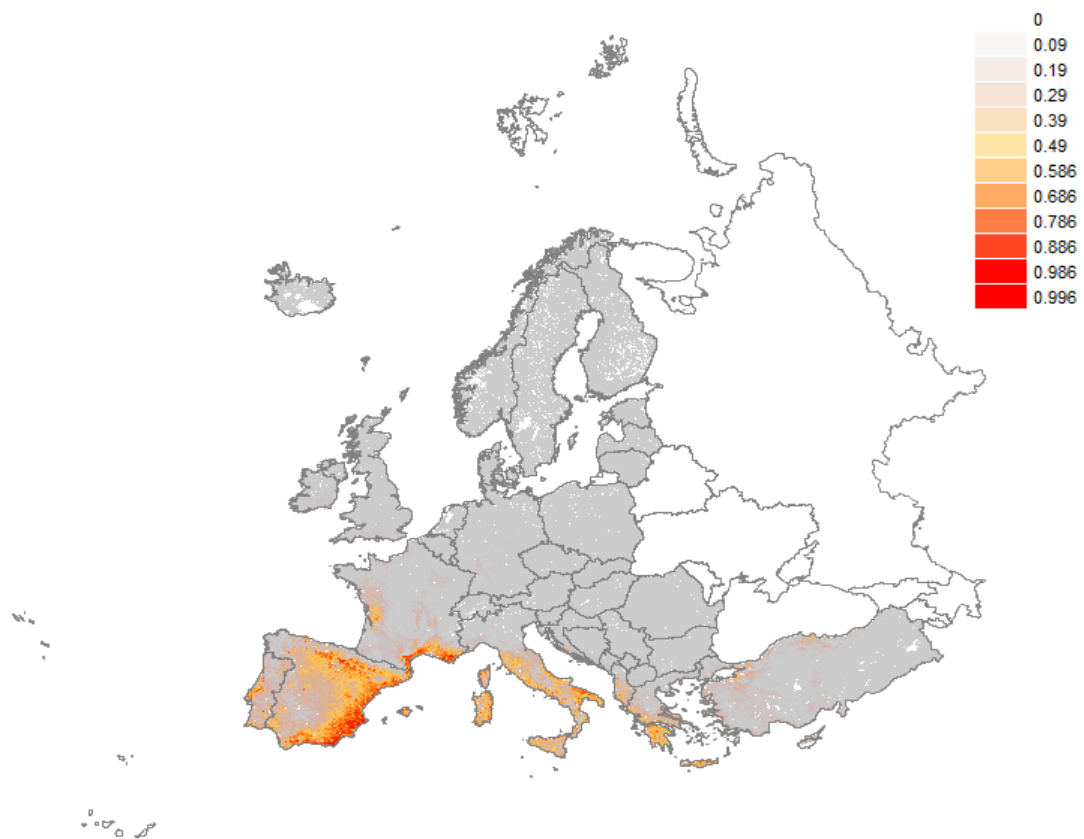
Statistics from Maxent modelling

AUC training (0-1)	0.9211
AUC test (0-1)	0.9115
Contribution variables to the Maxent model (%)	
Phenology; End of Season (day number)	22.534
Temperature seasonality (stdev * 100)	21.8665
Soil pH (water)	19.4309
Phenology; Start of Season (day number)	12.6986
Potential Evapotranspiration	6.8822
Phenology; NDVI seasonality	3.239
Phenology; Peak of season (day number)	2.6472
Precipitation seasonality (coef. of var.)	2.3953
Precipitation of warmest quarter	1.9181
Phenology; NDVI mean	1.8802
Weight in % of clay particles (<0.0002 mm)	1.5416
Soil organic carbon content (‰)	0.8149
Volume % of coarse fragments (> 2 mm)	0.7538
Digital Elevation Map (DEM)	0.683
Bulk density (kg/m³)	0.2825
Vegetation height (m)	0.1026
Annual precipitation	0.0844
Mean temperature of wettest quarter	0.0776
Weight in % of silt particles (0.0002-0.05 mm)	0.061
Phenology; Low of season (day number)	0.034
Phenology; Length of season (days)	0.0324
Cation Exchange Capacity of the soil	0.0165
Distance to water (rivers, lakes, sea)	0.0121
Solar radiation	0.0093
Weight in % of sand particles (0.05-2 mm)	0.0023
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The distribution maps of EUNIS and Red List slightly differ. The RL map includes more regions in NW-Spain, the EUNIS-type includes Macaronesia

R1F - [E13c] Mediterranean annual-rich dry grassland - distribution
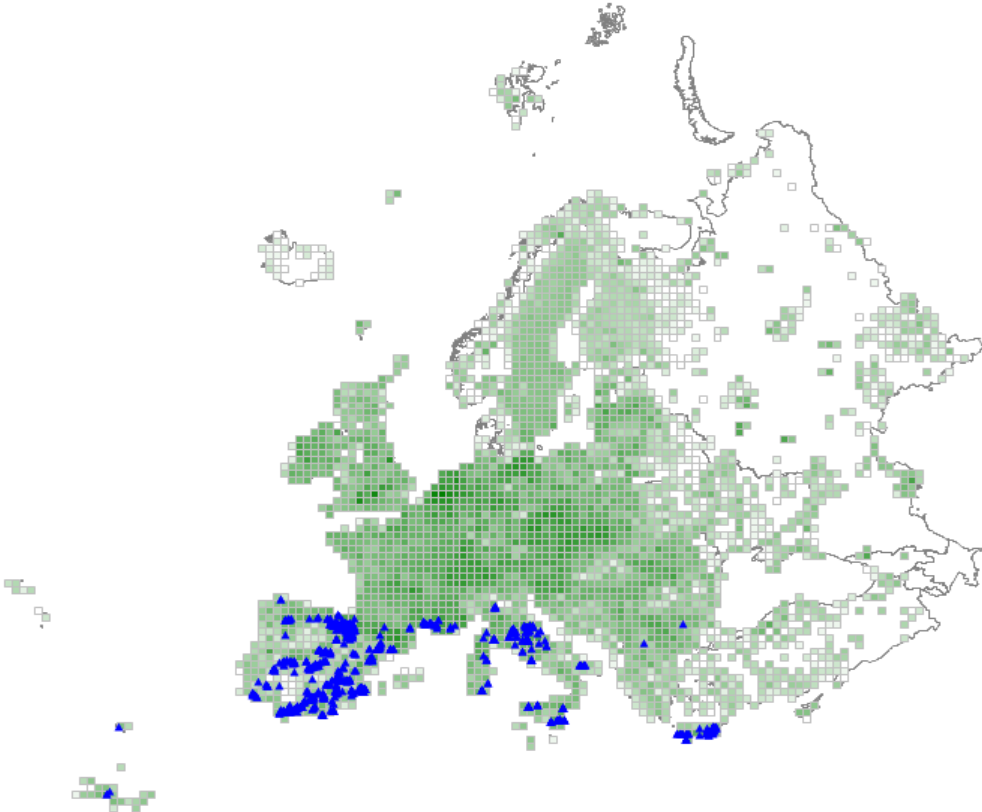
R1F - [E13c] Mediterranean annual-rich dry grassland - suitability
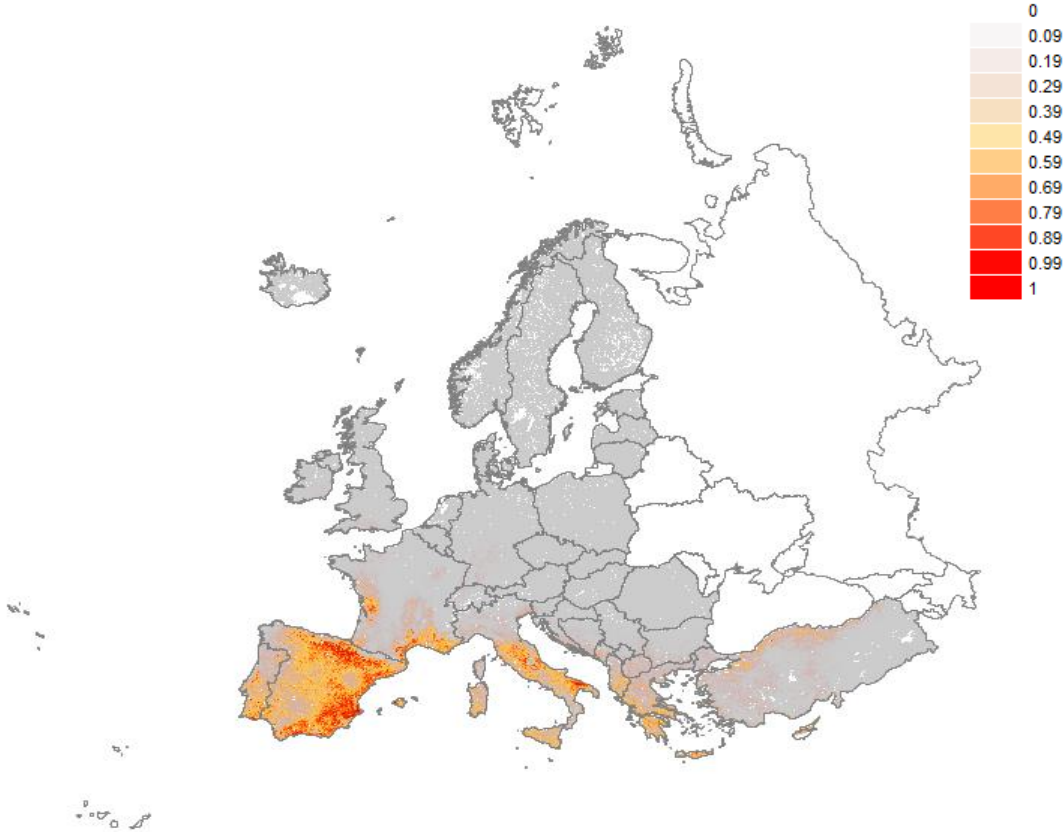
Statistics from Maxent modelling

AUC training (0-1)	0.9297
AUC test (0-1)	0.9055
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	24.3726
Potential Evapotranspiration	23.1912
Soil pH (water)	14.8715
Precipitation seasonality (coef. of var.)	10.1144
Volume % of coarse fragments (> 2 mm)	6.8985
Phenology; End of Season (day number)	6.4989
Phenology; Start of Season (day number)	5.4204
Digital Elevation Map (DEM)	3.0396
Weight in % of clay particles (<0.0002 mm)	1.1368
Vegetation height (m)	0.7443
Phenology; Low of season (day number)	0.5418
Annual precipitation	0.5182
Weight in % of silt particles (0.0002-0.05 mm)	0.4211
Cation Exchange Capacity of the soil	0.3659
Bulk density (kg/m³)	0.344
Phenology; Length of season (days)	0.2276
Solar radiation	0.2051
Precipitation of warmest quarter	0.2029
Distance to water (rivers, lakes, sea)	0.1891
Phenology; Peak of season (day number)	0.162
Phenology; NDVI mean	0.1381
Soil organic carbon content (‰)	0.123
Phenology; NDVI seasonality	0.1133
Mean temperature of wettest quarter	0.0973
Weight in % of sand particles (0.05-2 mm)	0.0543
Inundation; occurrence	0.008

R1G - [E15a] Iberian oromediterranean siliceous dry grassland - distribution
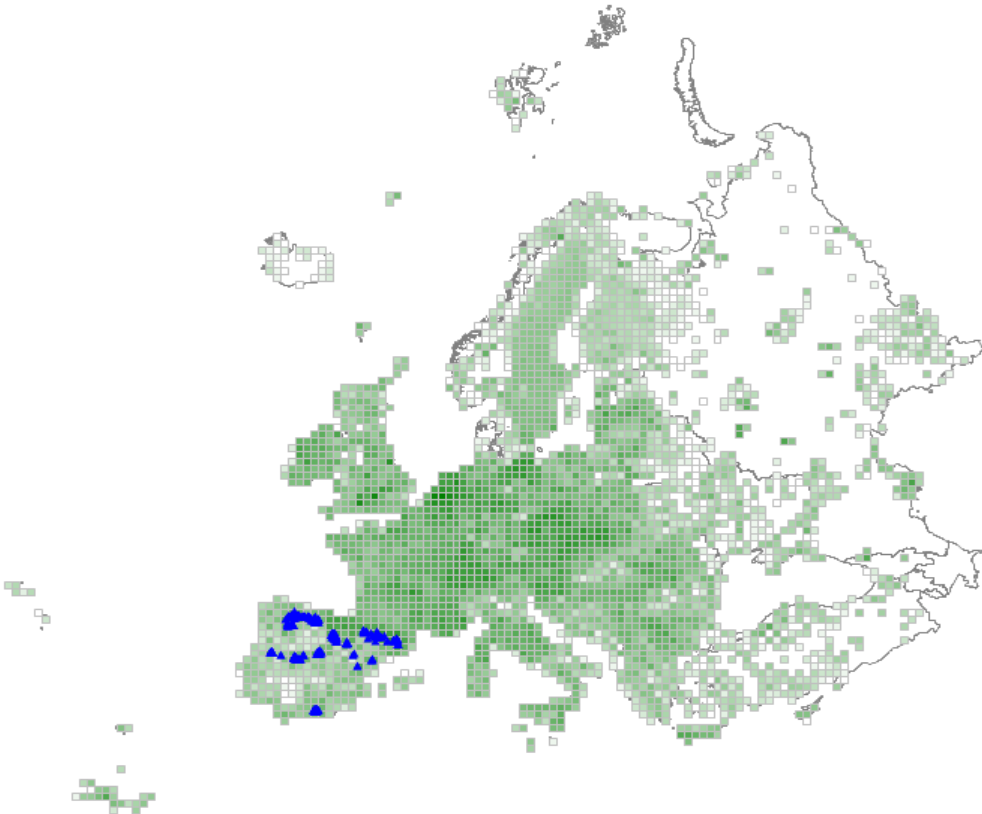
R1G - [E15a] Iberian oromediterranean siliceous dry grassland - suitability
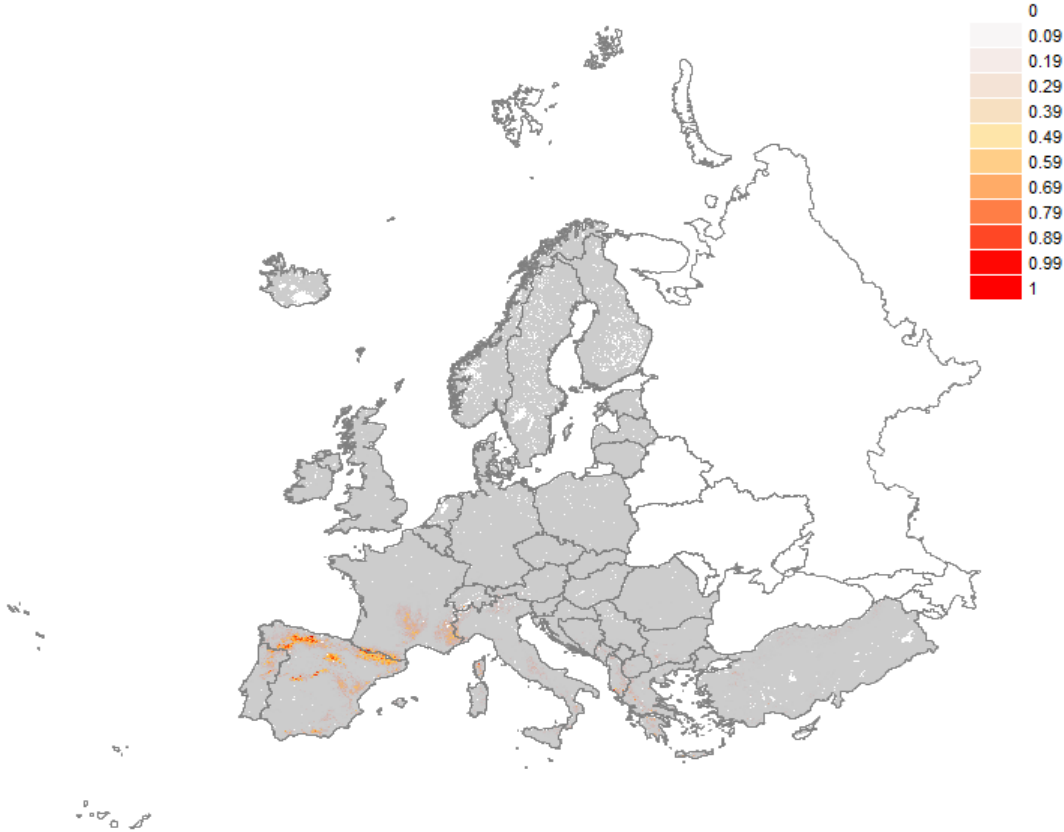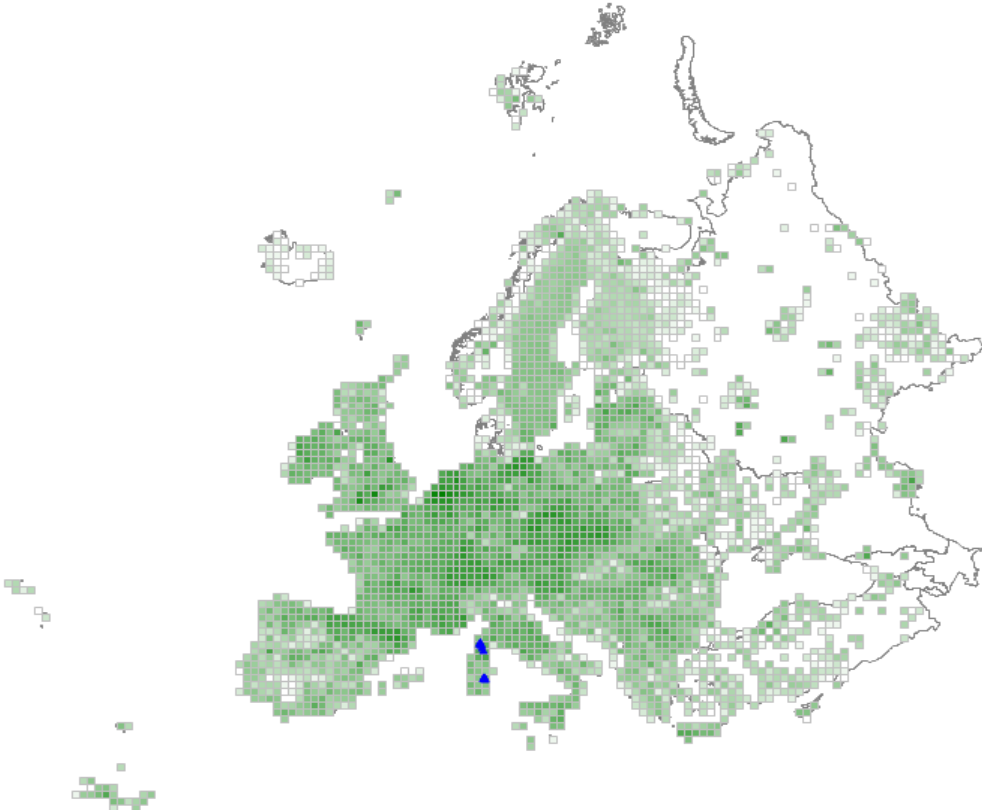
Statistics from Maxent modelling

AUC training (0-1)	0.979
AUC test (0-1)	0.9752
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	59.9684
Temperature seasonality (stdev * 100)	13.9446
Soil organic carbon content (‰)	7.61
Precipitation of warmest quarter	6.9173
Potential Evapotranspiration	3.5578
Phenology; Length of season (days)	1.0614
Phenology; Start of Season (day number)	0.8956
Weight in % of sand particles (0.05-2 mm)	0.8306
Annual precipitation	0.8259
Phenology; NDVI mean	0.761
Phenology; NDVI seasonality	0.5977
Phenology; End of Season (day number)	0.5812
Precipitation seasonality (coef. of var.)	0.5457
Volume % of coarse fragments (> 2 mm)	0.4634
Vegetation height (m)	0.3655
Phenology; Peak of season (day number)	0.3384
Bulk density (kg/m³)	0.3034
Cation Exchange Capacity of the soil	0.2365
Mean temperature of wettest quarter	0.0662
Solar radiation	0.0406
Soil pH (water)	0.0339
Inundation; occurrence	0.0283
Phenology; Low of season (day number)	0.0164
Weight in % of clay particles (<0.0002 mm)	0.0103
Distance to water (rivers, lakes, sea)	0
Weight in % of silt particles (0.0002-0.05 mm)	0

R1H - [E15b] Iberian oromediterranean basiphilous dry grassland - distribution
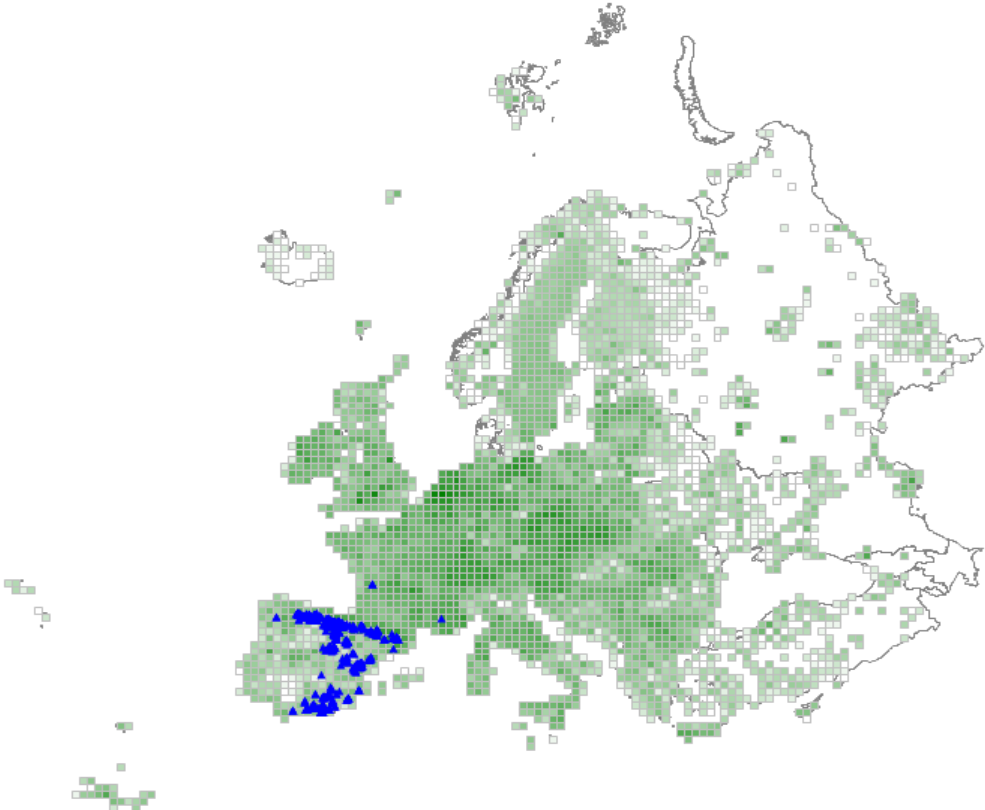
R1H - [E15b] Iberian oromediterranean basiphilous dry grassland - suitability
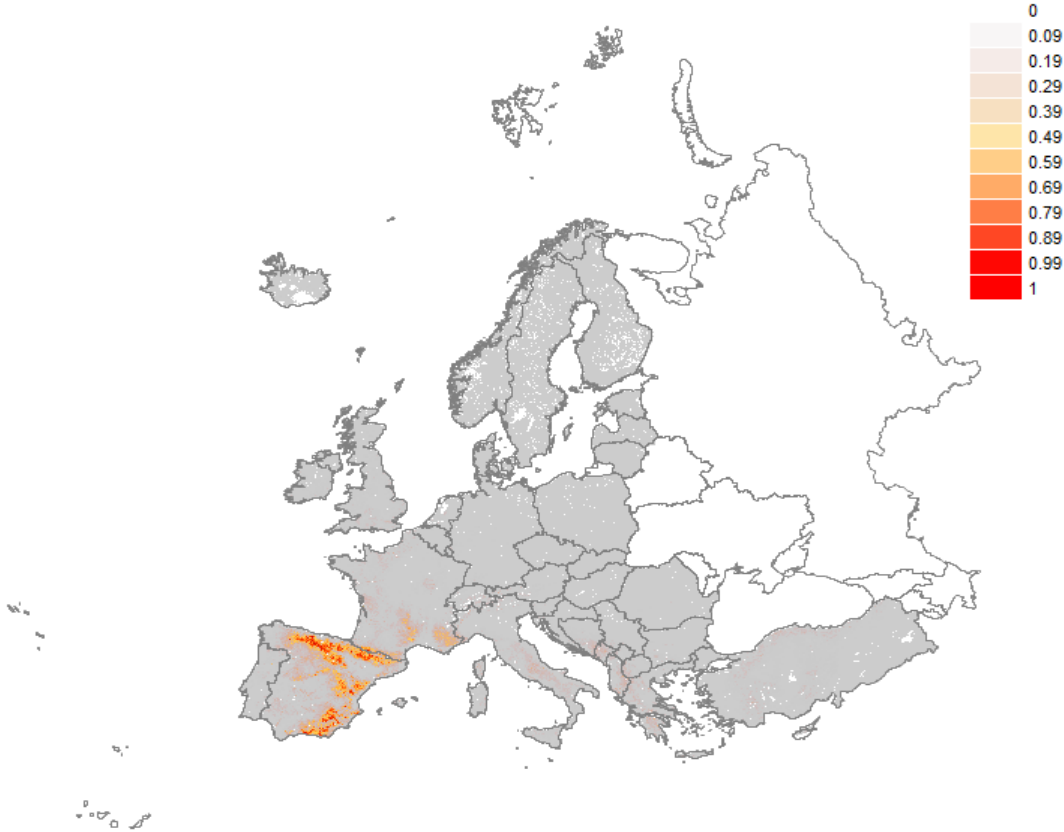
Statistics from Maxent modelling

AUC training (0-1)	0.9629
AUC test (0-1)	0.9482
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	39.9058
Temperature seasonality (stdev * 100)	30.8859
Weight in % of clay particles (<0.0002 mm)	5.6032
Soil pH (water)	4.6197
Mean temperature of wettest quarter	3.5026
Precipitation of warmest quarter	3.4656
Potential Evapotranspiration	2.7928
Precipitation seasonality (coef. of var.)	1.5883
Phenology; End of Season (day number)	1.5767
Bulk density (kg/m³)	1.3697
Phenology; Start of Season (day number)	0.7047
Phenology; NDVI mean	0.6298
Phenology; Length of season (days)	0.5339
Volume % of coarse fragments (> 2 mm)	0.5268
Cation Exchange Capacity of the soil	0.4754
Vegetation height (m)	0.4602
Phenology; NDVI seasonality	0.2578
Annual precipitation	0.249
Phenology; Peak of season (day number)	0.2011
Phenology; Low of season (day number)	0.1812
Soil organic carbon content (‰)	0.1525
Solar radiation	0.0889
Weight in % of silt particles (0.0002-0.05 mm)	0.0872
Weight in % of sand particles (0.05-2 mm)	0.079
Inundation; occurrence	0.052
Distance to water (rivers, lakes, sea)	0.0101

Comparison of distribution with Red List maps by John Janssen

The EUNIS map covers also the southern Spain, but the difference is probably caused by availability of more EVA data

R1J - [E15c] Cyrno-Sardean oromediterranean siliceous dry grassland - distribution

R1J - [E15c] Cyrno-Sardean oromediterranean siliceous dry grassland - suitability

Statistics from Maxent modelling

|	
AUC training (0-1)	0.9989
AUC test (0-1)	0.9996
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	25.587
Mean temperature of wettest quarter	17.6908
Vegetation height (m)	15.3116
Temperature seasonality (stdev * 100)	14.846
Precipitation of warmest quarter	13.0231
Potential Evapotranspiration	6.0382
Solar radiation	3.7558
Phenology; Start of Season (day number)	1.1318
Distance to water (rivers, lakes, sea)	1.0948
Phenology; NDVI mean	0.4656
Annual precipitation	0.3741
Precipitation seasonality (coef. of var.)	0.3162
Phenology; Peak of season (day number)	0.1529
Bulk density (kg/m³)	0.1065
Soil pH (water)	0.0982
Volume % of coarse fragments (> 2 mm)	0.006
Cation Exchange Capacity of the soil	0.0013
Weight in % of clay particles (<0.0002 mm)	0
Phenology; End of Season (day number)	0
Weight in % of silt particles (0.0002-0.05 mm)	0
Weight in % of sand particles (0.05-2 mm)	0
Phenology; Low of season (day number)	0
Phenology; NDVI seasonality	0
Phenology; Length of season (days)	0
Soil organic carbon content (‰)	0
Inundation; occurrence	0

R1K - [E15d] Balkan and Anatolian oromediterranean dry grassland - distribution
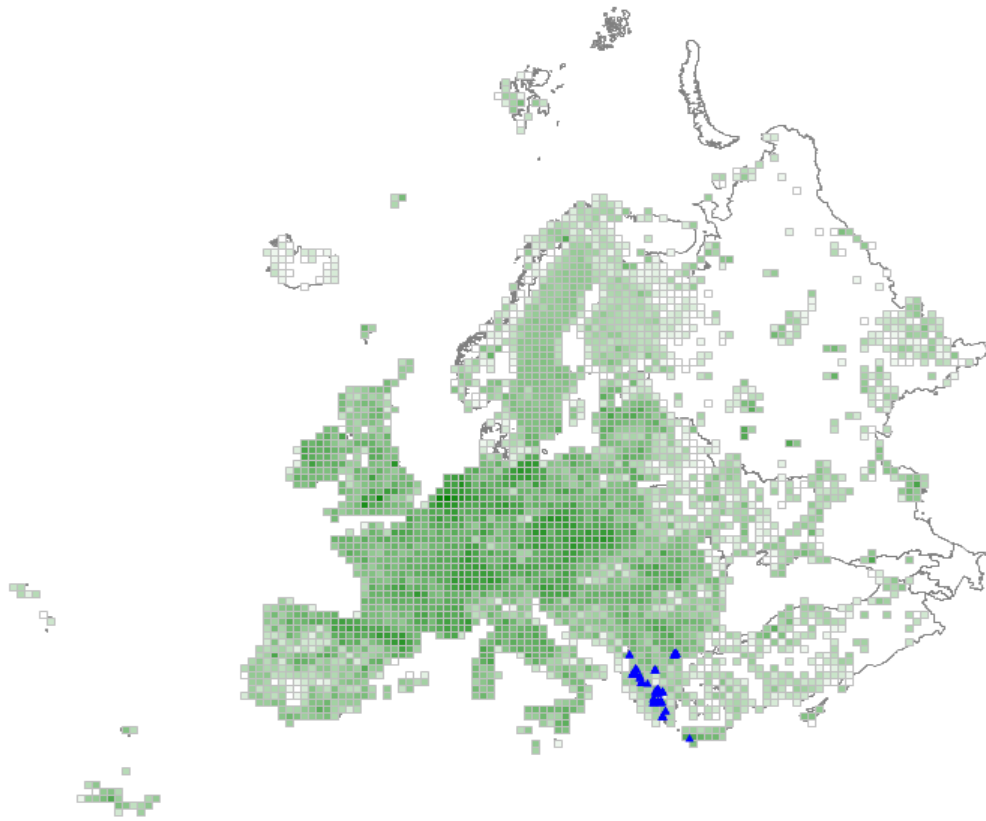
R1K - [E15d] Balkan and Anatolian oromediterranean dry grassland - suitability
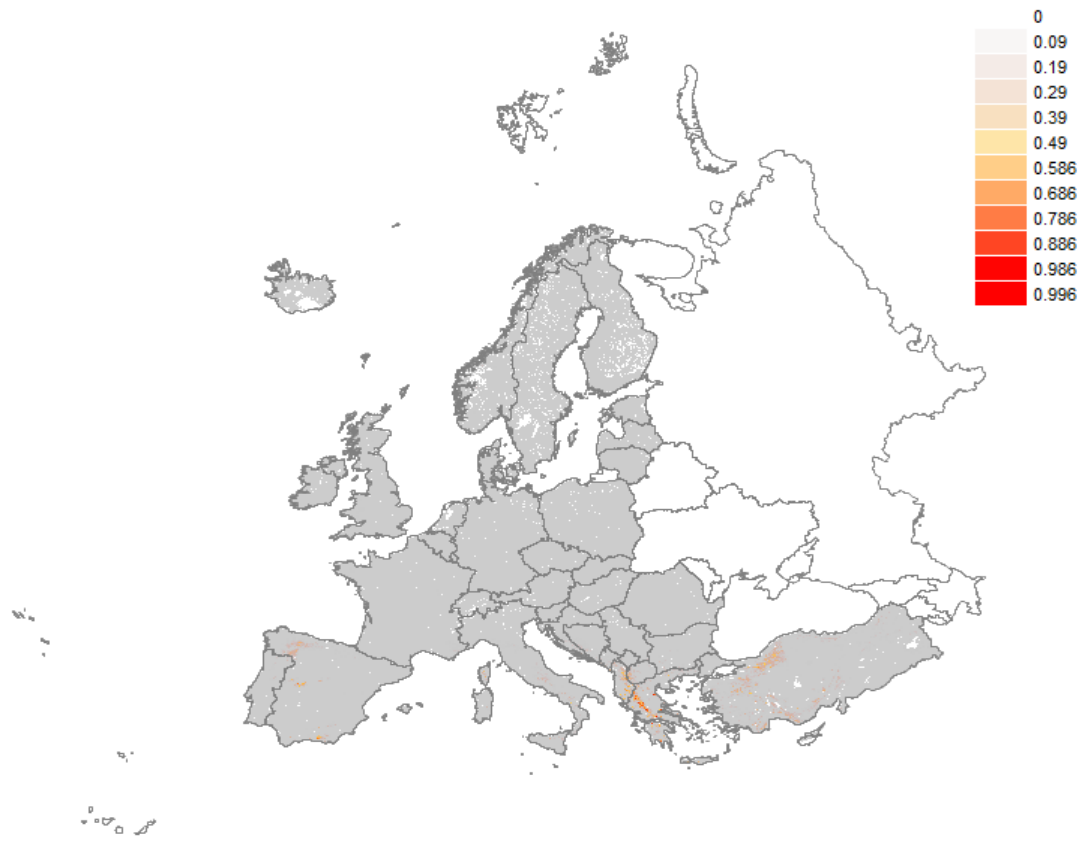
Statistics from Maxent modelling

AUC training (0-1)	0.9924
AUC test (0-1)	0.9933
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	47.1753
Mean temperature of wettest quarter	14.3712
Annual precipitation	10.7039
Temperature seasonality (stdev * 100)	9.6588
Precipitation seasonality (coef. of var.)	7.7856
Precipitation of warmest quarter	3.4363
Bulk density (kg/m³)	2.0195
Vegetation height (m)	1.6769
Potential Evapotranspiration	1.0693
Weight in % of clay particles (<0.0002 mm)	0.6837
Distance to water (rivers, lakes, sea)	0.6595
Phenology; NDVI mean	0.2153
Phenology; NDVI seasonality	0.1577
Solar radiation	0.1485
Cation Exchange Capacity of the soil	0.117
Phenology; Low of season (day number)	0.0575
Phenology; Length of season (days)	0.0289
Phenology; End of Season (day number)	0.0205
Phenology; Start of Season (day number)	0.0086
Soil pH (water)	0.0062
Weight in % of sand particles (0.05-2 mm)	0
Weight in % of silt particles (0.0002-0.05 mm)	0
Inundation; occurrence	0
Phenology; Peak of season (day number)	0
Volume % of coarse fragments (> 2 mm)	0
Soil organic carbon content (‰)	0

R1L - [E15e] Madeiran oromediterranean siliceous dry grassland - distribution
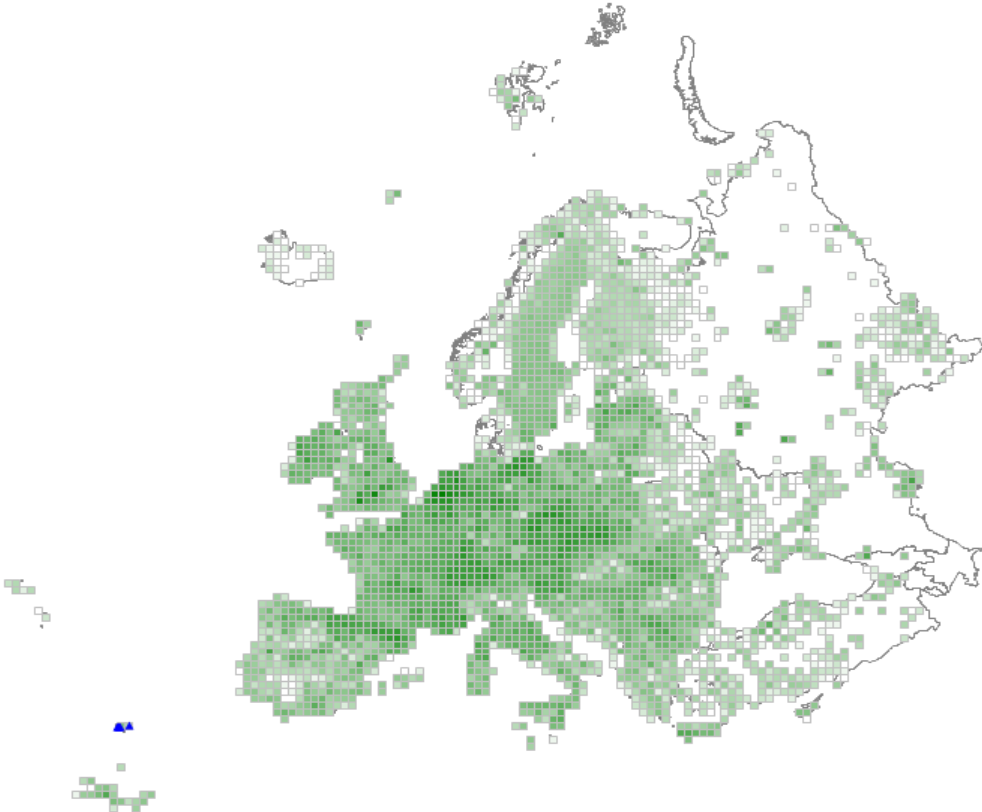
R1L - [E15e] Madeiran oromediterranean siliceous dry grassland - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

R1M - [E17] Lowland to montane, dry to mesic grassland usually dominated by Nardus stricta - distribution
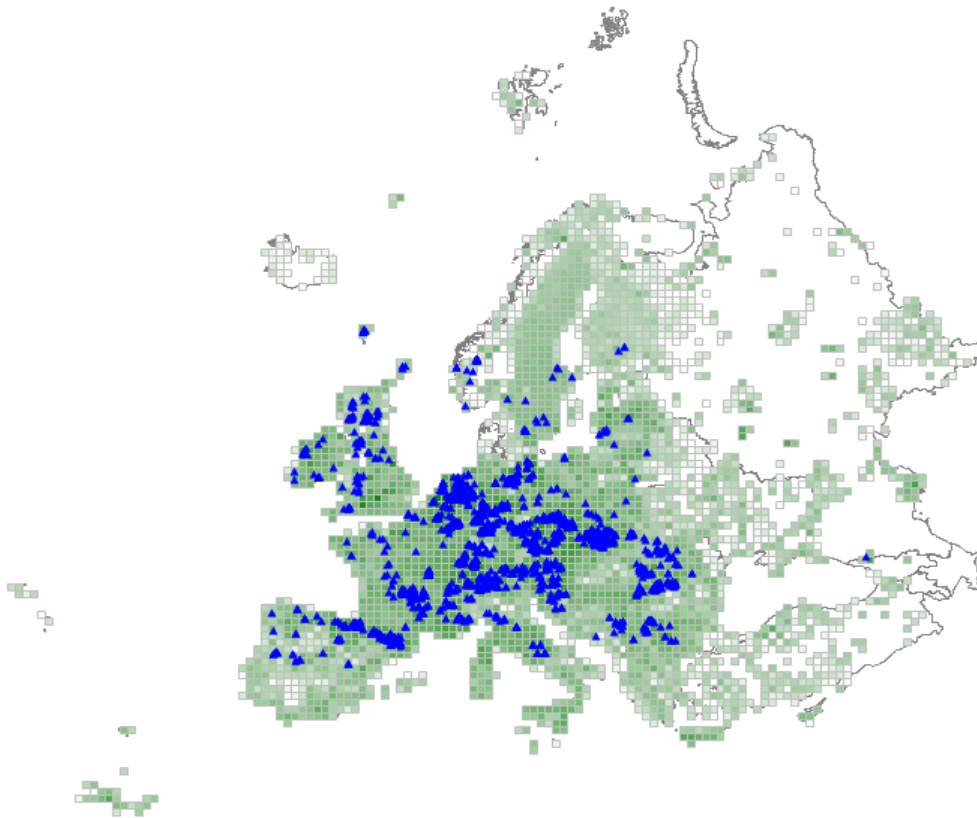
R1M - [E17] Lowland to montane, dry to mesic grassland usually dominated by Nardus stricta - suitability
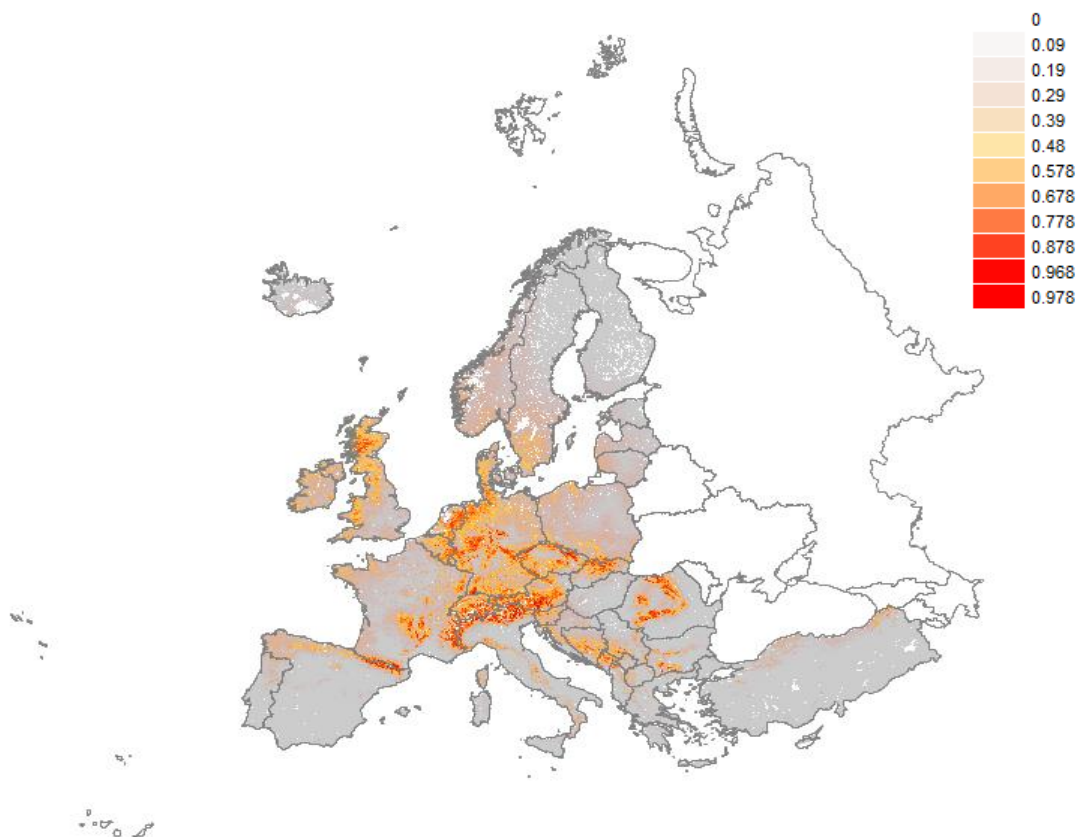
Statistics from Maxent modelling

AUC training (0-1)	0.845
AUC test (0-1)	0.831
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	29.1438
Soil pH (water)	16.7177
Temperature seasonality (stdev * 100)	15.1633
Digital Elevation Map (DEM)	11.0655
Phenology; Length of season (days)	6.1545
Potential Evapotranspiration	5.3072
Bulk density (kg/m³)	3.9564
Phenology; End of Season (day number)	2.4306
Annual precipitation	2.0666
Weight in % of sand particles (0.05-2 mm)	1.9418
Phenology; Peak of season (day number)	1.2935
Phenology; Low of season (day number)	1.2589
Vegetation height (m)	1.2446
Weight in % of clay particles (<0.0002 mm)	0.6659
Mean temperature of wettest quarter	0.2982
Phenology; NDVI seasonality	0.242
Solar radiation	0.242
Precipitation seasonality (coef. of var.)	0.2341
Volume % of coarse fragments (> 2 mm)	0.232
Weight in % of silt particles (0.0002-0.05 mm)	0.1234
Phenology; Start of Season (day number)	0.0587
Cation Exchange Capacity of the soil	0.0526
Distance to water (rivers, lakes, sea)	0.0506
Phenology; NDVI mean	0.0409
Soil organic carbon content (‰)	0.0152
Inundation; occurrence	0

R1N - [E18] Open Iberian supramediterranean dry acid and neutral grassland - distribution
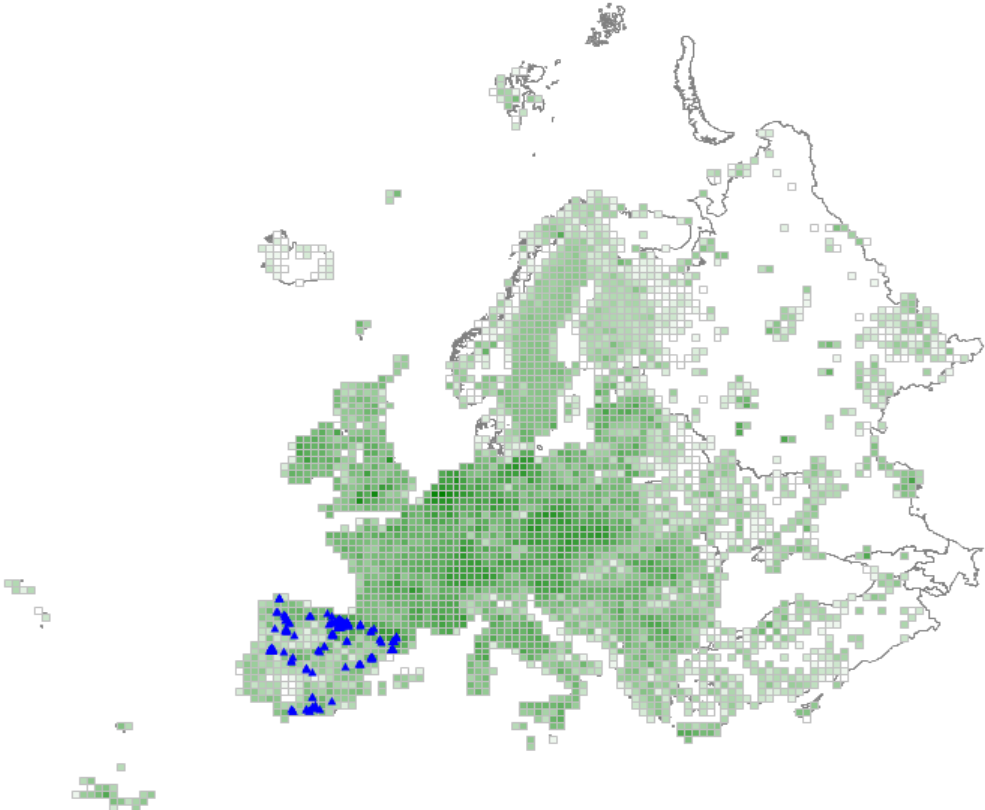
R1N - [E18] Open Iberian supramediterranean dry acid and neutral grassland - suitability
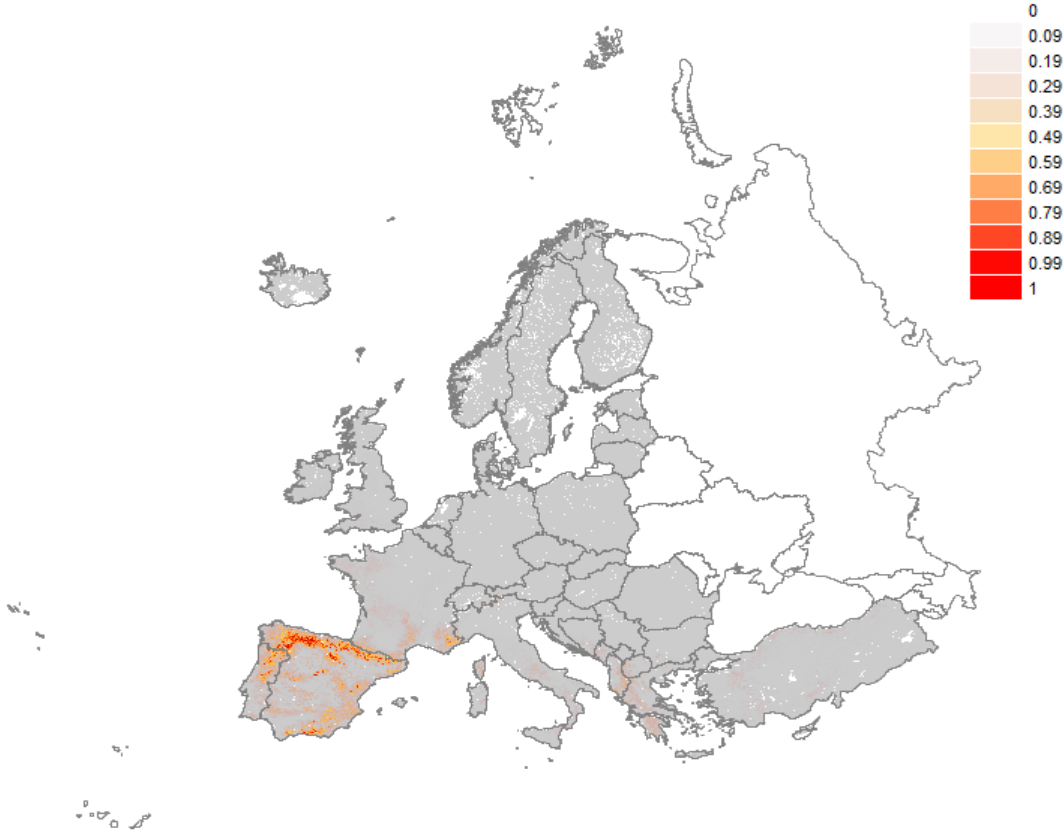
Statistics from Maxent modelling

AUC training (0-1)	0.9777
AUC test (0-1)	0.9381
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	37.7059
Temperature seasonality (stdev * 100)	24.6206
Annual precipitation	5.4785
Volume % of coarse fragments (> 2 mm)	5.4226
Potential Evapotranspiration	5.3416
Precipitation of warmest quarter	4.1739
Bulk density (kg/m³)	3.595
Phenology; Start of Season (day number)	1.8382
Phenology; Peak of season (day number)	1.8003
Precipitation seasonality (coef. of var.)	1.7767
Weight in % of silt particles (0.0002-0.05 mm)	1.5451
Phenology; Low of season (day number)	1.3614
Solar radiation	1.3337
Phenology; Length of season (days)	1.1445
Soil pH (water)	0.7156
Weight in % of sand particles (0.05-2 mm)	0.6886
Vegetation height (m)	0.3212
Phenology; End of Season (day number)	0.2687
Mean temperature of wettest quarter	0.2692
Soil organic carbon content (‰)	0.2282
Cation Exchange Capacity of the soil	0.1584
Phenology; NDVI seasonality	0.0796
Distance to water (rivers, lakes, sea)	0.0599
Weight in % of clay particles (<0.0002 mm)	0.0563
Phenology; NDVI mean	0.0164
Inundation; occurrence	0

R1P - [E19a] Oceanic to subcontinental inland sand grassland on dry acid and neutral soils - distribution
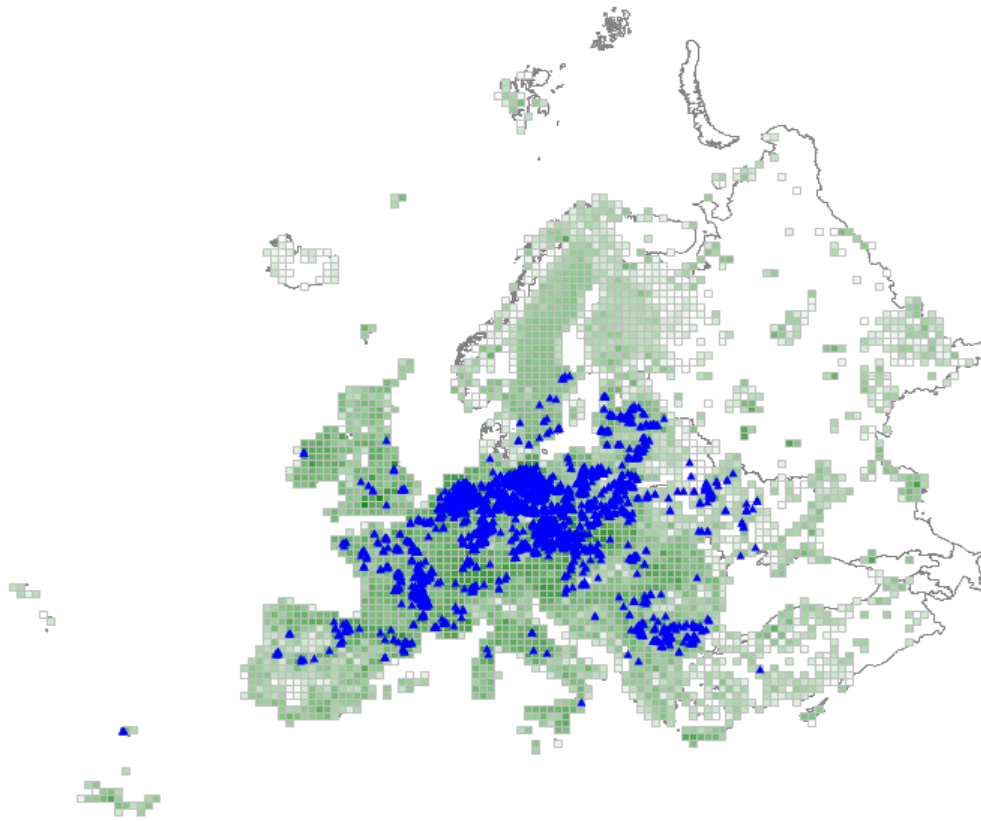
R1P - [E19a] Oceanic to subcontinental inland sand grassland on dry acid and neutral soils - suitability
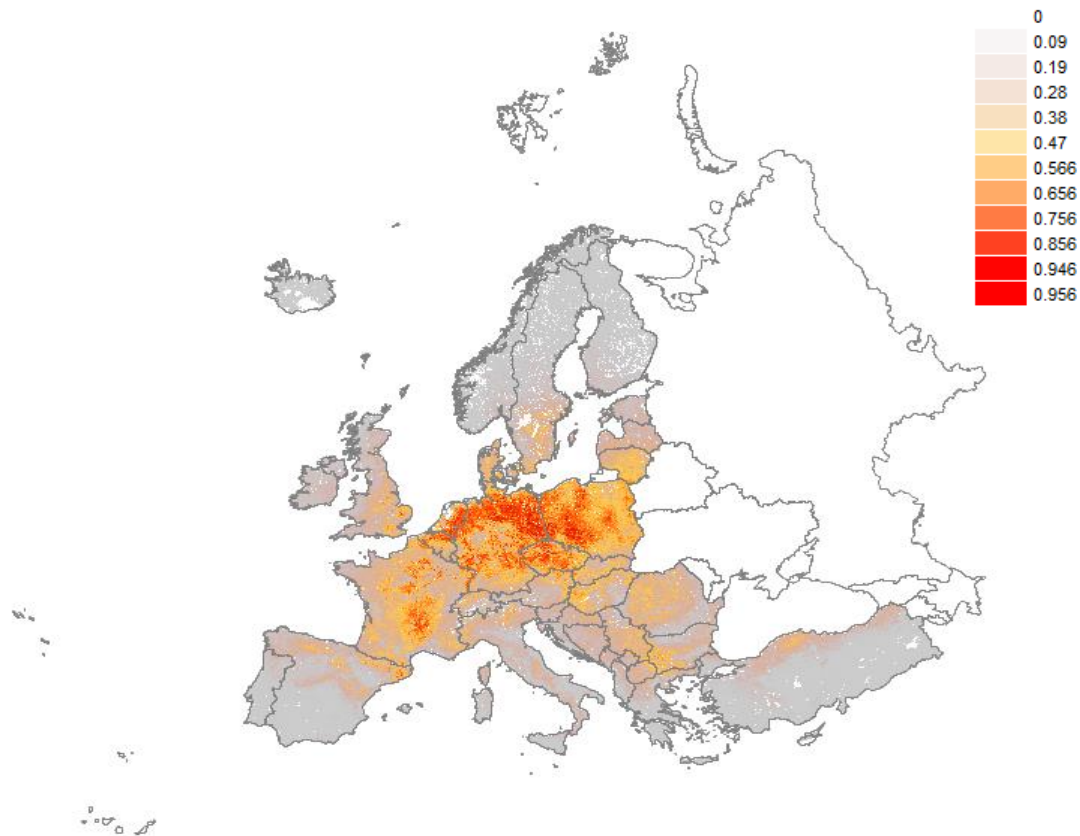
Statistics from Maxent modelling

AUC training (0-1)	0.7943
AUC test (0-1)	0.7675
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	25.0766
Weight in % of sand particles (0.05-2 mm)	12.7664
Bulk density (kg/m³)	12.2788
Potential Evapotranspiration	10.7729
Cation Exchange Capacity of the soil	8.3501
Mean temperature of wettest quarter	6.2403
Temperature seasonality (stdev * 100)	5.6109
Weight in % of clay particles (<0.0002 mm)	3.0777
Weight in % of silt particles (0.0002-0.05 mm)	2.8032
Phenology; End of Season (day number)	2.5087
Soil pH (water)	2.3883
Volume % of coarse fragments (> 2 mm)	1.416
Solar radiation	1.3774
Phenology; Low of season (day number)	1.2017
Distance to water (rivers, lakes, sea)	0.9486
Annual precipitation	0.7581
Digital Elevation Map (DEM)	0.7436
Vegetation height (m)	0.649
Phenology; Start of Season (day number)	0.3882
Phenology; NDVI mean	0.1742
Phenology; Peak of season (day number)	0.1355
Soil organic carbon content (‰)	0.1186
Precipitation seasonality (coef. of var.)	0.1022
Phenology; Length of season (days)	0.0855
Phenology; NDVI seasonality	0.0273
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The EUNIS type seems to be slightly different defined

R1Q - [E19b] Inland sanddrift and dune with siliceous grassland - distribution
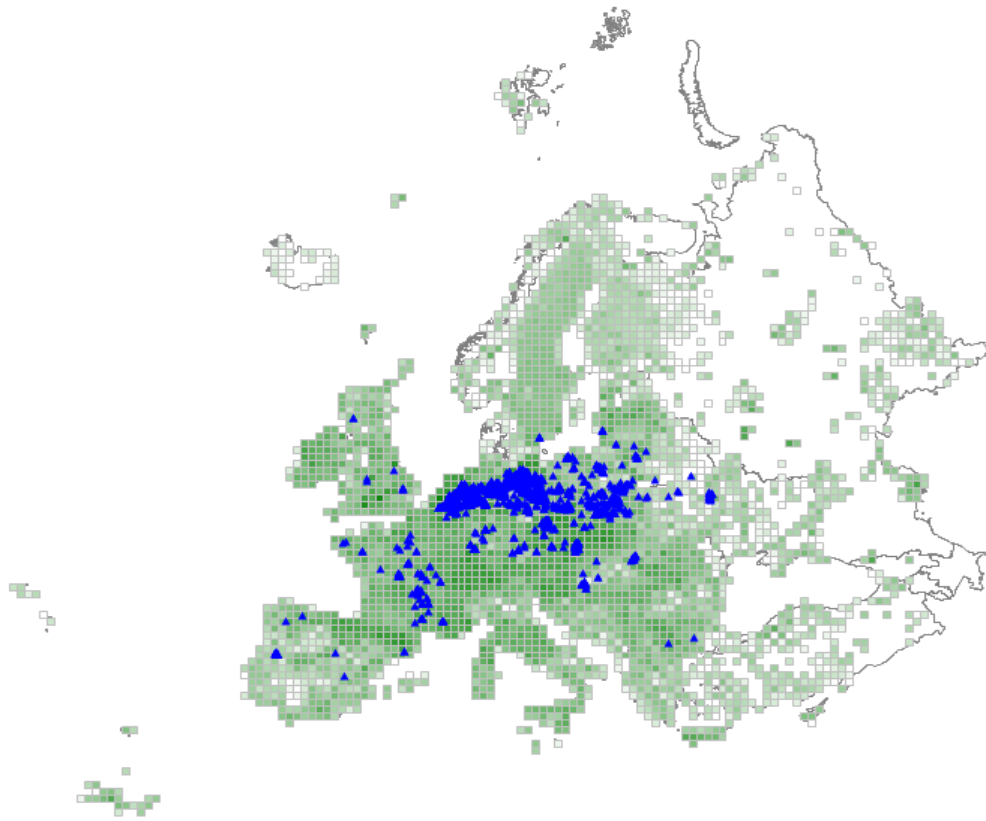
R1Q - [E19b] Inland sanddrift and dune with siliceous grassland - suitability
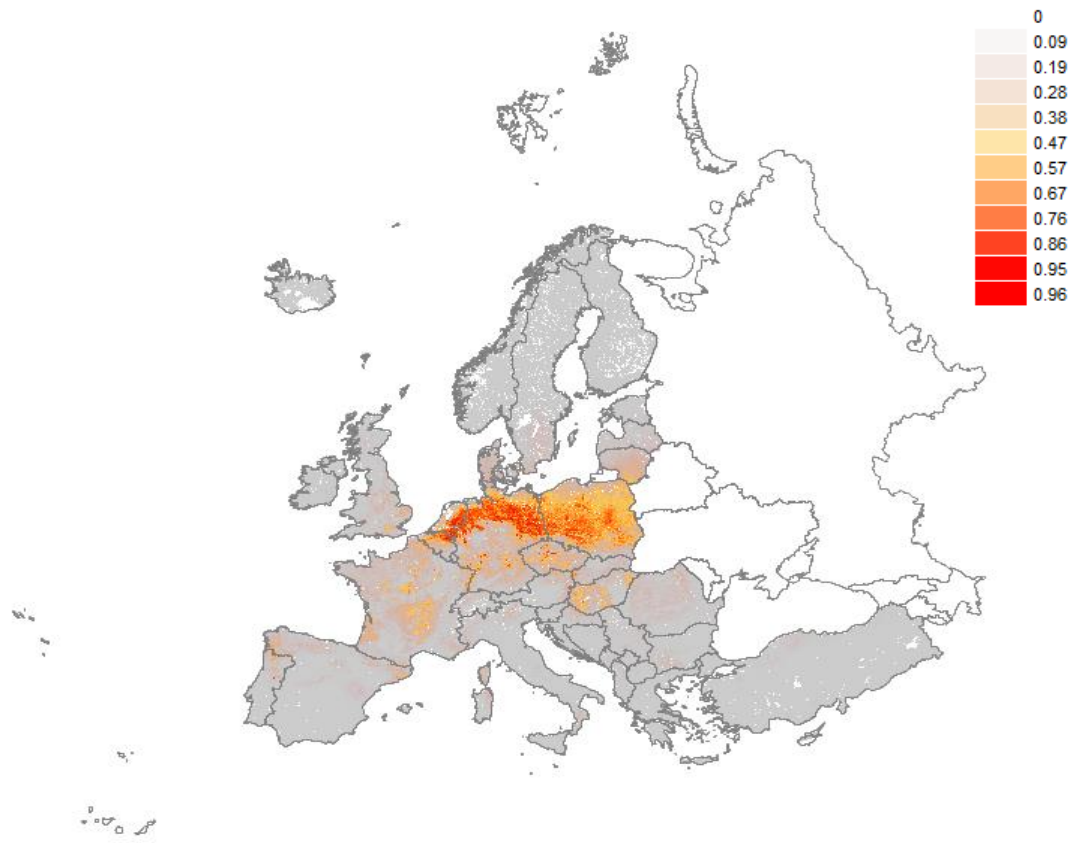
Statistics from Maxent modelling

AUC training (0-1)	0.8916
AUC test (0-1)	0.9122
Contribution variables to the Maxent model (%)	
Weight in % of sand particles (0.05-2 mm)	57.0052
Potential Evapotranspiration	15.2406
Precipitation of warmest quarter	7.3545
Weight in % of clay particles (<0.0002 mm)	4.7672
Mean temperature of wettest quarter	3.81
Temperature seasonality (stdev * 100)	2.6093
Volume % of coarse fragments (> 2 mm)	1.2918
Soil pH (water)	1.2709
Weight in % of silt particles (0.0002-0.05 mm)	1.1846
Annual precipitation	1.0827
Phenology; NDVI mean	0.6728
Cation Exchange Capacity of the soil	0.6445
Precipitation seasonality (coef. of var.)	0.5806
Vegetation height (m)	0.5676
Solar radiation	0.5128
Phenology; Low of season (day number)	0.4273
Soil organic carbon content (‰)	0.2667
Digital Elevation Map (DEM)	0.2126
Distance to water (rivers, lakes, sea)	0.1947
Phenology; NDVI seasonality	0.1343
Phenology; End of Season (day number)	0.06
Phenology; Length of season (days)	0.04
Bulk density (kg/m³)	0.0331
Phenology; Peak of season (day number)	0.0237
Inundation; occurrence	0.0124
Phenology; Start of Season (day number)	0

R1R - [E1A] Mediterranean to Atlantic open, dry, acid and neutral grassland - distribution
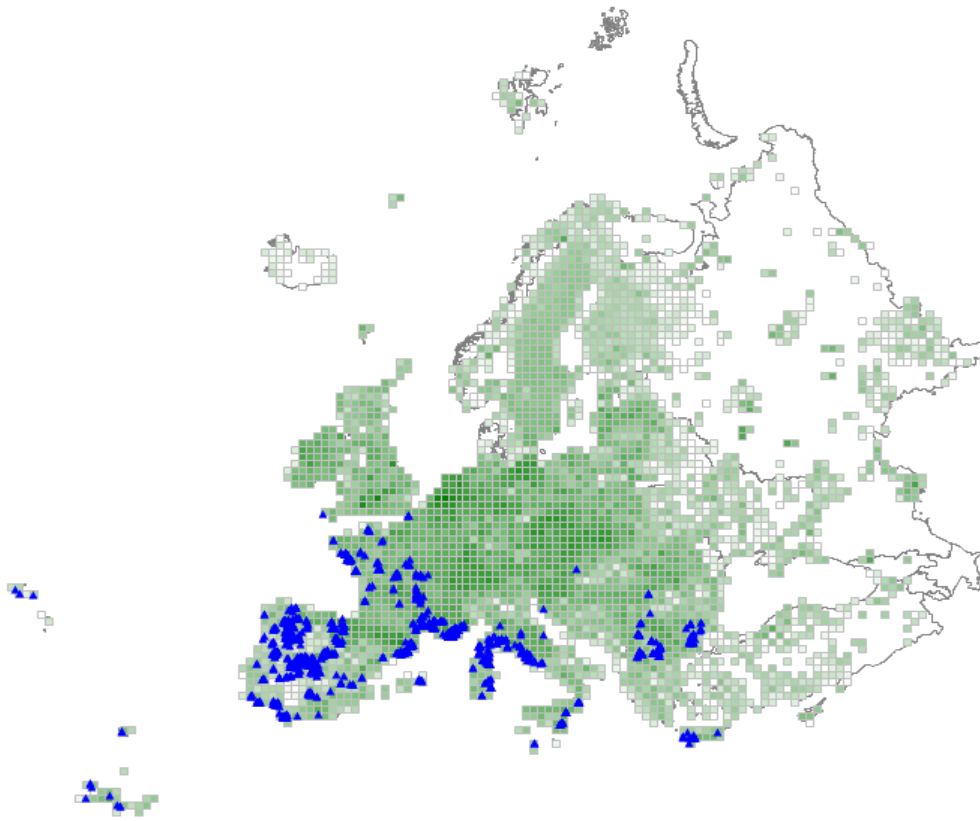
R1R - [E1A] Mediterranean to Atlantic open, dry, acid and neutral grassland - suitability

	0
	0.09
	0.19
	0.29
	0.39
	0.49
	0.581
	0.681
	0.781
	0.881
	0.981
	0.991
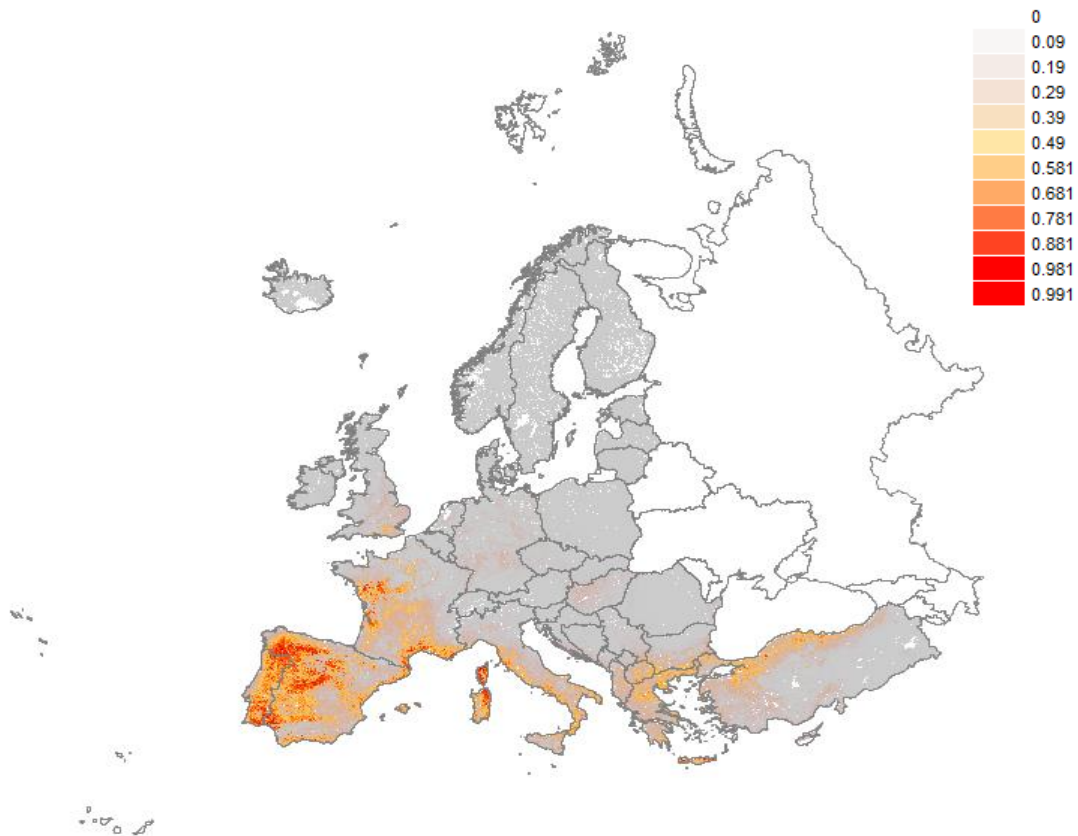
Statistics from Maxent modelling

AUC training (0-1)	0.902
AUC test (0-1)	0.9037
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	25.0272
Temperature seasonality (stdev * 100)	18.9565
Precipitation of warmest quarter	14.7626
Weight in % of sand particles (0.05-2 mm)	11.1798
Phenology; Peak of season (day number)	6.0195
Volume % of coarse fragments (> 2 mm)	4.7293
Phenology; Start of Season (day number)	4.0455
Bulk density (kg/m³)	2.7808
Precipitation seasonality (coef. of var.)	1.8448
Weight in % of clay particles (<0.0002 mm)	1.586
Phenology; Length of season (days)	1.542
Phenology; NDVI mean	1.2133
Soil pH (water)	1.034
Cation Exchange Capacity of the soil	0.917
Phenology; NDVI seasonality	0.8608
Mean temperature of wettest quarter	0.7807
Annual precipitation	0.6853
Phenology; End of Season (day number)	0.5565
Soil organic carbon content (‰)	0.4726
Phenology; Low of season (day number)	0.3552
Digital Elevation Map (DEM)	0.3461
Weight in % of silt particles (0.0002-0.05 mm)	0.1873
Vegetation height (m)	0.0939
Solar radiation	0.0151
Distance to water (rivers, lakes, sea)	0.007
Inundation; occurrence	0.0013

Comparison of distribution with Red List maps by John Janssen

The EUNIS map includes Macaronesia

R1S - [E1B] Heavy-metal grassland in Western and Central Europe - distribution
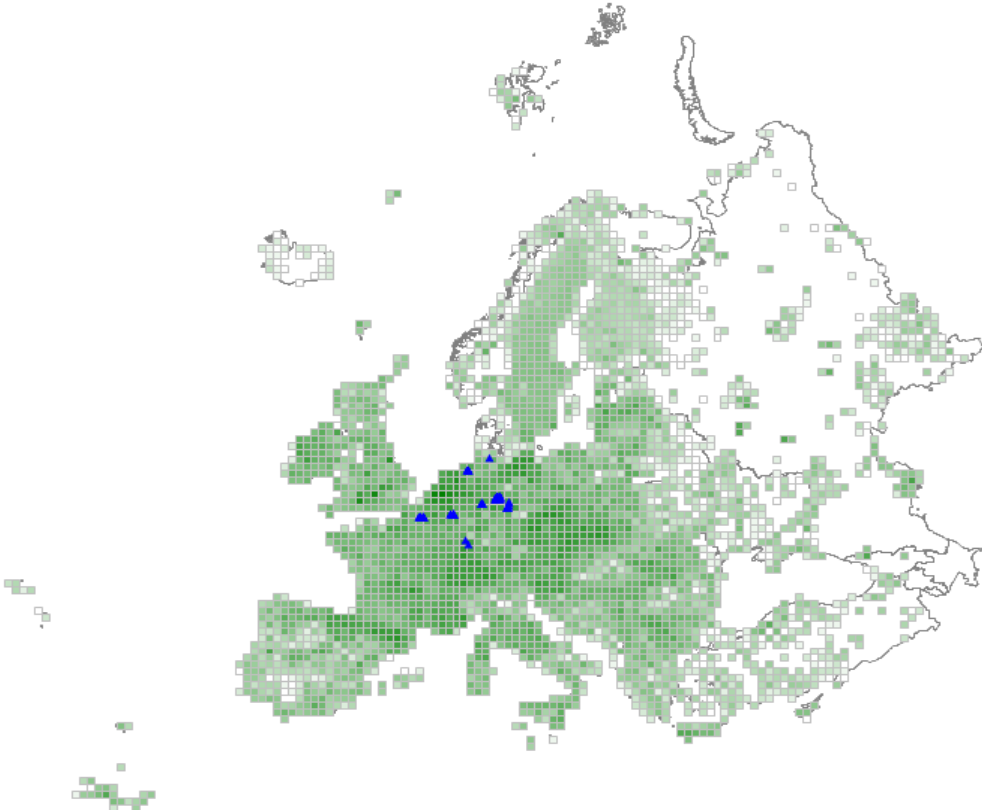
R1S - [E1B] Heavy-metal grassland in Western and Central Europe - suitability
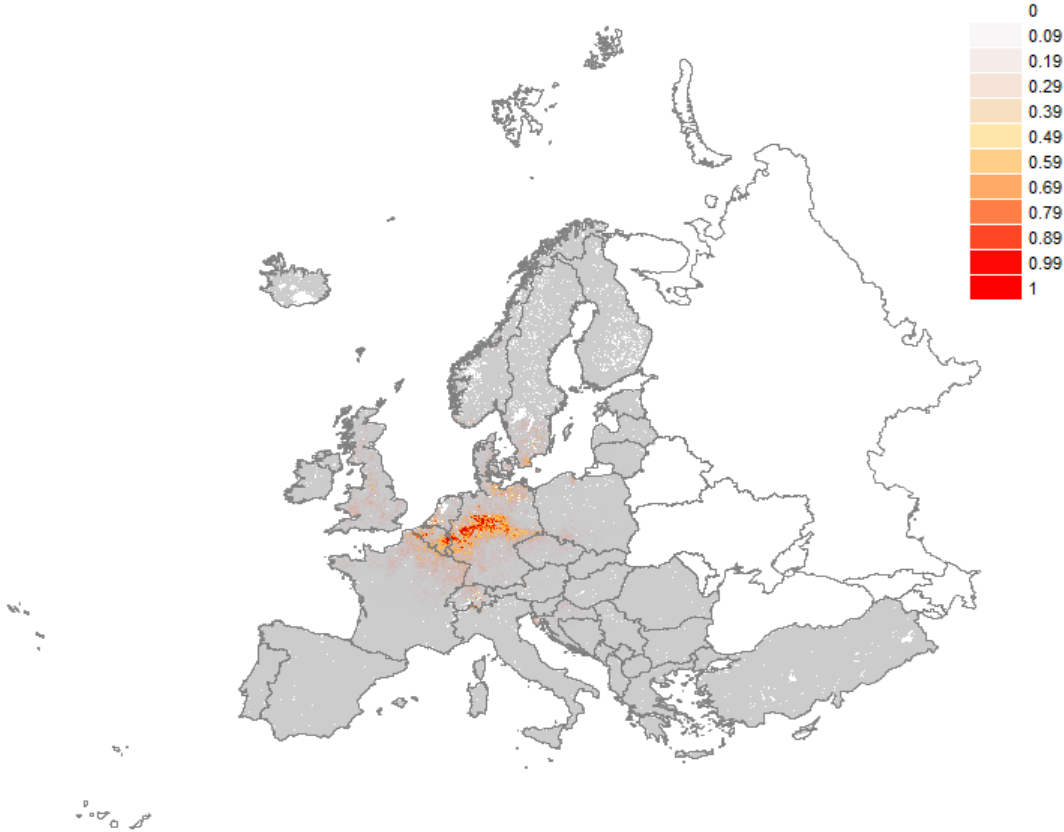
Statistics from Maxent modelling

AUC training (0-1)	0.9926
AUC test (0-1)	0.9959
Contribution variables to the Maxent model (%)	
Weight in % of silt particles (0.0002-0.05 mm)	30.9716
Temperature seasonality (stdev * 100)	14.404
Precipitation seasonality (coef. of var.)	12.9221
Precipitation of warmest quarter	9.0268
Potential Evapotranspiration	7.9641
Phenology; Length of season (days)	5.7905
Digital Elevation Map (DEM)	4.2162
Mean temperature of wettest quarter	3.7834
Weight in % of sand particles (0.05-2 mm)	2.1428
Cation Exchange Capacity of the soil	1.8453
Volume % of coarse fragments (> 2 mm)	1.317
Weight in % of clay particles (<0.0002 mm)	1.2951
Distance to water (rivers, lakes, sea)	1.1108
Soil pH (water)	0.8956
Annual precipitation	0.8087
Vegetation height (m)	0.491
Phenology; Low of season (day number)	0.3294
Phenology; Start of Season (day number)	0.289
Soil organic carbon content (‰)	0.1611
Phenology; NDVI mean	0.1147
Solar radiation	0.081
Phenology; End of Season (day number)	0.0381
Phenology; NDVI seasonality	0.0017
Phenology; Peak of season (day number)	0
Bulk density (kg/m³)	0
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen
EUNIS uses a slightly narrower definition

R1T - [E1F] Azorean open, dry, acid to neutral grassland - distribution
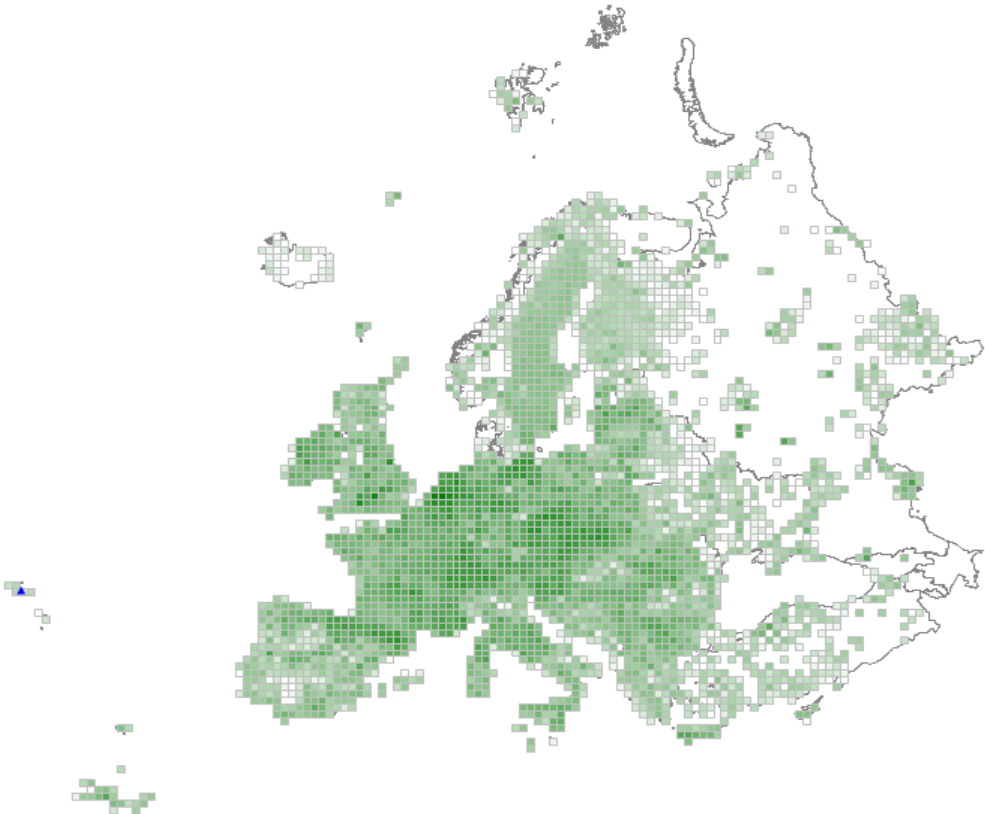
R1T - [E1F] Azorean open, dry, acid to neutral grassland - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

R21 - [E21] Mesic permanent pasture of lowlands and mountains - distribution
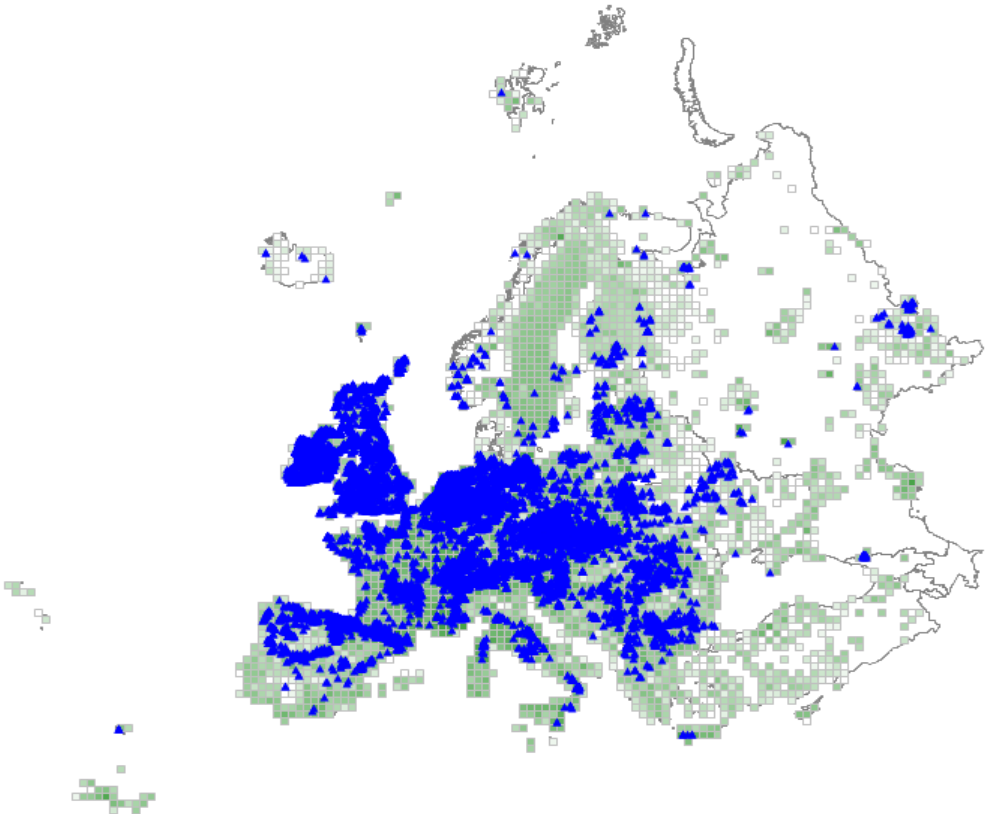
R21 - [E21] Mesic permanent pasture of lowlands and mountains - suitability
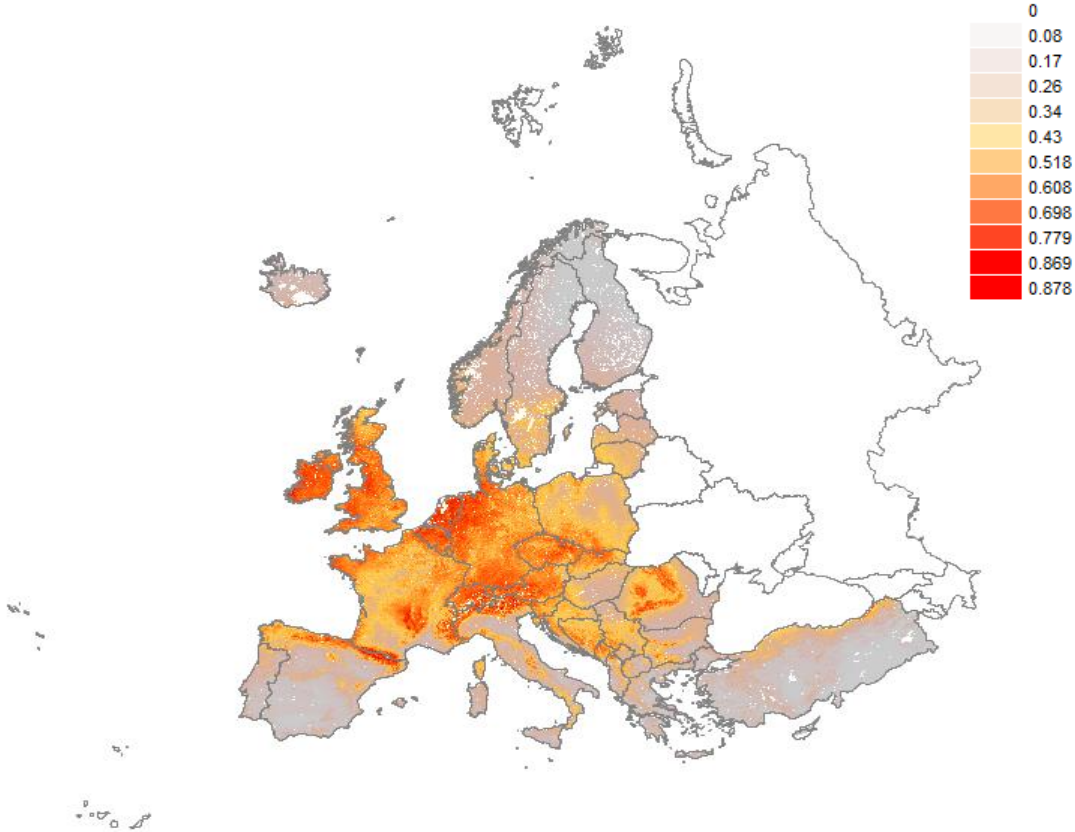
Statistics from Maxent modelling

AUC training (0-1)	0.6558
AUC test (0-1)	0.6462
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	41.759
Temperature seasonality (stdev * 100)	30.1436
Potential Evapotranspiration	10.1238
Digital Elevation Map (DEM)	5.8257
Soil pH (water)	3.8175
Bulk density (kg/m³)	3.4965
Cation Exchange Capacity of the soil	1.1717
Phenology; Length of season (days)	0.8618
Phenology; Start of Season (day number)	0.583
Mean temperature of wettest quarter	0.4094
Weight in % of clay particles (<0.0002 mm)	0.3845
Distance to water (rivers, lakes, sea)	0.2824
Solar radiation	0.2059
Volume % of coarse fragments (> 2 mm)	0.1795
Phenology; Low of season (day number)	0.1732
Annual precipitation	0.1595
Precipitation seasonality (coef. of var.)	0.1253
Weight in % of sand particles (0.05-2 mm)	0.0884
Weight in % of silt particles (0.0002-0.05 mm)	0.0619
Vegetation height (m)	0.0599
Soil organic carbon content (‰)	0.0374
Phenology; NDVI seasonality	0.0234
Phenology; NDVI mean	0.0214
Phenology; Peak of season (day number)	0.0041
Phenology; End of Season (day number)	0.0014
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The maps differ; probably the Red List used a stricter selection of data, but the definitions will be more or less identical

R22 - [E22] Low and medium altitude hay meadow - distribution
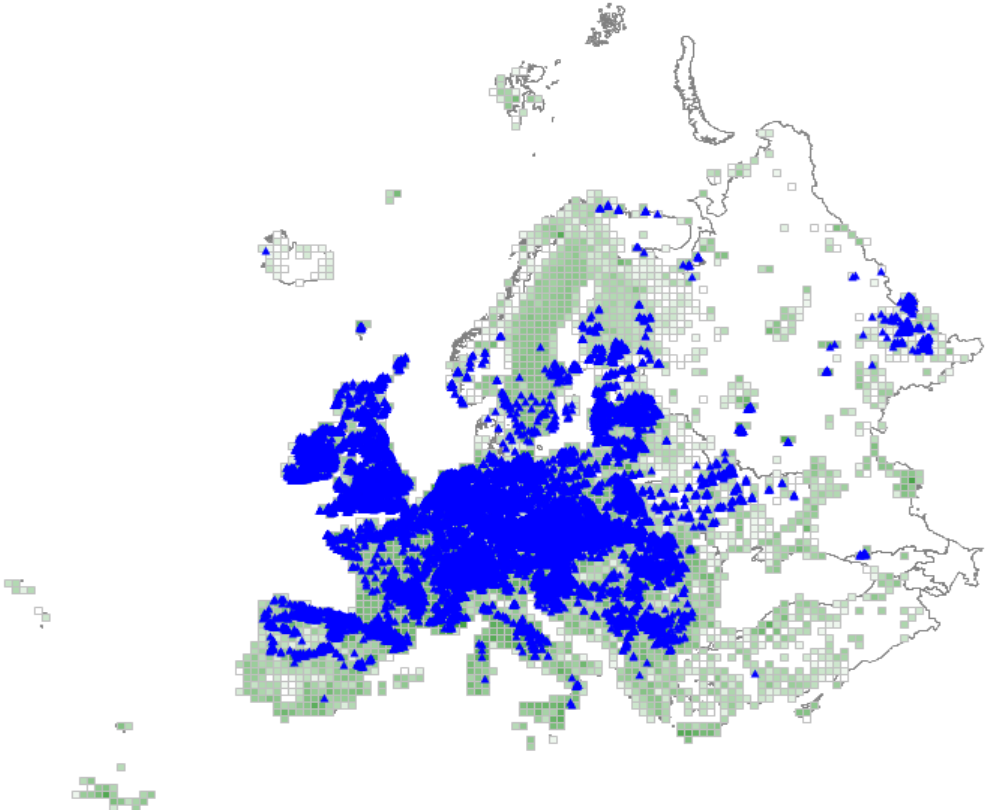
R22 - [E22] Low and medium altitude hay meadow - suitability
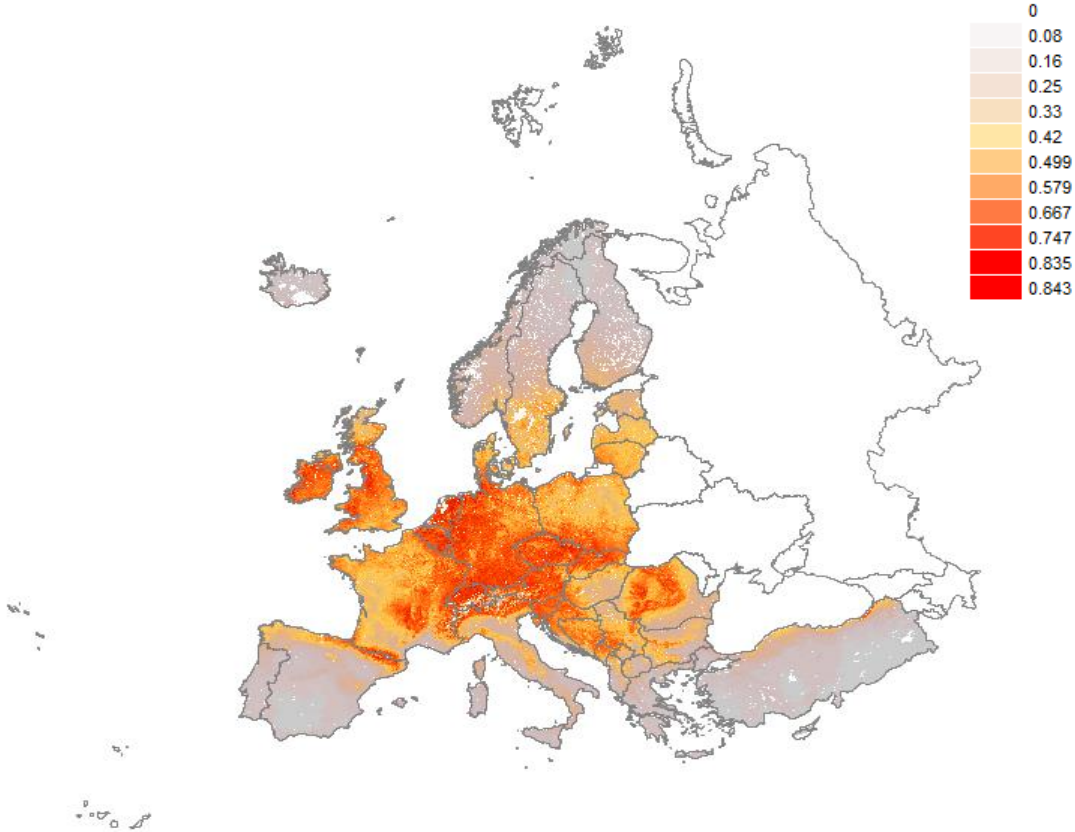
Statistics from Maxent modelling

AUC training (0-1)	0.6452
AUC test (0-1)	0.6443
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	55.6116
Potential Evapotranspiration	25.2109
Temperature seasonality (stdev * 100)	11.0918
Soil pH (water)	2.7193
Phenology; Length of season (days)	1.3138
Digital Elevation Map (DEM)	1.1871
Weight in % of clay particles (<0.0002 mm)	0.8906
Phenology; Low of season (day number)	0.3999
Distance to water (rivers, lakes, sea)	0.298
Soil organic carbon content (‰)	0.2012
Annual precipitation	0.1404
Phenology; Start of Season (day number)	0.1375
Precipitation seasonality (coef. of var.)	0.1171
Solar radiation	0.0996
Mean temperature of wettest quarter	0.0973
Weight in % of sand particles (0.05-2 mm)	0.084
Phenology; NDVI seasonality	0.0801
Weight in % of silt particles (0.0002-0.05 mm)	0.0651
Phenology; Peak of season (day number)	0.0639
Phenology; NDVI mean	0.0466
Volume % of coarse fragments (> 2 mm)	0.0409
Bulk density (kg/m³)	0.038
Cation Exchange Capacity of the soil	0.0384
Vegetation height (m)	0.025
Phenology; End of Season (day number)	0.0018
Inundation; occurrence	0

R23 - [E23] Mountain hay meadow - distribution
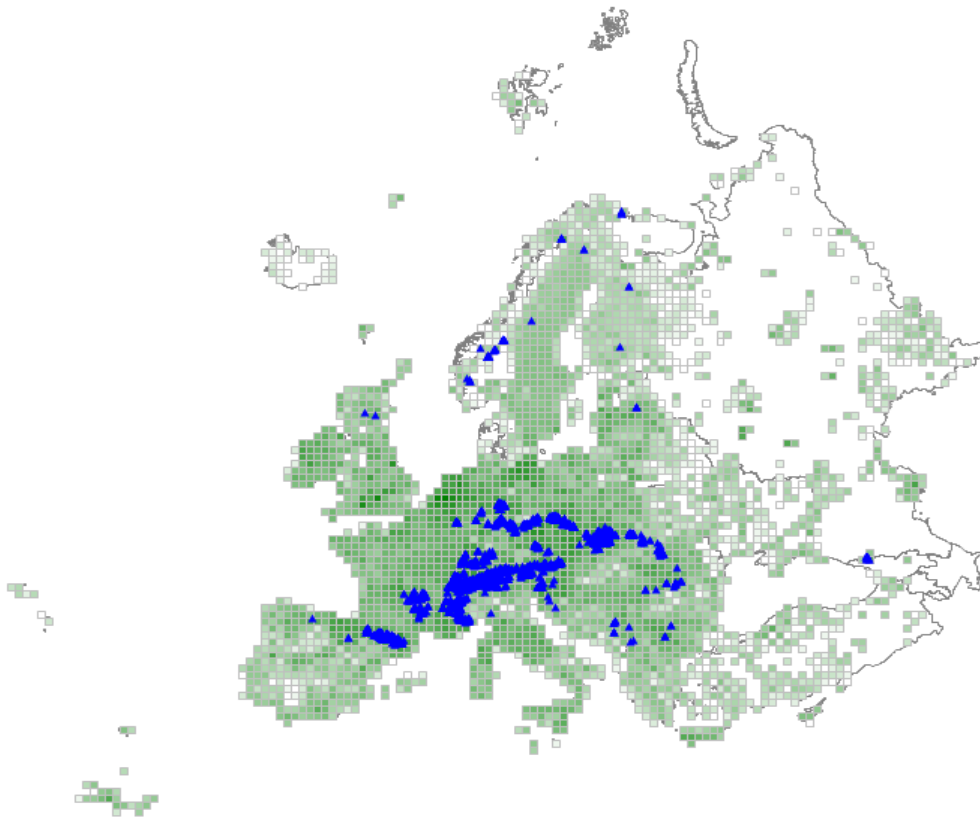
R23 - [E23] Mountain hay meadow - suitability
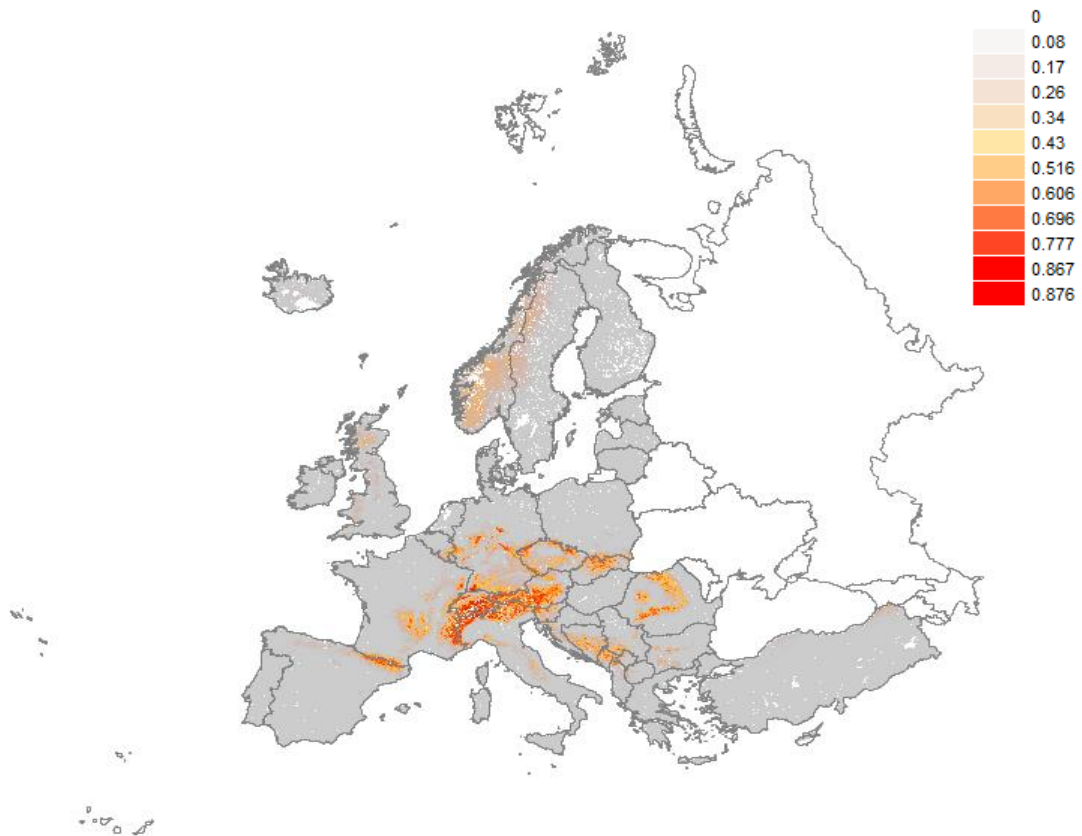
Statistics from Maxent modelling

AUC training (0-1)	0.8598
AUC test (0-1)	0.8642
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	46.845
Precipitation of warmest quarter	39.4049
Potential Evapotranspiration	2.8283
Volume % of coarse fragments (> 2 mm)	1.805
Weight in % of silt particles (0.0002-0.05 mm)	1.2716
Phenology; NDVI mean	1.2418
Phenology; End of Season (day number)	1.1713
Temperature seasonality (stdev * 100)	0.9909
Annual precipitation	0.9744
Bulk density (kg/m³)	0.8668
Weight in % of clay particles (<0.0002 mm)	0.7841
Solar radiation	0.4863
Soil pH (water)	0.3982
Phenology; NDVI seasonality	0.2389
Distance to water (rivers, lakes, sea)	0.1436
Phenology; Length of season (days)	0.1401
Soil organic carbon content (‰)	0.0931
Phenology; Low of season (day number)	0.0817
Precipitation seasonality (coef. of var.)	0.072
Vegetation height (m)	0.0716
Mean temperature of wettest quarter	0.0524
Weight in % of sand particles (0.05-2 mm)	0.0307
Phenology; Peak of season (day number)	0.0065
Phenology; Start of Season (day number)	0.0004
Inundation; occurrence	0
Cation Exchange Capacity of the soil	0.0003

R24 - [E24] Iberian summer pasture (vallicar) - distribution
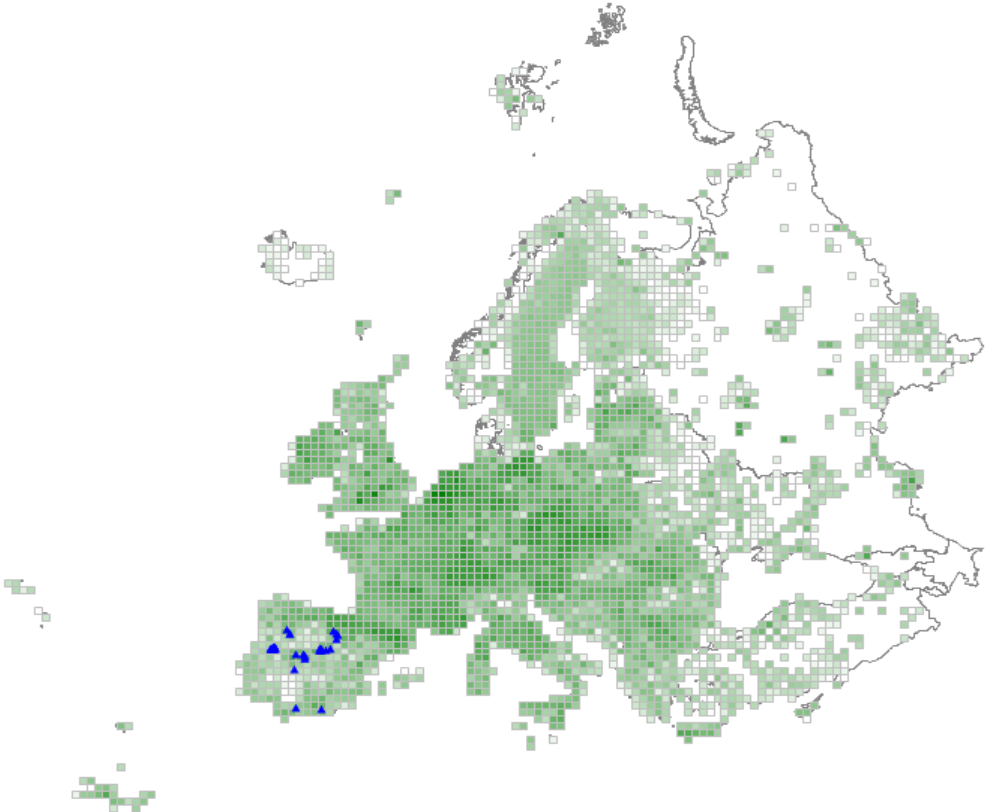
R24 - [E24] Iberian summer pasture (vallicar) - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9931
AUC test (0-1)	0.9968
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	36.7595
Precipitation of warmest quarter	15.7059
Temperature seasonality (stdev * 100)	12.5802
Weight in % of sand particles (0.05-2 mm)	8.3783
Cation Exchange Capacity of the soil	7.9048
Soil pH (water)	5.2523
Volume % of coarse fragments (> 2 mm)	4.0854
Phenology; End of Season (day number)	2.0757
Phenology; NDVI mean	1.829
Phenology; Low of season (day number)	1.3633
Precipitation seasonality (coef. of var.)	0.9905
Weight in % of clay particles (<0.0002 mm)	0.9306
Phenology; Peak of season (day number)	0.8896
Annual precipitation	0.7042
Solar radiation	0.2329
Vegetation height (m)	0.1006
Distance to water (rivers, lakes, sea)	0.098
Soil organic carbon content (‰)	0.056
Weight in % of silt particles (0.0002-0.05 mm)	0.0425
Phenology; NDVI seasonality	0.0206
Phenology; Length of season (days)	0
Potential Evapotranspiration	0
Phenology; Start of Season (day number)	0
Bulk density (kg/m³)	0
Inundation; occurrence	0
Mean temperature of wettest quarter	0

R31 - [E31a] Mediterranean tall humid inland grassland - distribution
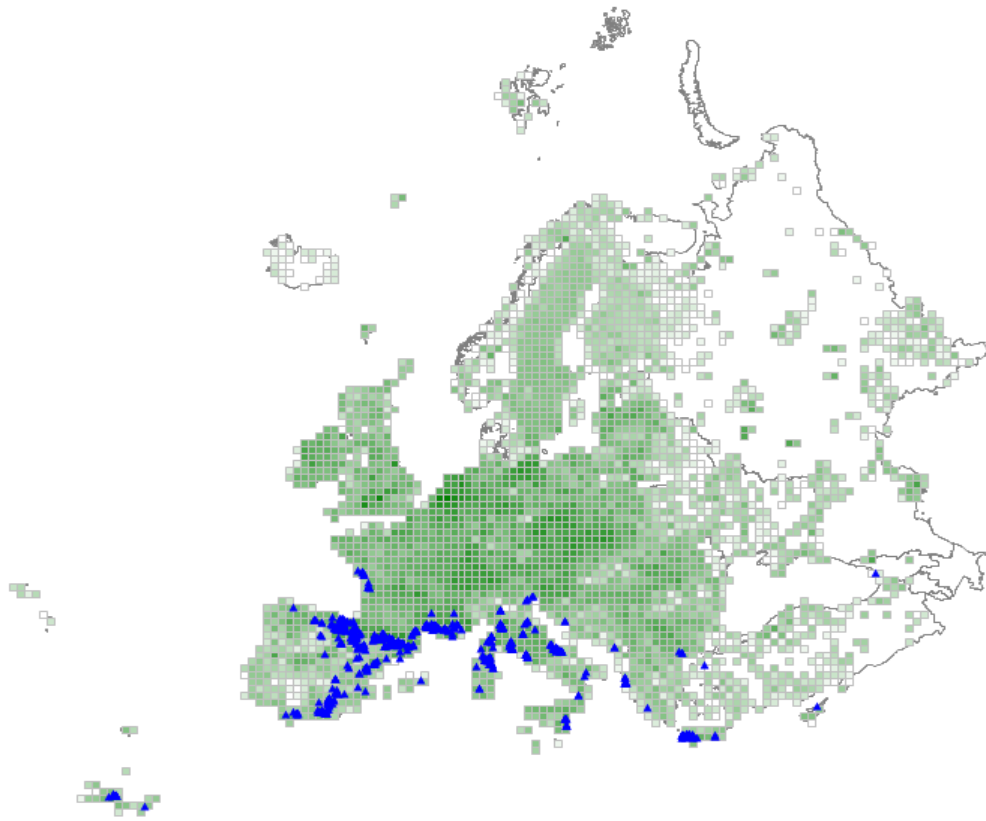
R31 - [E31a] Mediterranean tall humid inland grassland - suitability
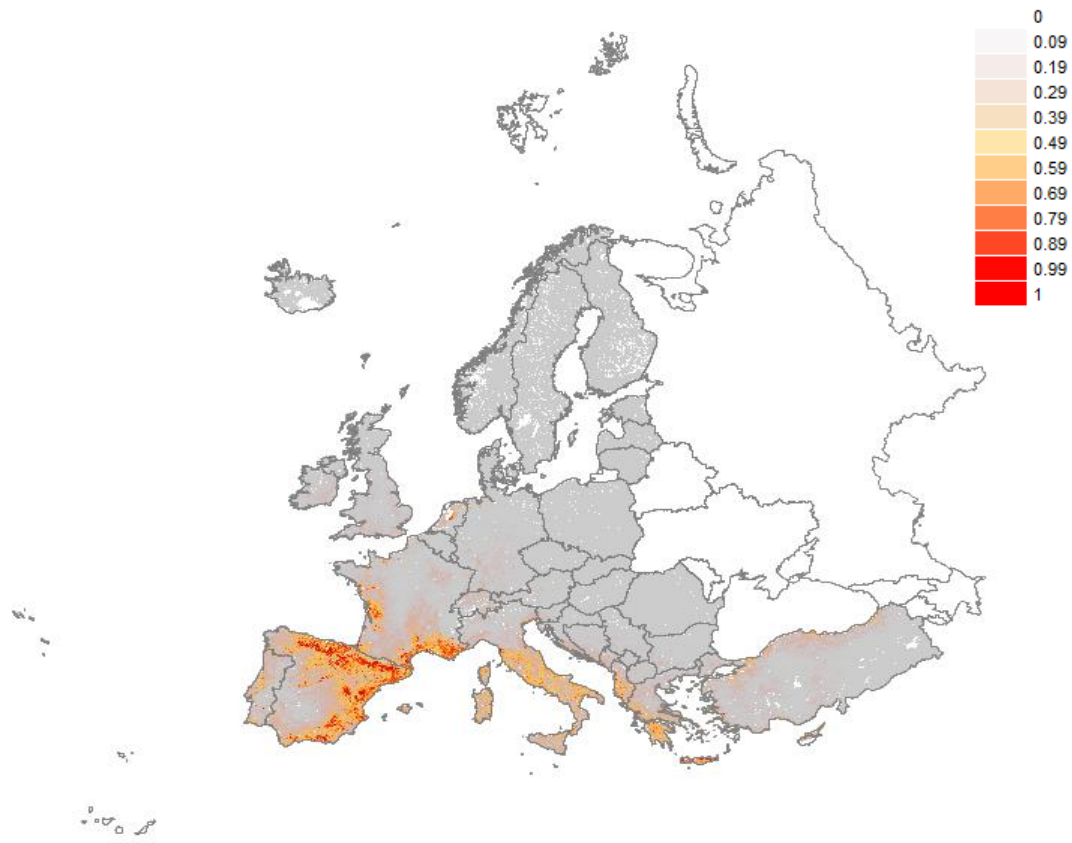
Statistics from Maxent modelling

AUC training (0-1)	0.9514
AUC test (0-1)	0.9562
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	31.7013
Potential Evapotranspiration	14.1298
Weight in % of clay particles (<0.0002 mm)	10.962
Digital Elevation Map (DEM)	9.283
Phenology; NDVI seasonality	6.7227
Precipitation seasonality (coef. of var.)	5.1359
Soil pH (water)	4.2167
Soil organic carbon content (‰)	2.9228
Phenology; NDVI mean	2.8179
Phenology; End of Season (day number)	2.336
Mean temperature of wettest quarter	1.4501
Precipitation of warmest quarter	1.4404
Cation Exchange Capacity of the soil	1.1257
Distance to water (rivers, lakes, sea)	0.984
Vegetation height (m)	0.853
Bulk density (kg/m³)	0.6941
Phenology; Start of Season (day number)	0.6745
Weight in % of silt particles (0.0002-0.05 mm)	0.4962
Phenology; Length of season (days)	0.4727
Volume % of coarse fragments (> 2 mm)	0.3679
Annual precipitation	0.32
Weight in % of sand particles (0.05-2 mm)	0.3189
Phenology; Peak of season (day number)	0.2027
Solar radiation	0.1788
Phenology; Low of season (day number)	0.1464
Inundation; occurrence	0.0465

R32 - [E32a] Mediterranean short moist grassland of lowlands - distribution
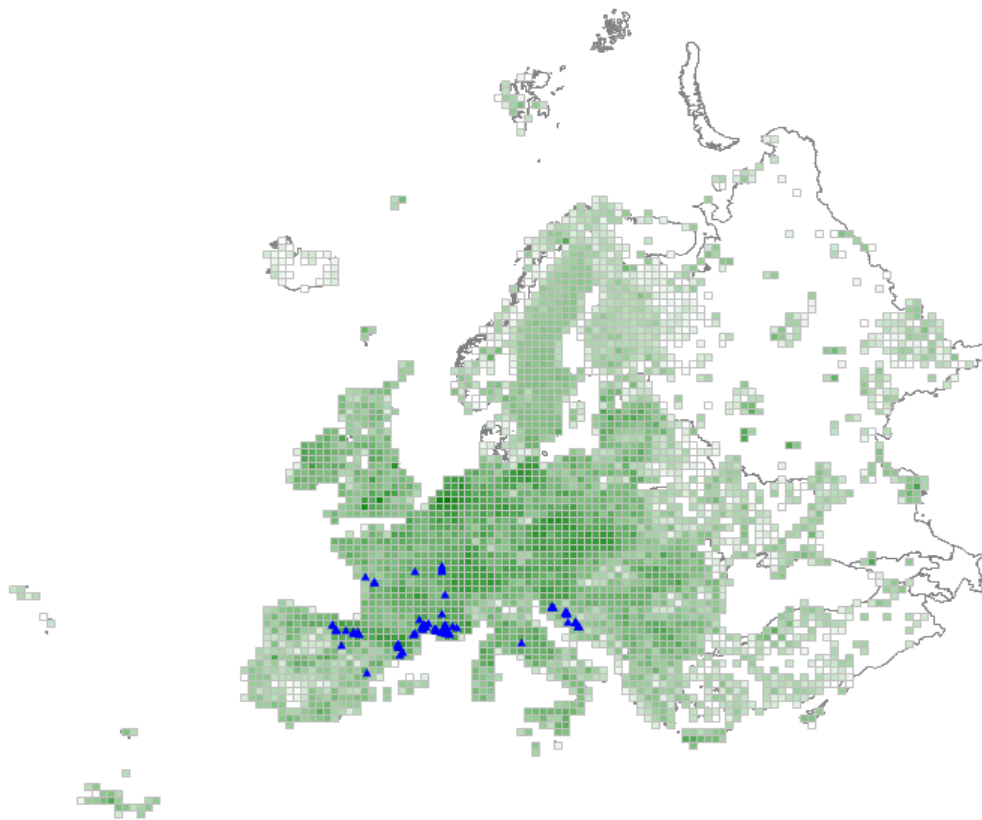
**R32 - [E32a] Mediterranean short moist grassland of lowlands - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9776
AUC test (0-1)	0.9821
Contribution variables to the Maxent model (%)	
Soil pH (water)	13.4339
Annual precipitation	13.2693
Weight in % of clay particles (<0.0002 mm)	11.0534
Precipitation of warmest quarter	10.2793
Temperature seasonality (stdev * 100)	9.9605
Mean temperature of wettest quarter	9.4353
Phenology; Peak of season (day number)	7.9762
Precipitation seasonality (coef. of var.)	7.7384
Potential Evapotranspiration	7.2146
Volume % of coarse fragments (> 2 mm)	3.8806
Digital Elevation Map (DEM)	1.5467
Cation Exchange Capacity of the soil	0.7766
Phenology; NDVI seasonality	0.7058
Weight in % of silt particles (0.0002-0.05 mm)	0.6037
Phenology; End of Season (day number)	0.5176
Vegetation height (m)	0.3745
Bulk density (kg/m³)	0.3295
Phenology; NDVI mean	0.3005
Phenology; Length of season (days)	0.2969
Phenology; Start of Season (day number)	0.1411
Phenology; Low of season (day number)	0.1205
Weight in % of sand particles (0.05-2 mm)	0.0217
Distance to water (rivers, lakes, sea)	0.0152
Soil organic carbon content (‰)	0.0072
Inundation; occurrence	0.0009
Solar radiation	0.0002

R33 - [E32b] Mediterranean short moist grassland of mountains - distribution
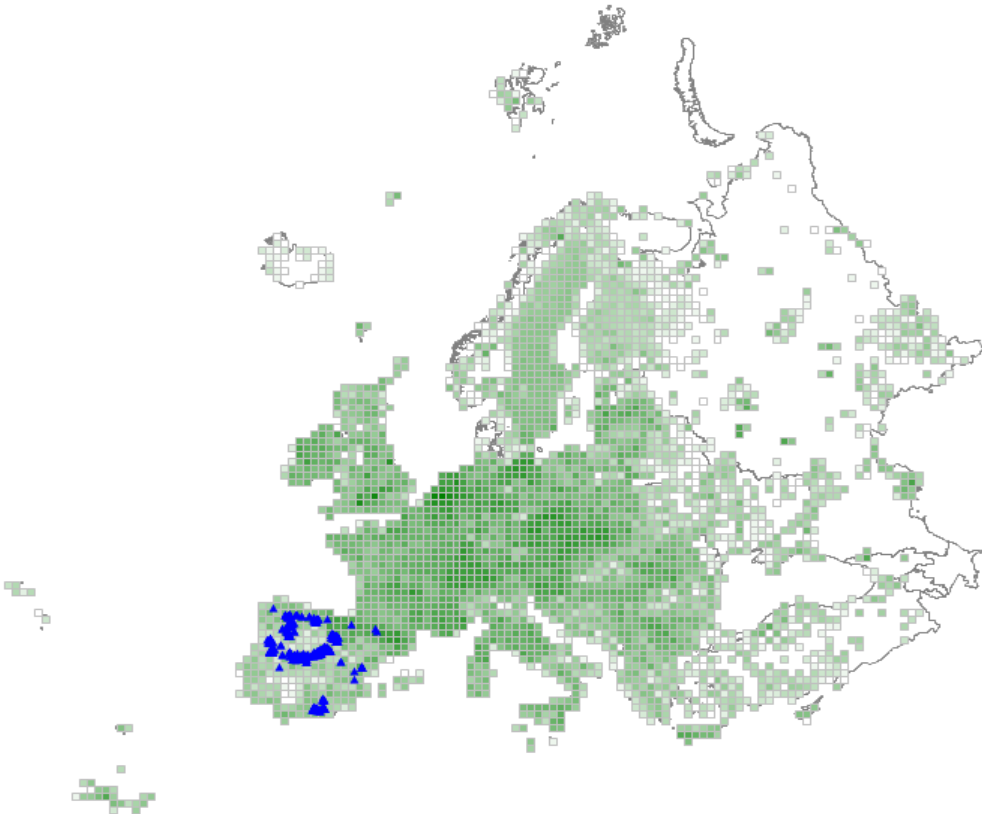
R33 - [E32b] Mediterranean short moist grassland of mountains - suitability
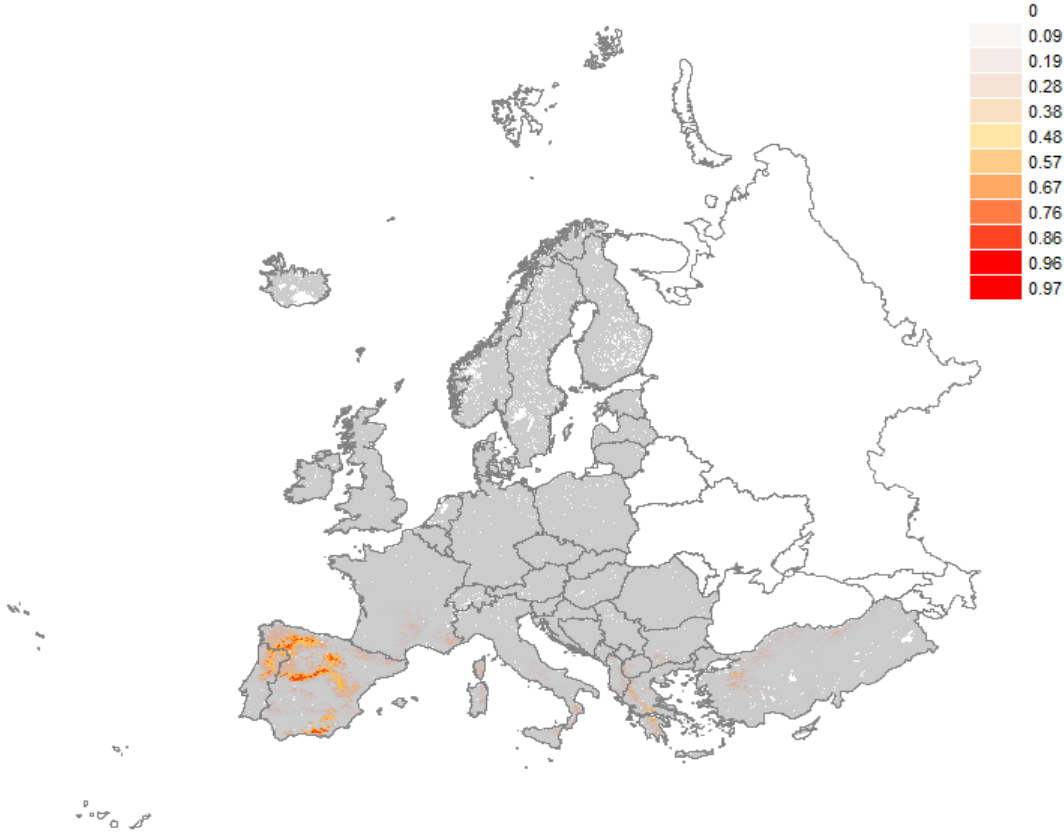
Statistics from Maxent modelling

AUC training (0-1)	0.9671
AUC test (0-1)	0.9684
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	53.1247
Temperature seasonality (stdev * 100)	19.5952
Weight in % of sand particles (0.05-2 mm)	10.4403
Precipitation of warmest quarter	7.7737
Potential Evapotranspiration	3.8196
Precipitation seasonality (coef. of var.)	1.0431
Weight in % of silt particles (0.0002-0.05 mm)	0.9392
Phenology; NDVI seasonality	0.8422
Soil organic carbon content (‰)	0.3796
Phenology; End of Season (day number)	0.2928
Annual precipitation	0.2676
Weight in % of clay particles (<0.0002 mm)	0.2372
Soil pH (water)	0.2196
Phenology; Length of season (days)	0.2095
Mean temperature of wettest quarter	0.1872
Vegetation height (m)	0.1796
Distance to water (rivers, lakes, sea)	0.1664
Phenology; NDVI mean	0.088
Bulk density (kg/m³)	0.0677
Phenology; Peak of season (day number)	0.0519
Inundation; occurrence	0.0289
Phenology; Start of Season (day number)	0.0155
Solar radiation	0.0112
Cation Exchange Capacity of the soil	0.011
Phenology; Low of season (day number)	0.0064
Volume % of coarse fragments (> 2 mm)	0.0018

R34 - [E33] Submediterranean moist meadow - distribution
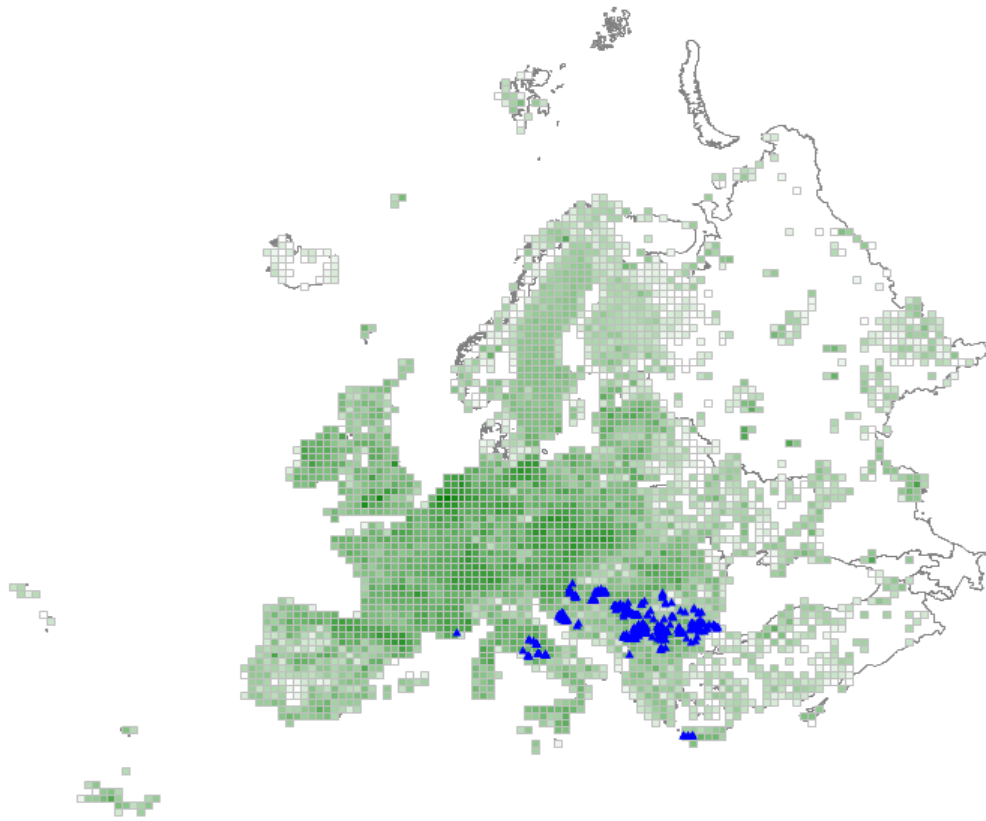
R34 - [E33] Submediterranean moist meadow - suitability
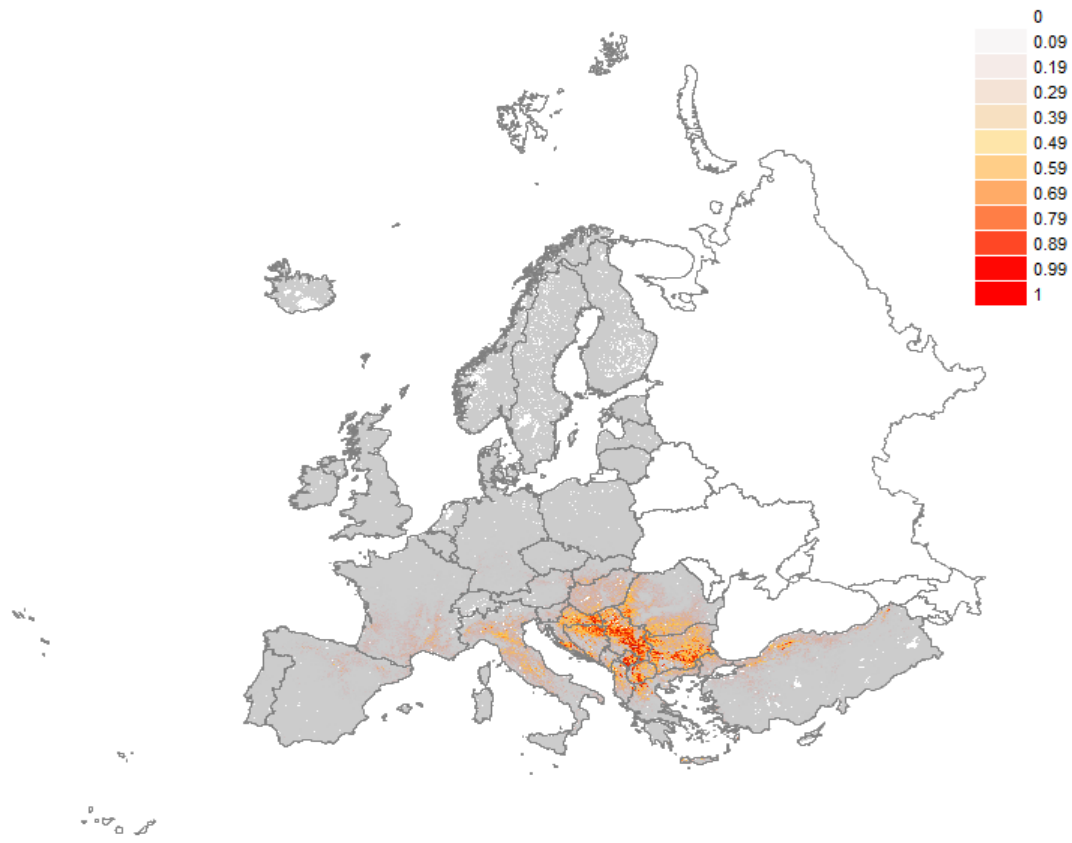
Statistics from Maxent modelling

AUC training (0-1)	0.9565
AUC test (0-1)	0.9591
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	23.7957
Volume % of coarse fragments (> 2 mm)	20.9455
Weight in % of clay particles (<0.0002 mm)	14.8679
Precipitation of warmest quarter	14.558
Temperature seasonality (stdev * 100)	5.1731
Precipitation seasonality (coef. of var.)	3.1754
Distance to water (rivers, lakes, sea)	2.1948
Annual precipitation	1.5419
Bulk density (kg/m³)	1.5127
Phenology; Start of Season (day number)	1.5032
Weight in % of sand particles (0.05-2 mm)	1.4656
Phenology; Low of season (day number)	1.2327
Cation Exchange Capacity of the soil	1.1644
Solar radiation	1.1642
Mean temperature of wettest quarter	1.0875
Phenology; NDVI mean	0.9009
Phenology; NDVI seasonality	0.8165
Phenology; End of Season (day number)	0.7977
Digital Elevation Map (DEM)	0.653
Weight in % of silt particles (0.0002-0.05 mm)	0.5817
Soil organic carbon content (‰)	0.5358
Vegetation height (m)	0.1569
Phenology; Length of season (days)	0.1151
Phenology; Peak of season (day number)	0.044
Soil pH (water)	0.0127
Inundation; occurrence	0.0031

R35 - [E34a] Moist or wet mesotrophic to eutrophic hay meadow - distribution
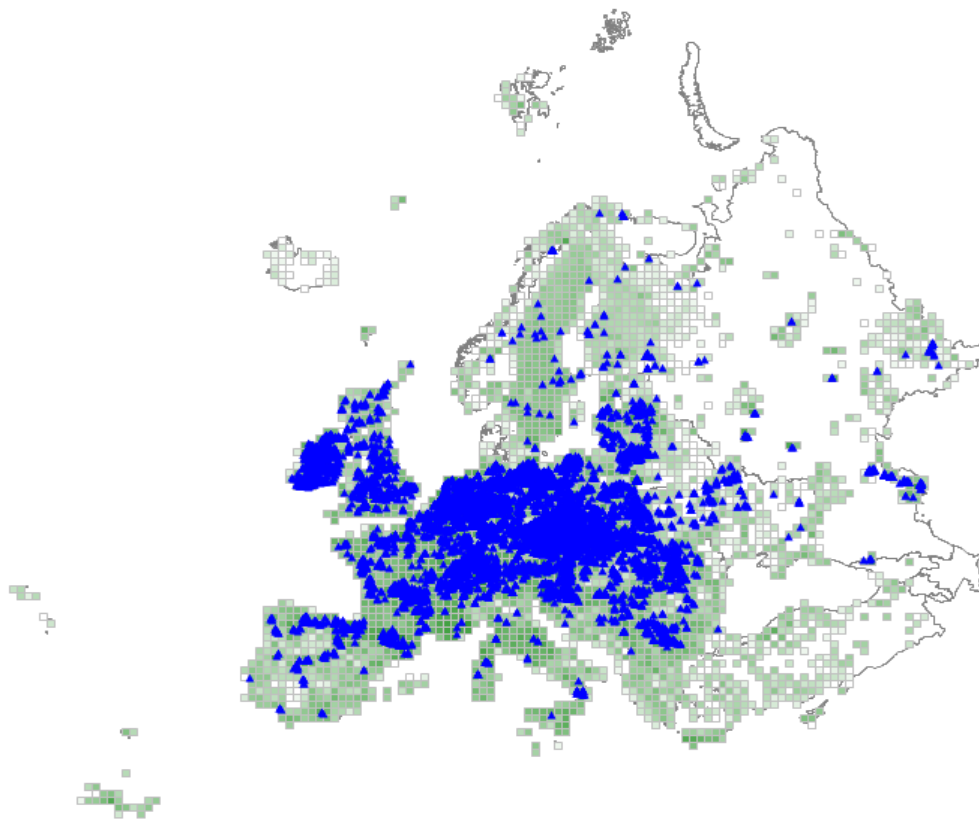
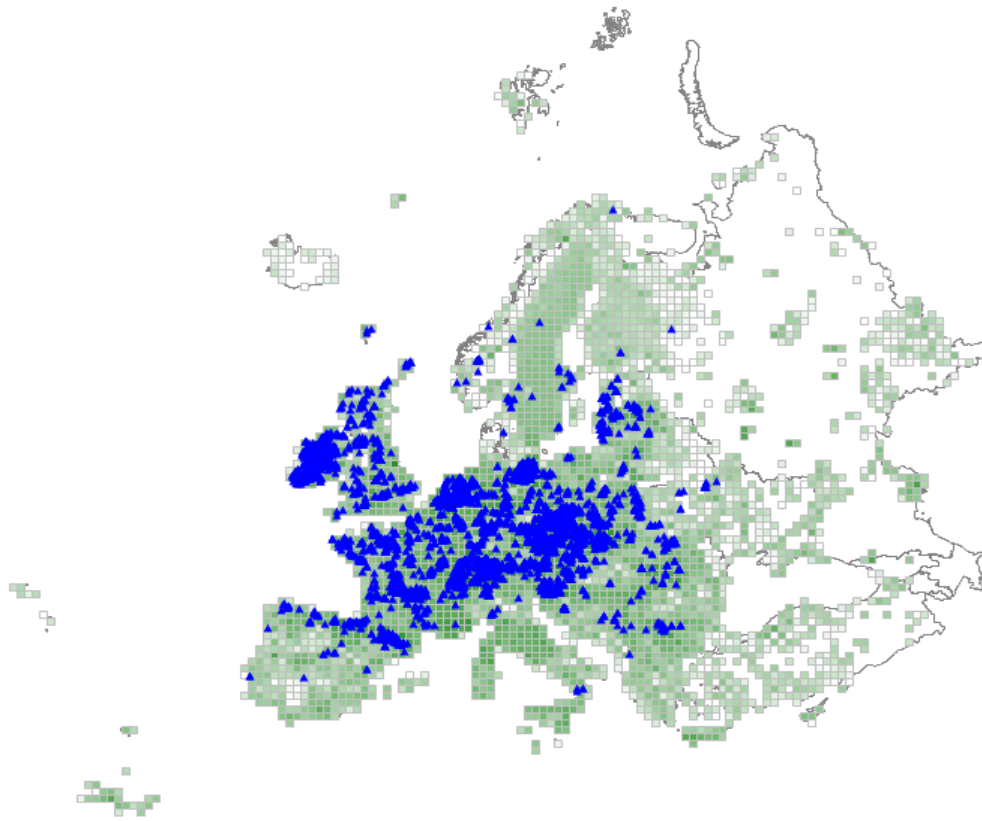**R35 - [E34a] Moist or wet mesotrophic to eutrophic hay meadow - suitability**
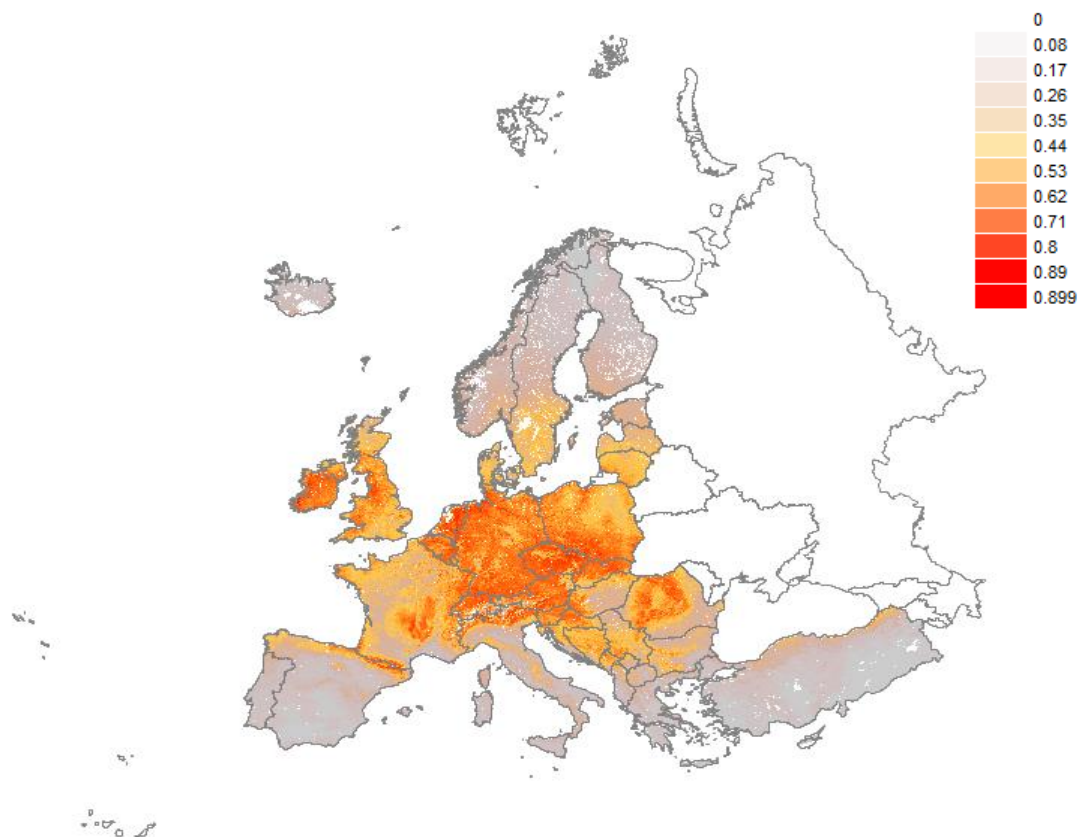
Statistics from Maxent modelling

AUC training (0-1)	0.6468
AUC test (0-1)	0.6413
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	51.383
Potential Evapotranspiration	23.9117
Temperature seasonality (stdev * 100)	9.2862
Soil pH (water)	7.0903
Digital Elevation Map (DEM)	1.3816
Phenology; Start of Season (day number)	0.9792
Phenology; Low of season (day number)	0.9338
Bulk density (kg/m³)	0.8777
Annual precipitation	0.875
Weight in % of clay particles (<0.0002 mm)	0.7553
Phenology; End of Season (day number)	0.6049
Distance to water (rivers, lakes, sea)	0.4634
Phenology; NDVI mean	0.3313
Weight in % of silt particles (0.0002-0.05 mm)	0.2311
Weight in % of sand particles (0.05-2 mm)	0.2204
Vegetation height (m)	0.1649
Phenology; Length of season (days)	0.1354
Mean temperature of wettest quarter	0.1267
Precipitation seasonality (coef. of var.)	0.0976
Volume % of coarse fragments (> 2 mm)	0.073
Phenology; NDVI seasonality	0.0375
Solar radiation	0.0293
Soil organic carbon content (‰)	0.0059
Inundation; occurrence	0.0046
Cation Exchange Capacity of the soil	0
Phenology; Peak of season (day number)	0

R36 - [E34b] Moist or wet mesotrophic to eutrophic pasture - distribution
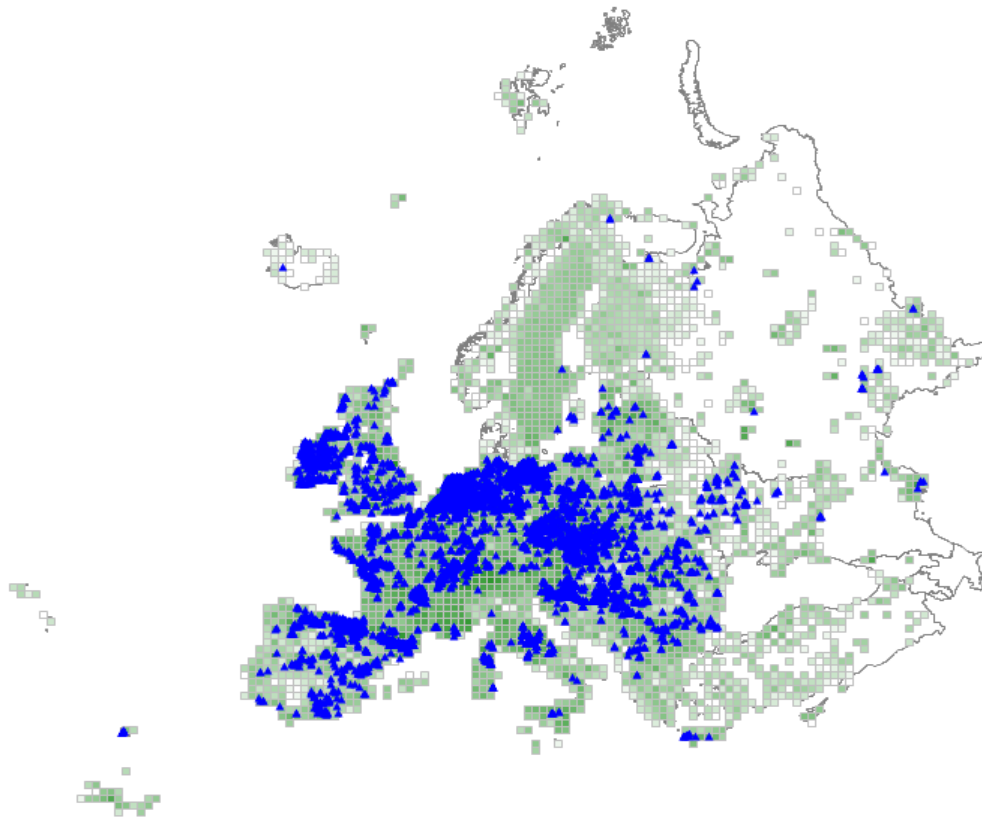
R36 - [E34b] Moist or wet mesotrophic to eutrophic pasture - suitability

	0
	0.09
	0.18
	0.27
	0.37
	0.46
	0.553
	0.643
	0.733
	0.823
	0.922
	0.931
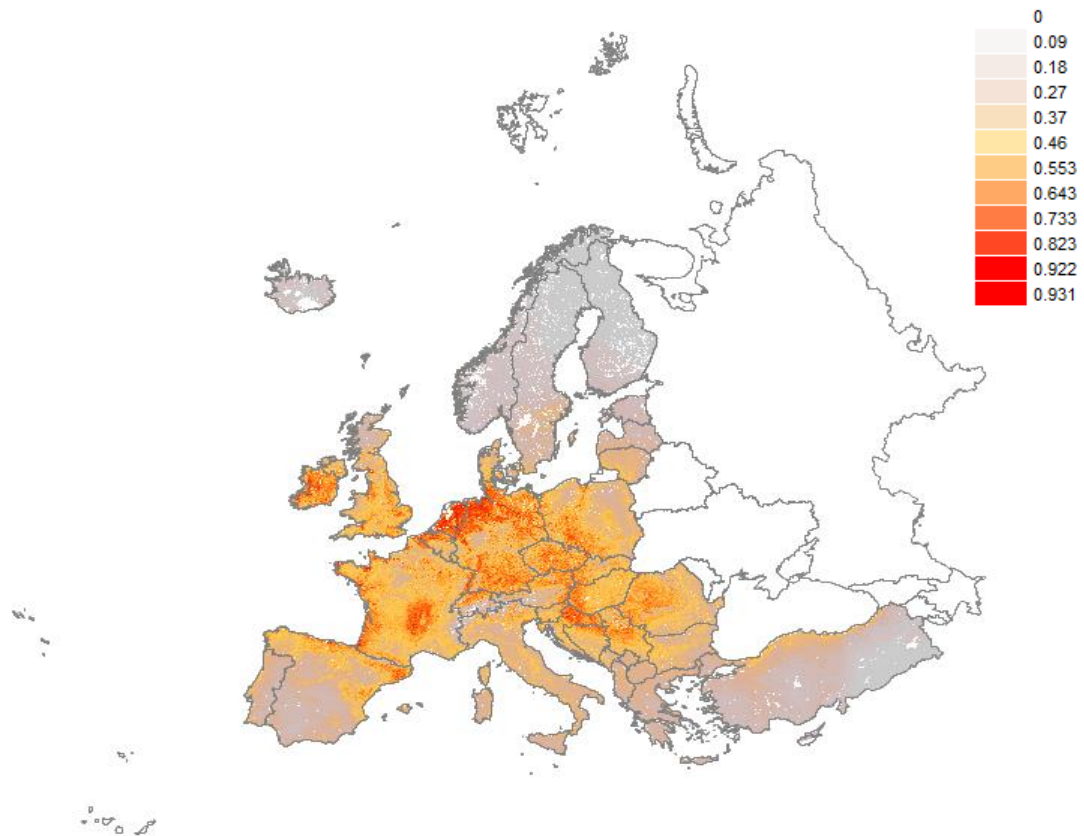
Statistics from Maxent modelling

AUC training (0-1)	0.7045
AUC test (0-1)	0.7081
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	26.7252
Potential Evapotranspiration	22.005
Temperature seasonality (stdev * 100)	17.6018
Precipitation of warmest quarter	15.1045
Phenology; Low of season (day number)	5.0663
Soil pH (water)	4.6306
Distance to water (rivers, lakes, sea)	1.7411
Mean temperature of wettest quarter	1.3397
Volume % of coarse fragments (> 2 mm)	1.2461
Precipitation seasonality (coef. of var.)	1.1841
Bulk density (kg/m³)	0.8811
Vegetation height (m)	0.6211
Phenology; Start of Season (day number)	0.593
Phenology; Length of season (days)	0.3453
Annual precipitation	0.2856
Phenology; NDVI seasonality	0.1735
Phenology; NDVI mean	0.1694
Phenology; End of Season (day number)	0.0945
Weight in % of sand particles (0.05-2 mm)	0.0772
Weight in % of silt particles (0.0002-0.05 mm)	0.0601
Soil organic carbon content (‰)	0.0429
Cation Exchange Capacity of the soil	0.0092
Phenology; Peak of season (day number)	0.0021
Inundation; occurrence	0.0007
Solar radiation	0
Weight in % of clay particles (<0.0002 mm)	0

Comparison of distribution with Red List maps by John Janssen

The maps differ; probably the Red List used a stricter selection of data, but the definitions will be more or less identical

R37 - [E35] Temperate and boreal moist or wet oligotrophic grassland - distribution

R37 - [E35] Temperate and boreal moist or wet oligotrophic grassland - suitability
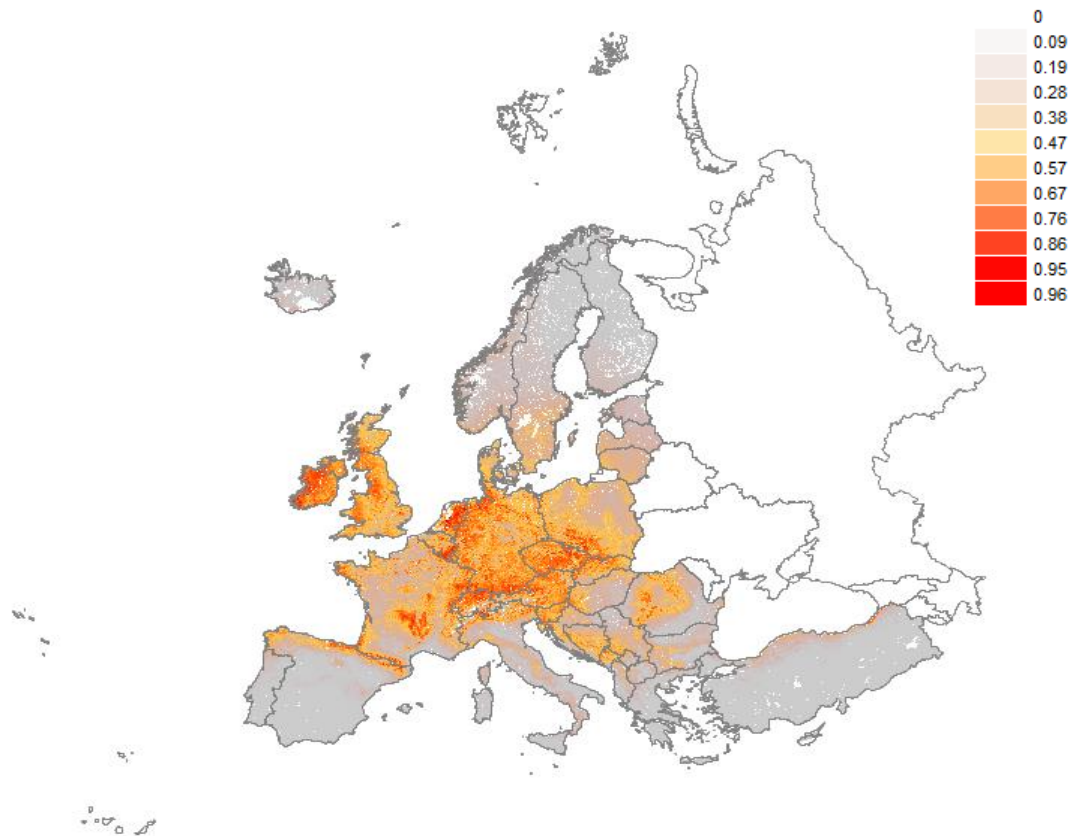
Statistics from Maxent modelling

AUC training (0-1)	0.7526
AUC test (0-1)	0.7655
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	41.044
Temperature seasonality (stdev * 100)	19.501
Potential Evapotranspiration	16.2645
Soil pH (water)	11.295
Phenology; Low of season (day number)	1.9497
Mean temperature of wettest quarter	1.597
Weight in % of clay particles (<0.0002 mm)	1.4315
Digital Elevation Map (DEM)	1.3284
Phenology; NDVI seasonality	1.0397
Phenology; NDVI mean	0.8782
Weight in % of sand particles (0.05-2 mm)	0.8091
Volume % of coarse fragments (> 2 mm)	0.801
Vegetation height (m)	0.5391
Annual precipitation	0.4449
Phenology; Length of season (days)	0.3116
Precipitation seasonality (coef. of var.)	0.2606
Bulk density (kg/m³)	0.1224
Distance to water (rivers, lakes, sea)	0.0998
Phenology; Peak of season (day number)	0.0856
Weight in % of silt particles (0.0002-0.05 mm)	0.0656
Soil organic carbon content (‰)	0.0472
Phenology; End of Season (day number)	0.0425
Phenology; Start of Season (day number)	0.0364
Cation Exchange Capacity of the soil	0.0054
Inundation; occurrence	0
Solar radiation	0

R41 - [E41] Snow-bed vegetation - distribution
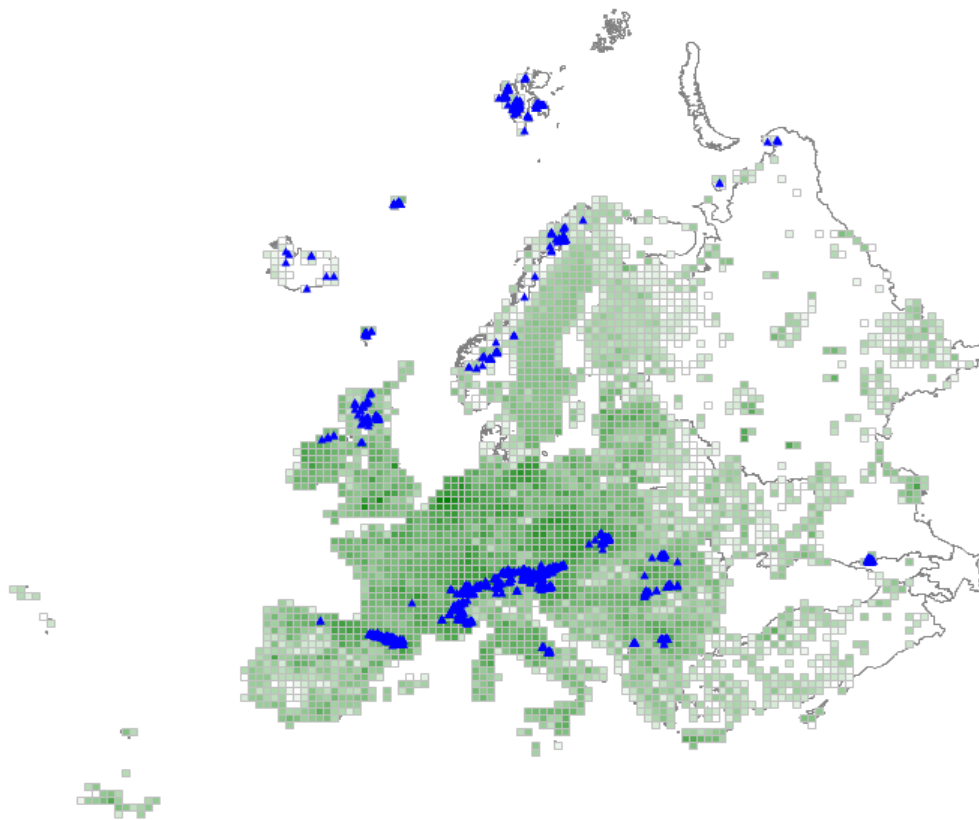
R41 - [E41] Snow-bed vegetation - suitability
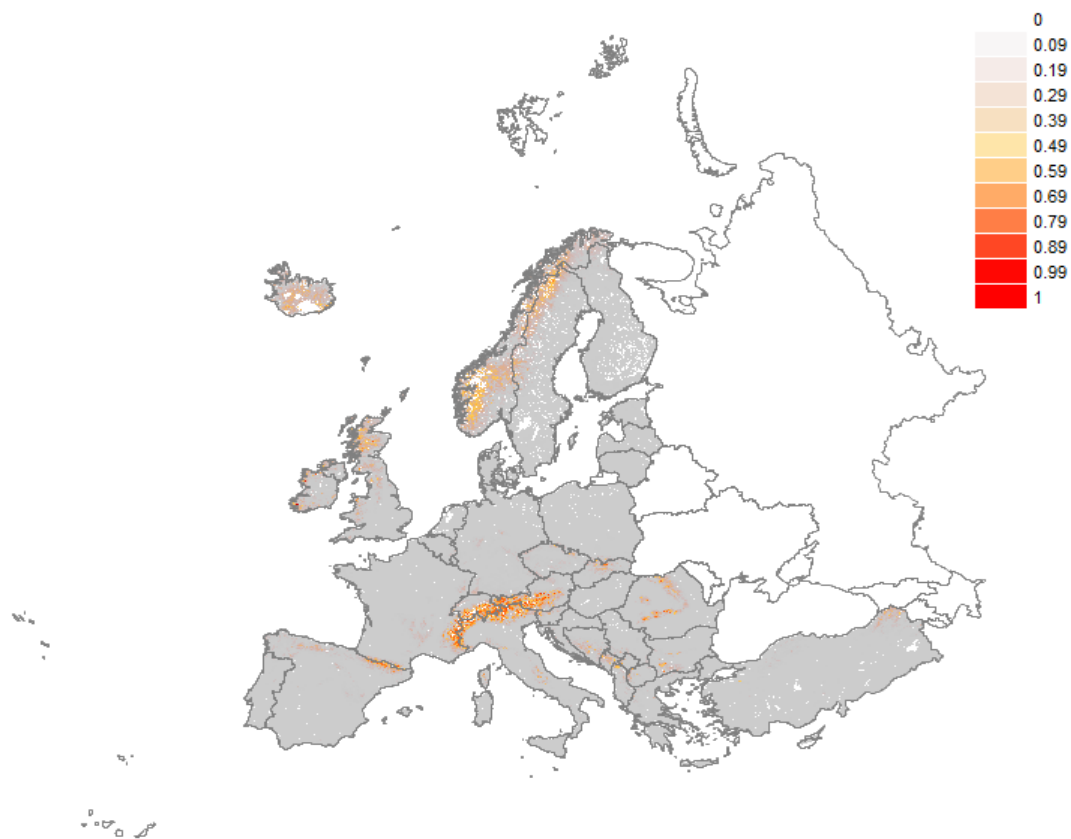
Statistics from Maxent modelling

AUC training (0-1)	0.927
AUC test (0-1)	0.9346
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	53.0924
Precipitation of warmest quarter	17.7695
Soil organic carbon content (‰)	15.8257
Weight in % of sand particles (0.05-2 mm)	3.1728
Phenology; Low of season (day number)	1.8655
Volume % of coarse fragments (> 2 mm)	1.5473
Temperature seasonality (stdev * 100)	1.314
Annual precipitation	0.9877
Weight in % of clay particles (<0.0002 mm)	0.8864
Potential Evapotranspiration	0.8335
Solar radiation	0.7206
Soil pH (water)	0.6602
Precipitation seasonality (coef. of var.)	0.3955
Phenology; Start of Season (day number)	0.3558
Phenology; NDVI mean	0.2275
Cation Exchange Capacity of the soil	0.1009
Bulk density (kg/m³)	0.0797
Phenology; Length of season (days)	0.0525
Vegetation height (m)	0.0482
Inundation; occurrence	0.035
Phenology; End of Season (day number)	0.0127
Phenology; NDVI seasonality	0.0085
Mean temperature of wettest quarter	0.0054
Weight in % of silt particles (0.0002-0.05 mm)	0.0026
Distance to water (rivers, lakes, sea)	0
Phenology; Peak of season (day number)	0

R42 - [E43a] Boreal and arctic acidophilous alpine grassland - distribution
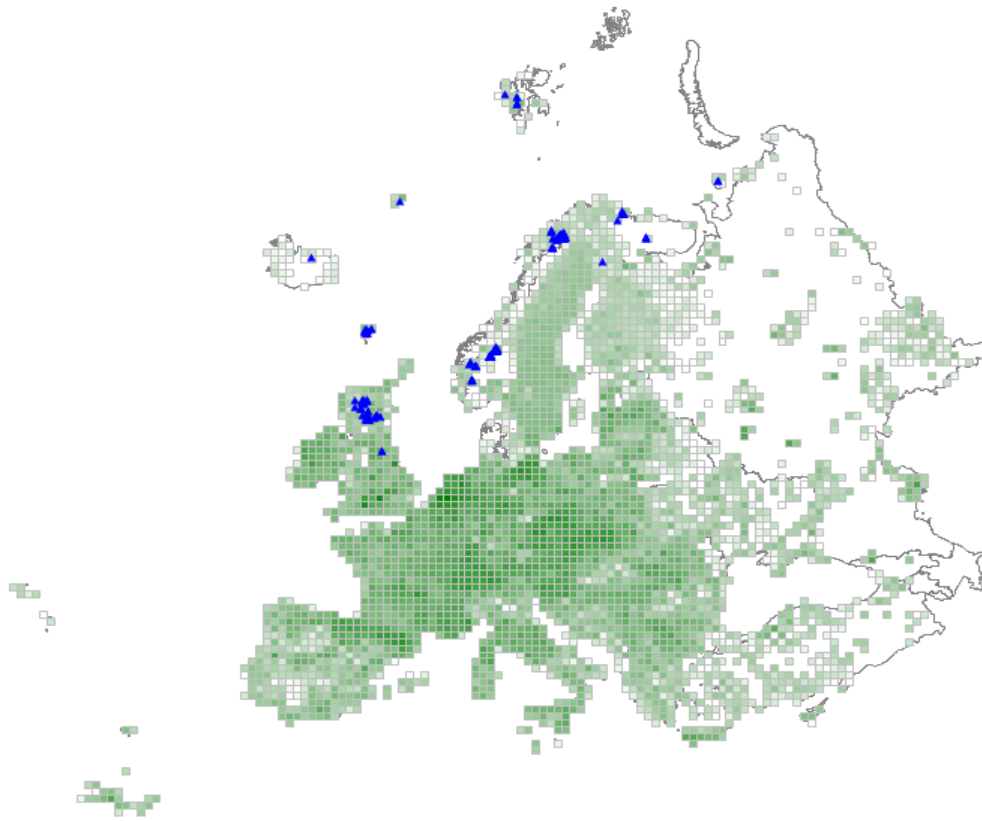
R42 - [E43a] Boreal and arctic acidophilous alpine grassland - suitability
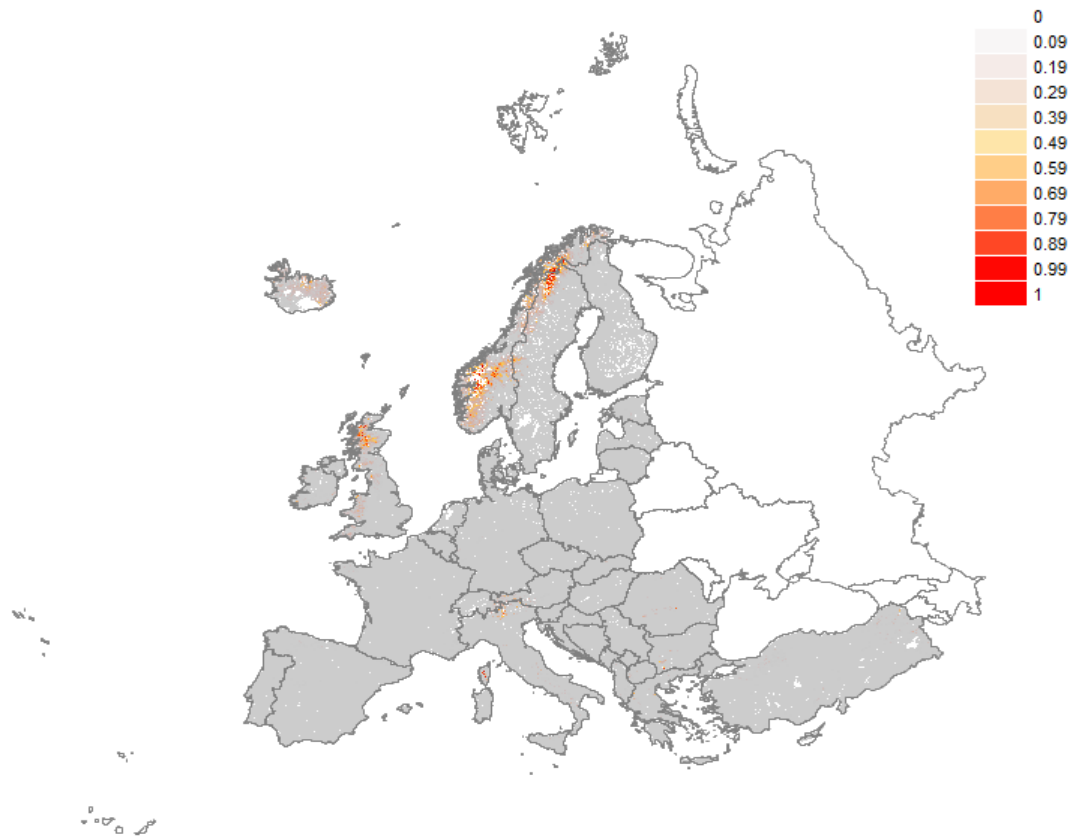
Statistics from Maxent modelling

AUC training (0-1)	0.987
AUC test (0-1)	0.985
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	44.644
Digital Elevation Map (DEM)	21.3824
Bulk density (kg/m³)	7.8983
Mean temperature of wettest quarter	5.577
Precipitation seasonality (coef. of var.)	5.4699
Soil pH (water)	4.7592
Cation Exchange Capacity of the soil	2.1563
Weight in % of sand particles (0.05-2 mm)	1.132
Phenology; NDVI mean	1.0948
Precipitation of warmest quarter	0.9899
Annual precipitation	0.8579
Phenology; Low of season (day number)	0.8324
Vegetation height (m)	0.807
Soil organic carbon content (‰)	0.5763
Phenology; Length of season (days)	0.4729
Temperature seasonality (stdev * 100)	0.2793
Phenology; Peak of season (day number)	0.2168
Solar radiation	0.2174
Volume % of coarse fragments (> 2 mm)	0.2018
Phenology; Start of Season (day number)	0.1556
Weight in % of clay particles (<0.0002 mm)	0.1427
Weight in % of silt particles (0.0002-0.05 mm)	0.065
Phenology; End of Season (day number)	0.0428
Distance to water (rivers, lakes, sea)	0.0162
Inundation; occurrence	0.0069
Phenology; NDVI seasonality	0.0051

R43 - [E43b] Temperate acidophilous alpine grassland - distribution
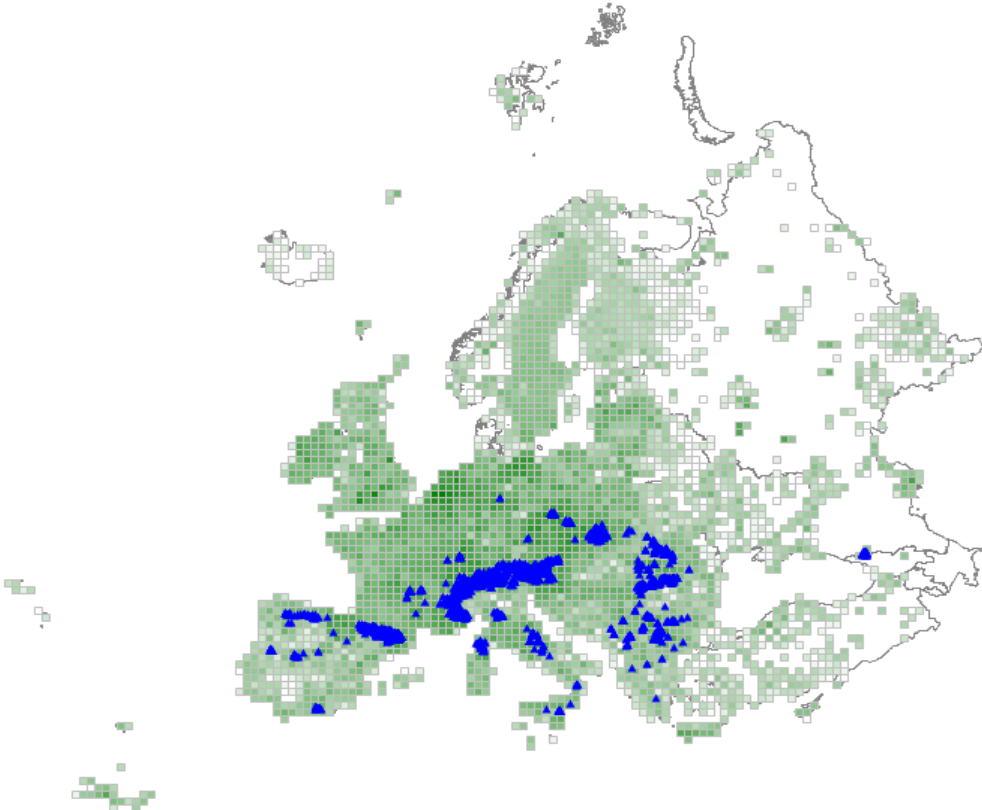
R43 - [E43b] Temperate acidophilous alpine grassland - suitability
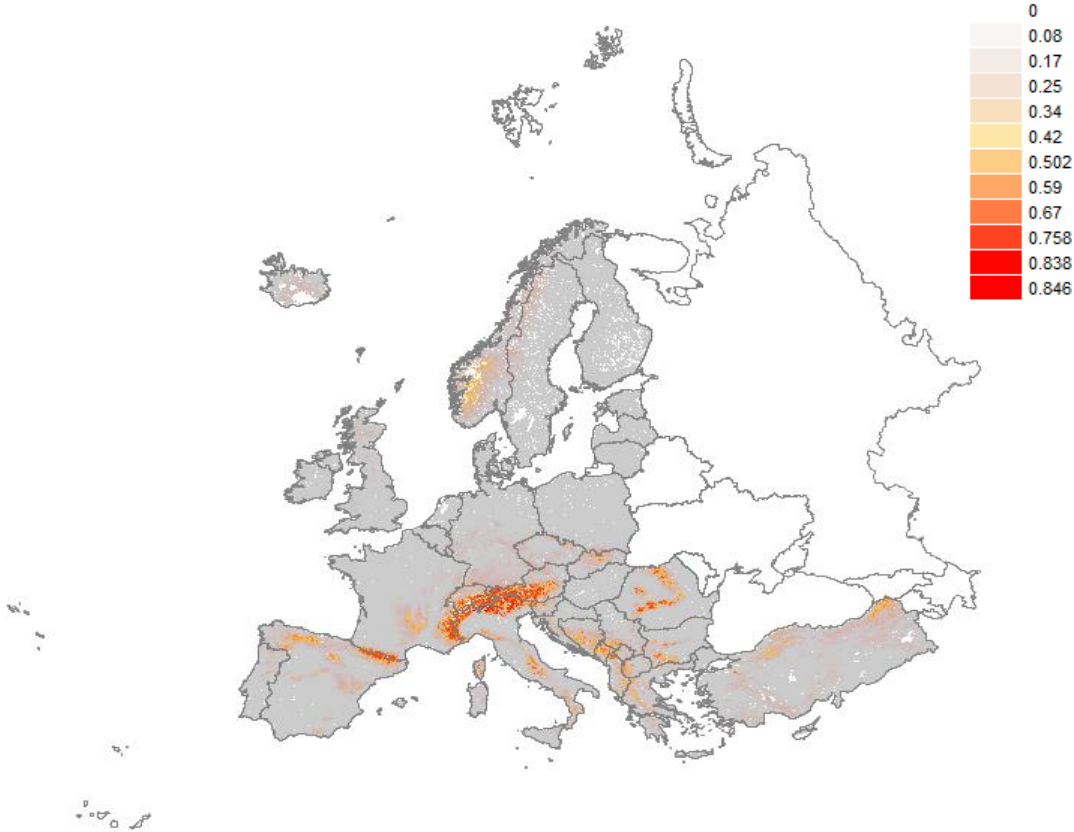
Statistics from Maxent modelling

AUC training (0-1)	0.8174
AUC test (0-1)	0.8181
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	80.8024
Annual precipitation	6.0592
Soil organic carbon content (‰)	3.6829
Precipitation of warmest quarter	3.5778
Phenology; End of Season (day number)	1.7364
Weight in % of silt particles (0.0002-0.05 mm)	0.673
Volume % of coarse fragments (> 2 mm)	0.6472
Weight in % of sand particles (0.05-2 mm)	0.6451
Potential Evapotranspiration	0.5356
Phenology; Start of Season (day number)	0.4632
Phenology; Length of season (days)	0.348
Solar radiation	0.2388
Cation Exchange Capacity of the soil	0.1656
Phenology; Low of season (day number)	0.1032
Temperature seasonality (stdev * 100)	0.1025
Mean temperature of wettest quarter	0.0949
Weight in % of clay particles (<0.0002 mm)	0.0244
Phenology; NDVI mean	0.0213
Bulk density (kg/m³)	0.0211
Precipitation seasonality (coef. of var.)	0.0202
Phenology; NDVI seasonality	0.0177
Soil pH (water)	0.0159
Distance to water (rivers, lakes, sea)	0.0015
Vegetation height (m)	0.0018
Inundation; occurrence	0
Phenology; Peak of season (day number)	0.0002

Comparison of distribution with Red List maps by John Janssen

In the EUNIS map a slightly narrower geographical restriction has been applied

R44 - [E44a] Arctic-alpine calcareous grassland - distribution
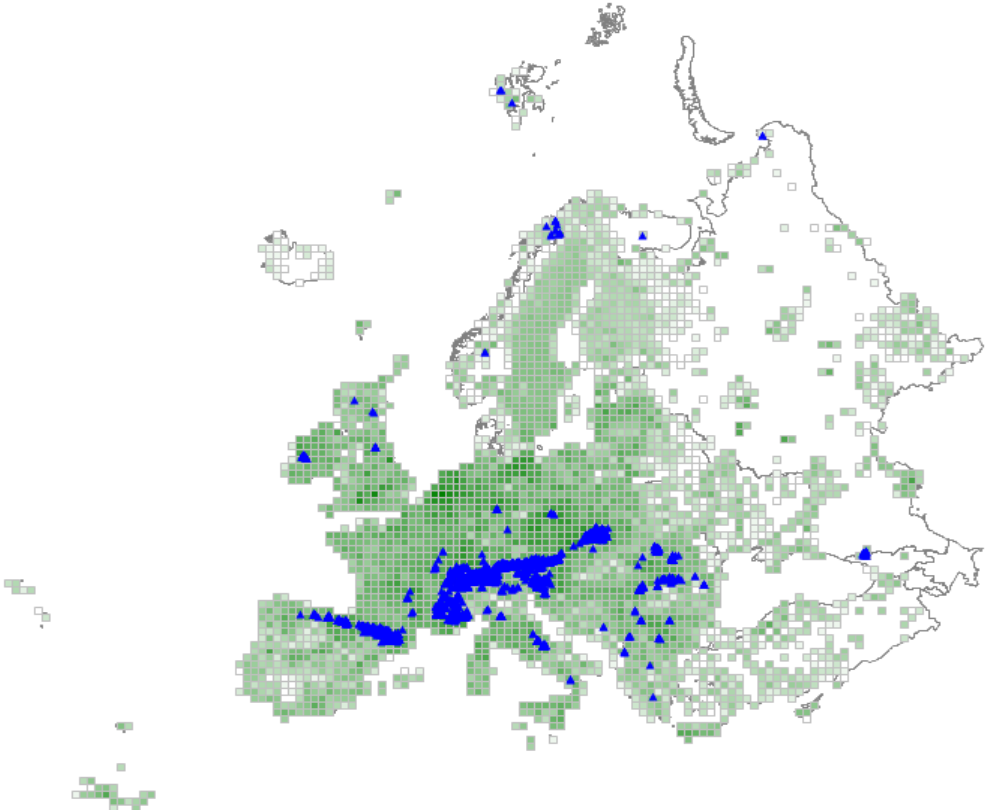
R44 - [E44a] Arctic-alpine calcareous grassland - suitability
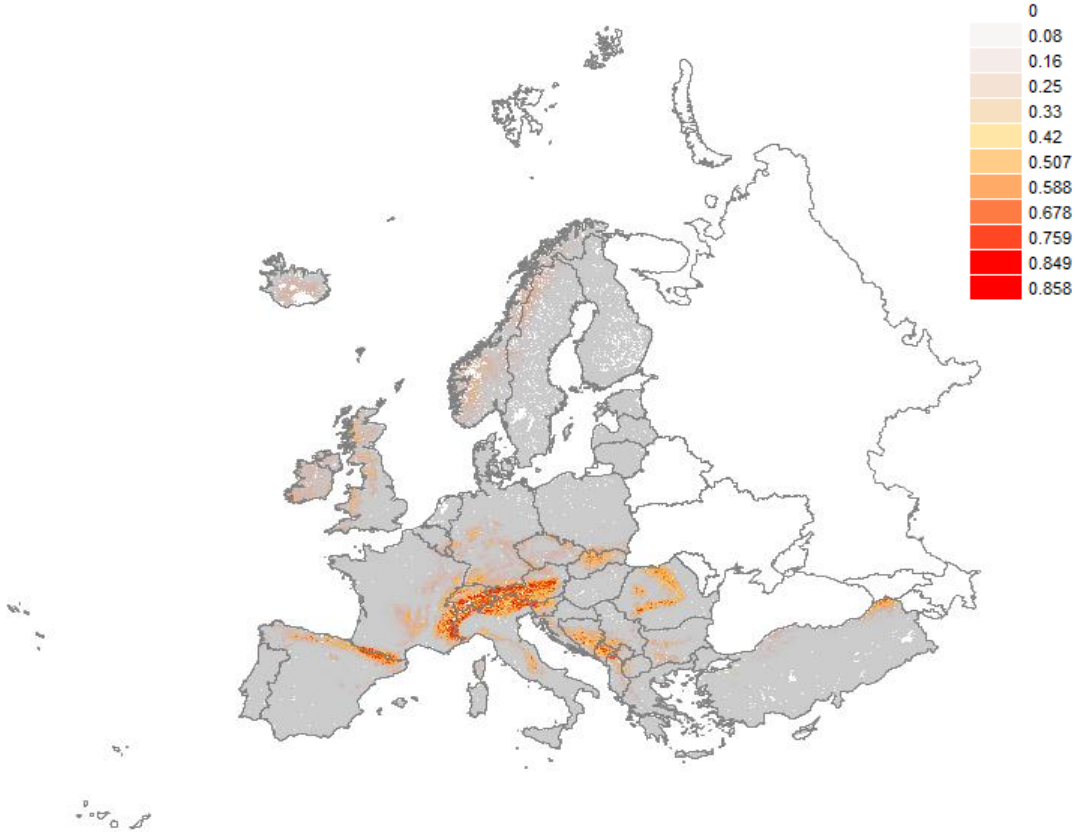
Statistics from Maxent modelling

AUC training (0-1)	0.8674
AUC test (0-1)	0.8403
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	51.1981
Annual precipitation	18.3301
Precipitation of warmest quarter	15.6189
Volume % of coarse fragments (> 2 mm)	3.072
Phenology; End of Season (day number)	2.7425
Soil organic carbon content (‰)	1.9435
Weight in % of clay particles (<0.0002 mm)	1.8967
Weight in % of silt particles (0.0002-0.05 mm)	1.2268
Soil pH (water)	1.1314
Bulk density (kg/m³)	0.6651
Vegetation height (m)	0.6554
Potential Evapotranspiration	0.3548
Solar radiation	0.348
Phenology; Low of season (day number)	0.3102
Weight in % of sand particles (0.05-2 mm)	0.1429
Cation Exchange Capacity of the soil	0.0641
Temperature seasonality (stdev * 100)	0.0638
Precipitation seasonality (coef. of var.)	0.0485
Phenology; Peak of season (day number)	0.0465
Phenology; Start of Season (day number)	0.0427
Mean temperature of wettest quarter	0.0345
Phenology; NDVI mean	0.0344
Phenology; NDVI seasonality	0.0168
Phenology; Length of season (days)	0.0086
Distance to water (rivers, lakes, sea)	0.0036
Inundation; occurrence	0

R45 - [E44b] Alpine and subalpine calcareous grassland of the Balkans and Apennines - distribution
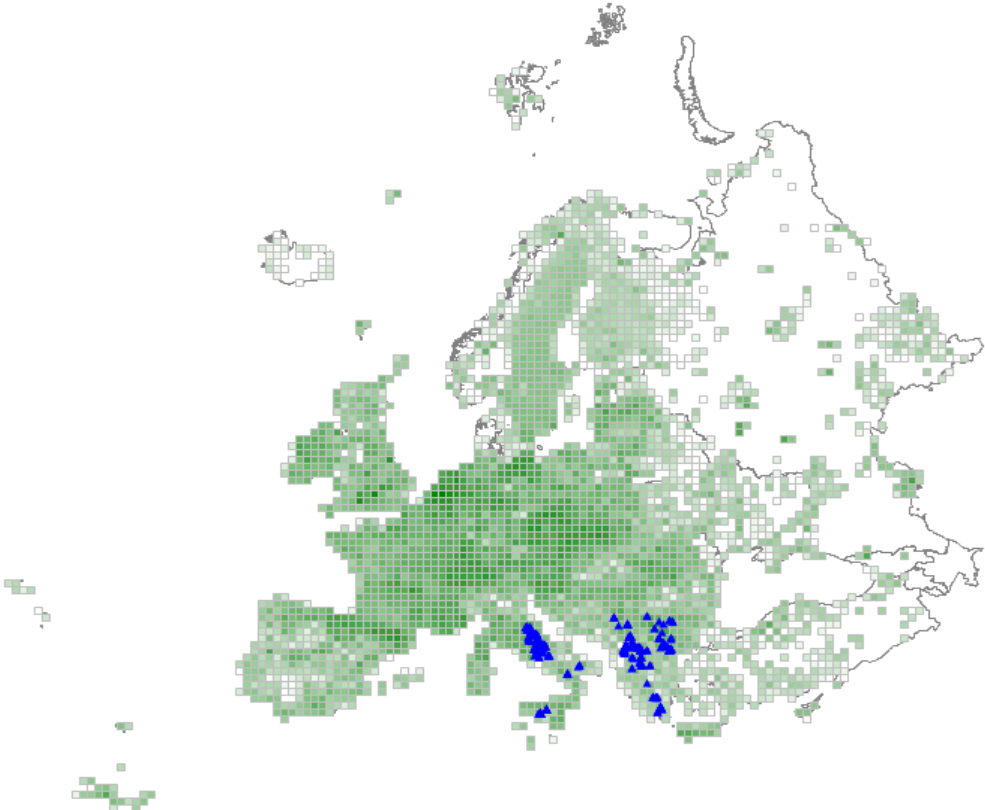
R45 - [E44b] Alpine and subalpine calcareous grassland of the Balkans and Apennines - suitability
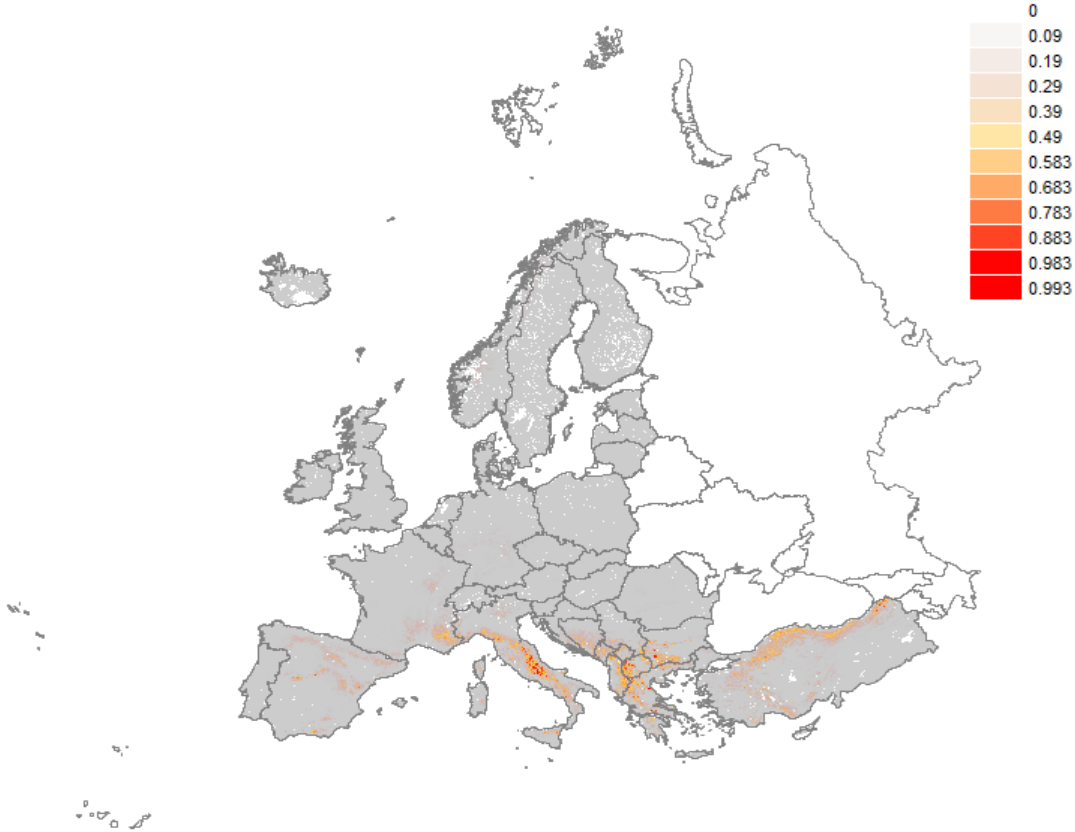
Statistics from Maxent modelling

AUC training (0-1)	0.9709
AUC test (0-1)	0.964
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	56.1913
Temperature seasonality (stdev * 100)	13.5393
Precipitation of warmest quarter	10.8363
Weight in % of clay particles (<0.0002 mm)	6.3364
Annual precipitation	4.2445
Phenology; End of Season (day number)	1.574
Volume % of coarse fragments (> 2 mm)	1.5602
Potential Evapotranspiration	1.1039
Soil pH (water)	0.9793
Cation Exchange Capacity of the soil	0.9376
Precipitation seasonality (coef. of var.)	0.7331
Phenology; Peak of season (day number)	0.5971
Phenology; NDVI seasonality	0.3655
Vegetation height (m)	0.3056
Soil organic carbon content (‰)	0.2985
Mean temperature of wettest quarter	0.2041
Phenology; NDVI mean	0.096
Phenology; Low of season (day number)	0.0554
Phenology; Length of season (days)	0.0234
Distance to water (rivers, lakes, sea)	0.0139
Bulk density (kg/m³)	0.0044
Weight in % of silt particles (0.0002-0.05 mm)	0
Weight in % of sand particles (0.05-2 mm)	0
Phenology; Start of Season (day number)	0.0003
Solar radiation	0
Inundation; occurrence	0

R51 - [E52a] Thermophilous forest fringe of base-rich soils - distribution
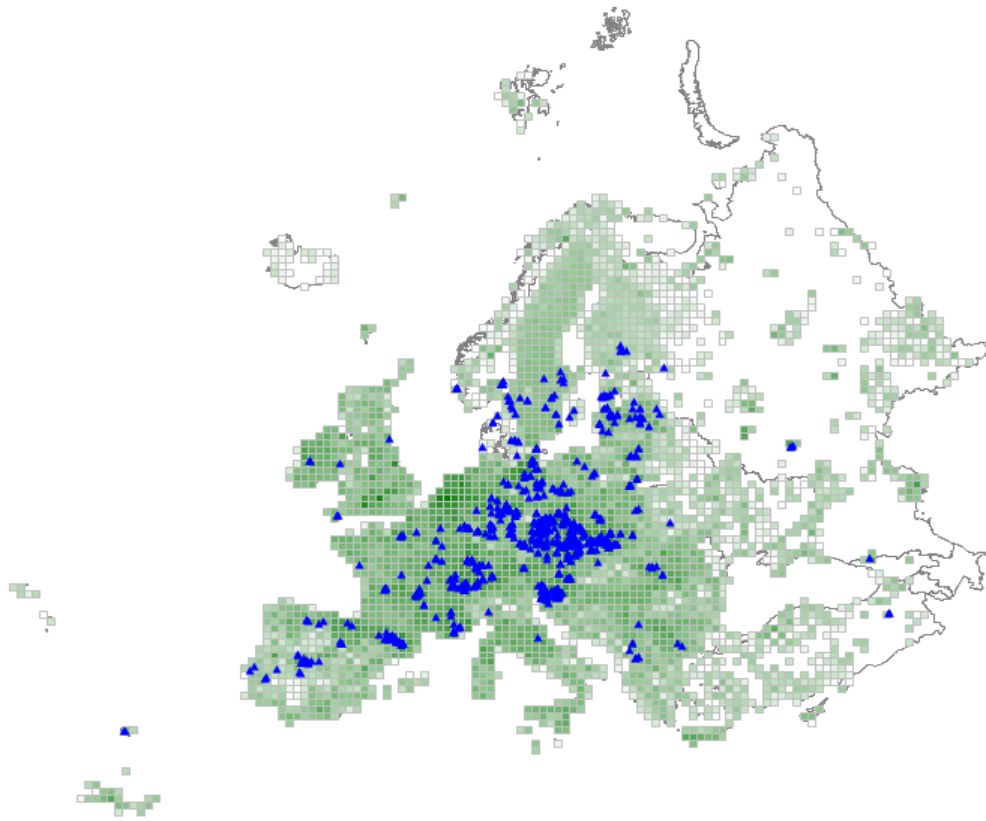
R51 - [E52a] Thermophilous forest fringe of base-rich soils - suitability
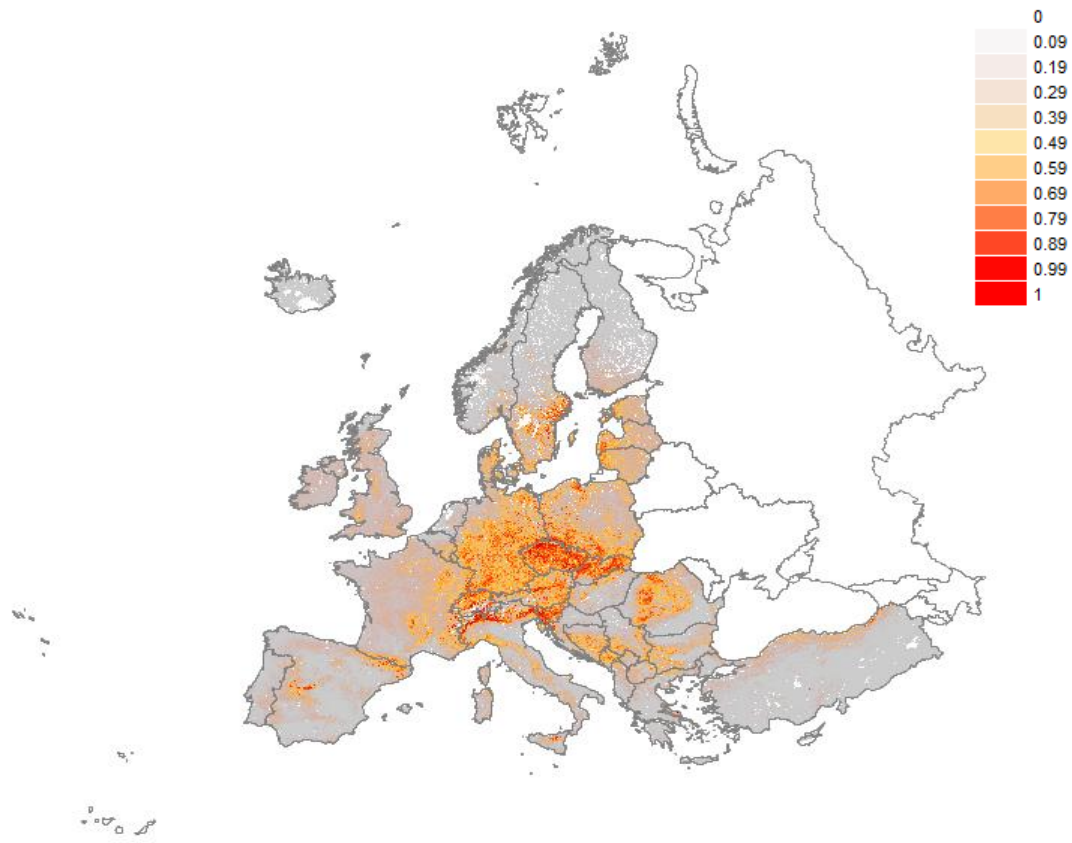
Statistics from Maxent modelling

AUC training (0-1)	0.8794
AUC test (0-1)	0.8703
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	22.8022
Phenology; Length of season (days)	13.1224
Temperature seasonality (stdev * 100)	10.552
Phenology; NDVI seasonality	9.4616
Volume % of coarse fragments (> 2 mm)	9.4436
Potential Evapotranspiration	7.9733
Soil pH (water)	5.2743
Soil organic carbon content (‰)	3.9973
Annual precipitation	3.9556
Weight in % of clay particles (<0.0002 mm)	3.8646
Mean temperature of wettest quarter	3.4832
Phenology; Low of season (day number)	1.1309
Digital Elevation Map (DEM)	1.0149
Weight in % of silt particles (0.0002-0.05 mm)	0.9193
Precipitation seasonality (coef. of var.)	0.8239
Phenology; NDVI mean	0.4577
Distance to water (rivers, lakes, sea)	0.4057
Vegetation height (m)	0.4012
Phenology; Start of Season (day number)	0.2005
Phenology; End of Season (day number)	0.1985
Solar radiation	0.1962
Phenology; Peak of season (day number)	0.1349
Weight in % of sand particles (0.05-2 mm)	0.1325
Bulk density (kg/m³)	0.0268
Cation Exchange Capacity of the soil	0.0162
Inundation; occurrence	0.0106

R52 - [E52b] Forest fringe of acidic nutrient-poor soils - distribution
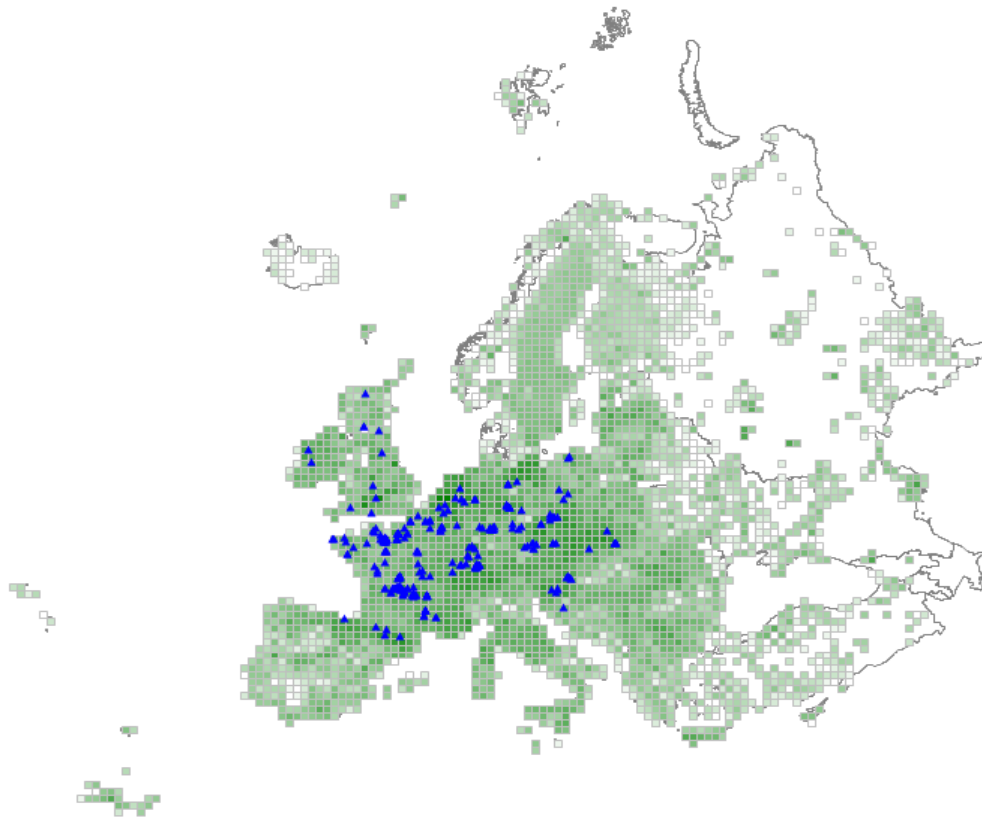
R52 - [E52b] Forest fringe of acidic nutrient-poor soils - suitability
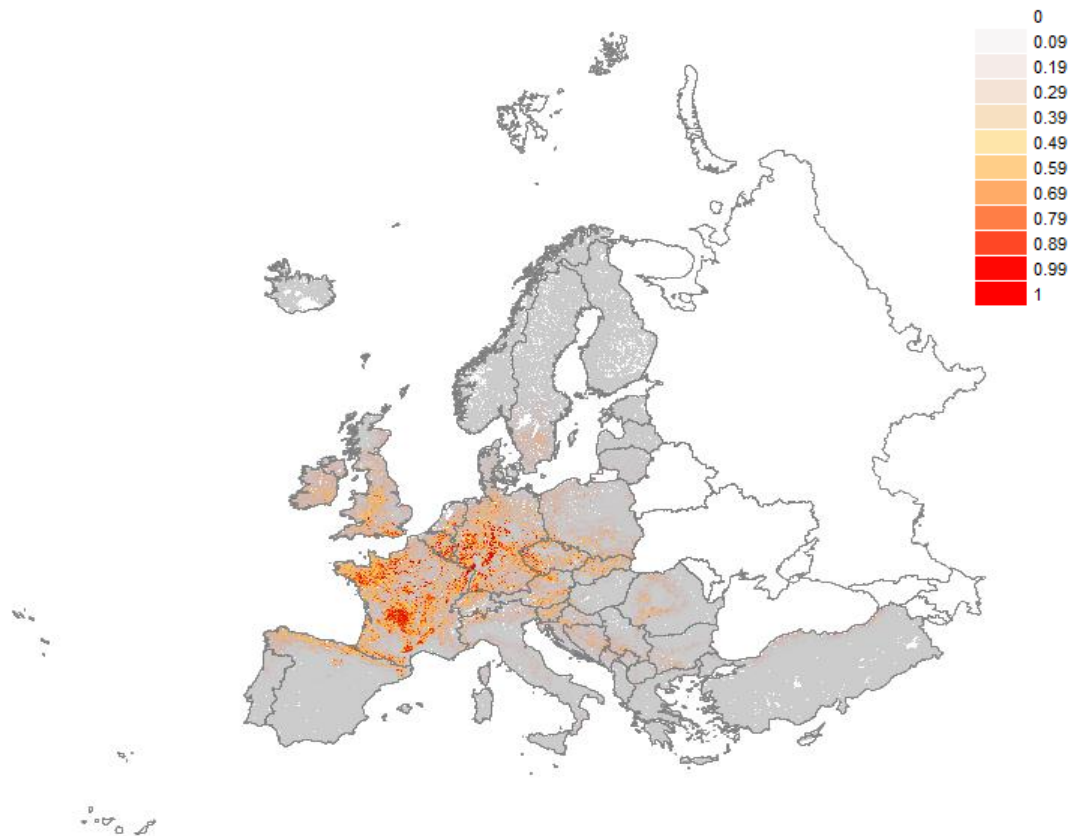
Statistics from Maxent modelling

AUC training (0-1)	0.9339
AUC test (0-1)	0.8922
Contribution variables to the Maxent model (%)	
Soil pH (water)	24.5373
Precipitation seasonality (coef. of var.)	22.5152
Potential Evapotranspiration	14.4731
Temperature seasonality (stdev * 100)	9.4451
Precipitation of warmest quarter	6.2726
Phenology; NDVI mean	5.8434
Cation Exchange Capacity of the soil	3.3324
Phenology; Low of season (day number)	3.0922
Mean temperature of wettest quarter	1.8059
Weight in % of silt particles (0.0002-0.05 mm)	1.4959
Phenology; End of Season (day number)	1.4465
Bulk density (kg/m³)	1.0778
Weight in % of clay particles (<0.0002 mm)	0.7417
Volume % of coarse fragments (> 2 mm)	0.664
Weight in % of sand particles (0.05-2 mm)	0.6216
Phenology; Peak of season (day number)	0.6154
Vegetation height (m)	0.5558
Phenology; Length of season (days)	0.5428
Soil organic carbon content (‰)	0.3656
Phenology; NDVI seasonality	0.2502
Annual precipitation	0.1424
Digital Elevation Map (DEM)	0.0729
Distance to water (rivers, lakes, sea)	0.0576
Inundation; occurrence	0.0314
Solar radiation	0.0014
Phenology; Start of Season (day number)	0

R53 - [E52c] Macaronesian thermophilous forest fringe - distribution
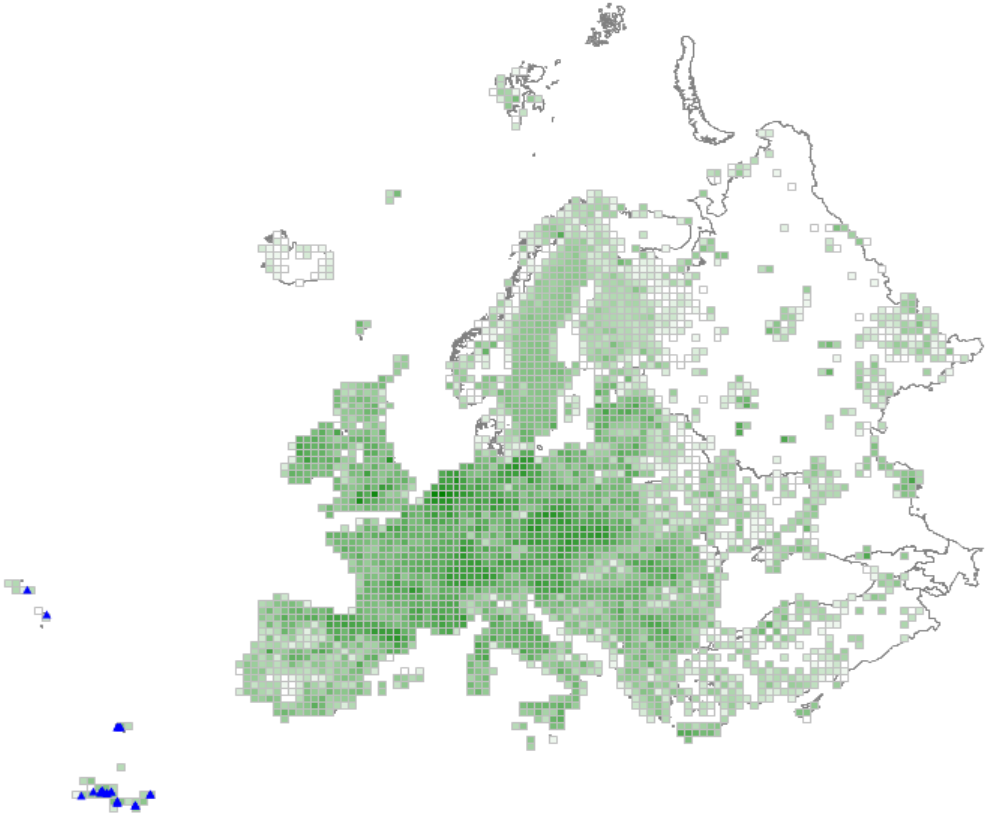
R53 - [E52c] Macaronesian thermophilous forest fringe - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

R54 - [E53] Pteridium aquilinum vegetation - distribution
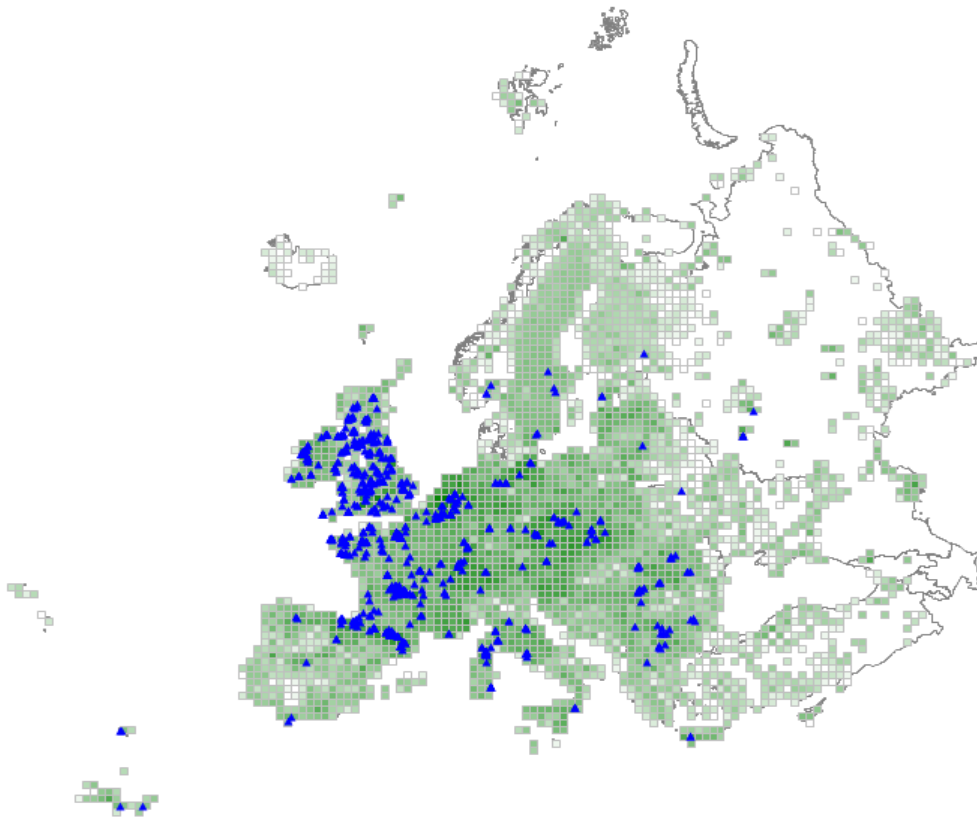
**R54 - [E53] Pteridium aquilinum vegetation - suitability**

0
0.09
0.19
0.29
0.39
0.49
0.599
0.689
0.789
0.889
0.989
0.999
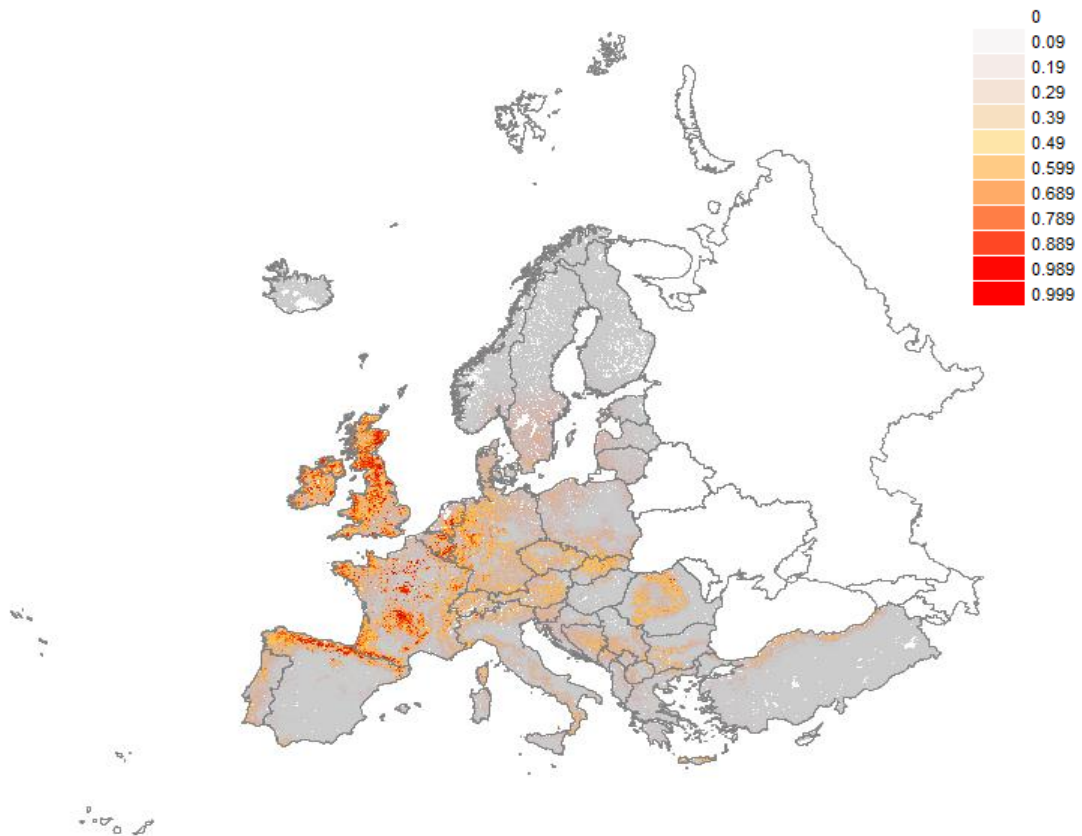
Statistics from Maxent modelling

AUC training (0-1)	0.8985
AUC test (0-1)	0.8937
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	42.7108
Soil pH (water)	16.7208
Phenology; Low of season (day number)	7.9151
Phenology; End of Season (day number)	6.8783
Potential Evapotranspiration	6.3303
Phenology; NDVI mean	3.4629
Phenology; Length of season (days)	3.4168
Precipitation seasonality (coef. of var.)	1.6609
Vegetation height (m)	1.6059
Phenology; Start of Season (day number)	1.4186
Bulk density (kg/m³)	1.2456
Soil organic carbon content (‰)	0.8779
Precipitation of warmest quarter	0.8069
Weight in % of silt particles (0.0002-0.05 mm)	0.6904
Phenology; NDVI seasonality	0.6802
Solar radiation	0.6231
Digital Elevation Map (DEM)	0.5678
Mean temperature of wettest quarter	0.5682
Phenology; Peak of season (day number)	0.5035
Volume % of coarse fragments (> 2 mm)	0.4082
Weight in % of sand particles (0.05-2 mm)	0.3018
Annual precipitation	0.2854
Inundation; occurrence	0.1914
Weight in % of clay particles (<0.0002 mm)	0.0936
Cation Exchange Capacity of the soil	0.0356
Distance to water (rivers, lakes, sea)	0

R55 - [E54] Lowland moist or wet tall-herb and fern fringe - distribution
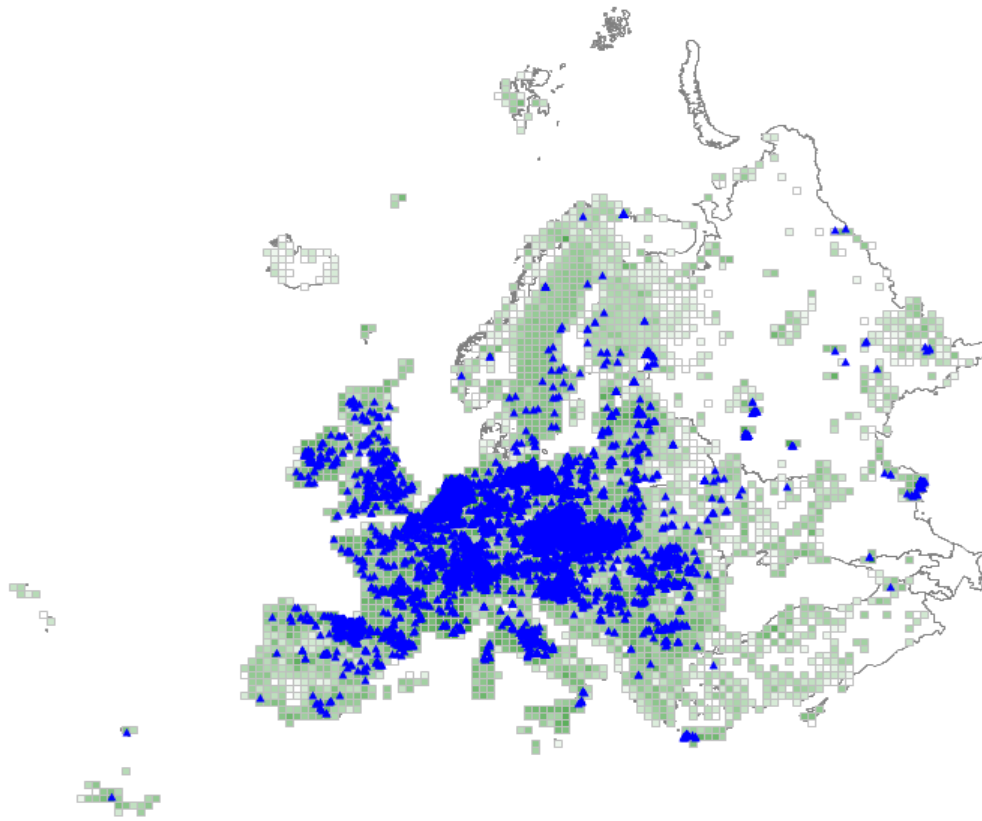
**R55 - [E54] Lowland moist or wet tall-herb and fern fringe - suitability**
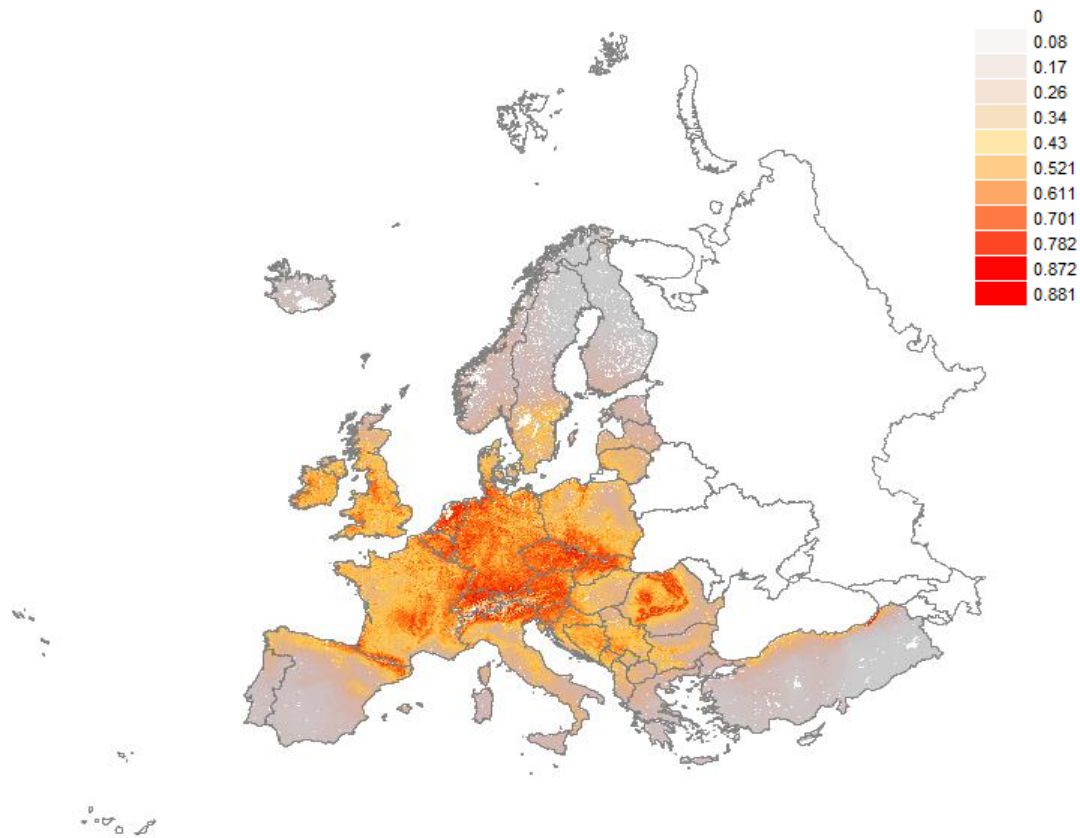
Statistics from Maxent modelling

AUC training (0-1)	0.6723
AUC test (0-1)	0.6687
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	46.2684
Potential Evapotranspiration	23.2997
Temperature seasonality (stdev * 100)	19.1232
Phenology; Low of season (day number)	2.5176
Distance to water (rivers, lakes, sea)	2.1723
Digital Elevation Map (DEM)	1.8663
Weight in % of clay particles (<0.0002 mm)	0.8927
Phenology; Peak of season (day number)	0.6684
Phenology; Start of Season (day number)	0.6434
Weight in % of sand particles (0.05-2 mm)	0.5823
Phenology; Length of season (days)	0.5461
Mean temperature of wettest quarter	0.3482
Weight in % of silt particles (0.0002-0.05 mm)	0.3403
Annual precipitation	0.1777
Precipitation seasonality (coef. of var.)	0.1267
Phenology; End of Season (day number)	0.1134
Volume % of coarse fragments (> 2 mm)	0.1012
Phenology; NDVI mean	0.0666
Vegetation height (m)	0.0589
Soil organic carbon content (‰)	0.0322
Bulk density (kg/m³)	0.0237
Phenology; NDVI seasonality	0.0226
Soil pH (water)	0.0078
Inundation; occurrence	0
Solar radiation	0
Cation Exchange Capacity of the soil	0

R56 - [E55] Montane to subalpine moist or wet tall-herb and fern fringe - distribution
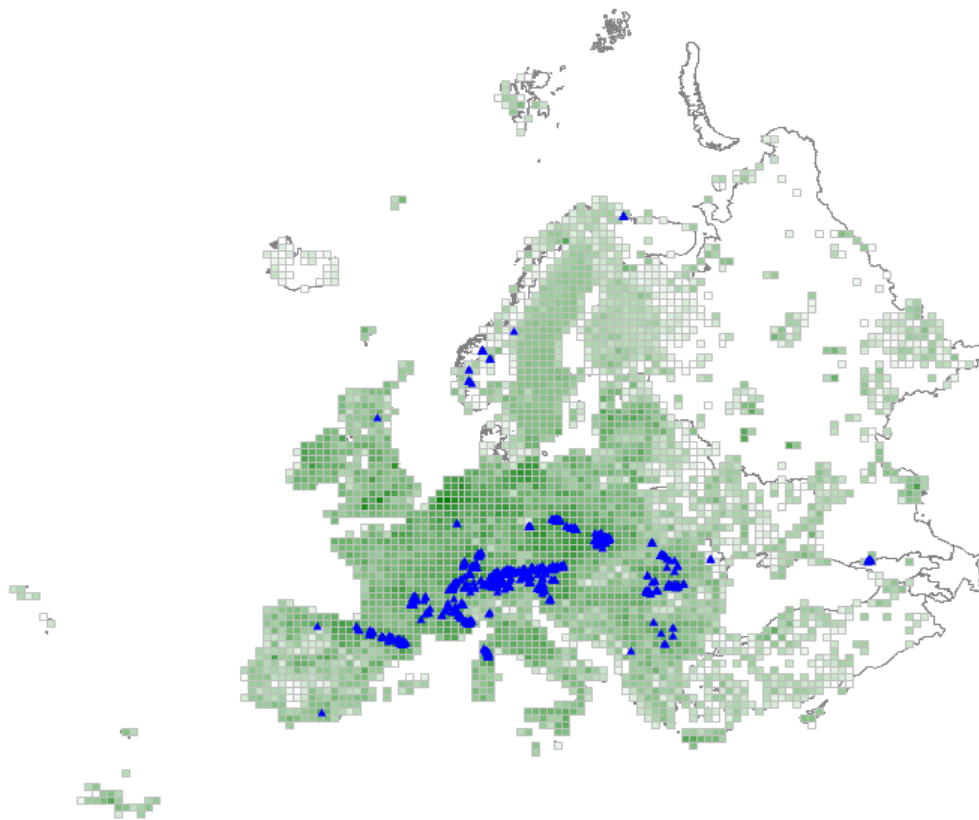
R56 - [E55] Montane to subalpine moist or wet tall-herb and fern fringe - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9338
AUC test (0-1)	0.9292
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	54.04
Precipitation of warmest quarter	25.4119
Phenology; End of Season (day number)	3.1884
Phenology; NDVI mean	2.5081
Annual precipitation	2.0403
Potential Evapotranspiration	1.8211
Volume % of coarse fragments (> 2 mm)	1.6808
Cation Exchange Capacity of the soil	1.6338
Phenology; Length of season (days)	1.5635
Weight in % of silt particles (0.0002-0.05 mm)	1.0391
Solar radiation	0.9563
Precipitation seasonality (coef. of var.)	0.6745
Temperature seasonality (stdev * 100)	0.6722
Vegetation height (m)	0.6241
Soil organic carbon content (‰)	0.5434
Soil pH (water)	0.5103
Weight in % of sand particles (0.05-2 mm)	0.4587
Phenology; Peak of season (day number)	0.2557
Weight in % of clay particles (<0.0002 mm)	0.1009
Mean temperature of wettest quarter	0.0857
Phenology; Low of season (day number)	0.0826
Distance to water (rivers, lakes, sea)	0.0452
Bulk density (kg/m³)	0.0391
Phenology; NDVI seasonality	0.0216
Phenology; Start of Season (day number)	0.0016
Inundation; occurrence	0.0012

R57 - [E56] Herbaceous forest clearing vegetation - distribution
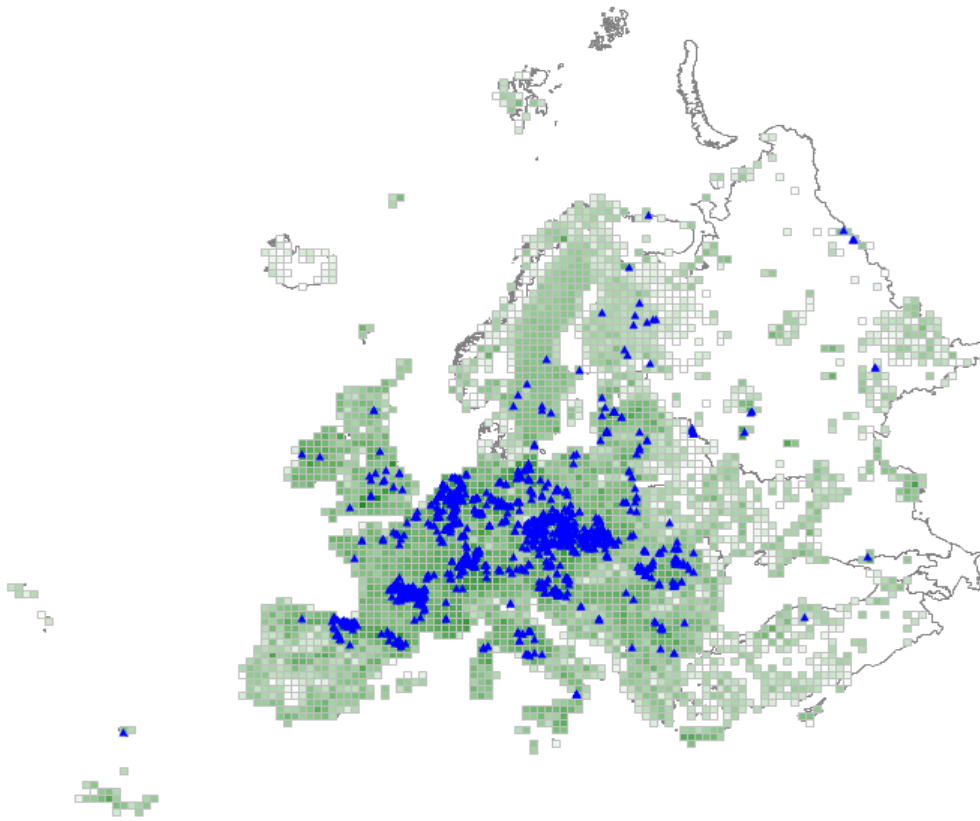
R57 - [E56] Herbaceous forest clearing vegetation - suitability
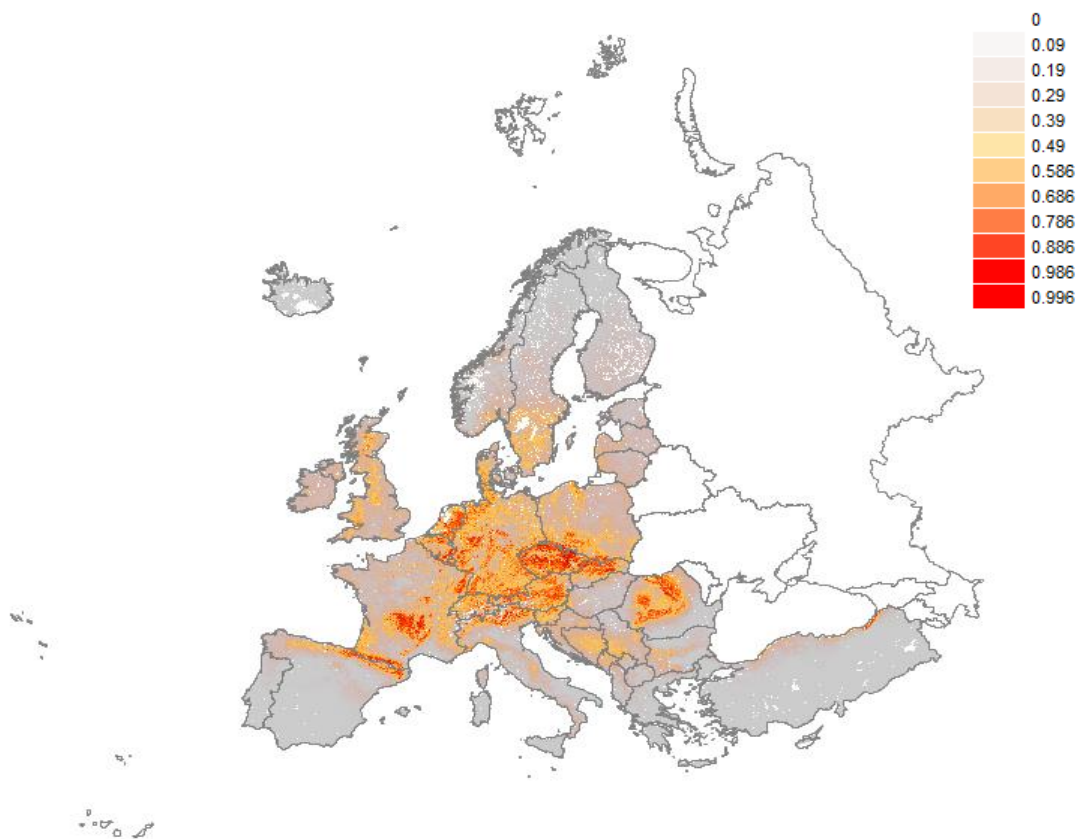
Statistics from Maxent modelling

AUC training (0-1)	0.845
AUC test (0-1)	0.8185
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	42.9854
Temperature seasonality (stdev * 100)	15.2747
Potential Evapotranspiration	10.0318
Phenology; Length of season (days)	8.5694
Vegetation height (m)	4.6399
Soil pH (water)	3.6477
Phenology; Low of season (day number)	2.7421
Weight in % of clay particles (<0.0002 mm)	2.0275
Digital Elevation Map (DEM)	1.7448
Annual precipitation	1.4362
Phenology; End of Season (day number)	1.3926
Mean temperature of wettest quarter	1.2162
Volume % of coarse fragments (> 2 mm)	1.1741
Bulk density (kg/m³)	1.1541
Phenology; NDVI mean	0.5024
Distance to water (rivers, lakes, sea)	0.3365
Precipitation seasonality (coef. of var.)	0.3098
Weight in % of silt particles (0.0002-0.05 mm)	0.2968
Solar radiation	0.0924
Phenology; Peak of season (day number)	0.0884
Weight in % of sand particles (0.05-2 mm)	0.0788
Soil organic carbon content (‰)	0.0791
Phenology; Start of Season (day number)	0.064
Inundation; occurrence	0.057
Phenology; NDVI seasonality	0.052
Cation Exchange Capacity of the soil	0.0062

Comparison of distribution with Red List maps by John Janssen

Not assessed; mainly anthropogenic

R61 - [E61] Mediterranean inland salt steppe - distribution
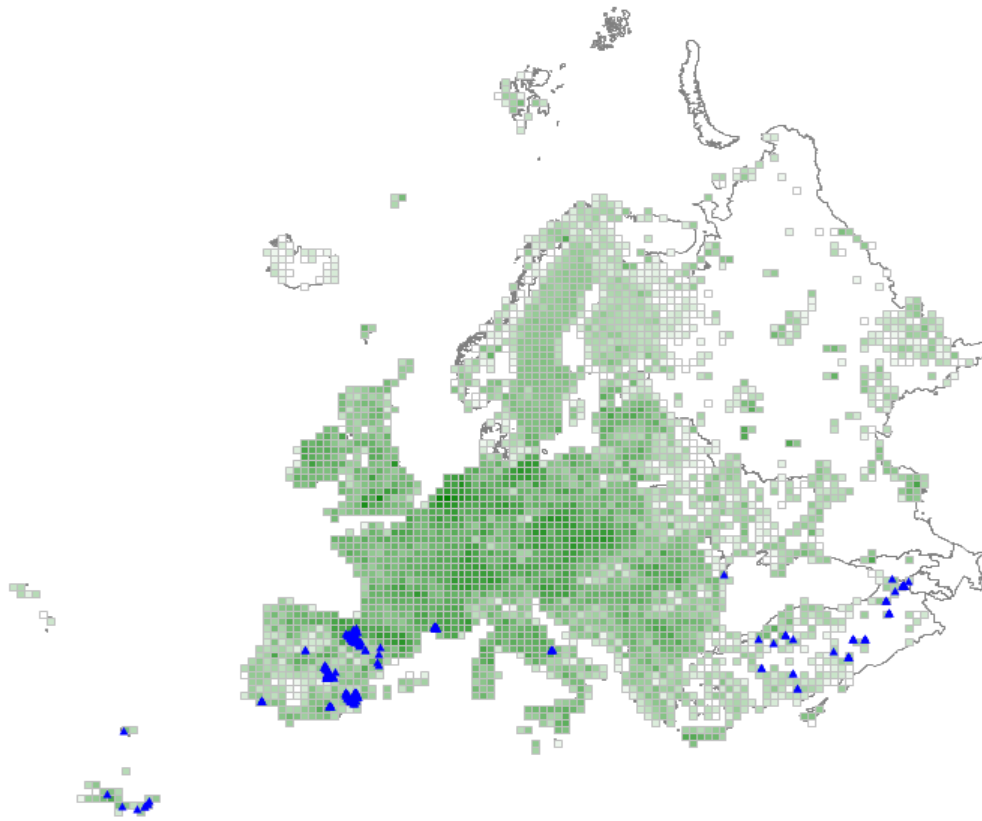
R61 - [E61] Mediterranean inland salt steppe - suitability
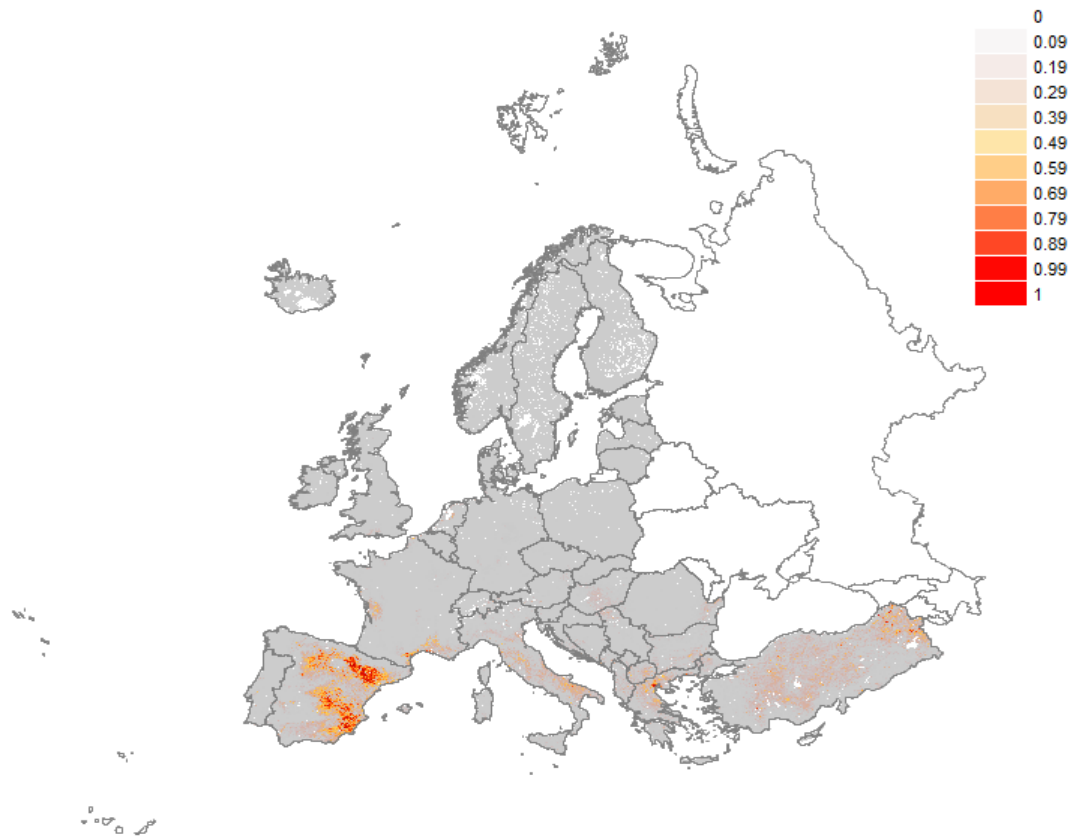
Statistics from Maxent modelling

AUC training (0-1)	0.974
AUC test (0-1)	0.9636
Contribution variables to the Maxent model (%)	
Soil pH (water)	63.4856
Precipitation seasonality (coef. of var.)	9.7115
Potential Evapotranspiration	4.1486
Precipitation of warmest quarter	3.2165
Volume % of coarse fragments (> 2 mm)	3.2068
Vegetation height (m)	2.5798
Digital Elevation Map (DEM)	2.5629
Phenology; NDVI mean	2.4961
Bulk density (kg/m³)	1.6179
Phenology; End of Season (day number)	1.0362
Temperature seasonality (stdev * 100)	1.0015
Cation Exchange Capacity of the soil	0.8171
Soil organic carbon content (‰)	0.7528
Weight in % of silt particles (0.0002-0.05 mm)	0.7386
Phenology; Low of season (day number)	0.6901
Phenology; Peak of season (day number)	0.4356
Phenology; Length of season (days)	0.373
Phenology; NDVI seasonality	0.3063
Mean temperature of wettest quarter	0.2656
Annual precipitation	0.1889
Phenology; Start of Season (day number)	0.1256
Solar radiation	0.1256
Distance to water (rivers, lakes, sea)	0.0548
Weight in % of clay particles (<0.0002 mm)	0.0388
Weight in % of sand particles (0.05-2 mm)	0.0183
Inundation; occurrence	0.0054

Comparison of distribution with Red List maps by John Janssen

The EUNIS map includes Macaronesia

R62 - [E62] Continental inland salt steppe - distribution
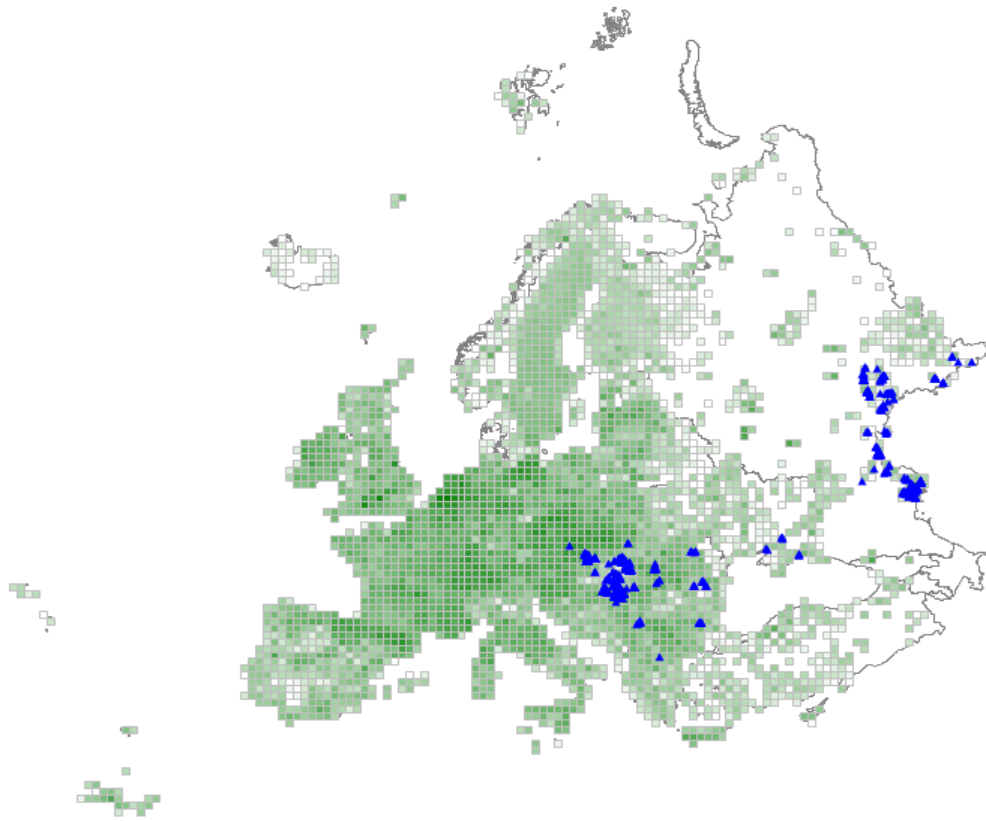
R62 - [E62] Continental inland salt steppe - suitability
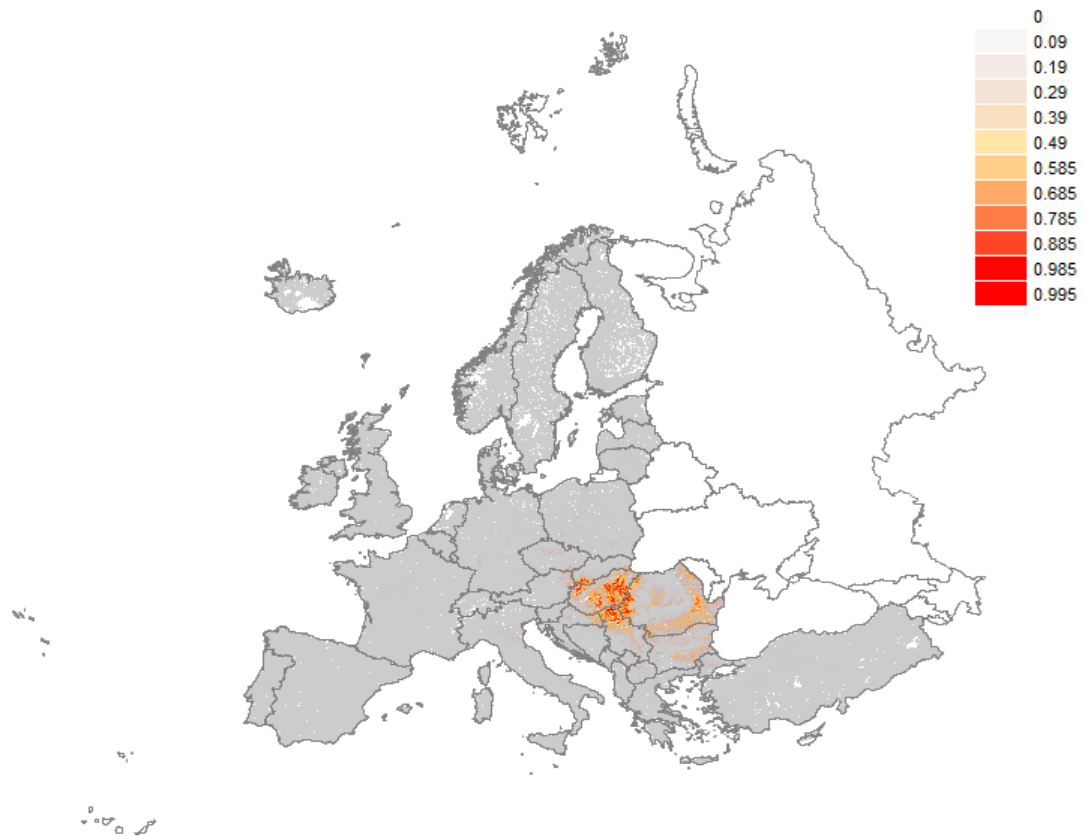
Statistics from Maxent modelling

AUC training (0-1)	0.9794
AUC test (0-1)	0.9806
Contribution variables to the Maxent model (%)	
Mean temperature of wettest quarter	51.4871
Volume % of coarse fragments (> 2 mm)	14.5668
Soil pH (water)	14.1594
Temperature seasonality (stdev * 100)	2.6988
Precipitation of warmest quarter	2.123
Weight in % of sand particles (0.05-2 mm)	2.0973
Potential Evapotranspiration	2.0174
Phenology; Low of season (day number)	1.9568
Phenology; End of Season (day number)	1.7715
Weight in % of silt particles (0.0002-0.05 mm)	1.5712
Weight in % of clay particles (<0.0002 mm)	1.4499
Cation Exchange Capacity of the soil	1.0331
Digital Elevation Map (DEM)	0.818
Phenology; NDVI seasonality	0.4644
Precipitation seasonality (coef. of var.)	0.3433
Solar radiation	0.274
Phenology; Peak of season (day number)	0.2237
Bulk density (kg/m³)	0.196
Soil organic carbon content (‰)	0.1897
Vegetation height (m)	0.145
Annual precipitation	0.1415
Phenology; NDVI mean	0.1227
Inundation; occurrence	0.1007
Phenology; Start of Season (day number)	0.041
Distance to water (rivers, lakes, sea)	0.0039
Phenology; Length of season (days)	0.0038

R63 - [E63] Temperate inland salt marsh - distribution
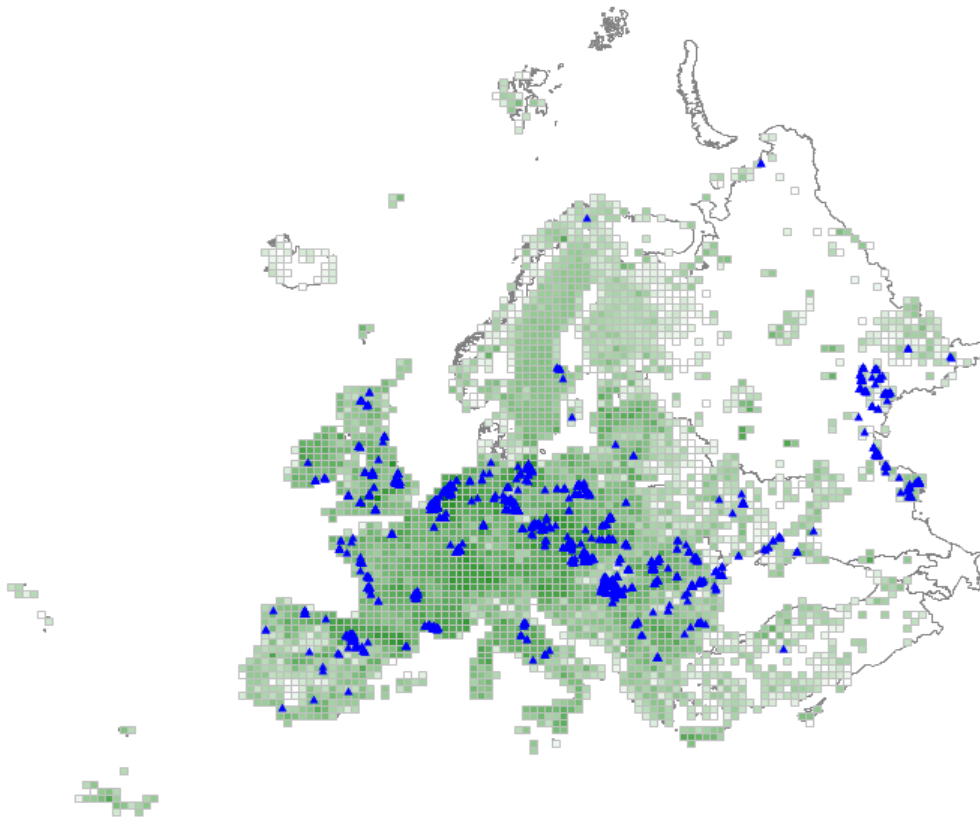
R63 - [E63] Temperate inland salt marsh - suitability
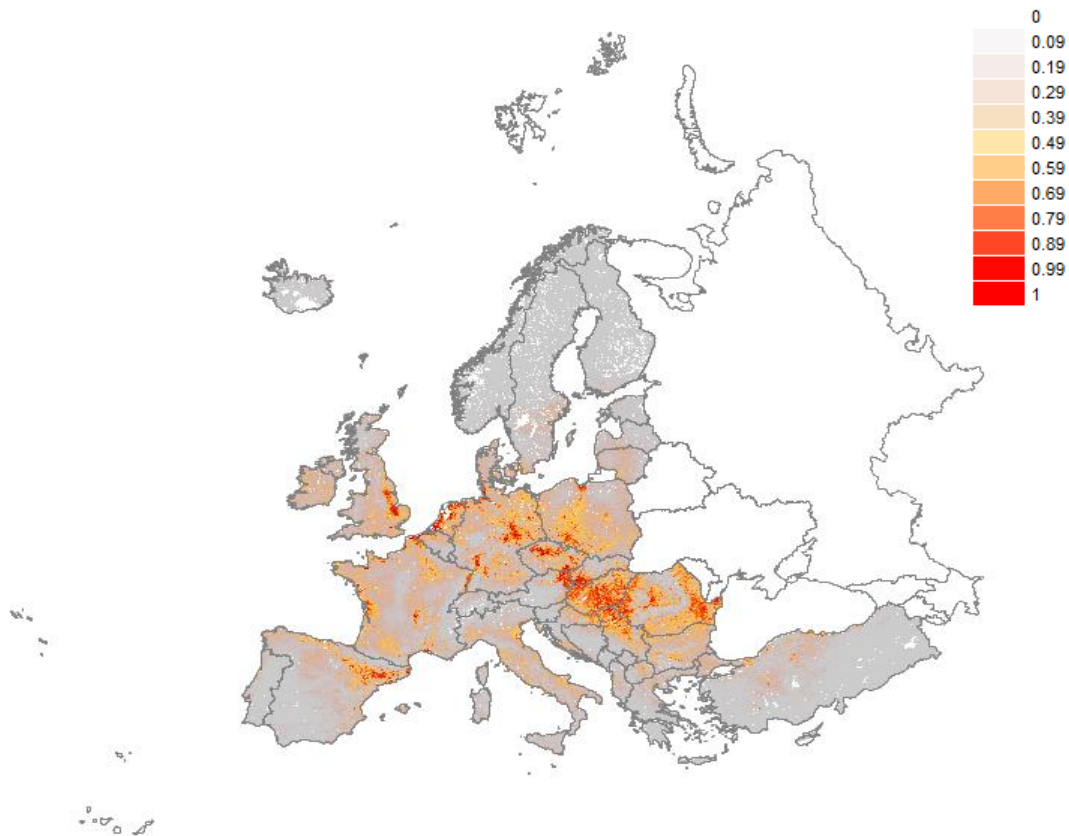
Statistics from Maxent modelling

AUC training (0-1)	0.8829
AUC test (0-1)	0.8934
Contribution variables to the Maxent model (%)	
Mean temperature of wettest quarter	25.8481
Digital Elevation Map (DEM)	18.9777
Precipitation of warmest quarter	9.9546
Soil pH (water)	9.9231
Bulk density (kg/m³)	7.6398
Temperature seasonality (stdev * 100)	4.9746
Vegetation height (m)	3.5362
Weight in % of sand particles (0.05-2 mm)	2.9199
Weight in % of clay particles (<0.0002 mm)	2.5579
Potential Evapotranspiration	2.3449
Volume % of coarse fragments (> 2 mm)	2.0475
Precipitation seasonality (coef. of var.)	1.8768
Phenology; NDVI seasonality	1.7895
Phenology; Peak of season (day number)	1.7187
Phenology; NDVI mean	1.2672
Phenology; Start of Season (day number)	0.5143
Annual precipitation	0.5114
Phenology; End of Season (day number)	0.3736
Distance to water (rivers, lakes, sea)	0.3329
Soil organic carbon content (‰)	0.2444
Phenology; Length of season (days)	0.2196
Weight in % of silt particles (0.0002-0.05 mm)	0.1754
Solar radiation	0.1179
Phenology; Low of season (day number)	0.07
Inundation; occurrence	0.04
Cation Exchange Capacity of the soil	0.0239

Comparison of distribution with Red List maps by John Janssen

A slightly broader geographical range has been applied in the Red List

R64 - [E64] Semi-desert salt pan - distribution
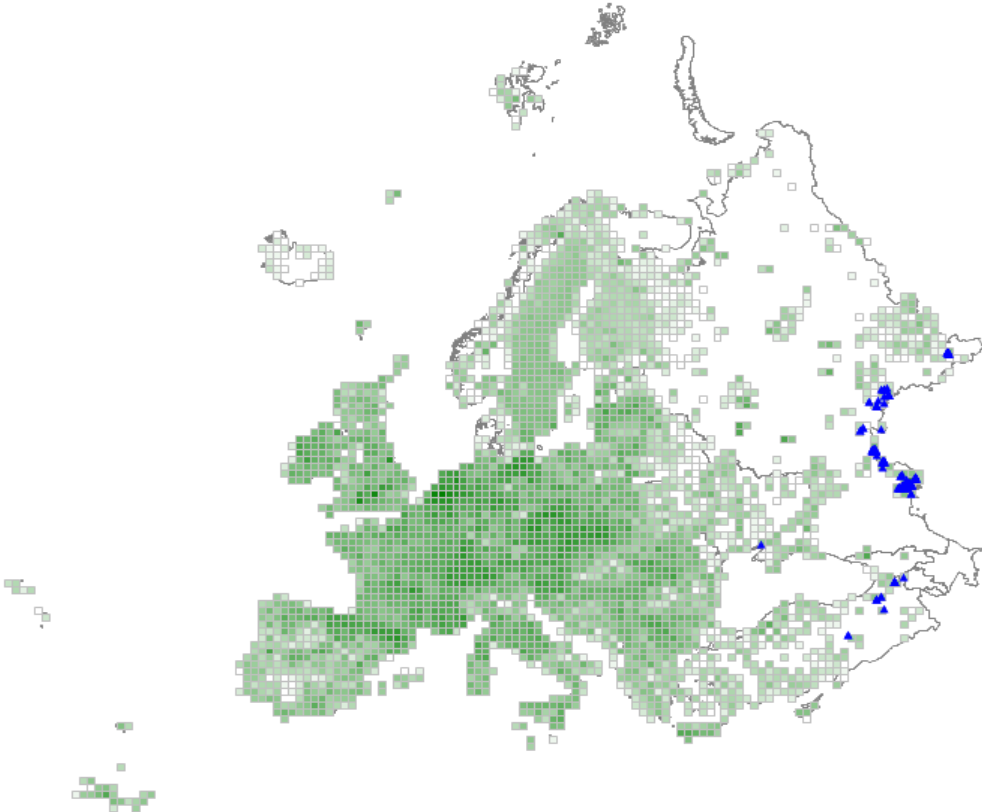


R64 - [E64] Semi-desert salt pan - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

**Comparison of distribution with Red List maps by John Janssen**
Not assessed; beyond geographical scope Red List

R65 - [E65] Continental subsaline alluvial pasture and meadow - distribution
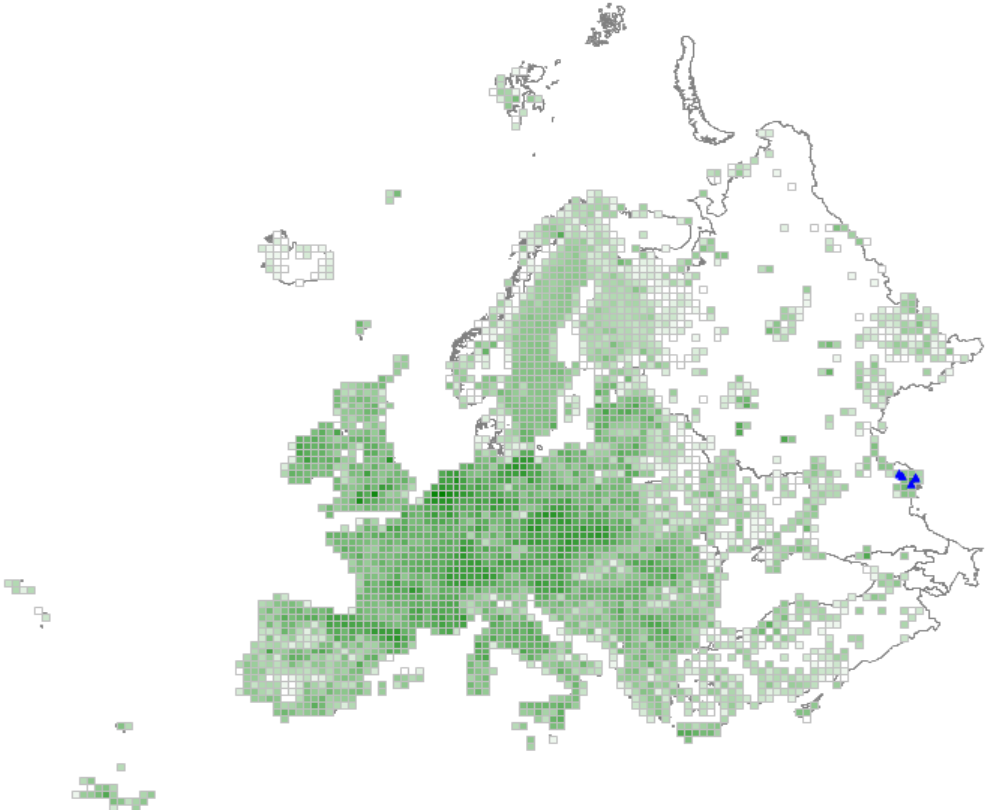
R65 - [E65] Continental subsaline alluvial pasture and meadow - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

S11 - [F11] Shrub tundra - distribution
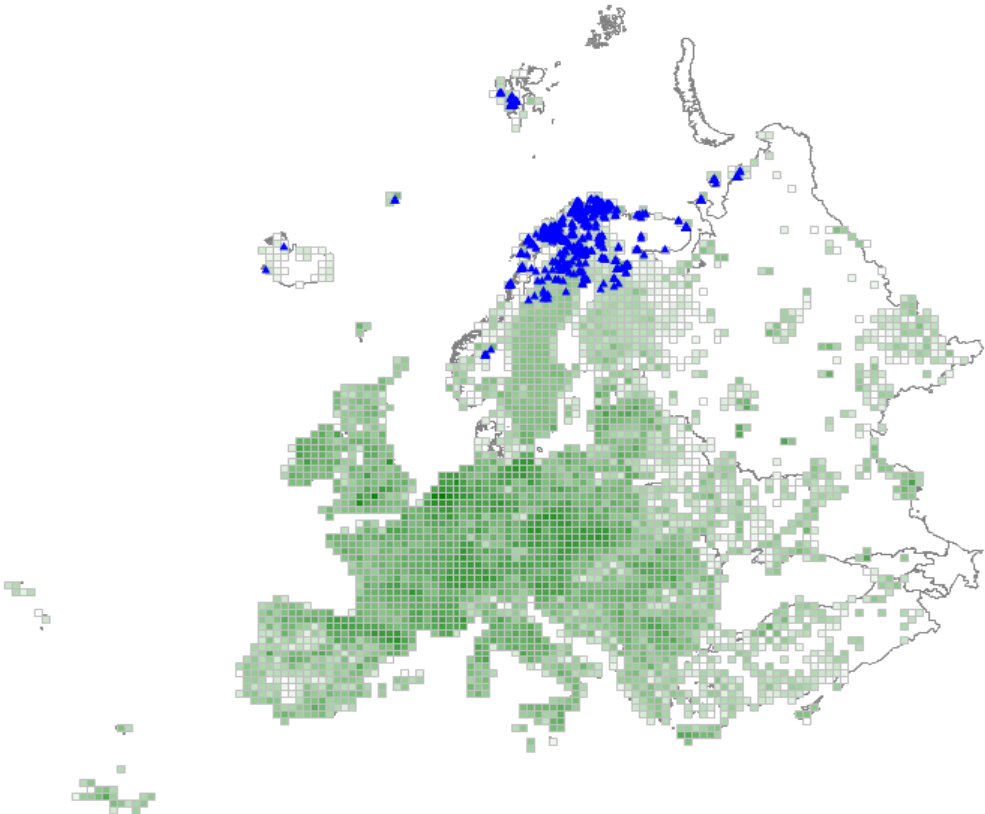
S11 - [F11] Shrub tundra - suitability
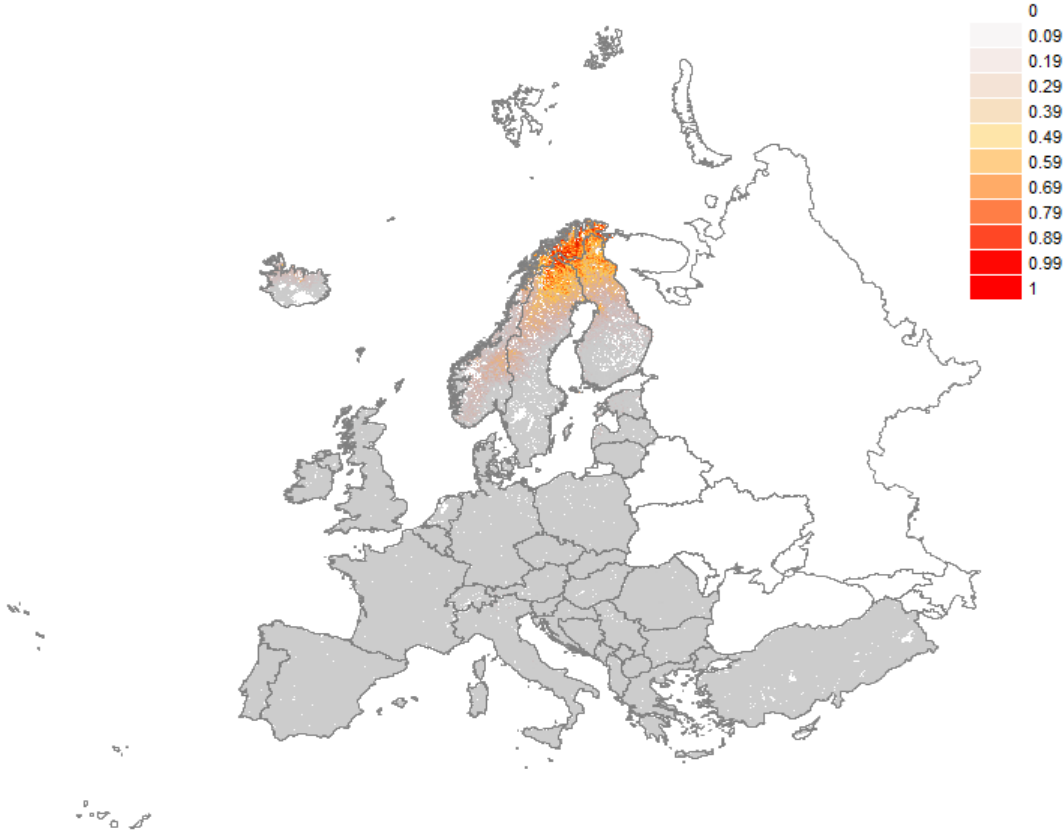
Statistics from Maxent modelling

|	
AUC training (0-1)	0.9585
AUC test (0-1)	0.9487
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	72.2151
Temperature seasonality (stdev * 100)	8.602
Phenology; Start of Season (day number)	5.4761
Bulk density (kg/m³)	5.2756
Precipitation of warmest quarter	2.9339
Annual precipitation	0.7946
Soil pH (water)	0.7469
Digital Elevation Map (DEM)	0.7176
Solar radiation	0.6001
Vegetation height (m)	0.5622
Distance to water (rivers, lakes, sea)	0.5029
Phenology; Length of season (days)	0.4127
Cation Exchange Capacity of the soil	0.1978
Precipitation seasonality (coef. of var.)	0.194
Weight in % of clay particles (<0.0002 mm)	0.1696
Phenology; Peak of season (day number)	0.1338
Phenology; End of Season (day number)	0.1087
Inundation; occurrence	0.0982
Volume % of coarse fragments (> 2 mm)	0.0464
Mean temperature of wettest quarter	0.0423
Soil organic carbon content (‰)	0.0389
Weight in % of sand particles (0.05-2 mm)	0.0327
Phenology; NDVI mean	0.0312
Phenology; NDVI seasonality	0.0294
Phenology; Low of season (day number)	0.0232
Weight in % of silt particles (0.0002-0.05 mm)	0.0143

Comparison of distribution with Red List maps by John Janssen

The Red List applied a slightly stricter definition in northern Norway

S12 - [F12] Moss and lichen tundra - distribution
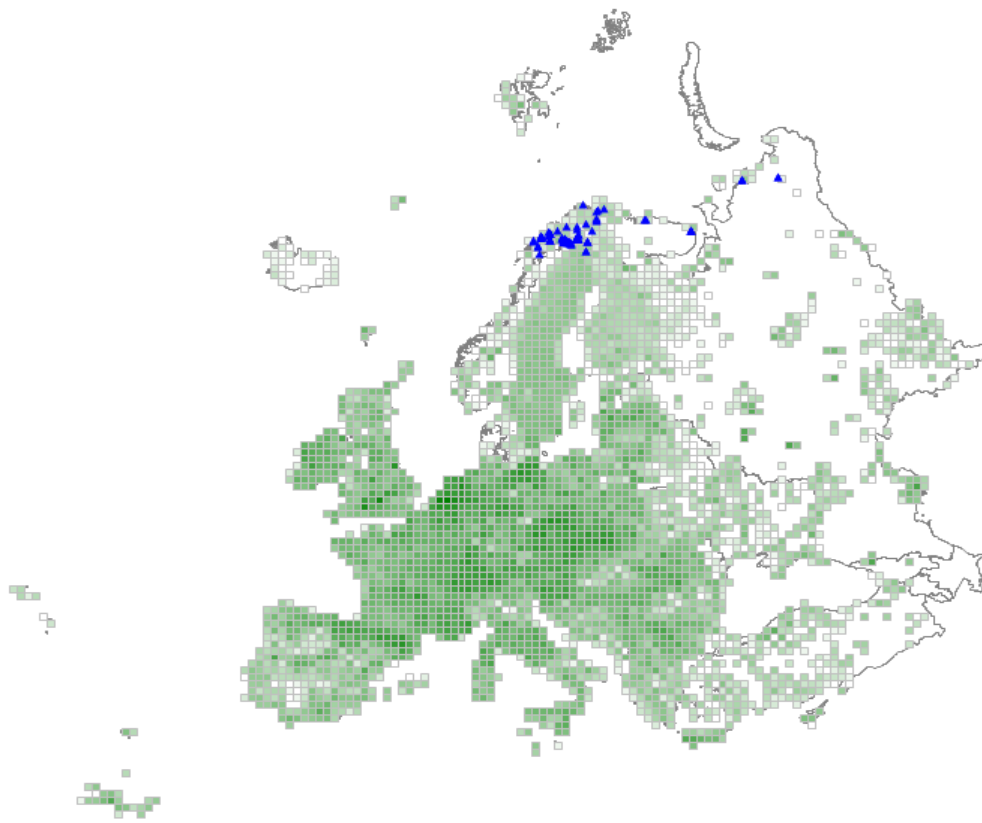
S12 - [F12] Moss and lichen tundra - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9928
AUC test (0-1)	0.9918
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	73.6834
Temperature seasonality (stdev * 100)	8.3907
Weight in % of clay particles (<0.0002 mm)	5.7518
Precipitation seasonality (coef. of var.)	3.8483
Bulk density (kg/m³)	2.8862
Phenology; NDVI mean	1.8256
Digital Elevation Map (DEM)	0.9032
Weight in % of silt particles (0.0002-0.05 mm)	0.847
Precipitation of warmest quarter	0.6056
Phenology; Low of season (day number)	0.4086
Volume % of coarse fragments (> 2 mm)	0.1919
Vegetation height (m)	0.1464
Cation Exchange Capacity of the soil	0.1363
Mean temperature of wettest quarter	0.0948
Soil pH (water)	0.0922
Distance to water (rivers, lakes, sea)	0.072
Phenology; End of Season (day number)	0.0355
Inundation; occurrence	0.0351
Phenology; NDVI seasonality	0.0329
Phenology; Peak of season (day number)	0.0119
Phenology; Length of season (days)	0.0007
Weight in % of sand particles (0.05-2 mm)	0
Solar radiation	0
Phenology; Start of Season (day number)	0
Annual precipitation	0
Soil organic carbon content (‰)	0

Comparison of distribution with Red List maps by John Janssen

The Red List applied a slightly stricter definition in northern Norway, and there is quite different availability of data

S21 - [F21] Subarctic and alpine dwarf Salix scrub - distribution
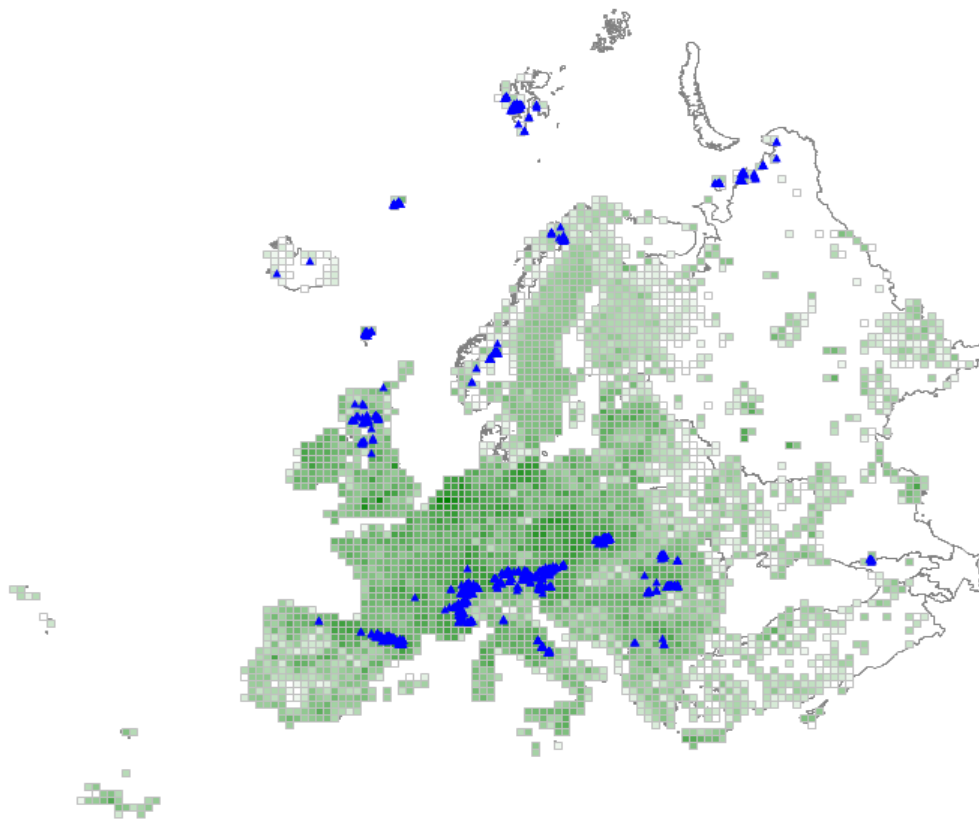
**S21 - [F21] Subarctic and alpine dwarf Salix scrub - suitability**

	0
	0.09
	0.18
	0.28
	0.37
	0.47
	0.562
	0.661
	0.751
	0.841
	0.94
	0.949
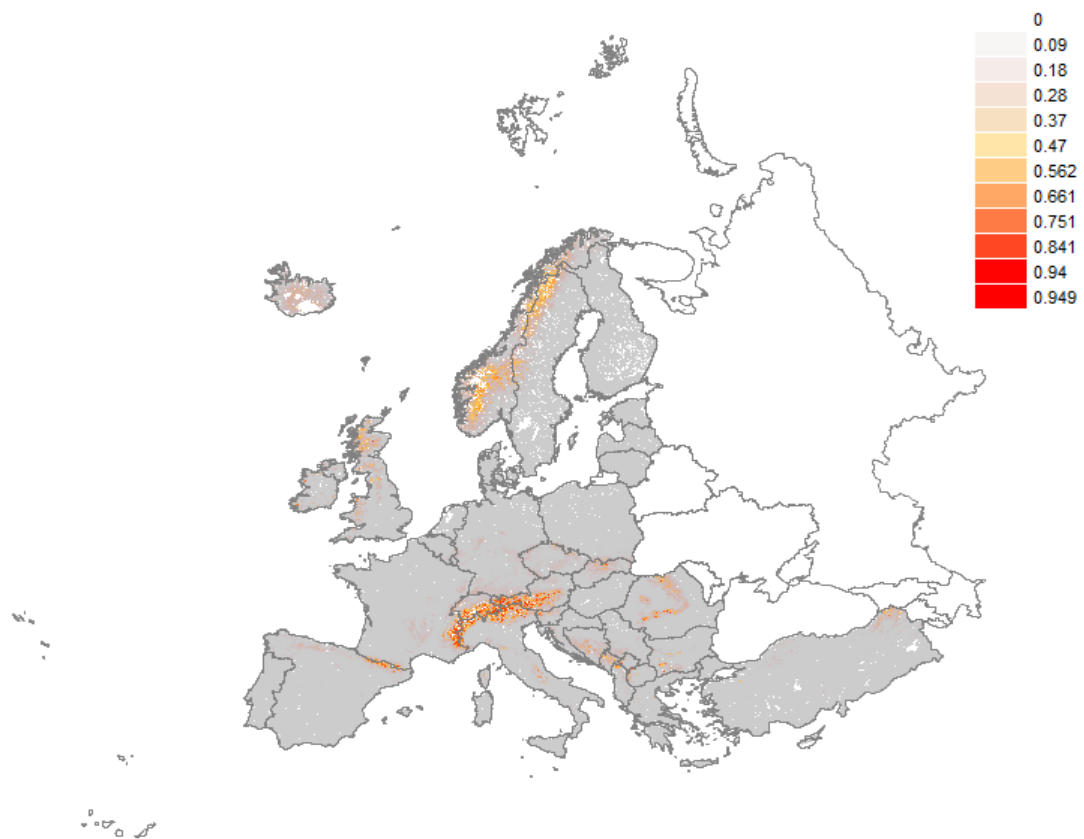
Statistics from Maxent modelling

AUC training (0-1)	0.9433
AUC test (0-1)	0.9504
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	55.0653
Precipitation of warmest quarter	20.7725
Phenology; End of Season (day number)	6.0824
Potential Evapotranspiration	3.741
Annual precipitation	1.7164
Soil organic carbon content (‰)	1.6475
Volume % of coarse fragments (> 2 mm)	1.5949
Soil pH (water)	1.3661
Weight in % of clay particles (<0.0002 mm)	1.2647
Weight in % of sand particles (0.05-2 mm)	1.1477
Temperature seasonality (stdev * 100)	1.0063
Phenology; Low of season (day number)	0.9972
Phenology; Peak of season (day number)	0.9136
Phenology; NDVI mean	0.7064
Precipitation seasonality (coef. of var.)	0.6247
Weight in % of silt particles (0.0002-0.05 mm)	0.4671
Cation Exchange Capacity of the soil	0.4031
Vegetation height (m)	0.1259
Bulk density (kg/m³)	0.0969
Solar radiation	0.0609
Phenology; Length of season (days)	0.0496
Mean temperature of wettest quarter	0.0433
Phenology; Start of Season (day number)	0.0402
Phenology; NDVI seasonality	0.0339
Distance to water (rivers, lakes, sea)	0.0319
Inundation; occurrence	0.0002

S22 - [F22a] Alpine and subalpine ericoid heath - distribution
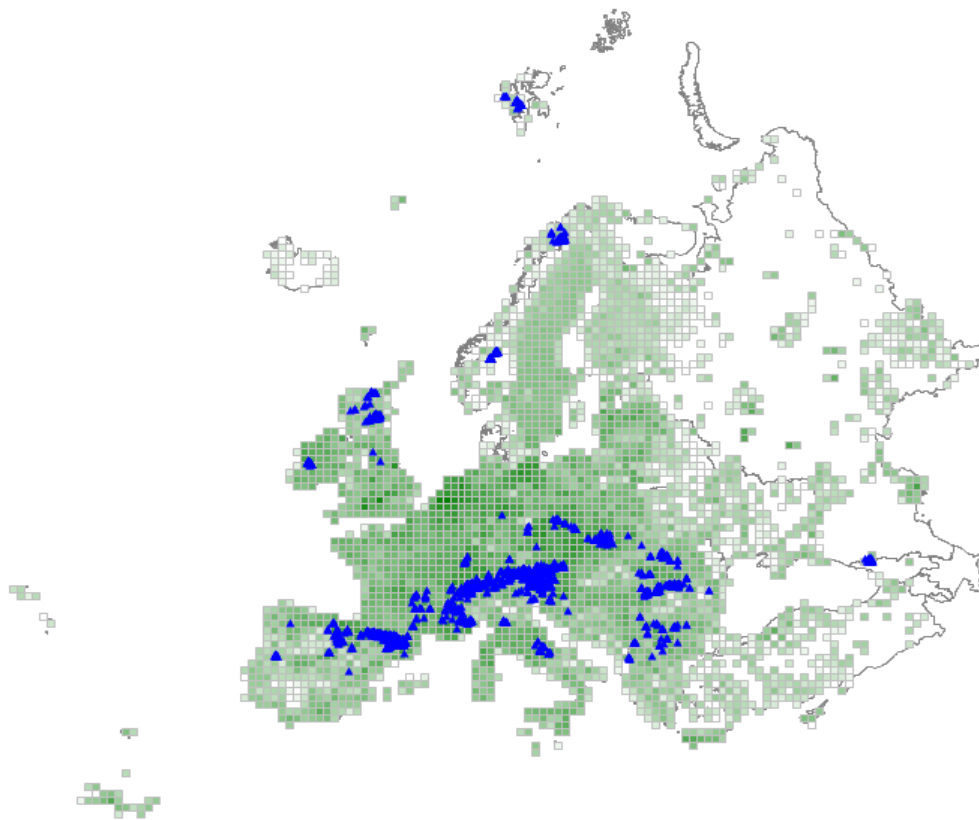
S22 - [F22a] Alpine and subalpine ericoid heath - suitability
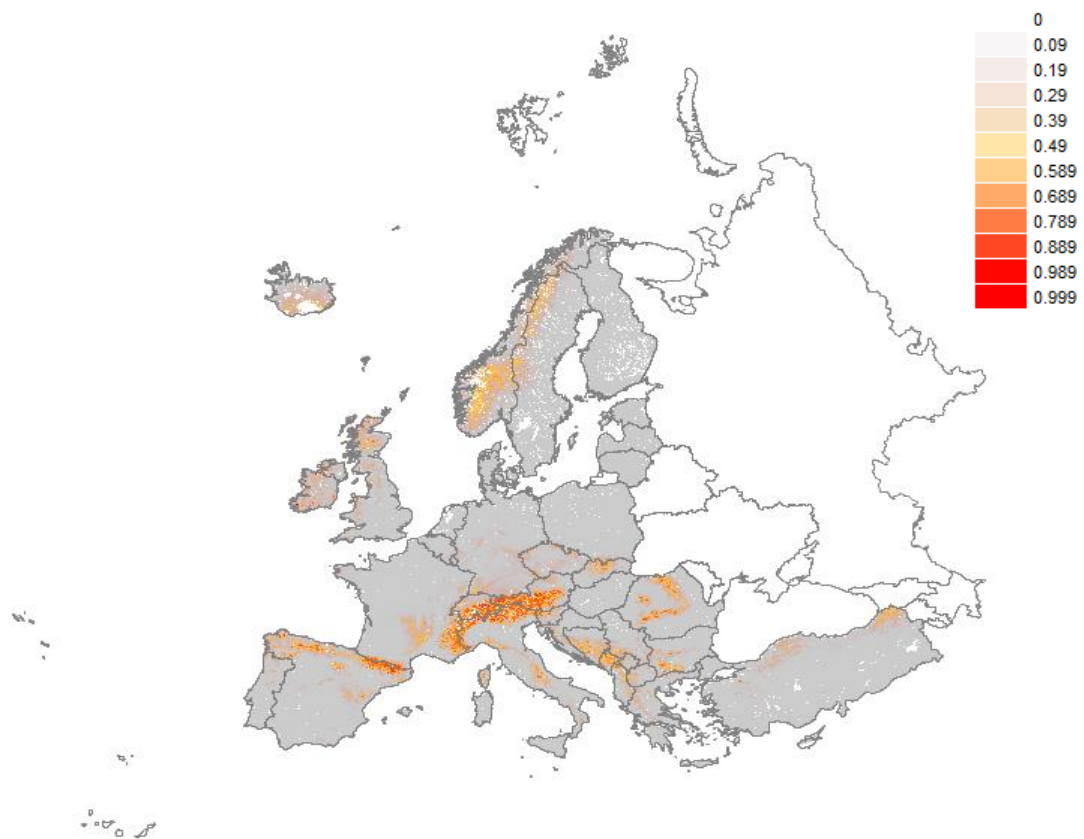
Statistics from Maxent modelling

AUC training (0-1)	0.8832
AUC test (0-1)	0.8861
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	60.4161
Soil organic carbon content (‰)	13.5894
Precipitation of warmest quarter	10.1209
Annual precipitation	2.9911
Phenology; NDVI mean	2.402
Temperature seasonality (stdev * 100)	2.2089
Phenology; End of Season (day number)	1.9998
Volume % of coarse fragments (> 2 mm)	1.2343
Solar radiation	1.1949
Weight in % of silt particles (0.0002-0.05 mm)	0.9055
Weight in % of sand particles (0.05-2 mm)	0.7571
Vegetation height (m)	0.4633
Precipitation seasonality (coef. of var.)	0.3173
Phenology; Start of Season (day number)	0.2827
Phenology; Peak of season (day number)	0.2456
Weight in % of clay particles (<0.0002 mm)	0.1863
Phenology; Low of season (day number)	0.1841
Phenology; Length of season (days)	0.1148
Potential Evapotranspiration	0.115
Cation Exchange Capacity of the soil	0.0944
Phenology; NDVI seasonality	0.0899
Bulk density (kg/m³)	0.0631
Mean temperature of wettest quarter	0.0172
Soil pH (water)	0.0054
Distance to water (rivers, lakes, sea)	0.0008
Inundation; occurrence	0

S23 - [F22b] Alpine and subalpine Juniperus scrub - distribution
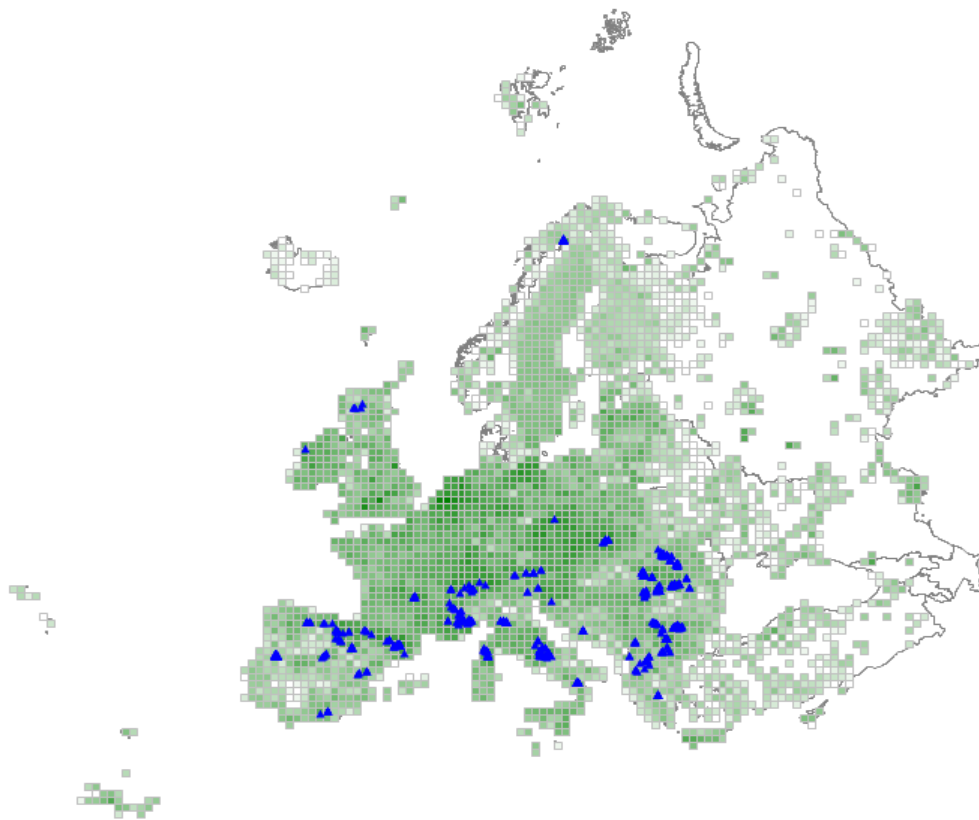
S23 - [F22b] Alpine and subalpine Juniperus scrub - suitability
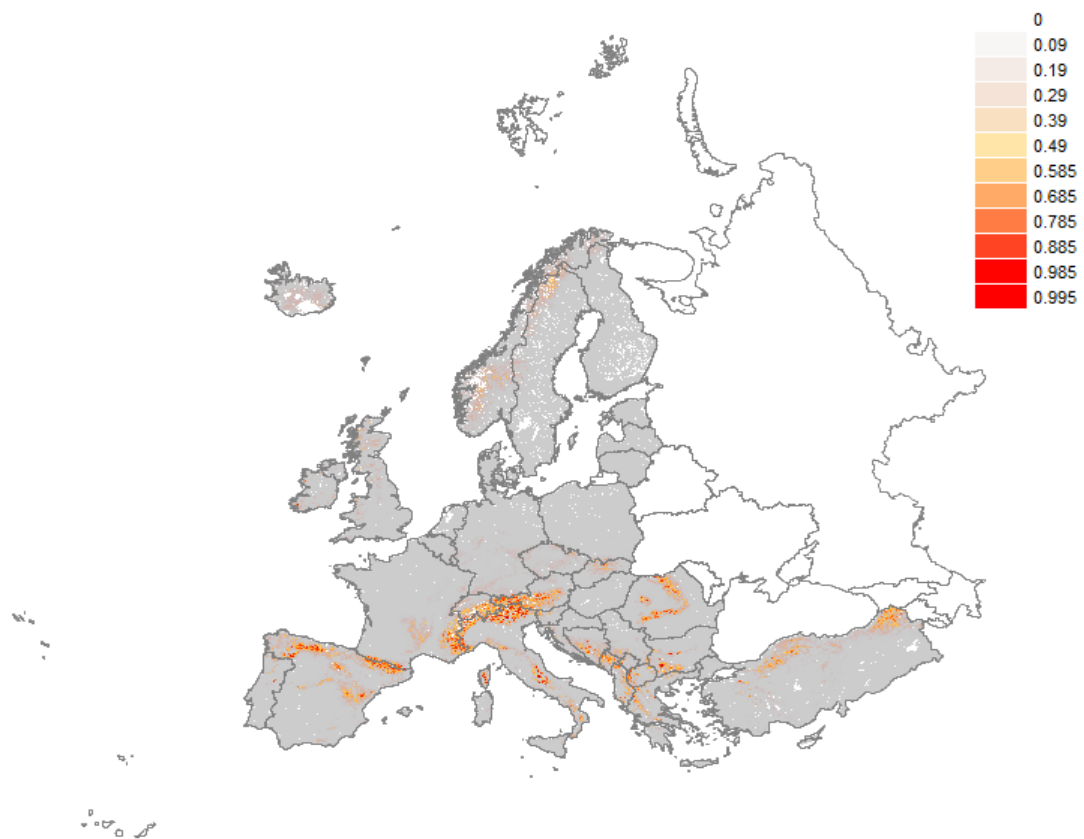
Statistics from Maxent modelling

AUC training (0-1)	0.954
AUC test (0-1)	0.949
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	71.0296
Precipitation of warmest quarter	16.1069
Phenology; NDVI mean	2.8729
Soil organic carbon content (‰)	2.3138
Volume % of coarse fragments (> 2 mm)	1.23
Phenology; Low of season (day number)	0.9966
Potential Evapotranspiration	0.7999
Weight in % of clay particles (<0.0002 mm)	0.7683
Annual precipitation	0.6965
Temperature seasonality (stdev * 100)	0.5524
Mean temperature of wettest quarter	0.5086
Phenology; Length of season (days)	0.4943
Precipitation seasonality (coef. of var.)	0.4457
Cation Exchange Capacity of the soil	0.2372
Phenology; End of Season (day number)	0.1965
Vegetation height (m)	0.1864
Bulk density (kg/m³)	0.1362
Weight in % of silt particles (0.0002-0.05 mm)	0.1097
Distance to water (rivers, lakes, sea)	0.0789
Phenology; Peak of season (day number)	0.0765
Phenology; NDVI seasonality	0.0634
Weight in % of sand particles (0.05-2 mm)	0.0361
Phenology; Start of Season (day number)	0.0286
Soil pH (water)	0.0184
Solar radiation	0.0139
Inundation; occurrence	0.0026

S24 - [F22c] Subalpine genistoid scrub of the Amphi-Adriatic region - distribution
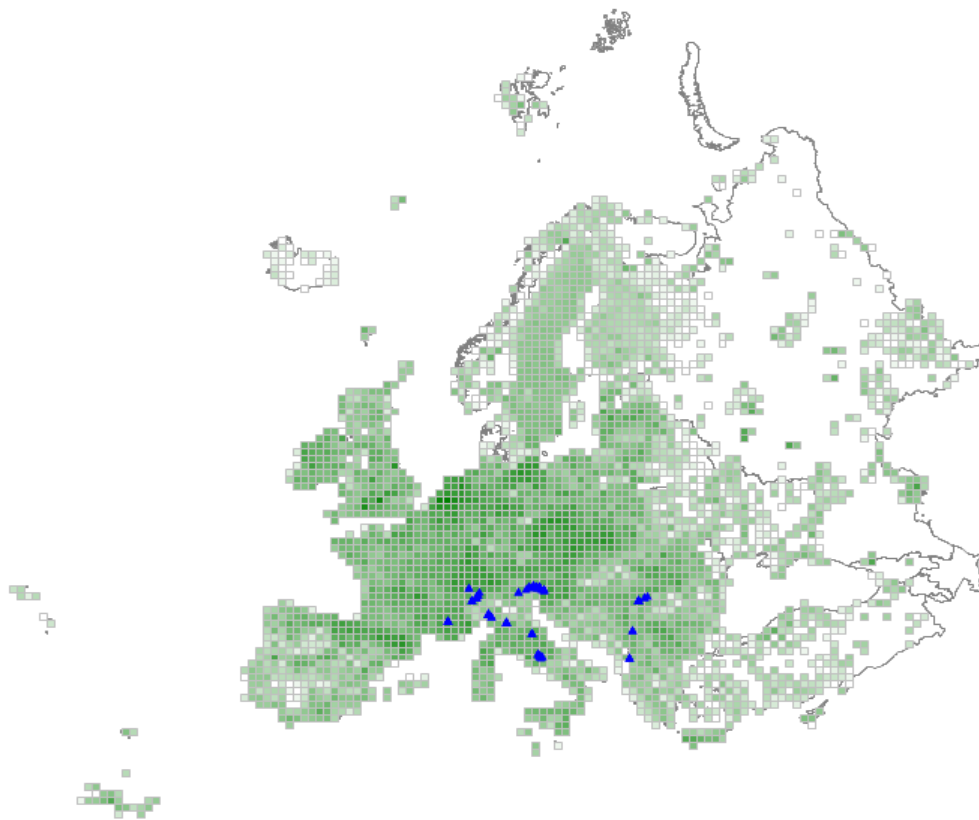
S24 - [F22c] Subalpine genistoid scrub of the Amphi-Adriatic region - suitability
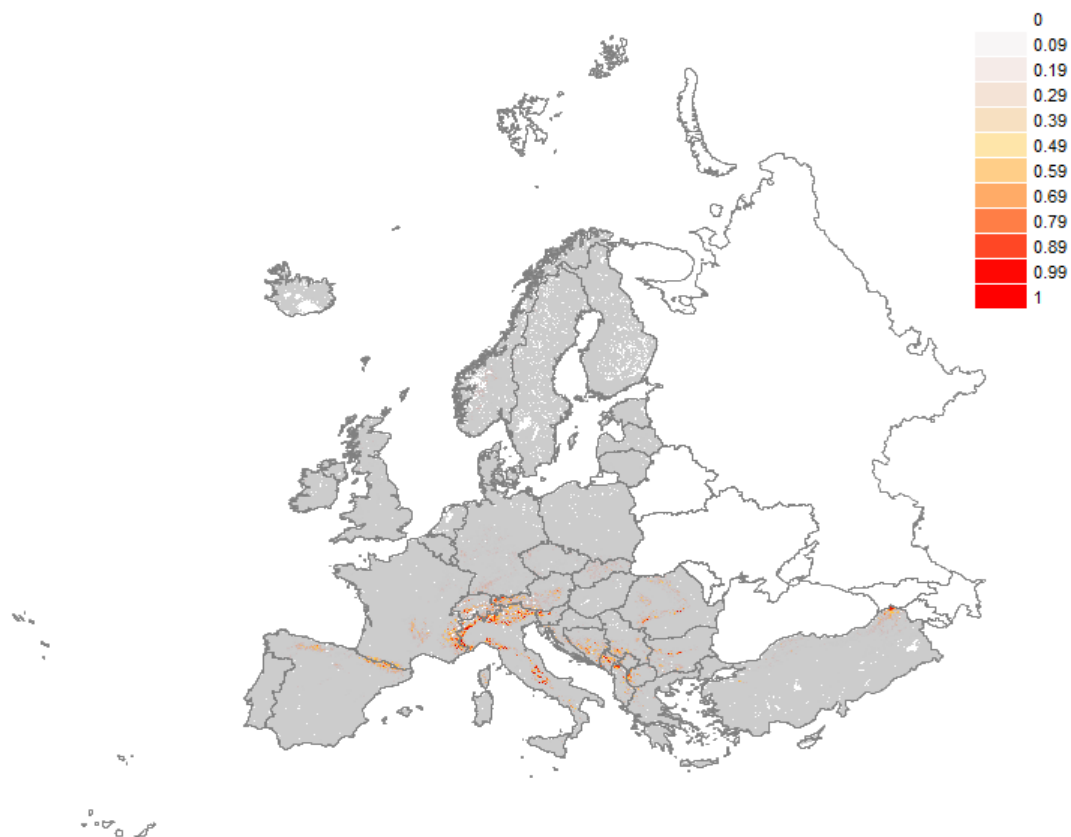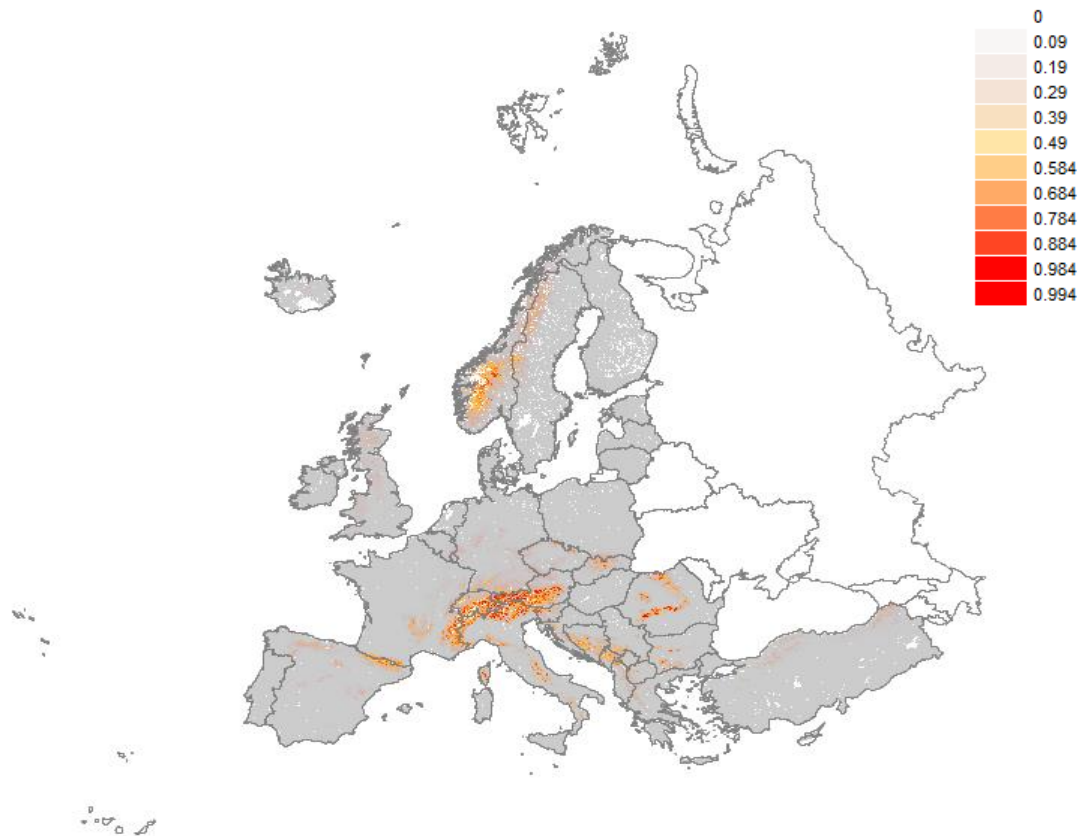
Statistics from Maxent modelling

AUC training (0-1)	0.9872
AUC test (0-1)	0.991
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	52.1686
Precipitation of warmest quarter	17.0105
Phenology; NDVI seasonality	11.0118
Vegetation height (m)	6.033
Annual precipitation	5.1418
Bulk density (kg/m³)	2.2662
Soil pH (water)	1.1075
Phenology; Length of season (days)	0.8991
Phenology; NDVI mean	0.8752
Precipitation seasonality (coef. of var.)	0.7244
Temperature seasonality (stdev * 100)	0.6931
Weight in % of clay particles (<0.0002 mm)	0.6405
Mean temperature of wettest quarter	0.384
Distance to water (rivers, lakes, sea)	0.3614
Phenology; Low of season (day number)	0.2117
Potential Evapotranspiration	0.2015
Cation Exchange Capacity of the soil	0.0982
Solar radiation	0.0589
Phenology; End of Season (day number)	0.0583
Soil organic carbon content (‰)	0.0188
Volume % of coarse fragments (> 2 mm)	0.0178
Phenology; Peak of season (day number)	0.0124
Weight in % of silt particles (0.0002-0.05 mm)	0.0053
Inundation; occurrence	0
Phenology; Start of Season (day number)	0
Weight in % of sand particles (0.05-2 mm)	0

S25 - [F23] Subalpine and subarctic deciduous scrub - distribution
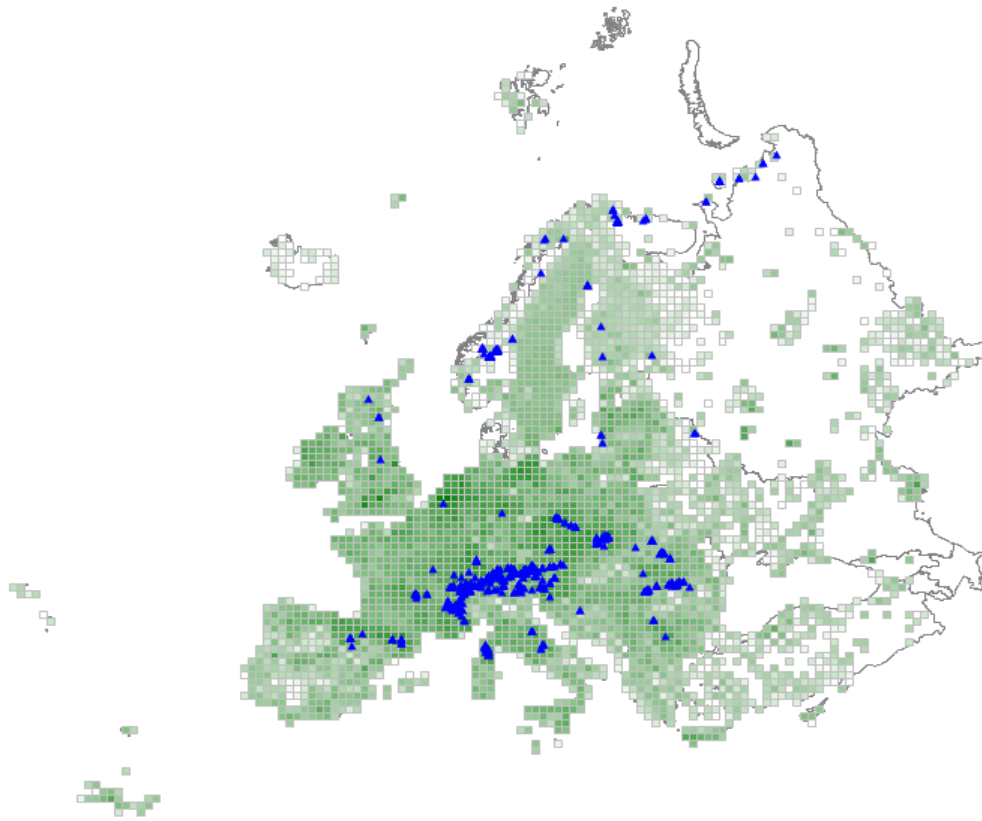
S25 - [F23] Subalpine and subarctic deciduous scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9441
AUC test (0-1)	0.9269
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	52.7036
Soil organic carbon content (‰)	14.5121
Annual precipitation	10.7141
Precipitation of warmest quarter	9.5417
Potential Evapotranspiration	2.5377
Weight in % of silt particles (0.0002-0.05 mm)	2.3121
Phenology; Low of season (day number)	1.8382
Weight in % of sand particles (0.05-2 mm)	1.5613
Phenology; NDVI mean	0.6591
Soil pH (water)	0.6454
Weight in % of clay particles (<0.0002 mm)	0.4374
Phenology; End of Season (day number)	0.412
Mean temperature of wettest quarter	0.4049
Temperature seasonality (stdev * 100)	0.3565
Phenology; Peak of season (day number)	0.2958
Vegetation height (m)	0.2258
Precipitation seasonality (coef. of var.)	0.2204
Solar radiation	0.1689
Cation Exchange Capacity of the soil	0.1682
Phenology; NDVI seasonality	0.087
Distance to water (rivers, lakes, sea)	0.0682
Phenology; Length of season (days)	0.0534
Bulk density (kg/m³)	0.0387
Volume % of coarse fragments (> 2 mm)	0.0341
Phenology; Start of Season (day number)	0.0034
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The EUNIS definition is broader, including boreal and subarctic scrub

S26 - [F24] Subalpine Pinus mugo scrub - distribution
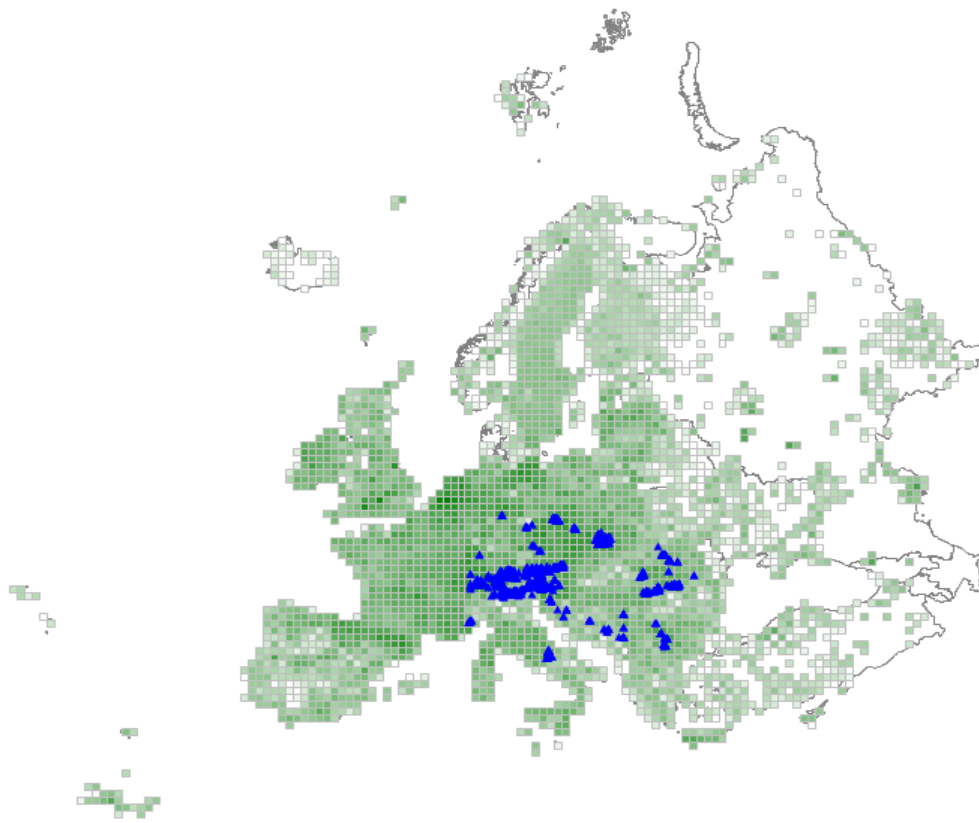
S26 - [F24] Subalpine Pinus mugo scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9324
AUC test (0-1)	0.9388
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	54.4776
Precipitation of warmest quarter	27.6185
Volume % of coarse fragments (> 2 mm)	3.977
Temperature seasonality (stdev * 100)	1.8711
Annual precipitation	1.7578
Soil pH (water)	1.656
Vegetation height (m)	1.5214
Cation Exchange Capacity of the soil	1.3167
Soil organic carbon content (‰)	1.2646
Potential Evapotranspiration	1.1413
Weight in % of silt particles (0.0002-0.05 mm)	0.9861
Phenology; Peak of season (day number)	0.8159
Precipitation seasonality (coef. of var.)	0.4844
Phenology; Start of Season (day number)	0.2941
Solar radiation	0.2708
Phenology; End of Season (day number)	0.2121
Phenology; Low of season (day number)	0.1046
Mean temperature of wettest quarter	0.0716
Bulk density (kg/m³)	0.0474
Phenology; NDVI seasonality	0.0372
Phenology; NDVI mean	0.0331
Phenology; Length of season (days)	0.0209
Weight in % of clay particles (<0.0002 mm)	0.0183
Distance to water (rivers, lakes, sea)	0.0013
Inundation; occurrence	0.0002
Weight in % of sand particles (0.05-2 mm)	0

S31 - [F31a] Lowland to montane temperate and submediterranean Juniperus scrub - distribution
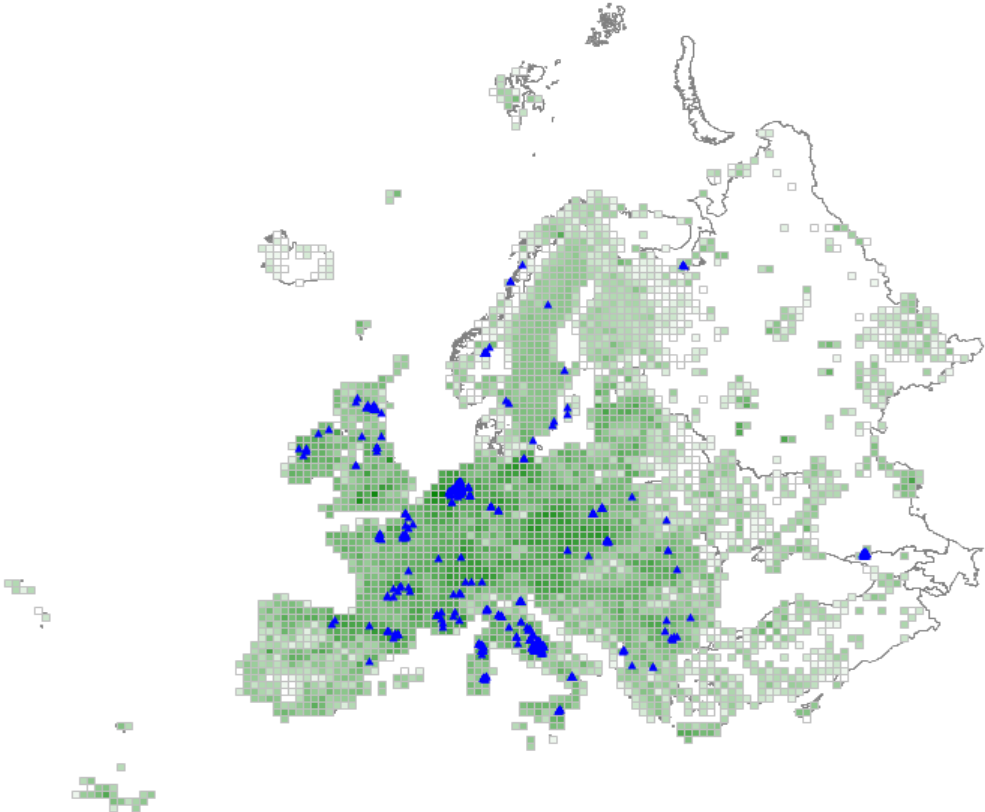
S31 - [F31a] Lowland to montane temperate and submediterranean Juniperus scrub - suitability
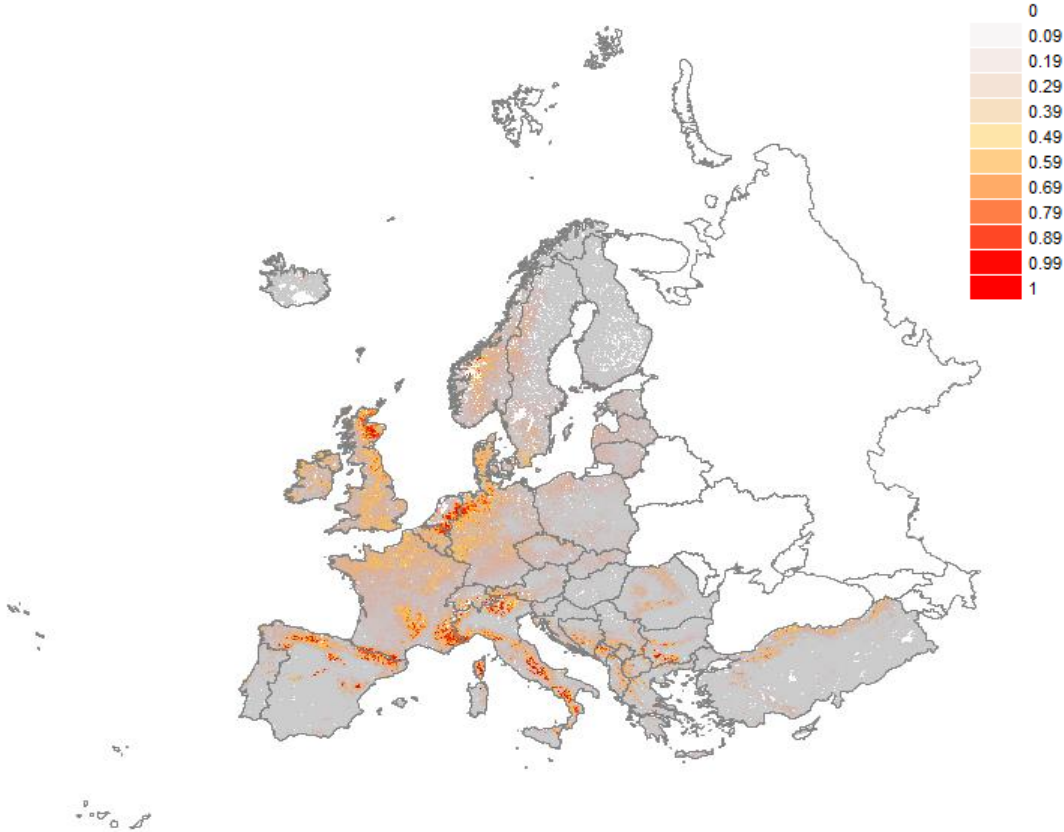
Statistics from Maxent modelling

AUC training (0-1)	0.9176
AUC test (0-1)	0.9213
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	22.211
Digital Elevation Map (DEM)	16.2015
Precipitation of warmest quarter	13.5755
Bulk density (kg/m³)	12.9819
Potential Evapotranspiration	6.7714
Annual precipitation	6.4739
Weight in % of sand particles (0.05-2 mm)	6.083
Phenology; NDVI mean	3.8333
Phenology; Length of season (days)	3.4716
Soil pH (water)	1.4803
Phenology; End of Season (day number)	1.3437
Phenology; NDVI seasonality	1.2553
Mean temperature of wettest quarter	1.0172
Vegetation height (m)	0.6395
Weight in % of clay particles (<0.0002 mm)	0.5577
Volume % of coarse fragments (> 2 mm)	0.3743
Solar radiation	0.3545
Soil organic carbon content (‰)	0.313
Weight in % of silt particles (0.0002-0.05 mm)	0.2883
Cation Exchange Capacity of the soil	0.1789
Phenology; Low of season (day number)	0.1662
Phenology; Peak of season (day number)	0.1303
Distance to water (rivers, lakes, sea)	0.1072
Precipitation seasonality (coef. of var.)	0.1026
Phenology; Start of Season (day number)	0.0745
Inundation; occurrence	0.0134

S32 - [F31b] Temperate Rubus scrub - distribution
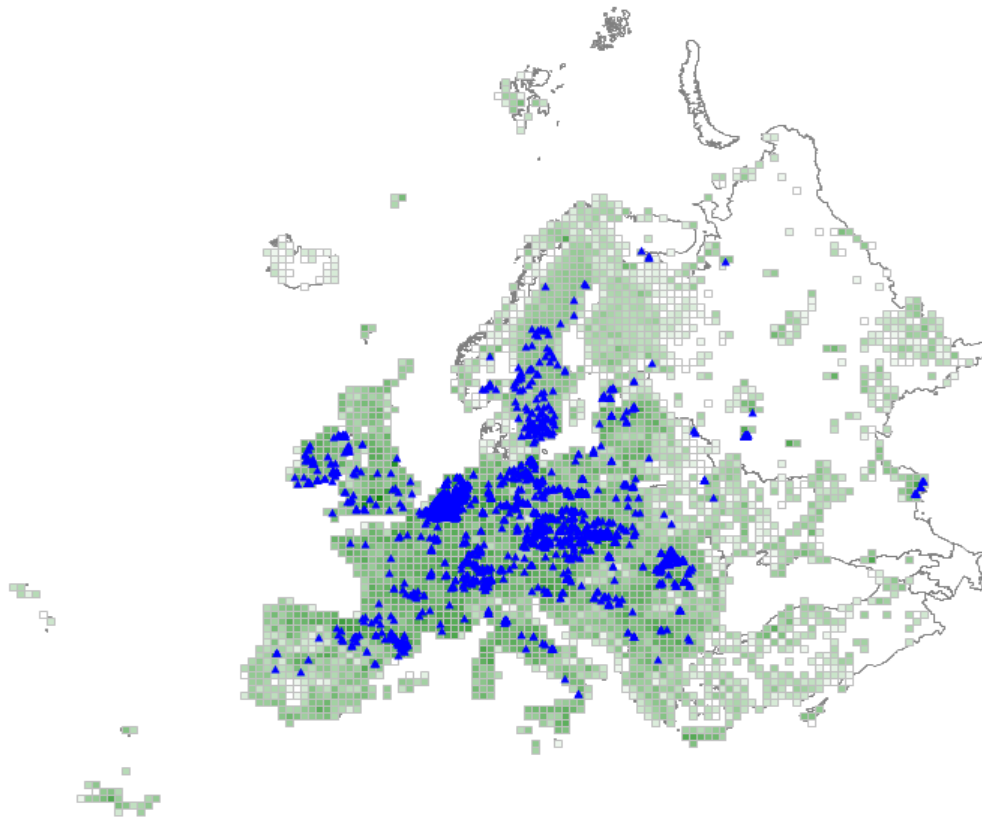
S32 - [F31b] Temperate Rubus scrub - suitability
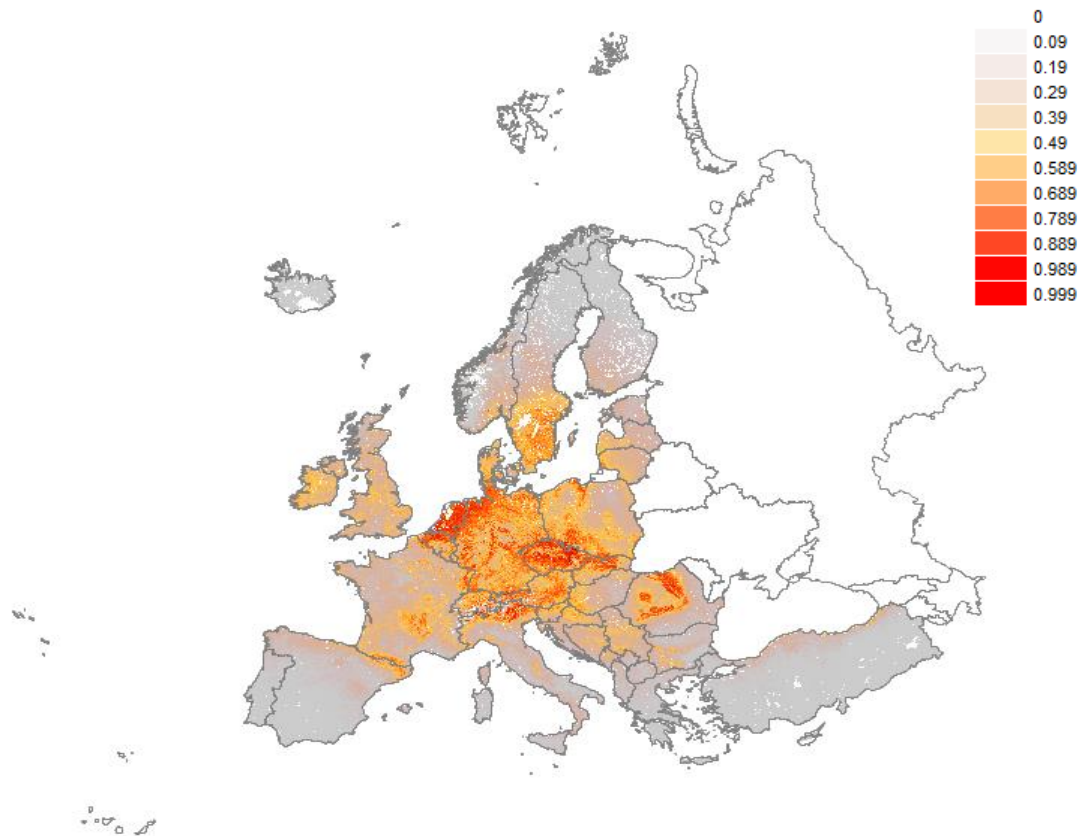
Statistics from Maxent modelling

AUC training (0-1)	0.8168
AUC test (0-1)	0.7915
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	39.363
Potential Evapotranspiration	17.186
Temperature seasonality (stdev * 100)	15.4345
Digital Elevation Map (DEM)	5.3763
Phenology; Length of season (days)	4.7258
Mean temperature of wettest quarter	3.0511
Phenology; Low of season (day number)	2.665
Phenology; End of Season (day number)	2.2296
Precipitation seasonality (coef. of var.)	2.1272
Weight in % of sand particles (0.05-2 mm)	1.5314
Annual precipitation	1.2055
Distance to water (rivers, lakes, sea)	1.0099
Weight in % of clay particles (<0.0002 mm)	0.6256
Weight in % of silt particles (0.0002-0.05 mm)	0.5952
Phenology; Start of Season (day number)	0.5662
Soil pH (water)	0.4697
Soil organic carbon content (‰)	0.4129
Volume % of coarse fragments (> 2 mm)	0.3031
Vegetation height (m)	0.2792
Phenology; NDVI seasonality	0.2719
Solar radiation	0.1982
Cation Exchange Capacity of the soil	0.1655
Phenology; Peak of season (day number)	0.1123
Inundation; occurrence	0.0423
Bulk density (kg/m³)	0.0282
Phenology; NDVI mean	0.0246

S33 - [F31c] Lowland to montane temperate and submediterranean genistoid scrub - distribution
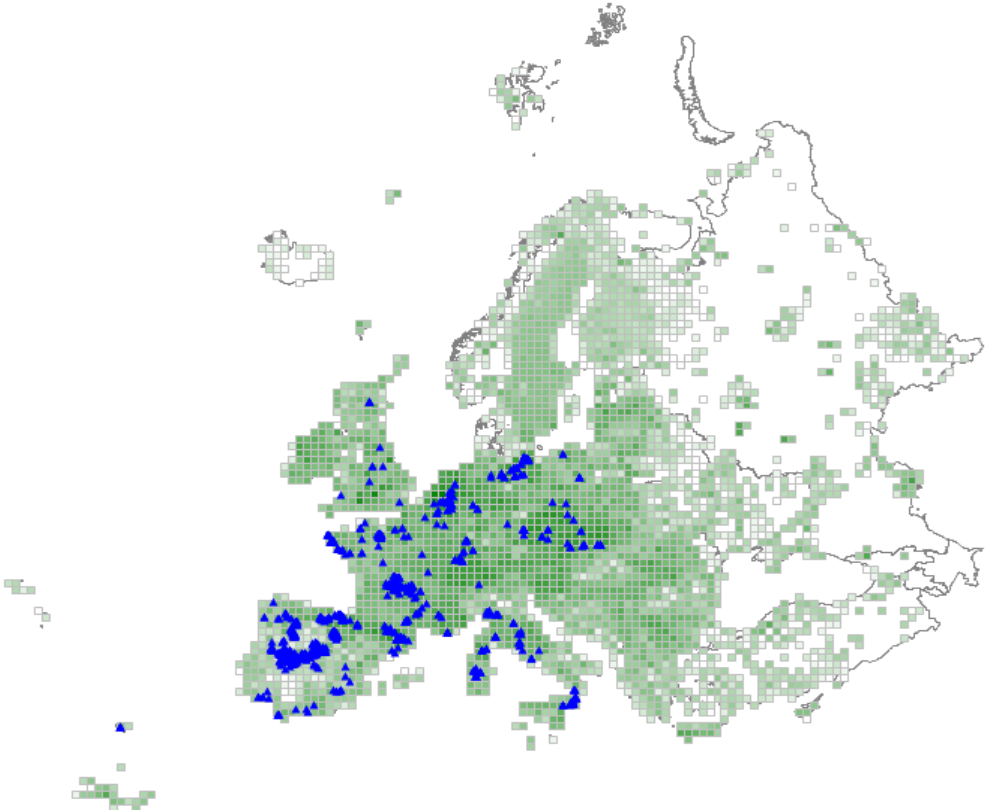
S33 - [F31c] Lowland to montane temperate and submediterranean genistoid scrub - suitability
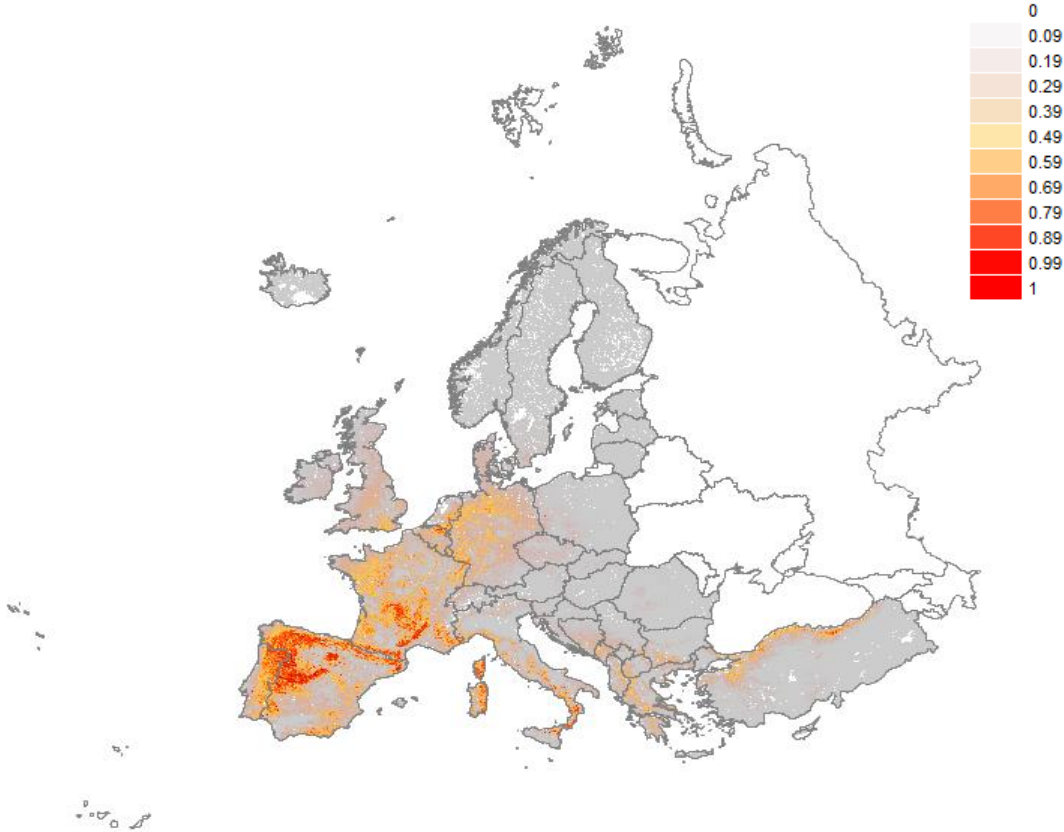
Statistics from Maxent modelling

AUC training (0-1)	0.9019
AUC test (0-1)	0.883
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	39.8095
Potential Evapotranspiration	11.5657
Digital Elevation Map (DEM)	8.9895
Soil pH (water)	8.1606
Phenology; Length of season (days)	6.3672
Weight in % of sand particles (0.05-2 mm)	4.7609
Precipitation seasonality (coef. of var.)	3.2721
Bulk density (kg/m³)	2.3306
Volume % of coarse fragments (> 2 mm)	2.0354
Precipitation of warmest quarter	1.4952
Phenology; Start of Season (day number)	1.4622
Solar radiation	1.4137
Phenology; Low of season (day number)	1.3787
Mean temperature of wettest quarter	1.3028
Weight in % of clay particles (<0.0002 mm)	1.1919
Annual precipitation	0.9122
Phenology; NDVI seasonality	0.7474
Phenology; End of Season (day number)	0.7028
Cation Exchange Capacity of the soil	0.5724
Distance to water (rivers, lakes, sea)	0.4258
Vegetation height (m)	0.3798
Phenology; Peak of season (day number)	0.3315
Phenology; NDVI mean	0.3124
Soil organic carbon content (‰)	0.0594
Weight in % of silt particles (0.0002-0.05 mm)	0.0183
Inundation; occurrence	0.0019

S34 - [F31d] Balkan-Anatolian submontane genistoid scrub - distribution
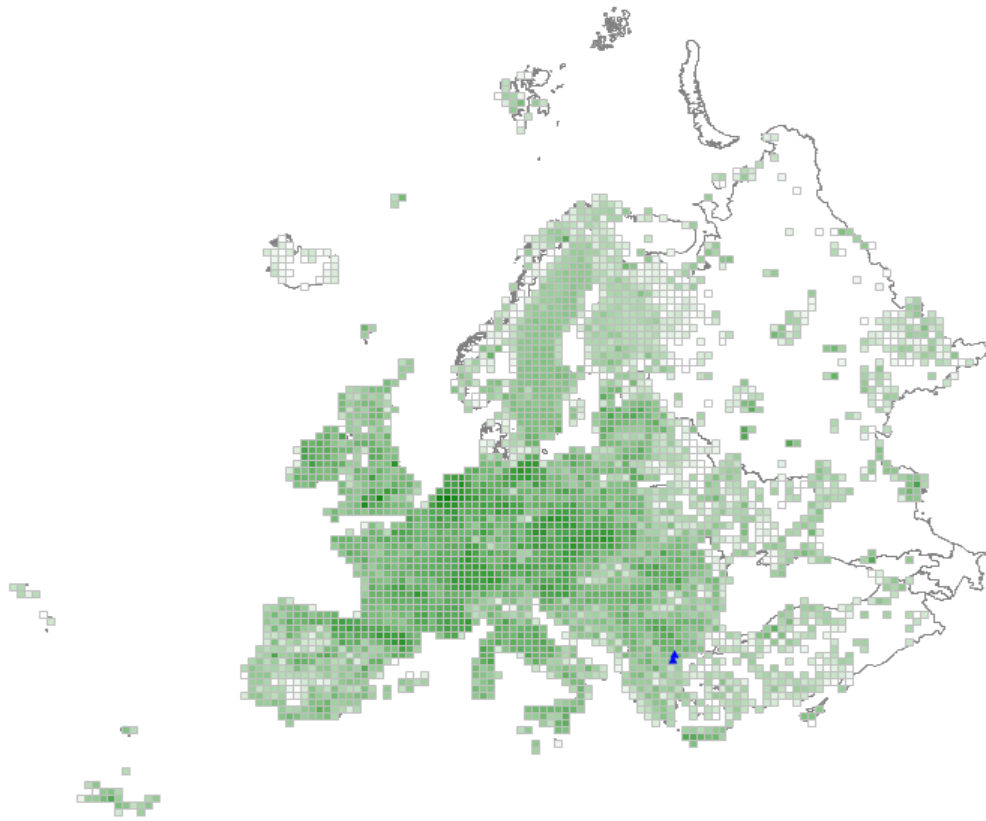
S34 - [F31d] Balkan-Anatolian submontane genistoid scrub - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

**S35 - [F31e] Temperate and submediterranean thorn scrub - distribution**
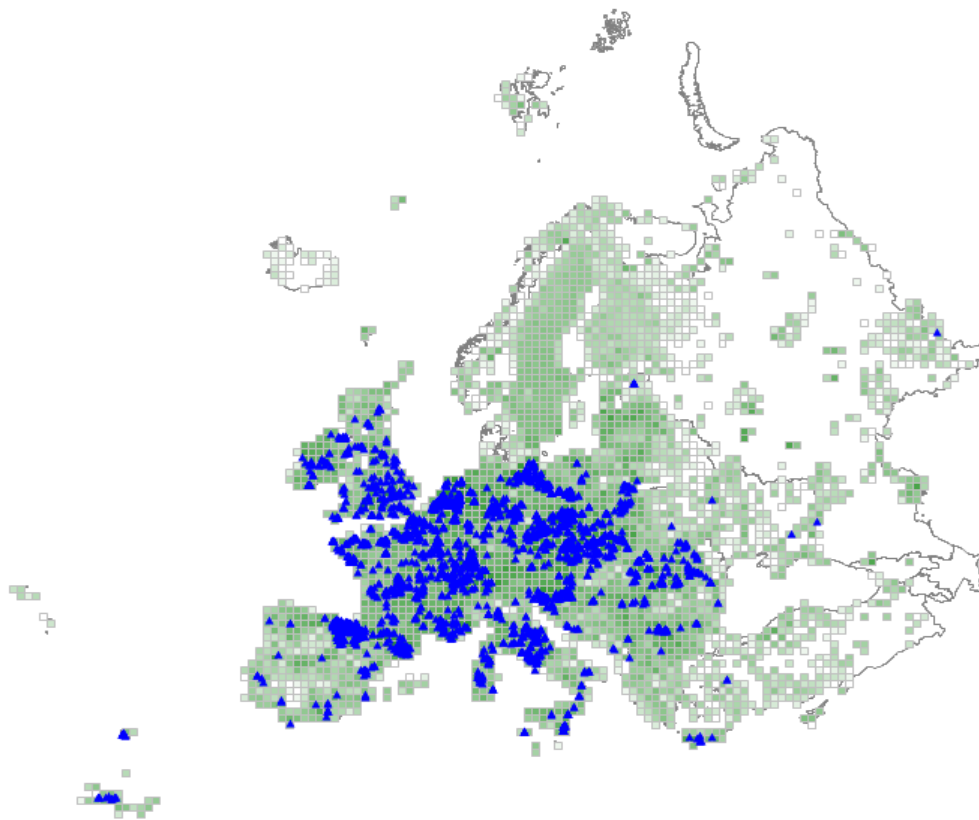
**S35 - [F31e] Temperate and submediterranean thorn scrub - suitability**
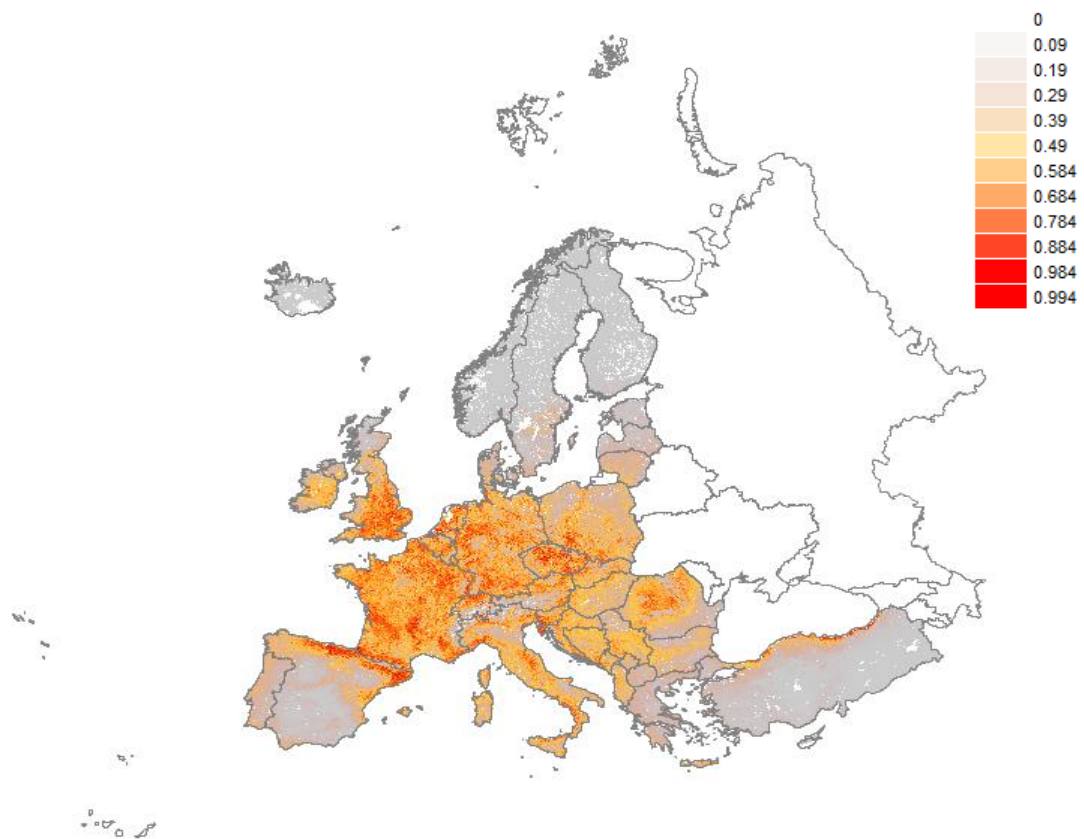
Statistics from Maxent modelling

AUC training (0-1)	0.7694
AUC test (0-1)	0.7389
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	24.7119
Bulk density (kg/m³)	22.4873
Potential Evapotranspiration	12.6115
Temperature seasonality (stdev * 100)	12.2895
Soil pH (water)	8.2799
Phenology; Low of season (day number)	3.8513
Weight in % of sand particles (0.05-2 mm)	2.3662
Cation Exchange Capacity of the soil	2.0976
Mean temperature of wettest quarter	1.9427
Distance to water (rivers, lakes, sea)	1.768
Precipitation seasonality (coef. of var.)	1.4401
Phenology; Length of season (days)	1.3885
Weight in % of clay particles (<0.0002 mm)	1.3132
Annual precipitation	1.1566
Digital Elevation Map (DEM)	0.4998
Volume % of coarse fragments (> 2 mm)	0.4661
Phenology; NDVI mean	0.3968
Weight in % of silt particles (0.0002-0.05 mm)	0.1839
Phenology; Peak of season (day number)	0.155
Phenology; NDVI seasonality	0.134
Phenology; End of Season (day number)	0.1188
Solar radiation	0.1132
Vegetation height (m)	0.1095
Phenology; Start of Season (day number)	0.0873
Inundation; occurrence	0.0172
Soil organic carbon content (‰)	0.0144

S36 - [F31f] Low steppic scrub - distribution
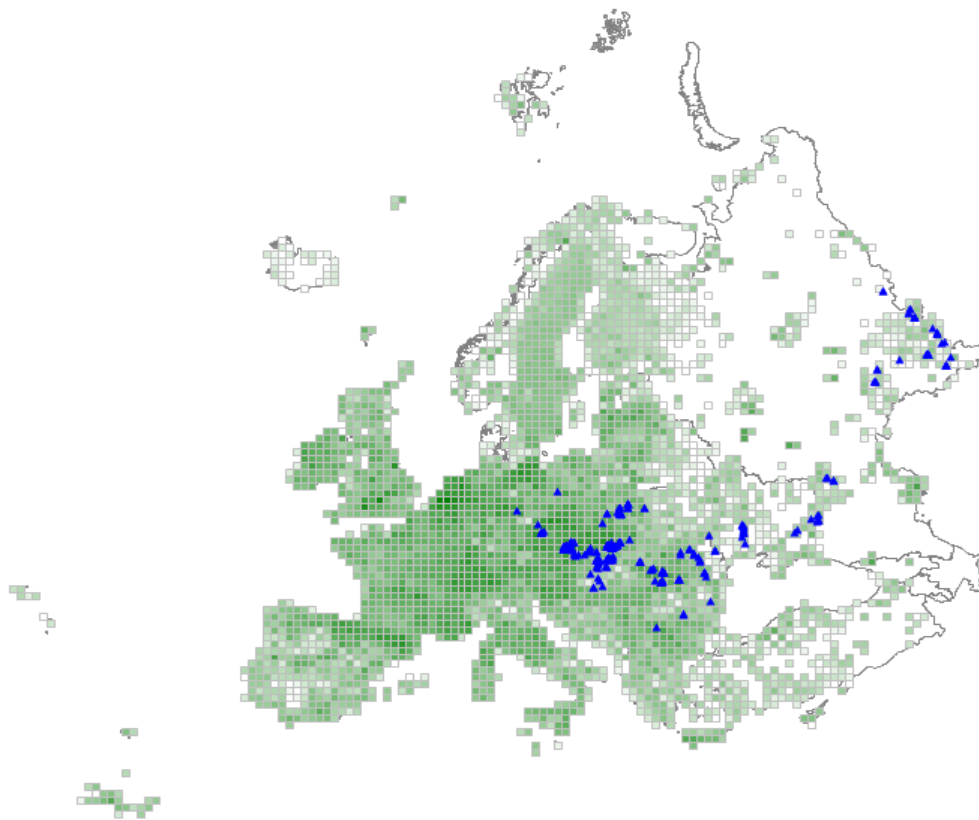

S36 - [F31f] Low steppic scrub - suitability
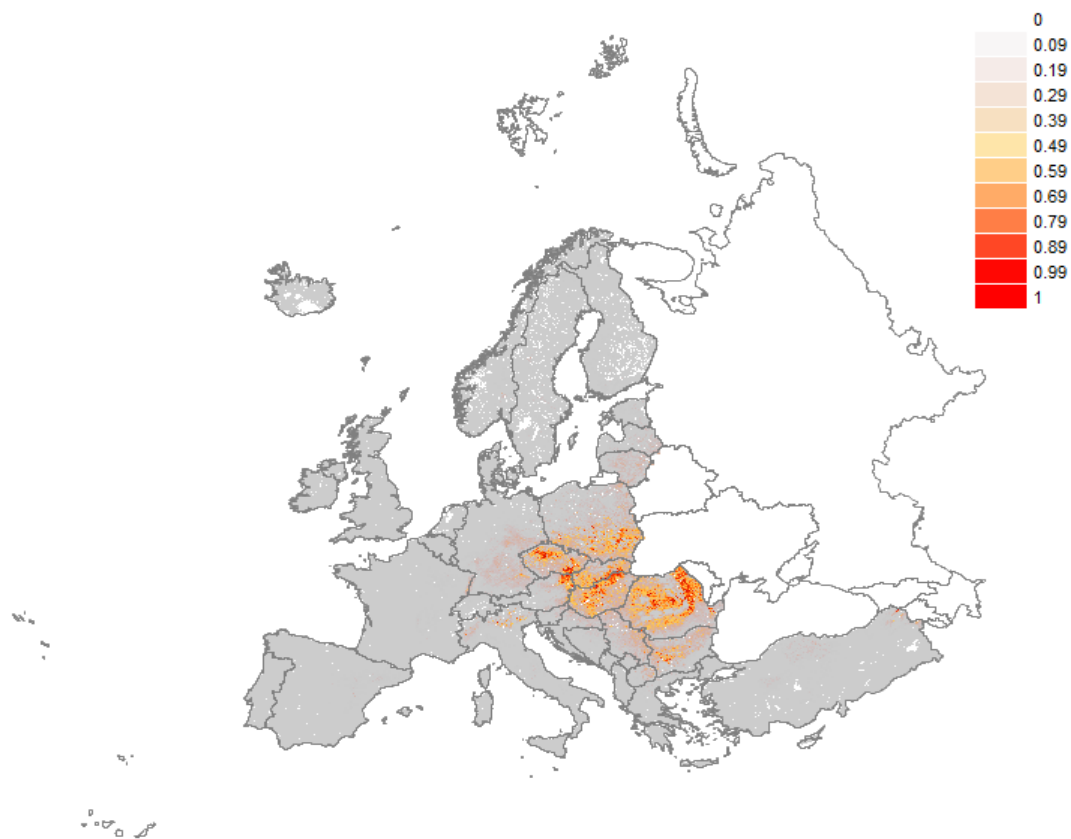
Statistics from Maxent modelling

AUC training (0-1)	0.9742
AUC test (0-1)	0.9658
Contribution variables to the Maxent model (%)	
Mean temperature of wettest quarter	27.8866
Phenology; NDVI seasonality	13.6385
Precipitation seasonality (coef. of var.)	9.2131
Weight in % of clay particles (<0.0002 mm)	7.2817
Digital Elevation Map (DEM)	5.8998
Temperature seasonality (stdev * 100)	5.8467
Precipitation of warmest quarter	5.5212
Phenology; Low of season (day number)	4.99
Annual precipitation	3.4932
Volume % of coarse fragments (> 2 mm)	3.1355
Phenology; End of Season (day number)	2.3861
Vegetation height (m)	1.9631
Soil pH (water)	1.7942
Phenology; Length of season (days)	1.6092
Potential Evapotranspiration	1.4387
Solar radiation	1.0386
Phenology; Peak of season (day number)	0.817
Phenology; NDVI mean	0.6148
Weight in % of silt particles (0.0002-0.05 mm)	0.5483
Soil organic carbon content (‰)	0.4488
Bulk density (kg/m³)	0.1981
Weight in % of sand particles (0.05-2 mm)	0.1626
Inundation; occurrence	0.0313
Cation Exchange Capacity of the soil	0.0254
Distance to water (rivers, lakes, sea)	0.0174
Phenology; Start of Season (day number)	0

S37 - [F31g] Corylus avellana scrub - distribution
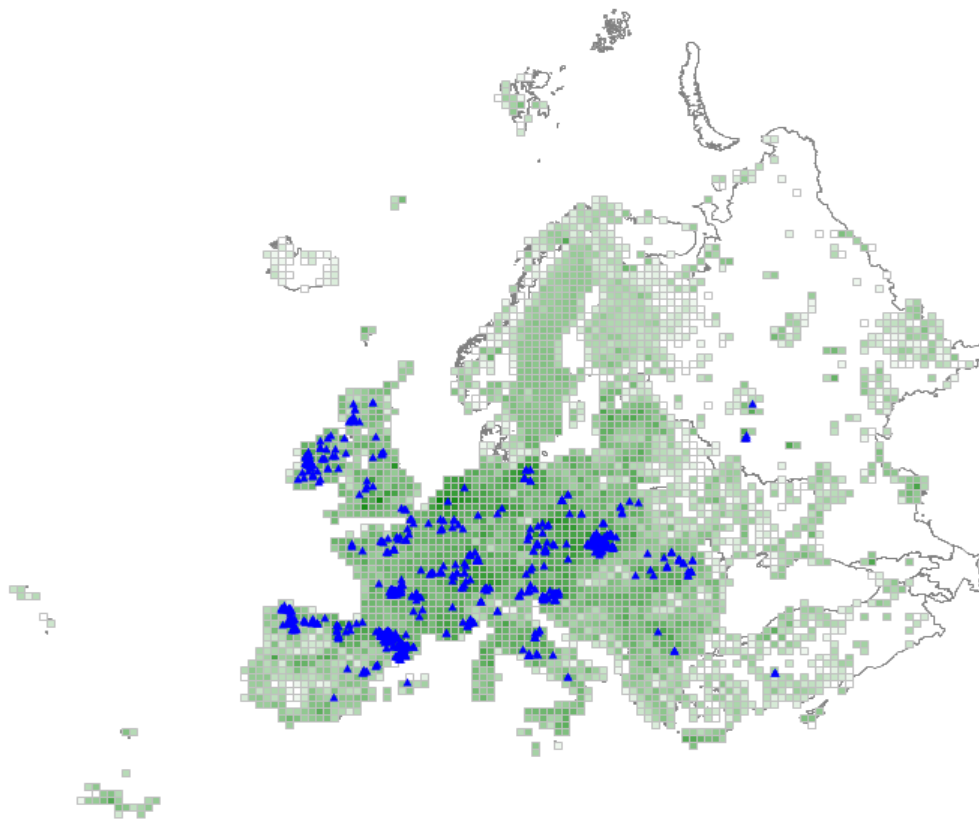
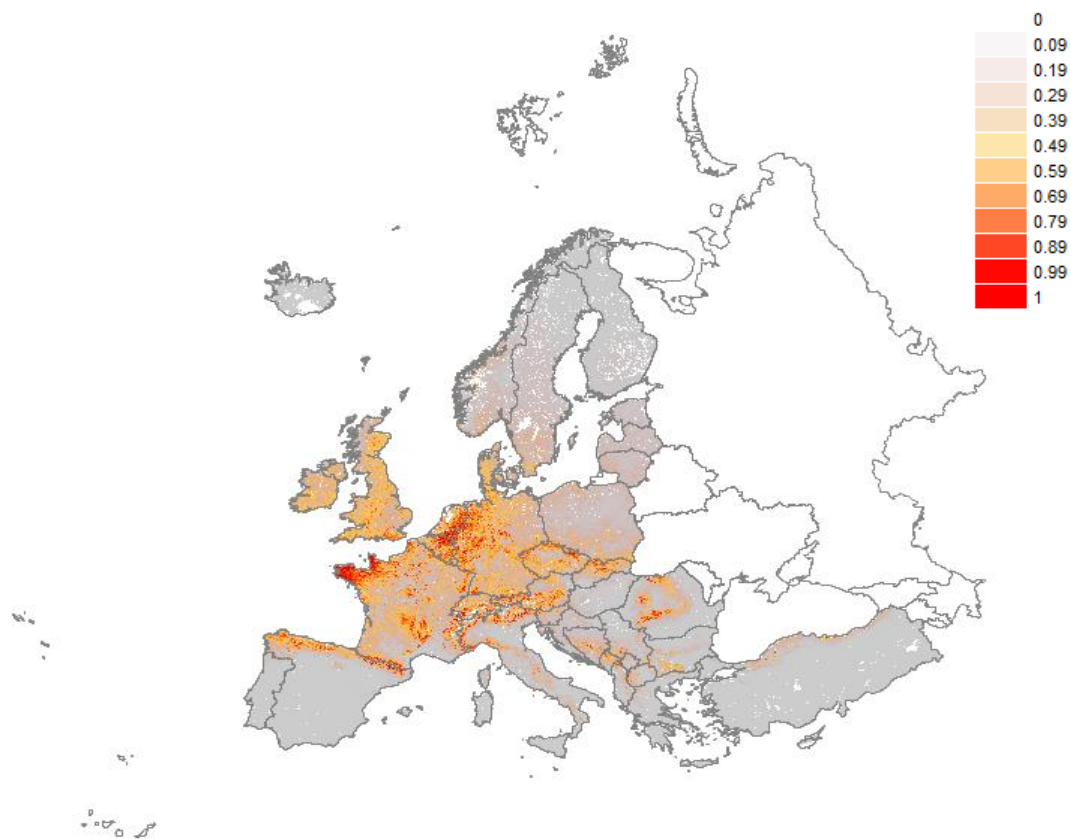## S37 - [F31g] Corylus avellana scrub - suitability
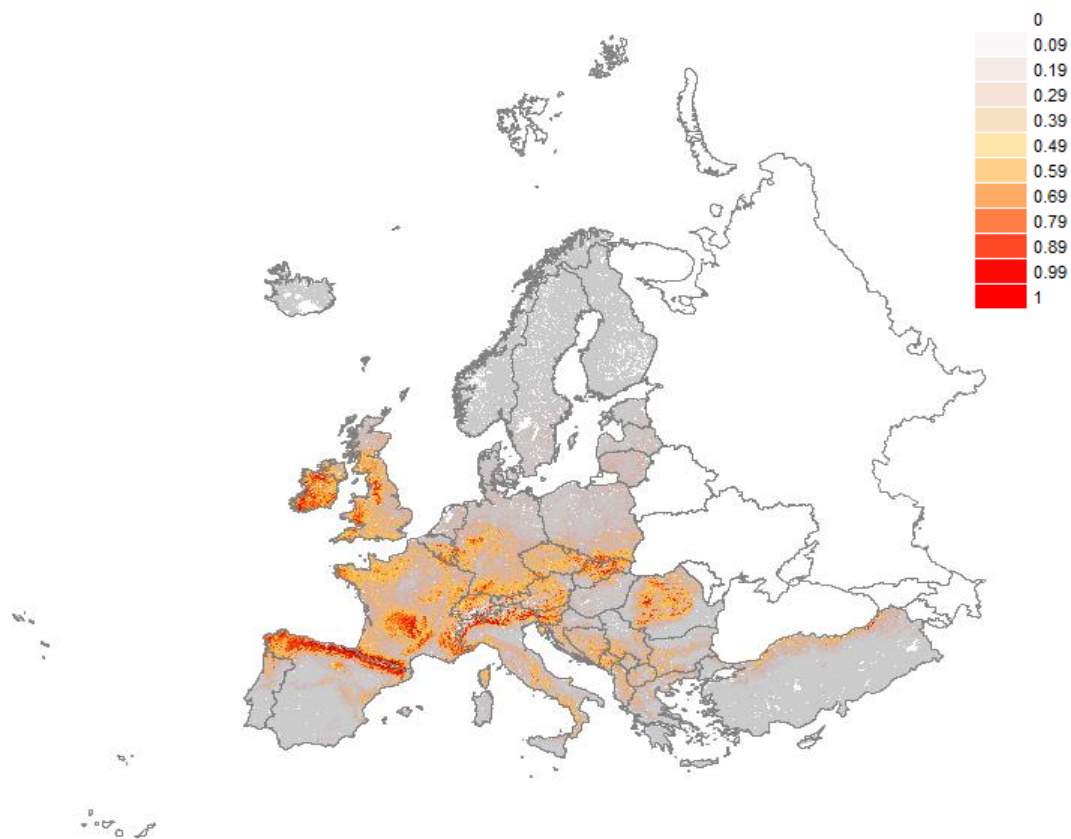
Statistics from Maxent modelling

AUC training (0-1)	0.8877
AUC test (0-1)	0.8751
Contribution variables to the Maxent model (%)	
Annual precipitation	17.9791
Precipitation of warmest quarter	16.2514
Weight in % of clay particles (<0.0002 mm)	15.3174
Potential Evapotranspiration	9.2177
Volume % of coarse fragments (> 2 mm)	8.9662
Temperature seasonality (stdev * 100)	6.5913
Phenology; Length of season (days)	4.9551
Bulk density (kg/m³)	4.1496
Soil pH (water)	3.3772
Cation Exchange Capacity of the soil	1.8656
Digital Elevation Map (DEM)	1.8047
Distance to water (rivers, lakes, sea)	1.7594
Phenology; NDVI mean	1.6382
Vegetation height (m)	1.2329
Phenology; End of Season (day number)	1.2015
Mean temperature of wettest quarter	0.986
Solar radiation	0.5725
Weight in % of silt particles (0.0002-0.05 mm)	0.4443
Phenology; NDVI seasonality	0.3844
Precipitation seasonality (coef. of var.)	0.3678
Soil organic carbon content (‰)	0.3324
Phenology; Low of season (day number)	0.2592
Phenology; Start of Season (day number)	0.163
Weight in % of sand particles (0.05-2 mm)	0.0861
Phenology; Peak of season (day number)	0.0624
Inundation; occurrence	0.0345

S38 - [F31h] Temperate forest clearing scrub - distribution
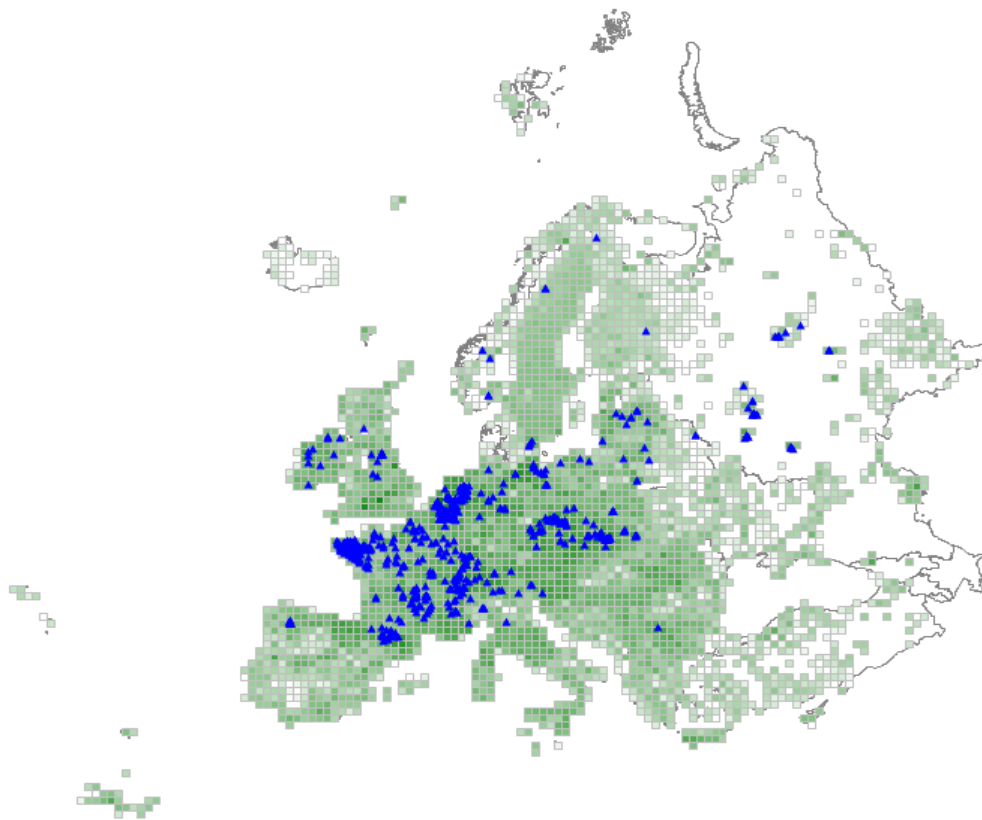
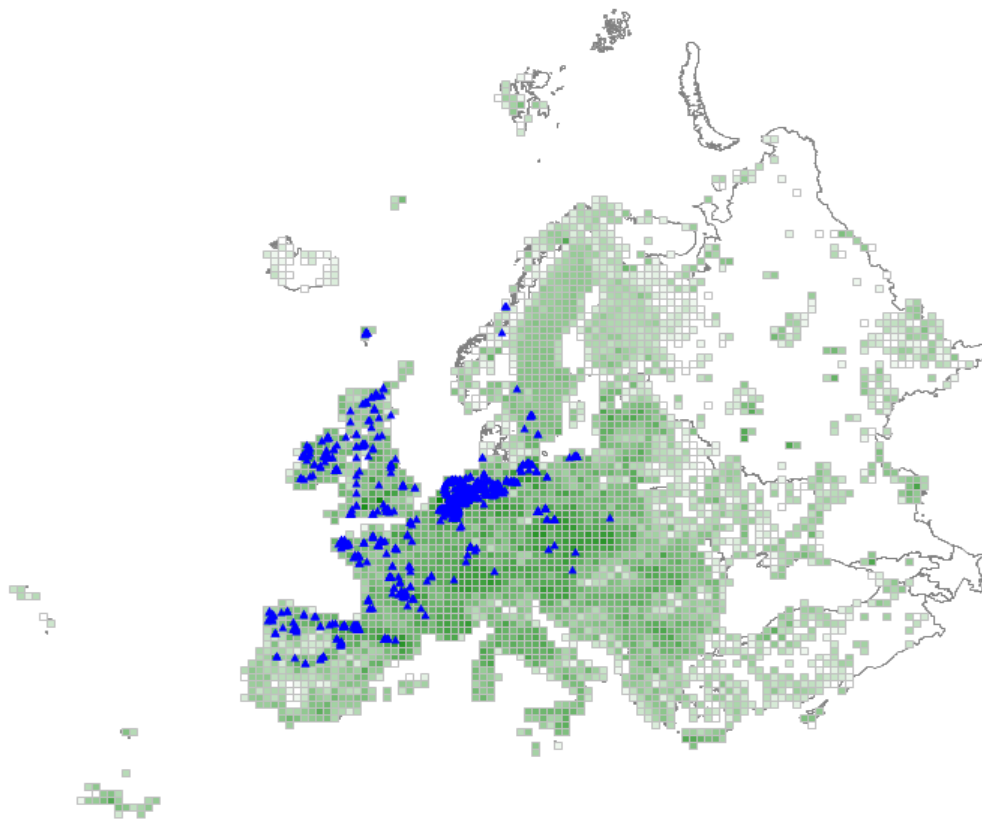**S38 - [F31h] Temperate forest clearing scrub - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.8963
AUC test (0-1)	0.9036
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	23.1616
Temperature seasonality (stdev * 100)	22.8463
Soil pH (water)	16.8651
Potential Evapotranspiration	13.7855
Phenology; NDVI mean	3.1677
Weight in % of silt particles (0.0002-0.05 mm)	2.9057
Cation Exchange Capacity of the soil	2.0794
Vegetation height (m)	1.7932
Mean temperature of wettest quarter	1.6774
Weight in % of sand particles (0.05-2 mm)	1.4959
Digital Elevation Map (DEM)	1.4808
Phenology; Low of season (day number)	1.3188
Phenology; End of Season (day number)	1.2491
Soil organic carbon content (‰)	1.1893
Precipitation seasonality (coef. of var.)	1.0224
Annual precipitation	0.8931
Bulk density (kg/m³)	0.7444
Phenology; Peak of season (day number)	0.642
Volume % of coarse fragments (> 2 mm)	0.6202
Weight in % of clay particles (<0.0002 mm)	0.5912
Phenology; NDVI seasonality	0.2298
Solar radiation	0.1059
Inundation; occurrence	0.0506
Phenology; Length of season (days)	0.05
Phenology; Start of Season (day number)	0.0274
Distance to water (rivers, lakes, sea)	0.0072

Comparison of distribution with Red List maps by John Janssen

Not assessed; mainly anthropogenic
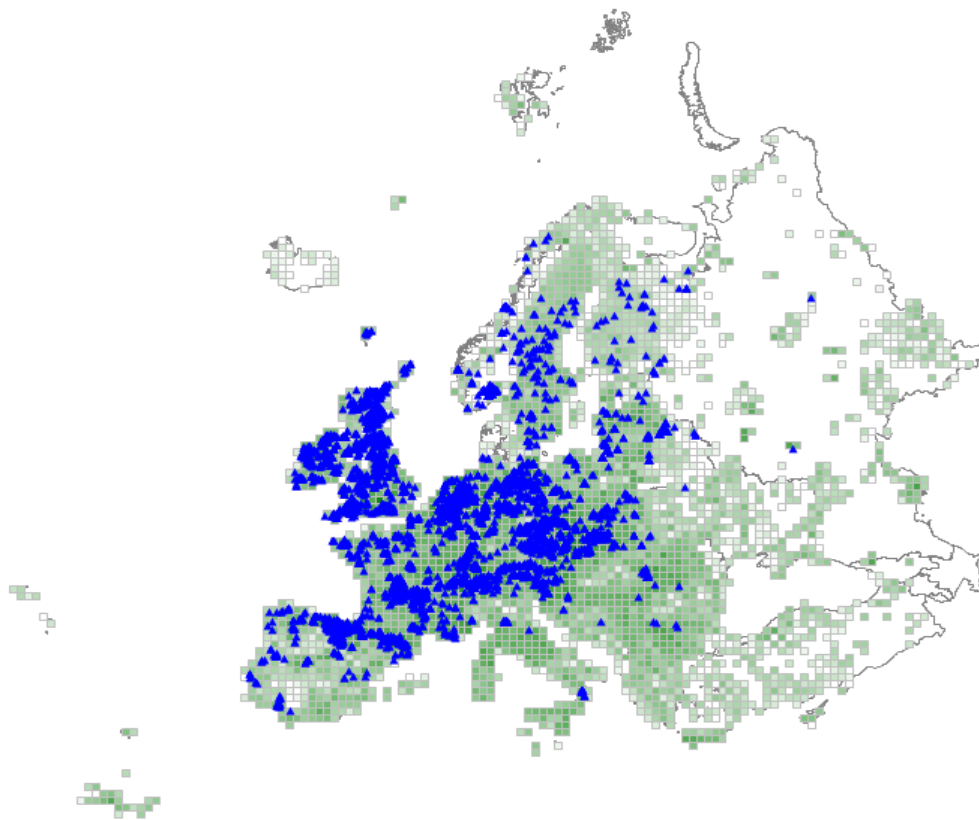
S41 - [F41] Wet heath - distribution
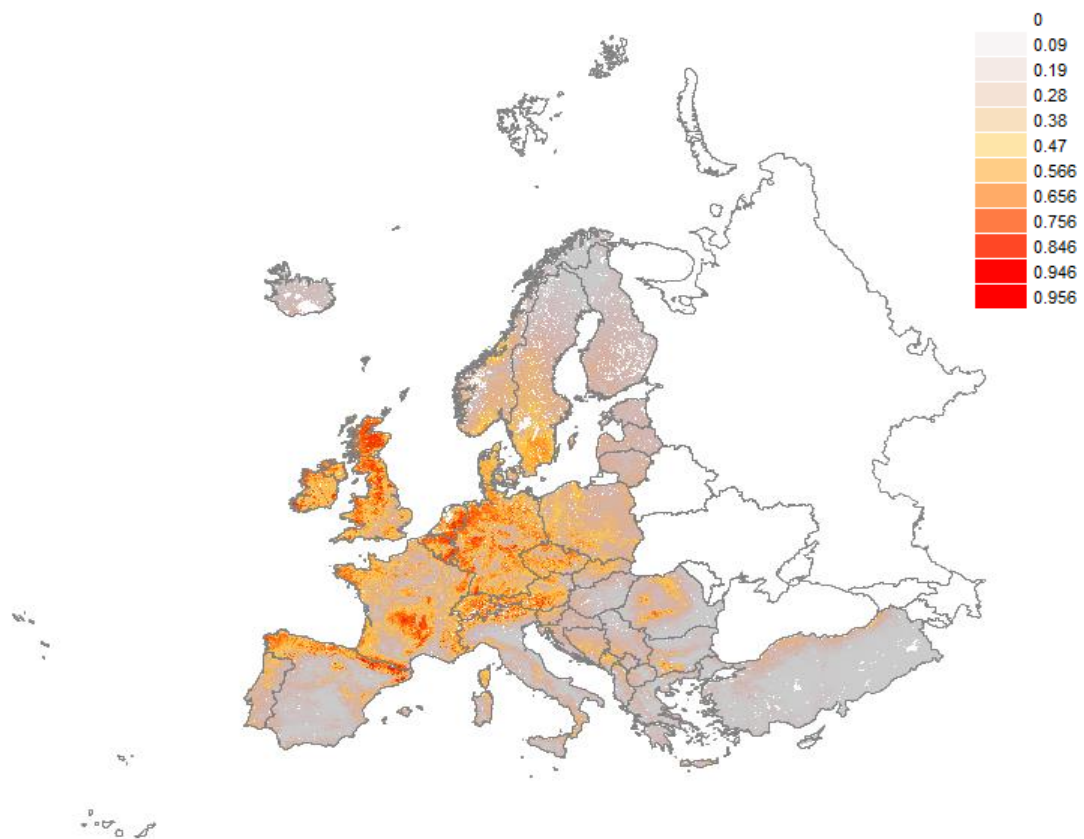

S41 - [F41] Wet heath - suitability
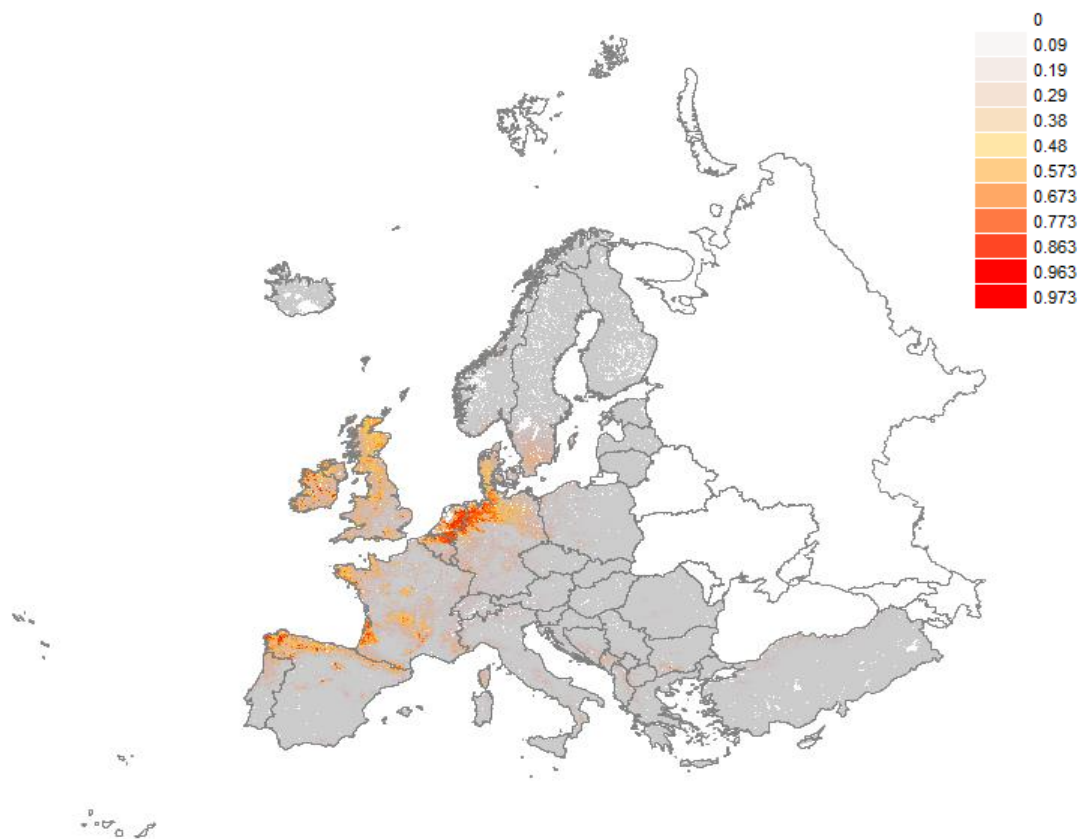
Statistics from Maxent modelling

|	
AUC training (0-1)	0.9138
AUC test (0-1)	0.9177
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	35.4425
Weight in % of sand particles (0.05-2 mm)	20.7294
Soil pH (water)	11.0961
Digital Elevation Map (DEM)	9.2133
Weight in % of silt particles (0.0002-0.05 mm)	6.4081
Potential Evapotranspiration	3.7134
Bulk density (kg/m³)	3.2721
Phenology; Low of season (day number)	2.6789
Weight in % of clay particles (<0.0002 mm)	1.6348
Phenology; Peak of season (day number)	1.2188
Phenology; End of Season (day number)	1.0133
Phenology; NDVI mean	0.8537
Phenology; Length of season (days)	0.7824
Precipitation of warmest quarter	0.4821
Precipitation seasonality (coef. of var.)	0.4235
Volume % of coarse fragments (> 2 mm)	0.2786
Vegetation height (m)	0.1931
Soil organic carbon content (‰)	0.1662
Phenology; Start of Season (day number)	0.1244
Distance to water (rivers, lakes, sea)	0.1072
Annual precipitation	0.0811
Inundation; occurrence	0.0363
Mean temperature of wettest quarter	0.0356
Phenology; NDVI seasonality	0.0152
Cation Exchange Capacity of the soil	0
Solar radiation	0

S42 - [F42] Dry heath - distribution

S42 - [F42] Dry heath - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.742
AUC test (0-1)	0.7448
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	35.4765
Soil pH (water)	34.7723
Potential Evapotranspiration	8.9127
Precipitation of warmest quarter	8.8834
Weight in % of silt particles (0.0002-0.05 mm)	2.6843
Precipitation seasonality (coef. of var.)	1.8341
Digital Elevation Map (DEM)	1.4604
Vegetation height (m)	1.2137
Weight in % of clay particles (<0.0002 mm)	1.1279
Bulk density (kg/m³)	0.7107
Phenology; Low of season (day number)	0.6406
Annual precipitation	0.4649
Weight in % of sand particles (0.05-2 mm)	0.2973
Mean temperature of wettest quarter	0.2809
Phenology; End of Season (day number)	0.2741
Phenology; Length of season (days)	0.2496
Phenology; Peak of season (day number)	0.2449
Soil organic carbon content (‰)	0.1381
Phenology; NDVI seasonality	0.0951
Volume % of coarse fragments (> 2 mm)	0.0664
Solar radiation	0.0619
Phenology; NDVI mean	0.0449
Inundation; occurrence	0.0283
Distance to water (rivers, lakes, sea)	0.0167
Phenology; Start of Season (day number)	0.011
Cation Exchange Capacity of the soil	0.0095

S43 - [F43] Macaronesian heath - distribution
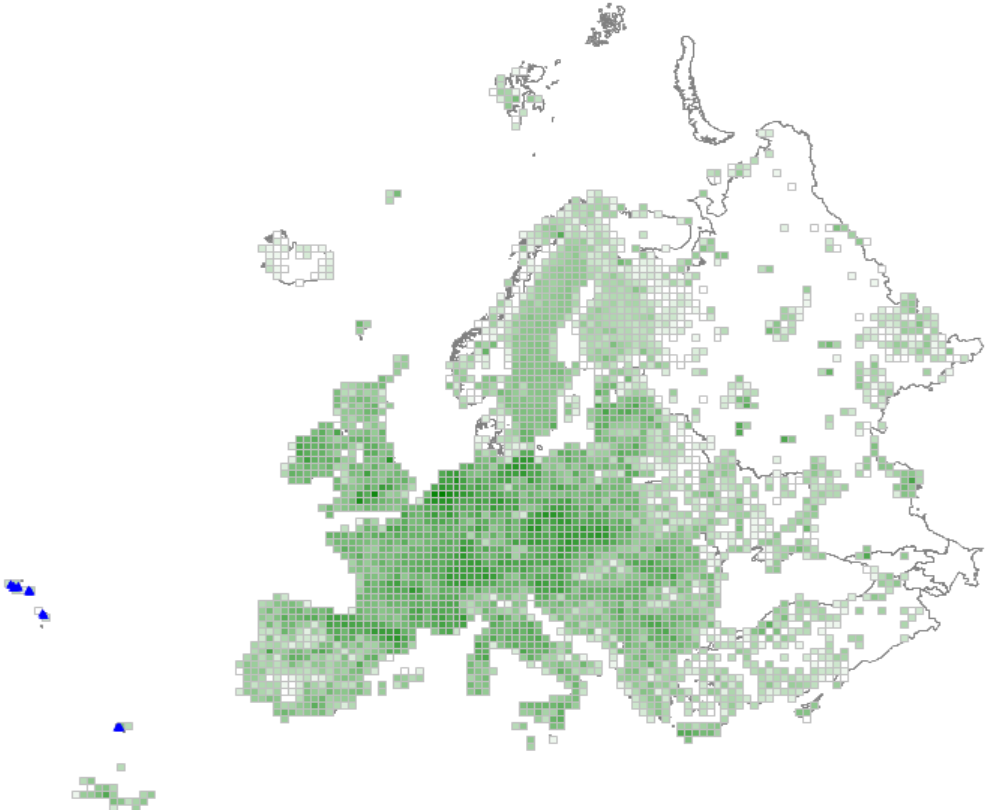
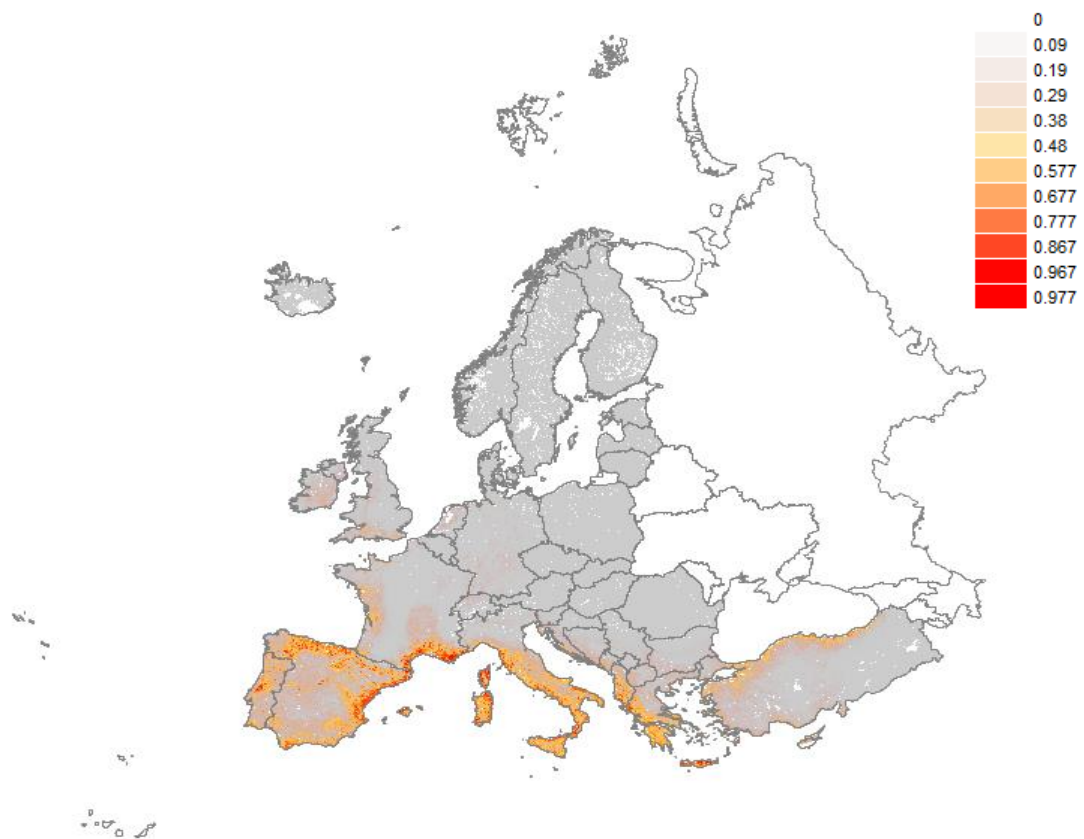**S43 - [F43] Macaronesian heath - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

S51 - [F51] Mediterranean maquis and arborescent matorral - distribution
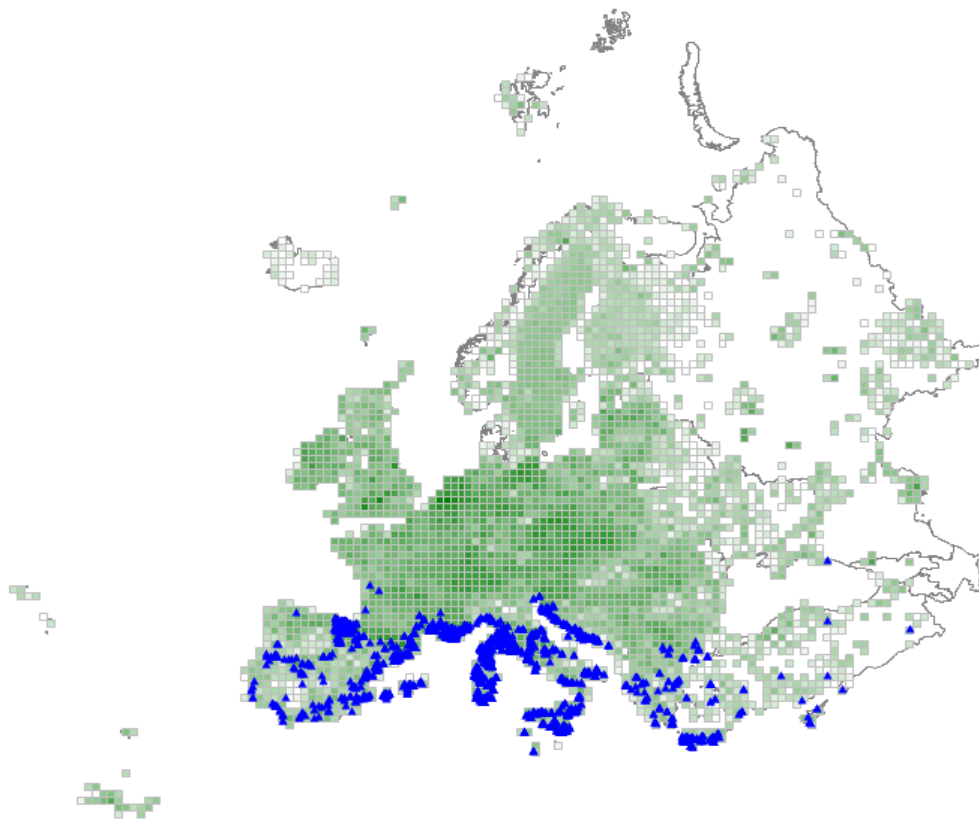
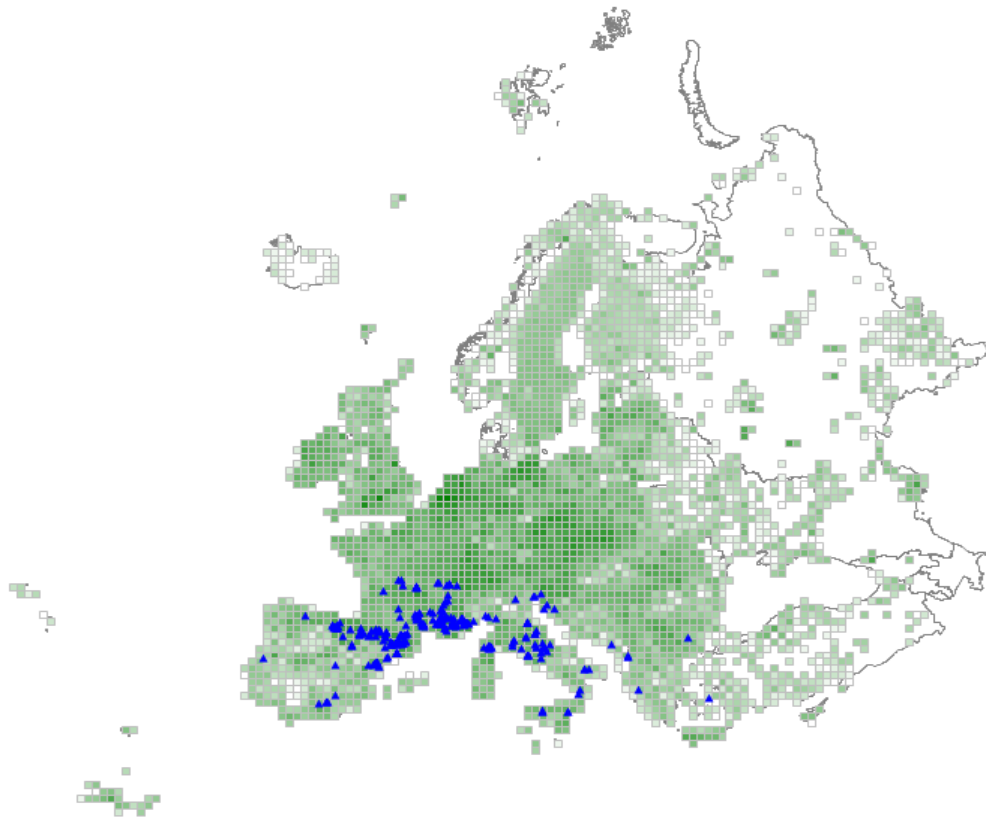**S51 - [F51] Mediterranean maquis and arborescent matorral - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.8981
AUC test (0-1)	0.8961
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	32.9026
Phenology; End of Season (day number)	14.2822
Weight in % of clay particles (<0.0002 mm)	12.345
Potential Evapotranspiration	6.843
Phenology; Start of Season (day number)	5.4863
Precipitation seasonality (coef. of var.)	4.6095
Weight in % of sand particles (0.05-2 mm)	4.5375
Phenology; NDVI seasonality	4.5132
Phenology; Length of season (days)	2.9913
Phenology; Peak of season (day number)	1.8182
Vegetation height (m)	1.764
Soil pH (water)	1.6638
Cation Exchange Capacity of the soil	1.2143
Phenology; Low of season (day number)	1.0745
Weight in % of silt particles (0.0002-0.05 mm)	1.0145
Precipitation of warmest quarter	0.7546
Soil organic carbon content (‰)	0.632
Volume % of coarse fragments (> 2 mm)	0.4349
Phenology; NDVI mean	0.3598
Bulk density (kg/m³)	0.1739
Solar radiation	0.1582
Annual precipitation	0.1372
Digital Elevation Map (DEM)	0.1271
Mean temperature of wettest quarter	0.0843
Distance to water (rivers, lakes, sea)	0.0767
Inundation; occurrence	0.0014

**S52 - [F53] Submediterranean pseudomaquis - distribution**

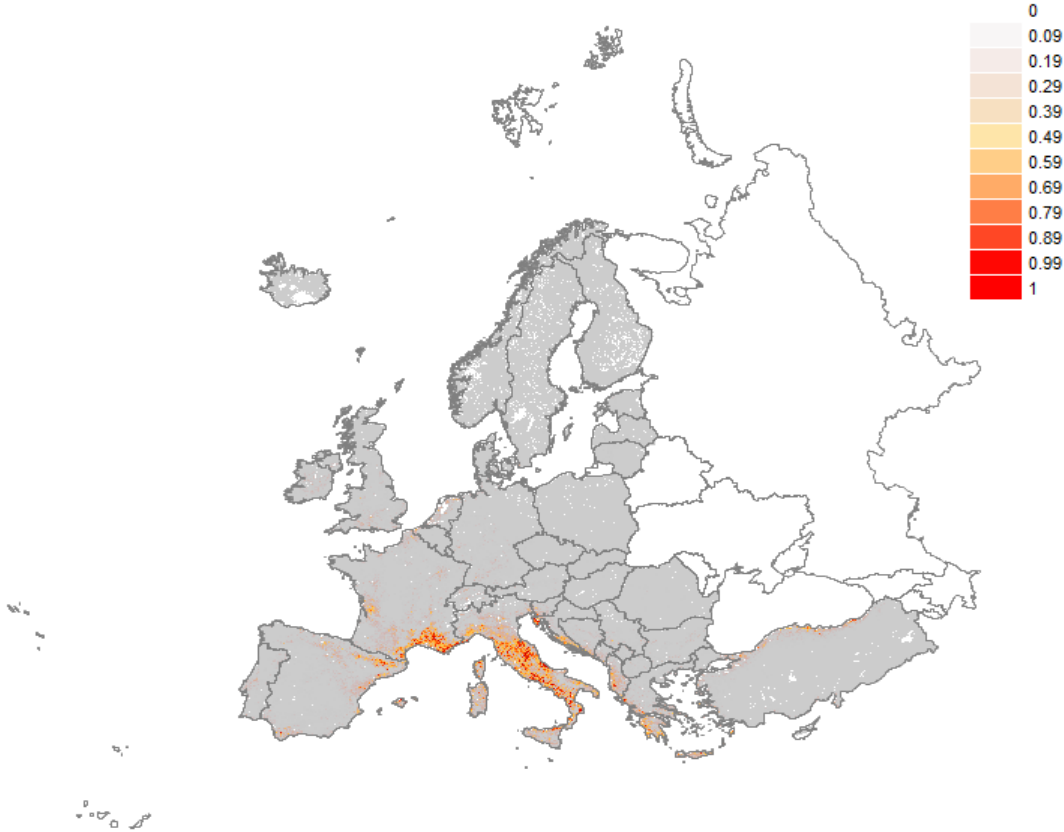**S52 - [F53] Submediterranean pseudomaquis - suitability**
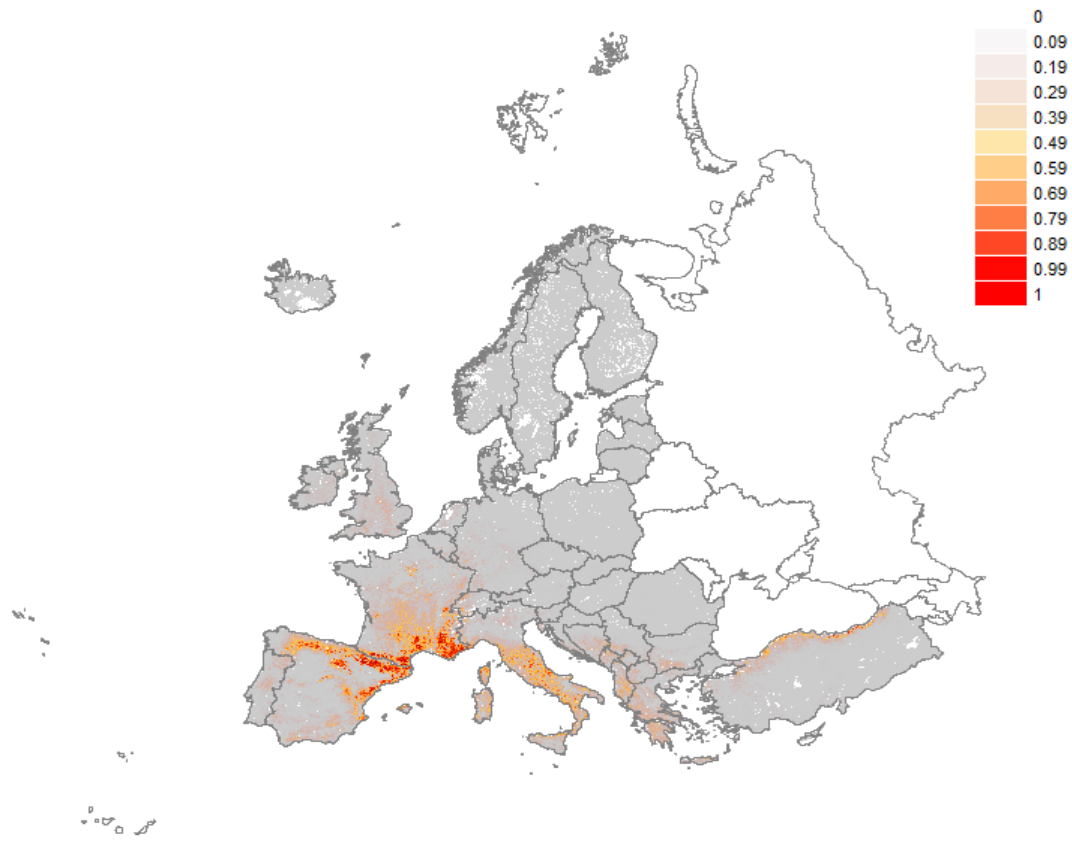
Statistics from Maxent modelling

AUC training (0-1)	0.9621
AUC test (0-1)	0.9397
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	22.7086
Volume % of coarse fragments (> 2 mm)	17.6895
Weight in % of clay particles (<0.0002 mm)	13.0613
Precipitation of warmest quarter	9.9902
Phenology; NDVI seasonality	7.5159
Potential Evapotranspiration	5.5016
Vegetation height (m)	3.9661
Phenology; End of Season (day number)	3.1917
Digital Elevation Map (DEM)	3.1058
Weight in % of silt particles (0.0002-0.05 mm)	2.4355
Precipitation seasonality (coef. of var.)	1.8255
Solar radiation	1.6495
Cation Exchange Capacity of the soil	1.2042
Soil pH (water)	1.1684
Weight in % of sand particles (0.05-2 mm)	1.1072
Phenology; Length of season (days)	1.0539
Phenology; NDVI mean	0.7536
Annual precipitation	0.5966
Mean temperature of wettest quarter	0.3785
Distance to water (rivers, lakes, sea)	0.2643
Phenology; Low of season (day number)	0.2421
Soil organic carbon content (‰)	0.2248
Phenology; Start of Season (day number)	0.2144
Phenology; Peak of season (day number)	0.1215
Bulk density (kg/m³)	0.0292
Inundation; occurrence	0

S53 - [F54] Spartium junceum scrub - distribution
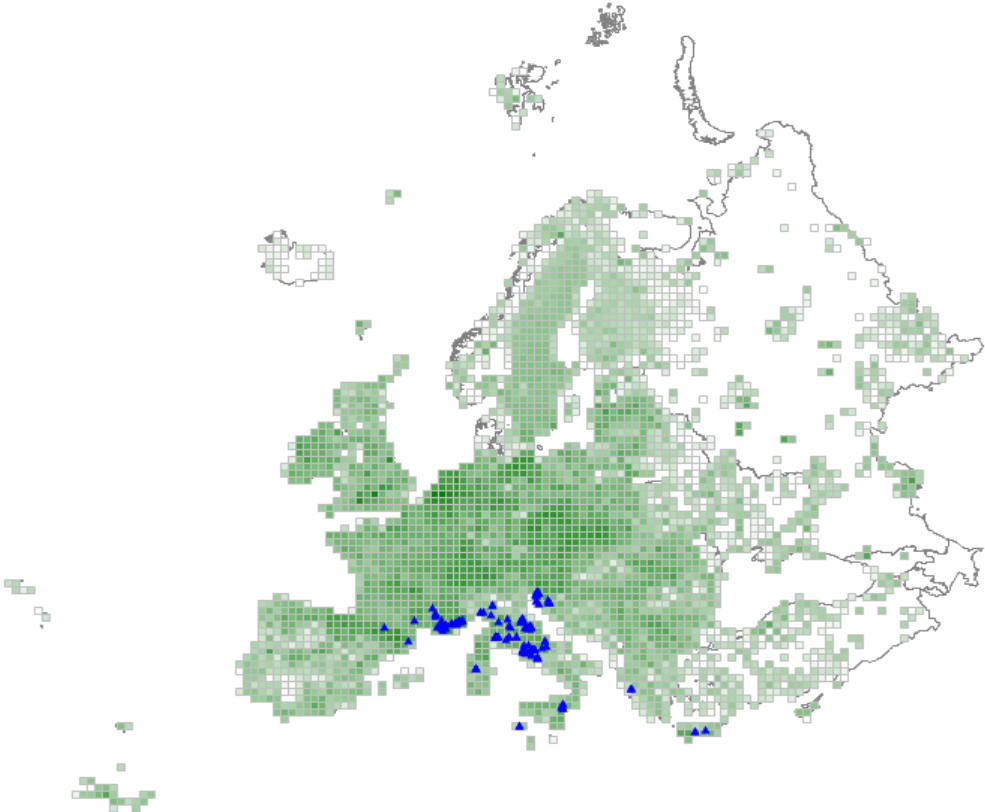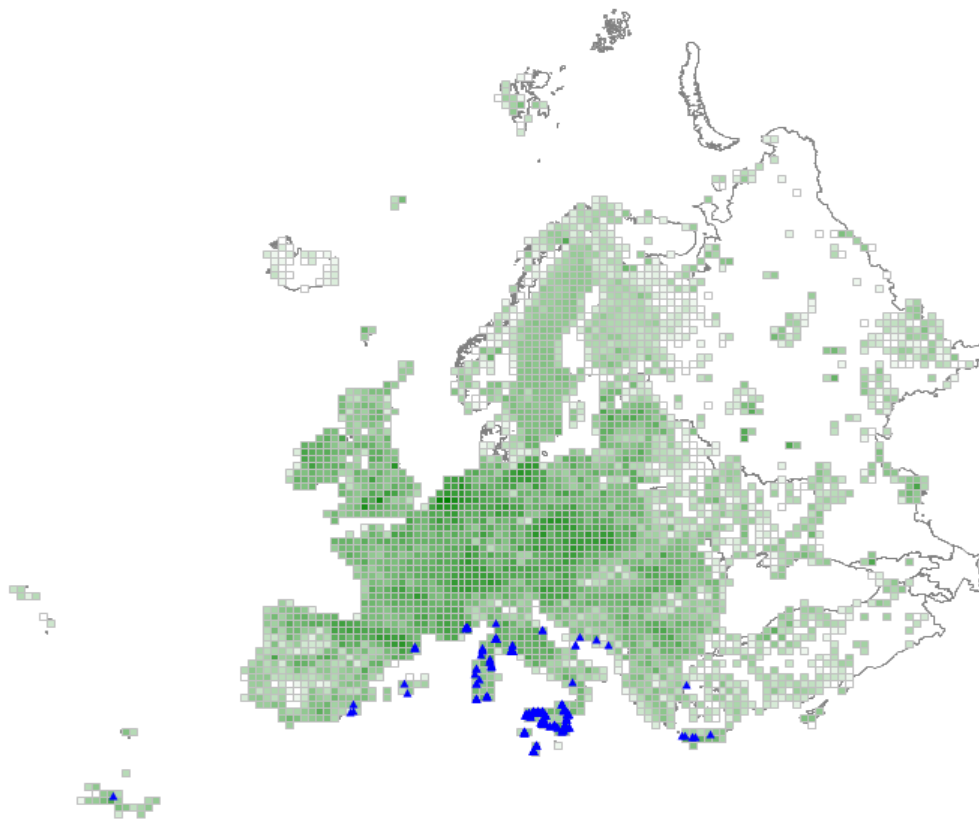

S53 - [F54] Spartium junceum scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9821
AUC test (0-1)	0.9811
Contribution variables to the Maxent model (%)	
Soil pH (water)	20.5322
Mean temperature of wettest quarter	16.1469
Weight in % of clay particles (<0.0002 mm)	15.3746
Temperature seasonality (stdev * 100)	11.975
Annual precipitation	10.3466
Phenology; Length of season (days)	9.9826
Potential Evapotranspiration	3.8054
Precipitation seasonality (coef. of var.)	2.5618
Phenology; NDVI seasonality	2.0416
Precipitation of warmest quarter	1.2325
Phenology; Low of season (day number)	1.1682
Phenology; NDVI mean	1.092
Volume % of coarse fragments (> 2 mm)	0.66
Vegetation height (m)	0.6441
Phenology; End of Season (day number)	0.5311
Digital Elevation Map (DEM)	0.5068
Weight in % of silt particles (0.0002-0.05 mm)	0.3632
Bulk density (kg/m³)	0.2889
Soil organic carbon content (‰)	0.244
Phenology; Peak of season (day number)	0.1561
Distance to water (rivers, lakes, sea)	0.133
Phenology; Start of Season (day number)	0.1193
Cation Exchange Capacity of the soil	0.0755
Weight in % of sand particles (0.05-2 mm)	0.0146
Solar radiation	0.0039
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

Not assessed; mainly anthropogenic

## S54 - [F55] Thermomediterranean arid scrub - distribution

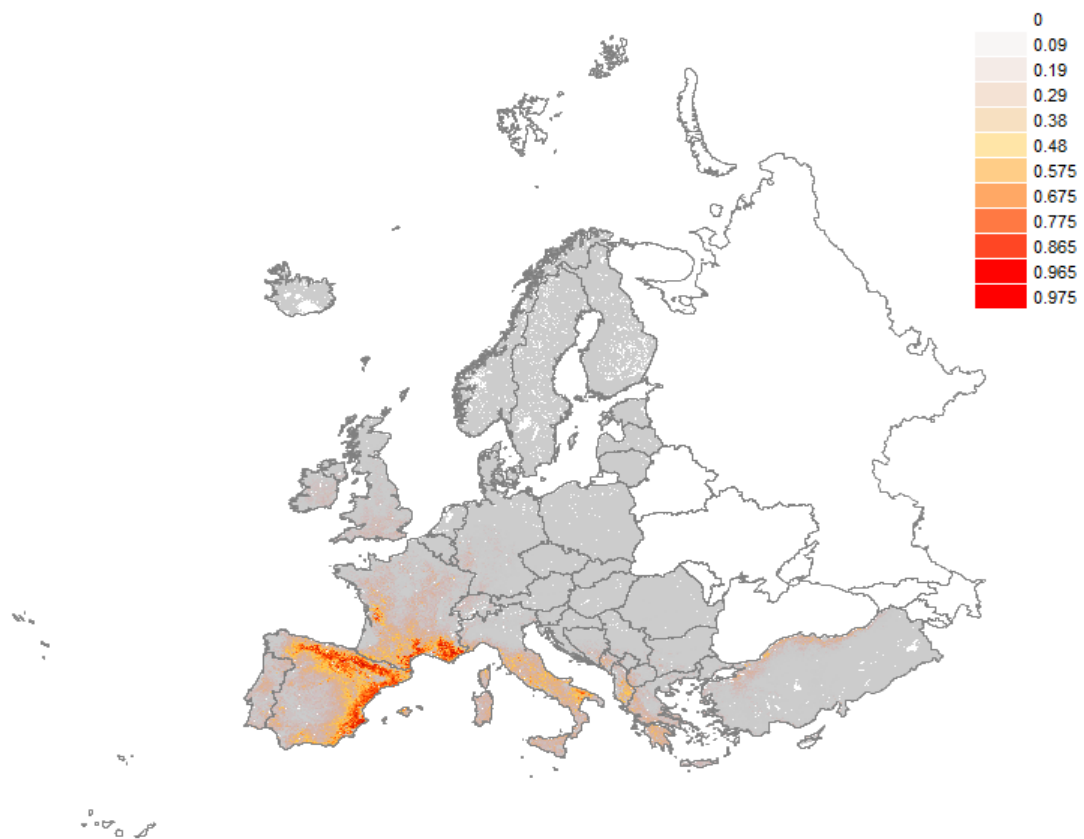## S54 - [F55] Thermomediterranean arid scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9958
AUC test (0-1)	0.9945
Contribution variables to the Maxent model (%)	
Phenology; Start of Season (day number)	29.7806
Precipitation seasonality (coef. of var.)	26.608
Temperature seasonality (stdev * 100)	15.9344
Mean temperature of wettest quarter	10.5184
Weight in % of clay particles (<0.0002 mm)	7.0866
Soil organic carbon content (‰)	2.8723
Phenology; Peak of season (day number)	1.0935
Annual precipitation	0.9797
Cation Exchange Capacity of the soil	0.945
Bulk density (kg/m³)	0.7304
Potential Evapotranspiration	0.654
Phenology; NDVI mean	0.646
Phenology; NDVI seasonality	0.4762
Soil pH (water)	0.4654
Precipitation of warmest quarter	0.2601
Solar radiation	0.2244
Volume % of coarse fragments (> 2 mm)	0.2171
Vegetation height (m)	0.165
Weight in % of silt particles (0.0002-0.05 mm)	0.1405
Distance to water (rivers, lakes, sea)	0.1215
Phenology; Low of season (day number)	0.0808
Digital Elevation Map (DEM)	0
Weight in % of sand particles (0.05-2 mm)	0
Phenology; Length of season (days)	0
Inundation; occurrence	0
Phenology; End of Season (day number)	0

S61 - [F61a] Western basiphilous garrigue - distribution
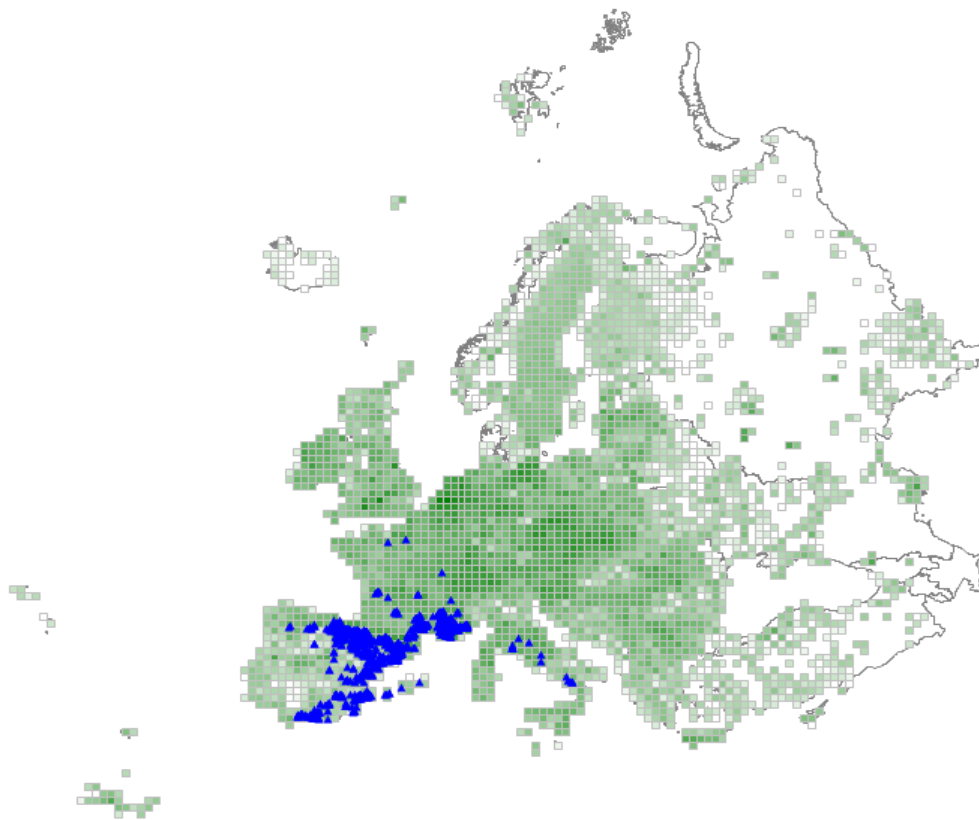
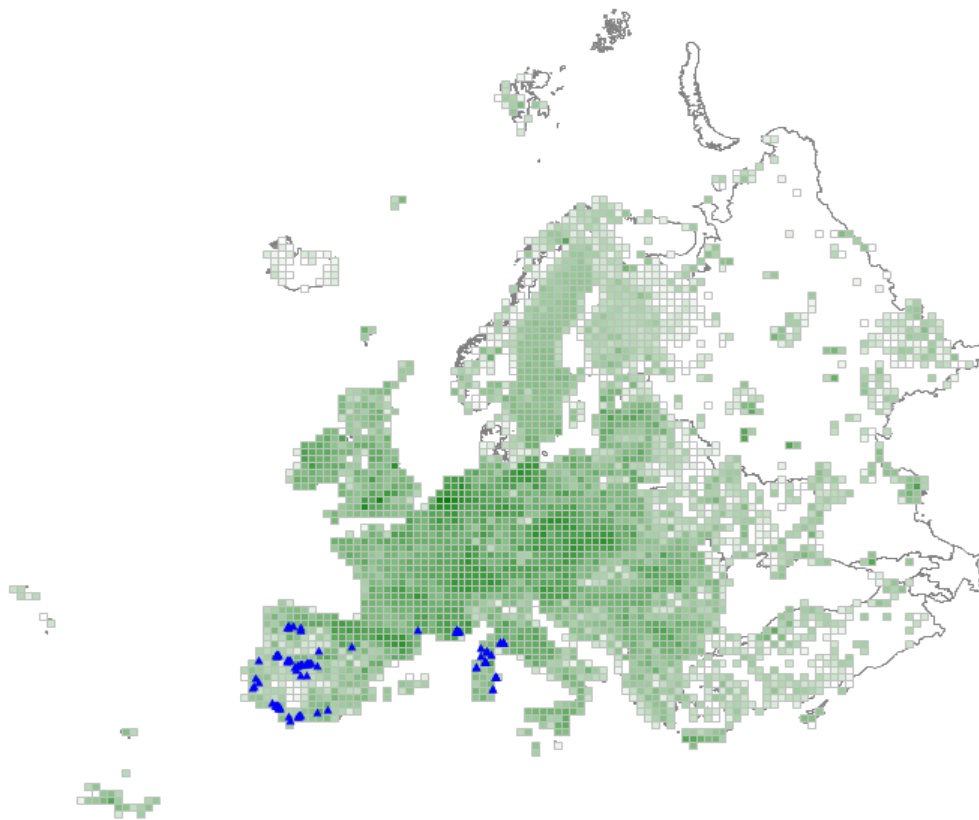# S61 - [F61a] Western basiphilous garrigue - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9163
AUC test (0-1)	0.9152
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	33.6074
Volume % of coarse fragments (> 2 mm)	20.3122
Soil pH (water)	13.091
Potential Evapotranspiration	10.2129
Phenology; End of Season (day number)	6.1525
Precipitation seasonality (coef. of var.)	3.5398
Precipitation of warmest quarter	2.9949
Phenology; NDVI seasonality	2.7299
Weight in % of clay particles (<0.0002 mm)	1.5065
Phenology; NDVI mean	1.1042
Digital Elevation Map (DEM)	0.9926
Phenology; Peak of season (day number)	0.7329
Weight in % of silt particles (0.0002-0.05 mm)	0.6775
Phenology; Length of season (days)	0.5953
Annual precipitation	0.4436
Weight in % of sand particles (0.05-2 mm)	0.3964
Cation Exchange Capacity of the soil	0.2509
Bulk density (kg/m³)	0.2275
Solar radiation	0.139
Phenology; Start of Season (day number)	0.1037
Soil organic carbon content (‰)	0.09
Mean temperature of wettest quarter	0.0545
Phenology; Low of season (day number)	0.0291
Vegetation height (m)	0.0116
Inundation; occurrence	0.0017
Distance to water (rivers, lakes, sea)	0.0023

Comparison of distribution with Red List maps by John Janssen

The EUNIS map is slightly broader, but this is caused by different data selection

## S62 - [F61b] Western acidophilous garrigue - distribution

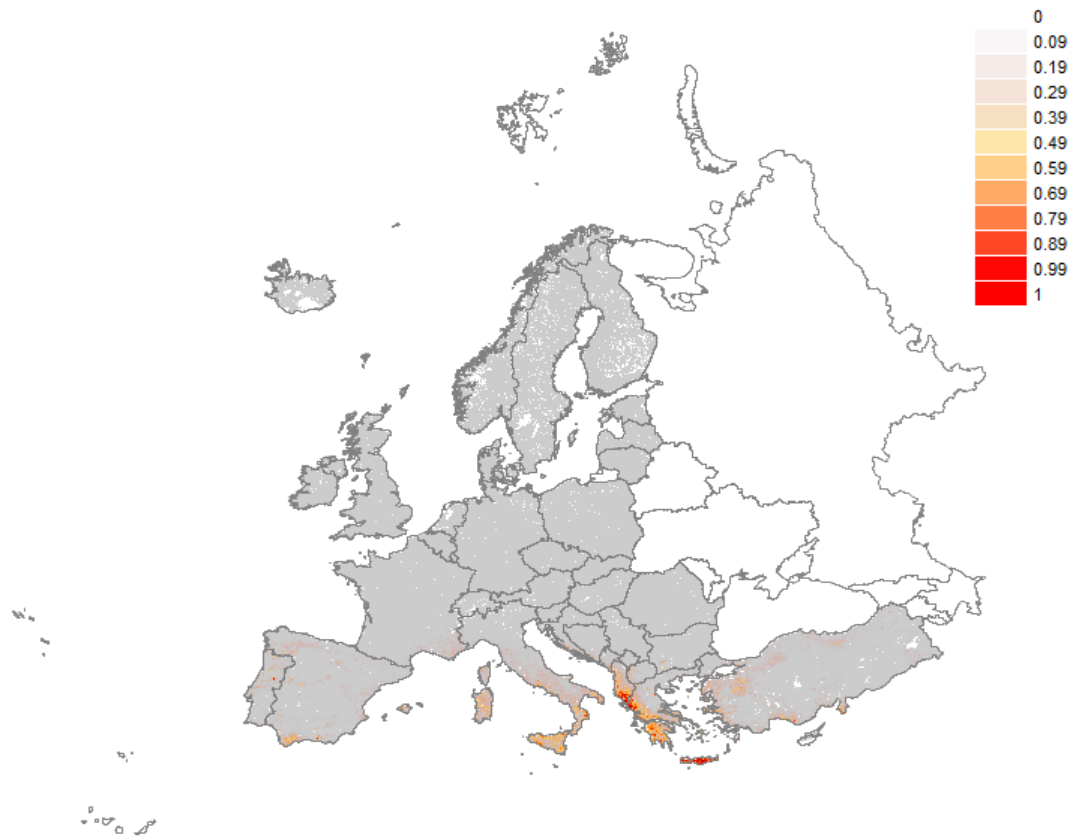## S62 - [F61b] Western acidophilous garrigue - suitability
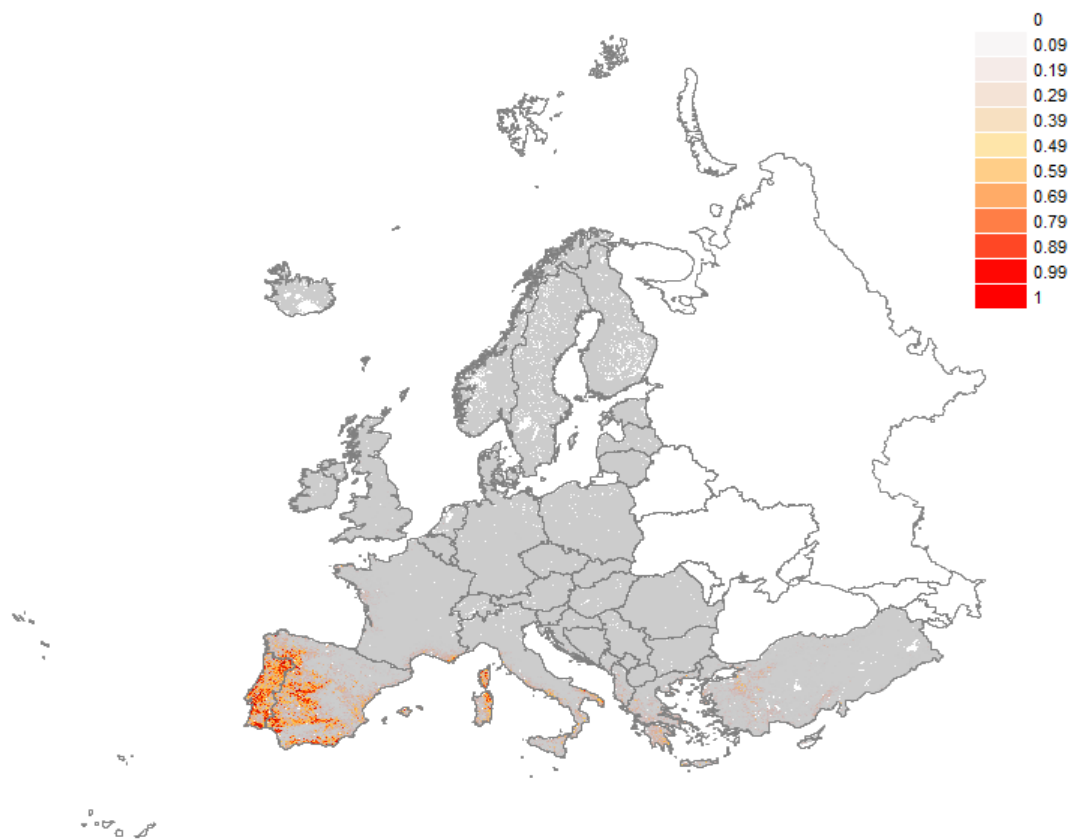
Statistics from Maxent modelling

AUC training (0-1)	0.9841
AUC test (0-1)	0.9678
Contribution variables to the Maxent model (%)	
Phenology; Start of Season (day number)	49.6513
Phenology; Peak of season (day number)	9.5215
Temperature seasonality (stdev * 100)	8.8434
Precipitation seasonality (coef. of var.)	8.4994
Soil pH (water)	6.6192
Phenology; NDVI seasonality	3.9104
Precipitation of warmest quarter	2.1123
Weight in % of sand particles (0.05-2 mm)	1.8864
Annual precipitation	1.8491
Distance to water (rivers, lakes, sea)	1.3636
Phenology; NDVI mean	1.3237
Phenology; End of Season (day number)	1.0293
Digital Elevation Map (DEM)	0.8484
Volume % of coarse fragments (> 2 mm)	0.6344
Mean temperature of wettest quarter	0.5858
Weight in % of clay particles (<0.0002 mm)	0.5002
Bulk density (kg/m³)	0.3752
Phenology; Length of season (days)	0.1501
Soil organic carbon content (‰)	0.1362
Potential Evapotranspiration	0.0684
Phenology; Low of season (day number)	0.0502
Weight in % of silt particles (0.0002-0.05 mm)	0.0399
Vegetation height (m)	0.0017
Inundation; occurrence	0
Solar radiation	0
Cation Exchange Capacity of the soil	0

S63 - [F62] Eastern garrigue - distribution
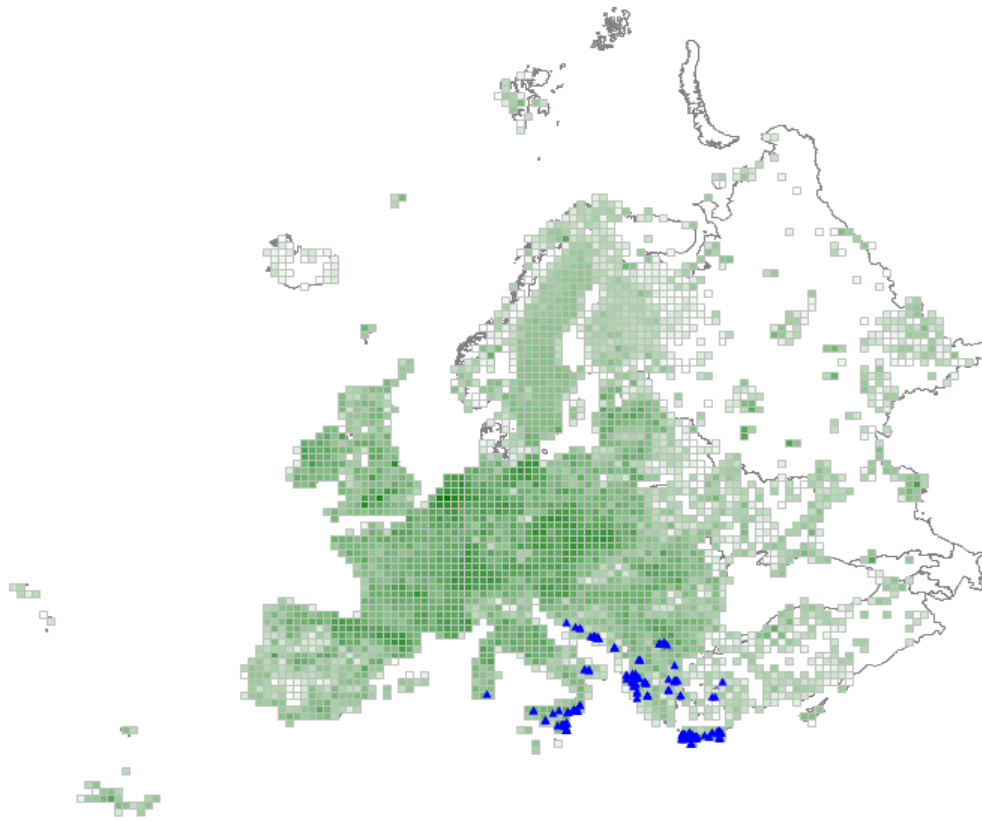
# S63 - [F62] Eastern garrigue - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9864
AUC test (0-1)	0.9689
Contribution variables to the Maxent model (%)	
Precipitation seasonality (coef. of var.)	26.5372
Annual precipitation	10.9918
Phenology; Start of Season (day number)	10.9289
Temperature seasonality (stdev * 100)	8.2632
Potential Evapotranspiration	7.3477
Bulk density (kg/m³)	6.0796
Weight in % of clay particles (<0.0002 mm)	5.7994
Precipitation of warmest quarter	5.7559
Cation Exchange Capacity of the soil	3.9205
Phenology; Length of season (days)	3.6259
Soil pH (water)	2.0366
Soil organic carbon content (‰)	1.8245
Phenology; End of Season (day number)	1.8012
Weight in % of sand particles (0.05-2 mm)	1.2846
Phenology; NDVI seasonality	0.9292
Mean temperature of wettest quarter	0.6949
Digital Elevation Map (DEM)	0.4949
Phenology; Peak of season (day number)	0.385
Phenology; Low of season (day number)	0.3628
Volume % of coarse fragments (> 2 mm)	0.2806
Phenology; NDVI mean	0.2495
Vegetation height (m)	0.175
Solar radiation	0.088
Distance to water (rivers, lakes, sea)	0.0607
Weight in % of silt particles (0.0002-0.05 mm)	0.0535
Inundation; occurrence	0.0289

Comparison of distribution with Red List maps by John Janssen

The boundary between western and eastern garrigue differs slightly for EUNIS and Red List

S64 - [F65] Macaronesian garrigue - distribution
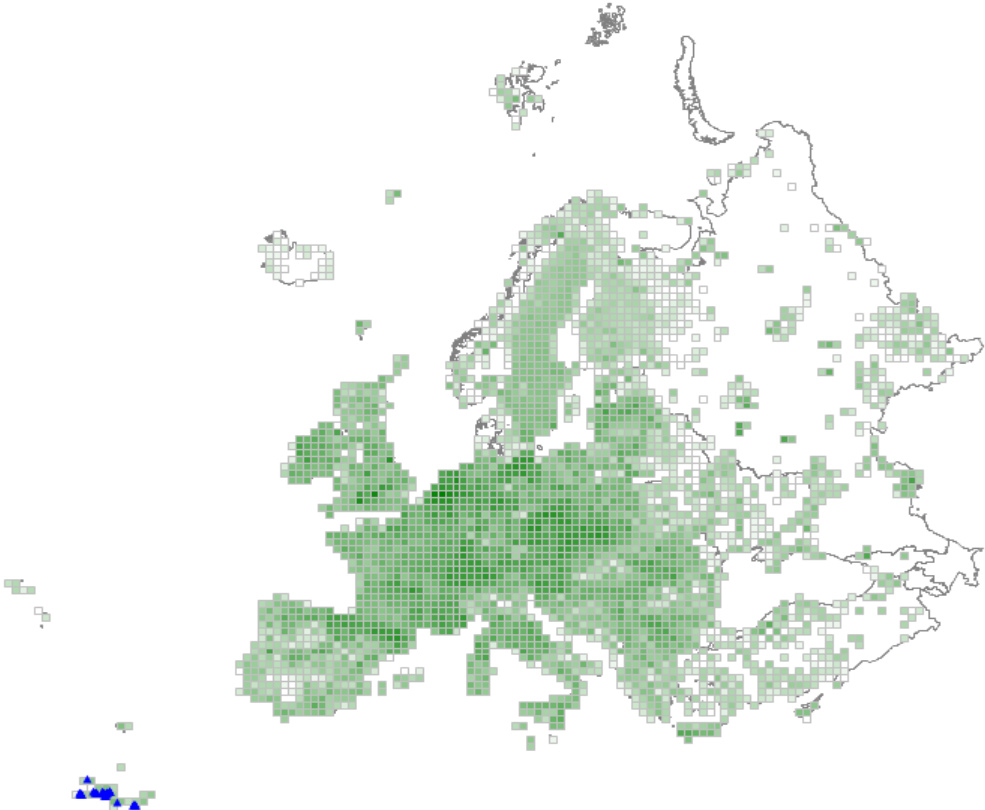
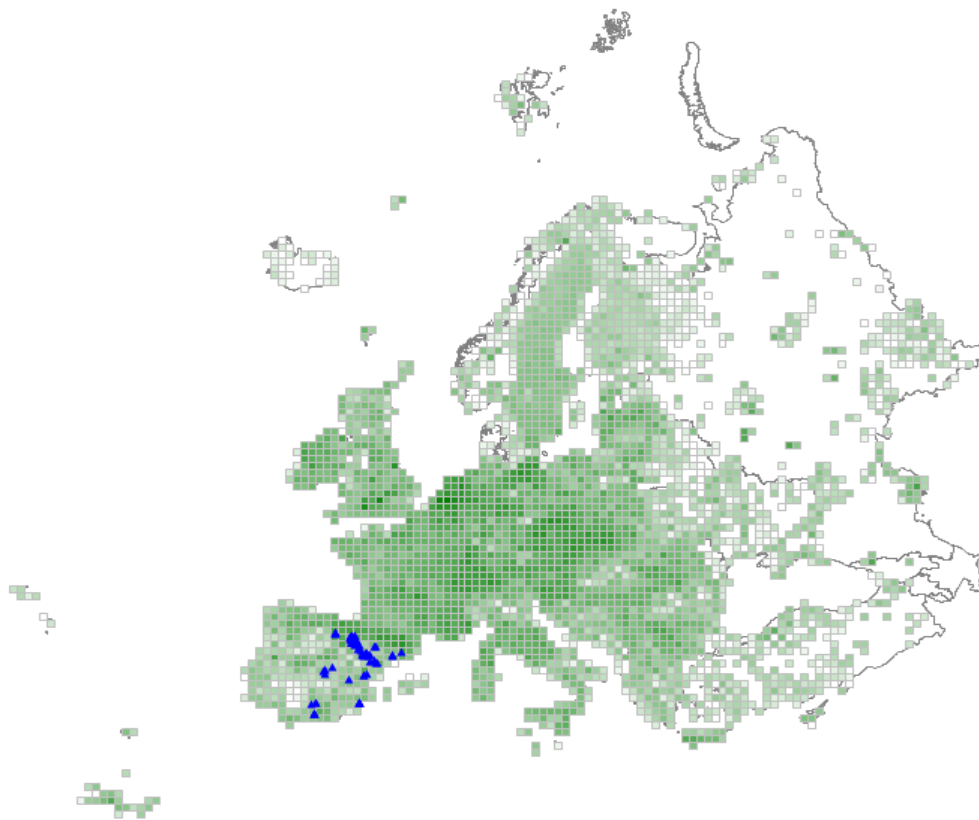**S64 - [F65] Macaronesian garrigue - suitability**

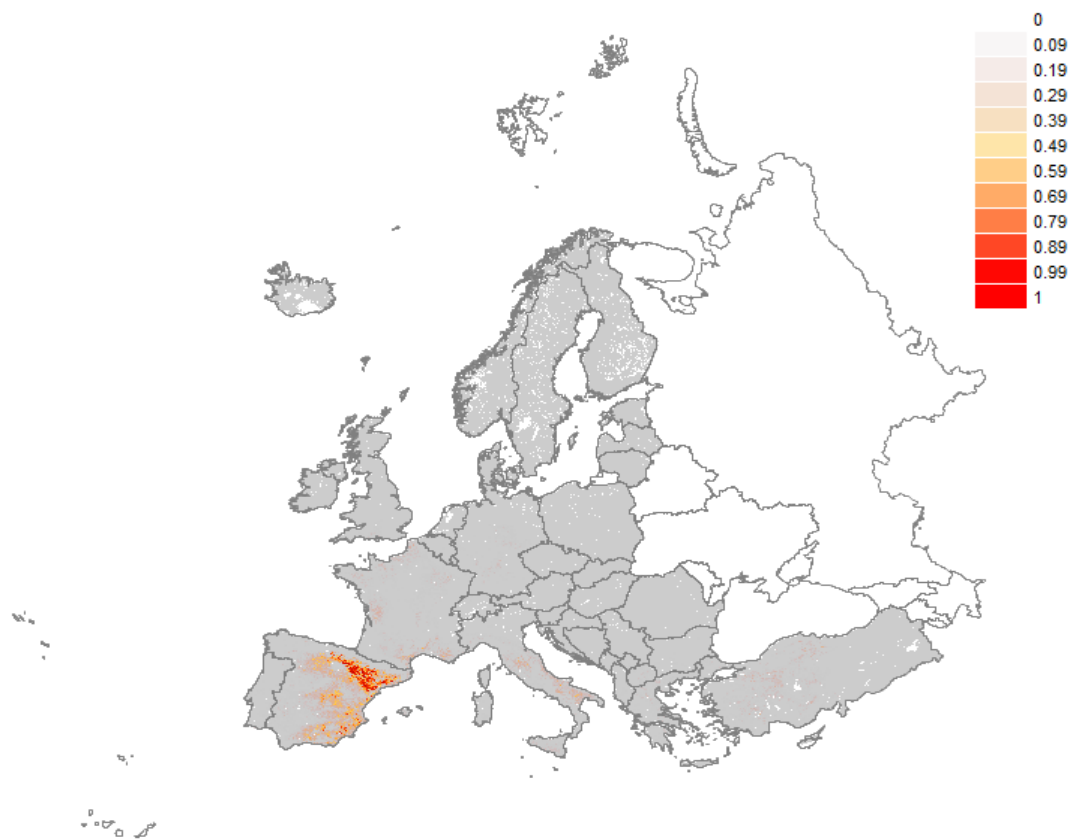Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not distinguished in Red List; no corresponding syntaxa known at that time

S65 - [F67] Mediterranean gypsum scrub - distribution

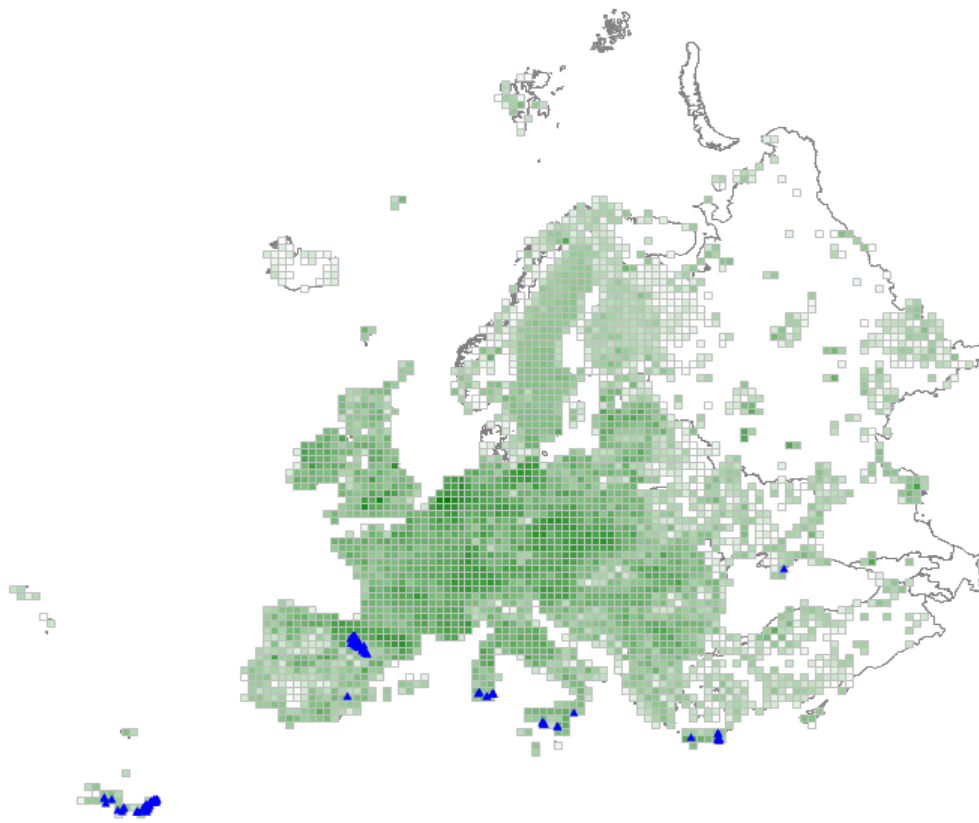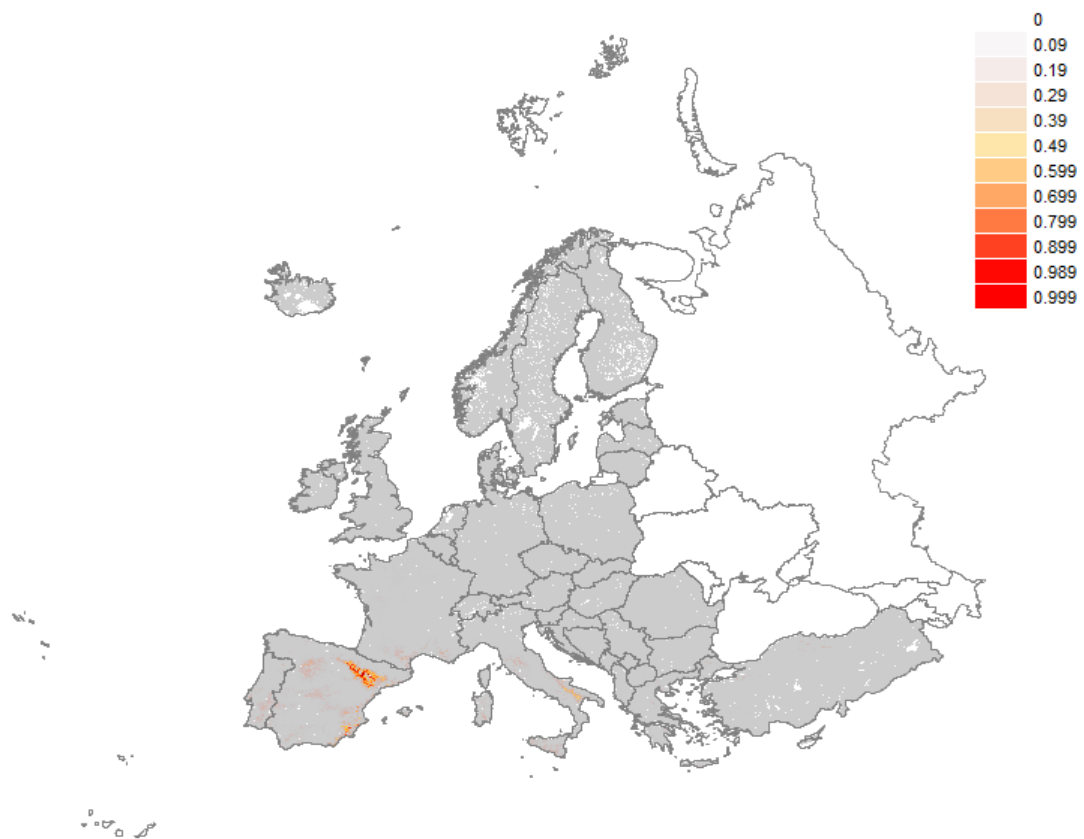
S65 - [F67] Mediterranean gypsum scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9885
AUC test (0-1)	0.9866
Contribution variables to the Maxent model (%)	
Soil pH (water)	50.4382
Temperature seasonality (stdev * 100)	11.2951
Phenology; End of Season (day number)	10.6765
Precipitation seasonality (coef. of var.)	6.1082
Weight in % of silt particles (0.0002-0.05 mm)	5.9516
Digital Elevation Map (DEM)	5.2526
Phenology; Low of season (day number)	2.9926
Precipitation of warmest quarter	1.7163
Phenology; NDVI mean	1.7081
Cation Exchange Capacity of the soil	0.9196
Phenology; NDVI seasonality	0.8056
Mean temperature of wettest quarter	0.6419
Volume % of coarse fragments (> 2 mm)	0.5861
Vegetation height (m)	0.4135
Distance to water (rivers, lakes, sea)	0.1547
Potential Evapotranspiration	0.139
Bulk density (kg/m³)	0.0501
Solar radiation	0.0338
Annual precipitation	0.0293
Phenology; Peak of season (day number)	0.0281
Weight in % of sand particles (0.05-2 mm)	0.028
Phenology; Start of Season (day number)	0.0272
Phenology; Length of season (days)	0.0038
Inundation; occurrence	0
Soil organic carbon content (‰)	0
Weight in % of clay particles (<0.0002 mm)	0

## S66 - [F68a] Mediterranean halo-nitrophilous scrub - distribution

S66 - [F68a] Mediterranean halo-nitrophilous scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9959
AUC test (0-1)	0.9856
Contribution variables to the Maxent model (%)	
Soil pH (water)	46.8489
Digital Elevation Map (DEM)	11.505
Temperature seasonality (stdev * 100)	10.2746
Potential Evapotranspiration	6.4323
Cation Exchange Capacity of the soil	6.3096
Precipitation of warmest quarter	5.6704
Vegetation height (m)	3.7385
Precipitation seasonality (coef. of var.)	2.663
Distance to water (rivers, lakes, sea)	1.9069
Phenology; Length of season (days)	1.3001
Phenology; NDVI seasonality	0.9379
Phenology; Peak of season (day number)	0.7459
Bulk density (kg/m³)	0.6391
Phenology; End of Season (day number)	0.357
Annual precipitation	0.2038
Weight in % of clay particles (<0.0002 mm)	0.1979
Soil organic carbon content (‰)	0.1497
Phenology; Low of season (day number)	0.0679
Mean temperature of wettest quarter	0.041
Weight in % of sand particles (0.05-2 mm)	0.0095
Phenology; NDVI mean	0.0012
Solar radiation	0
Phenology; Start of Season (day number)	0
Weight in % of silt particles (0.0002-0.05 mm)	0
Volume % of coarse fragments (> 2 mm)	0
Inundation; occurrence	0

S67 - [F68b] Aralo-Caspian semi-desert - distribution
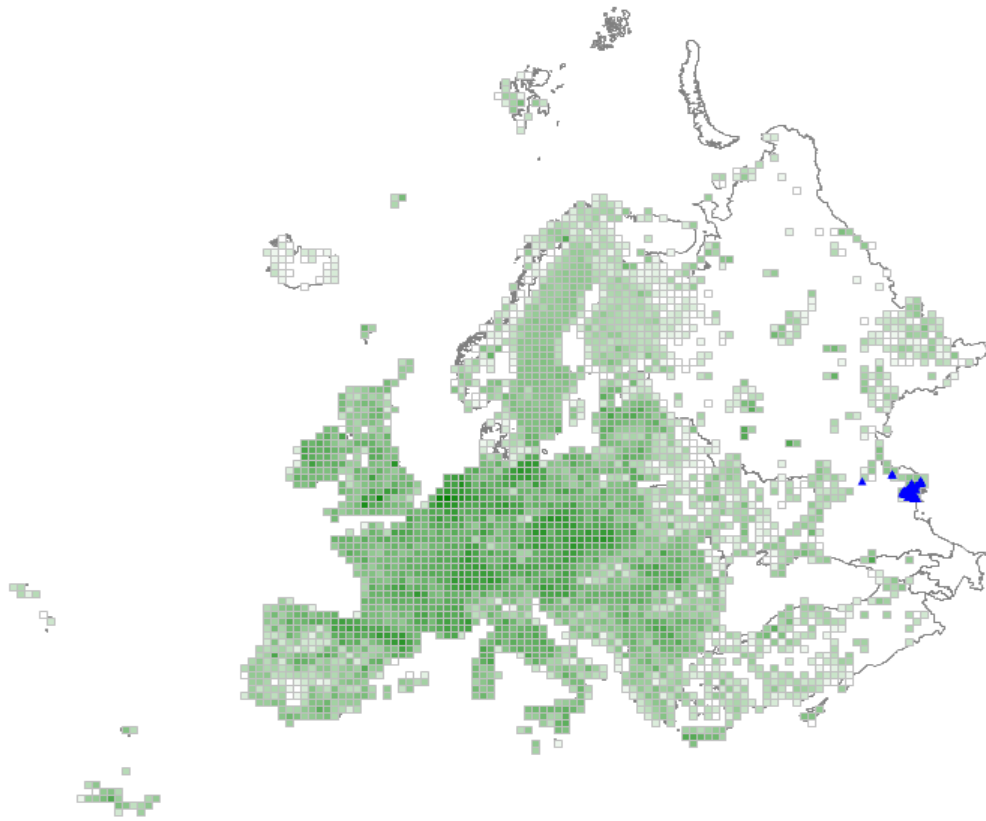
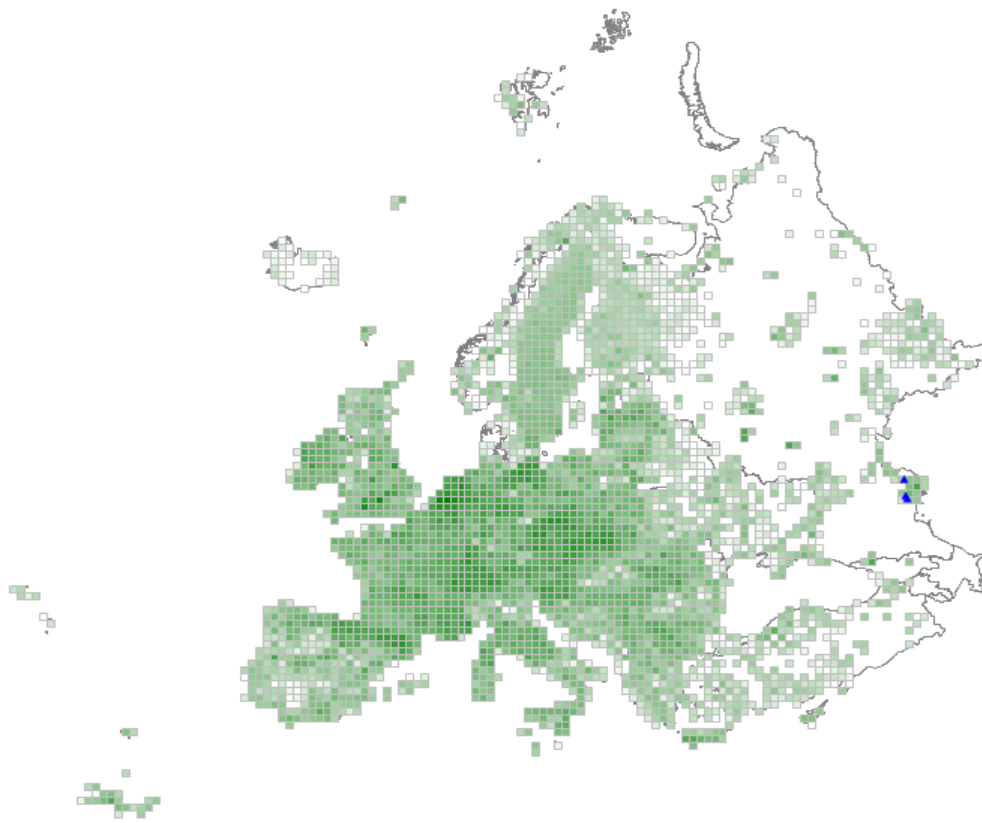**S67 - [F68b] Aralo-Caspian semi-desert - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

S68 - [F68c] Semi-desert sand dune with sparse scrub - distribution

S68 - [F68c] Semi-desert sand dune with sparse scrub - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen

Not assessed; beyond geographical scope Red List

S71 - [F71] Western Mediterranean spiny heath - distribution
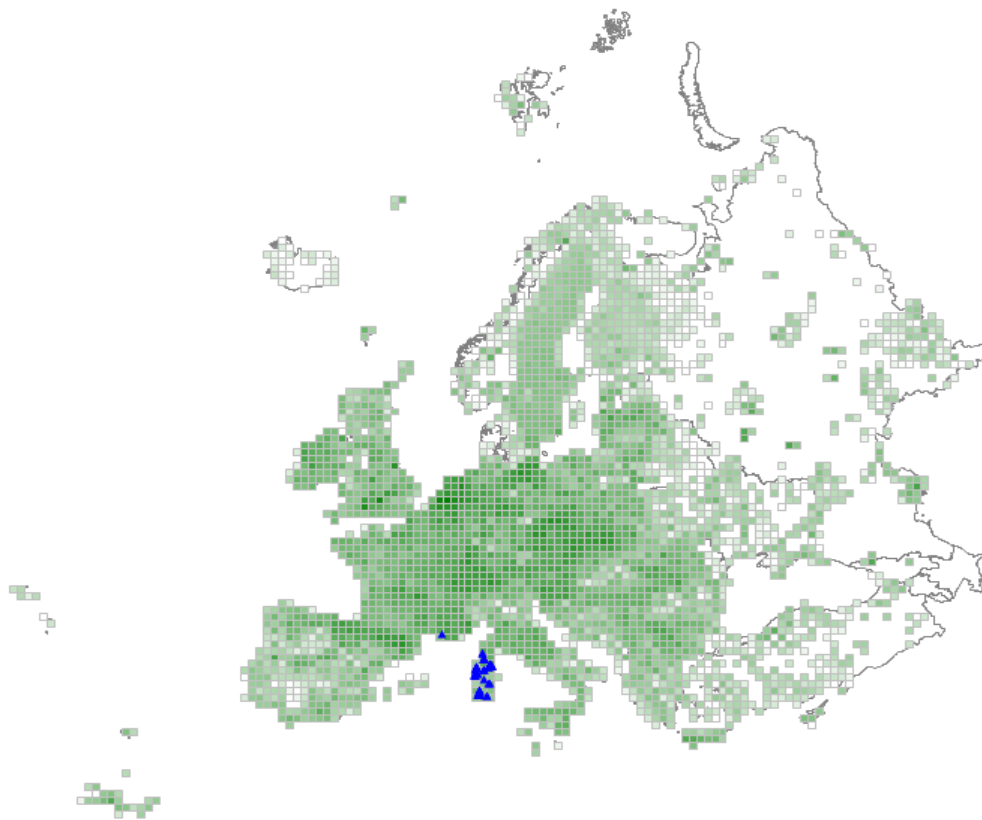
S71 - [F71] Western Mediterranean spiny heath - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9982
AUC test (0-1)	0.9988
Contribution variables to the Maxent model (%)	
Precipitation seasonality (coef. of var.)	29.6913
Phenology; Start of Season (day number)	14.9746
Temperature seasonality (stdev * 100)	14.7403
Phenology; Peak of season (day number)	9.6079
Precipitation of warmest quarter	9.1316
Distance to water (rivers, lakes, sea)	8.926
Soil organic carbon content (‰)	7.382
Phenology; NDVI seasonality	1.998
Potential Evapotranspiration	1.1673
Vegetation height (m)	0.9655
Weight in % of clay particles (<0.0002 mm)	0.8019
Soil pH (water)	0.3206
Weight in % of sand particles (0.05-2 mm)	0.2366
Volume % of coarse fragments (> 2 mm)	0.0297
Phenology; NDVI mean	0.0158
Phenology; Low of season (day number)	0.0108
Digital Elevation Map (DEM)	0
Weight in % of silt particles (0.0002-0.05 mm)	0
Phenology; Length of season (days)	0
Inundation; occurrence	0
Annual precipitation	0
Mean temperature of wettest quarter	0
Bulk density (kg/m³)	0
Cation Exchange Capacity of the soil	0
Solar radiation	0
Phenology; End of Season (day number)	0

Comparison of distribution with Red List maps by John Janssen

Both maps differ, but this is probably the result of different data sources

**S72 - [F73] Eastern Mediterranean spiny heath (phrygana) - distribution**
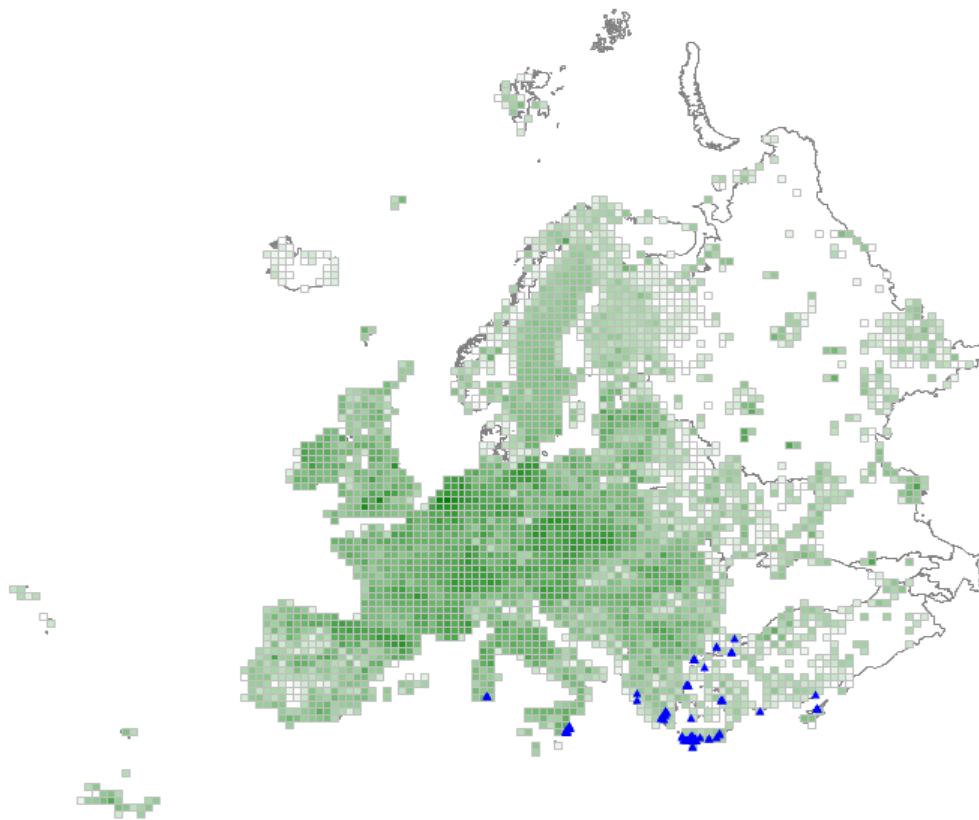
**S72 - [F73] Eastern Mediterranean spiny heath (phrygana) - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9942
AUC test (0-1)	0.9919
Contribution variables to the Maxent model (%)	
Precipitation seasonality (coef. of var.)	48.6462
Precipitation of warmest quarter	19.9214
Temperature seasonality (stdev * 100)	11.3199
Potential Evapotranspiration	8.7478
Soil organic carbon content (‰)	4.0077
Phenology; NDVI mean	3.5894
Phenology; Start of Season (day number)	0.7668
Bulk density (kg/m³)	0.6021
Annual precipitation	0.5118
Cation Exchange Capacity of the soil	0.4316
Phenology; Length of season (days)	0.2837
Distance to water (rivers, lakes, sea)	0.1871
Vegetation height (m)	0.1691
Weight in % of silt particles (0.0002-0.05 mm)	0.1577
Phenology; NDVI seasonality	0.1268
Weight in % of sand particles (0.05-2 mm)	0.1265
Soil pH (water)	0.1171
Phenology; Low of season (day number)	0.1162
Mean temperature of wettest quarter	0.0535
Volume % of coarse fragments (> 2 mm)	0.0493
Phenology; End of Season (day number)	0.0335
Phenology; Peak of season (day number)	0.0249
Digital Elevation Map (DEM)	0.0062
Inundation; occurrence	0.0038
Weight in % of clay particles (<0.0002 mm)	0
Solar radiation	0

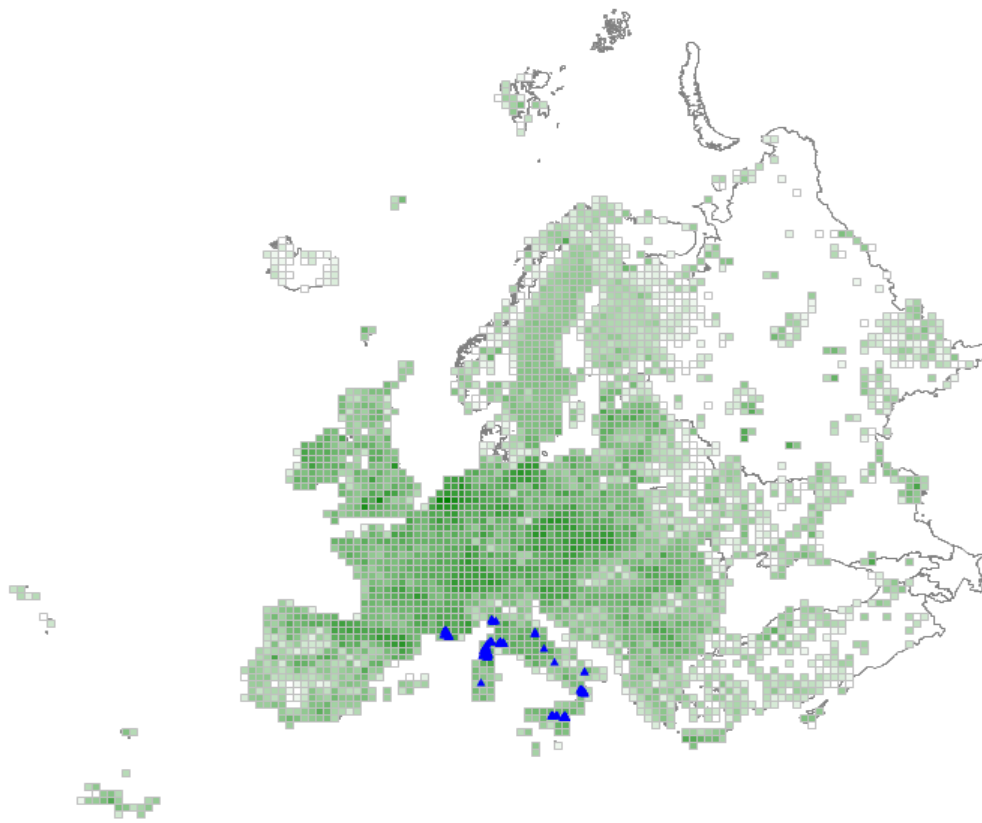**S73 - [F74a] Western Mediterranean mountain hedgehog-heath - distribution**
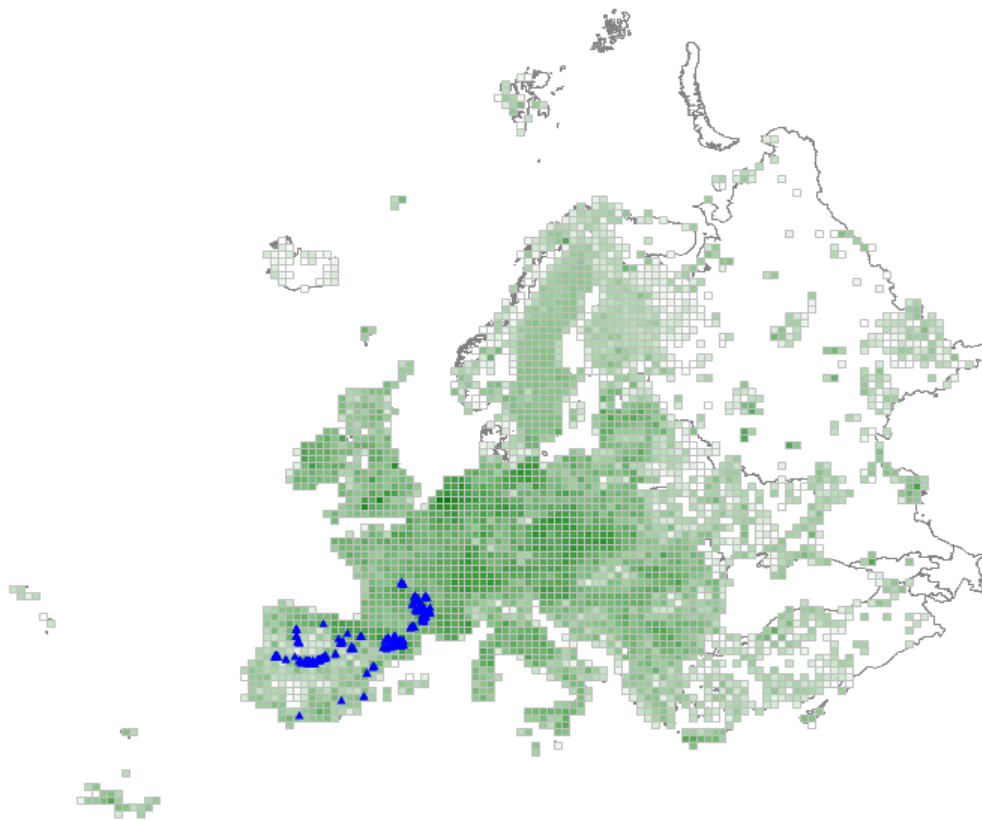
**S73 - [F74a] Western Mediterranean mountain hedgehog-heath - suitability**
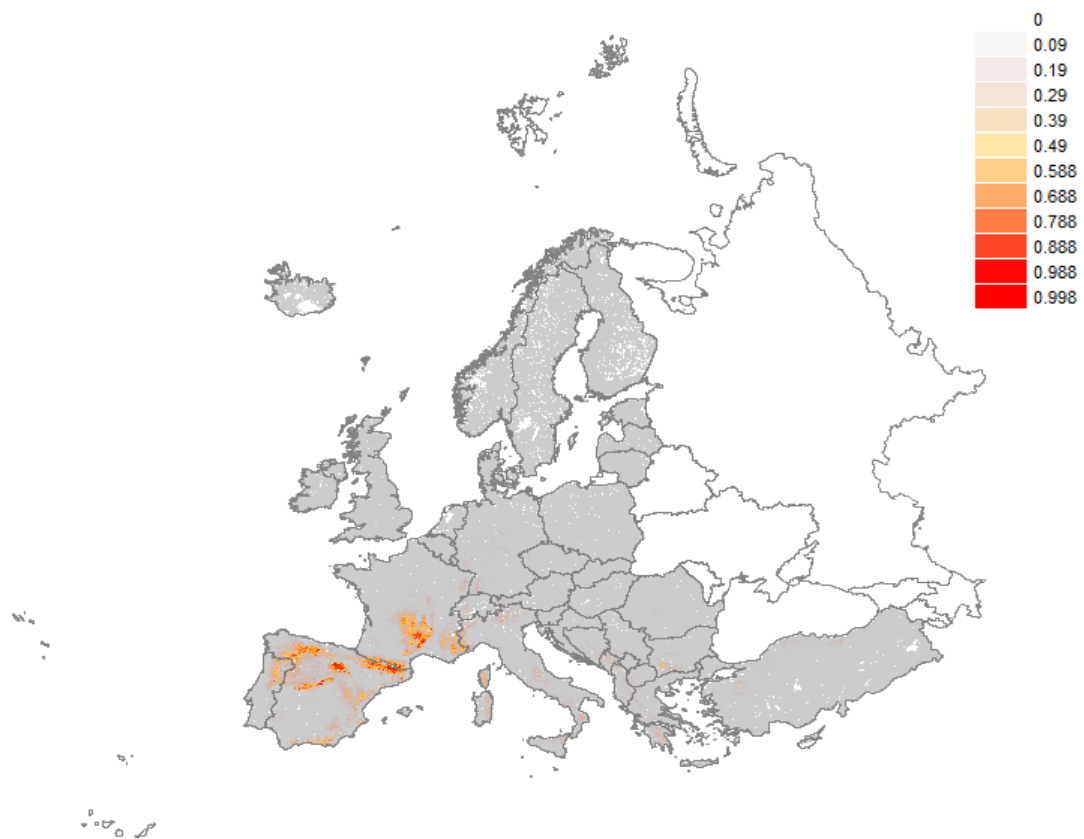
Statistics from Maxent modelling

AUC training (0-1)	0.9749
AUC test (0-1)	0.9793
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	44.6892
Temperature seasonality (stdev * 100)	31.7748
Potential Evapotranspiration	4.5291
Weight in % of sand particles (0.05-2 mm)	3.6314
Bulk density (kg/m³)	2.2766
Soil pH (water)	2.14
Phenology; Low of season (day number)	1.8784
Phenology; Peak of season (day number)	1.3841
Precipitation of warmest quarter	1.2566
Phenology; Length of season (days)	1.2483
Precipitation seasonality (coef. of var.)	1.2358
Phenology; NDVI mean	1.0085
Solar radiation	0.8067
Mean temperature of wettest quarter	0.5993
Volume % of coarse fragments (> 2 mm)	0.4156
Cation Exchange Capacity of the soil	0.2861
Annual precipitation	0.196
Phenology; Start of Season (day number)	0.1387
Vegetation height (m)	0.121
Phenology; End of Season (day number)	0.1133
Inundation; occurrence	0.0967
Soil organic carbon content (‰)	0.0576
Phenology; NDVI seasonality	0.0581
Weight in % of clay particles (<0.0002 mm)	0.0516
Weight in % of silt particles (0.0002-0.05 mm)	0.0065
Distance to water (rivers, lakes, sea)	0

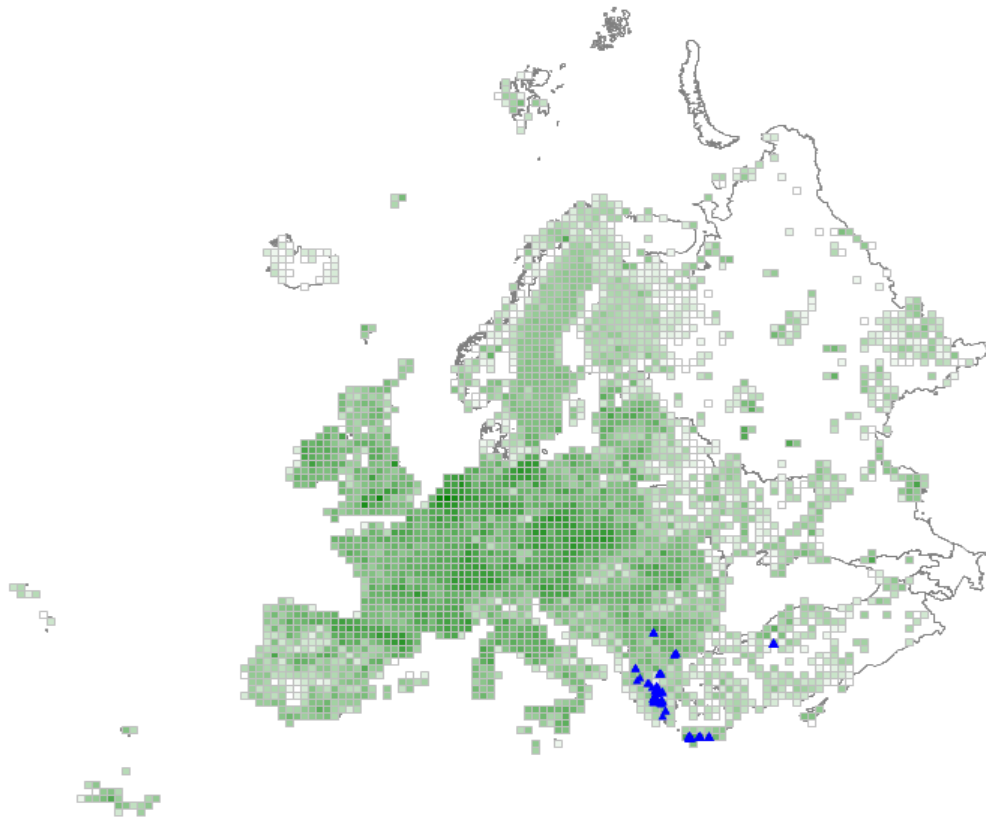## S74 - [F74b] Central Mediterranean mountain hedgehog-heath - distribution

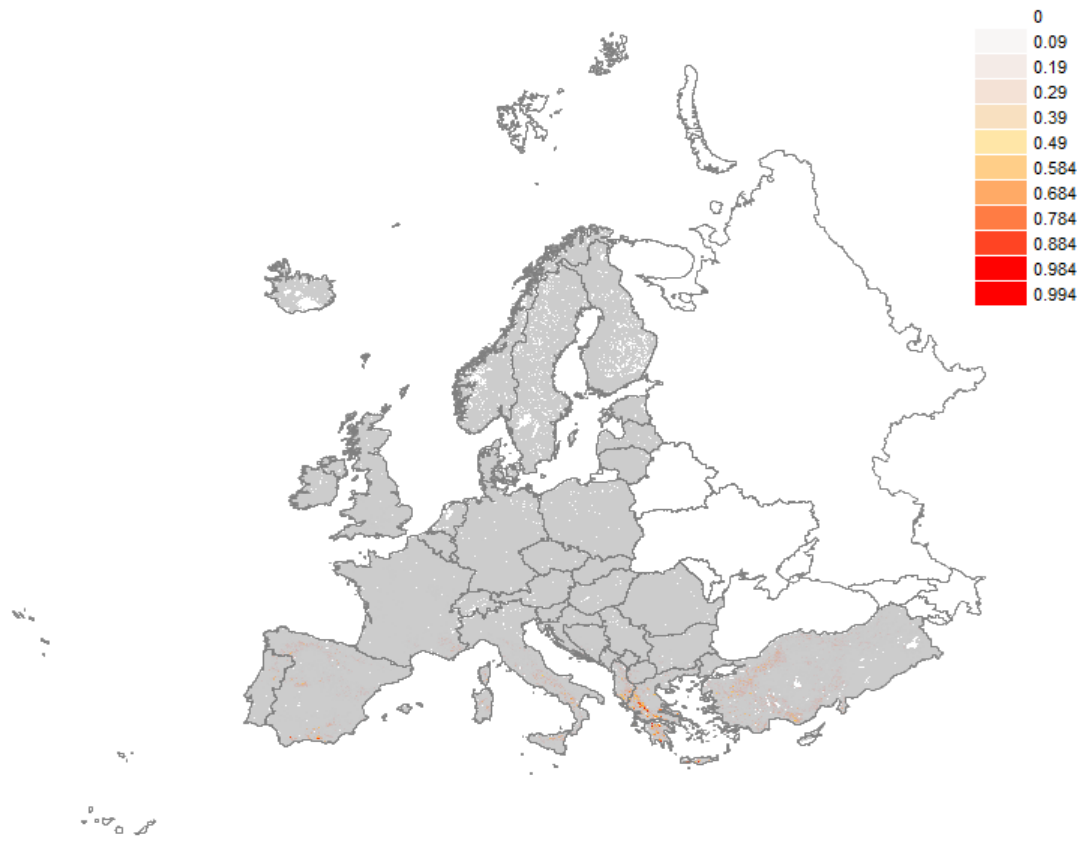## S74 - [F74b] Central Mediterranean mountain hedgehog-heath - suitability
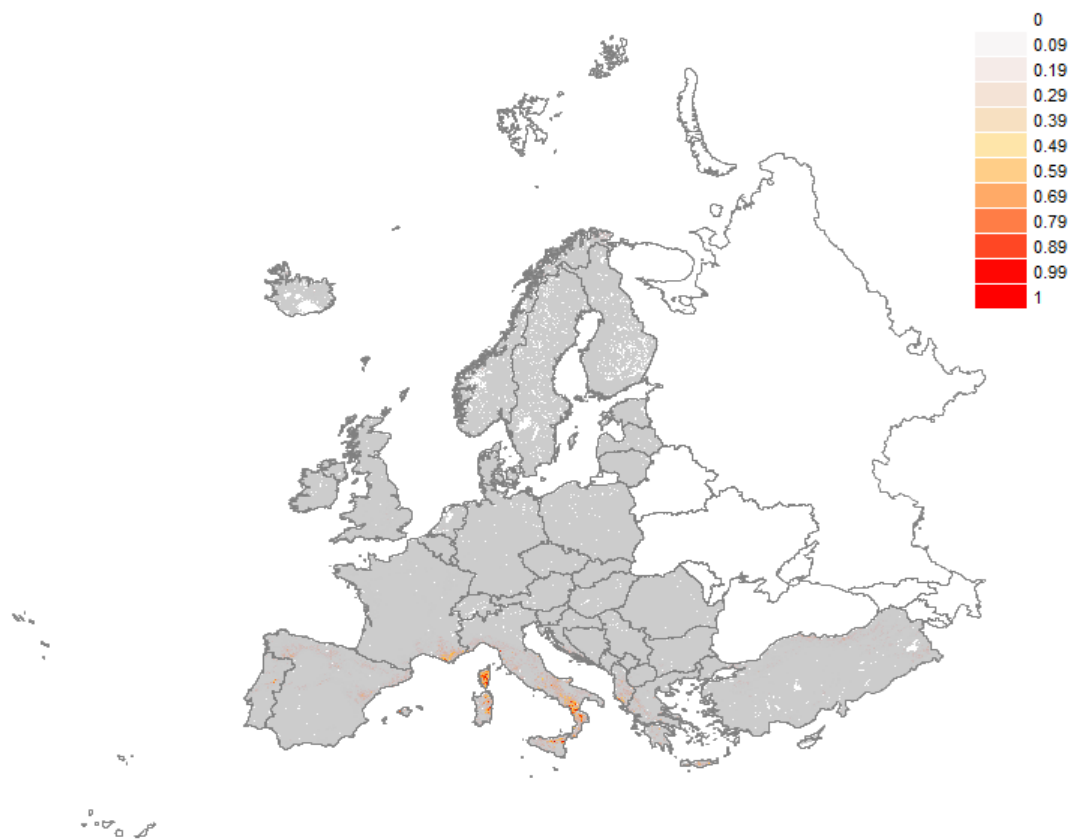
Statistics from Maxent modelling

AUC training (0-1)	0.9891
AUC test (0-1)	0.9769
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	28.212
Digital Elevation Map (DEM)	20.0325
Precipitation seasonality (coef. of var.)	13.2114
Potential Evapotranspiration	12.6189
Precipitation of warmest quarter	10.7128
Soil organic carbon content (‰)	3.4483
Phenology; End of Season (day number)	3.3609
Weight in % of clay particles (<0.0002 mm)	1.9587
Phenology; NDVI seasonality	1.4338
Cation Exchange Capacity of the soil	1.2975
Soil pH (water)	0.6335
Phenology; NDVI mean	0.5568
Distance to water (rivers, lakes, sea)	0.4365
Annual precipitation	0.3367
Weight in % of silt particles (0.0002-0.05 mm)	0.3303
Phenology; Length of season (days)	0.2991
Bulk density (kg/m³)	0.1915
Mean temperature of wettest quarter	0.1705
Phenology; Peak of season (day number)	0.1639
Phenology; Start of Season (day number)	0.1419
Weight in % of sand particles (0.05-2 mm)	0.1309
Volume % of coarse fragments (> 2 mm)	0.0958
Vegetation height (m)	0.0911
Phenology; Low of season (day number)	0.0766
Solar radiation	0.0581
Inundation; occurrence	0

S75 - [F74c] Eastern Mediterranean mountain hedgehog-heath - distribution

**S75 - [F74c] Eastern Mediterranean mountain hedgehog-heath - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9891
AUC test (0-1)	0.9638
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	43.9601
Annual precipitation	15.9781
Precipitation seasonality (coef. of var.)	12.4427
Temperature seasonality (stdev * 100)	8.1365
Precipitation of warmest quarter	5.3525
Mean temperature of wettest quarter	4.432
Vegetation height (m)	3.4361
Soil pH (water)	1.2429
Phenology; NDVI mean	1.1134
Phenology; End of Season (day number)	0.8381
Phenology; Start of Season (day number)	0.7046
Weight in % of clay particles (<0.0002 mm)	0.4301
Potential Evapotranspiration	0.3351
Weight in % of sand particles (0.05-2 mm)	0.304
Bulk density (kg/m³)	0.2917
Phenology; Peak of season (day number)	0.2422
Solar radiation	0.1607
Weight in % of silt particles (0.0002-0.05 mm)	0.1556
Phenology; NDVI seasonality	0.1432
Cation Exchange Capacity of the soil	0.0917
Volume % of coarse fragments (> 2 mm)	0.0746
Phenology; Low of season (day number)	0.0669
Distance to water (rivers, lakes, sea)	0.025
Phenology; Length of season (days)	0.0248
Soil organic carbon content (‰)	0.0175
Inundation; occurrence	0

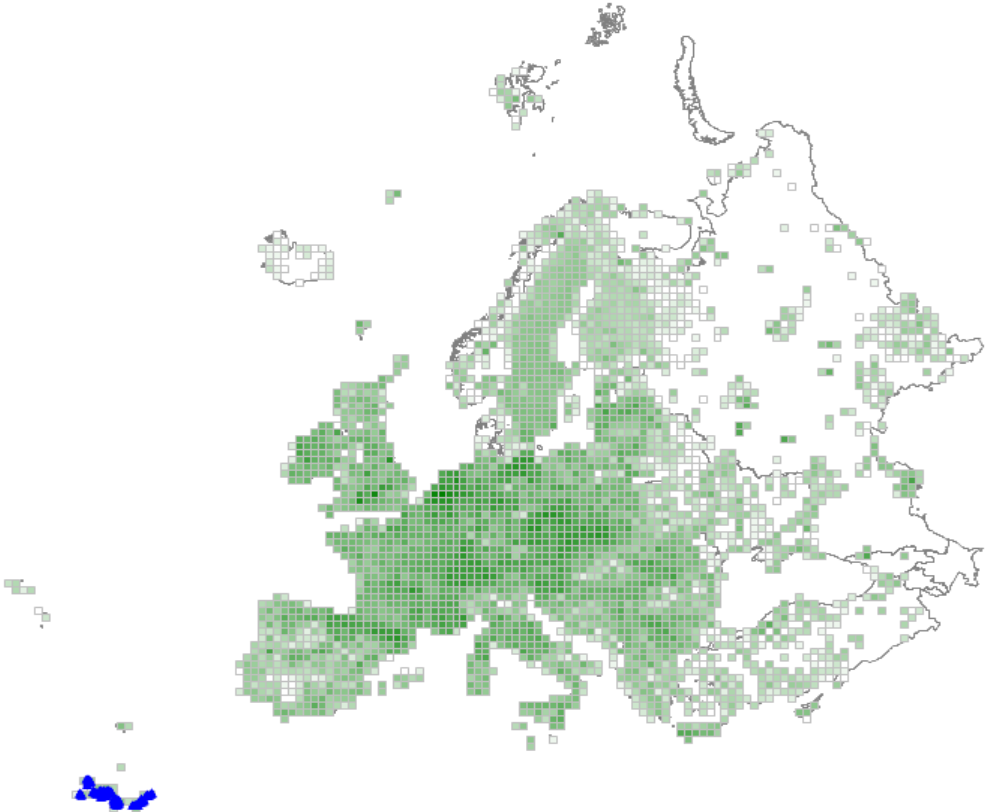**S76 - [F74d] Canarian mountain hedgehog-heath - distribution**
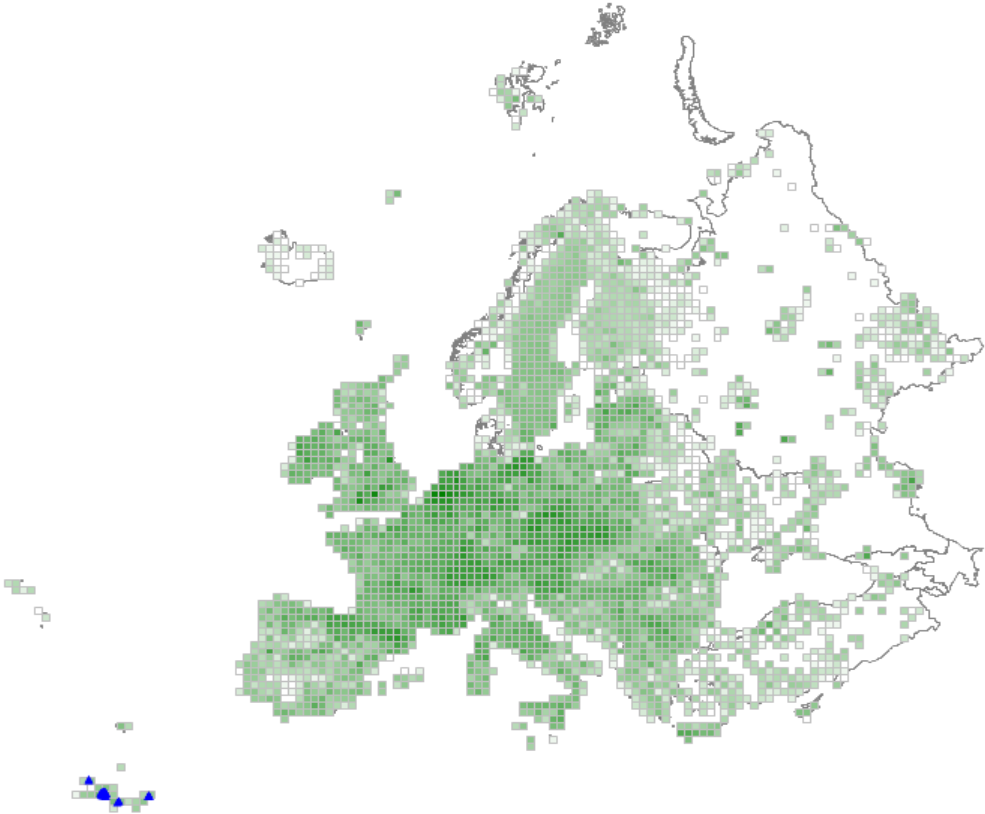
S76 - [F74d] Canarian mountain hedgehog-heath - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.
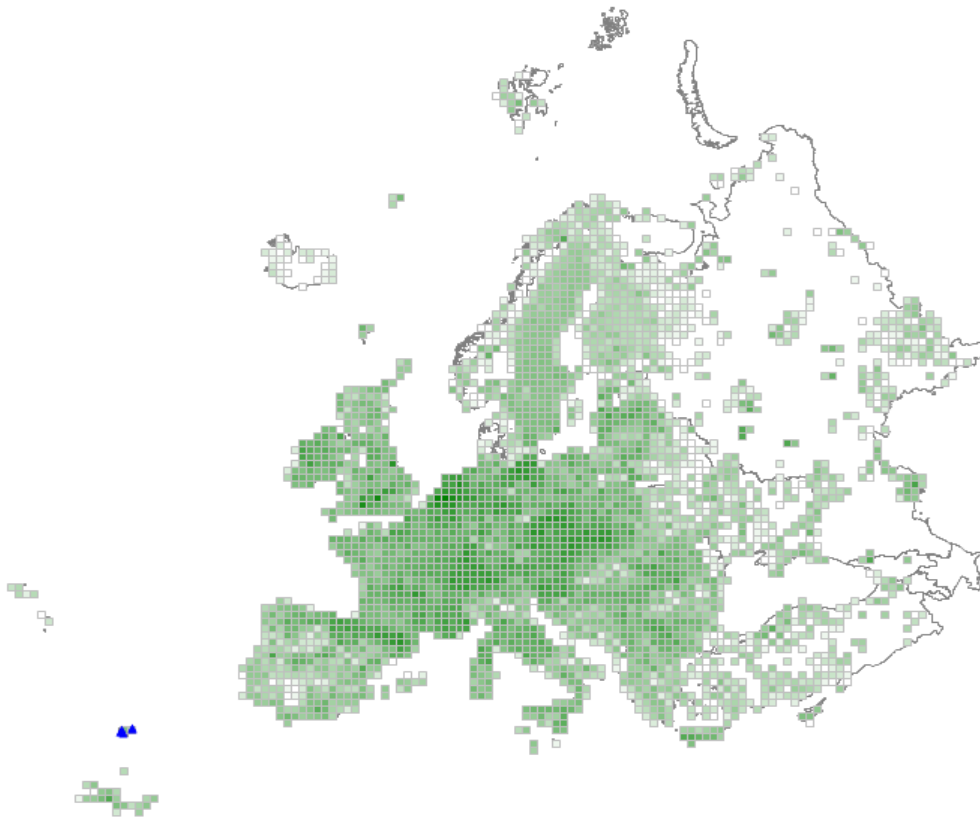
S81 - [F81] Canarian xerophytic scrub - distribution


S81 - [F81] Canarian xerophytic scrub - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

S82 - [F82] Madeiran xerophytic scrub - distribution

S82 - [F82] Madeiran xerophytic scrub - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

S91 - [F91] Temperate riparian scrub - distribution
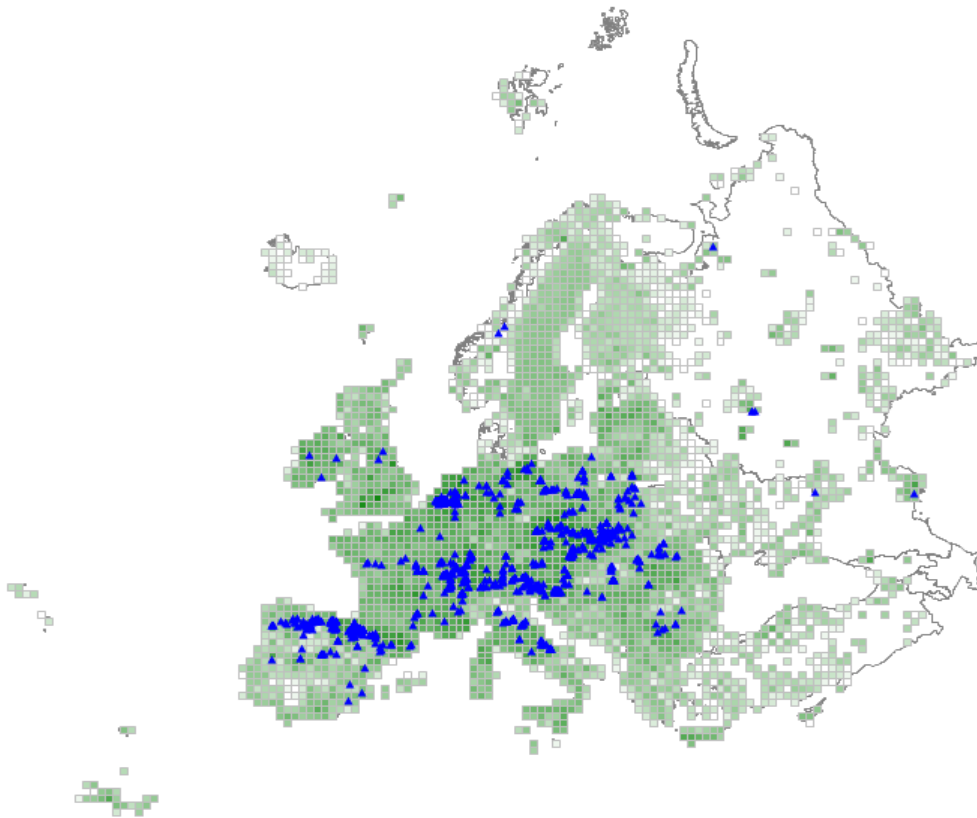
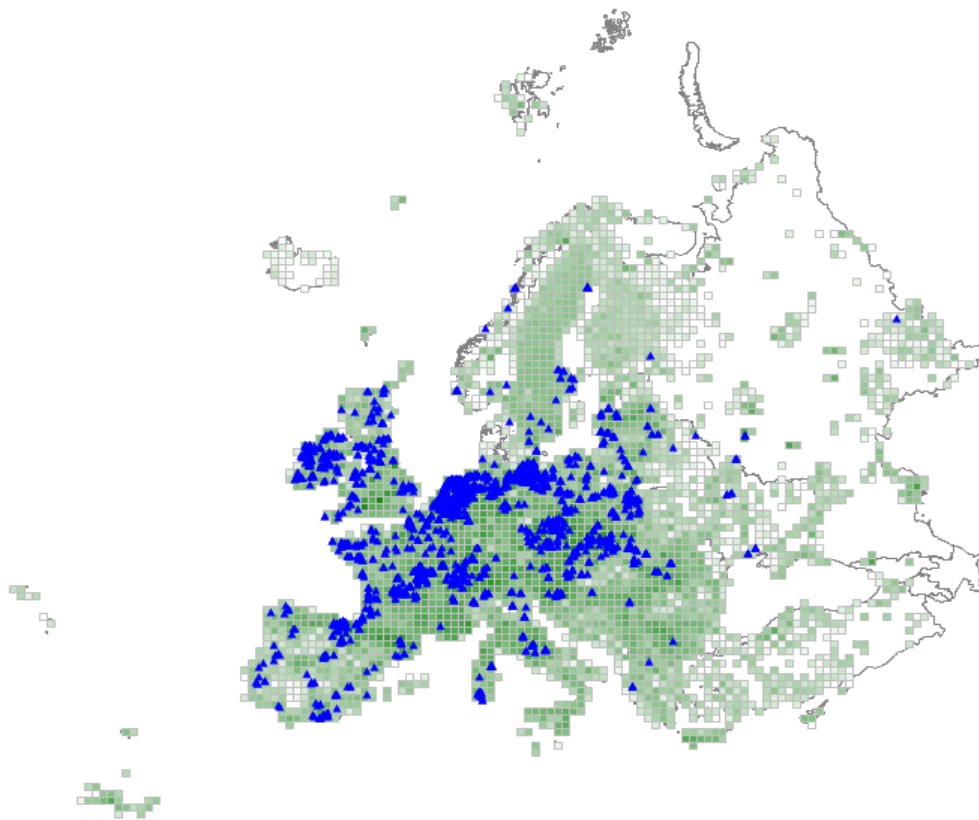**S91 - [F91] Temperate riparian scrub - suitability**
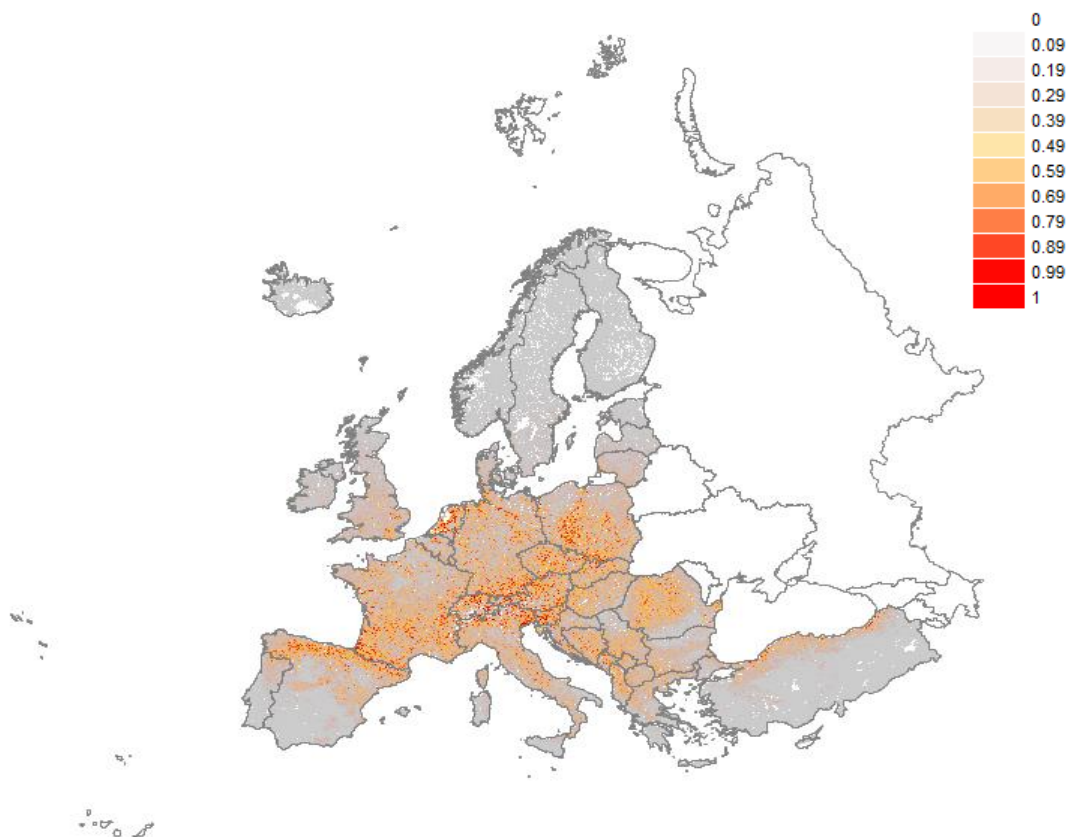
Statistics from Maxent modelling

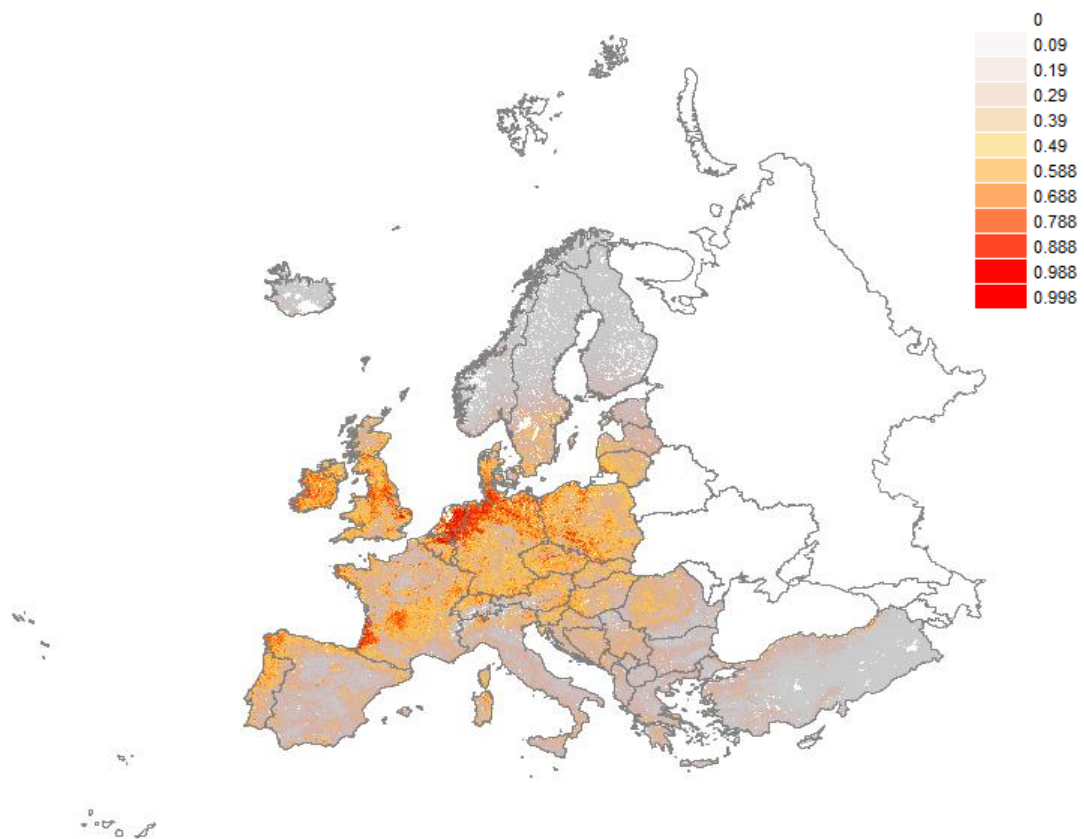|	
AUC training (0-1)	0.8828
AUC test (0-1)	0.8536
Contribution variables to the Maxent model (%)	
Distance to water (rivers, lakes, sea)	35.7343
Potential Evapotranspiration	16.7367
Precipitation of warmest quarter	14.5795
Soil pH (water)	7.7307
Temperature seasonality (stdev * 100)	5.2513
Phenology; Length of season (days)	2.7069
Phenology; Start of Season (day number)	2.5863
Phenology; NDVI seasonality	2.3707
Digital Elevation Map (DEM)	2.2657
Weight in % of sand particles (0.05-2 mm)	1.7283
Phenology; Low of season (day number)	1.7149
Precipitation seasonality (coef. of var.)	1.0261
Mean temperature of wettest quarter	1.0186
Phenology; End of Season (day number)	0.9107
Volume % of coarse fragments (> 2 mm)	0.8998
Annual precipitation	0.648
Solar radiation	0.5289
Bulk density (kg/m³)	0.3189
Weight in % of clay particles (<0.0002 mm)	0.2389
Phenology; NDVI mean	0.2384
Weight in % of silt particles (0.0002-0.05 mm)	0.2144
Soil organic carbon content (‰)	0.2092
Vegetation height (m)	0.1698
Inundation; occurrence	0.1578
Cation Exchange Capacity of the soil	0.0151
Phenology; Peak of season (day number)	0

Comparison of distribution with Red List maps by John Janssen
The Red List types includes also boreal riparian scrub
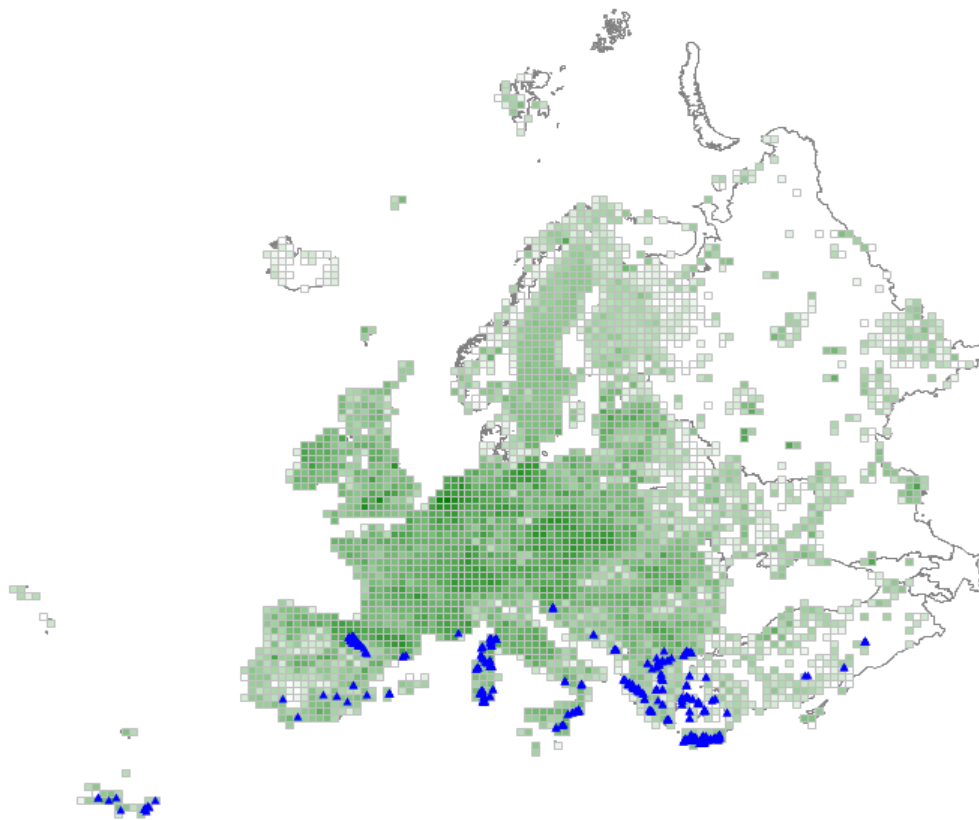
S92 - [F92] Salix fen scrub - distribution
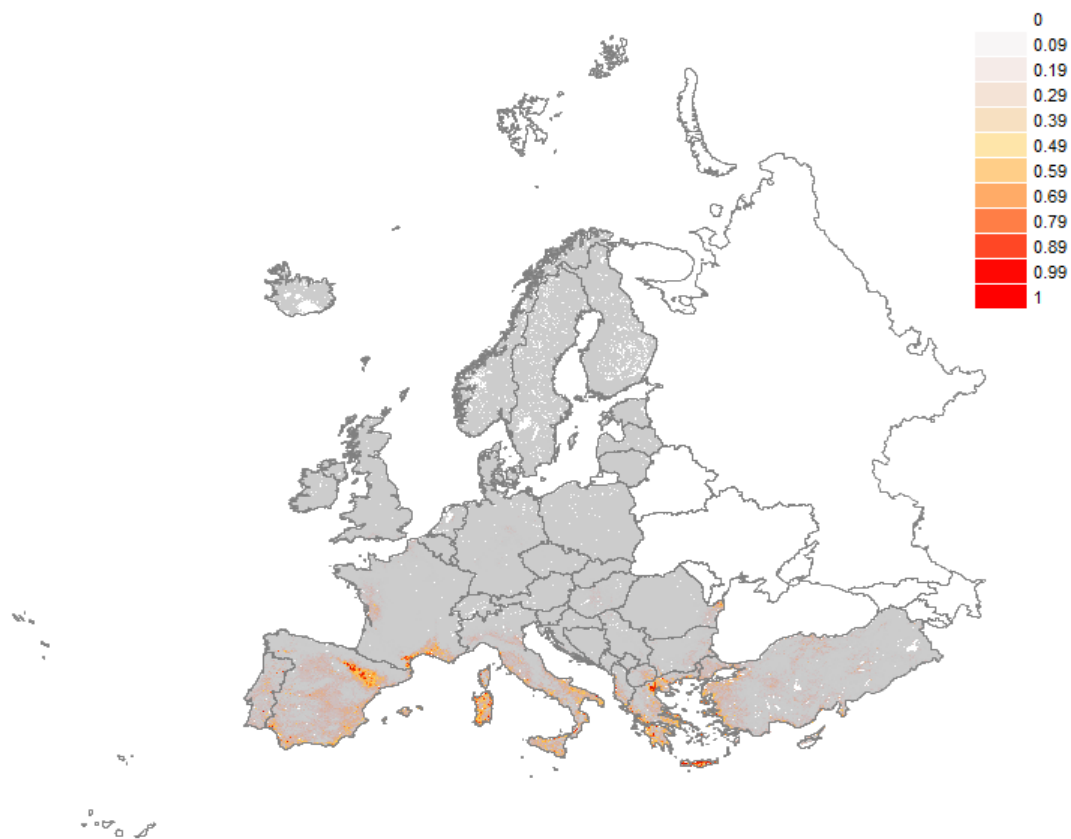

S92 - [F92] Salix fen scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.8094
AUC test (0-1)	0.8149
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	23.7414
Precipitation of warmest quarter	11.7428
Temperature seasonality (stdev * 100)	11.3435
Phenology; Low of season (day number)	9.4453
Potential Evapotranspiration	8.6494
Bulk density (kg/m³)	8.1332
Soil pH (water)	7.9832
Phenology; Length of season (days)	4.0837
Precipitation seasonality (coef. of var.)	3.2639
Weight in % of clay particles (<0.0002 mm)	1.8185
Weight in % of sand particles (0.05-2 mm)	1.7025
Weight in % of silt particles (0.0002-0.05 mm)	1.5705
Vegetation height (m)	1.3656
Solar radiation	1.0418
Distance to water (rivers, lakes, sea)	0.9898
Volume % of coarse fragments (> 2 mm)	0.9733
Phenology; End of Season (day number)	0.5901
Phenology; NDVI mean	0.2678
Cation Exchange Capacity of the soil	0.2417
Inundation; occurrence	0.2074
Mean temperature of wettest quarter	0.1779
Phenology; NDVI seasonality	0.1709
Phenology; Peak of season (day number)	0.1691
Phenology; Start of Season (day number)	0.168
Annual precipitation	0.139
Soil organic carbon content (‰)	0.0199

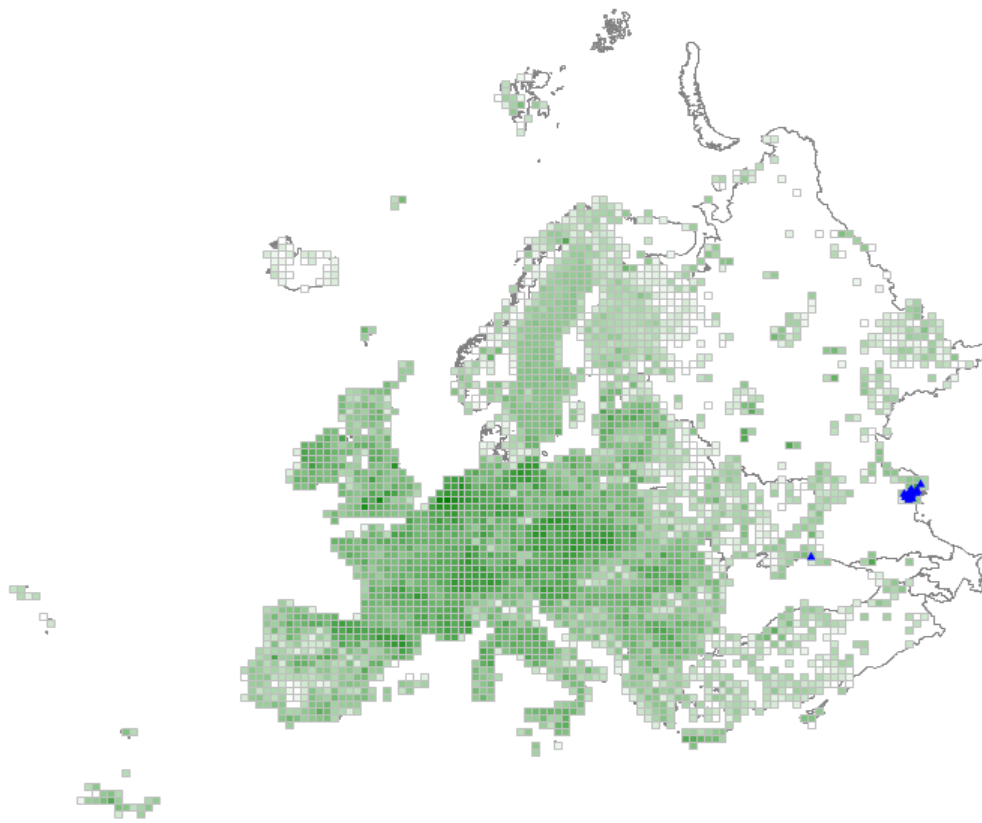# S93 - [F93] Mediterranean riparian scrub - distribution

S93 - [F93] Mediterranean riparian scrub - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9718
AUC test (0-1)	0.9663
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	32.5859
Digital Elevation Map (DEM)	15.4754
Potential Evapotranspiration	12.4561
Soil pH (water)	8.4057
Bulk density (kg/m³)	5.1935
Precipitation seasonality (coef. of var.)	4.8558
Phenology; Start of Season (day number)	4.296
Mean temperature of wettest quarter	3.6097
Temperature seasonality (stdev * 100)	3.2381
Weight in % of clay particles (<0.0002 mm)	2.1666
Distance to water (rivers, lakes, sea)	1.7503
Phenology; Peak of season (day number)	1.2204
Weight in % of sand particles (0.05-2 mm)	1.1237
Soil organic carbon content (‰)	0.9572
Phenology; End of Season (day number)	0.5215
Phenology; Length of season (days)	0.5198
Weight in % of silt particles (0.0002-0.05 mm)	0.506
Vegetation height (m)	0.2702
Phenology; NDVI mean	0.2439
Annual precipitation	0.2338
Phenology; NDVI seasonality	0.1332
Solar radiation	0.0856
Inundation; occurrence	0.0532
Volume % of coarse fragments (> 2 mm)	0.0489
Cation Exchange Capacity of the soil	0.0375
Phenology; Low of season (day number)	0.0119

S94 - [F94] Semi-desert riparian scrub - distribution

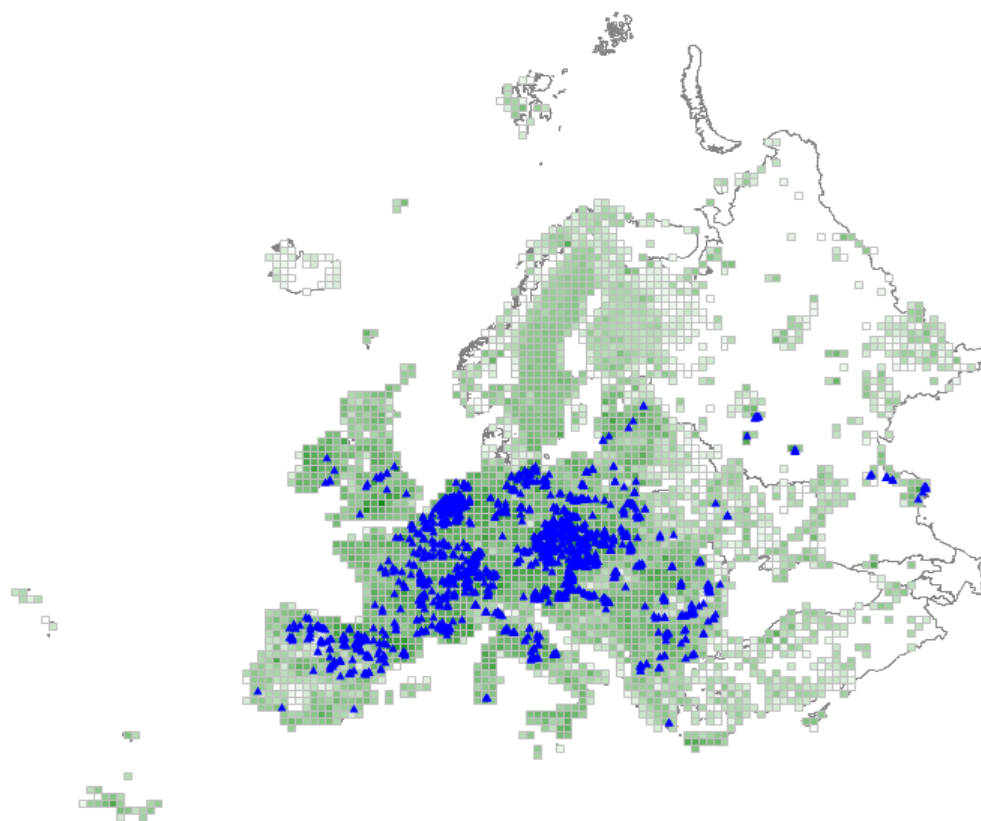**S94 - [F94] Semi-desert riparian scrub - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

T11 - [G11] Temperate Salix and Populus riparian forest - distribution

**T11 - [G11] Temperate Salix and Populus riparian forest - suitability**

0
0.09
0.19
0.29
0.39
0.49
0.589
0.689
0.789
0.889
0.989
0.999
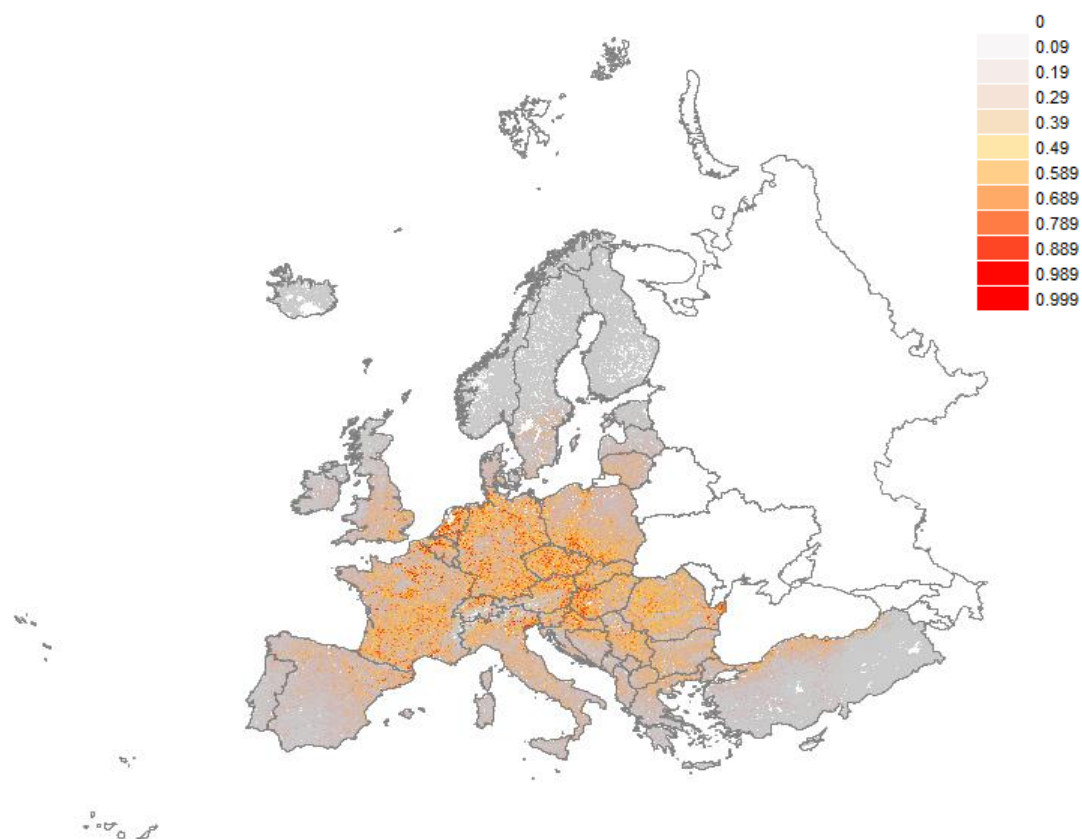
Statistics from Maxent modelling

|	
AUC training (0-1)	0.8294
AUC test (0-1)	0.8293
Contribution variables to the Maxent model (%)	
Distance to water (rivers, lakes, sea)	29.2888
Bulk density (kg/m³)	24.9148
Phenology; Low of season (day number)	11.6646
Precipitation of warmest quarter	8.7044
Digital Elevation Map (DEM)	7.5975
Temperature seasonality (stdev * 100)	4.4397
Phenology; Start of Season (day number)	4.3239
Potential Evapotranspiration	2.3091
Weight in % of clay particles (<0.0002 mm)	1.0912
Weight in % of sand particles (0.05-2 mm)	0.9456
Mean temperature of wettest quarter	0.9082
Weight in % of silt particles (0.0002-0.05 mm)	0.7438
Cation Exchange Capacity of the soil	0.6349
Soil pH (water)	0.6031
Phenology; Length of season (days)	0.5457
Precipitation seasonality (coef. of var.)	0.303
Vegetation height (m)	0.2228
Annual precipitation	0.2065
Soil organic carbon content (‰)	0.1413
Phenology; End of Season (day number)	0.1175
Solar radiation	0.0816
Volume % of coarse fragments (> 2 mm)	0.0774
Phenology; NDVI mean	0.0449
Phenology; NDVI seasonality	0.0369
Inundation; occurrence	0.0345
Phenology; Peak of season (day number)	0.0181

Comparison of distribution with Red List maps by John Janssen

Both maps use different selection criteria, but the definitions are the same

**T12 - [G12a] Alnus glutinosa-Alnus incana forest on riparian and mineral soils - distribution**
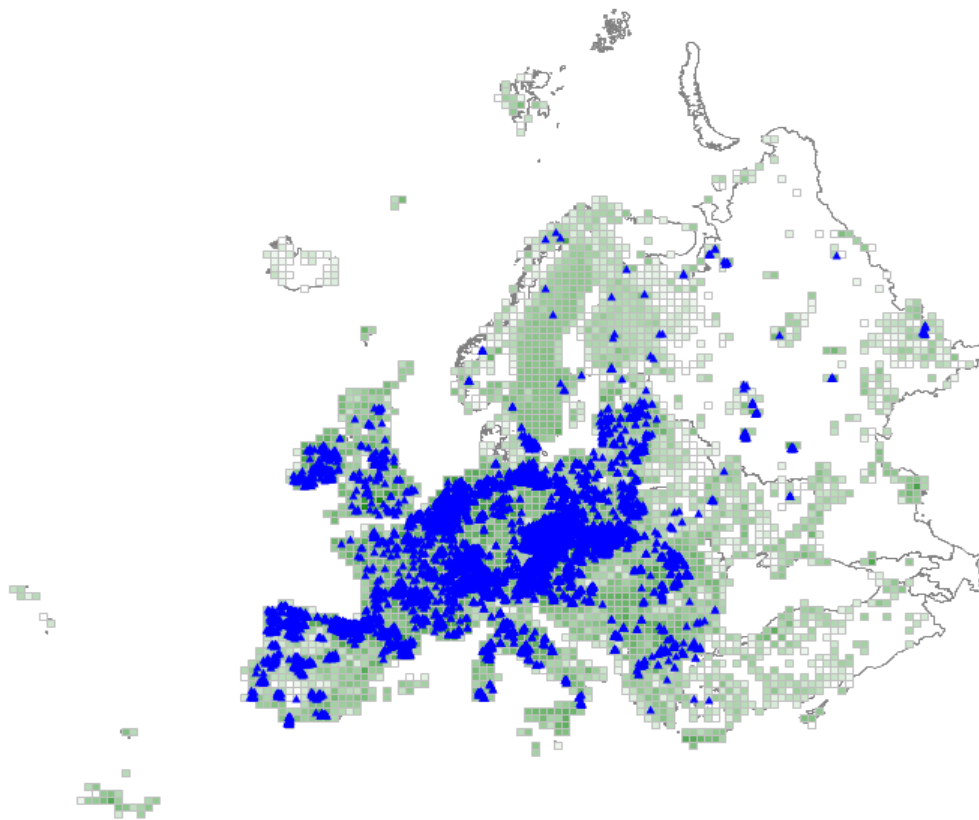
**T12 - [G12a] Alnus glutinosa-Alnus incana forest on riparian and mineral soils - suitability**
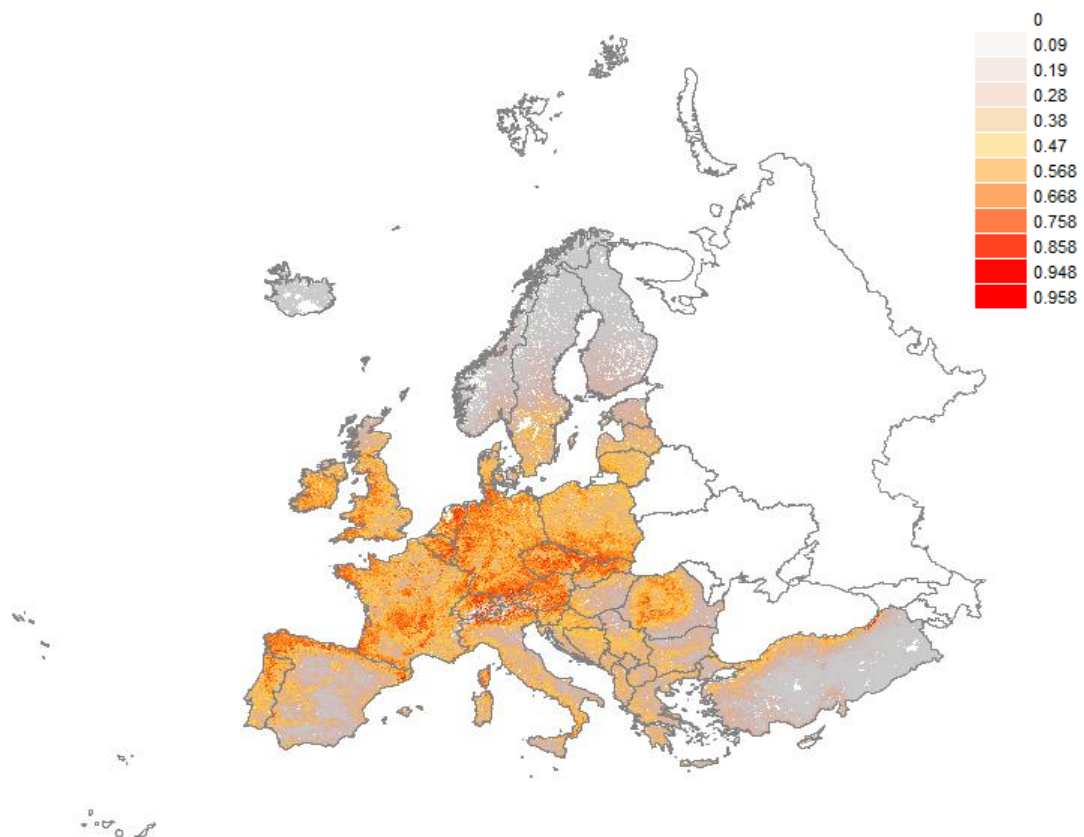
Statistics from Maxent modelling

AUC training (0-1)	0.6814
AUC test (0-1)	0.6768
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	30.5471
Soil pH (water)	21.8097
Phenology; NDVI mean	11.9932
Temperature seasonality (stdev * 100)	10.895
Precipitation of warmest quarter	5.8893
Distance to water (rivers, lakes, sea)	3.7766
Phenology; Length of season (days)	2.6374
Phenology; Low of season (day number)	2.1136
Bulk density (kg/m³)	2.0312
Weight in % of clay particles (<0.0002 mm)	1.7877
Precipitation seasonality (coef. of var.)	1.602
Cation Exchange Capacity of the soil	1.0356
Digital Elevation Map (DEM)	0.9658
Solar radiation	0.7324
Volume % of coarse fragments (> 2 mm)	0.5628
Vegetation height (m)	0.3937
Mean temperature of wettest quarter	0.2884
Phenology; Start of Season (day number)	0.269
Weight in % of silt particles (0.0002-0.05 mm)	0.2244
Soil organic carbon content (‰)	0.1156
Phenology; Peak of season (day number)	0.099
Weight in % of sand particles (0.05-2 mm)	0.0838
Annual precipitation	0.0597
Phenology; NDVI seasonality	0.0499
Phenology; End of Season (day number)	0.0361
Inundation; occurrence	0.0011

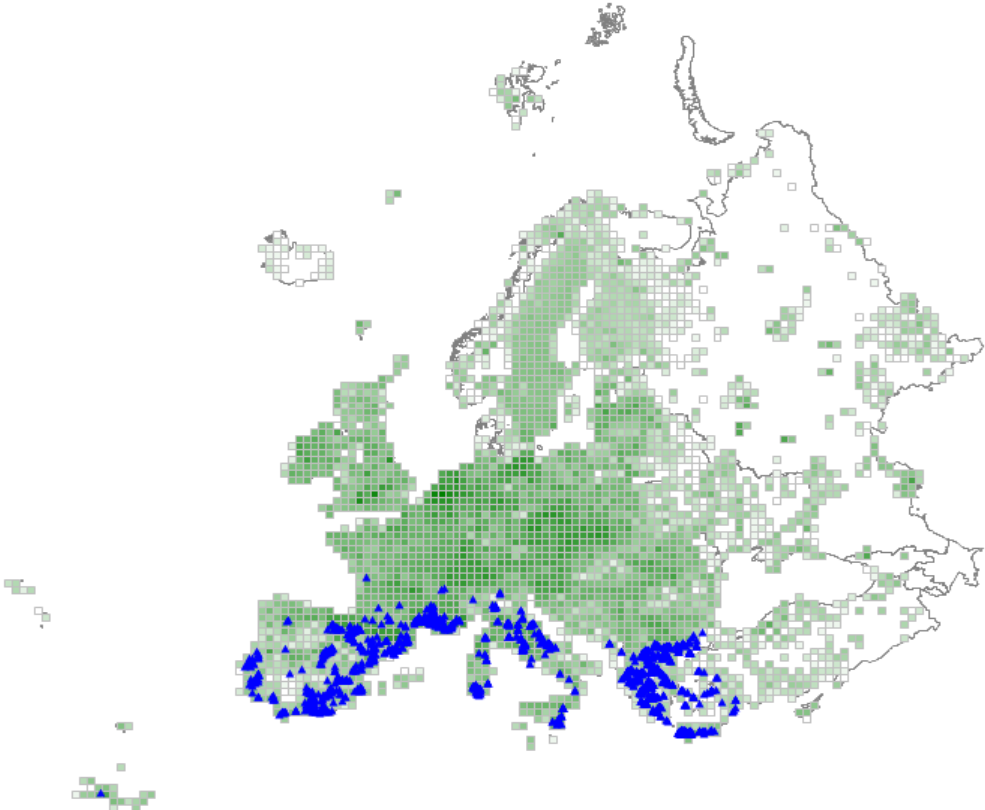**T13 - [G12b] Temperate hardwood riparian forest - distribution**
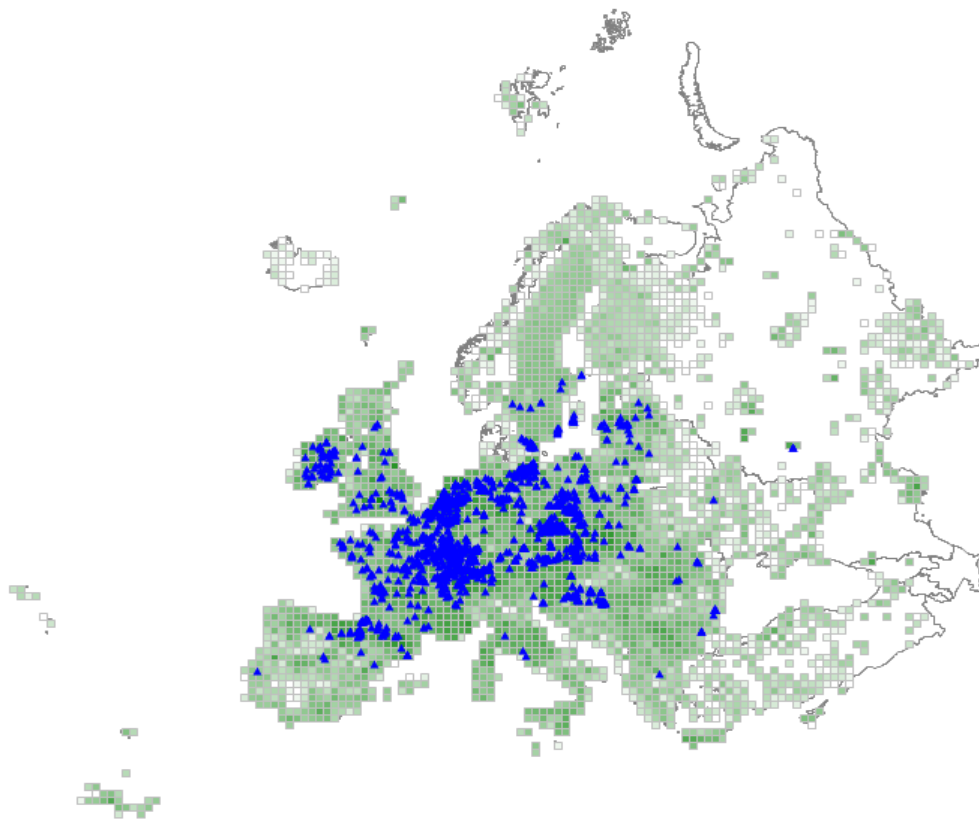
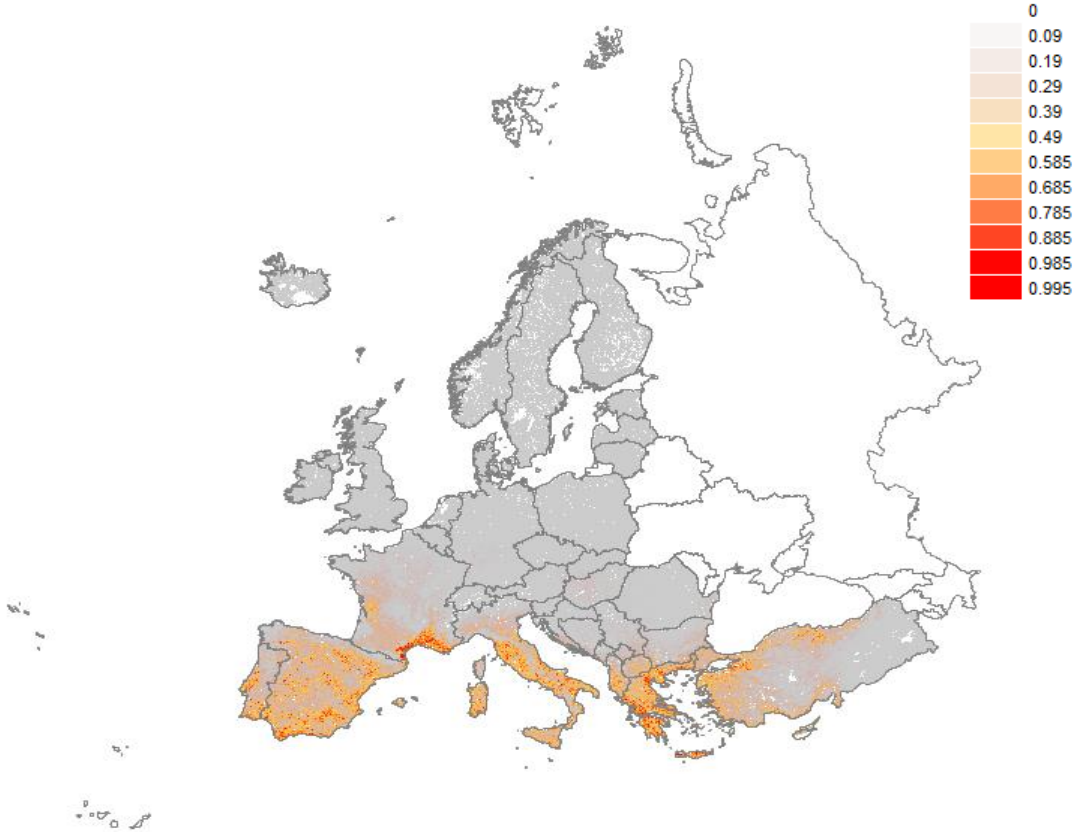**T13 - [G12b] Temperate hardwood riparian forest - suitability**
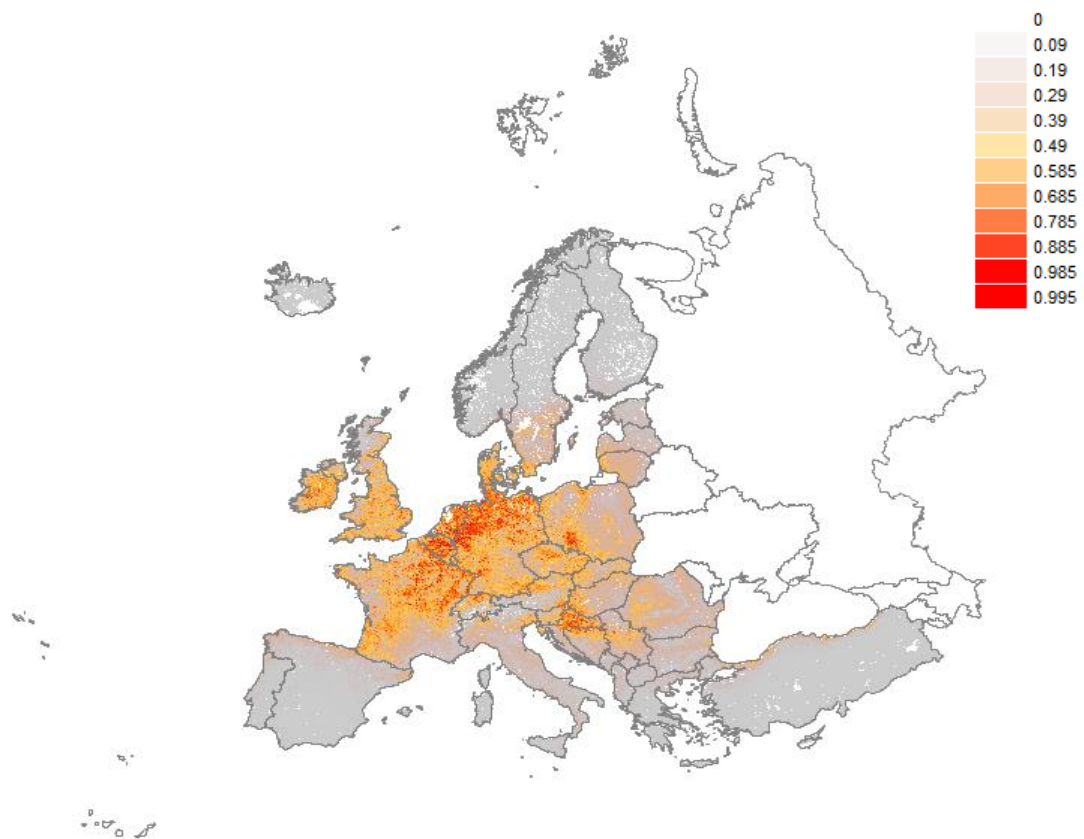
Statistics from Maxent modelling

AUC training (0-1)	0.8421
AUC test (0-1)	0.8211
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	30.3666
Temperature seasonality (stdev * 100)	13.1426
Bulk density (kg/m³)	13.0668
Digital Elevation Map (DEM)	11.7083
Potential Evapotranspiration	5.9383
Phenology; Start of Season (day number)	4.8225
Cation Exchange Capacity of the soil	2.735
Mean temperature of wettest quarter	2.4724
Phenology; Length of season (days)	2.4536
Phenology; Low of season (day number)	2.4452
Soil pH (water)	1.906
Phenology; NDVI mean	1.8096
Precipitation seasonality (coef. of var.)	1.6393
Weight in % of clay particles (<0.0002 mm)	1.611
Distance to water (rivers, lakes, sea)	1.2182
Phenology; End of Season (day number)	0.7284
Annual precipitation	0.4214
Solar radiation	0.3619
Vegetation height (m)	0.3506
Phenology; NDVI seasonality	0.3217
Volume % of coarse fragments (> 2 mm)	0.157
Weight in % of sand particles (0.05-2 mm)	0.1449
Soil organic carbon content (‰)	0.1412
Weight in % of silt particles (0.0002-0.05 mm)	0.024
Phenology; Peak of season (day number)	0.0136
Inundation; occurrence	0

**T14 - [G13] Mediterranean and Macaronesian riparian forest - distribution**

**T14 - [G13] Mediterranean and Macaronesian riparian forest - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.8985
AUC test (0-1)	0.8834
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	42.8998
Temperature seasonality (stdev * 100)	11.0652
Distance to water (rivers, lakes, sea)	7.3786
Precipitation of warmest quarter	7.189
Soil pH (water)	6.4145
Volume % of coarse fragments (> 2 mm)	4.7617
Phenology; Low of season (day number)	3.7657
Precipitation seasonality (coef. of var.)	3.076
Phenology; Length of season (days)	2.3084
Soil organic carbon content (‰)	1.9725
Phenology; NDVI mean	1.4781
Weight in % of clay particles (<0.0002 mm)	1.4227
Phenology; NDVI seasonality	1.2215
Phenology; Peak of season (day number)	1.1433
Phenology; Start of Season (day number)	0.9832
Digital Elevation Map (DEM)	0.9291
Bulk density (kg/m³)	0.6437
Mean temperature of wettest quarter	0.3804
Solar radiation	0.2706
Cation Exchange Capacity of the soil	0.231
Vegetation height (m)	0.1999
Weight in % of sand particles (0.05-2 mm)	0.1578
Phenology; End of Season (day number)	0.043
Annual precipitation	0.0376
Inundation; occurrence	0.0163
Weight in % of silt particles (0.0002-0.05 mm)	0.0105

T15 - [G14] Broadleaved swamp forest on non-acid peat - distribution
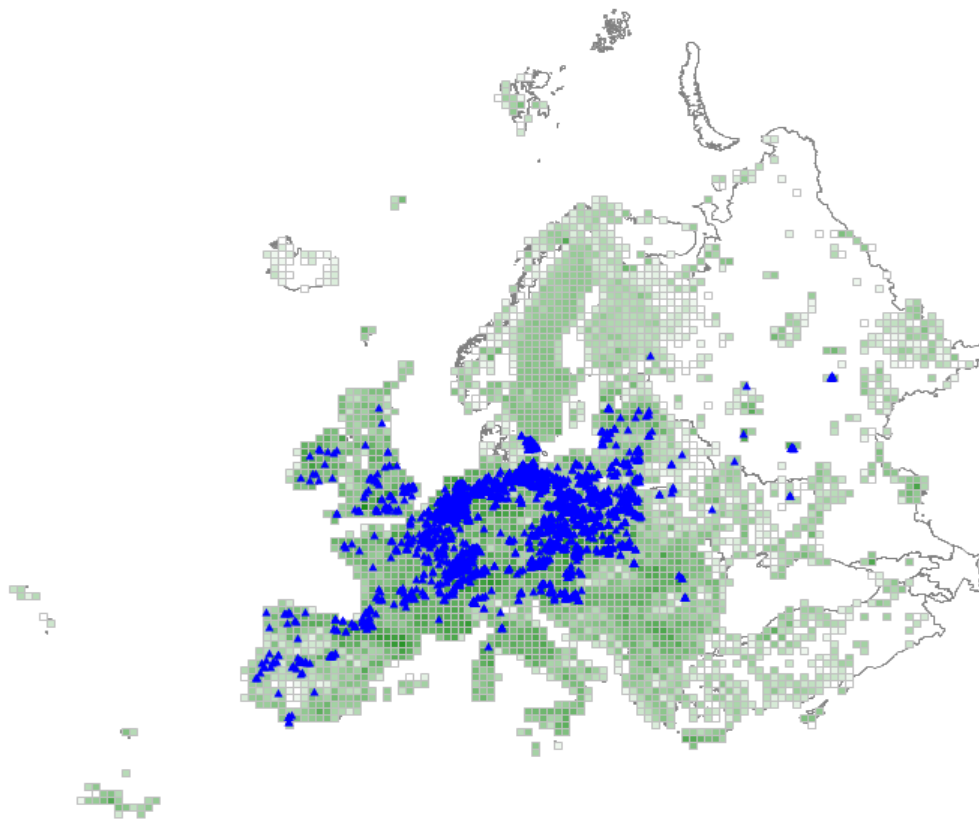
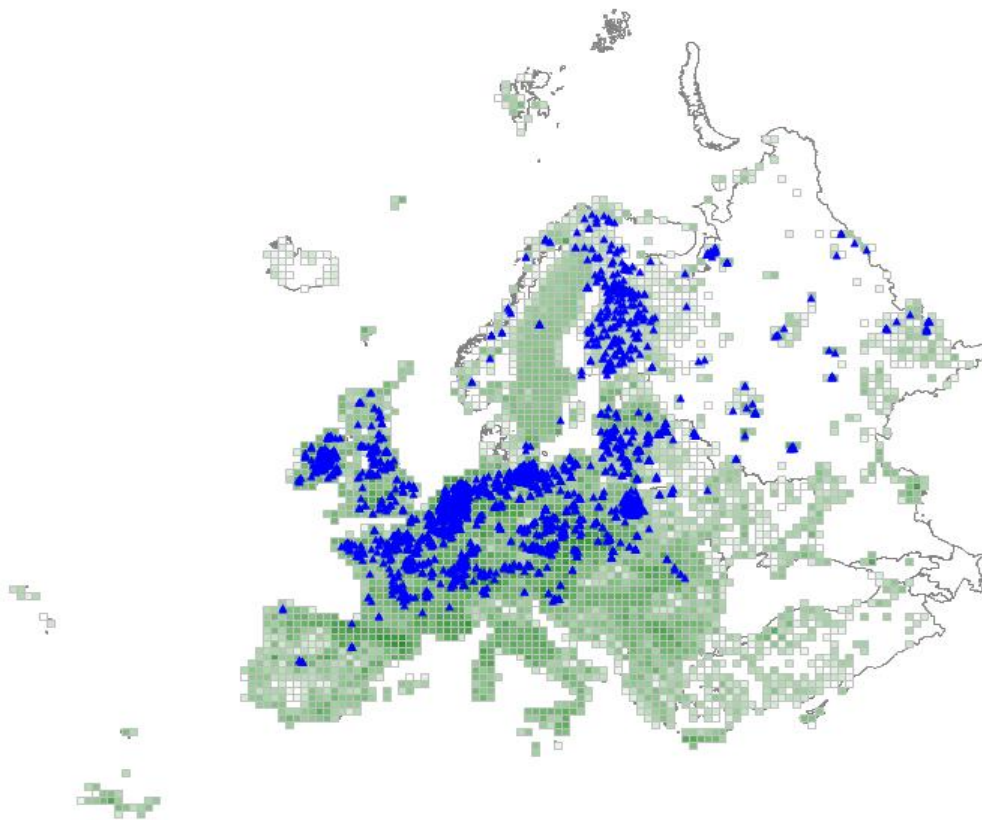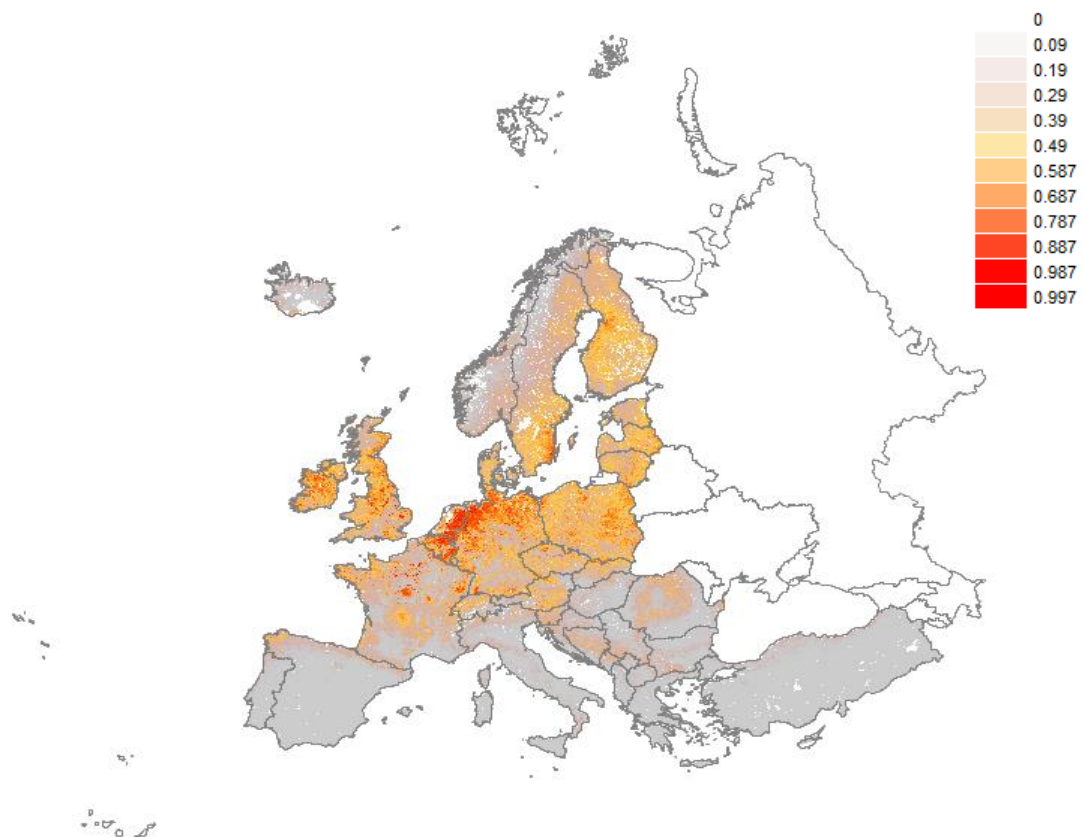**T15 - [G14] Broadleaved swamp forest on non-acid peat - suitability**
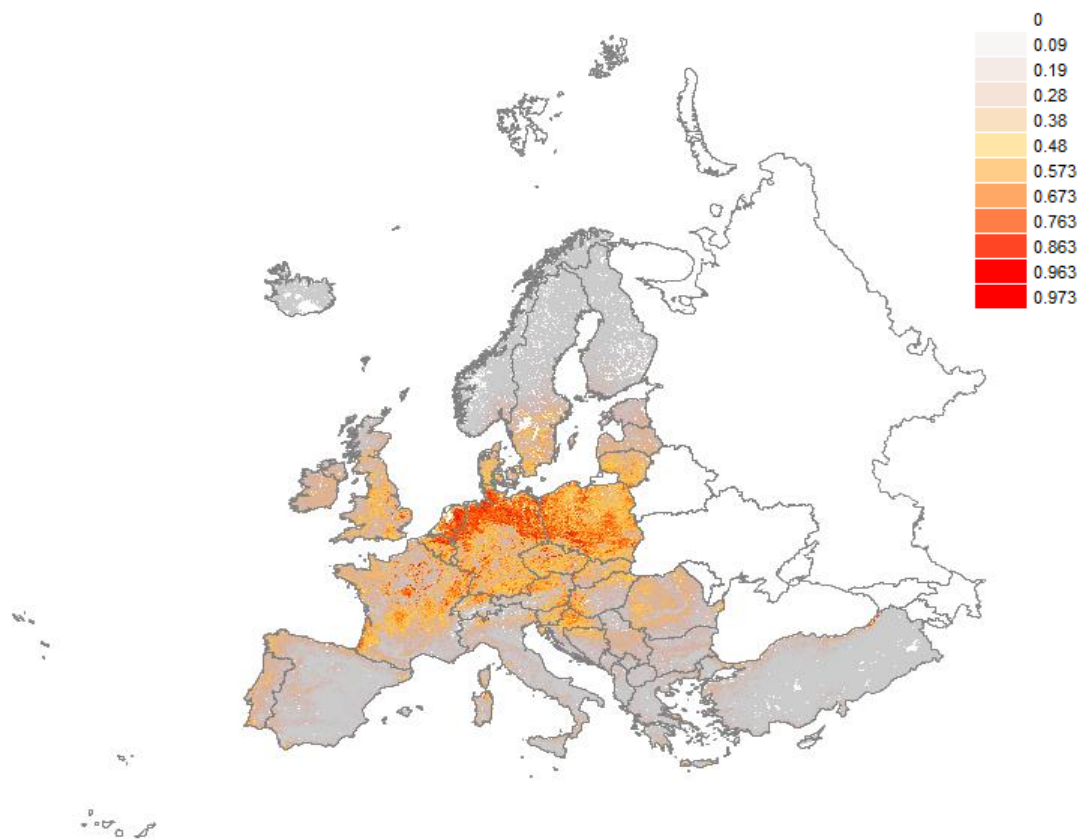
Statistics from Maxent modelling

AUC training (0-1)	0.8028
AUC test (0-1)	0.8026
Contribution variables to the Maxent model (%)	
Soil pH (water)	19.6827
Precipitation of warmest quarter	12.3322
Potential Evapotranspiration	11.9049
Bulk density (kg/m³)	11.6143
Weight in % of sand particles (0.05-2 mm)	10.0779
Digital Elevation Map (DEM)	9.9632
Phenology; Low of season (day number)	5.6441
Temperature seasonality (stdev * 100)	3.6854
Weight in % of silt particles (0.0002-0.05 mm)	2.0909
Cation Exchange Capacity of the soil	1.7093
Phenology; NDVI mean	1.5131
Weight in % of clay particles (<0.0002 mm)	1.3297
Phenology; Start of Season (day number)	1.2927
Precipitation seasonality (coef. of var.)	1.2532
Phenology; End of Season (day number)	1.1837
Mean temperature of wettest quarter	1.1769
Phenology; Length of season (days)	1.1457
Phenology; Peak of season (day number)	0.9813
Annual precipitation	0.6561
Distance to water (rivers, lakes, sea)	0.3332
Phenology; NDVI seasonality	0.1525
Vegetation height (m)	0.1216
Volume % of coarse fragments (> 2 mm)	0.1002
Soil organic carbon content (‰)	0.0248
Inundation; occurrence	0.0213
Solar radiation	0.0092

**T16 - [G15] Broadleaved mire forest on acid peat - distribution**

**T16 - [G15] Broadleaved mire forest on acid peat - suitability**

	0
	0.09
	0.19
	0.29
	0.39
	0.49
	0.587
	0.687
	0.787
	0.887
	0.987
	0.997

Statistics from Maxent modelling

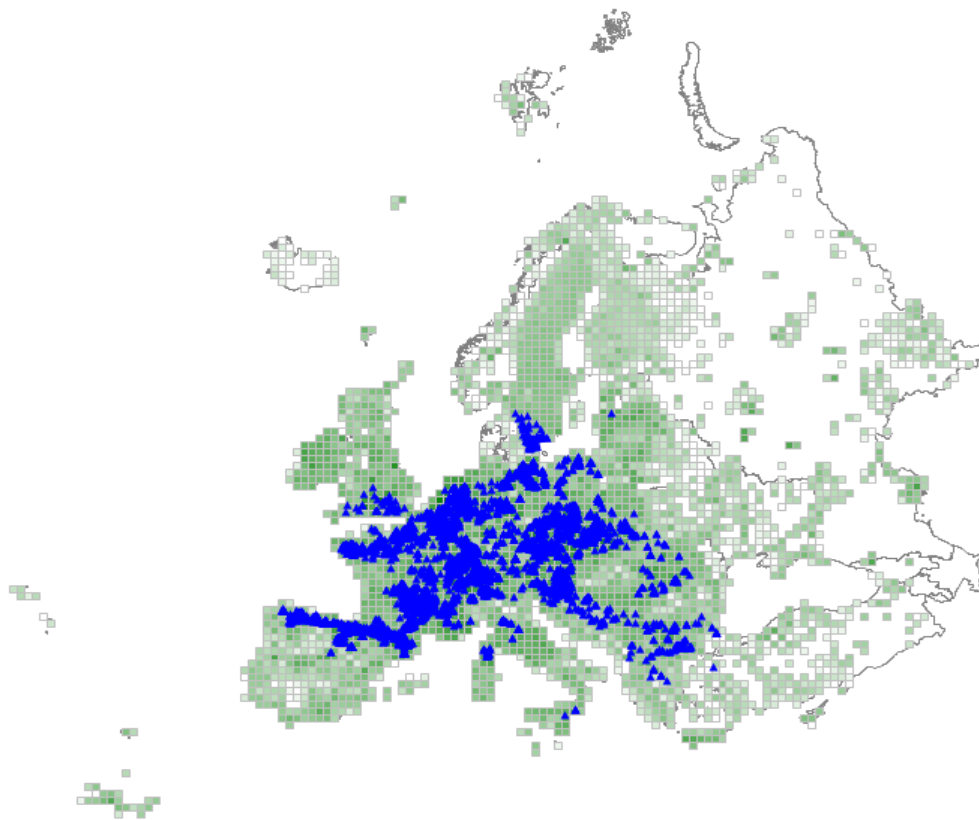|	
AUC training (0-1)	0.8066
AUC test (0-1)	0.8067
Contribution variables to the Maxent model (%)	
Soil pH (water)	21.1608
Precipitation of warmest quarter	18.8122
Digital Elevation Map (DEM)	13.2587
Precipitation seasonality (coef. of var.)	9.5929
Phenology; Low of season (day number)	6.6005
Weight in % of clay particles (<0.0002 mm)	5.983
Potential Evapotranspiration	5.2252
Weight in % of sand particles (0.05-2 mm)	5.0468
Phenology; End of Season (day number)	2.9986
Phenology; NDVI mean	2.5841
Temperature seasonality (stdev * 100)	2.513
Weight in % of silt particles (0.0002-0.05 mm)	1.3989
Phenology; Start of Season (day number)	0.8436
Annual precipitation	0.7321
Vegetation height (m)	0.7036
Phenology; NDVI seasonality	0.6737
Mean temperature of wettest quarter	0.6186
Volume % of coarse fragments (> 2 mm)	0.5181
Bulk density (kg/m³)	0.3556
Soil organic carbon content (‰)	0.2639
Phenology; Peak of season (day number)	0.0514
Phenology; Length of season (days)	0.0446
Distance to water (rivers, lakes, sea)	0.0124
Cation Exchange Capacity of the soil	0.0078
Inundation; occurrence	0
Solar radiation	0

T17 - [G16a] Fagus forest on non-acid soils - distribution
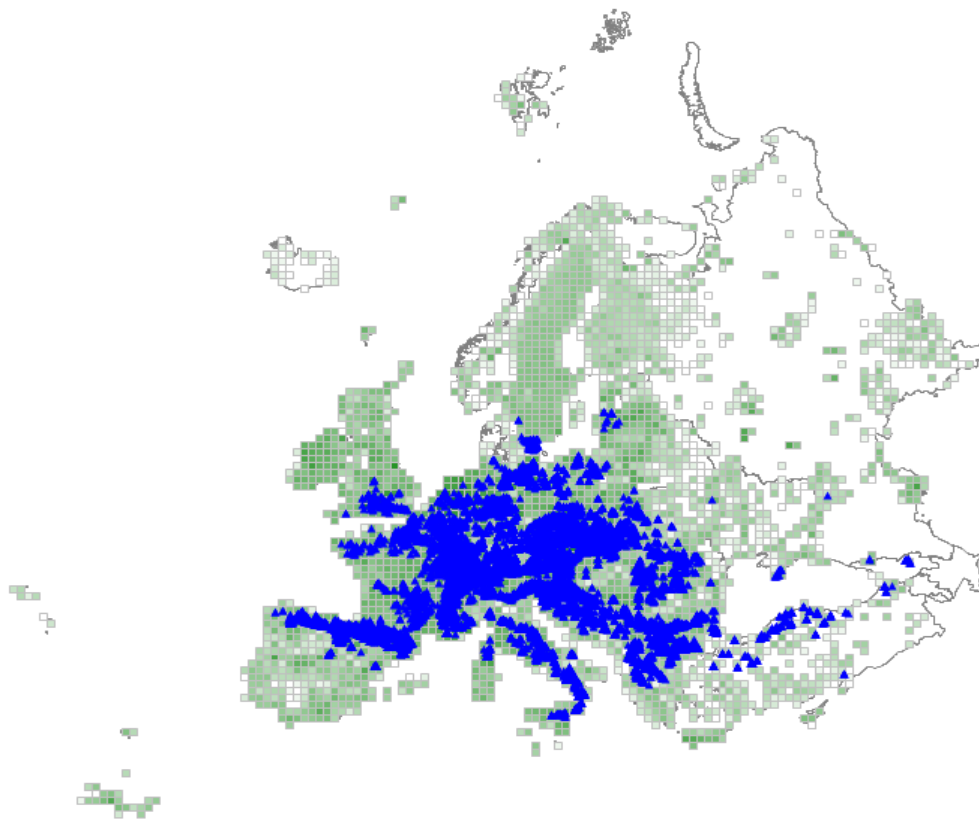
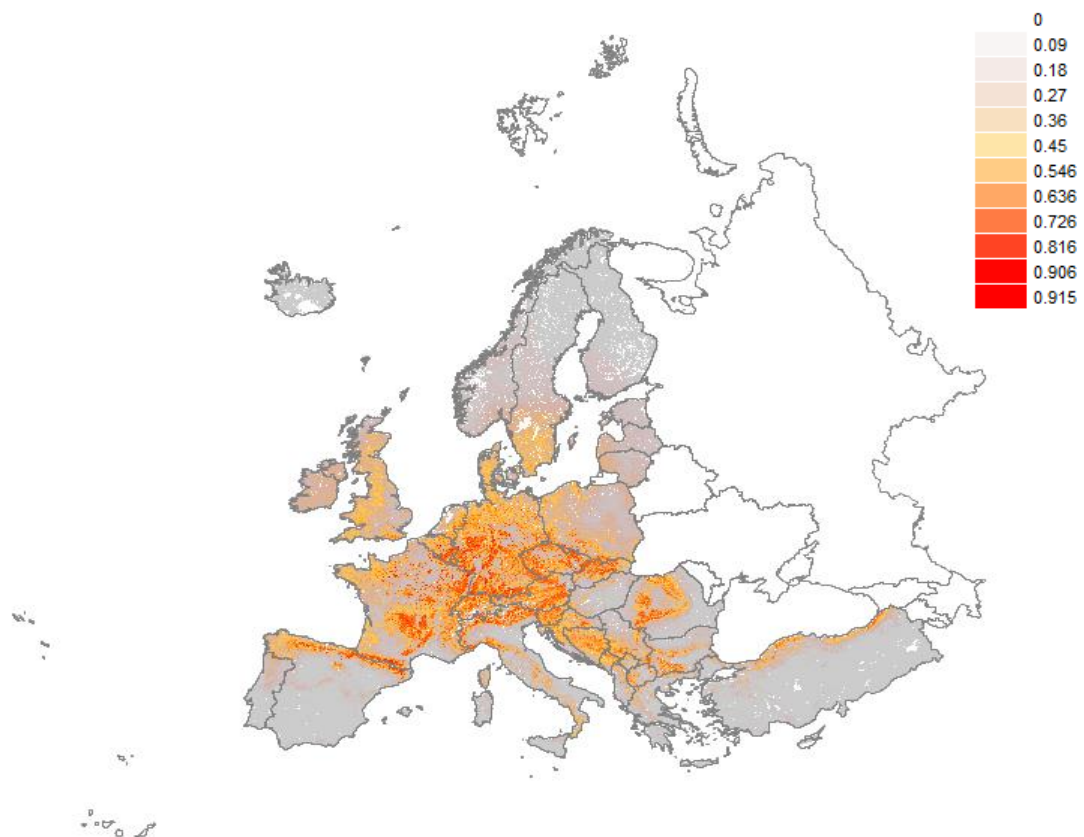**T17 - [G16a] Fagus forest on non-acid soils - suitability**
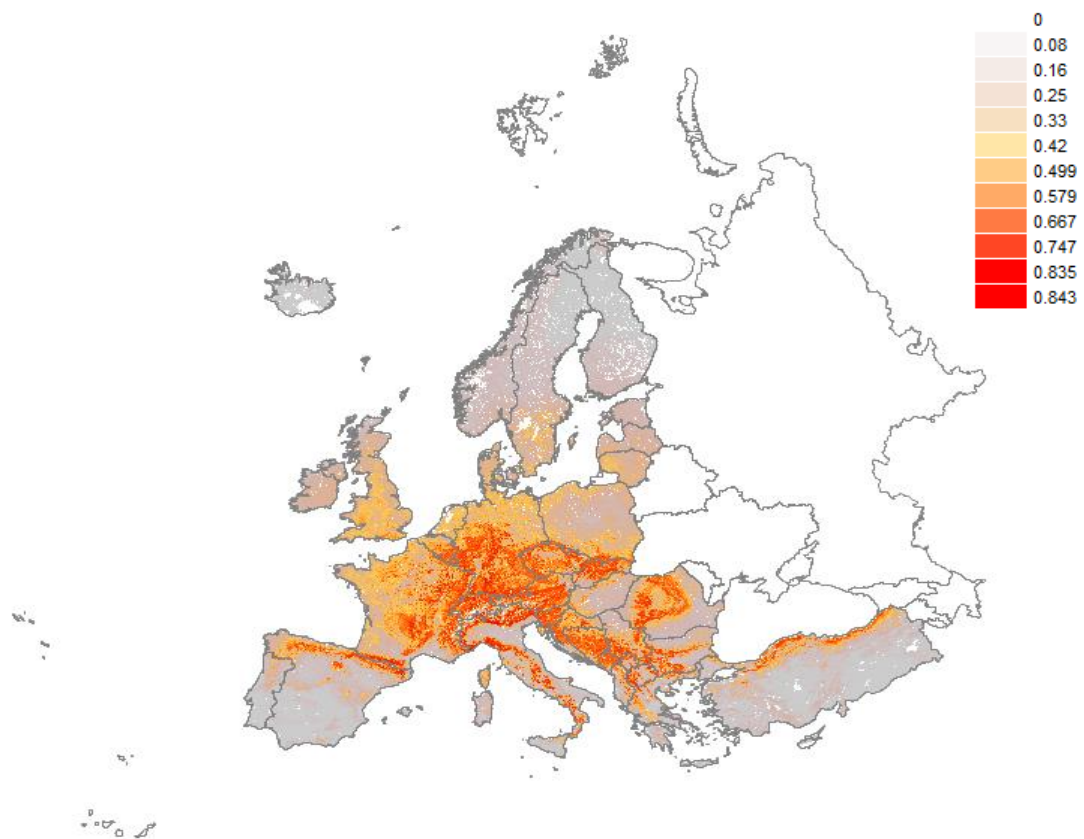
Statistics from Maxent modelling

|	
AUC training (0-1)	0.6527
AUC test (0-1)	0.6433
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	17.9115
Potential Evapotranspiration	15.6732
Bulk density (kg/m³)	11.4739
Phenology; Length of season (days)	10.4773
Digital Elevation Map (DEM)	9.0965
Temperature seasonality (stdev * 100)	8.2563
Vegetation height (m)	6.7261
Soil pH (water)	6.1568
Weight in % of clay particles (<0.0002 mm)	5.8249
Phenology; NDVI mean	4.6938
Phenology; End of Season (day number)	1.2284
Phenology; Start of Season (day number)	0.8658
Phenology; NDVI seasonality	0.509
Weight in % of silt particles (0.0002-0.05 mm)	0.2321
Mean temperature of wettest quarter	0.2109
Annual precipitation	0.1706
Weight in % of sand particles (0.05-2 mm)	0.1636
Volume % of coarse fragments (> 2 mm)	0.0907
Cation Exchange Capacity of the soil	0.0905
Phenology; Low of season (day number)	0.0656
Soil organic carbon content (‰)	0.0534
Phenology; Peak of season (day number)	0.0155
Precipitation seasonality (coef. of var.)	0.0103
Distance to water (rivers, lakes, sea)	0.0032
Inundation; occurrence	0
Solar radiation	0

T18 - [G16b] Fagus forest on acid soils - distribution



T18 - [G16b] Fagus forest on acid soils - suitability

	0
	0.09
	0.18
	0.27
	0.36
	0.45
	0.546
	0.636
	0.726
	0.816
	0.906
	0.915

Statistics from Maxent modelling

AUC training (0-1)	0.729
AUC test (0-1)	0.7289
Contribution variables to the Maxent model (%)	
Soil pH (water)	34.0421
Temperature seasonality (stdev * 100)	16.8031
Potential Evapotranspiration	14.6781
Precipitation of warmest quarter	10.6513
Vegetation height (m)	7.6069
Phenology; Length of season (days)	5.2519
Phenology; NDVI mean	2.8667
Bulk density (kg/m³)	1.6844
Phenology; End of Season (day number)	1.4451
Phenology; Low of season (day number)	1.3009
Digital Elevation Map (DEM)	0.8806
Phenology; Start of Season (day number)	0.6036
Solar radiation	0.5883
Precipitation seasonality (coef. of var.)	0.577
Cation Exchange Capacity of the soil	0.2542
Weight in % of clay particles (<0.0002 mm)	0.1995
Weight in % of silt particles (0.0002-0.05 mm)	0.1973
Phenology; NDVI seasonality	0.1535
Weight in % of sand particles (0.05-2 mm)	0.0884
Volume % of coarse fragments (> 2 mm)	0.0705
Distance to water (rivers, lakes, sea)	0.0311
Annual precipitation	0.0147
Soil organic carbon content (‰)	0.0085
Mean temperature of wettest quarter	0.0024
Inundation; occurrence	0
Phenology; Peak of season (day number)	0

T19 - [G17a] Temperate and submediterranean thermophilous deciduous forest - distribution
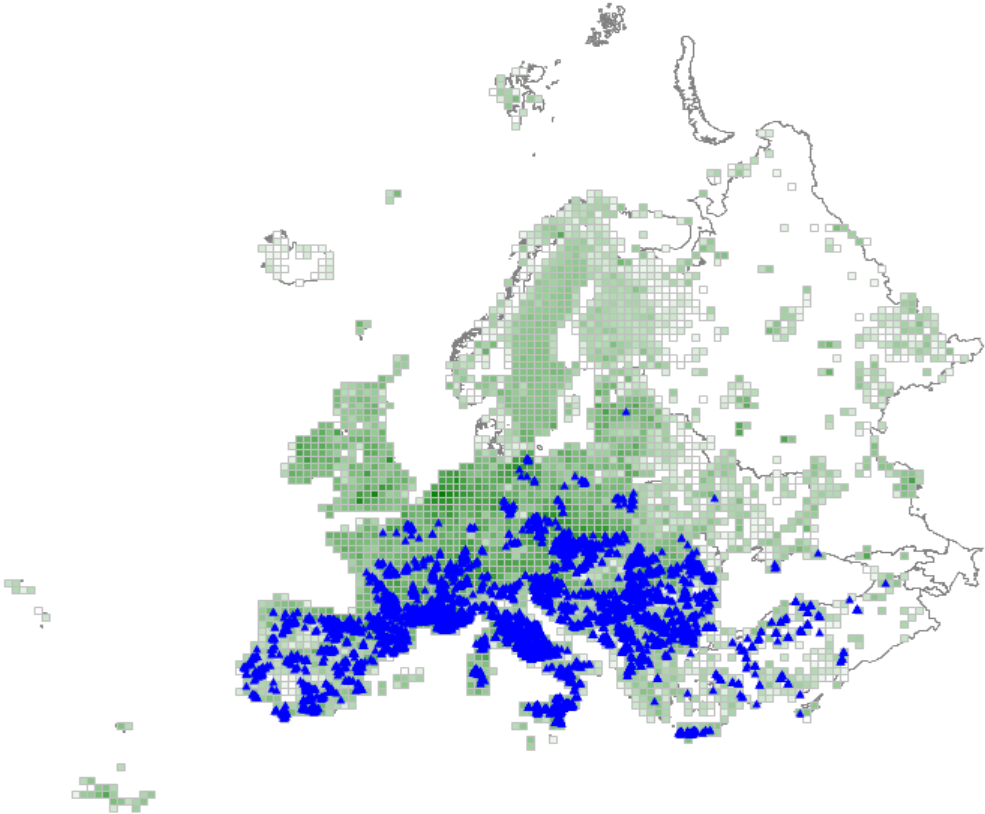
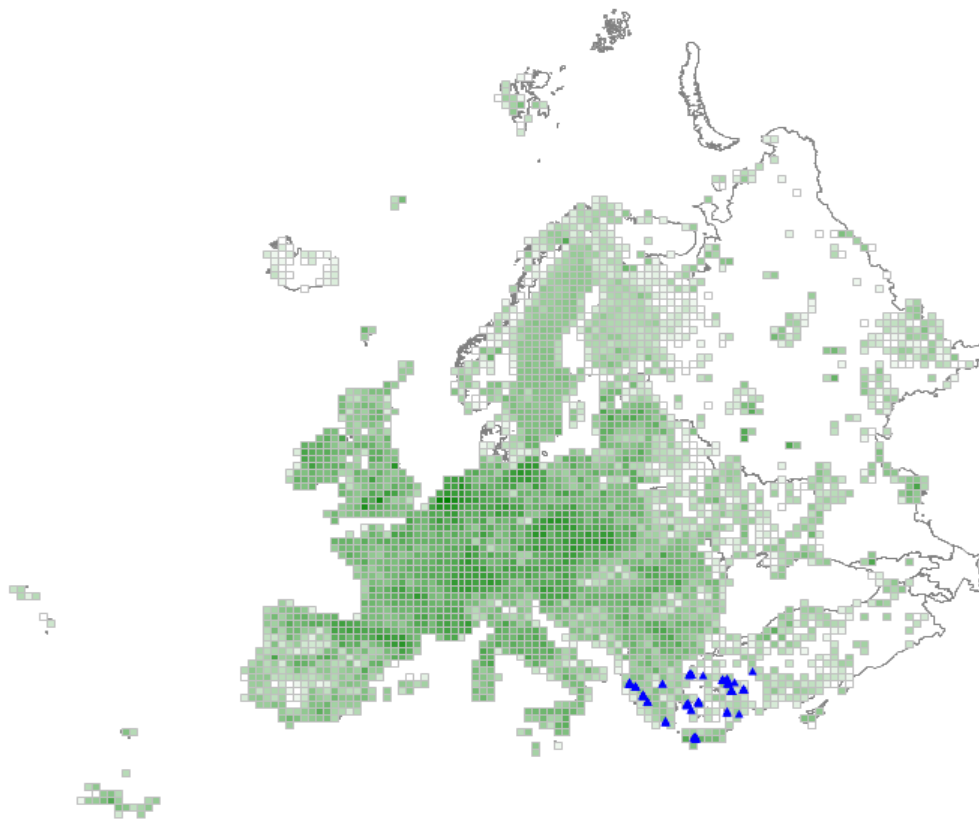**T19 - [G17a] Temperate and submediterranean thermophilous deciduous forest - suitability**
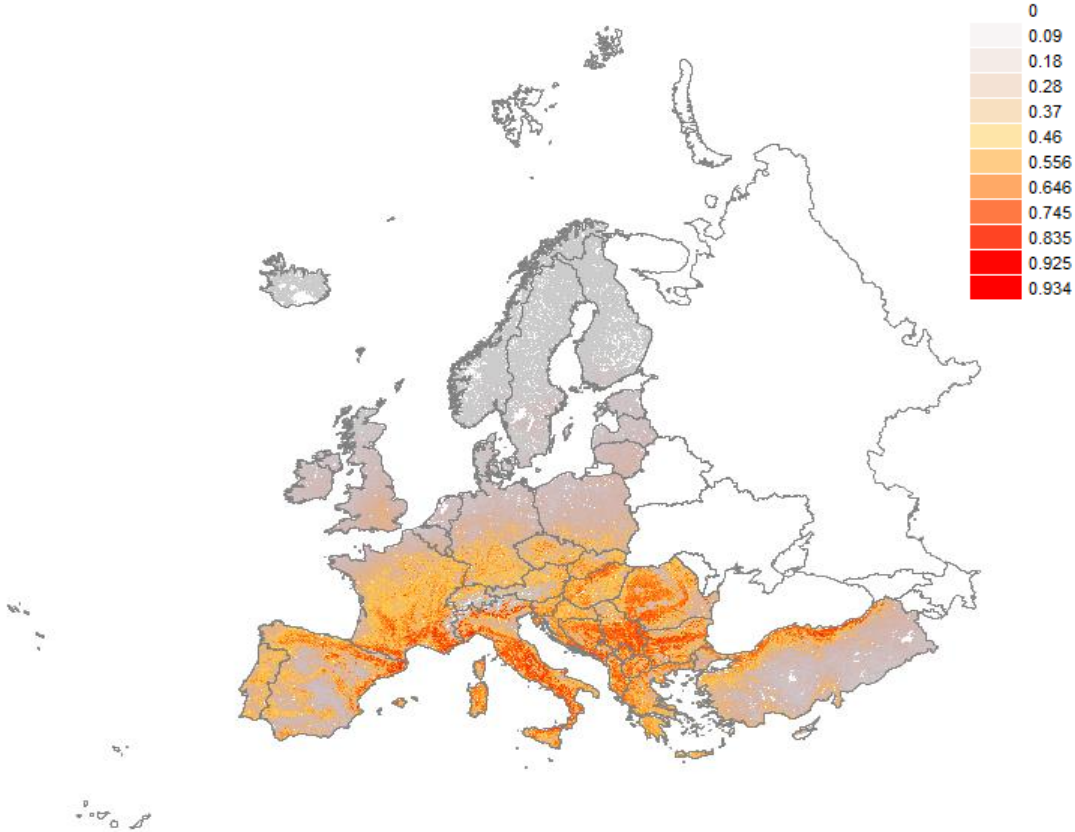
Statistics from Maxent modelling

AUC training (0-1)	0.7015
AUC test (0-1)	0.6953
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	39.4018
Weight in % of clay particles (<0.0002 mm)	23.9706
Phenology; NDVI mean	11.5937
Phenology; Length of season (days)	7.4794
Phenology; Low of season (day number)	4.2293
Digital Elevation Map (DEM)	2.5989
Bulk density (kg/m³)	1.9139
Weight in % of silt particles (0.0002-0.05 mm)	1.7254
Soil organic carbon content (‰)	1.4279
Phenology; Start of Season (day number)	1.0996
Soil pH (water)	0.9806
Temperature seasonality (stdev * 100)	0.8364
Volume % of coarse fragments (> 2 mm)	0.7507
Mean temperature of wettest quarter	0.4418
Solar radiation	0.3445
Precipitation of warmest quarter	0.2626
Phenology; NDVI seasonality	0.2268
Phenology; Peak of season (day number)	0.1876
Precipitation seasonality (coef. of var.)	0.1521
Vegetation height (m)	0.147
Cation Exchange Capacity of the soil	0.1113
Phenology; End of Season (day number)	0.0665
Weight in % of sand particles (0.05-2 mm)	0.0423
Annual precipitation	0.0092
Distance to water (rivers, lakes, sea)	0
Inundation; occurrence	0

**T1A - [G17b] Mediterranean thermophilous deciduous forest - distribution**

**T1A - [G17b] Mediterranean thermophilous deciduous forest - suitability**
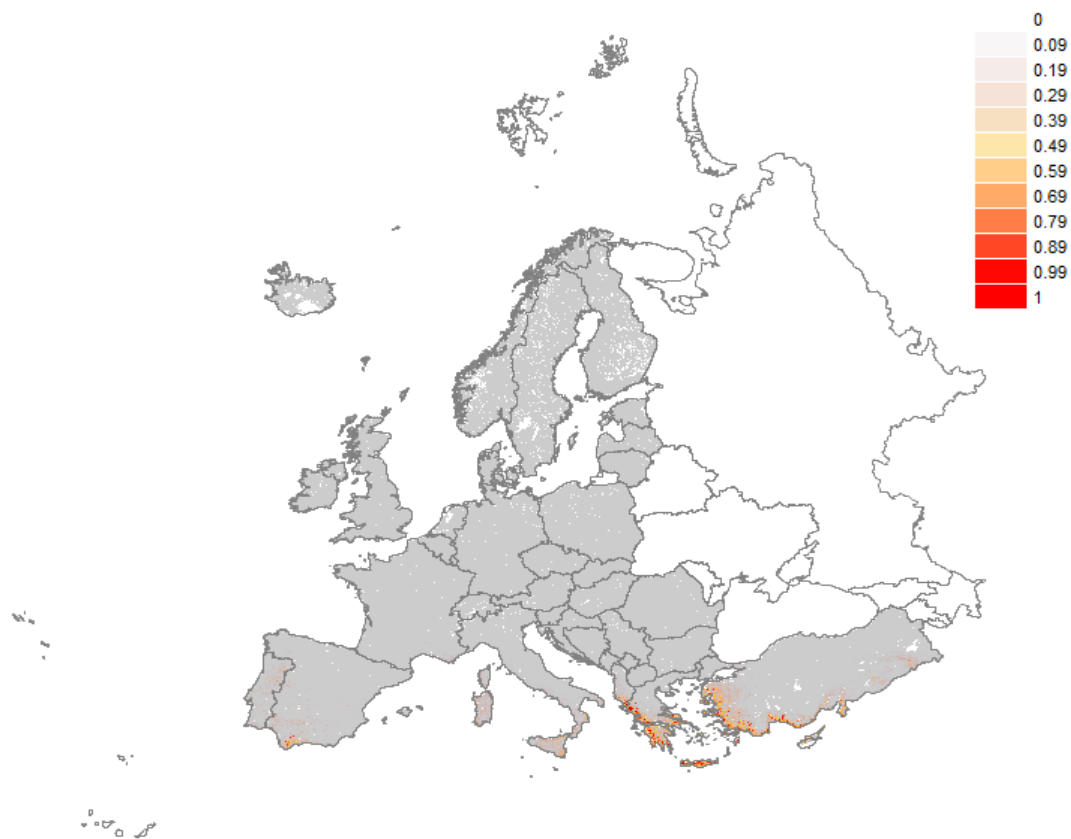
Statistics from Maxent modelling

AUC training (0-1)	0.9898
AUC test (0-1)	0.9949
Contribution variables to the Maxent model (%)	
Precipitation seasonality (coef. of var.)	35.9742
Precipitation of warmest quarter	33.5697
Soil organic carbon content (‰)	10.2074
Temperature seasonality (stdev * 100)	9.2647
Digital Elevation Map (DEM)	2.3743
Phenology; Peak of season (day number)	1.6551
Phenology; End of Season (day number)	1.3905
Phenology; Length of season (days)	1.1657
Distance to water (rivers, lakes, sea)	1.0391
Cation Exchange Capacity of the soil	0.8385
Potential Evapotranspiration	0.7923
Phenology; NDVI mean	0.4467
Annual precipitation	0.3391
Phenology; NDVI seasonality	0.3382
Soil pH (water)	0.1238
Vegetation height (m)	0.1193
Phenology; Low of season (day number)	0.0688
Volume % of coarse fragments (> 2 mm)	0.0657
Weight in % of sand particles (0.05-2 mm)	0.0658
Inundation; occurrence	0.0633
Mean temperature of wettest quarter	0.0438
Bulk density (kg/m³)	0.0278
Phenology; Start of Season (day number)	0.0158
Solar radiation	0.0104
Weight in % of clay particles (<0.0002 mm)	0
Weight in % of silt particles (0.0002-0.05 mm)	0

## T1B - [G18] Acidophilous Quercus forest - distribution
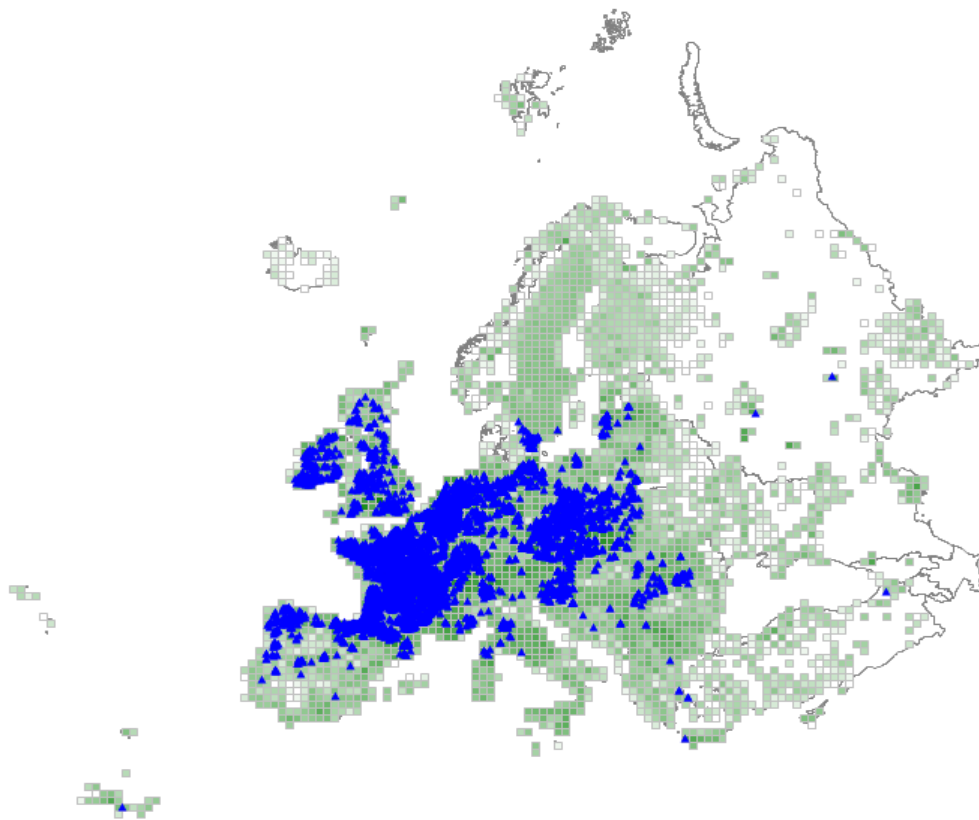
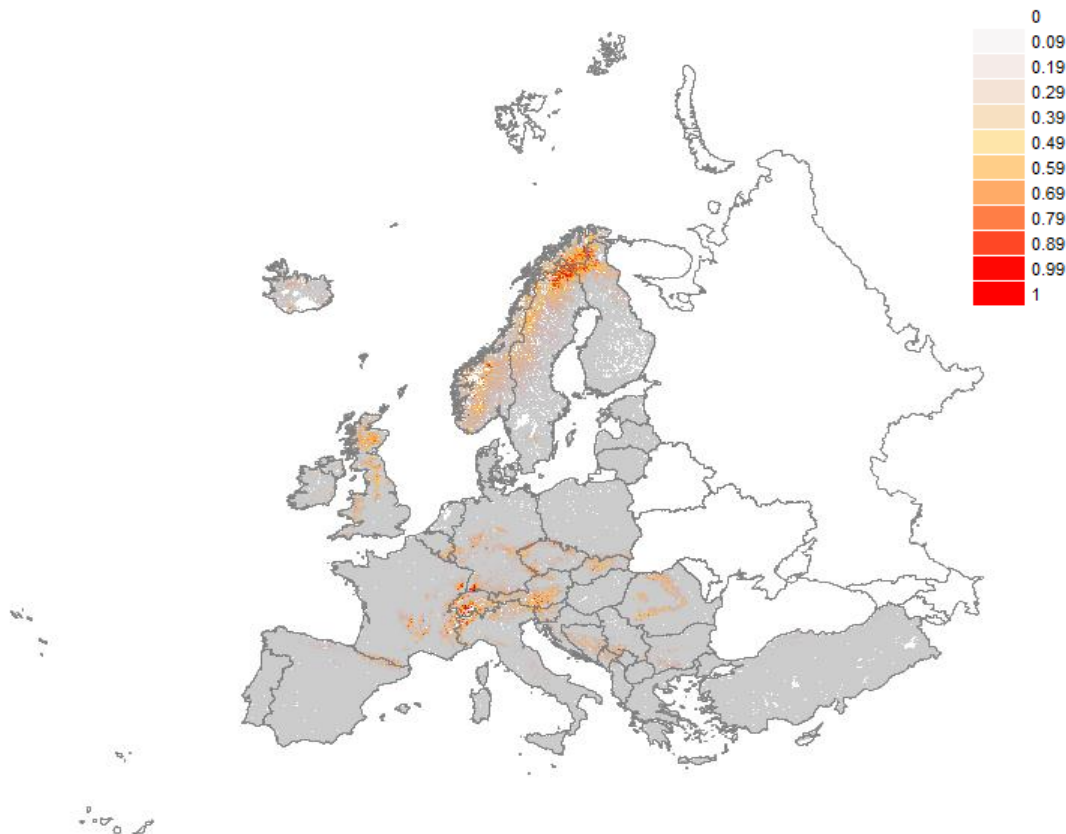## T1B - [G18] Acidophilous Quercus forest - suitability
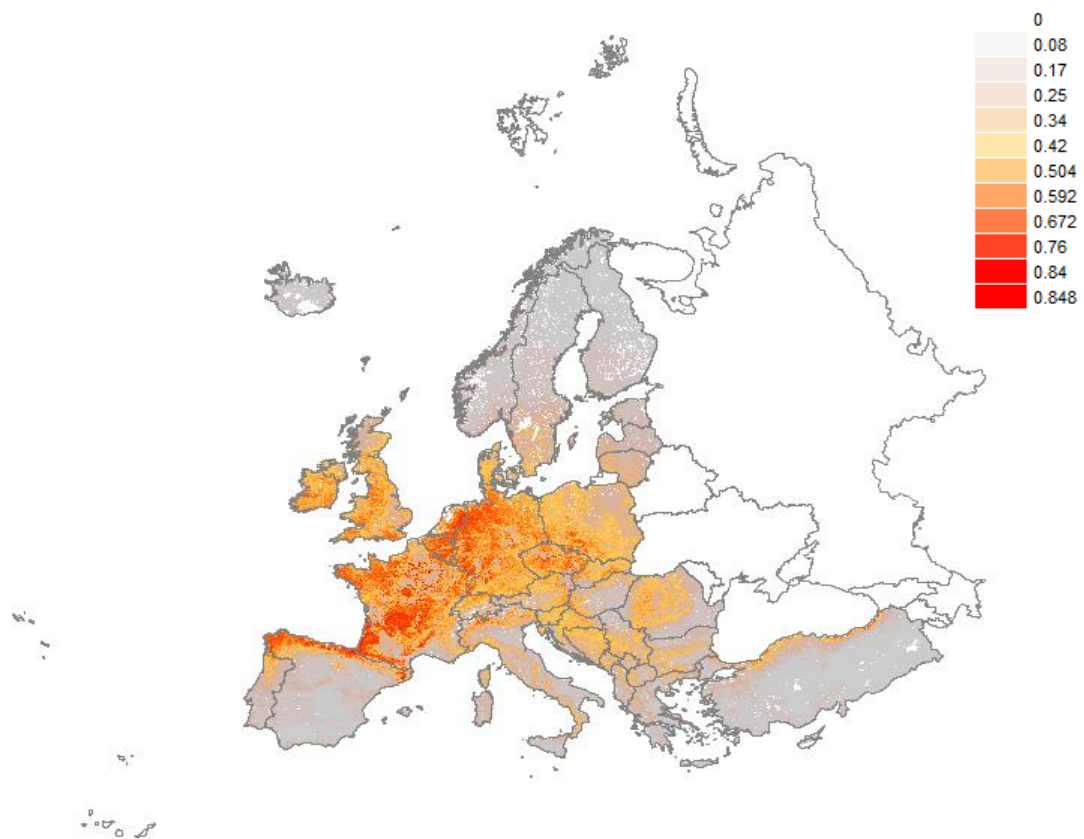
Statistics from Maxent modelling

AUC training (0-1)	0.6654
AUC test (0-1)	0.6644
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	25.025
Temperature seasonality (stdev * 100)	19.8667
Potential Evapotranspiration	15.6482
Soil pH (water)	15.1601
Bulk density (kg/m³)	10.9036
Phenology; NDVI mean	4.1545
Precipitation seasonality (coef. of var.)	3.1085
Cation Exchange Capacity of the soil	1.9019
Phenology; Low of season (day number)	1.0028
Digital Elevation Map (DEM)	0.6738
Weight in % of clay particles (<0.0002 mm)	0.6099
Phenology; Length of season (days)	0.6067
Phenology; End of Season (day number)	0.4213
Phenology; Peak of season (day number)	0.2768
Volume % of coarse fragments (> 2 mm)	0.2377
Phenology; NDVI seasonality	0.1191
Phenology; Start of Season (day number)	0.0931
Annual precipitation	0.0865
Vegetation height (m)	0.0351
Mean temperature of wettest quarter	0.0246
Weight in % of sand particles (0.05-2 mm)	0.0219
Soil organic carbon content (‰)	0.0123
Weight in % of silt particles (0.0002-0.05 mm)	0.0102
Solar radiation	0
Distance to water (rivers, lakes, sea)	0
Inundation; occurrence	0

T1C - [G19a] Temperate and boreal mountain Betula and Populus tremula forest on mineral soils - distribution
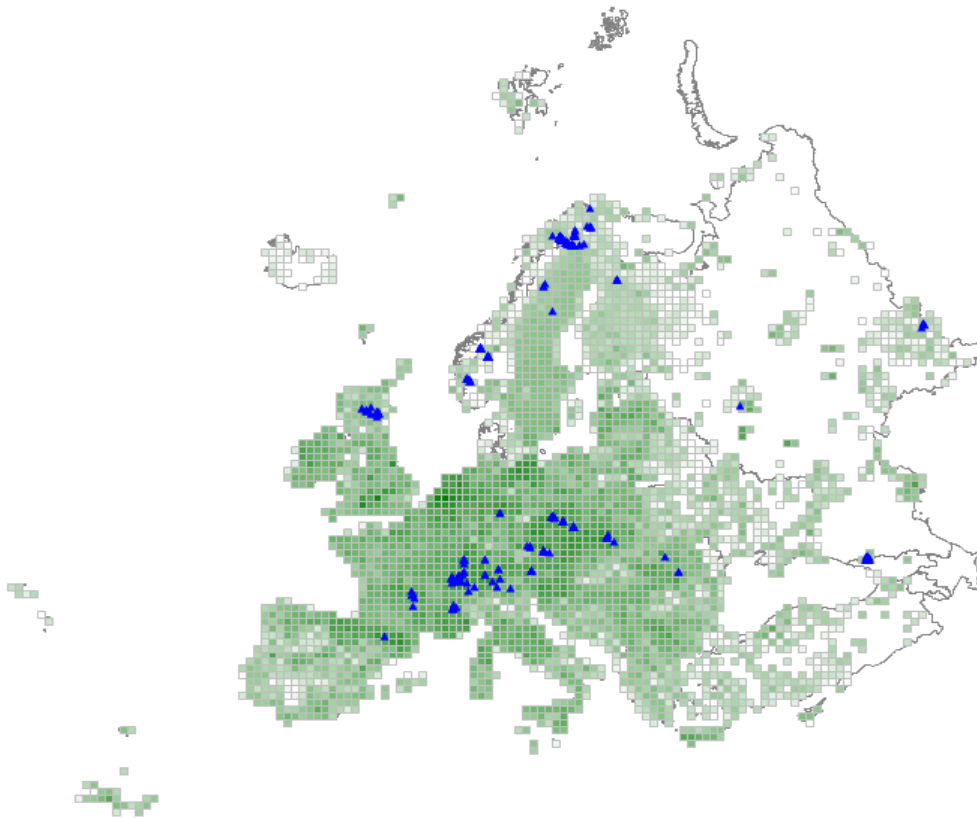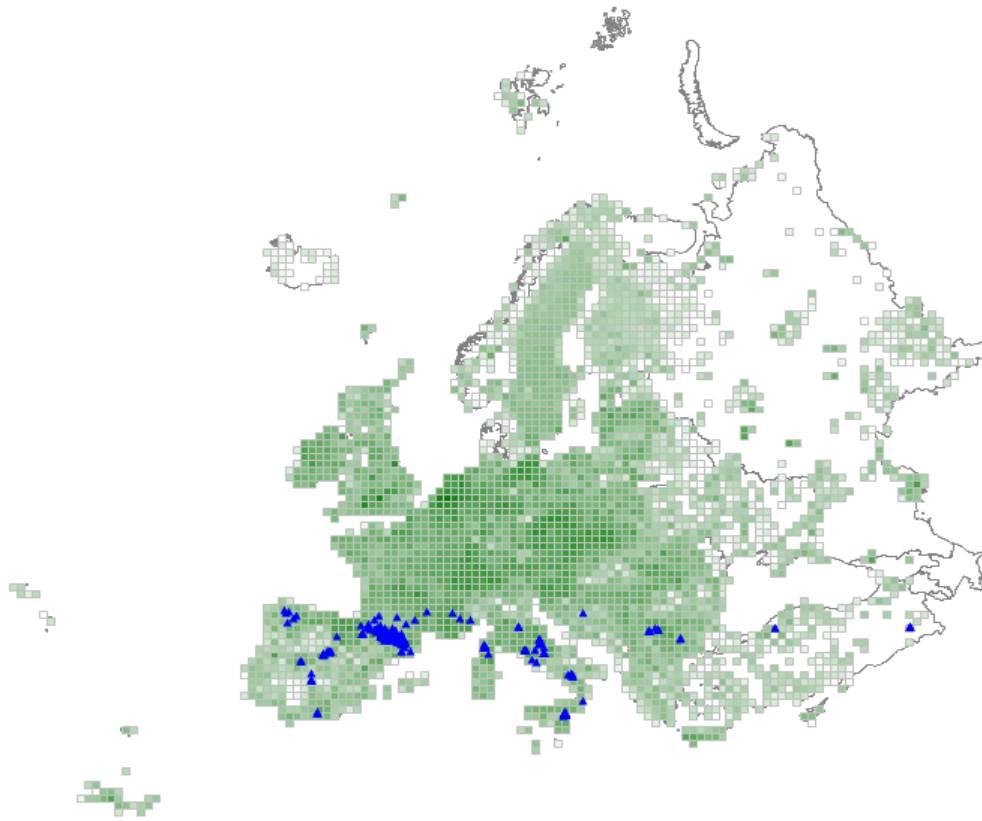

T1C - [G19a] Temperate and boreal mountain Betula and Populus tremula forest on mineral soils - suitability

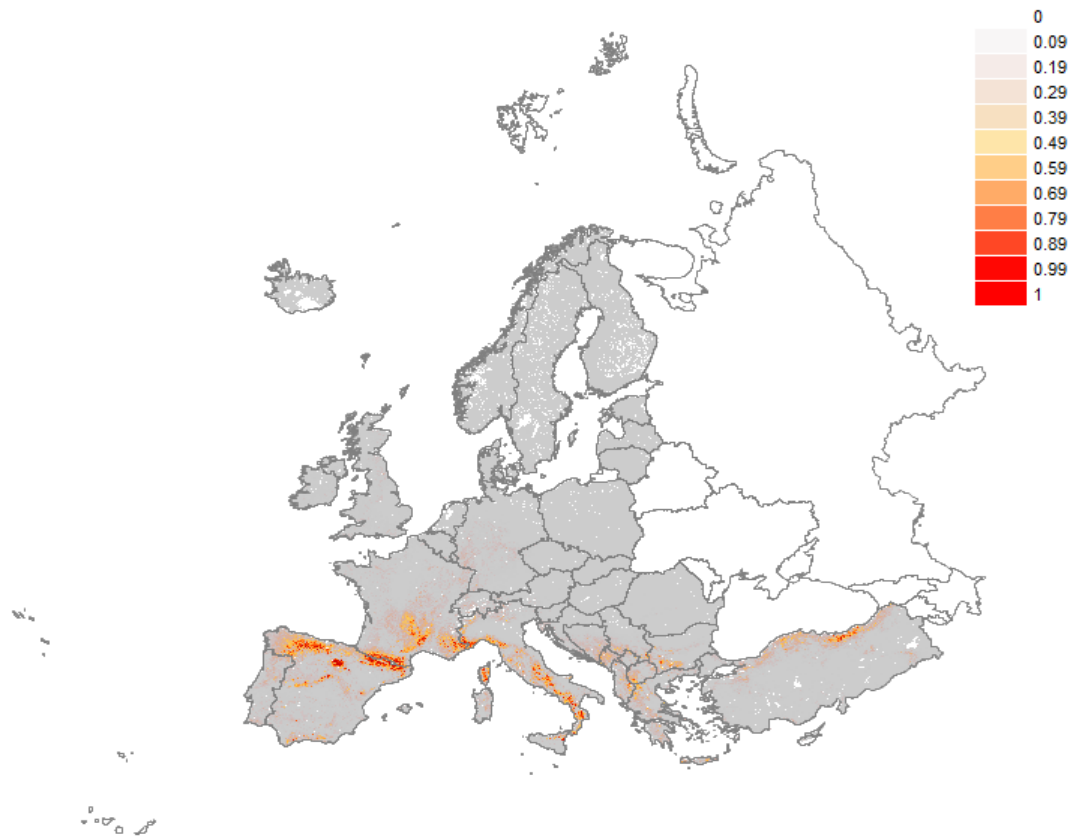**Statistics from Maxent modelling**

AUC training (0-1)	0.9695
AUC test (0-1)	0.9402
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	30.2144
Soil organic carbon content (‰)	16.5591
Potential Evapotranspiration	10.6086
Annual precipitation	10.2111
Bulk density (kg/m³)	8.5619
Precipitation of warmest quarter	4.2021
Weight in % of clay particles (<0.0002 mm)	4.0103
Phenology; NDVI mean	3.6949
Soil pH (water)	2.8621
Distance to water (rivers, lakes, sea)	2.4762
Temperature seasonality (stdev * 100)	1.2833
Precipitation seasonality (coef. of var.)	1.1148
Phenology; End of Season (day number)	0.9332
Mean temperature of wettest quarter	0.9261
Vegetation height (m)	0.7262
Weight in % of silt particles (0.0002-0.05 mm)	0.5077
Phenology; Low of season (day number)	0.4198
Phenology; Length of season (days)	0.2473
Cation Exchange Capacity of the soil	0.1439
Volume % of coarse fragments (> 2 mm)	0.0759
Inundation; occurrence	0.0647
Phenology; NDVI seasonality	0.0551
Phenology; Start of Season (day number)	0.0437
Weight in % of sand particles (0.05-2 mm)	0.0297
Solar radiation	0.0266
Phenology; Peak of season (day number)	0.0013

T1D - [G19b] Southern European mountain Betula and Populus tremula forest on mineral soils - distribution

**T1D - [G19b] Southern European mountain Betula and Populus tremula forest on mineral soils - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9682
AUC test (0-1)	0.9666
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	37.7412
Temperature seasonality (stdev * 100)	23.9037
Bulk density (kg/m³)	6.8435
Precipitation of warmest quarter	4.4086
Phenology; Length of season (days)	4.2542
Soil pH (water)	3.6887
Volume % of coarse fragments (> 2 mm)	3.0853
Mean temperature of wettest quarter	2.8417
Phenology; NDVI mean	2.6468
Precipitation seasonality (coef. of var.)	1.7404
Phenology; End of Season (day number)	1.7105
Vegetation height (m)	1.3823
Weight in % of sand particles (0.05-2 mm)	1.0918
Phenology; Peak of season (day number)	1.0181
Weight in % of clay particles (<0.0002 mm)	0.7083
Phenology; NDVI seasonality	0.5731
Solar radiation	0.5121
Potential Evapotranspiration	0.4157
Phenology; Low of season (day number)	0.3373
Phenology; Start of Season (day number)	0.3221
Weight in % of silt particles (0.0002-0.05 mm)	0.3174
Annual precipitation	0.1716
Soil organic carbon content (‰)	0.165
Cation Exchange Capacity of the soil	0.051
Inundation; occurrence	0.0391
Distance to water (rivers, lakes, sea)	0.0304

**T1E - [G1Aa] Carpinus and Quercus mesic deciduous forest - distribution**
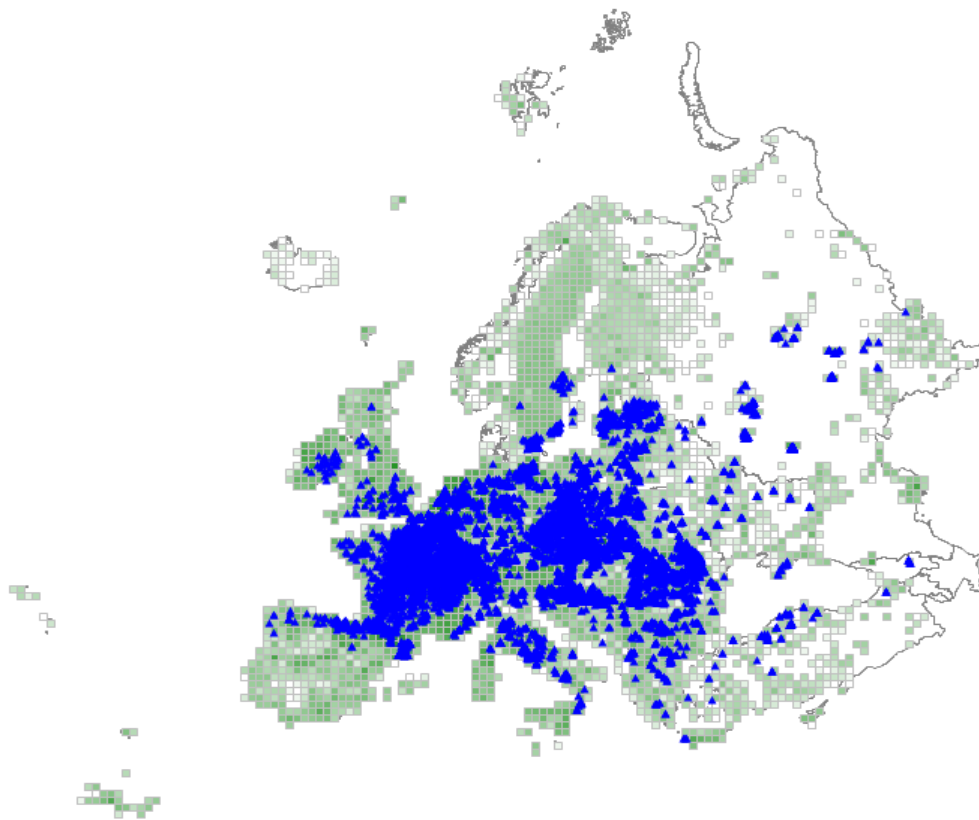
**T1E - [G1Aa] Carpinus and Quercus mesic deciduous forest - suitability**

	0
	0.08
	0.16
	0.24
	0.32
	0.41
	0.489
	0.569
	0.649
	0.729
	0.817
	0.825
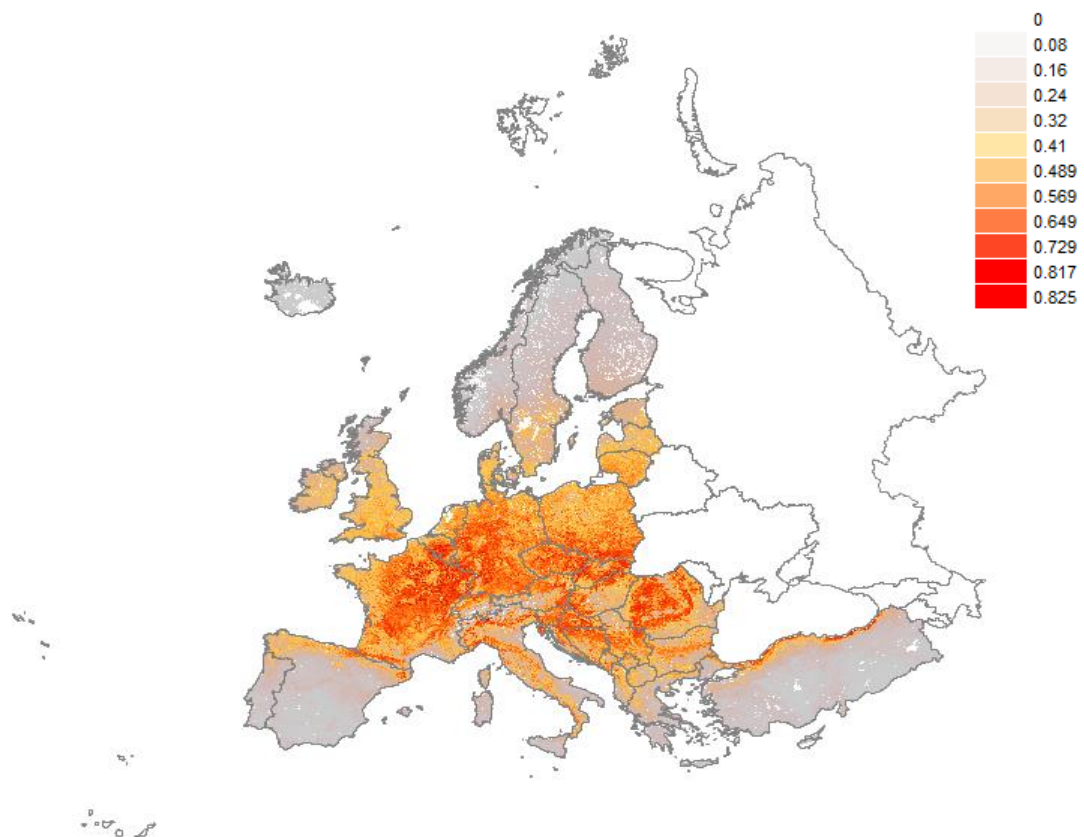
Statistics from Maxent modelling

AUC training (0-1)	0.6508
AUC test (0-1)	0.635
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	34.3943
Potential Evapotranspiration	25.3068
Phenology; Start of Season (day number)	10.4497
Bulk density (kg/m³)	10.0173
Phenology; NDVI mean	6.5338
Soil pH (water)	2.056
Phenology; Low of season (day number)	1.9329
Precipitation seasonality (coef. of var.)	1.6199
Digital Elevation Map (DEM)	1.2978
Vegetation height (m)	1.0298
Phenology; NDVI seasonality	1.026
Volume % of coarse fragments (> 2 mm)	0.7905
Phenology; Length of season (days)	0.7355
Temperature seasonality (stdev * 100)	0.7059
Cation Exchange Capacity of the soil	0.6229
Phenology; Peak of season (day number)	0.4534
Weight in % of clay particles (<0.0002 mm)	0.3241
Mean temperature of wettest quarter	0.3075
Soil organic carbon content (‰)	0.1524
Weight in % of sand particles (0.05-2 mm)	0.1324
Weight in % of silt particles (0.0002-0.05 mm)	0.052
Phenology; End of Season (day number)	0.0489
Solar radiation	0.0104
Annual precipitation	0
Distance to water (rivers, lakes, sea)	0
Inundation; occurrence	0

T1F - [G1Ab] Ravine forest - distribution
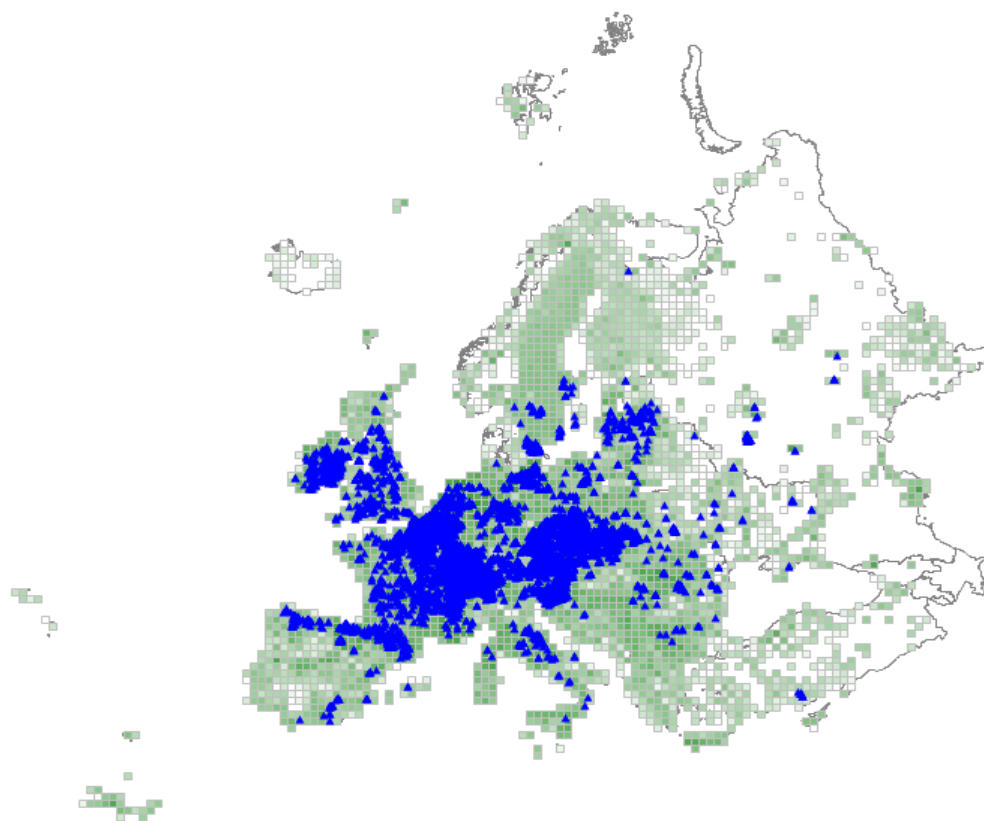

T1F - [G1Ab] Ravine forest - suitability

	0
	0.08
	0.17
	0.25
	0.34
	0.43
	0.515
	0.605
	0.686
	0.776
	0.866
	0.875
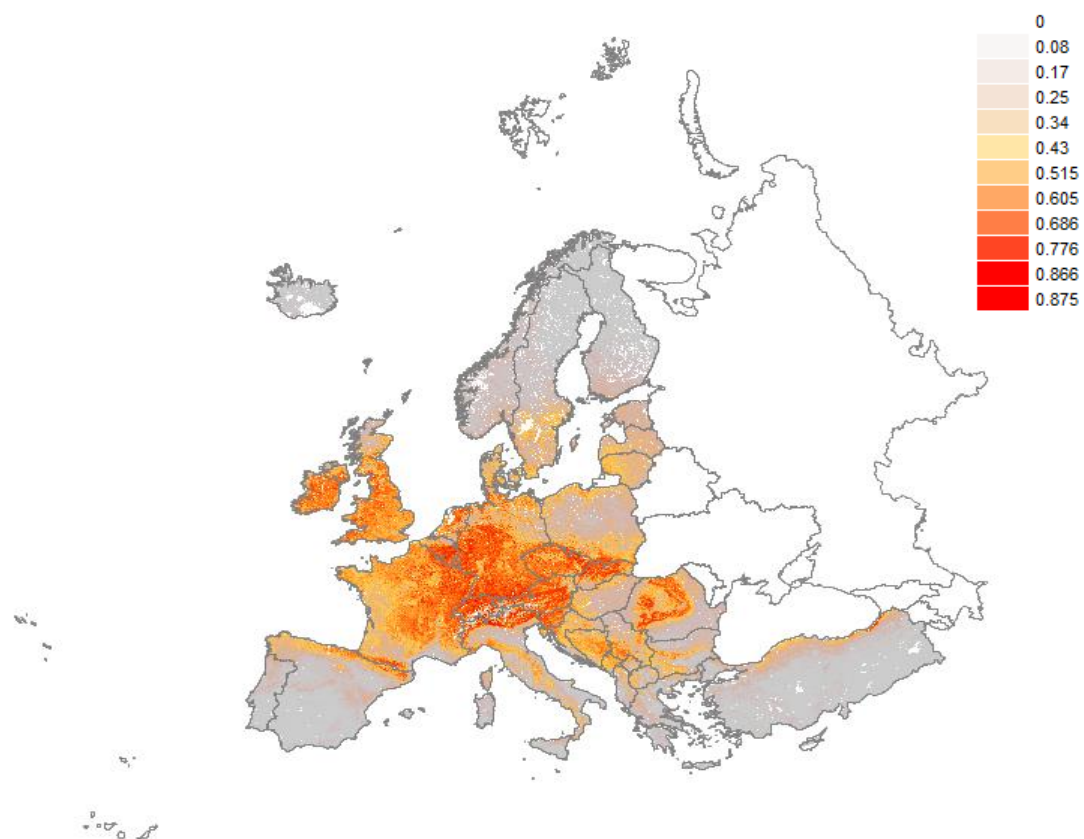
Statistics from Maxent modelling

AUC training (0-1)	0.6876
AUC test (0-1)	0.6775
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	36.4619
Potential Evapotranspiration	18.4674
Weight in % of clay particles (<0.0002 mm)	12.1786
Bulk density (kg/m³)	8.6259
Temperature seasonality (stdev * 100)	7.5281
Phenology; NDVI mean	4.6166
Phenology; Length of season (days)	3.2693
Vegetation height (m)	1.6657
Cation Exchange Capacity of the soil	1.3048
Phenology; Start of Season (day number)	1.1246
Phenology; NDVI seasonality	1.0739
Volume % of coarse fragments (> 2 mm)	1.0366
Precipitation seasonality (coef. of var.)	0.51
Weight in % of silt particles (0.0002-0.05 mm)	0.3912
Mean temperature of wettest quarter	0.3737
Distance to water (rivers, lakes, sea)	0.3737
Soil organic carbon content (‰)	0.2055
Digital Elevation Map (DEM)	0.1992
Weight in % of sand particles (0.05-2 mm)	0.1788
Annual precipitation	0.163
Soil pH (water)	0.1579
Phenology; Low of season (day number)	0.0499
Phenology; End of Season (day number)	0.0275
Phenology; Peak of season (day number)	0.0145
Solar radiation	0.0016
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

Both maps use slightly different selection criteria, but the definitions are the same

**T1G - [G1Ba] Alnus cordata forest - distribution**
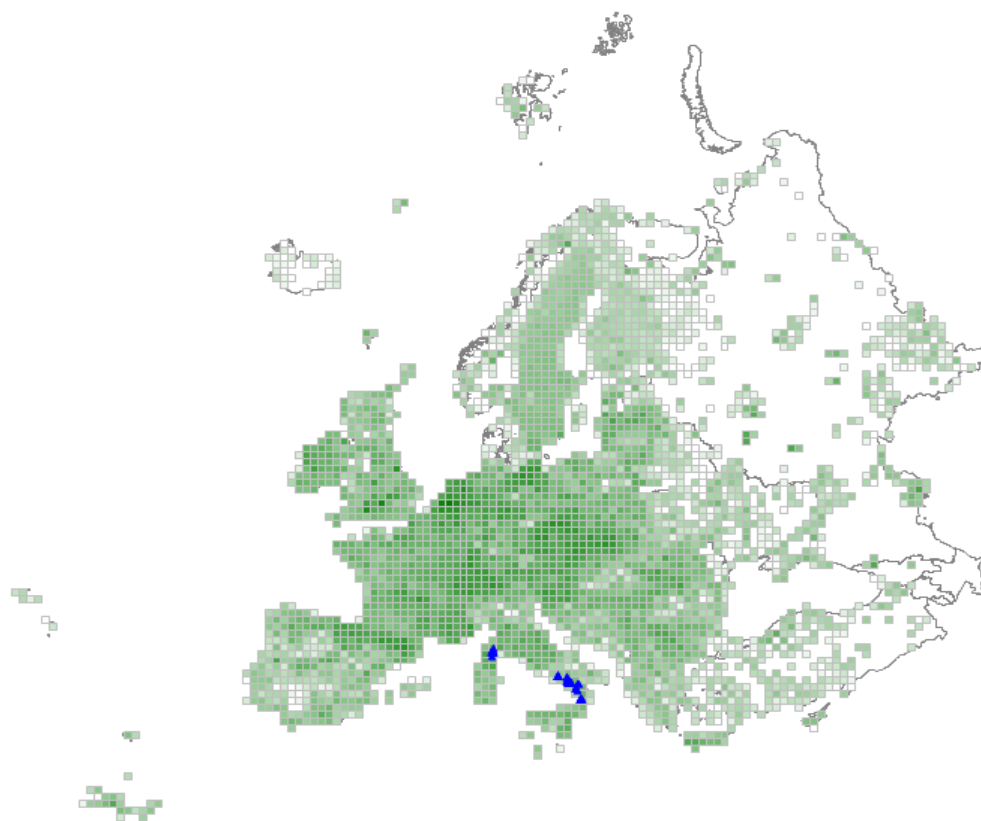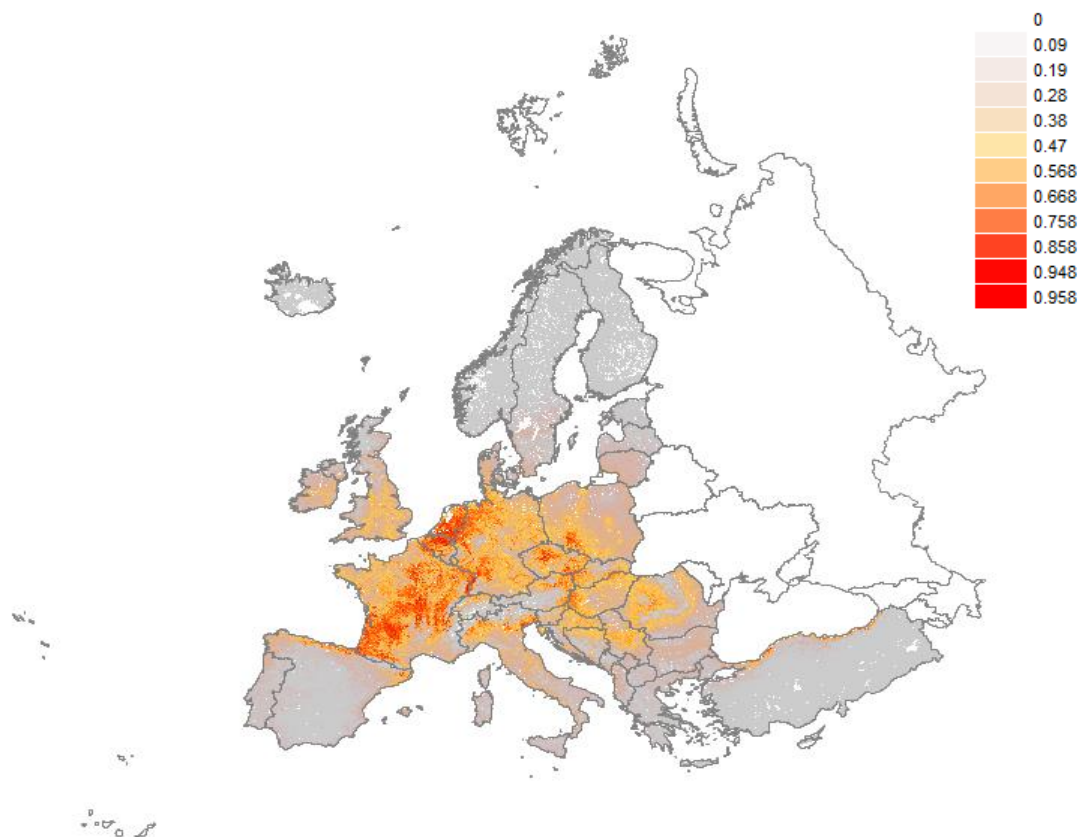

T1G - [G1Ba] Alnus cordata forest - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9949
AUC test (0-1)	0.9936
Contribution variables to the Maxent model (%)	
Phenology; End of Season (day number)	20.7853
Precipitation seasonality (coef. of var.)	16.2704
Temperature seasonality (stdev * 100)	13.8766
Phenology; Length of season (days)	12.4613
Vegetation height (m)	12.149
Potential Evapotranspiration	6.3803
Precipitation of warmest quarter	5.8314
Digital Elevation Map (DEM)	3.1903
Weight in % of clay particles (<0.0002 mm)	2.7482
Phenology; Start of Season (day number)	2.6179
Phenology; NDVI mean	2.5673
Annual precipitation	0.31
Weight in % of sand particles (0.05-2 mm)	0.2167
Soil organic carbon content (‰)	0.2018
Distance to water (rivers, lakes, sea)	0.1077
Soil pH (water)	0.0759
Volume % of coarse fragments (> 2 mm)	0.0682
Bulk density (kg/m³)	0.0565
Phenology; NDVI seasonality	0.0503
Phenology; Low of season (day number)	0.0337
Phenology; Peak of season (day number)	0.0013
Weight in % of silt particles (0.0002-0.05 mm)	0
Mean temperature of wettest quarter	0
Solar radiation	0
Inundation; occurrence	0
Cation Exchange Capacity of the soil	0

T1H - [G1C] Broadleaved deciduous plantation of non site-native trees - distribution
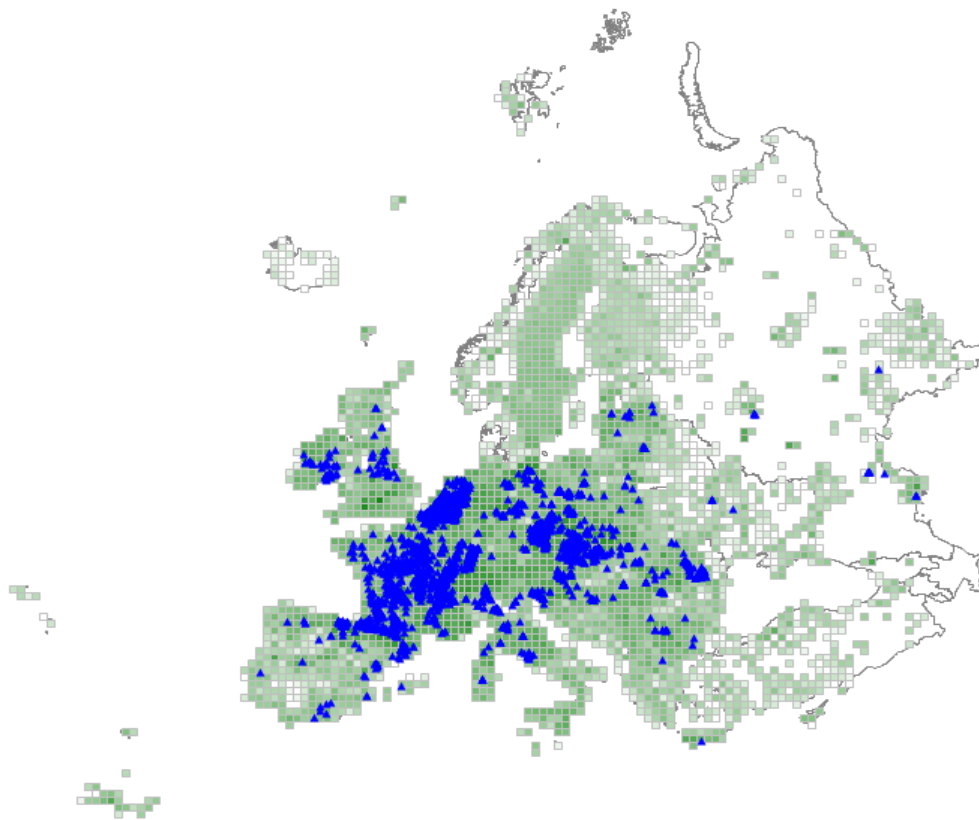
## T1H - [G1C] Broadleaved deciduous plantation of non site-native trees - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.7961
AUC test (0-1)	0.7936
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	28.9571
Bulk density (kg/m³)	28.5295
Digital Elevation Map (DEM)	9.3274
Precipitation seasonality (coef. of var.)	6.1204
Temperature seasonality (stdev * 100)	5.648
Phenology; Low of season (day number)	5.4079
Potential Evapotranspiration	5.0869
Cation Exchange Capacity of the soil	4.3355
Weight in % of sand particles (0.05-2 mm)	1.533
Phenology; End of Season (day number)	1.3151
Distance to water (rivers, lakes, sea)	0.9287
Weight in % of silt particles (0.0002-0.05 mm)	0.6164
Volume % of coarse fragments (> 2 mm)	0.4593
Soil organic carbon content (‰)	0.4467
Soil pH (water)	0.4066
Weight in % of clay particles (<0.0002 mm)	0.3034
Annual precipitation	0.167
Mean temperature of wettest quarter	0.1281
Phenology; Length of season (days)	0.1218
Phenology; Peak of season (day number)	0.085
Phenology; NDVI seasonality	0.0232
Vegetation height (m)	0.0205
Phenology; NDVI mean	0.0146
Solar radiation	0.0136
Phenology; Start of Season (day number)	0.0045
Inundation; occurrence	0

**T21 - [G21] Mediterranean evergreen Quercus forest - distribution**
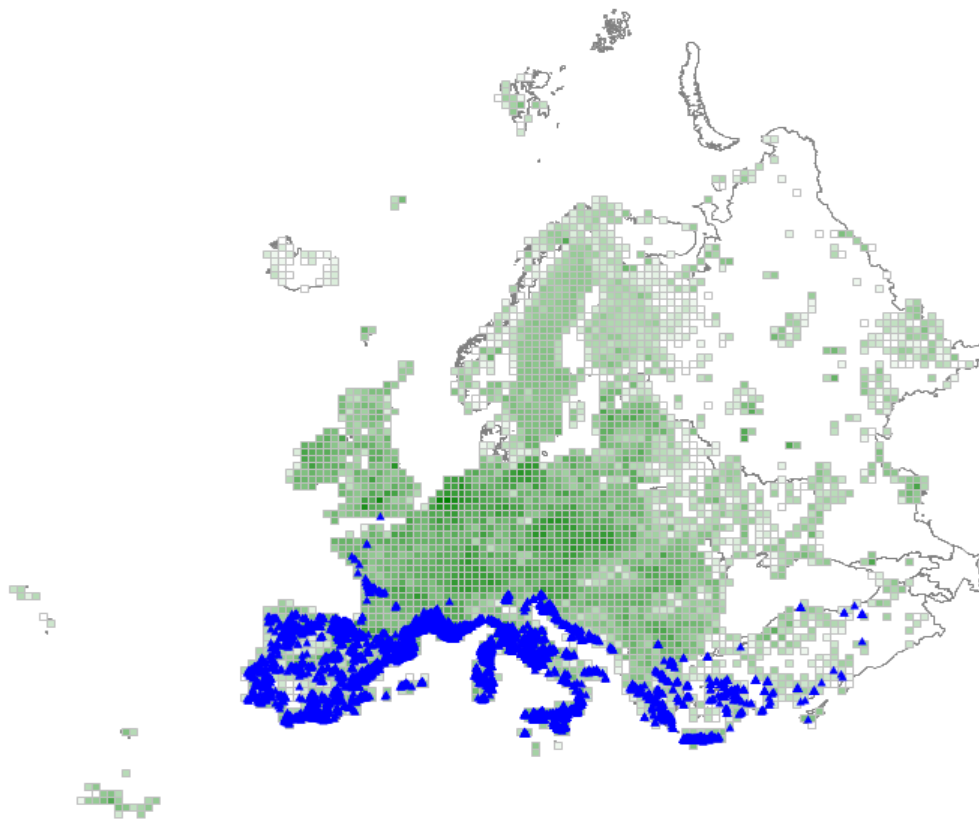
**T21 - [G21] Mediterranean evergreen Quercus forest - suitability**
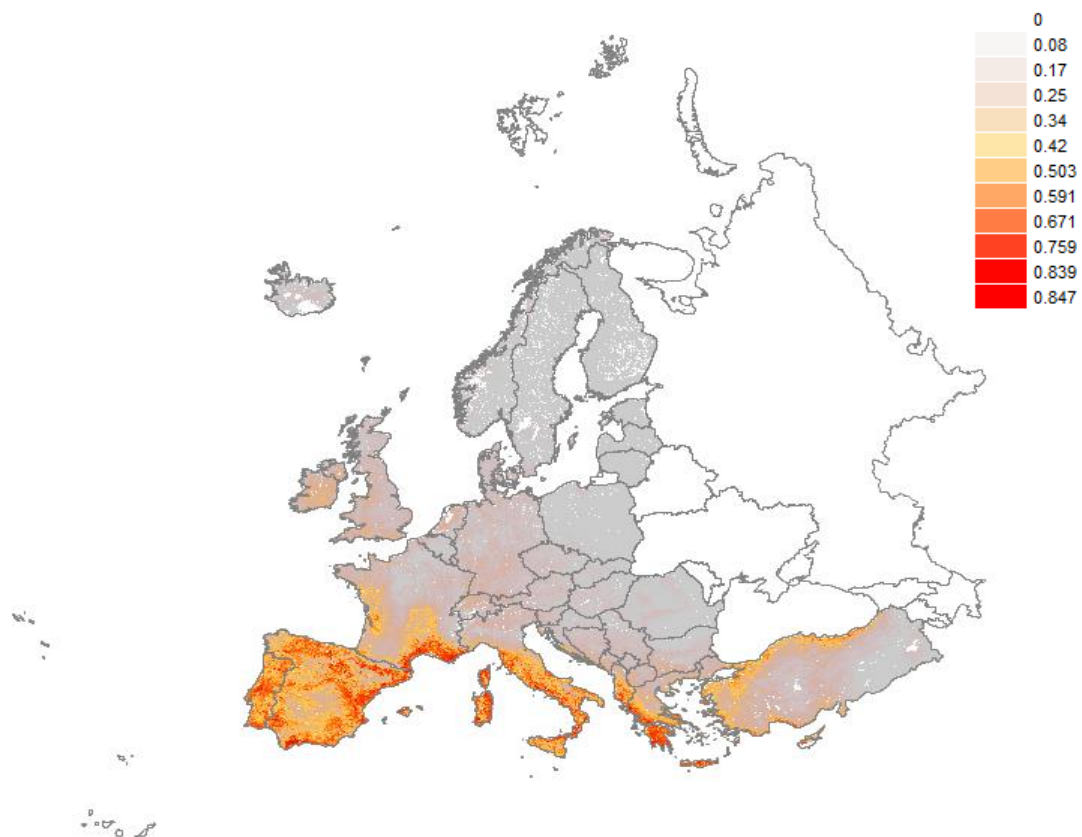
Statistics from Maxent modelling

|	
AUC training (0-1)	0.7367
AUC test (0-1)	0.755
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	40.061
Bulk density (kg/m³)	10.6107
Potential Evapotranspiration	10.3182
Volume % of coarse fragments (> 2 mm)	7.8384
Phenology; NDVI seasonality	7.6643
Phenology; End of Season (day number)	5.0541
Phenology; Peak of season (day number)	3.7417
Weight in % of clay particles (<0.0002 mm)	3.7234
Phenology; Length of season (days)	2.4442
Precipitation seasonality (coef. of var.)	1.844
Precipitation of warmest quarter	1.7304
Phenology; Start of Season (day number)	1.1363
Weight in % of silt particles (0.0002-0.05 mm)	0.8021
Soil pH (water)	0.776
Solar radiation	0.7513
Phenology; NDVI mean	0.4395
Weight in % of sand particles (0.05-2 mm)	0.2433
Digital Elevation Map (DEM)	0.2096
Mean temperature of wettest quarter	0.1857
Vegetation height (m)	0.1588
Soil organic carbon content (‰)	0.0938
Cation Exchange Capacity of the soil	0.0859
Annual precipitation	0.0591
Distance to water (rivers, lakes, sea)	0.028
Phenology; Low of season (day number)	0
Inundation; occurrence	0

T22 - [G22] Mainland laurophyllous forest - distribution
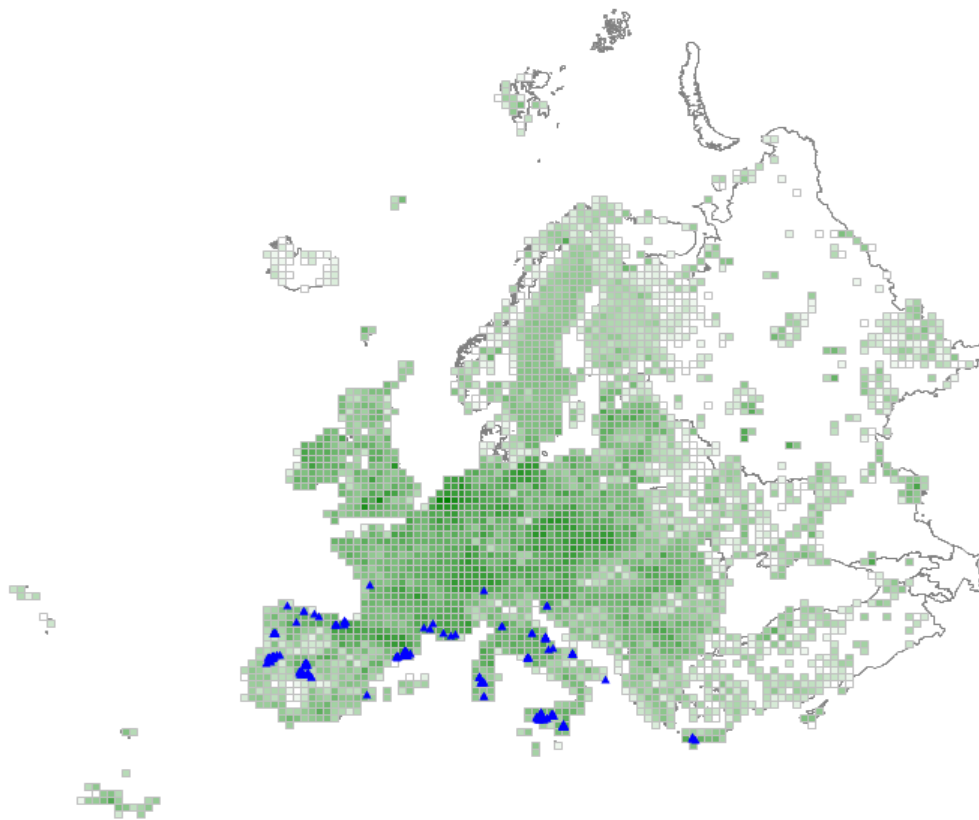
T22 - [G22] Mainland laurophyllous forest - suitability
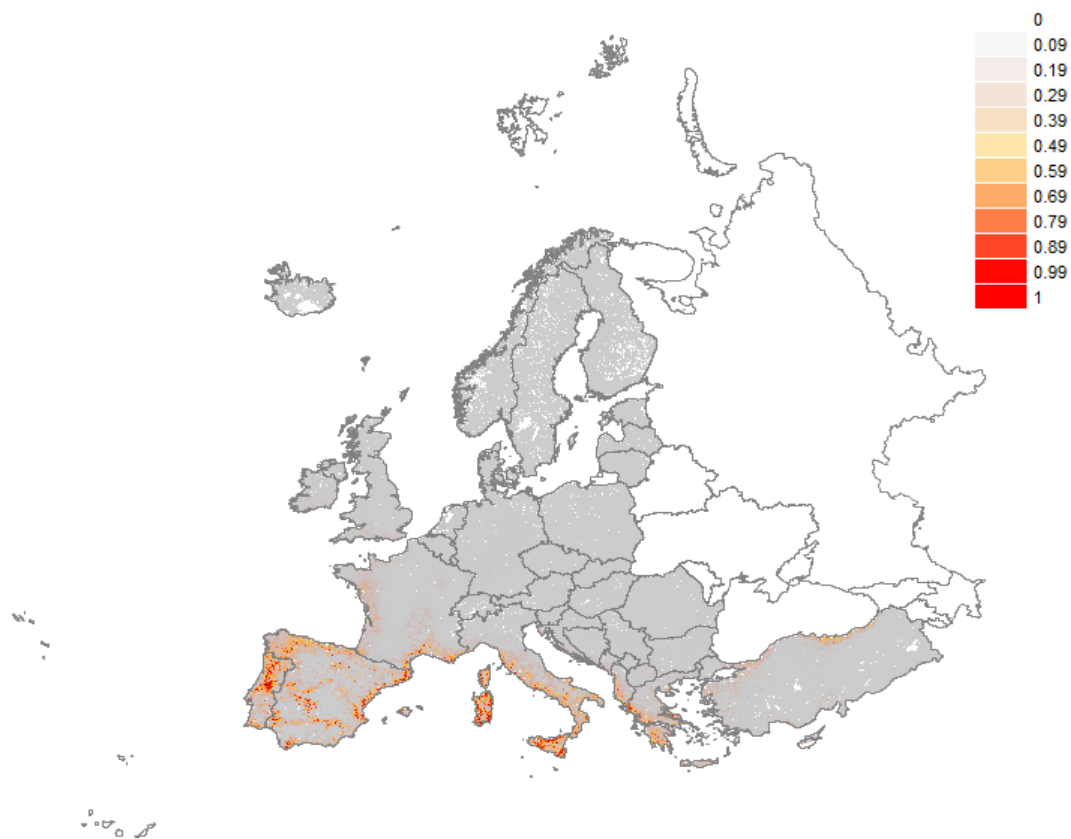
Statistics from Maxent modelling

AUC training (0-1)	0.9753
AUC test (0-1)	0.9408
Contribution variables to the Maxent model (%)	
Phenology; Length of season (days)	22.0729
Temperature seasonality (stdev * 100)	12.0141
Phenology; Peak of season (day number)	10.8115
Potential Evapotranspiration	8.3604
Phenology; End of Season (day number)	7.6055
Precipitation of warmest quarter	6.2742
Phenology; NDVI mean	5.9251
Weight in % of clay particles (<0.0002 mm)	4.7645
Phenology; Start of Season (day number)	3.9739
Volume % of coarse fragments (> 2 mm)	3.4253
Annual precipitation	2.3403
Vegetation height (m)	2.0121
Precipitation seasonality (coef. of var.)	1.8767
Phenology; NDVI seasonality	1.3855
Bulk density (kg/m³)	1.3034
Soil organic carbon content (‰)	1.1909
Weight in % of sand particles (0.05-2 mm)	0.957
Distance to water (rivers, lakes, sea)	0.8135
Soil pH (water)	0.7241
Phenology; Low of season (day number)	0.5365
Mean temperature of wettest quarter	0.4873
Digital Elevation Map (DEM)	0.4784
Solar radiation	0.2878
Weight in % of silt particles (0.0002-0.05 mm)	0.2677
Cation Exchange Capacity of the soil	0.1115
Inundation; occurrence	0

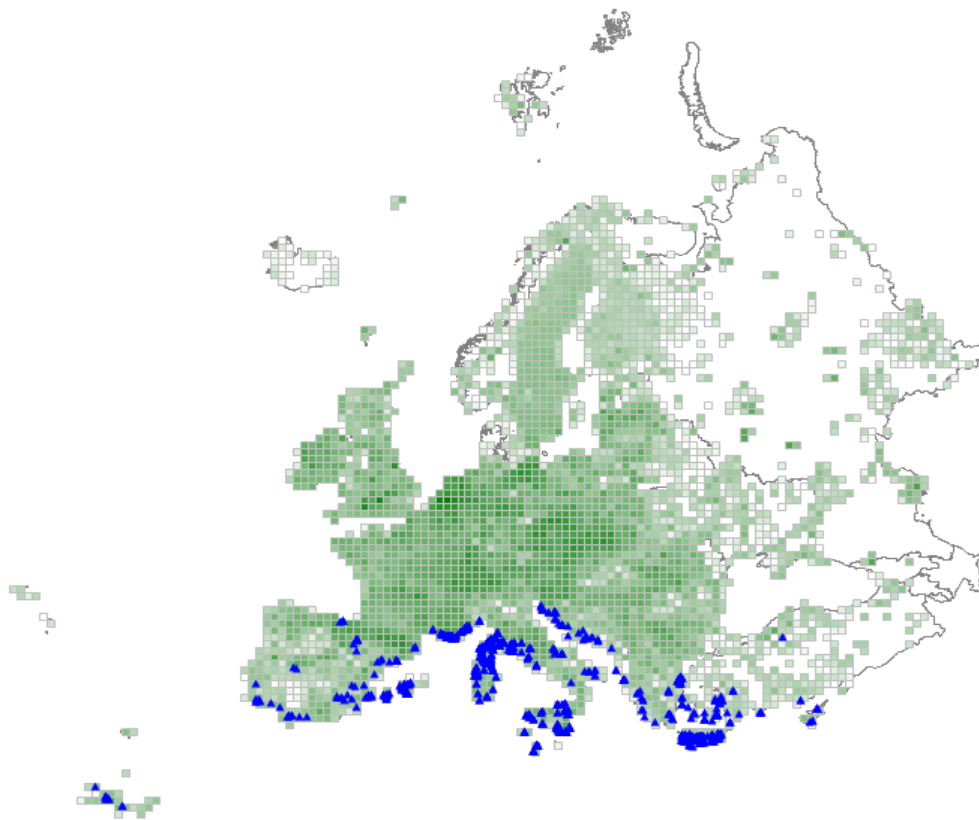**T23 - [G23] Macaronesian laurophyllous forest - distribution**
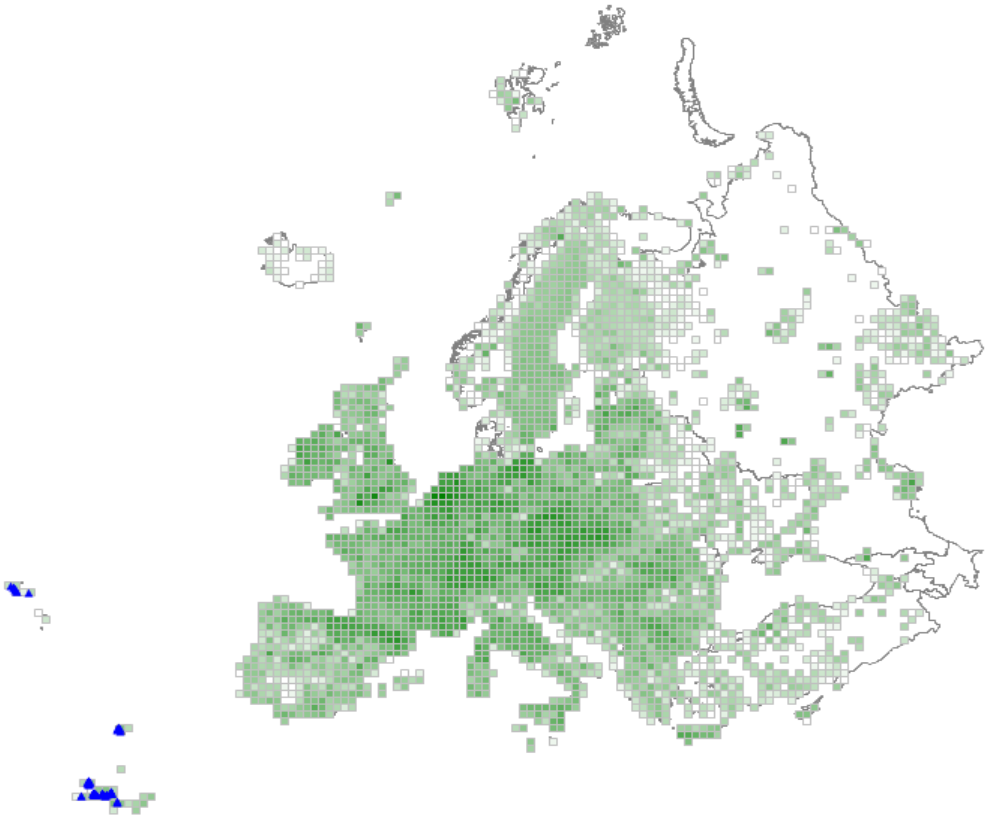
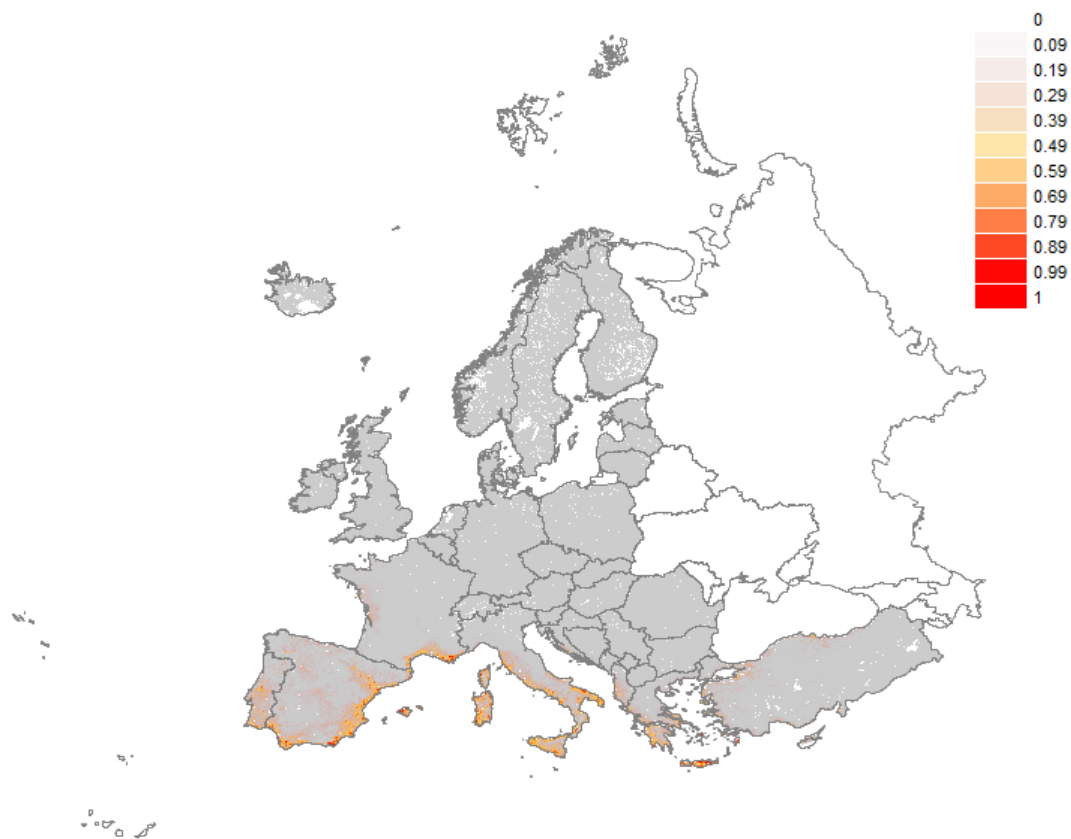**T23 - [G23] Macaronesian laurophyllous forest - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

T24 - [G24] Olea europaea-Ceratonia siliqua forest - distribution

**T24 - [G24] Olea europaea-Ceratonia siliqua forest - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9695
AUC test (0-1)	0.9615
Contribution variables to the Maxent model (%)	
Phenology; Start of Season (day number)	42.8617
Temperature seasonality (stdev * 100)	16.5467
Weight in % of clay particles (<0.0002 mm)	11.6155
Precipitation seasonality (coef. of var.)	6.3107
Soil pH (water)	3.5447
Potential Evapotranspiration	3.2966
Precipitation of warmest quarter	1.798
Soil organic carbon content (‰)	1.7797
Phenology; Low of season (day number)	1.6548
Digital Elevation Map (DEM)	1.6105
Bulk density (kg/m³)	1.1508
Phenology; NDVI seasonality	1.1181
Mean temperature of wettest quarter	1.1172
Phenology; End of Season (day number)	1.0188
Distance to water (rivers, lakes, sea)	0.8582
Phenology; NDVI mean	0.8206
Vegetation height (m)	0.738
Phenology; Peak of season (day number)	0.5556
Cation Exchange Capacity of the soil	0.4407
Weight in % of sand particles (0.05-2 mm)	0.3243
Volume % of coarse fragments (> 2 mm)	0.2704
Weight in % of silt particles (0.0002-0.05 mm)	0.1979
Annual precipitation	0.1702
Inundation; occurrence	0.0799
Solar radiation	0.0617
Phenology; Length of season (days)	0.0587

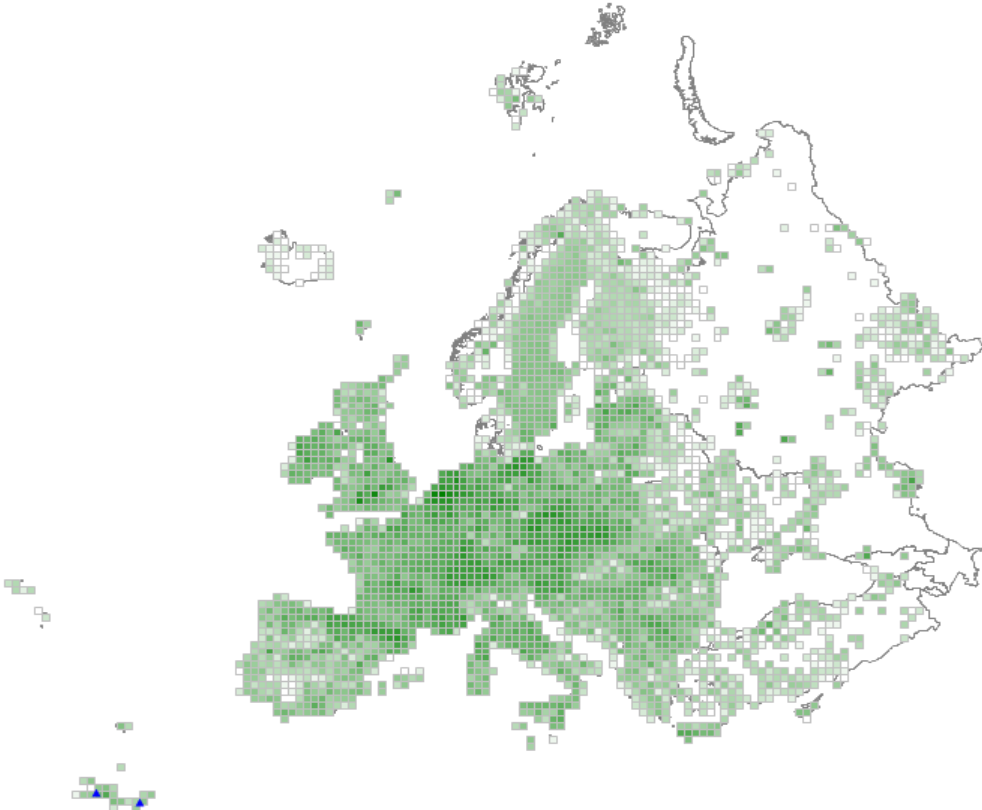**T25 - [G25a] Phoenix theophrasti vegetation - distribution**
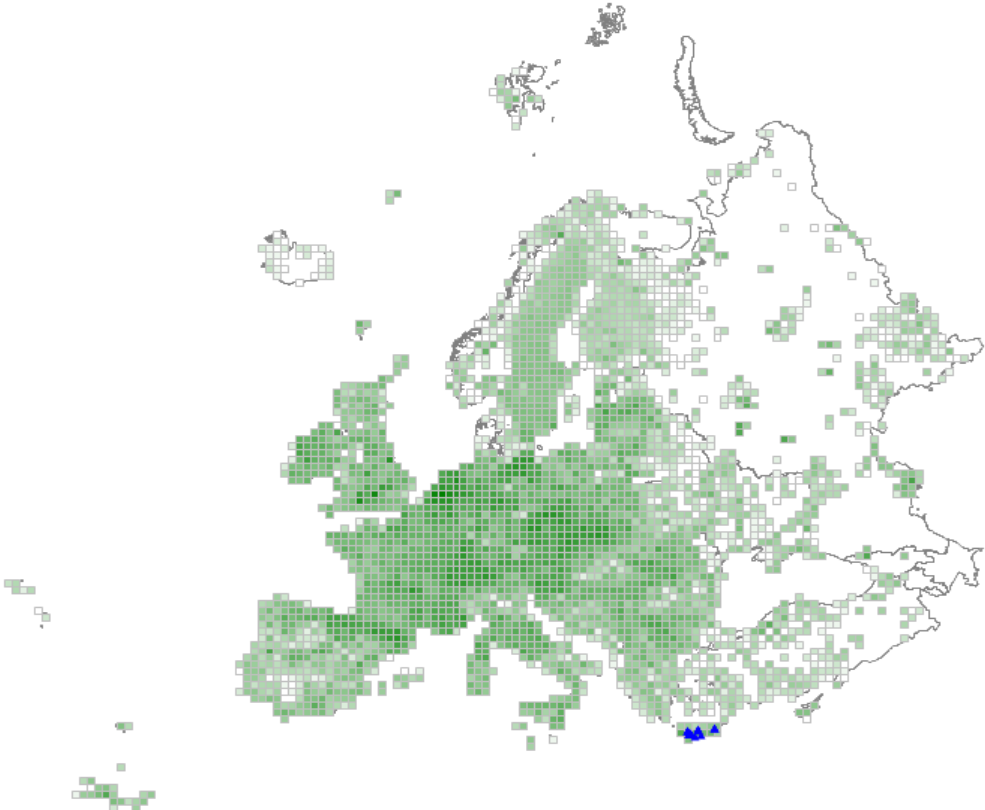
T25 - [G25a] Phoenix theophrasti vegetation - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

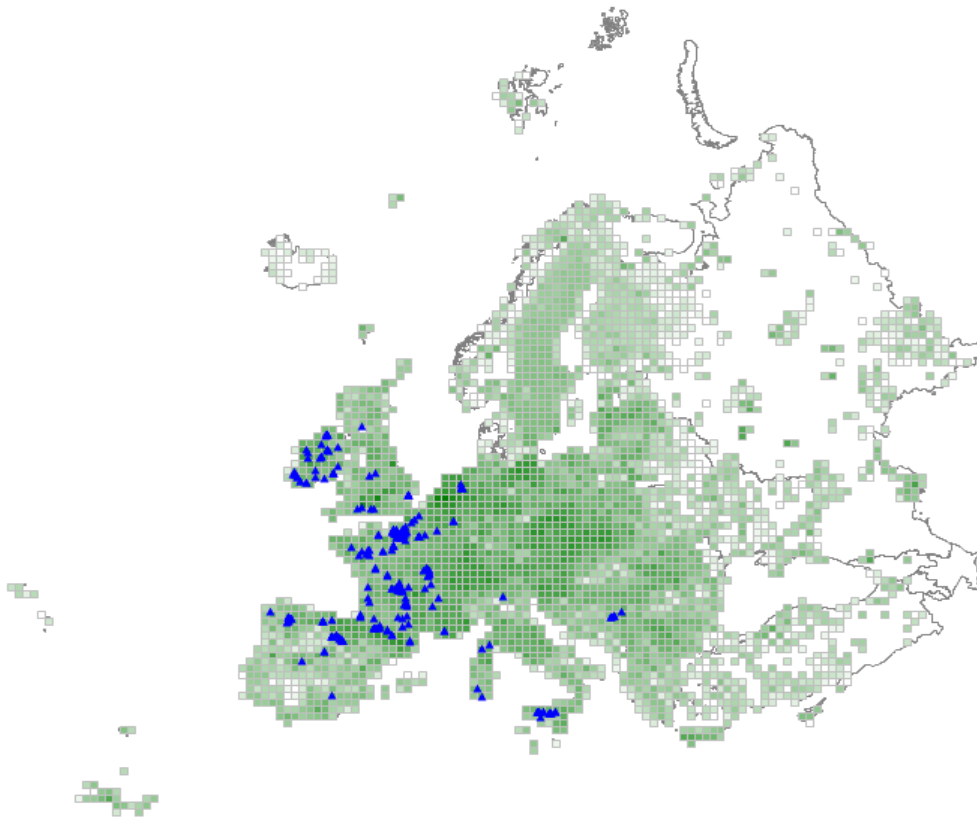**T26 - [G25b] Phoenix canariensis vegetation - distribution**

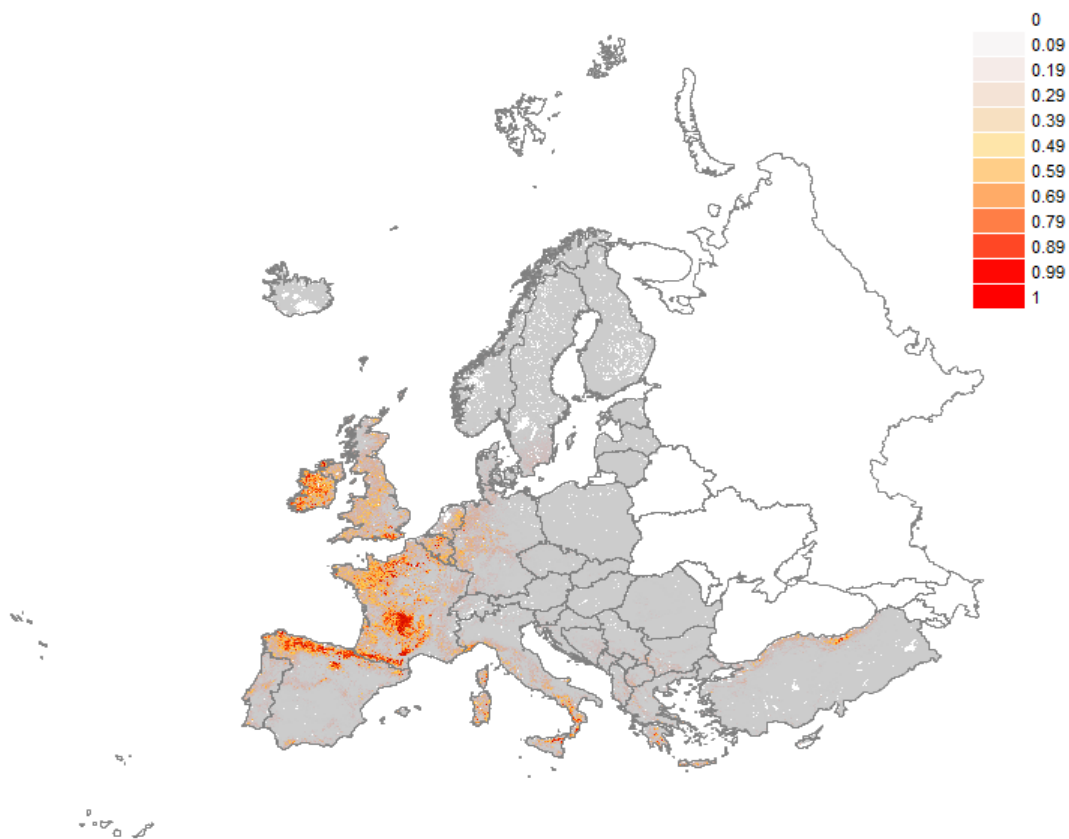**T26 - [G25b] Phoenix canariensis vegetation - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

**T27 - [G26] Ilex aquifolium forest - distribution**

T27 - [G26] Ilex aquifolium forest - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9577
AUC test (0-1)	0.9356
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	48.9116
Phenology; NDVI mean	14.0789
Potential Evapotranspiration	7.5177
Soil pH (water)	4.3824
Phenology; Low of season (day number)	4.3385
Phenology; Length of season (days)	3.5771
Mean temperature of wettest quarter	3.0755
Vegetation height (m)	2.3529
Phenology; Peak of season (day number)	1.4566
Digital Elevation Map (DEM)	1.4032
Precipitation seasonality (coef. of var.)	1.2934
Phenology; NDVI seasonality	1.1594
Precipitation of warmest quarter	1.0756
Annual precipitation	1.0715
Bulk density (kg/m³)	0.9224
Phenology; Start of Season (day number)	0.8012
Weight in % of clay particles (<0.0002 mm)	0.5171
Weight in % of sand particles (0.05-2 mm)	0.5142
Soil organic carbon content (‰)	0.4568
Distance to water (rivers, lakes, sea)	0.426
Phenology; End of Season (day number)	0.2744
Solar radiation	0.1566
Weight in % of silt particles (0.0002-0.05 mm)	0.1553
Volume % of coarse fragments (> 2 mm)	0.0631
Cation Exchange Capacity of the soil	0.0186
Inundation; occurrence	0

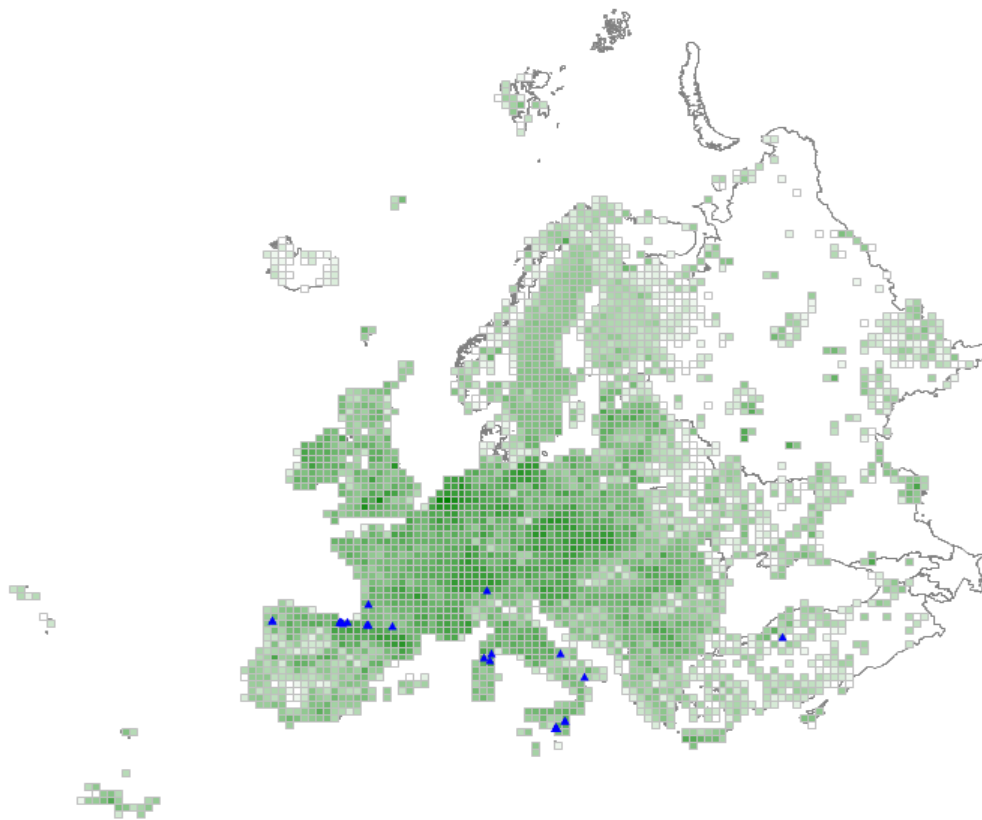**T28 - [G27] Macaronesian heathy forest - distribution**
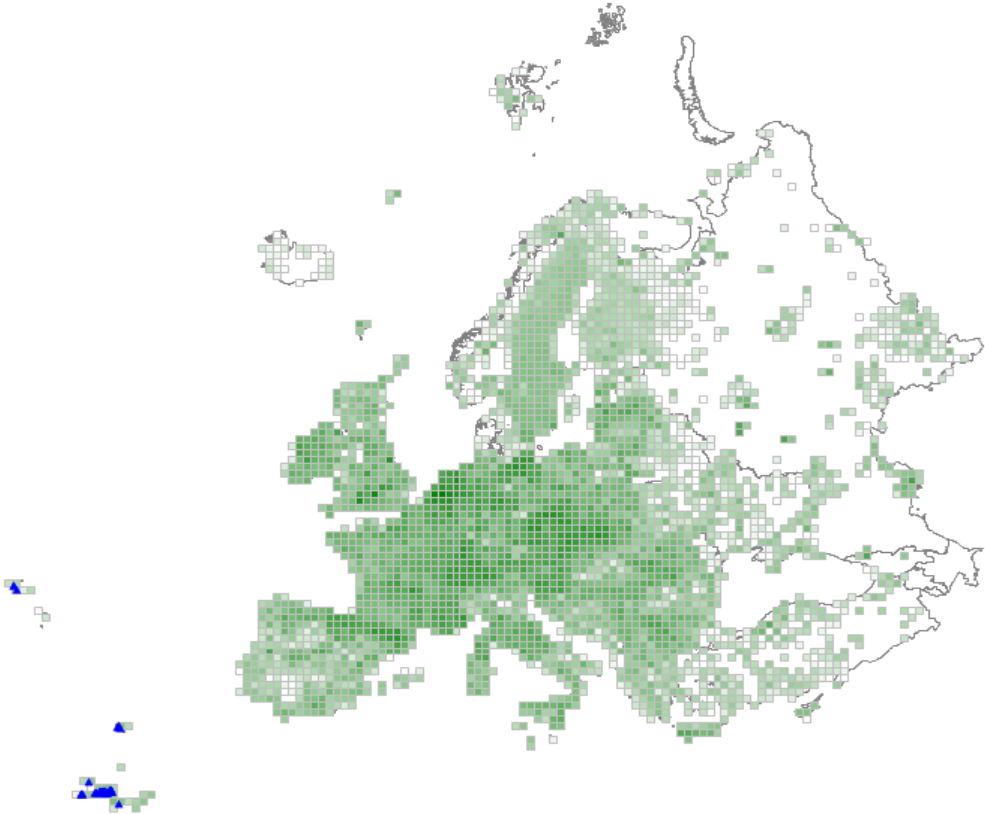
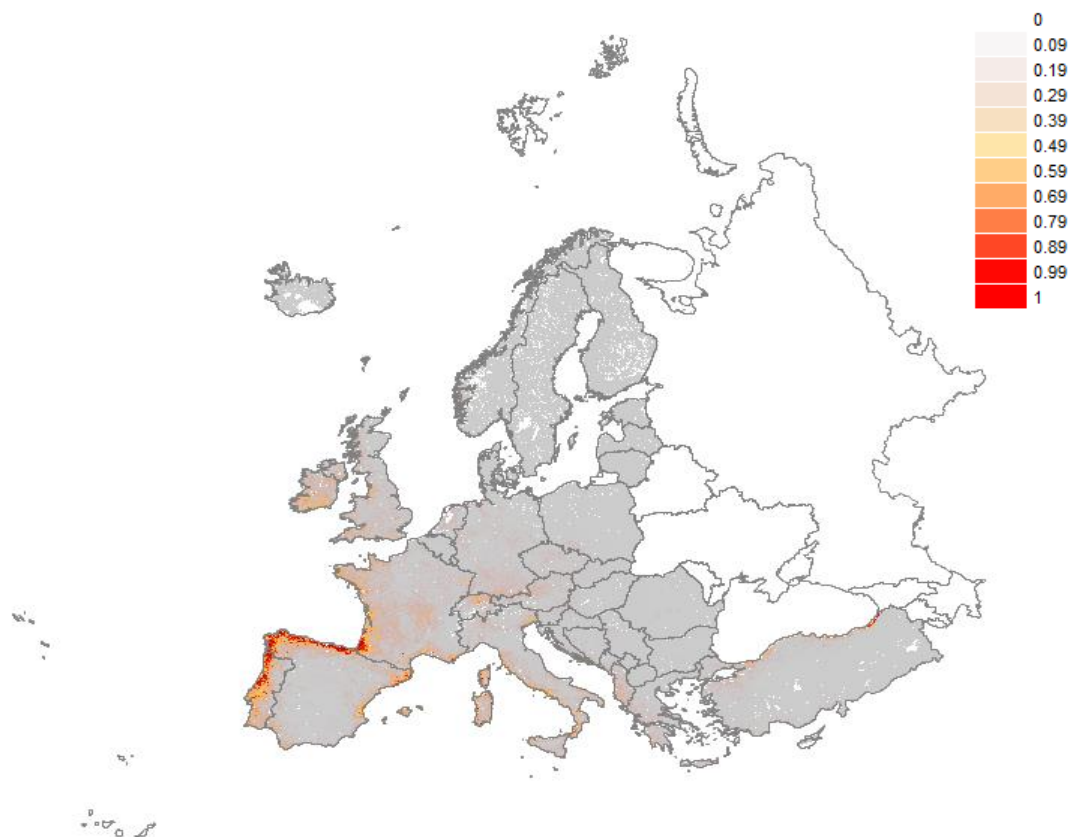**T28 - [G27] Macaronesian heathy forest - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

T29 - [G28] Broadleaved evergreen plantation of non site-native trees - distribution


T29 - [G28] Broadleaved evergreen plantation of non site-native trees - suitability
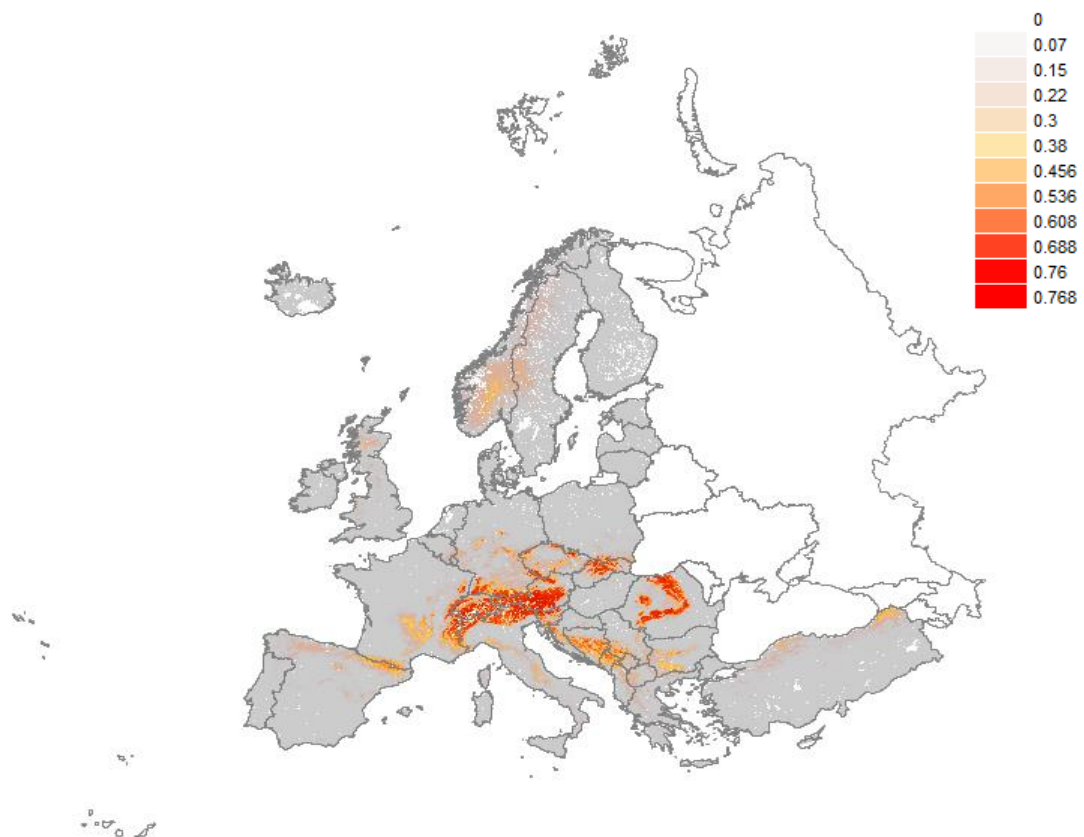
Statistics from Maxent modelling

AUC training (0-1)	0.9785
AUC test (0-1)	0.9888
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	45.4931
Potential Evapotranspiration	17.0463
Bulk density (kg/m³)	9.7056
Phenology; Length of season (days)	4.202
Annual precipitation	3.9325
Solar radiation	3.8788
Digital Elevation Map (DEM)	3.1485
Weight in % of clay particles (<0.0002 mm)	2.8211
Precipitation of warmest quarter	1.3873
Phenology; NDVI mean	1.3595
Precipitation seasonality (coef. of var.)	1.2571
Phenology; Start of Season (day number)	0.9843
Soil pH (water)	0.8802
Phenology; Peak of season (day number)	0.7436
Phenology; NDVI seasonality	0.7208
Vegetation height (m)	0.6743
Cation Exchange Capacity of the soil	0.4855
Weight in % of sand particles (0.05-2 mm)	0.4449
Mean temperature of wettest quarter	0.3289
Soil organic carbon content (‰)	0.2764
Volume % of coarse fragments (> 2 mm)	0.1864
Distance to water (rivers, lakes, sea)	0.02
Phenology; Low of season (day number)	0.0169
Inundation; occurrence	0.006
Phenology; End of Season (day number)	0
Weight in % of silt particles (0.0002-0.05 mm)	0

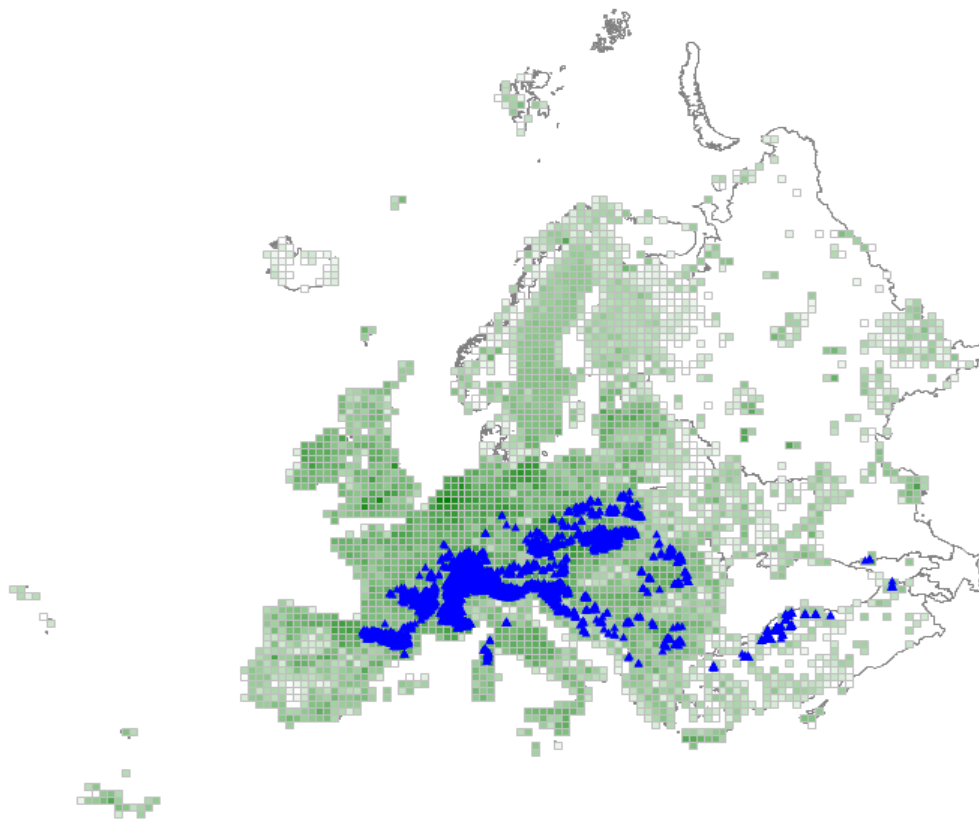**T31 - [G31a] Temperate mountain Picea forest - distribution**
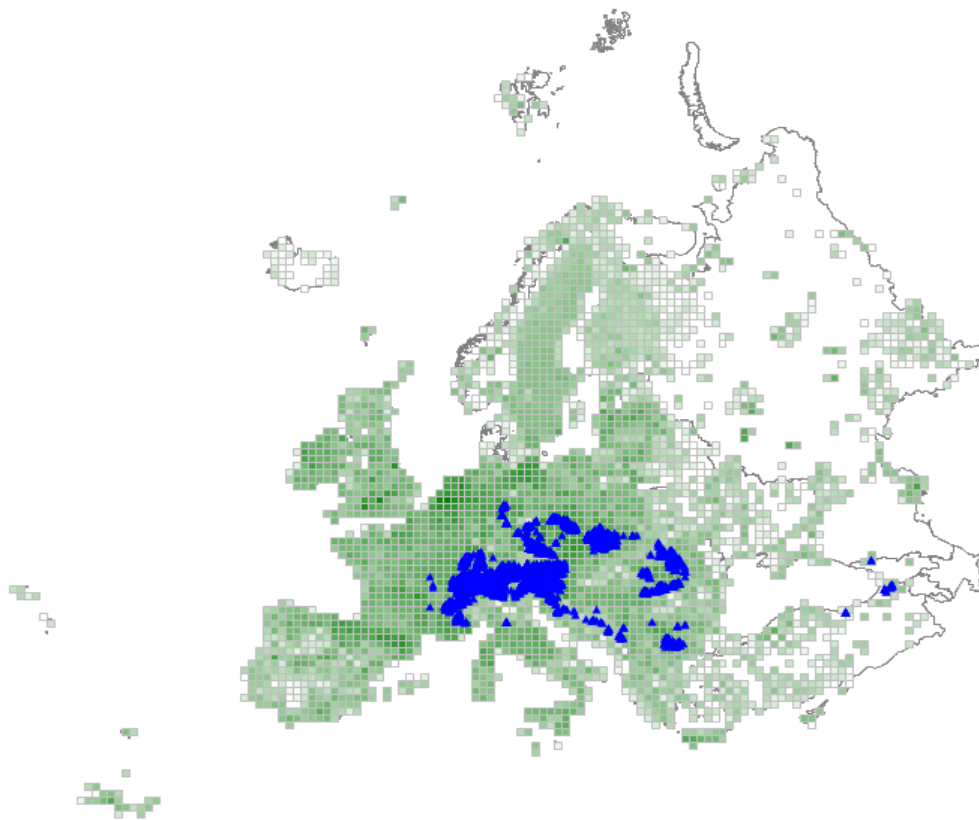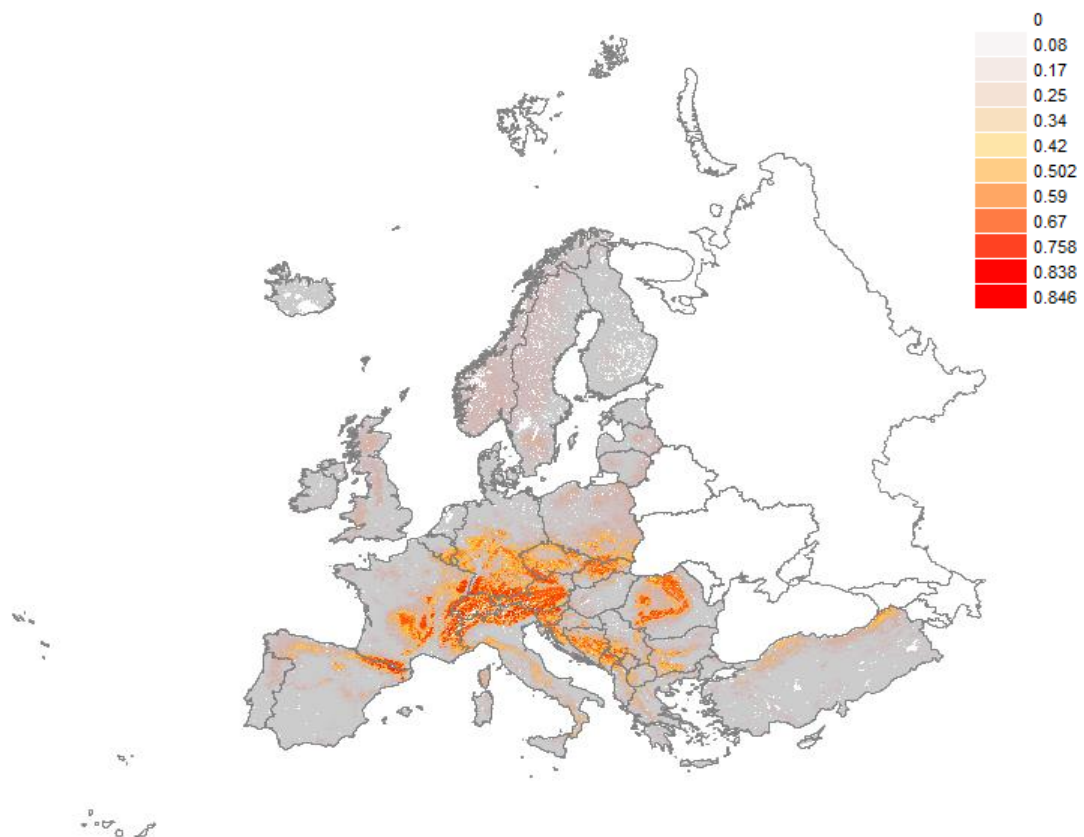

T31 - [G31a] Temperate mountain Picea forest - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.7572
AUC test (0-1)	0.7662
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	51.9568
Precipitation of warmest quarter	39.0659
Potential Evapotranspiration	1.6111
Phenology; NDVI mean	1.2765
Soil pH (water)	1.2411
Vegetation height (m)	1.1595
Temperature seasonality (stdev * 100)	0.6299
Weight in % of silt particles (0.0002-0.05 mm)	0.5597
Soil organic carbon content (‰)	0.5143
Phenology; End of Season (day number)	0.4793
Bulk density (kg/m³)	0.395
Phenology; Peak of season (day number)	0.3362
Cation Exchange Capacity of the soil	0.2821
Phenology; NDVI seasonality	0.1573
Weight in % of clay particles (<0.0002 mm)	0.089
Annual precipitation	0.0721
Volume % of coarse fragments (> 2 mm)	0.0685
Precipitation seasonality (coef. of var.)	0.0473
Distance to water (rivers, lakes, sea)	0.0465
Phenology; Length of season (days)	0.0065
Weight in % of sand particles (0.05-2 mm)	0.0037
Phenology; Low of season (day number)	0.0013
Inundation; occurrence	0
Solar radiation	0.0005
Phenology; Start of Season (day number)	0
Mean temperature of wettest quarter	0

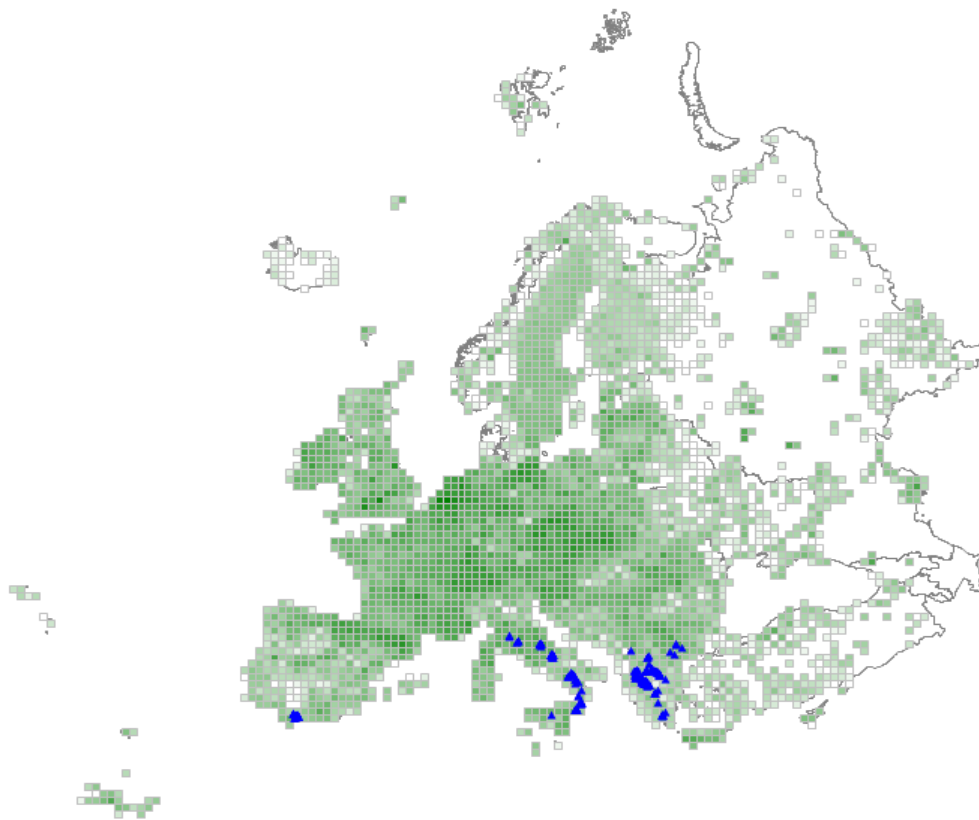## T32 - [G31b] Temperate mountain Abies forest - distribution

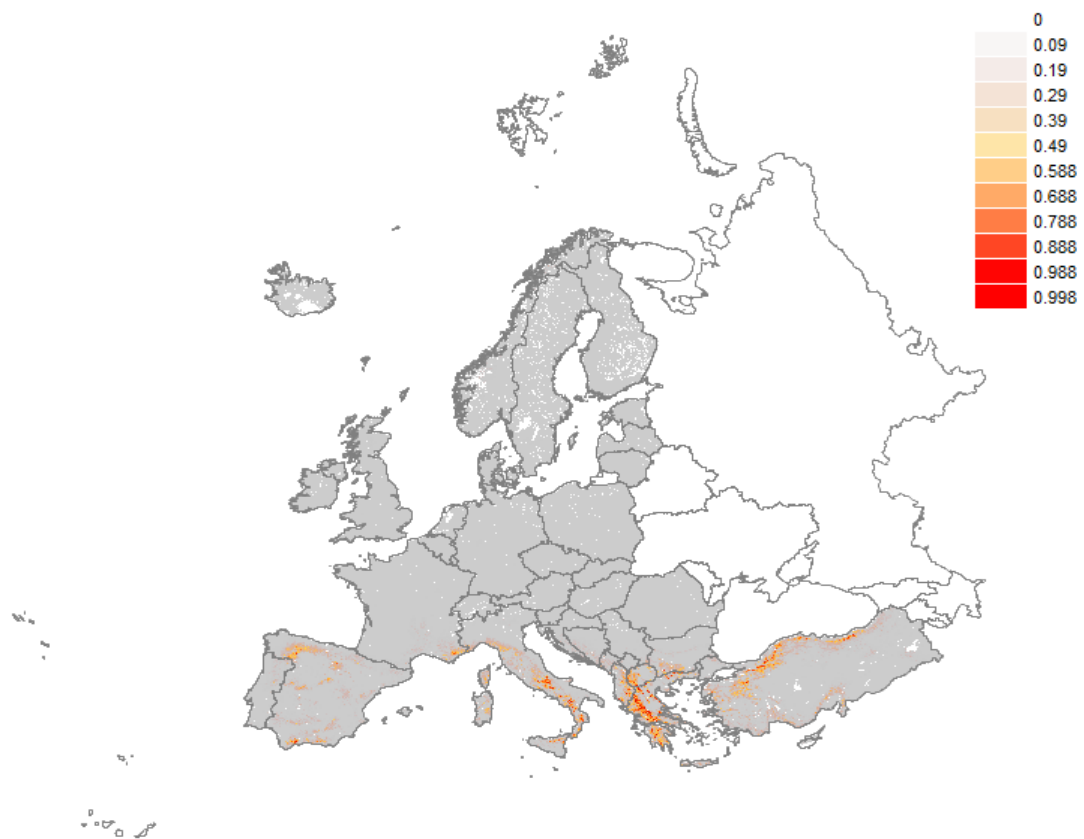## T32 - [G31b] Temperate mountain Abies forest - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.752
AUC test (0-1)	0.7527
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	40.2855
Precipitation of warmest quarter	25.9817
Vegetation height (m)	11.7277
Potential Evapotranspiration	7.6066
Soil pH (water)	6.2633
Phenology; NDVI mean	2.0213
Phenology; Length of season (days)	1.0852
Weight in % of silt particles (0.0002-0.05 mm)	0.9311
Bulk density (kg/m³)	0.7607
Temperature seasonality (stdev * 100)	0.6121
Phenology; Peak of season (day number)	0.5345
Precipitation seasonality (coef. of var.)	0.4165
Weight in % of sand particles (0.05-2 mm)	0.3633
Phenology; End of Season (day number)	0.3078
Weight in % of clay particles (<0.0002 mm)	0.2925
Soil organic carbon content (‰)	0.2462
Cation Exchange Capacity of the soil	0.2215
Phenology; NDVI seasonality	0.1619
Mean temperature of wettest quarter	0.0937
Volume % of coarse fragments (> 2 mm)	0.031
Phenology; Start of Season (day number)	0.0257
Phenology; Low of season (day number)	0.0221
Solar radiation	0.0037
Annual precipitation	0.0045
Inundation; occurrence	0
Distance to water (rivers, lakes, sea)	0

T33 - [G31c] Mediterranean mountain Abies forest - distribution

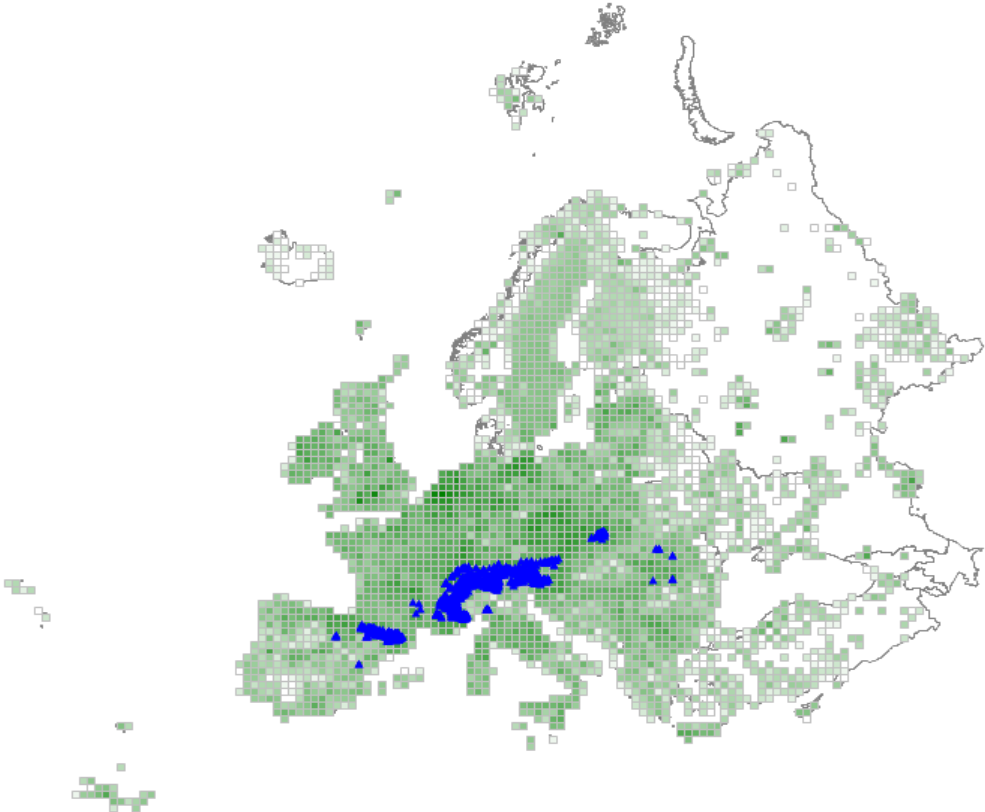**T33 - [G31c] Mediterranean mountain Abies forest - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9806
AUC test (0-1)	0.9718
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	29.1759
Phenology; Length of season (days)	15.1553
Mean temperature of wettest quarter	13.908
Soil organic carbon content (‰)	7.7557
Precipitation of warmest quarter	7.2284
Temperature seasonality (stdev * 100)	5.5887
Precipitation seasonality (coef. of var.)	5.4645
Vegetation height (m)	3.2394
Phenology; NDVI mean	2.8754
Potential Evapotranspiration	2.6862
Weight in % of clay particles (<0.0002 mm)	1.6885
Cation Exchange Capacity of the soil	1.3861
Volume % of coarse fragments (> 2 mm)	0.8574
Bulk density (kg/m³)	0.7829
Phenology; End of Season (day number)	0.5559
Annual precipitation	0.4652
Weight in % of sand particles (0.05-2 mm)	0.2579
Phenology; Low of season (day number)	0.2398
Phenology; Peak of season (day number)	0.1662
Distance to water (rivers, lakes, sea)	0.1163
Phenology; NDVI seasonality	0.1122
Solar radiation	0.1063
Soil pH (water)	0.0945
Phenology; Start of Season (day number)	0.0933
Inundation; occurrence	0
Weight in % of silt particles (0.0002-0.05 mm)	0

**T34 - [G32] Temperate subalpine Larix, Pinus cembra and Pinus uncinata forest - distribution**

T34 - [G32] Temperate subalpine Larix, Pinus cembra and Pinus uncinata forest - suitability
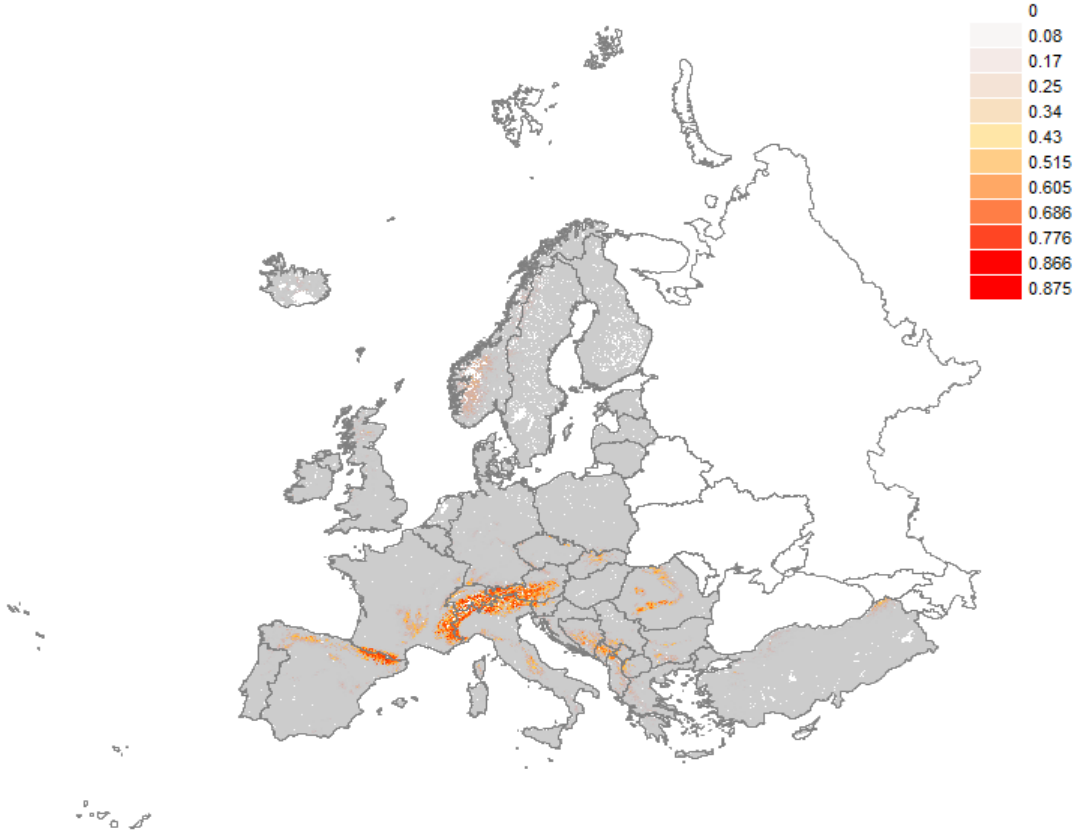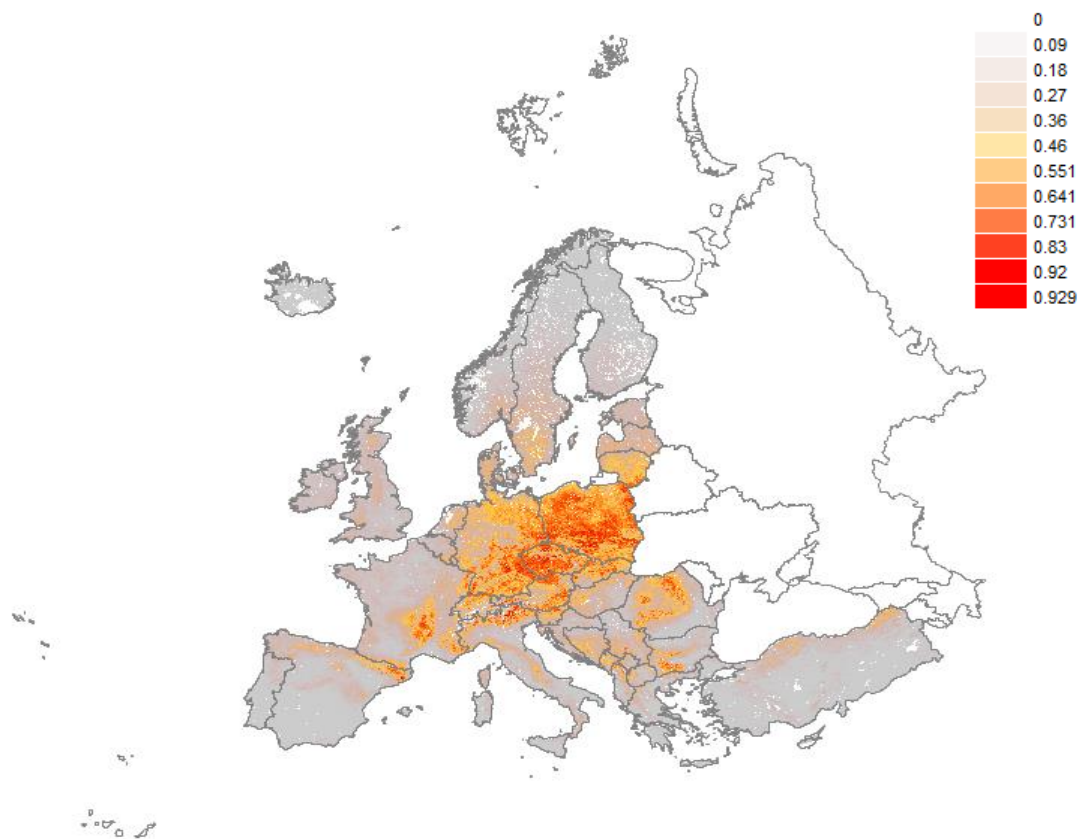
Statistics from Maxent modelling

AUC training (0-1)	0.8913
AUC test (0-1)	0.8957
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	70.7999
Precipitation of warmest quarter	16.2336
Annual precipitation	8.6443
Potential Evapotranspiration	0.9434
Volume % of coarse fragments (> 2 mm)	0.9052
Temperature seasonality (stdev * 100)	0.5431
Soil organic carbon content (‰)	0.5343
Phenology; Length of season (days)	0.2474
Precipitation seasonality (coef. of var.)	0.231
Phenology; End of Season (day number)	0.2188
Phenology; Low of season (day number)	0.1936
Solar radiation	0.1778
Mean temperature of wettest quarter	0.1417
Vegetation height (m)	0.1328
Cation Exchange Capacity of the soil	0.0144
Distance to water (rivers, lakes, sea)	0.0104
Soil pH (water)	0.0082
Phenology; NDVI mean	0.007
Weight in % of silt particles (0.0002-0.05 mm)	0.006
Weight in % of sand particles (0.05-2 mm)	0.0053
Phenology; Start of Season (day number)	0.0015
Weight in % of clay particles (<0.0002 mm)	0
Bulk density (kg/m³)	0
Phenology; NDVI seasonality	0.0004
Inundation; occurrence	0
Phenology; Peak of season (day number)	0.0003

**T35 - [G34a] Temperate continental Pinus sylvestris forest - distribution**
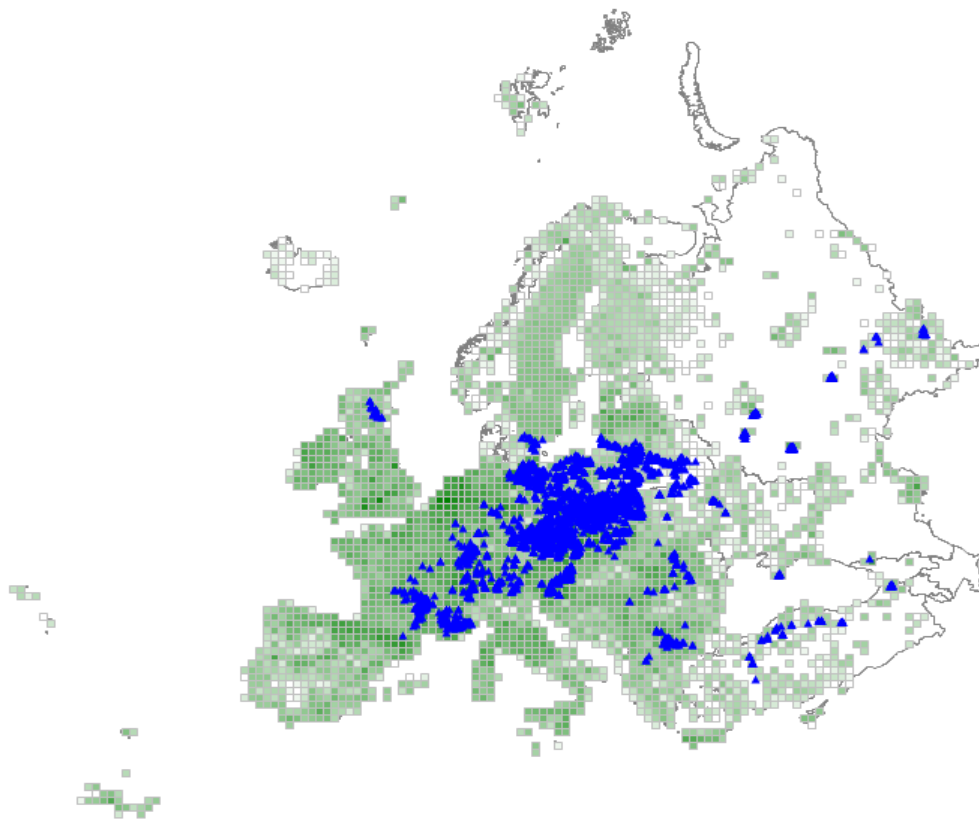
T35 - [G34a] Temperate continental Pinus sylvestris forest - suitability
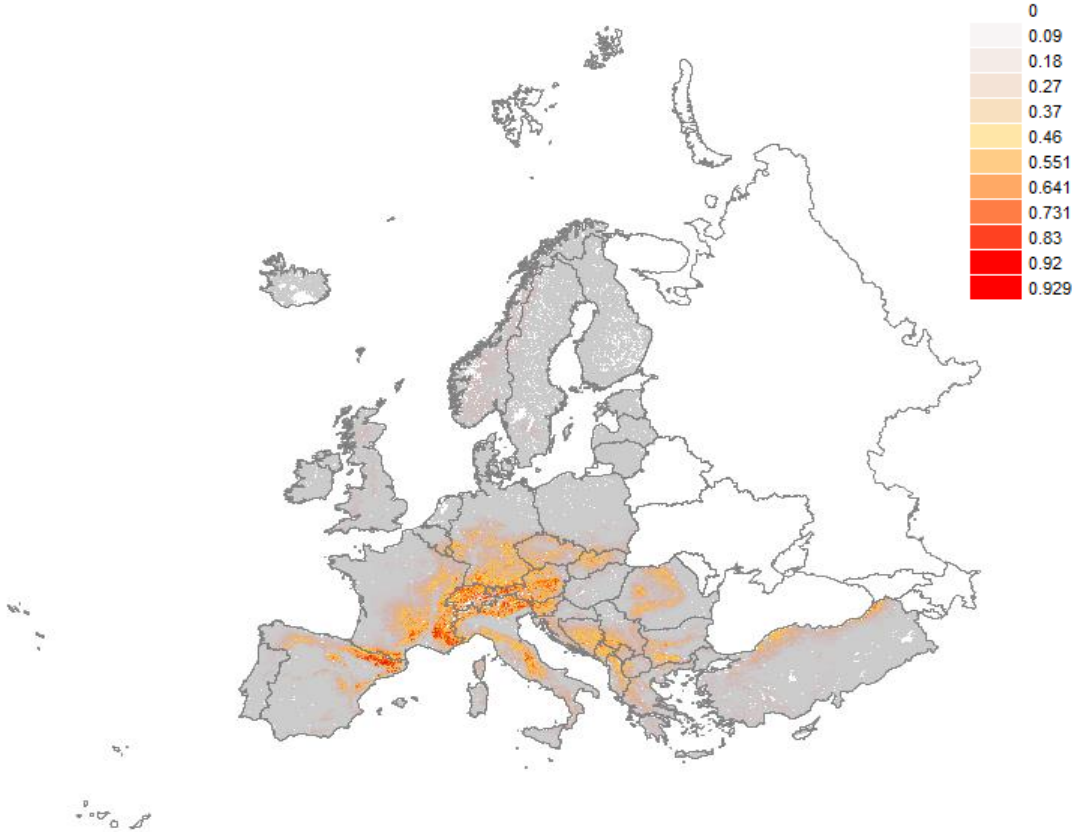
Statistics from Maxent modelling

AUC training (0-1)	0.786
AUC test (0-1)	0.7809
Contribution variables to the Maxent model (%)	
Precipitation of warmest quarter	33.7551
Potential Evapotranspiration	22.8655
Weight in % of sand particles (0.05-2 mm)	11.9864
Temperature seasonality (stdev * 100)	5.2556
Digital Elevation Map (DEM)	4.631
Soil pH (water)	4.4832
Bulk density (kg/m³)	3.9624
Volume % of coarse fragments (> 2 mm)	2.191
Phenology; Length of season (days)	2.0846
Vegetation height (m)	1.7139
Precipitation seasonality (coef. of var.)	1.5648
Weight in % of clay particles (<0.0002 mm)	1.2749
Solar radiation	1.1657
Phenology; NDVI mean	1.0972
Phenology; NDVI seasonality	0.6354
Phenology; Low of season (day number)	0.2503
Cation Exchange Capacity of the soil	0.2396
Annual precipitation	0.1861
Mean temperature of wettest quarter	0.1739
Distance to water (rivers, lakes, sea)	0.1676
Soil organic carbon content (‰)	0.1004
Weight in % of silt particles (0.0002-0.05 mm)	0.095
Phenology; Start of Season (day number)	0.0652
Phenology; End of Season (day number)	0.0433
Phenology; Peak of season (day number)	0.0118
Inundation; occurrence	0

T36 - [G34b] Temperate and submediterranean montane Pinus sylvestris-Pinus nigra forest - distribution
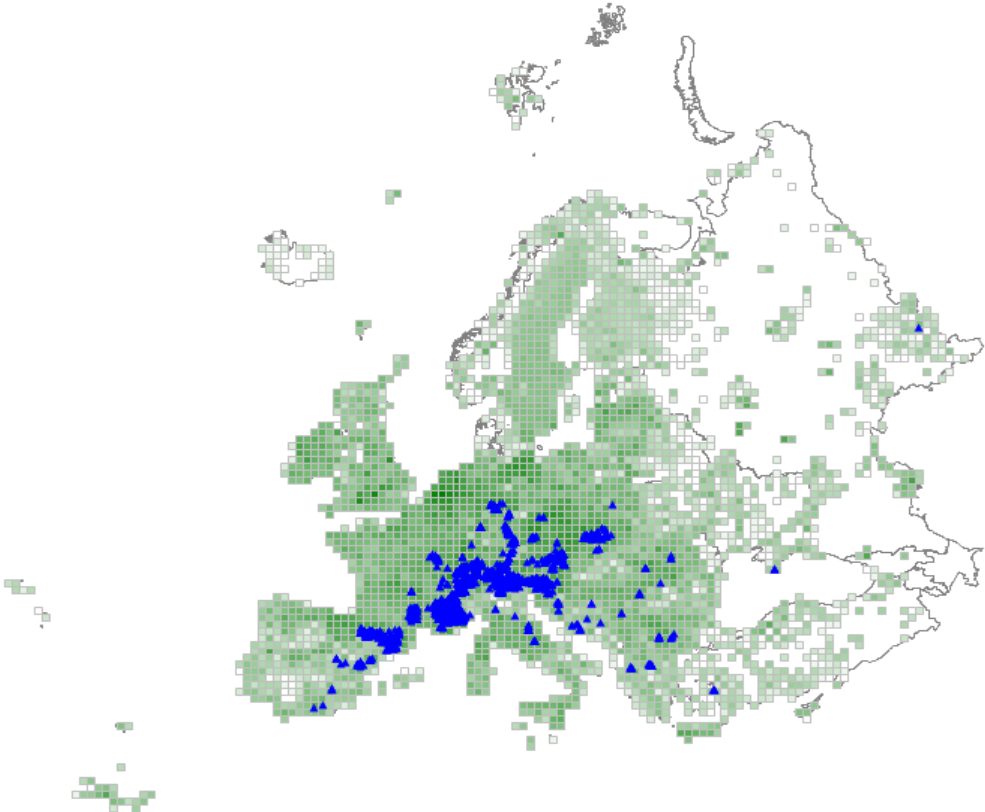
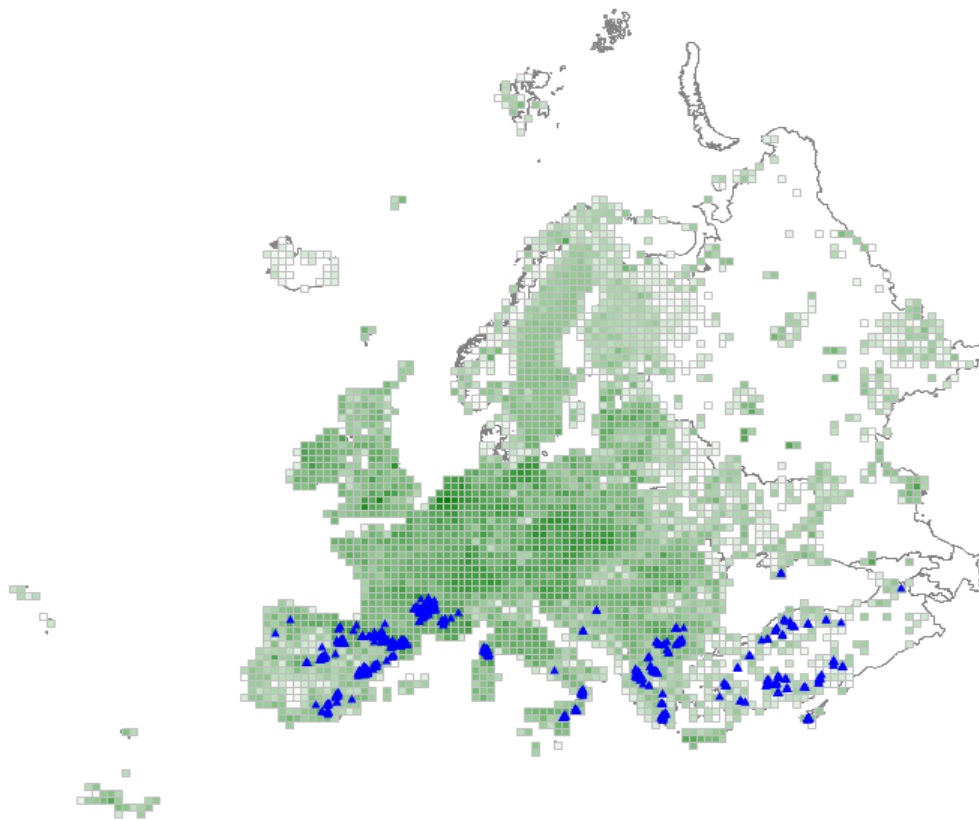**T36 - [G34b] Temperate and submediterranean montane Pinus sylvestris-Pinus nigra forest - suitability**

Statistics from Maxent modelling

|	
AUC training (0-1)	0.8502
AUC test (0-1)	0.863
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	44.0824
Precipitation of warmest quarter	16.6154
Annual precipitation	14.2008
Soil pH (water)	5.7938
Potential Evapotranspiration	5.1143
Volume % of coarse fragments (> 2 mm)	3.4032
Temperature seasonality (stdev * 100)	2.5372
Vegetation height (m)	2.5078
Phenology; Length of season (days)	1.3356
Phenology; NDVI seasonality	0.8548
Solar radiation	0.5957
Bulk density (kg/m³)	0.4512
Phenology; Peak of season (day number)	0.4309
Precipitation seasonality (coef. of var.)	0.4039
Phenology; Low of season (day number)	0.3384
Soil organic carbon content (‰)	0.2902
Cation Exchange Capacity of the soil	0.2817
Distance to water (rivers, lakes, sea)	0.2387
Phenology; End of Season (day number)	0.1639
Weight in % of silt particles (0.0002-0.05 mm)	0.1451
Phenology; NDVI mean	0.1186
Mean temperature of wettest quarter	0.0828
Weight in % of clay particles (<0.0002 mm)	0.0121
Phenology; Start of Season (day number)	0.0018
Inundation; occurrence	0
Weight in % of sand particles (0.05-2 mm)	0

Comparison of distribution with Red List maps by John Janssen

The EUNIS-type uses a maller geographical range, with parts in Greece interpret as G3.4b

T37 - [G34c] Mediterranean montane Pinus sylvestris-Pinus nigra forest - distribution

**T37 - [G34c] Mediterranean montane Pinus sylvestris-Pinus nigra forest - suitability**
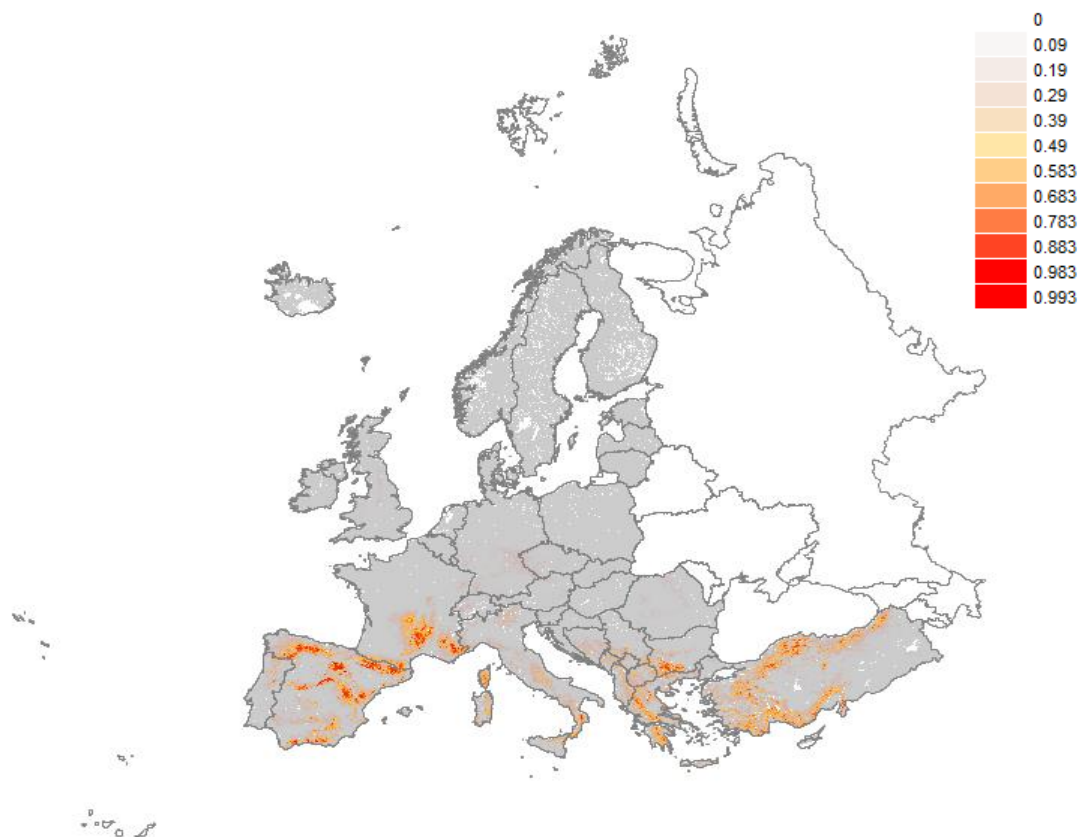
Statistics from Maxent modelling

AUC training (0-1)	0.9321
AUC test (0-1)	0.9375
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	54.6579
Temperature seasonality (stdev * 100)	10.6942
Soil organic carbon content (‰)	5.642
Potential Evapotranspiration	5.1147
Volume % of coarse fragments (> 2 mm)	4.8701
Precipitation of warmest quarter	4.8226
Phenology; End of Season (day number)	2.6307
Phenology; NDVI mean	1.925
Phenology; NDVI seasonality	1.6796
Weight in % of silt particles (0.0002-0.05 mm)	1.2543
Phenology; Low of season (day number)	1.2389
Cation Exchange Capacity of the soil	1.1032
Soil pH (water)	0.7526
Bulk density (kg/m³)	0.7494
Vegetation height (m)	0.6458
Phenology; Start of Season (day number)	0.6006
Weight in % of clay particles (<0.0002 mm)	0.3711
Weight in % of sand particles (0.05-2 mm)	0.3695
Solar radiation	0.2534
Precipitation seasonality (coef. of var.)	0.2189
Mean temperature of wettest quarter	0.1384
Phenology; Peak of season (day number)	0.113
Annual precipitation	0.0835
Phenology; Length of season (days)	0.0657
Distance to water (rivers, lakes, sea)	0.0048
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The RL-type uses a smaller geographical range, with parts in Greece interpret as G3.4b

T38 - [G34d] Mediterranean montane Cedrus forest - distribution
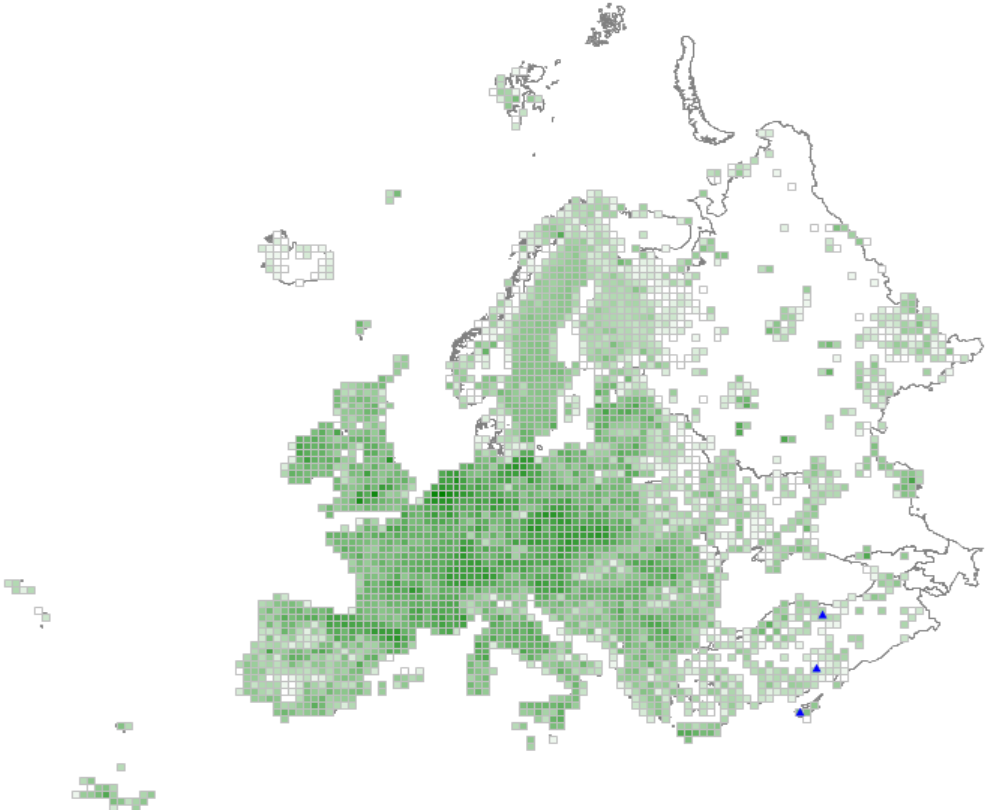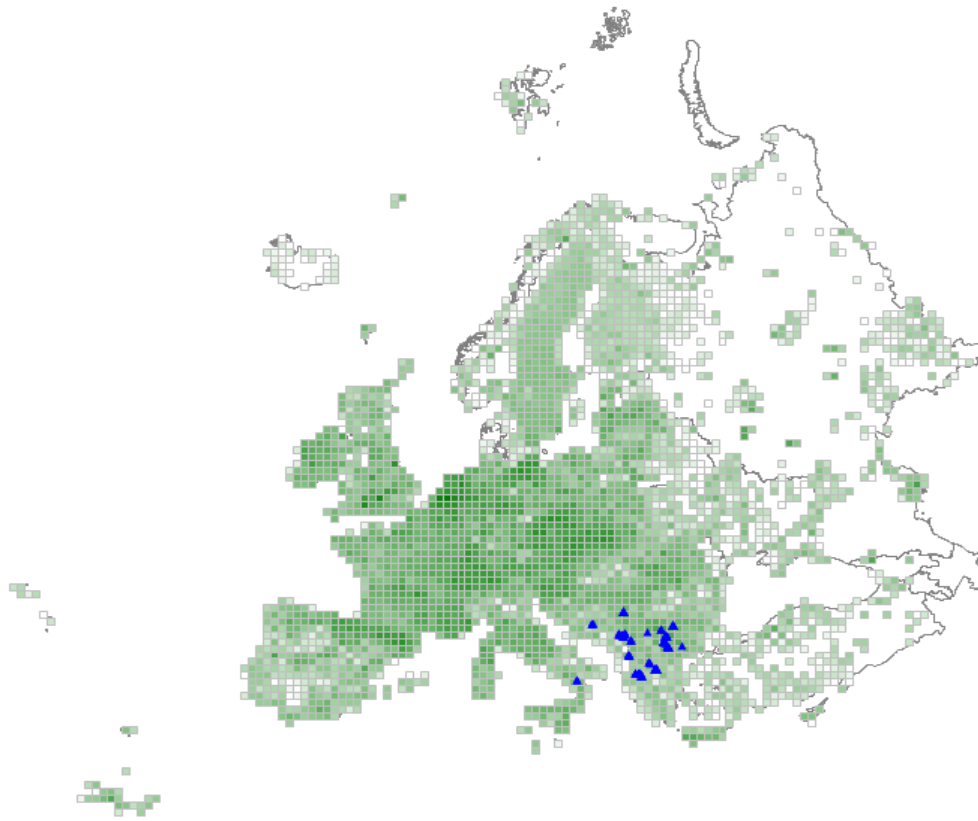

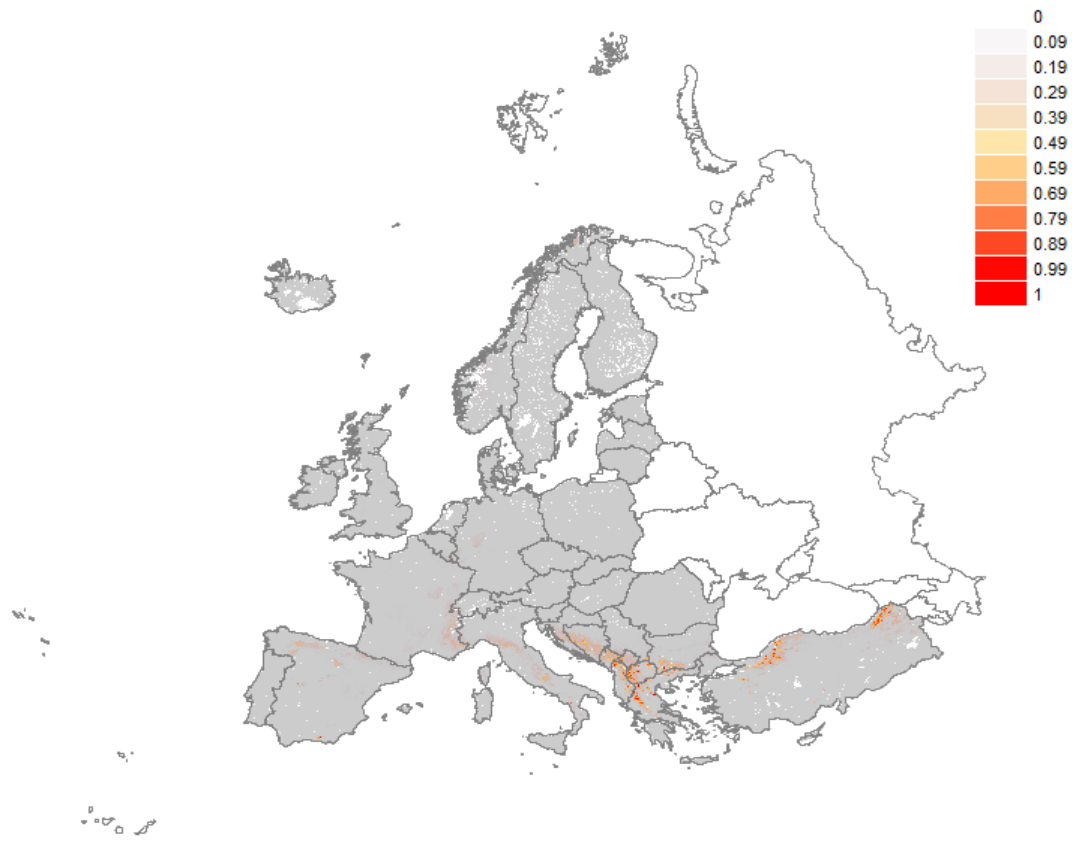**T38 - [G34d] Mediterranean montane Cedrus forest - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

**T39 - [G36] Mediterranean and Balkan subalpine Pinus heldreichii-Pinus peuce forest - distribution**

**T39 - [G36] Mediterranean and Balkan subalpine Pinus heldreichii-Pinus peuce forest - suitability**

Statistics from Maxent modelling

AUC training (0-1)	0.9908
AUC test (0-1)	0.9873
Contribution variables to the Maxent model (%)	
Digital Elevation Map (DEM)	41.8961
Mean temperature of wettest quarter	23.6351
Precipitation of warmest quarter	14.8067
Soil organic carbon content (‰)	6.5293
Potential Evapotranspiration	6.3139
Precipitation seasonality (coef. of var.)	1.9771
Temperature seasonality (stdev * 100)	1.2082
Solar radiation	0.7148
Vegetation height (m)	0.454
Phenology; Low of season (day number)	0.4307
Distance to water (rivers, lakes, sea)	0.3942
Volume % of coarse fragments (> 2 mm)	0.3539
Annual precipitation	0.2937
Bulk density (kg/m³)	0.2475
Phenology; Peak of season (day number)	0.2257
Phenology; End of Season (day number)	0.1734
Phenology; Length of season (days)	0.1313
Phenology; NDVI seasonality	0.0894
Phenology; NDVI mean	0.0794
Weight in % of sand particles (0.05-2 mm)	0.0209
Weight in % of clay particles (<0.0002 mm)	0.0131
Weight in % of silt particles (0.0002-0.05 mm)	0.0049
Cation Exchange Capacity of the soil	0.0039
Phenology; Start of Season (day number)	0.0028
Inundation; occurrence	0
Soil pH (water)	0

**T3A - [G37] Mediterranean lowland to submontane Pinus forest - distribution**
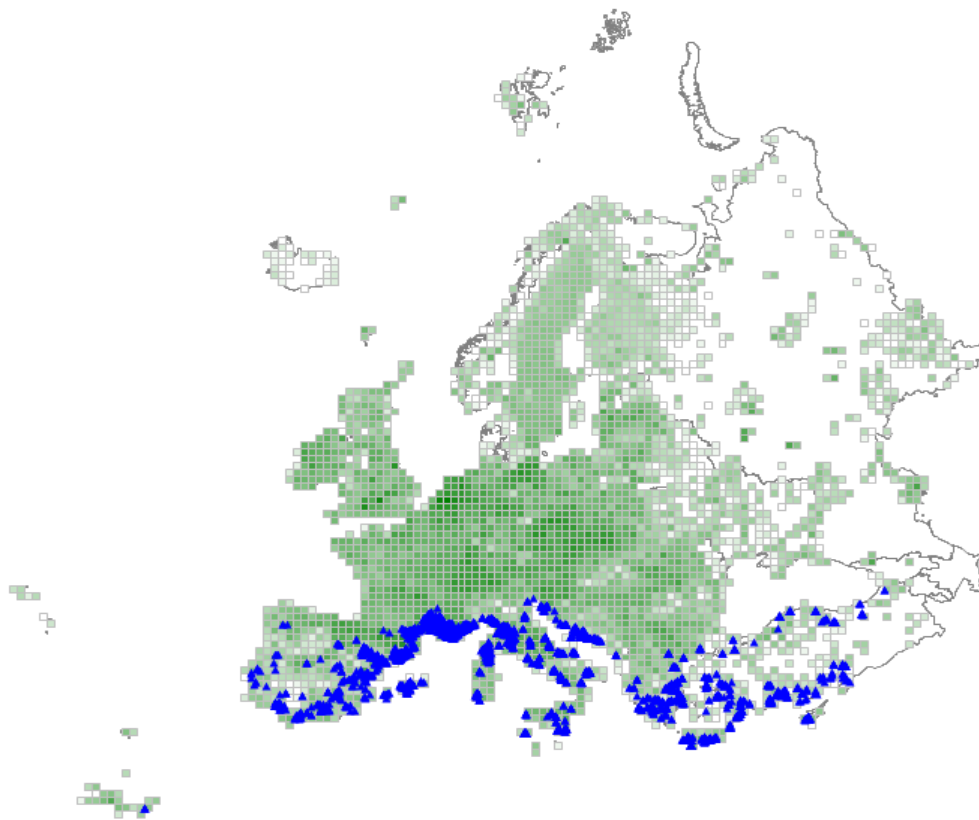
T3A - [G37] Mediterranean lowland to submontane Pinus forest - suitability
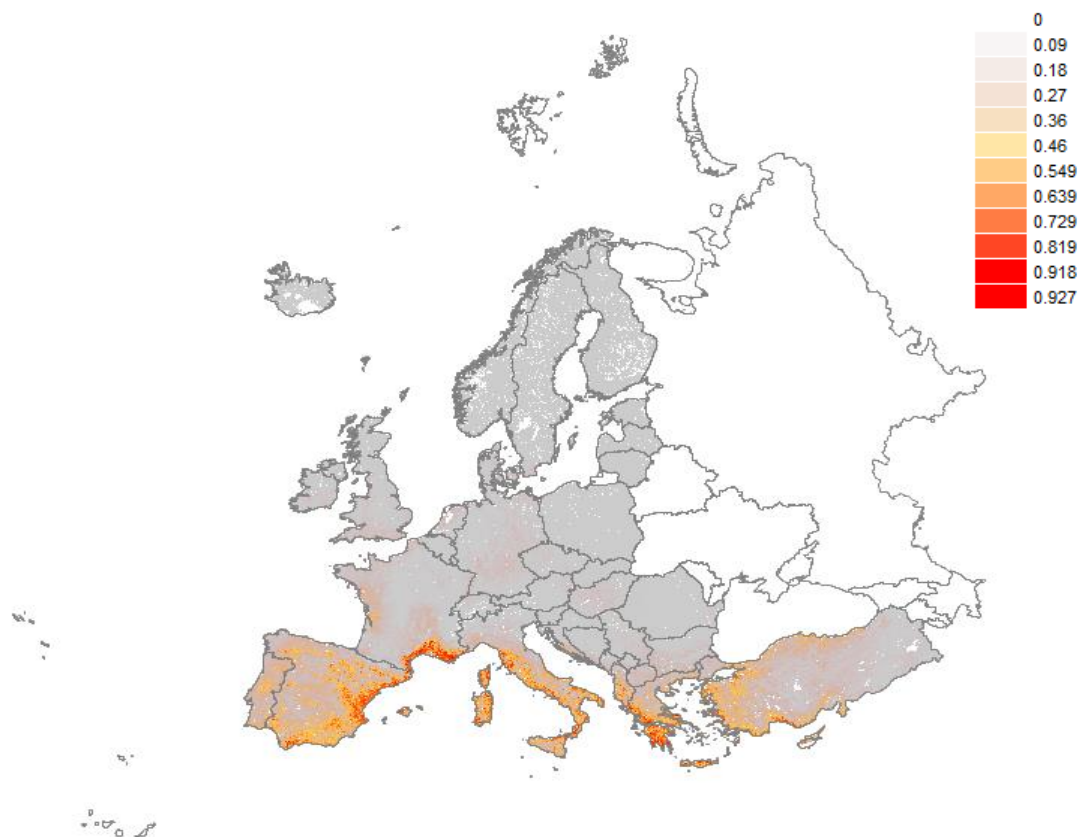
Statistics from Maxent modelling

AUC training (0-1)	0.8507
AUC test (0-1)	0.8452
Contribution variables to the Maxent model (%)	
Phenology; End of Season (day number)	36.8911
Temperature seasonality (stdev * 100)	14.5729
Soil pH (water)	12.2934
Phenology; NDVI seasonality	10.3805
Phenology; Length of season (days)	8.4653
Precipitation seasonality (coef. of var.)	4.6548
Bulk density (kg/m³)	4.4014
Weight in % of sand particles (0.05-2 mm)	1.9443
Precipitation of warmest quarter	1.4875
Cation Exchange Capacity of the soil	1.2677
Weight in % of clay particles (<0.0002 mm)	0.9879
Mean temperature of wettest quarter	0.6104
Phenology; NDVI mean	0.3829
Phenology; Start of Season (day number)	0.3752
Volume % of coarse fragments (> 2 mm)	0.3714
Soil organic carbon content (‰)	0.2296
Phenology; Low of season (day number)	0.225
Digital Elevation Map (DEM)	0.1256
Vegetation height (m)	0.0963
Phenology; Peak of season (day number)	0.0914
Potential Evapotranspiration	0.0833
Weight in % of silt particles (0.0002-0.05 mm)	0.0223
Distance to water (rivers, lakes, sea)	0.0183
Annual precipitation	0.0156
Solar radiation	0.006
Inundation; occurrence	0

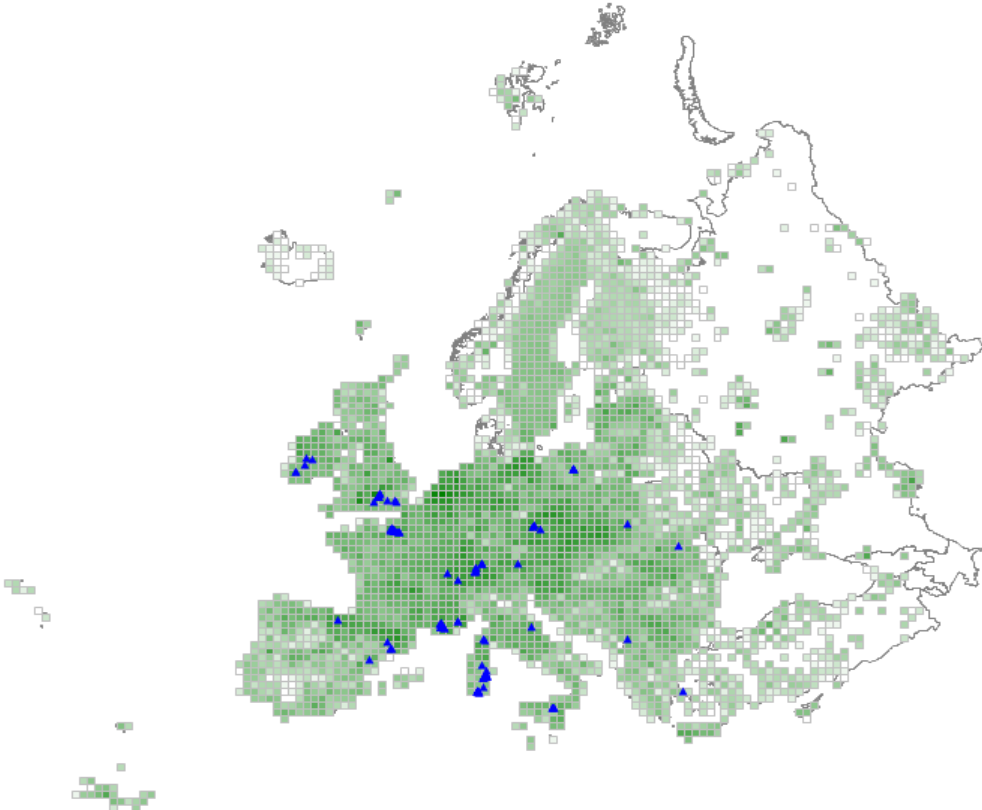**T3B - [G38] Pinus canariensis forest - distribution**
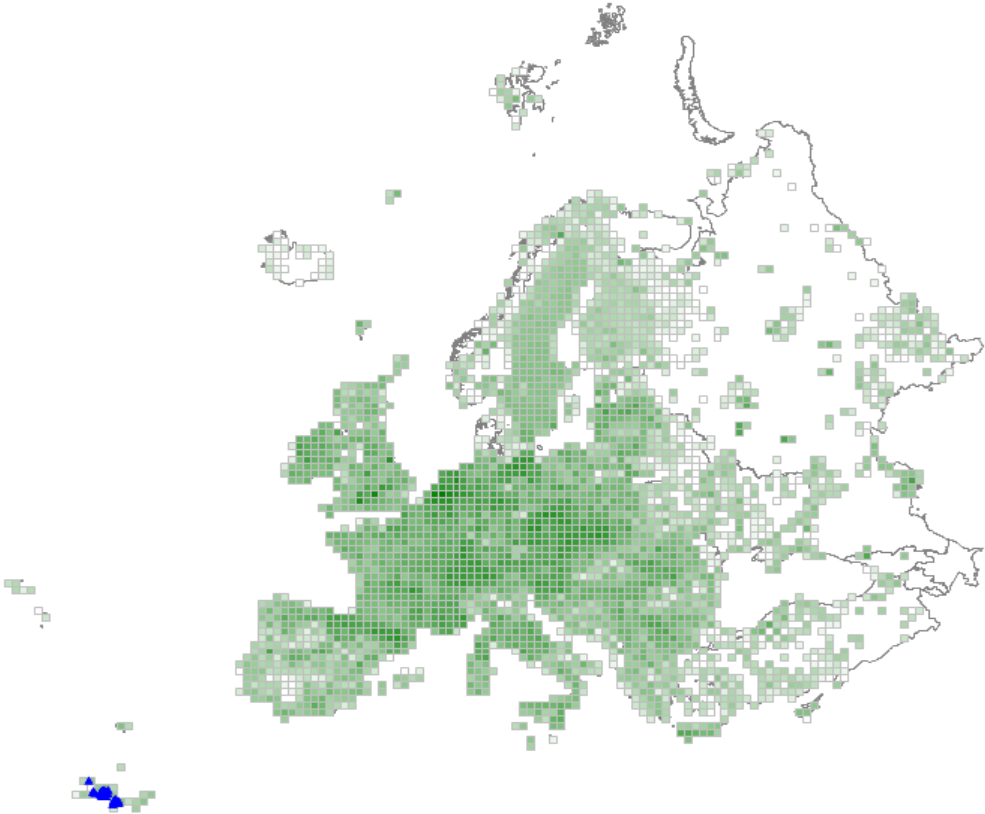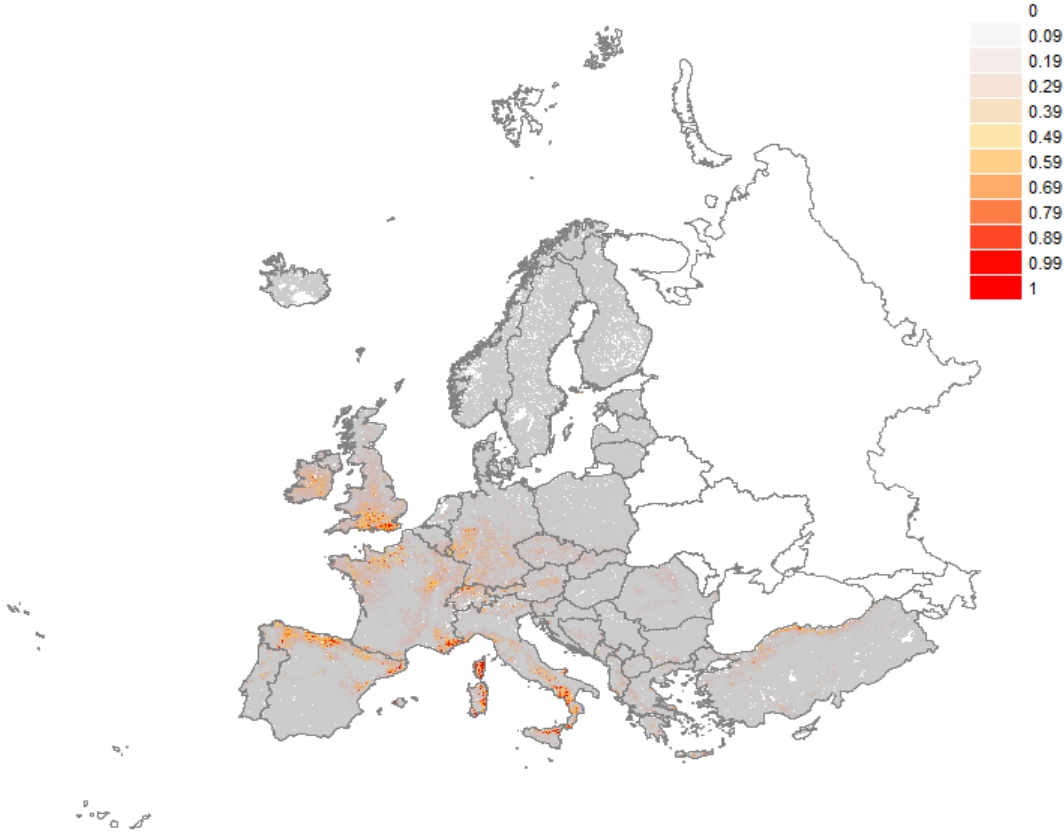

T3B - [G38] Pinus canariensis forest - suitability

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

**T3C - [G39a] Taxus baccata forest - distribution**
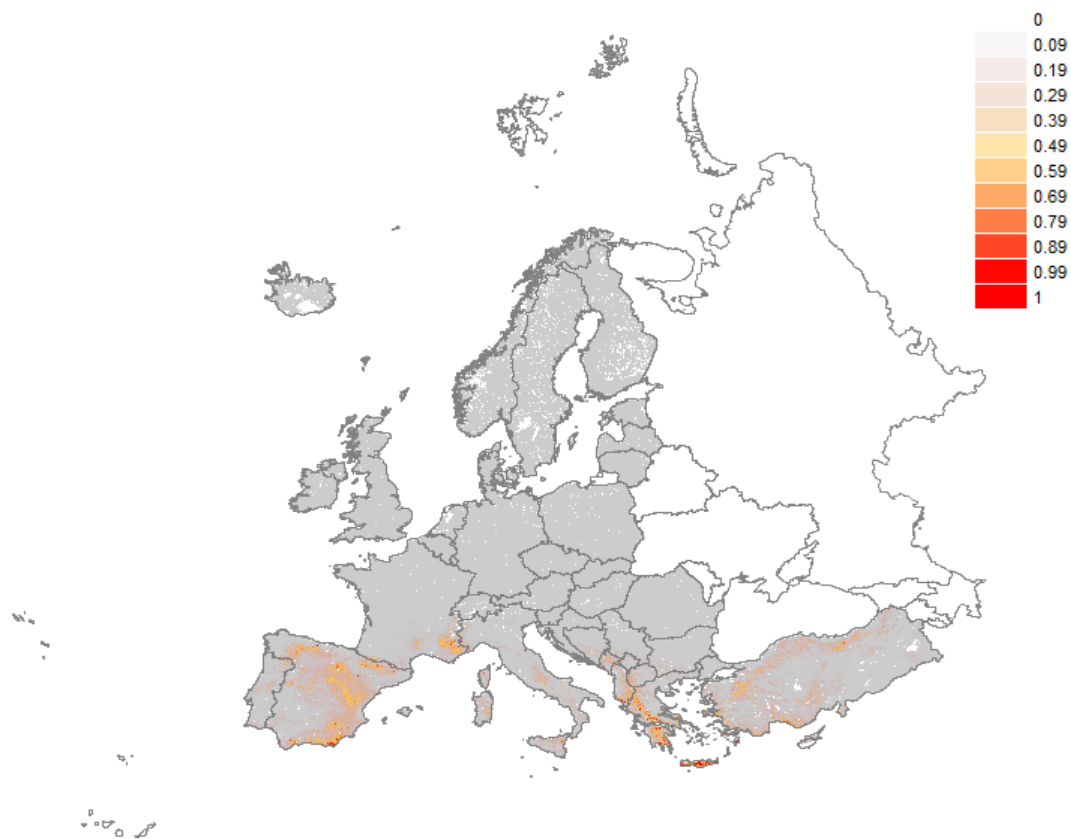

T3C - [G39a] Taxus baccata forest - suitability

Statistics from Maxent modelling

AUC training (0-1)	0.9777
AUC test (0-1)	0.9303
Contribution variables to the Maxent model (%)	
Potential Evapotranspiration	19.8075
Temperature seasonality (stdev * 100)	15.9247
Volume % of coarse fragments (> 2 mm)	10.7945
Weight in % of clay particles (<0.0002 mm)	10.5356
Phenology; End of Season (day number)	5.686
Phenology; NDVI mean	5.277
Soil organic carbon content (‰)	5.0687
Vegetation height (m)	4.7721
Phenology; Peak of season (day number)	3.2278
Precipitation seasonality (coef. of var.)	2.7206
Phenology; Start of Season (day number)	2.5928
Phenology; NDVI seasonality	2.113
Digital Elevation Map (DEM)	2.1105
Distance to water (rivers, lakes, sea)	2.0142
Bulk density (kg/m³)	1.7824
Precipitation of warmest quarter	1.6605
Mean temperature of wettest quarter	1.3094
Phenology; Low of season (day number)	0.5918
Annual precipitation	0.5416
Weight in % of sand particles (0.05-2 mm)	0.5281
Cation Exchange Capacity of the soil	0.3111
Solar radiation	0.305
Soil pH (water)	0.1706
Weight in % of silt particles (0.0002-0.05 mm)	0.0625
Inundation; occurrence	0.0461
Phenology; Length of season (days)	0.046

**T3D - [G39b] Mediterranean Cupressaceae forest - distribution**
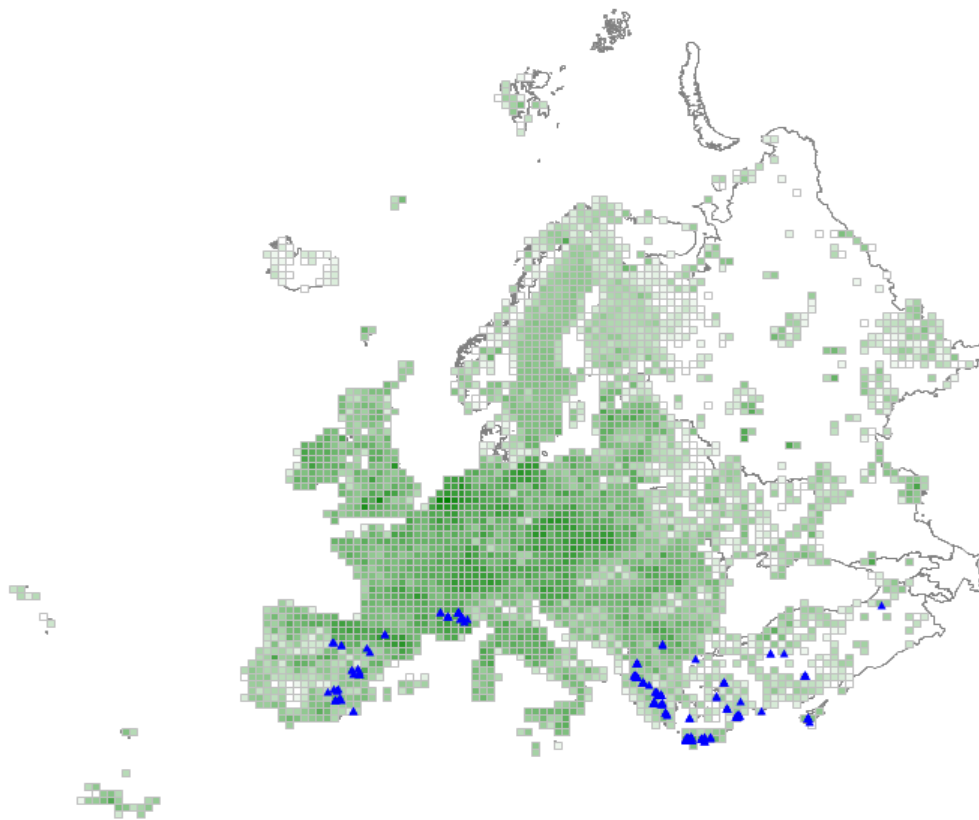
T3D - [G39b] Mediterranean Cupressaceae forest - suitability

	0
	0.09
	0.19
	0.29
	0.39
	0.49
	0.59
	0.69
	0.79
	0.89
	0.99
	1

Statistics from Maxent modelling

AUC training (0-1)	0.9763
AUC test (0-1)	0.9807
Contribution variables to the Maxent model (%)	
Precipitation seasonality (coef. of var.)	30.5191
Digital Elevation Map (DEM)	12.6969
Precipitation of warmest quarter	12.1387
Temperature seasonality (stdev * 100)	11.9219
Volume % of coarse fragments (> 2 mm)	6.9979
Phenology; Start of Season (day number)	5.6805
Annual precipitation	4.0736
Phenology; Peak of season (day number)	3.03
Potential Evapotranspiration	2.4521
Soil pH (water)	2.153
Weight in % of clay particles (<0.0002 mm)	2.0603
Weight in % of sand particles (0.05-2 mm)	1.9345
Phenology; NDVI mean	0.7271
Phenology; Low of season (day number)	0.6875
Soil organic carbon content (‰)	0.55
Phenology; NDVI seasonality	0.5113
Vegetation height (m)	0.4855
Solar radiation	0.431
Phenology; Length of season (days)	0.2584
Weight in % of silt particles (0.0002-0.05 mm)	0.1977
Cation Exchange Capacity of the soil	0.1873
Mean temperature of wettest quarter	0.1547
Phenology; End of Season (day number)	0.1275
Bulk density (kg/m³)	0.0173
Distance to water (rivers, lakes, sea)	0.0063
Inundation; occurrence	0

T3E - [G39c] Macaronesian Juniperus forest - distribution
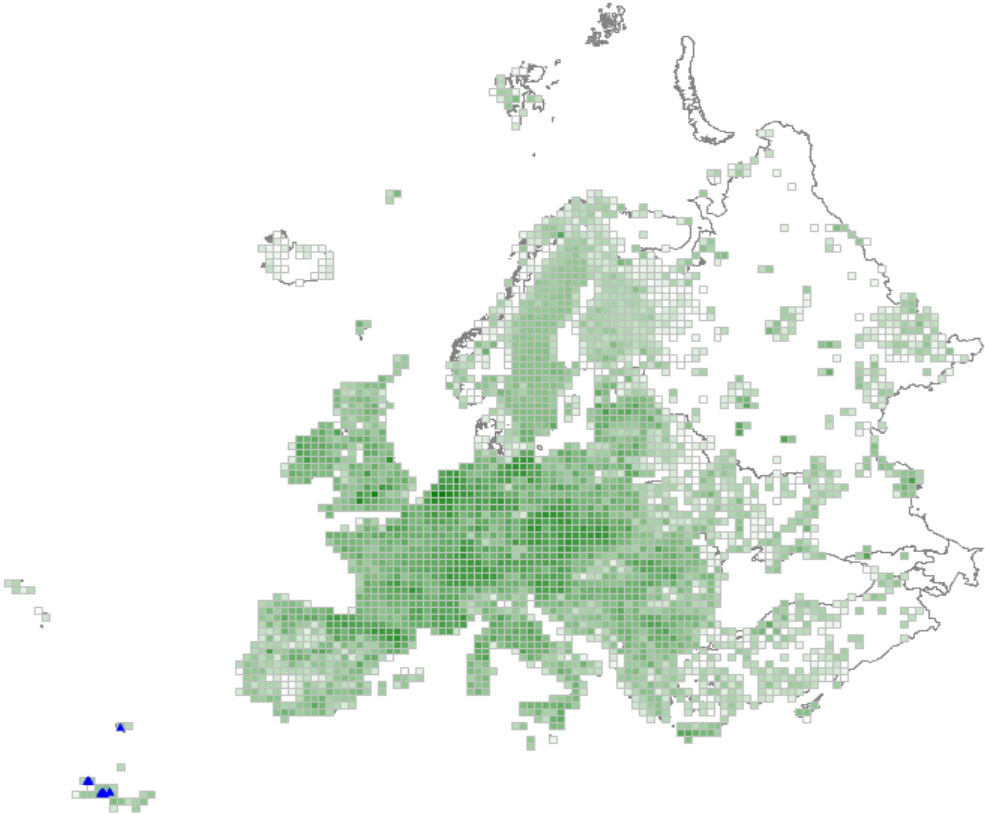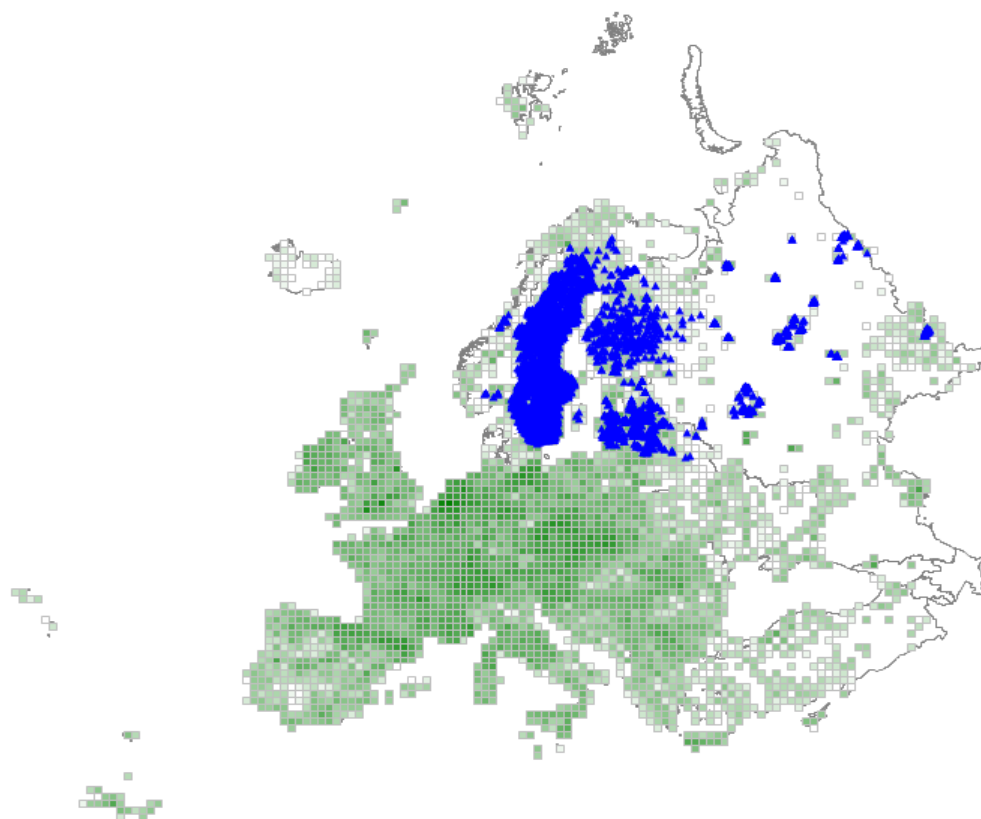

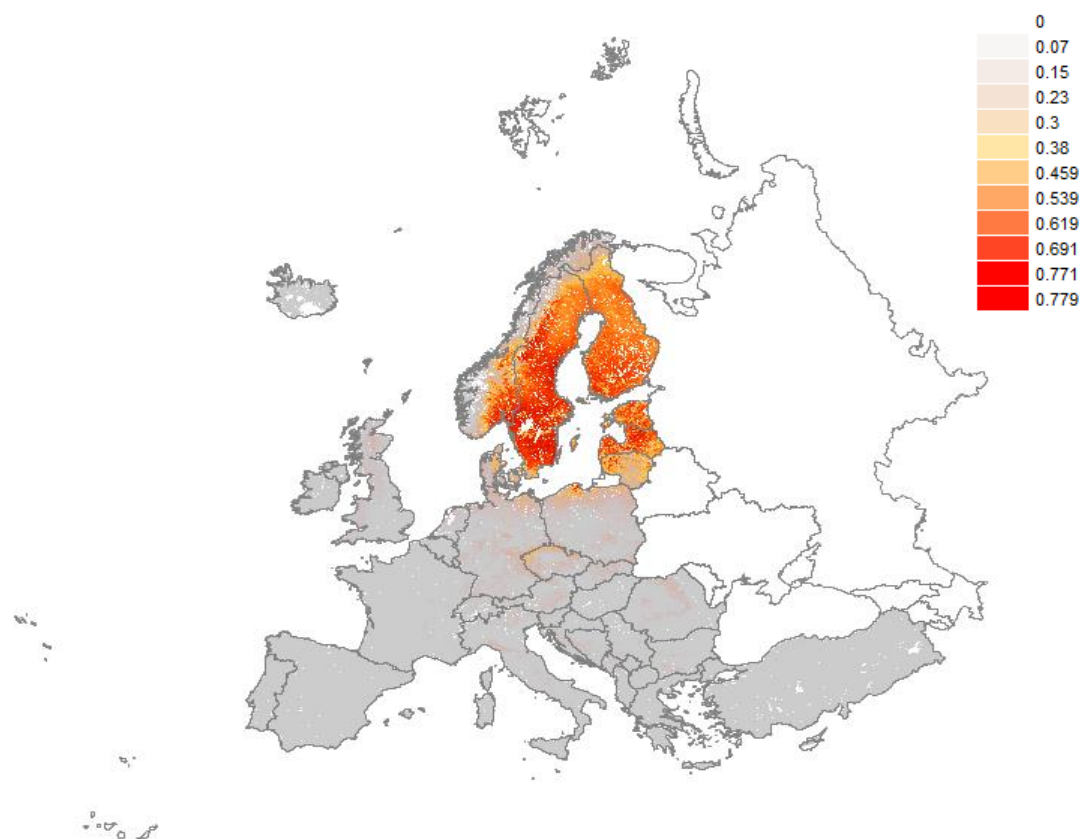**T3E - [G39c] Macaronesian Juniperus forest - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.

T3F - [G3A] Dark taiga - distribution


T3F - [G3A] Dark taiga - suitability

	0
	0.07
	0.15
	0.23
	0.3
	0.38
	0.459
	0.539
	0.619
	0.691
	0.771
	0.779

Statistics from Maxent modelling

AUC training (0-1)	0.765
AUC test (0-1)	0.7491
Contribution variables to the Maxent model (%)	
Soil pH (water)	32.5122
Bulk density (kg/m³)	18.3109
Soil organic carbon content (‰)	15.4897
Potential Evapotranspiration	11.7058
Temperature seasonality (stdev * 100)	10.8098
Vegetation height (m)	3.6375
Phenology; Low of season (day number)	1.6872
Precipitation of warmest quarter	1.2296
Weight in % of silt particles (0.0002-0.05 mm)	1.2195
Weight in % of clay particles (<0.0002 mm)	0.9543
Digital Elevation Map (DEM)	0.8061
Weight in % of sand particles (0.05-2 mm)	0.5426
Volume % of coarse fragments (> 2 mm)	0.5145
Precipitation seasonality (coef. of var.)	0.3301
Phenology; NDVI mean	0.114
Mean temperature of wettest quarter	0.0759
Phenology; End of Season (day number)	0.0401
Phenology; NDVI seasonality	0.0173
Cation Exchange Capacity of the soil	0.0028
Distance to water (rivers, lakes, sea)	0
Phenology; Peak of season (day number)	0
Annual precipitation	0
Phenology; Start of Season (day number)	0
Inundation; occurrence	0
Phenology; Length of season (days)	0
Solar radiation	0

**T3G - [G3B] Pinus sylvestris light taiga - distribution**
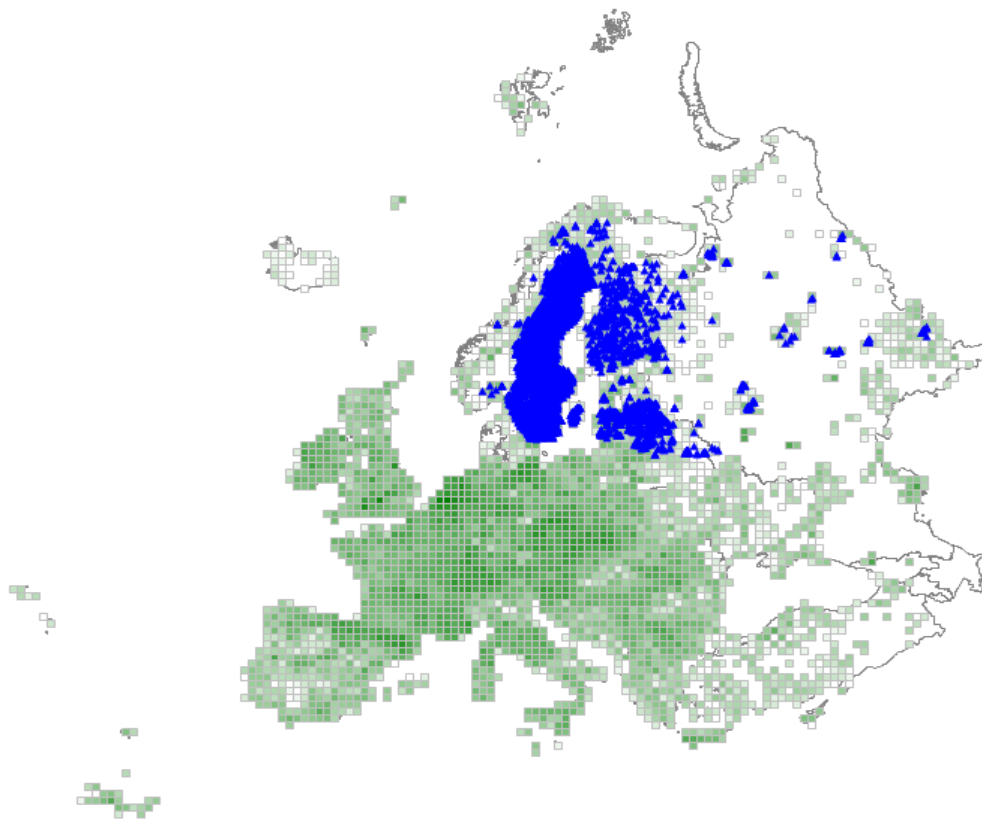
T3G - [G3B] Pinus sylvestris light taiga - suitability

	0
	0.07
	0.15
	0.22
	0.3
	0.38
	0.454
	0.534
	0.606
	0.686
	0.758
	0.766
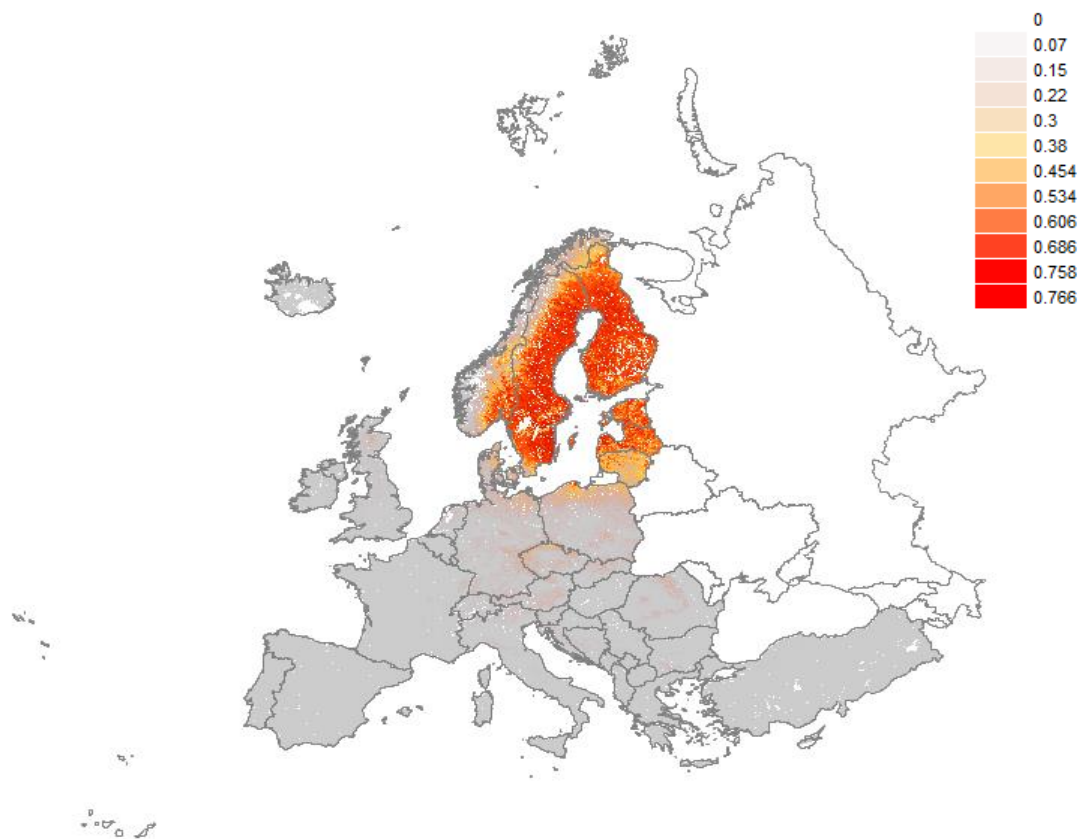
Statistics from Maxent modelling

AUC training (0-1)	0.7297
AUC test (0-1)	0.7286
Contribution variables to the Maxent model (%)	
Bulk density (kg/m³)	43.6543
Soil pH (water)	13.1269
Soil organic carbon content (‰)	11.8295
Temperature seasonality (stdev * 100)	11.5934
Potential Evapotranspiration	11.4708
Phenology; Low of season (day number)	1.3127
Annual precipitation	1.1182
Digital Elevation Map (DEM)	1.045
Solar radiation	0.8052
Precipitation of warmest quarter	0.793
Weight in % of silt particles (0.0002-0.05 mm)	0.7218
Vegetation height (m)	0.6865
Weight in % of clay particles (<0.0002 mm)	0.6247
Mean temperature of wettest quarter	0.2721
Weight in % of sand particles (0.05-2 mm)	0.2312
Precipitation seasonality (coef. of var.)	0.197
Phenology; NDVI seasonality	0.1896
Phenology; NDVI mean	0.1407
Cation Exchange Capacity of the soil	0.0752
Volume % of coarse fragments (> 2 mm)	0.0398
Phenology; Length of season (days)	0.0329
Phenology; Start of Season (day number)	0.0138
Phenology; Peak of season (day number)	0.0143
Distance to water (rivers, lakes, sea)	0.0095
Phenology; End of Season (day number)	0.0015
Inundation; occurrence	0.0002

T3H - [G3C] Larix light taiga - distribution
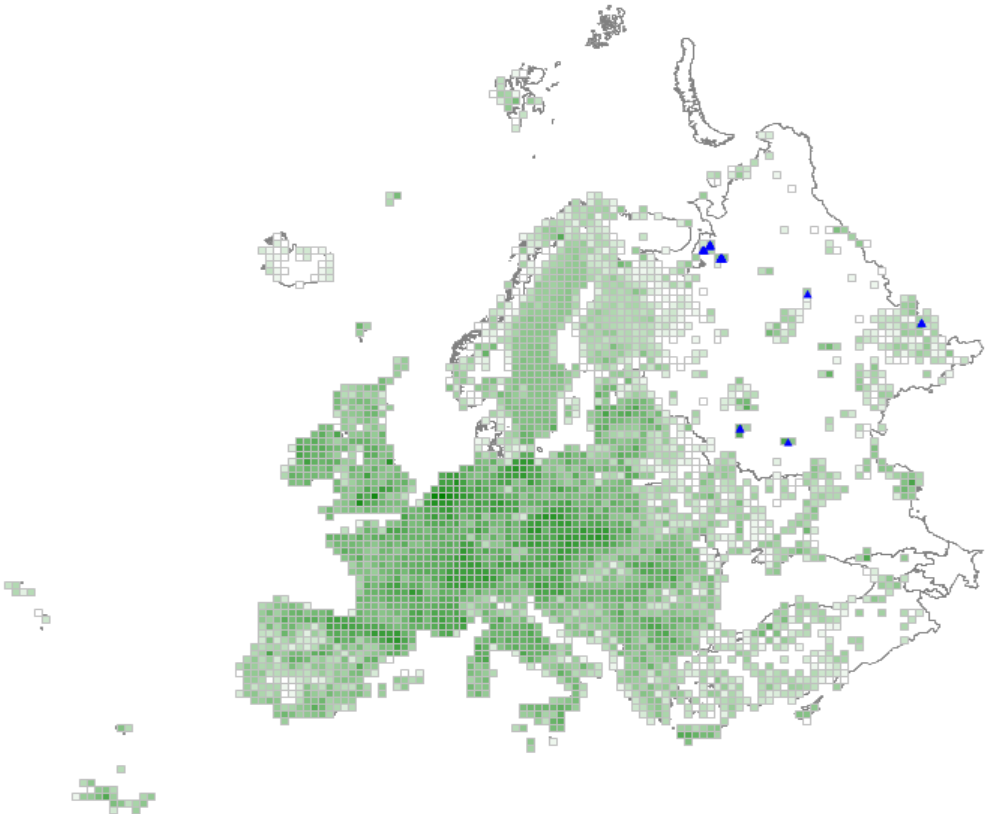
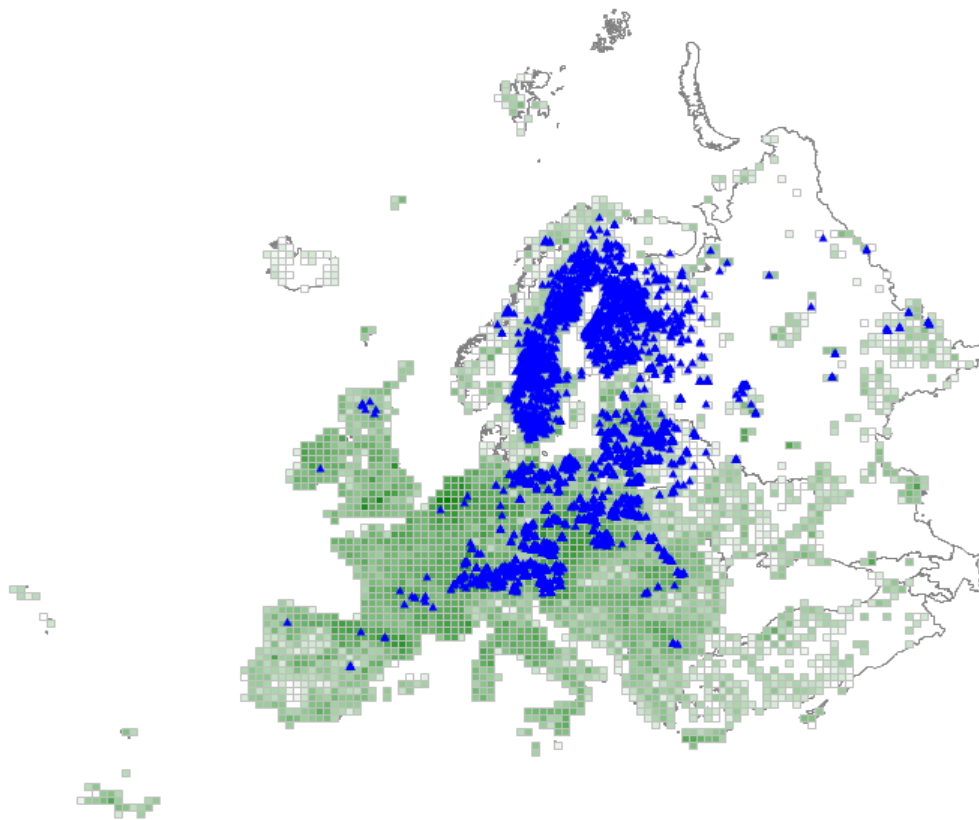**T3H - [G3C] Larix light taiga - suitability**

Not enough data to run a Maxent model or the habitat type only occurs outside the study area.
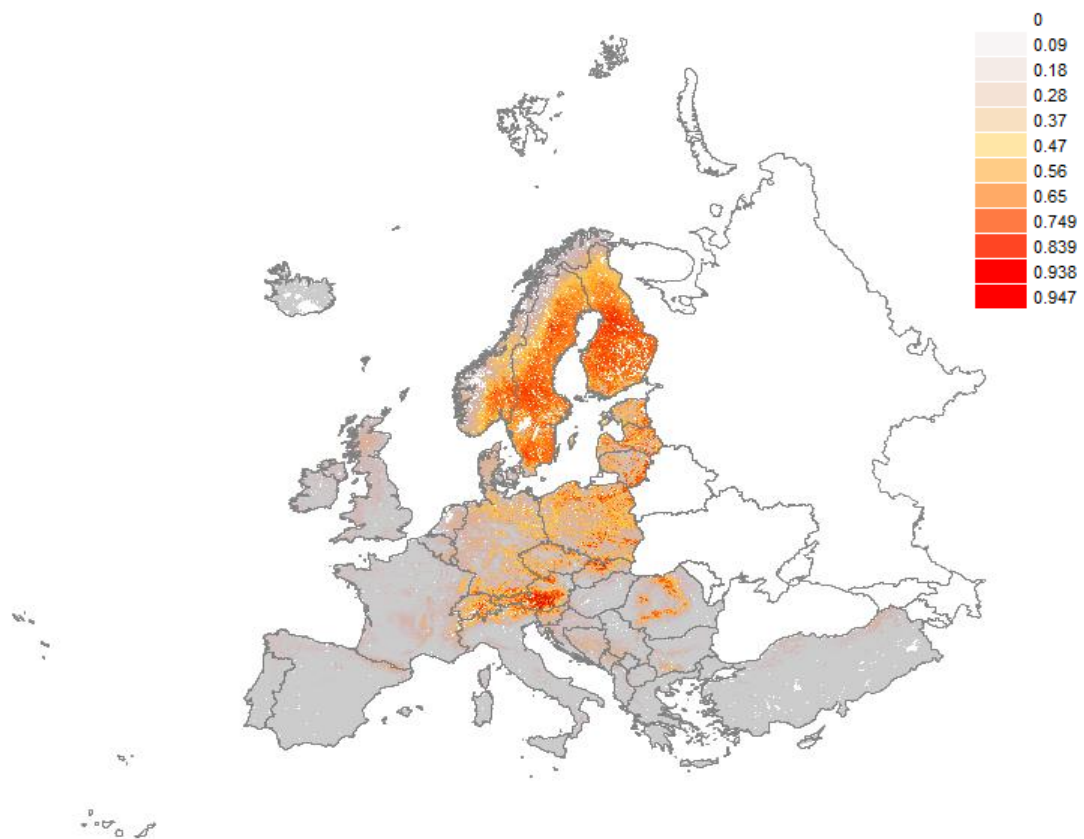
Comparison of distribution with Red List maps by John Janssen
Not assessed; beyond geographical scope Red List

T3J - [G3Da] Pinus and Larix mire forest - distribution


T3J - [G3Da] Pinus and Larix mire forest - suitability

	0
	0.09
	0.18
	0.28
	0.37
	0.47
	0.56
	0.65
	0.749
	0.839
	0.938
	0.947

Statistics from Maxent modelling

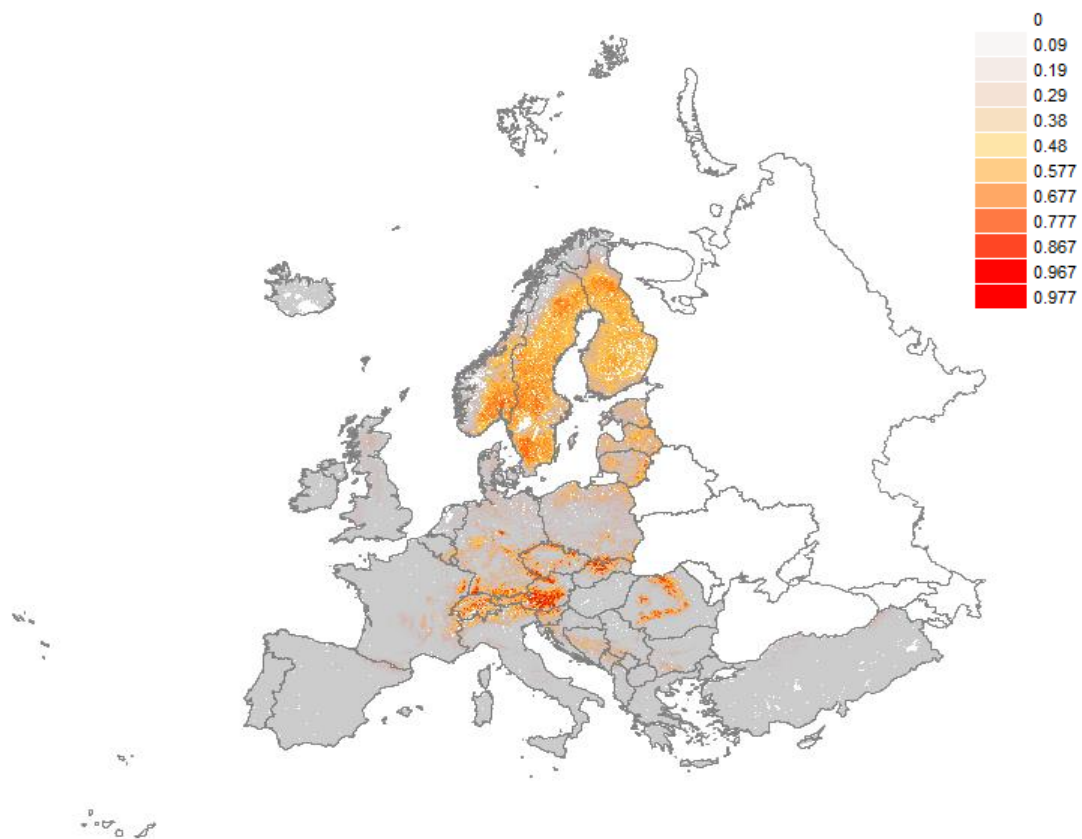|	
AUC training (0-1)	0.7953
AUC test (0-1)	0.7911
Contribution variables to the Maxent model (%)	
Soil pH (water)	57.8259
Temperature seasonality (stdev * 100)	11.2228
Soil organic carbon content (‰)	7.9948
Precipitation of warmest quarter	6.545
Potential Evapotranspiration	4.0715
Vegetation height (m)	3.1667
Weight in % of clay particles (<0.0002 mm)	2.2399
Precipitation seasonality (coef. of var.)	1.8725
Phenology; Peak of season (day number)	0.9378
Weight in % of sand particles (0.05-2 mm)	0.9184
Phenology; NDVI mean	0.6945
Mean temperature of wettest quarter	0.6212
Phenology; Low of season (day number)	0.5518
Volume % of coarse fragments (> 2 mm)	0.4597
Cation Exchange Capacity of the soil	0.2198
Annual precipitation	0.1621
Digital Elevation Map (DEM)	0.1599
Phenology; End of Season (day number)	0.084
Bulk density (kg/m³)	0.0791
Weight in % of silt particles (0.0002-0.05 mm)	0.0657
Phenology; Start of Season (day number)	0.0542
Phenology; NDVI seasonality	0.0451
Distance to water (rivers, lakes, sea)	0.0074
Solar radiation	0
Phenology; Length of season (days)	0
Inundation; occurrence	0

Comparison of distribution with Red List maps by John Janssen

The Larix dominated part of these mires occurs only beyond the geographical scope of the Red List

T3K - [G3Db] Picea mire forest - distribution
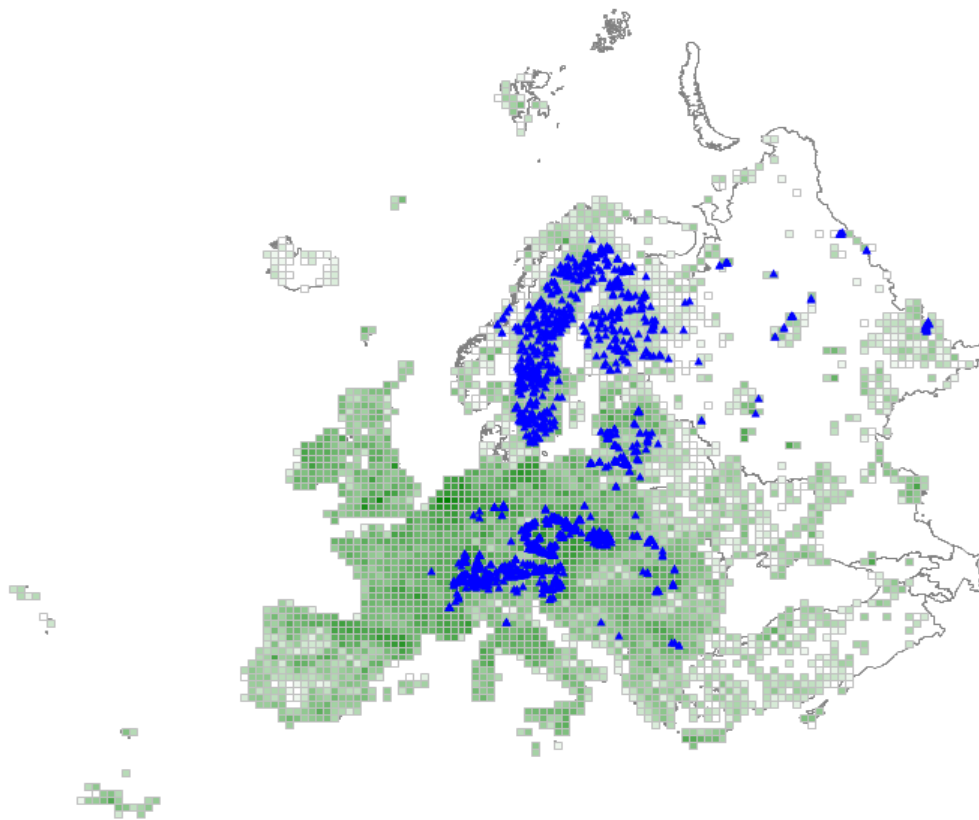

T3K - [G3Db] Picea mire forest - suitability

	0
	0.09
	0.19
	0.29
	0.38
	0.48
	0.577
	0.677
	0.777
	0.867
	0.967
	0.977

Statistics from Maxent modelling

AUC training (0-1)	0.8623
AUC test (0-1)	0.8382
Contribution variables to the Maxent model (%)	
Soil organic carbon content (‰)	33.3686
Soil pH (water)	24.2678
Temperature seasonality (stdev * 100)	8.2323
Precipitation of warmest quarter	6.7108
Vegetation height (m)	6.159
Digital Elevation Map (DEM)	5.2504
Phenology; NDVI mean	4.082
Potential Evapotranspiration	3.6533
Weight in % of clay particles (<0.0002 mm)	1.4531
Phenology; Start of Season (day number)	1.3676
Bulk density (kg/m³)	1.2676
Phenology; End of Season (day number)	1.0987
Mean temperature of wettest quarter	0.8821
Phenology; Low of season (day number)	0.6004
Cation Exchange Capacity of the soil	0.4343
Solar radiation	0.3434
Phenology; NDVI seasonality	0.1507
Weight in % of sand particles (0.05-2 mm)	0.141
Annual precipitation	0.1223
Phenology; Peak of season (day number)	0.1036
Volume % of coarse fragments (> 2 mm)	0.0988
Precipitation seasonality (coef. of var.)	0.0765
Inundation; occurrence	0.0677
Distance to water (rivers, lakes, sea)	0.0395
Weight in % of silt particles (0.0002-0.05 mm)	0.0234
Phenology; Length of season (days)	0.005

T3N - [G3F2] Coniferous plantation of site-native trees - distribution
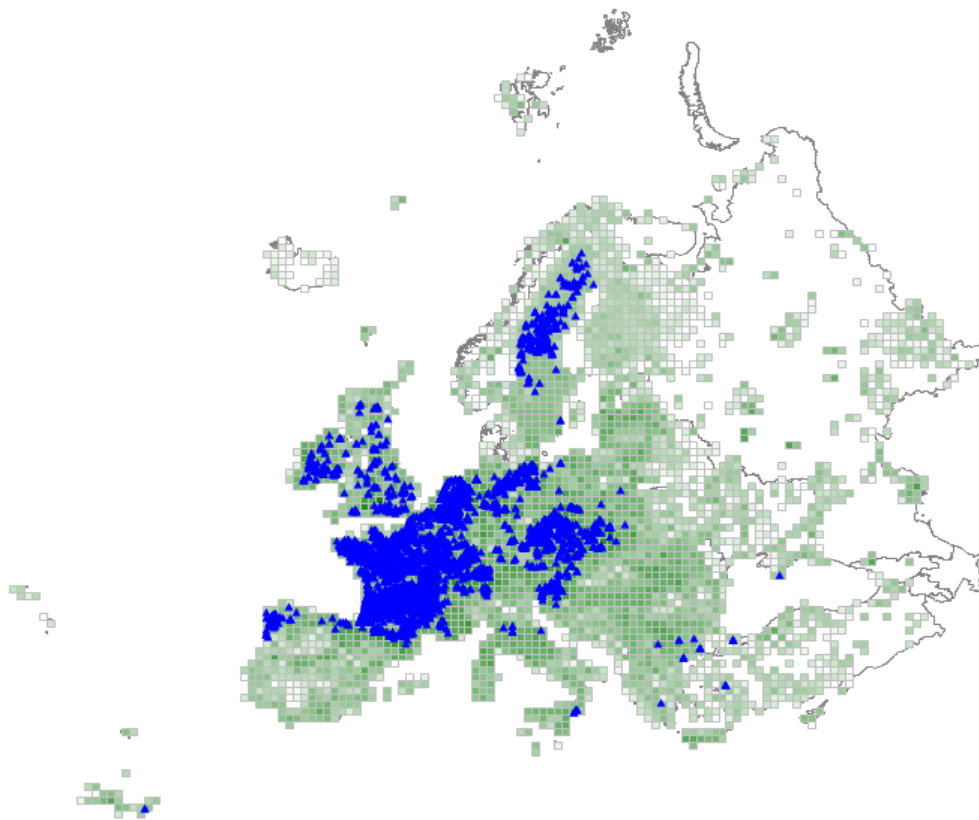
T3N - [G3F2] Coniferous plantation of site-native trees - suitability
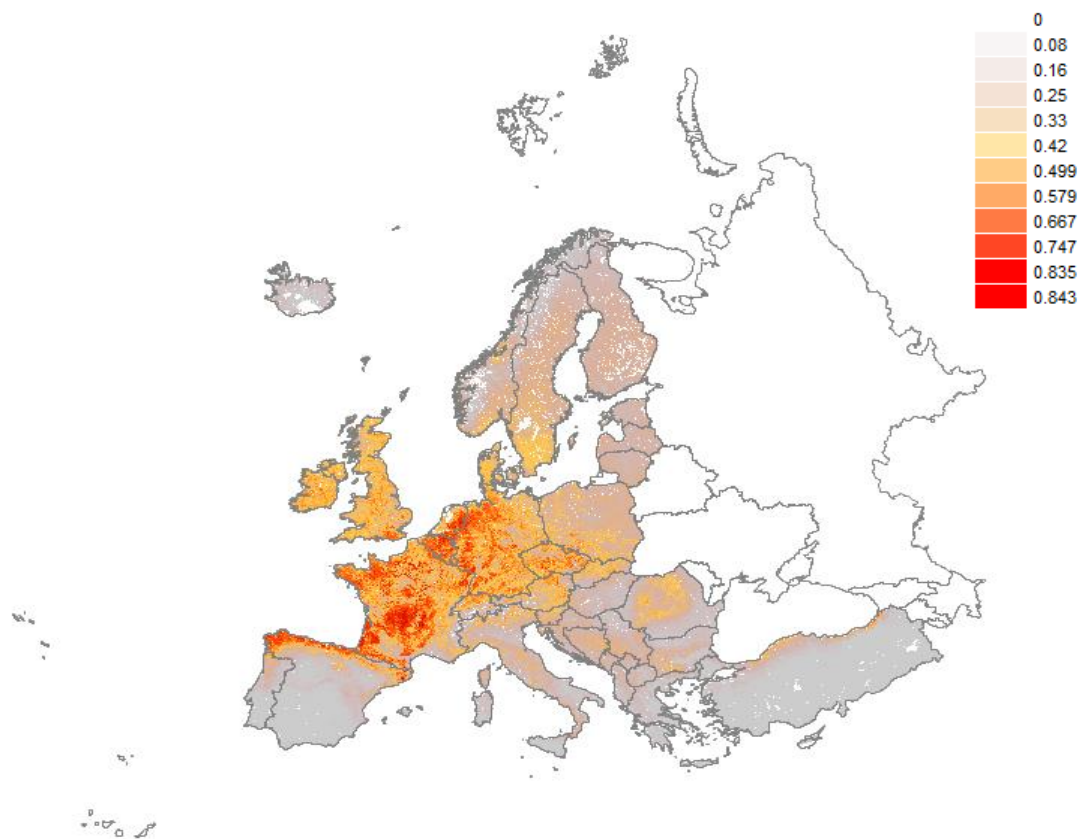
Statistics from Maxent modelling

AUC training (0-1)	0.7043
AUC test (0-1)	0.7062
Contribution variables to the Maxent model (%)	
Temperature seasonality (stdev * 100)	28.3036
Precipitation of warmest quarter	26.3923
Soil pH (water)	15.2305
Potential Evapotranspiration	9.0486
Cation Exchange Capacity of the soil	4.2916
Phenology; NDVI mean	4.2696
Phenology; Low of season (day number)	4.027
Volume % of coarse fragments (> 2 mm)	1.5979
Digital Elevation Map (DEM)	1.2914
Mean temperature of wettest quarter	1.0592
Weight in % of sand particles (0.05-2 mm)	0.9785
Phenology; Start of Season (day number)	0.5316
Precipitation seasonality (coef. of var.)	0.4962
Vegetation height (m)	0.4793
Phenology; Peak of season (day number)	0.4644
Weight in % of silt particles (0.0002-0.05 mm)	0.4582
Bulk density (kg/m³)	0.3235
Weight in % of clay particles (<0.0002 mm)	0.2191
Phenology; NDVI seasonality	0.204
Annual precipitation	0.1859
Solar radiation	0.0896
Soil organic carbon content (‰)	0.0289
Distance to water (rivers, lakes, sea)	0.0158
Phenology; End of Season (day number)	0.0127
Phenology; Length of season (days)	0.0004
Inundation; occurrence	0.0002

Comparison of distribution with Red List maps by John Janssen

Not assessed; mainly anthropogenic