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Documentation on the integration of European Forest Types into the EUNIS Habitat Classification

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Contents

1 Objectives and structure 4

2 European Forest Types (EFTs) 4

3 Forests in the EUNIS Habitat Classification 6

4 The crosswalk between European Forest Types and EUNIS Forest Habitat Classification 9

4.1 Benefits of using the crosswalk 9

4.2 Guidelines to use the crosswalk 10

5 Conclusions 13

References 14

Annex 1 European Forest Types (EFTs) 16

Annex 2 EUNIS Forest Habitat Classification: B1.7 Coastal dune woods and G Woodland, forest and other wooded land 20

Annex 3 Crosswalk from European Forest Types to EUNIS Forest Habitat Types (Level 3) 24

Annex 4 EUNIS Forest Habitat Types factsheets with crosswalk to European Forest Types 29

1 Objectives and structure

This work is framed in Task 1.7.5.B.III.iv of ETC/BD Action Plan 2015, which aims at "preparing documentation on the integration of European Forests Types in EUNIS Habitat Classification (context, method and guidelines to use)". European Forest Types (EFTs) and EUNIS, whose main characteristics are introduced in Table 1.1, are habitat classifications developed for different objectives. The primary goal of the European Forest Types (EFTs) is "to improve the MCPFE reporting on Sustainable forest management (SFM) in Europe, with special regard to forest type based SFM indicators". The EUNIS habitat classification is "a comprehensive pan-European system to facilitate the harmonised description and collection of data across Europe through the use of criteria for habitat identification". The EUNIS classification is structured in 7 levels. The EUNIS Forest Habitats are those included in "G Woodland, forest and other wooded land" up to Level 3, along with the class "B1.7 Coastal dune woods". In spite of their different purposes and approaches, crosswalks between their habitats have been produced, highlighting their similarities.

Table 1.1 The EFTs and EUNIS classifications in a nutshell

	EUROPEAN FOREST TYPES (EFTs)	EUNIS FOREST HABITATS
Main purpose	Sustainable Forest Management reporting in Europe	Harmonised description and collection of data across Europe
Institutions	Forest Europe (MCPFE) and EEA	ETC/BD and EEA
Structure	14 Categories and 78 Types	"G Woodland, forest and other wooded land" (Level 1); 5 classes (Level 2); 61 habitats (Level 3)
Major editions	2006, 2007, 2010	2004. In 2013 and 2015 there have been proposals that have not been accepted yet

This report aims at gathering and synthesizing the relevant information on EFTs and EUNIS Forest Habitats produced to the date to make the published crosswalks more operational. In particular, the document aims to present information on the EUNIS Forest Habitats in a synthesized and condensed way by means of factsheets.

The structure of the report is as follows. Firstly, it provides an overview of both European forest habitat classifications (Chapter 2 for EFTs and Chapter 3 for EUNIS), briefly presenting their primary goals, history, classification structure and main characteristics. Specifically, it highlights the EUNIS characteristics that could be considered attractive for those EFT users willing to take advantage of the crosswalk. Furthermore, complete lists of the EFTs and the EUNIS habitats up to the Level 3 are provided in Annex 1 and Annex 2 respectively. Chapter 4 focuses on the actual crosswalks between both classifications. Firstly, a comparison between their main characteristics is established in order to remark potential benefits to EFT and/or EUNIS users. Secondly, the actual links between types are presented in two annexes supported by explanatory guidelines. Annex 3 shows the linkages from EFTs to EUNIS in a comprehensive table. Annex 4 is comprised by 67 factsheets corresponding to all levels up to the third of EUNIS Forest Habitats, also showing their links to EFTs. The discussion section mainly reflects on the potentiality of using the crosswalk.

2 European Forest Types (EFTs)

Forest Europe (i.e., The Ministerial Conference on the Protection of Forests in Europe, MCPFE) is the pan-European political process addressing all dimensions of Sustainable Forest Management (SFM) in Europe. It develops common strategies for its 46 member countries and the European Union on how to protect and sustainably manage forests (http://www.foresteurope.org/about_us/foresteurope, last accessed 17th August 2015). With the aim at improving the MCPFE reporting on sustainable

forest management in Europe, an international consortium of experts developed the European Forest Types (EFTs). They were originated from a comprehensive review of a proposal conceived for optimising large scale monitoring of forest biodiversity condition in EU-25 countries (Barbati and Marchetti, 2004), based on the earlier proposal of Forest Types for Biodiversity (BEAR Project, Larsson 2001).

The EFT typology is specially designed to be a user-friendly classification for forest type based SFM indicator reporting. In particular, seven MCPFE sustainable forest management indicators need to be reported by forest types: forest area, growing stock, age structure/diameter distribution, forest damage, tree species composition, naturalness and deadwood.

The classification was originally 14 Categories subdivided into 75 Types, which are described in the report "European forest types, Categories and types for sustainable forest management reporting and policy" (EEA, 2006). A second edition of this report (EEA, 2007) changed some names and descriptions. An adopted revision by UNECE/FAO (2010) added 3 further new types, split one original type into two and integrated one original type into another. A table with the changes between 2006 and 2010 can be seen in Evans (2013). As a result of these changes, the current typology is structured in 14 Categories and 78 Types. An overview of these categories and types, together with categories' descriptions, are displayed in Annex 1.

It should be noted that the classification applies only to forest land as defined in FAO (2004) and growing in MCPFE countries (see Box 2.1). Other wooded lands are not covered by the classification.

Box 2.1 The FAO definition of forest land

"Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use" (FAO, 2004).

The conceptual basis for the differentiation of the European forest types is the key factor approach. The key factors of forest biodiversity are defined as the factors that have a major influence on or directly reflect the variation in biodiversity within European forests (Larsson *et al.*, 2001). Thus, the arrangement of categories and types within the hierarchy follows the principle of increasing similarity in the natural and anthropogenic conditions affecting the values taken by five selected forest type based MCPFE indicators: naturalness, number of forest occurring species, growing stock, age/diameter distribution and deadwood amount (EEA, 2006, 2007).

In the report "European forest types, Categories and types for sustainable forest management reporting and policy" (EEA, 2006, 2007) Categories and Types are described and documented using a descriptive frame including their class definition and geographical distribution in relation to European biogeographical regions or to other relevant environmental references. The report provides a classification key and a nomenclature, along with the parameters used for the systematic identification and characterisation of Categories and Types throughout Europe. The document also links EFTs with EUNIS Level 3 habitats and to Annex I of the EU Habitats Directive (92/43/EEC), and cross-links to the mapping units of the map of the natural vegetation of Europe published by Bohn *et al.* (2000).

A pilot reporting by EFTs was conducted for six indicators, only being mandatory for two of them, forest area (1.1) and growing stock (1.2)(MCPFE, 2011). The role of the EFTs and the Forest Europe SFM indicators as tools for monitoring progress on forest biodiversity conservation is discussed in a paper by Barbati *et al.* (2014).

3 Forests in the EUNIS Habitat Classification

The EUNIS (European Union Nature Information System) Habitat Classification has been developed from the earlier CORINE biotopes and Palaearctic habitat classifications "to give common European reference set of habitat units with a common description of all units and a common hierarchical classification to allow the reporting of habitat data in a comparable manner for use in nature conservation (inventories, monitoring and assessments)" (Evans, 2012). Since 1995 it has been developed and managed by the European Topic Centre on Biological Diversity (ETC/BD), formerly on Nature Protection and Biodiversity (2001-2004)) and previously on Nature Conservation (1995-2000), for the European Environment Agency (EEA).

The EUNIS Classification is hierarchical and covers all types of habitat types from natural to artificial, from terrestrial to freshwater and marine. EUNIS is structured in 7 levels, where Level 1 of the classification is comprised by 11 classes. Among them, Class G refers to "Woodland, forest and other wooded land" which is defined as following:

Box 3.1 The EUNIS habitats classification definition of forest and woodland

"Woodland and recently cleared or burnt land where the dominant vegetation is, or was until very recently, trees with a canopy cover of at least 10%. Trees are defined as woody plants, typically single-stemmed, that can reach a height of 5 m at maturity unless stunted by poor climate or soil. Includes lines of trees, coppices, regularly tilled tree nurseries and tree-crop plantations. Includes *Alnus* and *Populus* swamp woodland and riverine *Salix* woodland. Excludes *Corylus avellana* scrub and *Salix* and *Frangula* carrs. Excludes stands of climatically-limited dwarf trees (krummholz) < 3m high, such as occur at the arctic or alpine tree limit. Excludes parkland and dehesa with canopy less than 10%, which are listed under sparsely wooded grasslands E7" (Davies *et al.*, 2004).

"G Woodland, forest and other wooded land" contains 5 classes in Level 2, "G1 Broadleaved deciduous woodland", "G2 Broadleaved evergreen woodland", "G3 Coniferous woodland", "G4 Mixed deciduous and coniferous woodland", "G5 Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice". These 5 classes are subdivided in a total of 60 habitats at Level 3 of the classification. These habitats, along with "B1.7 Coastal dune woods", are considered as EUNIS Forest Habitats (see Annex 2 for a complete list).

The report "EUNIS Habitat Classification Revised 2004" (Davies *et al.*, 2004) provides full documentation of all EUNIS habitats, including descriptions of the forest types, keys and criteria for their identification, descriptive or diagnostic parameters and related phytosociological units. Links to Annex I habitats of the EU Habitats Directive (92/43/EEC) and the Bern Convention Resolution No. 4 (1996) are also added. The crosswalks of EUNIS with Annex I habitats, CORINE Land Cover and the Palaearctic Habitat Classification (PALHAB) are available in tabular form at the EEA webpage (http://www.eea.europa.eu/themes/biodiversity/eunis/eunis-habitat-classification#tab-documents, last accessed, 17th August 2015).

The main advantage of this information system is that access to related data is provided and updated in a modular database portal available from the EUNIS webpage (http://eunis.eea.europa.eu/index.jsp, last accessed 17th August 2015). This is a useful tool that allows searching information on species, habitat types and sites easily (see Figure 3.1). Specifically, it also offers a habitat type hierarchical view up to Level 7 and habitat type descriptions. According to Davies *et al.* (2004), the information includes data on species, habitats and sites compiled in the framework of Natura 2000 (EU Habitats and Birds Directives), data collected from frameworks such as EIONET, data sources or material published by ETC/BD, information on species, habitats and sites taken into account in relevant

international conventions or from International Red Lists Specific, and data collected in the framework of the EEA's reporting activities. A guide for users is also available (Moss, 2008).

Figure 3.1 Overview of EUNIS data portal (available from http://eunis.eea.europa.eu/index.jsp, last accessed 17th August 2015)

The EUNIS Forest Habitat Classification was reviewed in 2013 (Schaminée *et al.*, 2013) using updated crosswalks from EUNIS Level 3 to EuroVegChecklist, a phytosociological classification of European vegetation (Schaminée *et al.*, 2012, 2013). Recommendations for improving the classification are proposed, mainly the division of certain Level 3 Forest Habitat Types and the renaming of some habitat types. The EEA has published a technical report describing this EUNIS Forest Habitat Classification review (EEA, 2015). The proposed changes are given in Annex 2. It must be noted that this review only considered Level 3 habitat types in classes G1, G2 and G3 and the Habitat B1.7. A further step in the development of the classification is the proposal of new descriptions and species lists for these forest habitats (Schaminée *et al.*, 2013) and the modelling of their spatial distribution based on vegetation relevés from the European Vegetation Archive and Copernicus High Resolution Layers (Mücher *et al.*, 2015).

As a result of the crosswalks between EUNIS and CORINE Land Cover and the distribution modelling exercise, EUNIS forest habitats have been mapped up to Level 3 (see Figure 3.2). In particular, the 5 classes corresponding to Level 2 are reflected in the EEA map of European ecosystem types (2015), which is mainly derived from CORINE and consequently has a 100 m pixel resolution. In the case of Level 3 types, 24 habitat probability maps have been produced for the whole of Europe at a 20 meter spatial resolution.

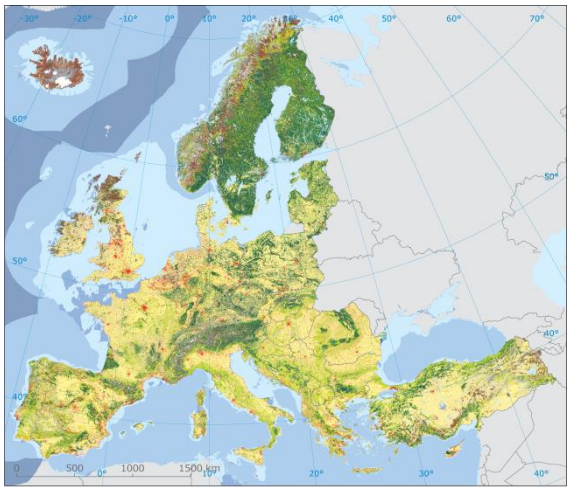
Figure 3.2 EUNIS habitat distribution maps at Level 2 and Level 3

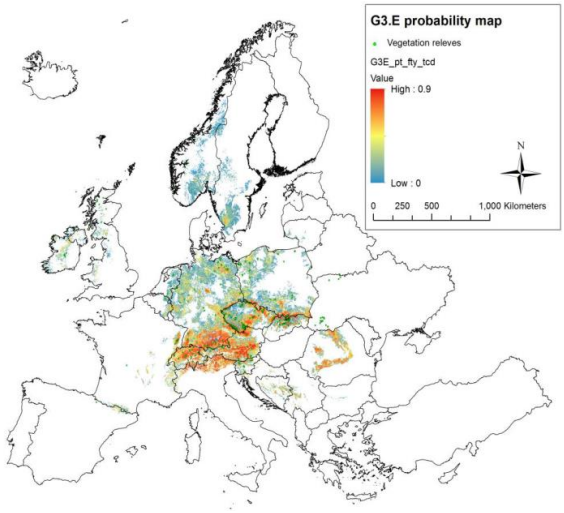
EUNIS LEVEL 2

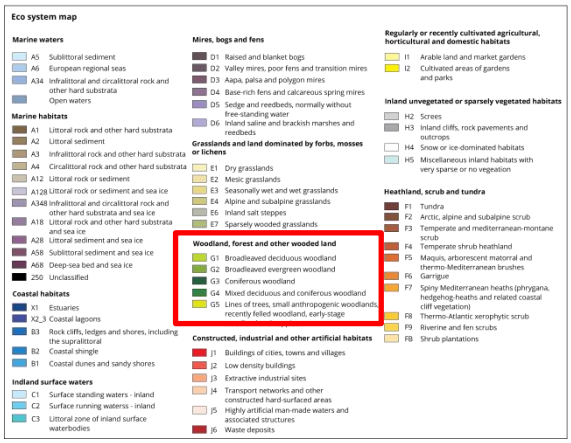
EEA map of European ecosystem types V2.1, all classes (2015). Derived from CORINE Land Cover and additional spatial explicit European datasets according to defined rule set.

EUNIS LEVEL 3

Example of potential distribution map (Mücher *et al.*, 2015). Based on the integration of Maxent prediction and high resolution data plus the distribution of vegetation relevés.







Additionally, in some countries such as Italy (APAT, 2004) and France (Louvel *et al.*, 2013) the EUNIS Habitat Classification has been translated and handbooks have been produced.

4 The crosswalk between European Forest Types and EUNIS Forest Habitat Classification

4.1 Benefits of using the crosswalk

The links between the EFTs and the EUNIS forest habitats were first documented in EEA (2006, 2007) report but the correspondence between classifications was incomplete so the ETC/BD reviewed the links including the EFTs added in UNECE/FAO (2010) and presented these as EFT to EUNIS and EUNIS to EFT tabular crosswalks (Evans, 2013). Although not all the classes have a clear correspondence, these crosswalks allow the use of EFTs and EUNIS as compatible habitat classifications. Thus, users of both communities can profit of their complementarity. In order to show the potential benefits of using the crosswalk, Table 4.1 synthesizes the main characteristics of both classifications and compares them.

Table 4.1 Synthesis and comparison of the main characteristics of EFTs and EUNIS forest habitat classifications

TOPIC	European Forest Types	EUNIS Forest Habitat Type	COMPARISON
Coverage	Signatories to Forest Europe: 46 countries and the EU	33 EEA member countries and 6 cooperating countries and beyond	Similar coverage
Focus	Forest land according to FAO (2004). It excludes other wooded land	Category G of Level 1 includes woodlands, forests and other wooded lands	EUNIS also includes other wooded lands
Number of classes	14 Categories and 78 Types	5 in Level 2 and 61 in Level 3	EUNIS classification hierarchy is further developed but EFTs structure is simpler
Database portal	No portal with information on EFTs or links to flora or fauna species	Related information on species, habitat types and sites is provided and updated in a modular database portal available from EUNIS webpage	EUNIS internet portal provides quick access to species, other habitat classifications and legal instruments
Link to other habitat classifications	EUNIS, Habitats Directive Annex I habitats	EFTs, Habitats Directive Annex I habitats, Bern Convention Resolution No. 4, Palearctic & Corine	EUNIS shows links to more habitat classifications and legal instruments
Link to phytosocilogical classifications	Not specifically	Syntaxa listed in Rodwell *et al.* (2002), EuroVegChecklist syntaxa (Mucina et al., submitted)	EUNIS offers a crosswalk to EuroVegChecklist alliances
Published maps at the European scale	Categories are cross-linked with natural forest vegetation types of Europe	Level 2: CORINE Land Cover and European ecosystems type map Level 3: Potential distribution maps for selected habitat types	Many EUNIS habitats can be mapped up to Level 3 thanks to crosswalks to CORINE Land Cover and modelling of potential distributions
Links to indicators	Sustainable Forest Management indicators	Not specifically	EFTs are linked to SFM indicator reporting
Other languages	Not known	Translations of Davies *et al.* (2004) into Italian (APAT, 2004) and French (Louvel *et al.*, 2013) for the habitat types occurring in these countries. Many national habitat classifications give links to EUNIS (e.g CZ, RO).	EUNIS classification has been translated in specific countries

On one hand, EFT users can strongly benefit of using some of EUNIS framework utilities such as the internet database portal with quick links to species information and legal instruments, the distribution maps or country-specific handbooks. Moreover, the changes to EUNIS habitats and links to vegetation syntaxa that are proposed in the 2103 review (EEA, 2015; Schaminée *et al.*, 2013) bring some clarity to the relationships between EUNIS and EFTs. In particular, the proposed divisions give a clearer fit with EFT Types. The potential benefits of developing relationships between EUNIS and EFTs are well described in this paragraph extracted from Schaminée *et al.* (2013): "With the development of a revised classification of EUNIS forest types and a crosswalk of these to the EuroVegChecklist alliances, it becomes possible to realise closer integration of forest classifications across Europe. Populating of alliances with vegetation plot data could then be conceived within the frame of the EFT. This could deliver definition of forest types in phytosociological terms and higher quality distribution maps. With parameterisation of alliances in terms of species and environmental factors, it would also become possible to better define the EFT 'key factors' on which the character and functioning of forests depend. The increasing availability of evaluation data for EUNIS types through the Red Data List for European Habitats will also allow a clearer appraisal of indicators of sustainability for EFT forest types".

On the other hand, EUNIS users can benefit from the links to sustainable forest management reporting provided by EFTs.

4.2 Guidelines to use the crosswalk

The crosswalks between both classifications are shown in Annexes 3 and 4. Annex 3 shows the links from European Forest Types to EUNIS Forest Habitat Types (Level 3) in tabular form. European Forest Types users willing to explore the relations between EFTs and EUNIS are encouraged to look at this comprehensive and self-explanatory table. Once the linkage is known, they may be interested in going into detail in the EUNIS classification factsheets that are displayed in Annex 4. In order to provide guidelines to these factsheets and facilitate its use, they are discussed below. It should be noted that the links between the EFTs and EUNIS Forest Habitats are not straightforward or clear in all the cases, which is also noted in the factsheets.

Figure 4.1 shows an example of factsheets at the 3 levels, which can be used consecutively or independently. A visual overview of the different sections that comprise the factsheet is given through numbers. Further explanation to these numbers is provided here:

1. Habitat name (in English and scientific) and description (Davies *et al.*, 2004). The scientific name is only provided in Level 3 when it is different from the English one. In order to distinguish better between levels, the containing boxes have been coloured in red for Level 1, in blue for Level 2 and in green for Level 3.

2. Descriptive parameters, legal instruments and related phytosociological units (Davies *et al.*, 2004). The concrete information included here is the source of the description, the legal instruments which include the habitat (related habitats of Annex I of the EU Habitats Directive (European Commission 2003) and, if applicable, Bern Convention Resolution No. 4 (1996)), the descriptive or diagnostic parameters such as climate zones, levels of habitat usage, dominant life forms or cover characteristics, and related phytosociological units from Rodwell *et al.* (2002).

3. Classification key and criteria for identification (Davies *et al.*, 2004). For a quick identification, the focus habitat box has been highlighted in yellow for Levels 1 and 2 and in green for Level 3. Additional detailed explanatory notes accompanying each grey 'decision box' are only presented in Levels 1 and 2 with. The parameters given in section number 2 relate to this classification key.

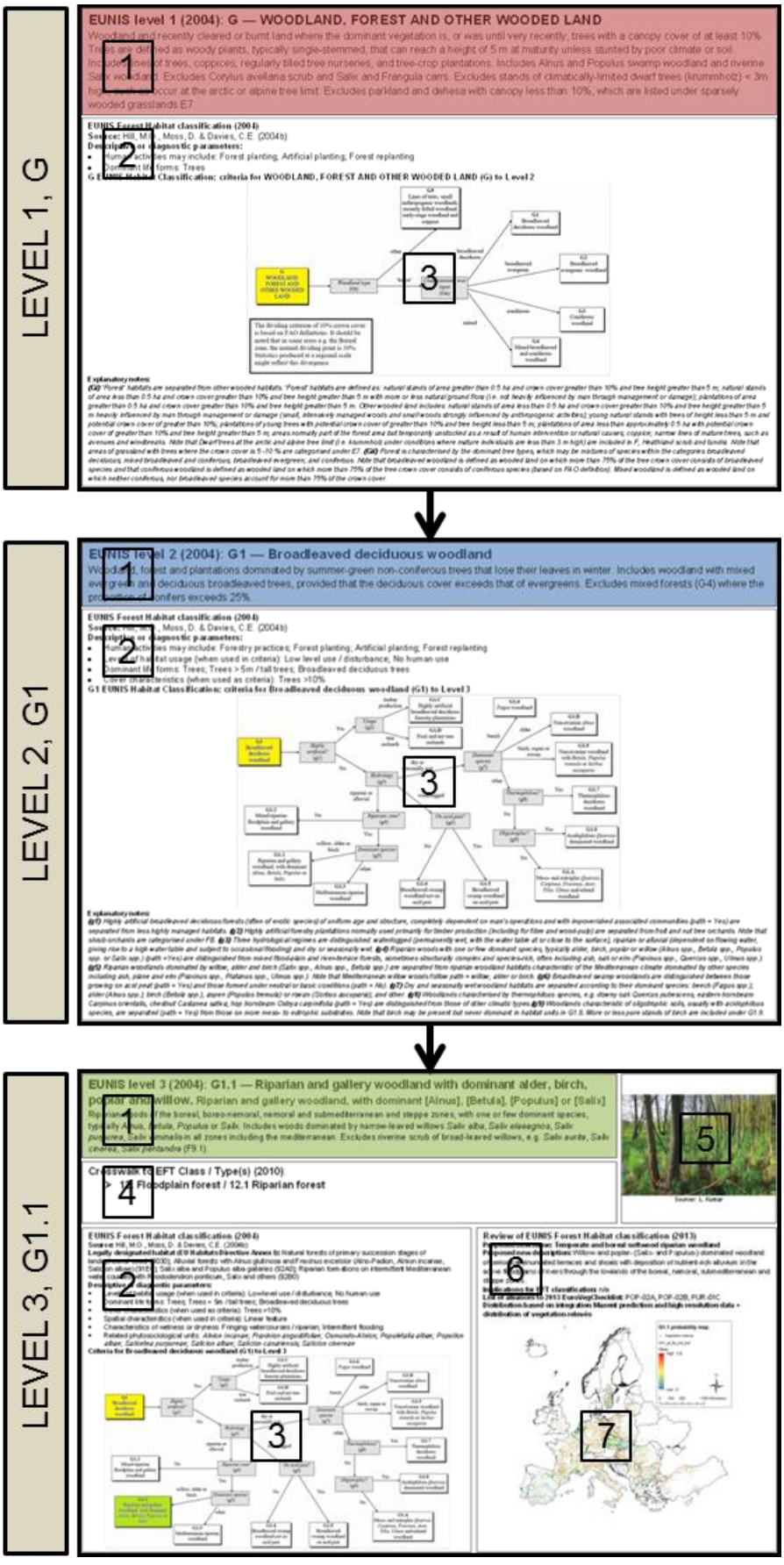
4. Crosswalk to EFT Category and Type (EEA, 2006, 2007; Evans, 2013) (only in Level 3). Here there are included all the European Forest Types (and corresponding Categories) that are considered equivalent to each EUNIS Forest Habitat. It has been specified when there is no clear correspondence between habitats or where the relationship is unclear.

5. Picture showing the habitat (only for Level 3). It must be noted that in diverse units, the picture only represents one of the Habitats included in Level 3. The source of the picture is also provided.

6. Proposed change (name, division and/or description) and associated alliances (EEA, 2015; Schaminée *et al.*, 2013, 2015) (only for Level 3). This section collects the changes that are recommended for the Habitat in terms of name, subdivision, moving or description according to 2013 EUNIS Forest Habitat review. Links to related 2013 EuroVegChecklist alliances (Schaminée *et al.*, 2012, 2013) are shown as well. The review only considered those Level 3 Habitats included in G1, G2 and G3 classes and the Habitat B1.7, and therefore this section is empty in the rest of the habitats.

7. Potential distribution map (Mücher *et al.*, 2015) (only for Level 3). These maps are based on the integration of Maxent predictions and high resolution data, together with the distribution of vegetation relevés. Probability maps are only provided for a selection of habitats. Some of the maps have not been produced due to the lack of enough data to create a reliable model.

Figure 4.1 Schematic description of the structure of EUNIS Forest Habitat factsheets



LEGEND

- **In all the levels**

1. Habitat name (in English and scientific) and description (Davies *et al.*, 2004)
2. Descriptive parameters, legal instruments and phytosociological units (Davies *et al.*, 2004)
3. Classification key and criteria for identification (Davies *et al.*, 2004)

- **Only for Level 3**

4. Crosswalk to EFT Category and Type (EEA, 2006; ETC/BD, 2013)
5. Photograph of the habitat
6. Proposed change (name, division and/or description) and associated alliances (EEA, 2015; Schaminée *et al.*, 2013, 2015)
7. Potential distribution map (Mücher *et al.*, 2015)

5 Conclusions

- The crosswalks between the European Forest Types (EFTs) and the EUNIS Forest Habitats make these classifications compatible and comparable.

- Users of both classifications can benefit from their complementary characteristics. EUNIS has a more developed classification hierarchy, an internet database portal with quick links to species, habitat types, sites and legal instruments, potential distribution maps (20 m resolution) up to Level 3 and is also available in French and Italian. Many national habitat classifications also give links to EUNIS, some of which are available via the website. On the other hand, EFTs typology has links to MCPFE reporting and sustainable forest management indicators.

- To facilitate and promote the use of the crosswalks, this report: 1) synthesizes and compares the main characteristics of both classifications, 2) provides tables listing EFTs (Annex 1) and EUNIS Forest Habitats up to Level 3 (Annex 2) and displaying the crosswalk EFTs to EUNIS (Annex 3), and 3) includes 67 factsheets corresponding to all EUNIS Forest Habitats up to Level 3 of "G Woodland, forest and other wooded Land" and "B1.7 Coastal dune woods" (Annex 4), together with guidelines for their use.

- The recent review of EUNIS forest classification (2013, 2015) has improved the integration of both classifications. Moreover, the crosswalk of EUNIS to vegetation syntaxa could allow the definition of the EFTs in phytosociological terms and the modelling of high resolution distribution maps.

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Annex 1 European Forest Types (EFTs)

Sources: UNECE/FAO (2010) and Barbati *et al.* (2014).

EFTs Category (2010)	Main characteristics of Category	EFTs Type (2010)
1. Boreal forest	Extensive boreal, species-poor forests, dominated by Picea abies and Pinus sylvestris. Deciduous trees including birches (Betula spp.), aspen (Populus tremula), rowan (Sorbus aucuparia) and willows (Salix spp.) tend to occur as early colonisers.	1.1. Spruce and spruce-birch boreal forest
		1.2 Pine and pine-birch boreal forest
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest	Latitudinal mixed forests located in between the boreal and nemoral (or temperate) forest zones with similar characteristics to EFT 1, but a slightly higher tree species diversity, including also temperate deciduous trees like Tilia cordata, Fraxinus excelsior, Ulmus glabra and Quercus robur. Includes also: pure and mixed forests in the nemoral forest zone dominated by coniferous species native within the borders of individual FOREST EURO PE member states like Pinus sylvestris, pines of the Pinus nigra group, Pinus pinaster, Picea abies, Abies alba.	2.1 Hemiboreal forest
		2.2 Nemoral Scots pine forest
		2.3 Nemoral spruce forest
		2.4 Nemoral Black pine forest
		2.5 Mixed Scots pine-birch forest
		2.6 Mixed Scots pine-pedunculate oak forest
		2.7 Atlantic Maritime pine forest
		2.8 Nemoral Silver fir forest
3. Alpine forest	High-altitude forest belts of central and southern European mountain ranges, covered by Picea abies, Abies alba, Pinus sylvestris, Pinus nigra, Larix decidua, Pinus cembra and Pinus mugo. Includes also the mountain forest dominated by birch of the boreal region.	3.1 Subalpine larch-arolla pine and dwarf pine forest
		3.2 Subalpine and mountainous spruce and mountainous mixed spruce-silver fir forest
		3.3 Alpine Scots pine and Black pine forest
		3.4 Mountainous birch forest
4. Acidophilous oak and oak-birch forest	Scattered occurrence associated with less fertile soils of the nemoral forest zone; the tree species composition is poor and dominated by acidophilous oaks (Q. robur, Q. petraea) and birch (Betula pendula).	4.1 Acidophilous oakwood
		4.2 Oak-birch forest
5. Mesophytic deciduous forest	Related to medium rich soils of the nemoral forest zone; forest composition is mixed and made up of a relatively large number of broadleaved deciduous trees: Carpinus betulus, Quercus petraea, Quercus robur, Fraxinus, Acer and Tilia cordata.	5.1 Pedunculate oak–hornbeam forest
		5.2 Sessile oak–hornbeam forest
		5.3 Ashwood and oak-ash forest
		5.4 Maple-oak forest
		5.5 Lime-oak forest
		5.6 Maple-lime forest

		5.7 Lime forest
		5.8 Ravine and slope forest
		5.9 Other mesophytic deciduous forests
6. Beech forest	Widely distributed lowland to submountainous beech forest. Beech, Fagus sylvatica and F. orientalis (Balkan) dominate, locally important is Betula pendula.	6.1 Lowland beech forest of southern Scandinavia and north central Europe
		6.2 Atlantic and subatlantic lowland beech forest
		6.3 Subatlantic submountainous beech forest
		6.4 Central European submountainous beech forest
		6.5 Carpathian submountainous beech forest
		6.6 Illyrian submountainous beech forest
		6.7 Moesian submountainous beech forest
7. Mountainous beech forest	Mixed broadleaved deciduous and coniferous vegetation belt in the main European mountain ranges. Species composition differs from EFT 6, including Picea abies, Abies alba, Betula pendula and mesophytic deciduous tree species. Includes also mountain fir dominated stands.	7.1 South western European mountainous beech forest
		7.2 Central European mountainous beech forest
		7.3 Apennine-Corsican mountainous beech forest
		7.4 Illyrian mountainous beech forest
		7.5 Carpathian mountainous beech forest
		7.6 Moesian mountainous beech forest
		7.7 Crimean mountainous beech forest
		7.8 Oriental beech and hornbeamoriental forest
		7.9 Mountainous Silver fir forest
8. Thermophilous deciduous forest	Deciduous and semi-deciduous forests mainly of the Mediterranean region dominated by thermophilous species, mainly of Quercus; Acer, Ostrya, Fraxinus, Carpinus species are frequent as associated secondary trees. Includes also Castanea sativa dominated forest.	8.1 Downy oak forest
		8.2 Turkey oak, Hungarian oak and Sessile oak forest
		8.3 Pyrenean oak forest
		8.4 Portuguese oak and Mirbeck's oak Iberian forest
		8.5 Macedonian oak forest
		8.6 Valonia oak forest
		8.7 Chestnut forest
		8.8 Other thermophilous deciduous forests
9. Broadleaved evergreen forest	Broadleaved evergreen forests of the Mediterranean and Macaronesian regions dominated by sclerophyllous or lauriphyllous trees, mainly Quercus species.	9.1 Mediterranean evergreen oak forest
		9.2 Olive-carob forest
		9.3 Palm groves
		9.4 Macaronesian laurisilva

		9.5 Other sclerophlyllous forests
10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions	Varied group of coniferous forests in Mediterranean, Anatolian and Macaronesian regions, from the coast to high mountains. Dry and often poorly-developed soils limit tree growth. Several tree species, including a number of endemics, of Pinus, Abies and Juniperus species.	10.1 Mediterranean pine forest
		10.2 Mediterranean and Anatolian Black pine forest
		10.3 Canarian pine forest
		10.4 Mediterranean and Anatolian Scots pine forest
		10.5 Alti-Mediterranean pine forest
		10.6 Mediterranean and Anatolian fir forest
		10.7 Juniper forest
		10.8 Cypress forest
		10.9 Cedar forest
		10.10 Tetraclinis articulata stands
		10.11 Mediterranean yew stands
11. Mire and swamp forest	Wetland forests on peaty soils widely distributed in the boreal region. Water and nutrient regimes determine the dominant tree species: Pinus sylvestris, Picea abies or Alnus glutinosa.	11.1 Spruce mire forest
		11.2 Pine mire forest
		11.3 Alder swamp forest
		11.4 Birch swamp forest
		11.5 Pedunculate oak swamp forest
		11.6 Aspen swamp forest
12. Floodplain forest	Riparian and riverine species-rich forests characterised by different assemblages of species of Alnus, Betula, Populus, Salix, Fraxinus, Ulmus.	12.1 Riparian forest
		12.2 Fluvial forest
		12.3 Mediterranean and Macaronesian riparian forest
13. Non-riverine alder, birch or aspen forest	Pioneer forests dominated by Alnus, Betula or Populus.	13.1 Alder forest
		13.2 Italian alder forest
		13.3 Birch forest
		13.4 Aspen forest

14. Introduced tree species forest	Forests dominated by introduced tree s above categories. Introduced tree species can be identified at regional (recommended) or national level and comprise: • tree species that are not native to Europe (e.g. Eucalyptus spp., Robinia pseudoacacia, Acacia dealbata, Ailanthus altissima, Prunus serotina, Quercus rubra, Fraxinus alba, Picea sitkensis, Pinus contorta, Pinus banksiana, Pseudotsuga menziesii, Tsuga heterophylla); • tree species native to Europe, but not naturally occurring within the borders of individual FOREST EURO PE member states; • tree species native only in some regions of an individual FOREST EUROPE country.	

Annex 2 EUNIS Forest Habitat Classification: B1.7 Coastal dune woods and G Woodland, forest and other wooded land

Sources: Davies *et al.* (2004) and Schaminée *et al.* (2013).

EUNIS Habitat Level 2 (2004)	EUNIS Habitat Level 3 (2004). English and scientific name	Proposed change to Level 3 (2013)
B1 Coastal dunes and sandy shores	B1.7 Coastal dune woods	B1.7 Coastal dune woodland
G1 Broadleaved deciduous woodland	G1.1 Riparian and gallery woodland, with dominant alder, birch, poplar or willow (Riparian and gallery woodland, with dominant [Alnus], [Betula], [Populus] or [Salix])	G1.1 Temperate and boreal softwood riparian woodland
	G1.2 Mixed riparian floodplain and gallery woodland	G1.2 Temperate and boreal hardwood riparian woodland
	G1.3 Mediterranean riparian woodland	G1.3 Mediterranean and Macaronesion riparian woodland
	G1.4 Broadleaved swamp woodland not on acid peat	G1.4 Broadleaved swamp woodland on non-acid peat
	G1.5 Broadleaved swamp woodland on acid peat	G1.5 Broadleaved swamp woodland on acid peat
	G1.6 Beech woodland ([Fagus] woodland)	G1.6a Fagus woodland on non-acid soils, G1.6b Fagus woodland on acid soils
	G1.7 Thermophilous deciduous woodland	N/a
	G1.8 Acidophilous oak-dominated woodland (Acidophilous [Quercus]-dominated woodland)	G1.8 Acidophilous Quercus woodland
	G1.9 Non-riverine woodland with birch, aspen or rowan (Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia])	G1.9a Boreal and nemoral Betula woodlands on mineral soils, G1.9b Mediterranean Betula and Populus tremula woodlands on mineral soils
	G1.A Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland (Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland)	G1.A Mesotrophic and eutrophic deciduous woodland, not dominated by Fagus
	G1.B Non-riverine alder woodland (Non-riverine [Alnus] woodland)	G1.B Non-riverine Alnus woodland on mineral soil

	G1.C Highly artificial broadleaved deciduous forestry plantations	G1.C Broadleaved deciduous plantations of non site-native trees
	G1.D Fruit and nut tree orchards	Move G1.D to group I of Level 1
G2 Broadleaved evergreen woodland	G2.1 Mediterranean evergreen oak woodland (Mediterranean evergreen [Quercus] woodland)	G2.1 Mediterranean evergreen Quercus woodland
	G2.2 Eurasian continental sclerophyllous woodland	G2.2 Mainland lauriphyllous woodland
	G2.3 Macaronesian laurel woodland (Macaronesian [Laurus] woodland)	G2.3 Macaronesian lauriphyllous woodland
	G2.4 Olive - carob woodland ([Olea europaea] - [Ceratonia siliqua] woodland)	G2.4 Olea oleaster-Ceratonia siliqua woodland
	G2.5 Palm groves ([Phoenix] groves)	G2.5 Phoenix groves
	G2.6 Holly woods ([Ilex aquifolium] woods)	G2.6 Ilex aquifolium woodland
	G2.7 Canary Island heath woodland	G2.7 Macaronesion heathy woodland
	G2.8 Highly artificial broadleaved evergreen forestry plantations	G2.8 Broadleaved evergreen plantations of non site-native trees
	G2.9 Evergreen orchards and groves	Move G2.9 to group I of Level 1
G3 Coniferous woodland	G3.1 Fir and spruce woodland ([Abies] and [Picea] woodland)	G3.1a Temperate mountain Picea woodland, G3.1b Temperate mountain Abies woodland, G3.1c Mediterranean mountain Abies woodland
	G3.2 Alpine larch - Arolla woodland (Alpine [Larix] - [Pinus cembra] woodland)	G3.2 Temperate subalpine Larix-Pinus woodland
	G3.3 Mountain pine ([Pinus uncinata]) woodland ([Pinus uncinata] woodland)	Merge G3.3 into G3.2 habitat
	G3.4 Scots pine woodland south of the taiga ([Pinus sylvestris] woodland south of the taiga)	G3.4a Temperate Continental Pinus sylvestris woodland, G3.4b Temperate and sub-mediterranean montane Pinus sylvestris-Pinus nigra woodland, G3.4c Mediterranean montane Pinus sylvestris-Pinus nigra woodland.
	G3.5 Black pine ([Pinus nigra]) woodland ([Pinus nigra] woodland)	Merge G3.5 into G3.4b and G3.4c habitats
	G3.6 Subalpine mediterranean pine woodland (Subalpine mediterranean [Pinus] woodland)	G3.6 Mediterranean and Balkan subalpine Pinus heldreichii-peucis woodland
	G3.7 Lowland to montane mediterranean pine woodland (excluding black pine [Pinus nigra]) (Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra]))	G3.7 Mediterranean lowland to submontane Pinus woodland
	G3.8 Canary Island pine ([Pinus canariensis]) woodland	G3.8 Pinus canariensis woodland

	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]	G3.9a Taxus baccata woodland, G3.9b Mediterranean Cupressaceae woodland, G3.9c Macaronesian Juniperus woodland
	G3.A Spruce taiga woodland ([Picea] taiga woodland)	G3.A Picea taiga woodland
	G3.B Pine taiga woodland ([Pinus] taiga woodland)	G3.B Pinus sylvestris taiga woodland
	G3.C Larch taiga woodland ([Larix] taiga woodland)	G3.C Larix taiga woodland
	G3.D Boreal bog conifer woodland	G3.D Boreal bog conifer woodland
	G3.E Nemoral bog conifer woodland	G3.E Temperate bog conifer woodland
	G3.F Highly artificial coniferous plantations	No review
G4 Mixed deciduous and coniferous woodland	G4.1 Mixed swamp woodland	No review
	G4.2 Mixed taiga woodland with birch (Mixed taiga woodland with [Betula])	No review
	G4.3 Mixed sub-taiga woodland with acidophilous oak (Mixed sub-taiga woodland with acidophilous [Quercus])	No review
	G4.4 Mixed Scots pine - birch woodland	No review
	G4.5 Mixed Scots pine - beech woodland (Mixed [Pinus sylvestris] - [Fagus] woodland)	No review
	G4.6 Mixed fir - spruce - beech woodland (Mixed [Abies] - [Picea] - [Fagus] woodland)	No review
	G4.7 Mixed Scots pine - acidophilous oak woodland (Mixed [Pinus sylvestris] - acidophilous [Quercus] woodland)	No review
	G4.8 Mixed non-riverine deciduous and coniferous woodland	No review
	G4.9 Mixed deciduous woodland with [Cupressaceae] or [Taxaceae]	No review
	G4.A Mixed woodland with [Cupressaceae], [Taxaceae] and evergreen oak	No review
	G4.B Mixed mediterranean pine - thermophilous oak woodland (Mixed mediterranean [Pinus] - thermophilous [Quercus] woodland)	No review
	G4.C Mixed Scots pine - thermophilous oak woodland (Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland)	No review
	G4.D Mixed Black pine ([Pinus nigra]) - evergreen oak woodland (Mixed [Pinus nigra] - evergreen [Quercus] woodland)	No review
	G4.E Mixed mediterranean pine - evergreen oak woodland	No review
	G4.F Mixed forestry plantations	No review
G5 Lines of	G5.1 Lines of trees	No review

trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice	G5.2 Small broadleaved deciduous anthropogenic woodlands	No review
	G5.3 Small broadleaved evergreen anthropogenic woodlands	No review
	G5.4 Small coniferous anthropogenic woodlands	No review
	G5.5 Small mixed broadleaved and coniferous anthropogenic woodlands	No review
	G5.6 Early-stage natural and semi-natural woodlands and regrowth	No review
	G5.7 Coppice and early-stage plantations	No review
	G5.8 Recently felled areas	No review

Annex 3 Crosswalk from European Forest Types to EUNIS Forest Habitat Types (Level 3)

Sources: Evans (2013) and EEA (2006, 2007).

EFT Category (2010)	EFT Type (2010)	EUNIS scientific name (2004)
1. Boreal forest	1.1 Spruce and spruce-birch boreal forest	G3.A [Picea] taiga woodland
		G4.2 Mixed taiga woodland with [Betula]
	1.2 Pine and pine-birch boreal forest	G3.B [Pinus] taiga woodland
		G4.2 Mixed taiga woodland with [Betula]
2. Hemiboreal and nemoral coniferous and mixed broadleaved-coniferous forest	2.1 Hemiboreal forest	G4.3 Mixed sub-taiga woodland with acidophilous [Quercus]
	2.2 Nemoral Scots pine forest	G3.4 [Pinus sylvestris] woodland south of the taiga
	2.3 Nemoral spruce forest	G3.1 [Abies] and [Picea] woodland
	2.4 Nemoral Black pine forest	G3.5 [Pinus nigra] woodland
	2.5 Mixed Scots pine-birch forest	G4.4 Mixed [Pinus sylvestris] - [Betula] woodland
	2.6 Mixed Scots pine-pedunculate oak forest	G4.7 Mixed [Pinus sylvestris] - acidophilous [Quercus] woodland
	2.7 Atlantic Maritime pine forest	B1.7 Coastal dune woods
		G3.7 Lowland to montane mediterranean pine woodland (excluding black pine [Pinus nigra])
	2.8 Nemoral Silver fir forest	G3.1 [Abies] and [Picea] woodland
3. Alpine forest	3.1 Subalpine larch-arolla pine and dwarf pine forest	G3.2 Alpine [Larix] - [Pinus cembra] woodland
		G3.3 [Pinus uncinata] woodland
	3.2 Subalpine and mountainous spruce and mountainous mixed spruce-silver fir forest	G3.1 [Abies] and [Picea] woodland
	3.3 Alpine Scots pine and Black pine forest	G3.4 [Pinus sylvestris] woodland south of the taiga
	3.4 Mountainous birch forest	G1.9 Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia]
4. Acidophylous oakwood and oak-birch forest	4.1 Acidophylous oakwood	G1.8 Acidophilous [Quercus]-dominated woodland
	4.2 Oak-birch forest	G1.8 Acidophilous [Quercus]-dominated woodland

5. Mesophytic deciduous forest	5.1 Pedunculate oak-hornbeam forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.2 Sessile oak-hornbeam forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.3 Ashwood and oak-ash forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.4 Maple-oak forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.5 Lime-oak forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.6 Maple-lime forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.7 Lime forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.8 Ravine and slope forest	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
	5.9 Other mesohpytic deciduous forests	G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland
6. Beech forest	6.1 Lowland beech forest of southern Scandinavia and north central Europe	G1.6 [Fagus] woodland
	6.2 Atlantic and subatlantic lowland beech forest	G1.6 [Fagus] woodland
	6.3 Subatlantic to Atlanto-Mediterranean submountainous beech forest	G1.6 [Fagus] woodland
	6.4 Central European submountainous beech forest	G1.6 [Fagus] woodland
	6.5 Carpathian submountainous beech forest	G1.6 [Fagus] woodland
	6.6 Illyrian submountainous beech forest	G1.6 [Fagus] woodland
	6.7 Moesian submountainous beech forest	G1.6 [Fagus] woodland
7. Mountainous beech forest	7.1 South-western European mountainous beech forest	G1.6 [Fagus] woodland
		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
	7.2 Central European mountainous beech forest	G1.6 [Fagus] woodland
	7.3 Apennine-Corsican mountainous beech forest	G1.6 [Fagus] woodland

		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
	7.4 Illyrian mountainous beech forest	G1.6 [Fagus] woodland
		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
	7.5 Carpathian mountainous beech forest	G1.6 [Fagus] woodland
		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
	7.6 Moesian mountainous beech forest	G1.6 [Fagus] woodland
		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
		G4.5 Mixed [Pinus sylvestris] - [Fagus] woodland
	7.7 Crimean beech forest	G1.6 [Fagus] woodland
	7.8 Oriental beech and hornbeam-oriental beech forest	G1.6 [Fagus] woodland
		G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland
	7.9 Mountainous Silver fir forest	G3.1 [Abies] and [Picea] woodland
8. Thermophilous deciduous forest	8.1 Downy oak forest	G1.7 Thermophilous deciduous woodland
	8.2 Turkey oak, Hungarian oak and Sessile oak forest	G1.7 Thermophilous deciduous woodland
	8.3 Pyrenean oak forest	G1.7 Thermophilous deciduous woodland
	8.4 Portoguese oak and Mirbeck's oak Iberian forest	G1.7 Thermophilous deciduous woodland
	8.5 Macedonian oak forest	G1.7 Thermophilous deciduous woodland
	8.6 Valonia oak forest	G1.7 Thermophilous deciduous woodland
	8.7 Chestnut forest	G1.7 Thermophilous deciduous woodland
	8.8 Other thermophilous deciduous forests	G1.7 Thermophilous deciduous woodland
9. Broadleaved evergreen forest	9.1 Mediterranean evergreen oak forest	G2.1 Mediterranean evergreen [Quercus] woodland
	9.2 Olive-carob forest	G2.4 [Olea europaea] - [Ceratonia siliqua] woodland
	9.3 Palm groves	G2.5 [Phoenix] groves
	9.4 Macaronesian laurisilva	G2.3 Macaronesian [Laurus] woodland
	9.5 Other sclerophlyllous forest	G2.2 Eurasian continental sclerophyllous woodland
		G2.6 [Ilex aquifolium] woods
		G2.7 Canary Island heath woodland

10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions	10.1 Mediterranean pine forest	G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])
	10.2 Mediterranean and Anatolian Black pine forest	G3.5 [Pinus nigra] woodland
	10.3 Canarian pine forest	G3.8 Canary Island [Pinus canariensis] woodland
	10.4 Mediterranean and Anatolian Scots pine forest	G3.4 [Pinus sylvestris] woodland south of the taiga
	10.5 Alti-Mediterranean pine forest	G3.6 Subalpine mediterranean [Pinus] woodland
	10.6 Mediterranean and Anatolian fir forest	G3.1 [Abies] and [Picea] woodland
	10.7 Juniper forest	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]
	10.8 Cypress forest	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]
	10.9 Cedar forest	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]
	10.10 Tetraclinis articulata stands	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]
	10.11 Mediterranean yew stands	G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]
11. Mire and swamp forest	11.1 Spruce mire forest	G3.D Boreal bog conifer woodland
		G3.E Nemoral bog conifer woodland
		G4.1 Mixed swamp woodland
	11.2 Pine mire forest	G3.D Boreal bog conifer woodland
		G3.E Nemoral bog conifer woodland
	11.2 Alder swamp forest	G1.4 Broadleaved swamp woodland not on acid peat
	11.3 Birch swamp forest	G1.5 Broadleaved swamp woodland on acid peat
	11.4 Pedunculate oak swamp forest	G1.4 Broadleaved swamp woodland not on acid peat
	11.5 Aspen swamp forest	G1.4 Broadleaved swamp woodland not on acid peat
12. Floodplain forest	12.1 Riparian forest	G1.1 Riparian and gallery woodland, with dominant [Alnus], [Betula], [Populus] or [Salix]
	12.2 Fluvial forest	G1.2 Mixed riparian floodplain and gallery woodland

	12.3 Mediterranean and Macaronesian riparian forest	G1.3 Mediterranean riparian woodland
13. Non-riverine alder, birch or aspen forest	13.1 Alder forest	G1.B Non-riverine [Alnus] woodland
	13.2 Italian alder forest	G1.B Non-riverine [Alnus] woodland
	13.3 Birch forest	G1.9 Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia]
	13.4 Aspen forest	G1.9 Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia]
14 Introduced tree species forest	No types given	G1.C Highly artificial broadleaved deciduous forestry plantations
		G2.8 Highly artificial broadleaved evergreen forestry plantations
		G3.F Highly artificial coniferous plantations

Annex 4 EUNIS Forest Habitat Types factsheets with crosswalk to European Forest Types

Note: For an explanation on how to read the factsheets, see Section 4.2 Guidelines to use the crosswalk.

Sources: Davies *et al.* (2004), EEA (2006), Schaminée *et al.* (2013, 2015) and Mücher *et al.* (2015).

EUNIS Level 3 (2004): B1.7 — Coastal dune woods

Coastal dunes colonised by woodland or riparian thickets.

Source: V. Jalvo-García

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.7 Atlantic Maritime pine forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

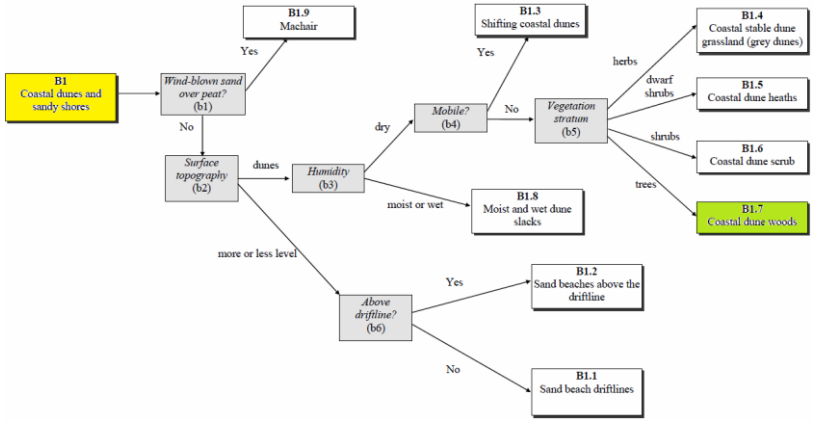
Legally designated habitat (EU Habitats Directive Annex I): Wooded dunes of the Atlantic, Continental and Boreal region (2180); Wooded dunes with Pinus pinea and/or Pinus pinaster (2270)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): DUNES (16.2)

Descriptive or diagnostic parameters:

- Altitude zones (terrestrial and marine): Coastal
- Geomorphology or landform: Fixed dune
- Dominant life forms: Trees
- Characteristics of wetness or dryness: Dry
- Substrate types: Sand
- Related phytosociological units: *Dicrano-Pinion; Quercetea ilicis; Querco-Fagetea*

Criteria for Coastal dunes and sandy shores (B1) to Level 3



Explanatory notes:

(b1) *Machair (characterised by wind-blown calcareous sand with a predominance of shell fragments usually over peat, a low proportion of sandbinding vegetation and a long history of agricultural use) (path = Yes), is distinguished from other coastal sand habitats. Note that a machair complex is defined comprising units from B1, C and I.* ***(b2)*** *The topography of the surface distinguishes the abrupt mounds and hollows of sand dunes from more or less level sand beach habitats.****(b3)*** *Dry sand dunes are distinguished from moist or wet dune slacks including dune-slack pools.* ***(b4)*** *Unvegetated mobile sand dunes (path = Yes) are separated from dunes which have become stabilised by vegetation.* ***(b5)*** *Predominant vegetation type is used to distinguish between: dune grassland (herbs); dune heath (predominantly ericaceous dwarf shrubs); dune scrub (shrubs); and dune woodland (trees).*

Review of EUNIS Forest Habitat Classification (2013)

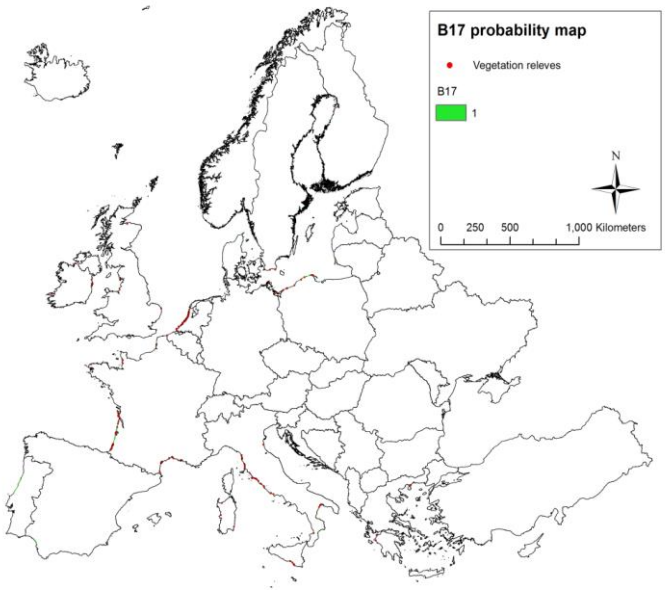
Proposed new name: Coastal dune woodland

Proposed new description: Deciduous or evergreen woodlands variously dominated by durmast oak
(Quercus robur), mixed broadleaves, evergreen oaks (Quercus spp.), Scot's Pine (Pinus sylvestris), thermophilous pines (Pinus spp.) or willows (Salix spp.) on stable dune sands along the Baltic, Atlantic, Mediterranean and Black Sea coasts, often indistinguishable from equivalent forests further inland.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: FAG-02A, FAG-05D, PIC-02A, POP-02A, QUI-01A, QUI-01G, QUI-02E, QUI-03A, ROB-01C

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



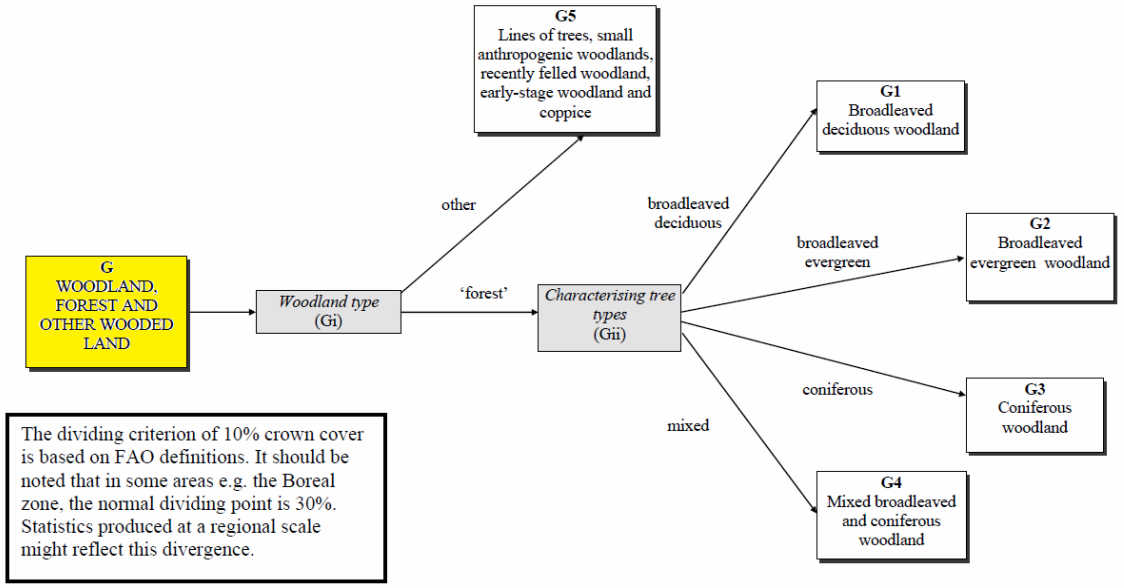
EUNIS Level 1 (2004): G — WOODLAND, FOREST AND OTHER WOODED LAND

Woodland and recently cleared or burnt land where the dominant vegetation is, or was until very recently, trees with a canopy cover of at least 10%. Trees are defined as woody plants, typically single-stemmed, that can reach a height of 5 m at maturity unless stunted by poor climate or soil. Includes lines of trees, coppices, regularly tilled tree nurseries, and tree-crop plantations. Includes Alnus and Populus swamp woodland and riverine Salix woodland. Excludes Corylus avellana scrub and Salix and Frangula carrs. Excludes stands of climatically-limited dwarf trees (krummholz) < 3m high, such as occur at the arctic or alpine tree limit. Excludes parkland and dehesa with canopy less than 10%, which are listed under sparsely wooded grasslands E7.

EUNIS Forest Habitat Classification (2004)
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)
Descriptive or diagnostic parameters:

- Human activities may include: Forest planting; Artificial planting; Forest replanting
- Dominant life forms: Trees

G EUNIS Habitat Classification: criteria for WOODLAND, FOREST AND OTHER WOODED LAND (G) to Level 2



Explanatory notes:
(Gi) *'Forest' habitats are separated from other wooded habitats. 'Forest' habitats are defined as: natural stands of area greater than 0.5 ha and crown cover greater than 10% and tree height greater than 5 m; natural stands of area less than 0.5 ha and crown cover greater than 10% and tree height greater than 5 m with more or less natural ground flora (i.e. not heavily influenced by man through management or damage); plantations of area greater than 0.5 ha and crown cover greater than 10% and tree height greater than 5 m. Other wooded land includes: natural stands of area less than 0.5 ha and crown cover greater than 10% and tree height greater than 5 m heavily influenced by man through management or damage (small, intensively managed woods and small woods strongly influenced by anthropogenic activities); young natural stands with trees of height less than 5 m and potential crown cover of greater than 10%; plantations of young trees with potential crown cover of greater than 10% and tree height less than 5 m; plantations of area less than approximately 0.5 ha with potential crown cover of greater than 10% and tree height greater than 5 m; areas normally part of the forest area but temporarily unstocked as a result of human intervention or natural causes; coppice; narrow lines of mature trees, such as avenues and windbreaks. Note that Dwarf trees at the arctic and alpine tree limit (i.e. krummholz under conditions where mature individuals are less than 3 m high) are included in F, Heathland scrub and tundra. Note that areas of grassland with trees where the crown cover is 5 -10 % are categorised under E7.* ***(Gii)*** *Forest is characterised by the dominant tree types, which may be mixtures of species within the categories broadleaved deciduous; mixed broadleaved and coniferous; broadleaved evergreen; and coniferous. Note that broadleaved woodland is defined as wooded land on which more than 75% of the tree crown cover consists of broadleaved species and that coniferous woodland is defined as wooded land on which more than 75% of the tree crown cover consists of coniferous species (based on FAO definition). Mixed woodland is defined as wooded land on which neither coniferous, nor broadleaved species account for more than 75% of the crown cover.*

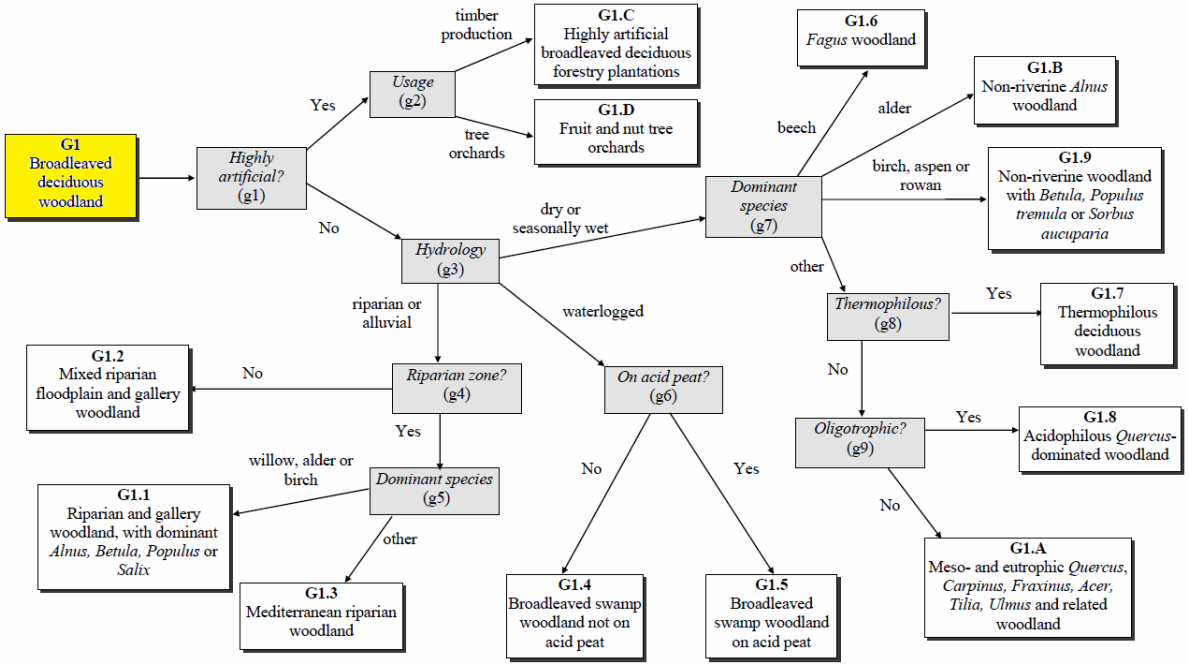
EUNIS Level 2 (2004): G1 — Broadleaved deciduous woodland

Woodland, forest and plantations dominated by summer-green non-coniferous trees that lose their leaves in winter. Includes woodland with mixed evergreen and deciduous broadleaved trees, provided that the deciduous cover exceeds that of evergreens. Excludes mixed forests (G4) where the proportion of conifers exceeds 25%.

EUNIS Forest Habitat Classification (2004)
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)
Descriptive or diagnostic parameters:

- Human activities may include: Forestry practices; Forest planting; Artificial planting; Forest replanting
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%

G1 EUNIS Habitat Classification: criteria for Broadleaved deciduous woodland (G1) to Level 3



Explanatory notes:
(g1) *Highly artificial broadleaved deciduous forests (often of exotic species) of uniform age and structure, completely dependent on man's operations and with impoverished associated communities (path = Yes) are separated from less highly managed habitats.* ***(g2)*** *Highly artificial forestry plantations normally used primarily for timber production (including for fibre and wood-pulp) are separated from fruit and nut tree orchards. Note that shrub orchards are categorised under FB.* ***(g3)*** *Three hydrological regimes are distinguished: waterlogged (permanently wet, with the water table at or close to the surface), riparian or alluvial (dependent on flowing water, giving rise to a high water table and subject to occasional flooding) and dry or seasonally wet.* ***(g4)*** *Riparian woods with one or few dominant species, typically alder, birch, poplar or willow (Alnus spp., Betula spp., Populus spp. or Salix spp.) (path =Yes) are distinguished from mixed flood-plain and river-terrace forests, sometimes structurally complex and species-rich, often including ash, oak or elm (Fraxinus spp., Quercus spp., Ulmus spp.).* ***(g5)*** *Riparian woodlands dominated by willow, alder and birch (Salix spp., Alnus spp., Betula spp.) are separated from riparian woodland habitats characteristic of the Mediterranean climate dominated by other species including ash, plane and elm (Fraxinus spp., Platanus spp., Ulmus spp.). Note that Mediterranean willow woods follow path = willow, alder or birch.* ***(g6)*** *Broadleaved swamp woodlands are distinguished between those growing on acid peat (path = Yes) and those formed under neutral or basic conditions (path = No).* ***(g7)*** *Dry and seasonally wet woodland habitats are separated according to their dominant species: beech (Fagus spp.); alder (Alnus spp.); birch (Betula spp.), aspen (Populus tremula) or rowan (Sorbus aucuparia); and other.* ***(g8)*** *Woodlands characterised by thermophilous species, e.g. downy oak Quercus pubescens, eastern hornbeam Carpinus orientalis, chestnut Castanea sativa, hop hornbeam Ostrya carpinifolia (path = Yes) are distinguished from those of other climatic types.****(g9)*** *Woodlands characteristic of oligotrophic soils, usually with acidophilous species, are separated (path = Yes) from those on more meso- to eutrophic substrates. Note that birch may be present but never dominant in habitat units in G1.8. More or less pure stands of birch are included under G1.9.*

EUNIS Level 3 (2004): G1.1 — Riparian and gallery woodland with dominant alder, birch, poplar and willow. Riparian and gallery woodland, with dominant [Alnus], [Betula], [Populus] or [Salix]

Riparian woods of the boreal, boreo-nemoral, nemoral and submediterranean and steppe zones, with one or few dominant species, typically *Alnus*, *Betula*, *Populus* or *Salix*. Includes woods dominated by narrow-leaved willows *Salix alba*, *Salix elaeagnos*, *Salix purpurea*, *Salix viminalis* in all zones including the mediterranean. Excludes riverine scrub of broad-leaved willows, e.g. *Salix aurita*, *Salix cinerea*, *Salix pentandra* (F9.1).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **12. Floodplain forest / 12.1 Riparian forest**

EUNIS Forest Habitat Classification (2004)

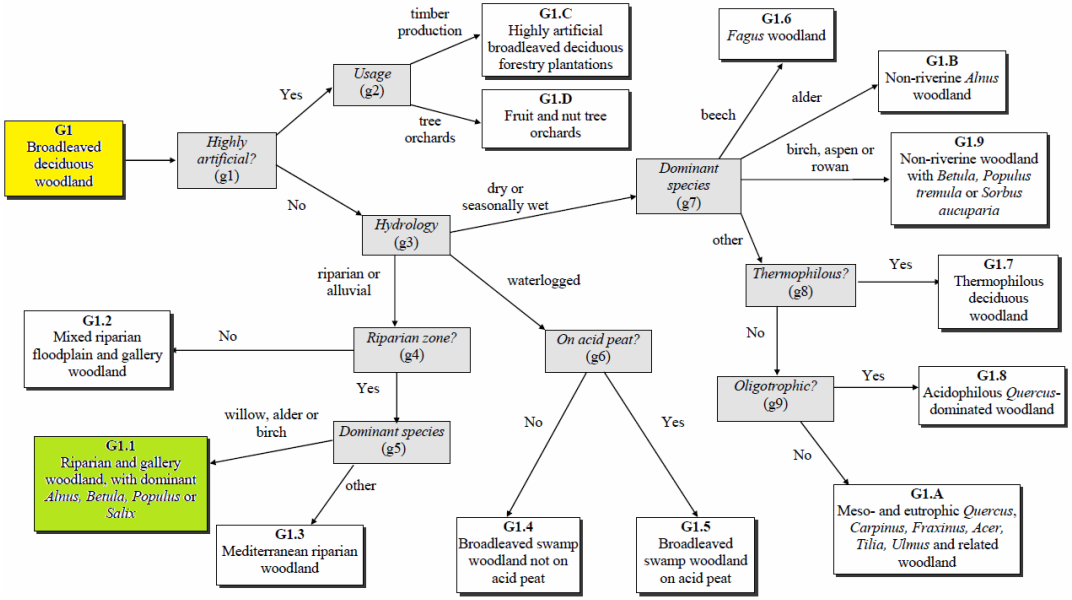
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Natural forests of primary succession stages of landupheaval coast (9030); Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) (91E0); Salix alba and Populus alba galleries (92A0); Riparian formations on intermittent Mediterranean water courses with Rhododendron ponticum, Salix and others (92B0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): Linear feature
- Characteristics of wetness or dryness: Fringing watercourses / riparian; Intermittent flooding
- Related phytosociological units: *Alnion incanae; Fraxinion angustifoliae; Osmundo-Alnion; Populetalia albae; Populion albae; Salicetea purpureae; Salicion albae; Salicion canariensis; Salicion cinereae*

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

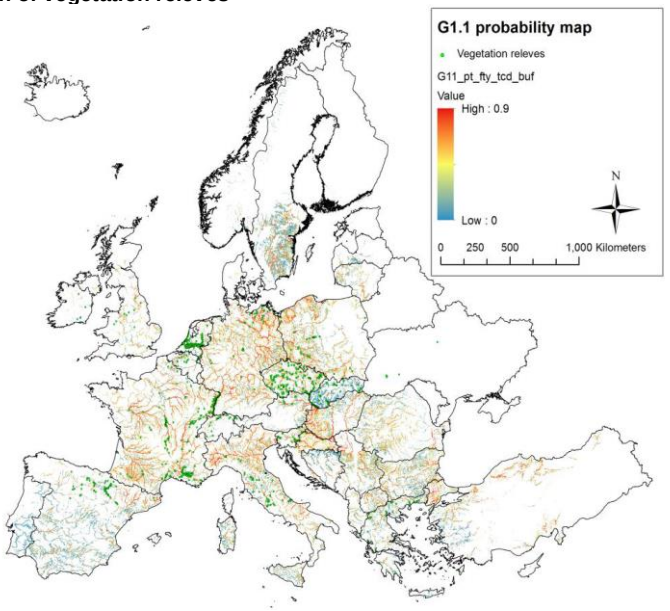
Proposed new name: Temperate and boreal softwood riparian woodland

Proposed new description: Willow- and poplar- (Salix- and Populus-) dominated woodland of periodicallyinundated terraces and shoals with deposition of nutrient-rich alluvium in the active floodplains of rivers through the lowlands of the boreal, nemoral, submediterranean and steppe zones.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: POP-02A, POP-02B, PUR-01C

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.2 — Mixed riparian floodplain and gallery woodland

Mixed riparian forests, sometimes structurally complex and species-rich, of floodplains and of galleries beside slow- and fast-flowing rivers of the nemoral, boreo-nemoral, steppe and submediterranean zones. Gallery woods with Acer, Fraxinus, Prunus or Ulmus, together with species listed for G1.1. Floodplain woodland characterized by mixtures of Alnus, Fraxinus, Populus, Quercus, Ulmus, Salix.

Source: M. Hejnicki/Dreamstime.com

Crosswalk to EFT Category / Type(s) (2010):

- **12. Floodplain forest / 12.2 Fluvial forest**

EUNIS Forest Habitat Classification (2004)

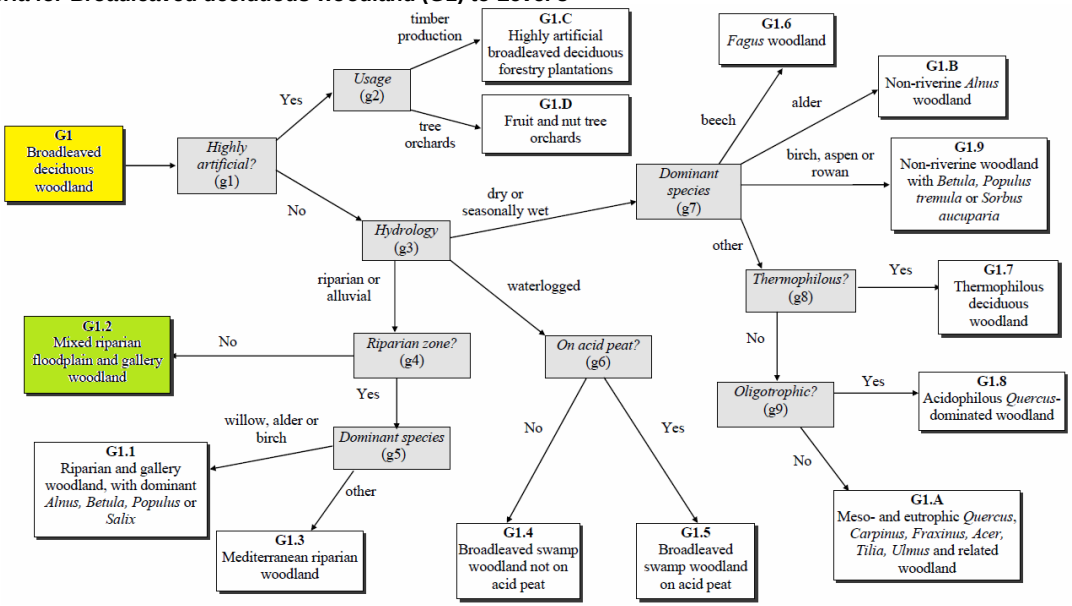
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno- Padion, Alnion incanae, Salicion albae)(91E0); Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)(91F0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Fringing watercourses / riparian; Intermittent flooding
- Related phytosociological units: Alnion glutinosae; Alnion incanae; Carpinion betuli; Fraxinion angustifoliae

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

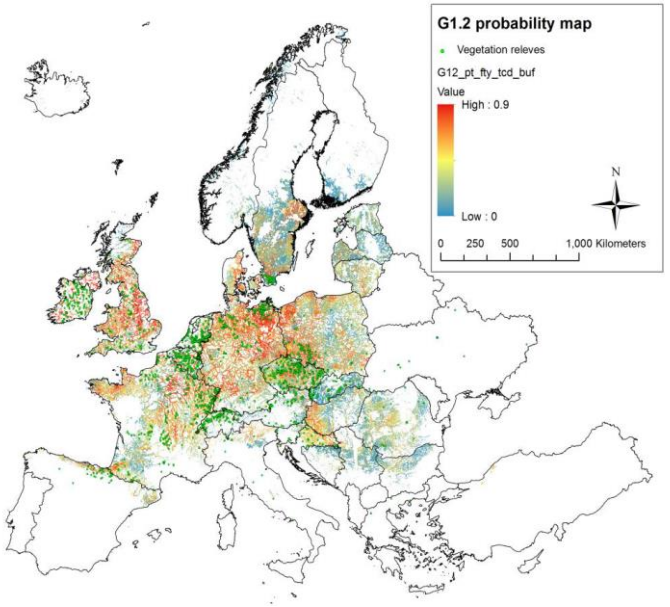
Proposed new name: Temperate and boreal hardwood riparian woodland

Proposed new description: Ash-alder (Fraxinus excelsior-Alnus glutinosa/A. incana) and mixed deciduousbroadleaved woodland of fresh mineral soils on less-frequently flooded river terraces and flushed valley sides in the lowlands and foothills of the nemoral and boreal zones and locally in the submediterranean.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: POP-02A, POP-02C

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.3 — Mediterranean riparian woodland

Alluvial forests and gallery woods of the Mediterranean region. Dominance may be of a single species, of few species or mixed with many species including Fraxinus, Liquidambar, Platanus, Populus, Salix, Ulmus. Excludes mediterranean Salix woods (G1.1) and shrubby riparian vegetation (F9.3).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **12. Floodplain forest / 12.3 Mediterranean and Macaronesian riparian forest**

EUNIS Forest Habitat Classification (2004)

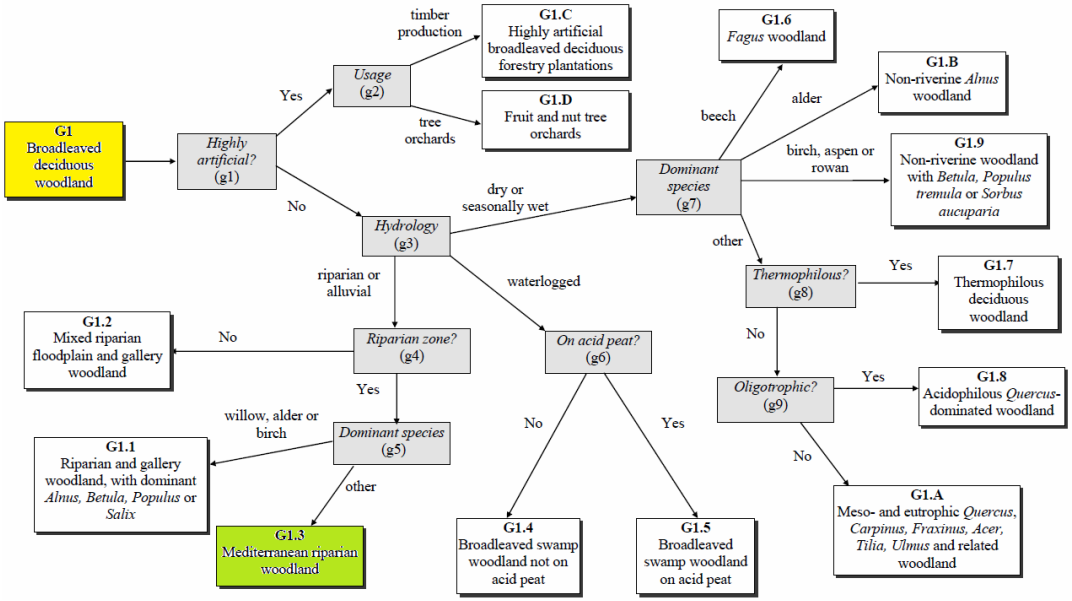
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Salix alba and Populus alba galleries (92A0); Platanus orientalis and Liquidambar orientalis woods (Platanion orientalis)(92C0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): Linear feature
- Characteristics of wetness or dryness: Fringing watercourses / riparian; Intermittent flooding
- Related phytosociological units: Alnion glutinosae; Alnion incanae; Carpinion orientalis; Fraxinion angustifoliae; Platanetalia orientalis; Platanion orientalis; Populion albae; Salicion albae

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

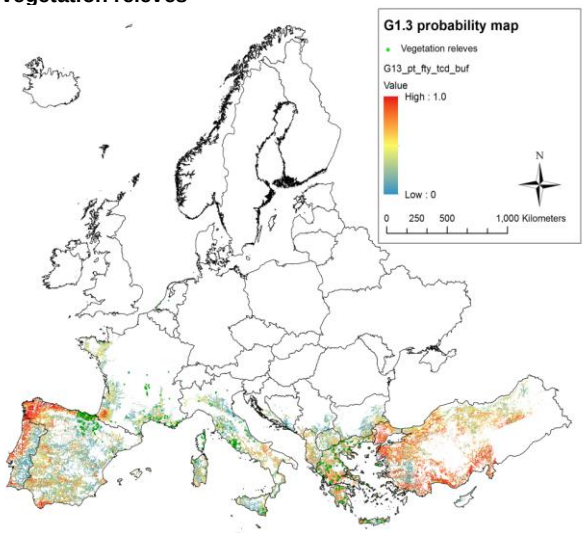
Proposed new name: Mediterranean and Macaronesion riparian woodland

Proposed new description: Deciduous broadleaved woodland, most commonly dominated by poplars
(Populus), willows (Salix), oriental plane (Platanus orientalis) or Liquidambar, on periodically flooded alluvium or gravel terraces and streamsides in humid localities in the mediterranean zone and Macaronesia. Also includes streamside Rhododendron ponticum and birch (Betula pendula var. fontqueri) woodlands in Spain.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: POP-01A, POP-01B, POP-01C, POP-01D, POP-01E, POP-03A

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.4 — Broadleaved swamp woodland not on acid peat

Broadleaved swamp woodland not on acid peat. Includes Alnus, Populus, Quercus swamp woods. Excludes Salix carr, with shrubby willows, e.g. Salix aurita, Salix cinerea, Salix pentandra (F9.2).

Source: V. Jalvo-García

Crosswalk to EFT Category / Type(s) (2010):

- **11. Mire and swamp forest / 11.2 Alder swamp forest; 11.4 Pedunculate oak swamp forest; 11.5 Aspen swamp forest**

EUNIS Forest Habitat Classification (2004)

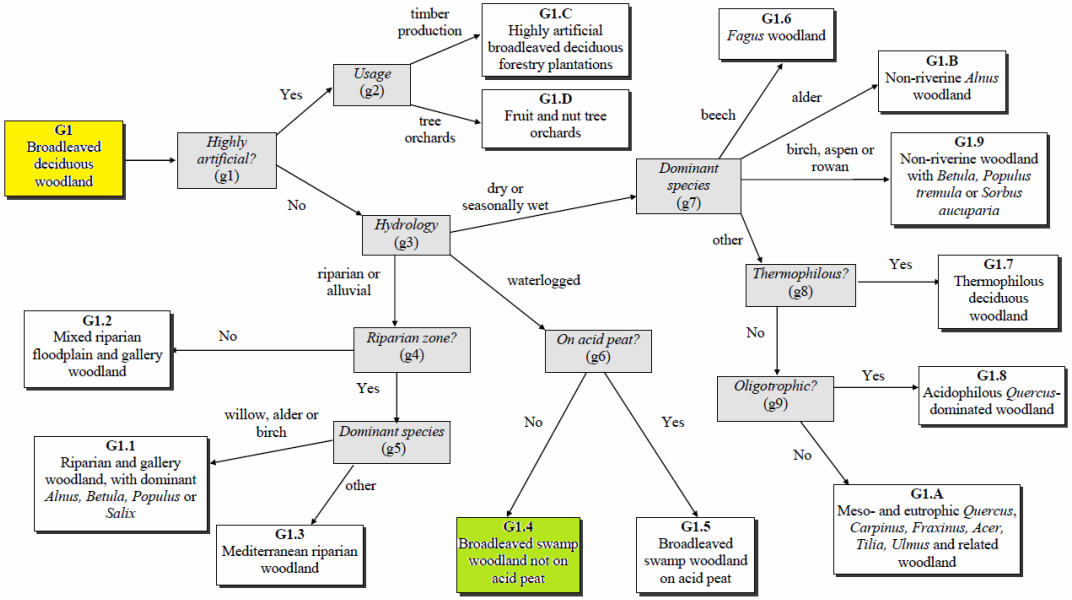
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno- Padion, Alnion incanae, Salicion albae)(91E0); Riparian mixed forests of Quercus robur, Ulmus laevis and Ulmus minor, Fraxinus excelsior or Fraxinus angustifolia, along the great rivers (Ulmenion minoris)(91F0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Waterlogged
- Chemical attributes: Neutral; Base-rich
- Related phytosociological units: Alnetea glutinosae; Alnion glutinosae; Carpinion betuli; Osmundo-Alnion

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

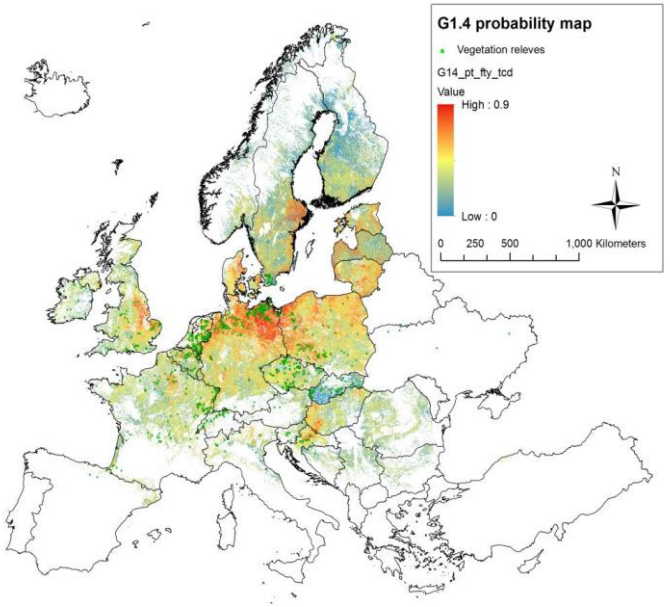
Proposed new name: Broadleaved swamp woodland on non-acid peat

Proposed new description: Deciduous broadleaved woodland, commonly dominated by alder (Alnus glutinosa and A. incana), oak (Quercus robur) or aspen (Populus tremula) on non-acid peat with ground water at or seasonally above the surface in swamps through the lowlands of the nemoral and boreal zones.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: ALN-01A, MOB-02A, MOB-02B

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.5 — Broadleaved swamp woodland on acid peat

Broadleaved woodland on wet acid peat, dominated by Betula pubescens or rarely Alnus glutinosa, sometimes with an admixture of conifers or shrubby Salix species. Sphagnum spp. are normally prominent in the ground vegetation.

Crosswalk to EFT Category / Type(s) (2010):

- **11. Mire and swamp forest / 11.3 Birch swamp forest**

EUNIS Forest Habitat Classification (2004)

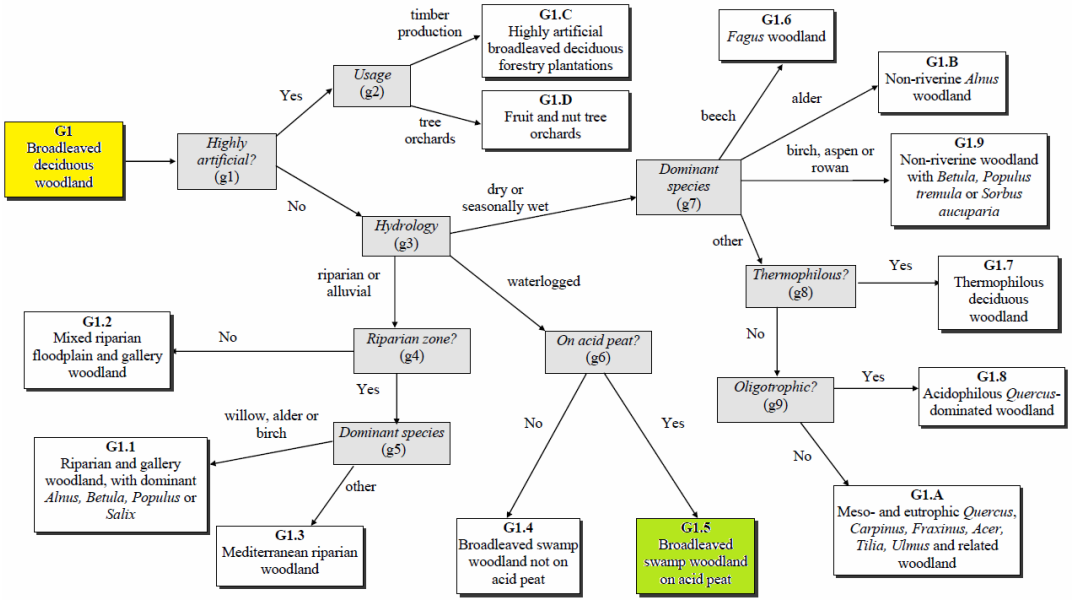
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Fennoscandian deciduous swamp woods (9080); Bog woodland (91D0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Waterlogged
- Chemical attributes: Acid
- Substrate types: Peat
- Related phytosociological units: Alnion glutinosae; Betulion pubescentis; Osmundo-Alnion; Salicion cinereae

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

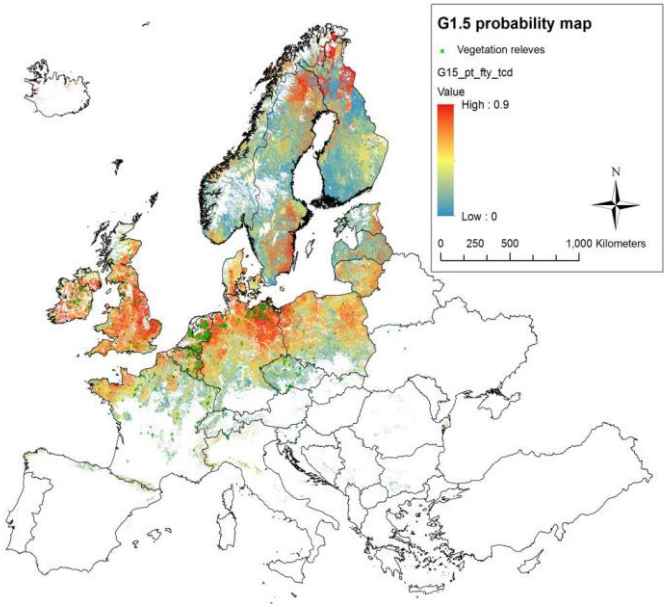
Proposed new name: Broadleaved swamp woodland on acid peat

Proposed new description: Deciduous broadleaved or mixed woodland on acid peat on or around active bogs and poor fens with nutrient-poor ground waters occurring through the atlantic and boreal zones and locally, where ground conditions permit, in the continental zone. Usually dominated by birch (Betula pubescens) but with increasing amounts of Scot's pine (Pinus sylvestris) towards the boreal zone.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: MOB-01A, MOB-01B

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.6 — Beech woodland. [Fagus] woodland

Forests dominated by beech Fagus sylvatica in western and central Europe, and Fagus orientalis and other Fagus species in southeastern Europe and the Pontic region. Many montane formations are mixed beech-fir or beech-fir-spruce forests, which are listed under G4.6.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **6. Beech forest / 6.1 Lowland beech forest of southern Scandinavia and north central Europe; 6.2 Atlantic and subatlantic lowland beech forest; 6.3 Subatlantic to Atlanto-Mediterranean submountainous beech forest; 6.4 Central European submountainous beech forest; 6.5 Carpathian submountainous beech forest; 6.6 Illyrian submountainous beech forest; 6.7 Moesian submountainous beech forest**
- **7. Mountainous beech forest / 7.1 South-western European mountainous beech forest; 7.2 Central European mountainous beech forest; 7.3 Apennine-Corsican mountainous beech forest; 7.4 Illyrian mountainous beech forest; 7.5 Carpathian mountainous beech forest; 7.6 Moesian mountainous beech forest; 7.7 Crimean beech forest; 7.8 Oriental beech and hornbeam oriental beech forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

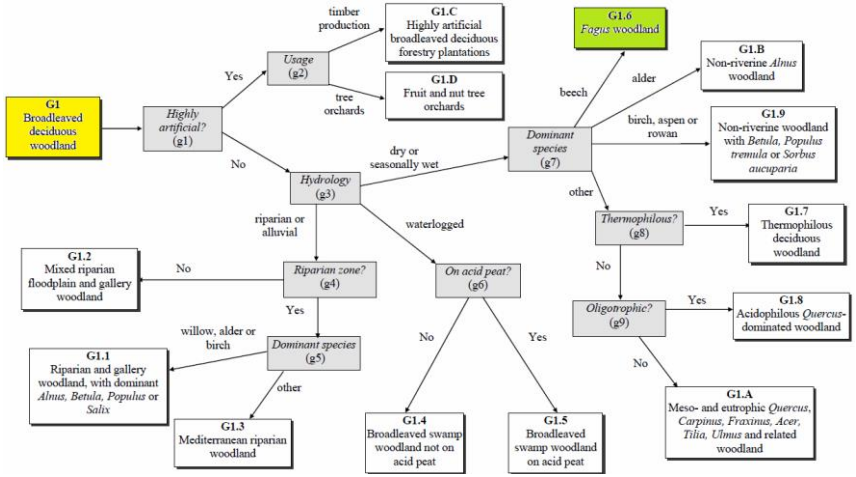
Legally designated habitat (EU Habitats Directive Annex I): Luzulo-Fagetum beech forests (9110); Atlantic acidophilous beech forests with Ilex and sometimes also Taxus in the shrublayer (Quercion robori-petraeae or Ilici-Fagenion) (9120); Asperulo-Fagetum beech forests (9130); Medio-European subalpine beech woods with Acer and Rumex (9140); Medio-European limestone beech forests of the Cephalanthero-Fagion (9150); Apeninne beech forests with Taxus and Ilex (9210); Apennine beech forests with Abies alba and beech forests with Abies nebrodensis (9220); Hellenic beech forests with Abies borisii-regis (9270); Quercus frainetto woods (9280)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): BEECH FORESTS (41.1)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Related phytosociological units: Aremonio-Fagion; Carpinion betuli; Cephalanthero-Fagion; Doronico orientalis-Fagion moesiaci; Erythronio-Carpinion; Fagion sylvaticae; Geranio nodosi-Fagion; Geranio striati-Fagion; Ilici-Fagion; Lonicero alpigenae-Fagion; Luzulo-Fagion; Quercion confertae; Quercion roboris; Rhododendro pontici-Fagion orientalis; Scillo lilio-hyacinthi-Fagion; Symphyto cordati-Fagion; Tilio-Acerion

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

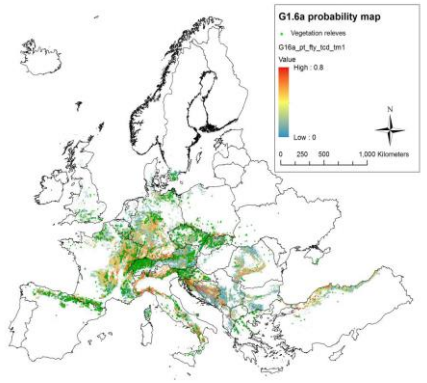
Proposed division: G1.6a Fagus woodland on non-acid soils, G1.6b Fagus woodland on acid soils

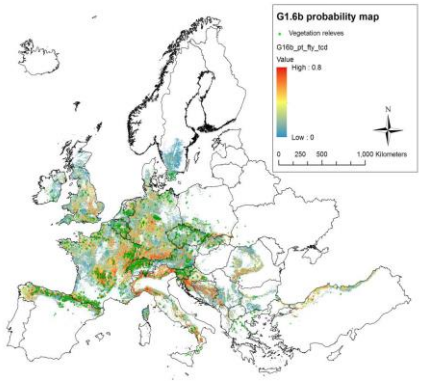
Proposed new descriptions: G1.6a Fagus woodland on non-acid soils, Beech- (Fagus sylvatica and F. orientalis) dominated woodland of base-rich to neutral, oligotrophic to mesotrophic, mineral soils occurring through the atlantic and continental zones, and reaching into the alpine and, at higher altitudes, the submediterranean region. Associated trees, including evergreen conifers like fir (Abies alba) and spruce (Picea abies) which figures at the altitudinal limit, are always subordinate in cover and usually in height, though broadleaved associates are more extensive and diverse on richer soils and,like the usually sparse shrub layer, show regional climate-related variation.The field layer can be species-rich; **G1.6b Fagus woodland on acid soils,** Beech- (Fagus sylvatica and F. orientalis) dominated woodland of oligotrophic, base-poor mineral soils through the atlantic and continental zones, into the alpine and, at higher altitudes, the submediterranean zone. Associated broadleaved trees are few and always subordinate in cover, though oaks may be co-dominant. Evergreen conifers like fir (Abies alba) and, at the altitudinal limit, spruce (Picea abies) can figure as minority canopy components. The field layer is generally species-poor.

Implications for EFT classification: Split cross-cuts EFT typology (G1.6a)

List of alliances to 2013 EuroVegChecklist: FAG-01A, FAG-01B, FAG-01C, FAG-01D, FAG-01E, FAG-01F, FAG-01G, FAG-01H, FAG-01I, FAG-01J, FAG-01K, FAG-04A, ROB-02A, ROB-02B, ROB-02C

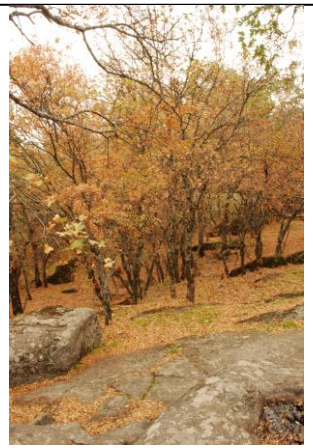
Distribution based on integration Maxent prediction and high resolution data + distrib. of vegetation relevés (right, G1.6a: on non-acid soils; left, G1.6b: on acid soils)





EUNIS Level 3 (2004): G1.7 — Thermophilous deciduous woodland

Forests or woods of submediterranean climate regions and supramediterranean altitudinal levels, and of western Eurasian steppe and substeppe zones, dominated by deciduous or semideciduous thermophilous Quercus species or by other southern trees such as Carpinus orientalis, Castanea sativa or Ostrya carpinifolia. Thermophilous deciduous trees may, under local microclimatic or edaphic conditions, replace the evergreen oak forests in mesomediterranean or thermomediterranean areas, and occur locally to the north in central and western Europe.



Source: V. Jalvo-García

Crosswalk to EFT Category / Type(s) (2010):

- **8. Thermophilous deciduous forest / 8.1 Downy oak forest; 8.2 Turkey oak, Hungarian oak and Sessile oak forest; 8.3 Pyrenean oak forest; 8.4 Portoguese oak and Mirbeck's oak Iberian forest; 8.5 Macedonian oak forest; 8.6 Valonia oak forest; 8.7 Chestnut forest; 8.8 Other thermophilous deciduous forests**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

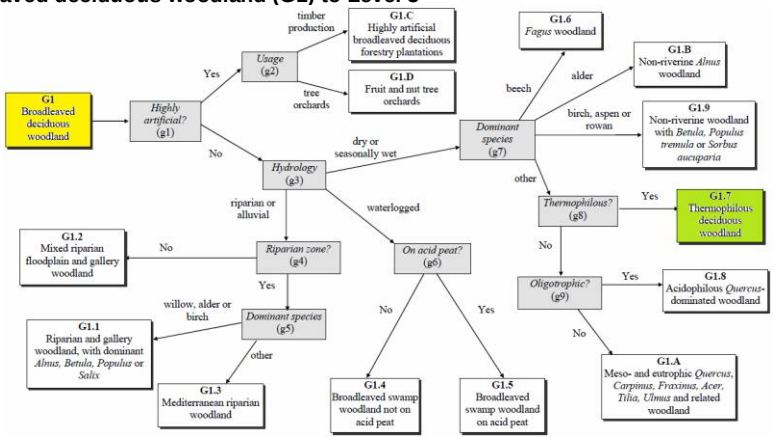
Legally designated habitat (EU Habitats Directive Annex I): Thermophilous Fraxinus angustifolia woods (91B0); Pannonian woods with Quercus pubescens (91H0); Euro-Siberian steppic woods with Quercus spp (91I0); Galicio-Portuguese oak woods with Quercus robur and Quercus pyrenaica (9230); Quercus faginea and Quercus canariensis Iberian woods (9240); Quercus trojana woods (9250); Castanea sativa woods (9260); Aegean Quercus brachyphylla woods (9310); Quercus macrolepis forests (9350)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): THERMOPHILOUS AND SUPRA-MEDITERRANEAN OAK WOODS (41.7)

Descriptive or diagnostic parameters:

- Climate zones: Mediterranean; Warm non-mediterranean
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees; Thermophile species
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Related phytosociological units: Aceri granatensis-Quercion fagineae; Aceri tatarici-Quercion; Alnion incanae; Aremonio-Fagion; Carpinion betuli; Carpinion orientalis; Fraxino orni-Cotinion; Genisto germanicae-Quercion; Junipero excelsae-Quercion pubescentis; Lathyrion veneti; Melitto-Quercion; Quercetalia pubescenti-petraeae; Quercetalia roboris; Quercion broteroi; Quercion confertae; Quercion ilicis; Quercion petraeae; Quercion pubescenti-sessiliflorae; Quercion pyrenaicae; Quercion roboris; Querco rotundifoliae-Oleion sylvestris; Salicion albae; Syringo-Carpinion orientalis; Tilio-Acerion

Criteria for Broadleaved deciduous woodland (G1) to Level 3



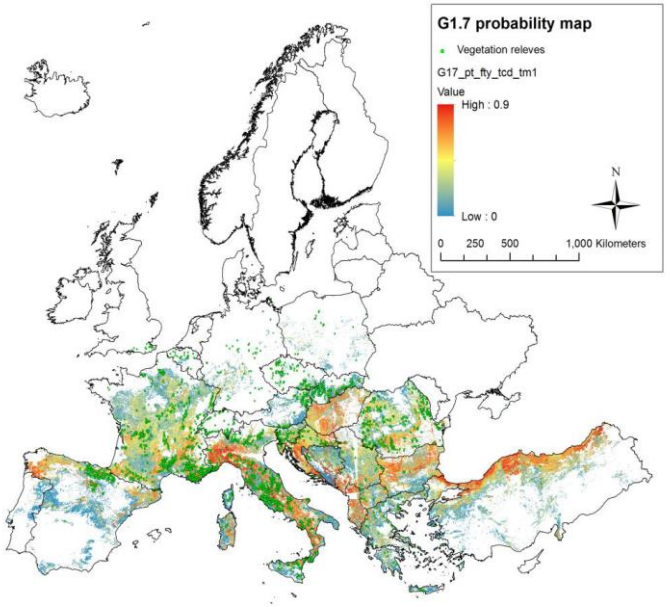
Review of EUNIS Forest Habitat Classification (2013)

Proposed new description: Deciduous or evergreen woodland of thermophilous and drought-resistant trees, especially oaks (Quercus spp.), with a subordinate tier of regionallyvaried associates, through the sub-mediterranean zones, drier and warmer situations further north, extending into more humid higher altitudes in the mediterranean zone.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: PUB-01C, PUB-02A, PUB-02B, PUB-02C, PUB-02D, PUB-02E, PUB-02F, PUB-02G, PUB-02H, PUB-02I, PUB-02J, PUB-02K, PUB-02L, PUB-02M, PUB-02P, PUB-03B

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.8 — Acidophilous oak-dominated woodland. Acidophilous [Quercus]-dominated woodland

Forests of Quercus robur or Quercus petraea on acid soils with an herb layer mostly constituted by the ecological groups of Deschampsia flexuosa, Vaccinium myrtillus, Pteridium aquilinum, Lonicera periclymenum, Holcus mollis, and of Maianthemum bifolium, Convallaria majalis, Hieracium sabaudum, Hypericum pulchrum, Luzula pilosa, and the mosses Polytrichum formosum and Leucobryum glaucum.

Source: M. Barbone/Dreamstime.com

Crosswalk to EFT Category / Type(s) (2010):

- **4. Acidophylous oakwood and oak-birch forest / 4.1 Acidophylous oakwood; 4.2 Oak-birch forest**

EUNIS Forest Habitat Classification (2004)

Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)

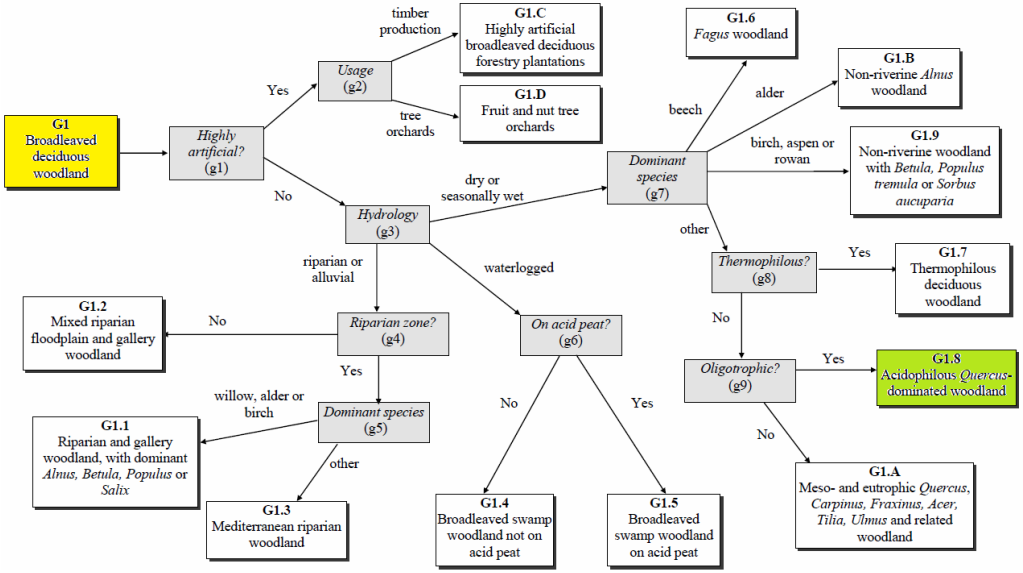
Legally designated habitat (EU Habitats Directive Annex I): Old acidophilous oak woods with Quercus robur on sandy plains (9190); Old sessile oak woods with Ilex and Blechnum in the British Isles (91A0)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): ACIDOPHILOUS OAK FORESTS (41.5)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees; Acidophile species
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Chemical attributes: Acid; Oligotrophic
- Related phytosociological units: Alnion incanae; Carpinion betuli; Genisto germanicae-Quercion; Ilici-Fagion; Pino-Quercion; Quercion petraeae; Quercion pyrenaicae; Quercion roboris

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

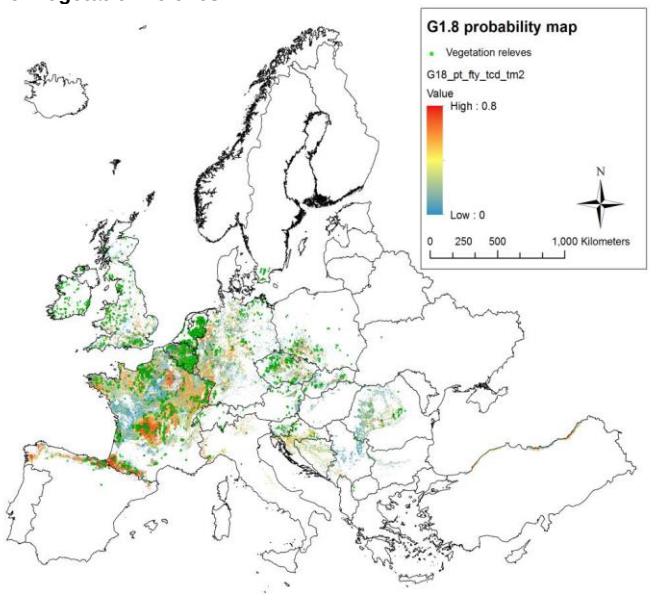
Proposed new name: Acidophilous Quercus woodland

Proposed new description: Oak-dominated woodland (mainly Quercus robur and Q. petraea but also other regional species) of impoverished acid soils through the atlantic and continental zones, where beech (Fagus sylvatica) is a potential competitor and extending northwards into the boreal zone where Scot's pine (Pinus sylvestris) increasingly figures in the canopy. Associated floras are generally rather poor but show some regional distinctiveness and towards the very humid western Atlantic seaboard have extraordinary richness of ferns and cryptogams.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: PUB-02B, PUB-02C, PUB-02D, ROB-01A, ROB-01B, ROB-01C, ROB-01D, ROB-01E, ROB-01F, ROB-01G, ROB-01H

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.9 — Non-riverine woodland with birch, aspen or rowan. Non-riverine woodland with [Betula], [Populus tremula] or [Sorbus aucuparia]

Forests or woods dominated by Betula, Populus tremula or Sorbus aucuparia. Excludes swamp woods (G1.4), woods on wet peat (G1.5) and riparian woods (G1.1).

Source: V. Jalvo-García

Crosswalk to EFT Category / Type(s) (2010):

- **3. Alpine forest / 3.4 Mountainous birch forest**
- **13. Non-riverine alder, birch or aspen forest / 13.3 Birch forest; 13.4 Aspen forest**

EUNIS Forest Habitat Classification (2004)

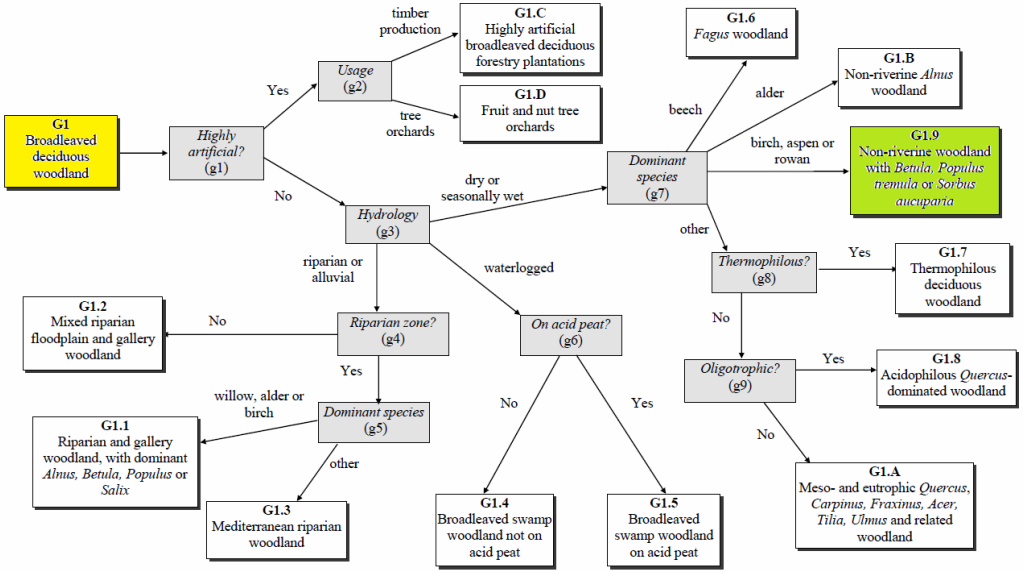
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Western Taïga (9010); Natural forests of primary succession stages of landupheaval coast (9030); Nordic subalpine/subarctic forests with Betula pubescens ssp czerepanovii (9040)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Related phytosociological units: Adenostyletalia alliariae; Alnion incanae; Betulion fontquerio-celtibericae; Corylo-Populion tremulae; Dicrano-Pinion; Fagion sylvaticae; Genisto germanicae-Quercion; Luzulo-Fagion; Phyllodoco-Vaccinion myrtilli; Piceion excelsae; Prunetalia spinosae; Quercetalia pubescenti-petraeae; Quercion confertae; Quercion pubescenti-sessiliflorae; Quercion pyrenaicae; Quercion roboris; Sambuco racemosae-Salicion capreae

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

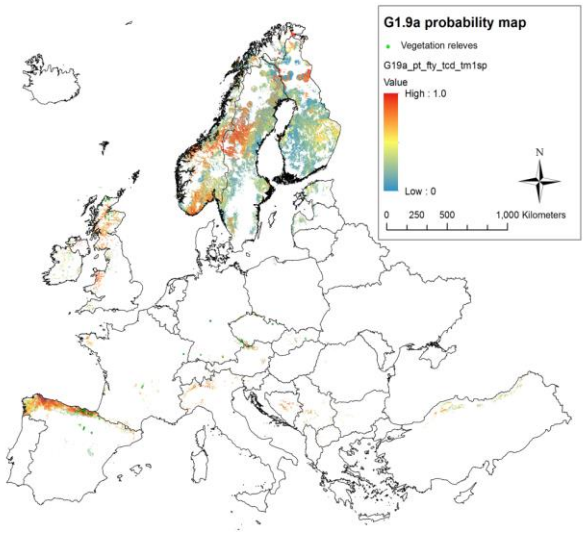
Proposed division: G1.9a Boreal and nemoral Betula woodlands on mineral soils, G1.9b Mediterranean Betula and Populus tremula woodlands on mineral soils

Proposed new descriptions: G1.9a Boreal and nemoral Betula woodlands on mineral soils, Open, low canopy climax birch woodlands (Betula pubescens ssp. Czerepanovii = B. tortuosa or ssp. carpatica) with a heathy or herb-rich field layer in the boreal region and nemoral mountains of Cantabria and the Sudeten; **G1.9b Mediterranean Betula and Populus tremula woodlands on mineral soils,** Diverse climax woodlands dominated by birch (Betula pubescens and its vicariants) or aspen (Populus tremula) on usually acidic mineral soils in humid ravines and gorges in the sub-alpine Pyrenees, Corsica, the Apennines and, Sicily, with associated floras characteristic of the local climatic conditions.

Implications for EFT classification: 3.4 Mountainous birch forest (G1.9a), 13.3 Birch forest (G1.9b), 13.4 Aspen forest (G1.9b)

List of alliances to 2013 EuroVegChecklist: BRA-01B, BRA-01C, FAG-05A, FAG-05B, FAG-05C, FAG-05D, PIC-01G, PIC-01H

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés: G1.9a Boreal and nemoral Betula woodlands on mineral soils



EUNIS Level 3 (2004): G1.A — Meso- and eutrophic oak, hornbeam, ash, sycamore, lime, elm and related woodland. Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland

Woods, typically with mixed canopy composition, on rich and moderately rich soils. Includes woods dominated by Acer, Carpinus, Fraxinus, Quercus (especially Quercus petraea and Quercus robur), Tilia and Ulmus. Excludes acid Quercus woodland (G1.8) and woodland with a large representation of southern species such as Fraxinus ornus or Quercus pubescens (G1.7).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **5. Mesophytic deciduous forest / 5.1 Pedunculate oak-hornbeam forest; 5.2 Sessile oak hornbeam forest; 5.3 Ashwood and oak-ash forest; 5.4 Maple-oak forest; 5.5 Lime-oak forest; 5.6 Maple-lime forest; 5.7 Lime forest; 5.8 Ravine and slope forest; 5.9 Other mesohpytic deciduous forests**

EUNIS Forest Habitat Classification (2004)

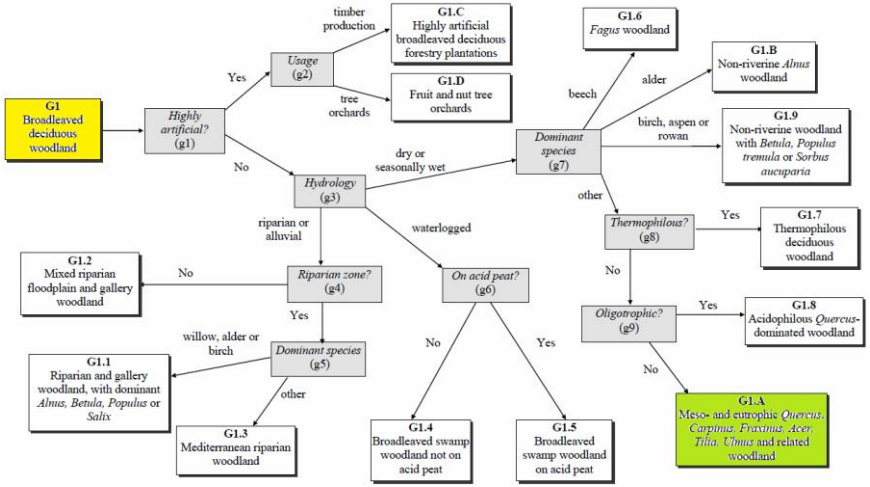
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): Fennoscandian hemiboreal natural old broad-leaved deciduousforests (Quercus, Tilia, Acer, Fraxinus or Ulmus) rich in epiphytes (9020); Sub-Atlantic and medio-European oak or oak-hornbeam forests of the Carpinion betuli (9160); Galio Carpinetum oak-hornbeam forests (9170); Tilio-Acerion forests of slopes, screes and ravines (9180); Pannonic woods with Quercus petraea and Carpinus betulus (91G0)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Chemical attributes: Mesotrophic; Eutrophic
- Related phytosociological units: Aceri tatarici-Quercion; Alnion incanae; Alno-Quercion roboris; Aremonio-Fagion; Berberidion vulgaris; Carpinion betuli; Carpinion orientalis; Castaneo- Quercion petraeae; Cephalanthero-Fagion; Erythronio-Carpinion; Fagion sylvaticae; Junipero excelsae-Quercion pubescentis; Prunetalia spinosae; Pulmonario longifoliae-Quercion roboris; Quercetalia pubescenti-petraeae; Querco roboris-Tilion cordatae; Salicion albae; Tilio-Acerion

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

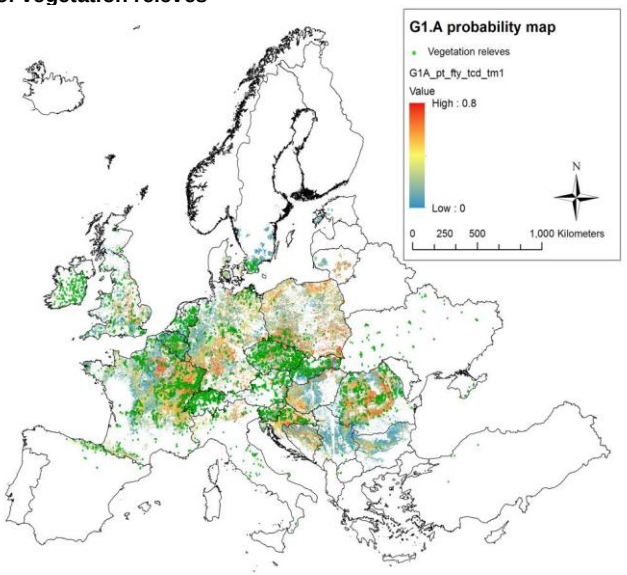
Proposed new name: Mesotrophic and eutrophic deciduous woodland, not dominated by Fagus

Proposed new description: Deciduous mixed broadleaved woodland on drought-free mineral soils, neutral to base-rich and of moderate to high nutrient status, through the lowlands and foothills of the nemoral zone extending locally into the boreal and submediterranean zones and pannonian region. The tree canopy is often diverse and structurally complex with a rich and extensive understorey and field layer showing striking regional variation and an often distinctive vernal aspect.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: FAG-02A, FAG-02B, FAG-02C, FAG-02D, FAG-02E, FAG-02F, FAG-02G, FAG-02H, FAG-02I, FAG-02J, FAG-02K, FAG-02L, FAG-02M, FAG-03A, FAG-03C, FAG-03D, FAG-03E, FAG-03F, FAG-03G

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G1.B — Non-riverine alder woodland. Non-riverine [Alnus] woodland

Nonriparian, nonmarshy woods dominated by Alnus spp.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **13. Non-riverine alder, birch or aspen forest / 13.1 Alder forest; 13.2 Italian alder forest**

EUNIS Forest Habitat Classification (2004)

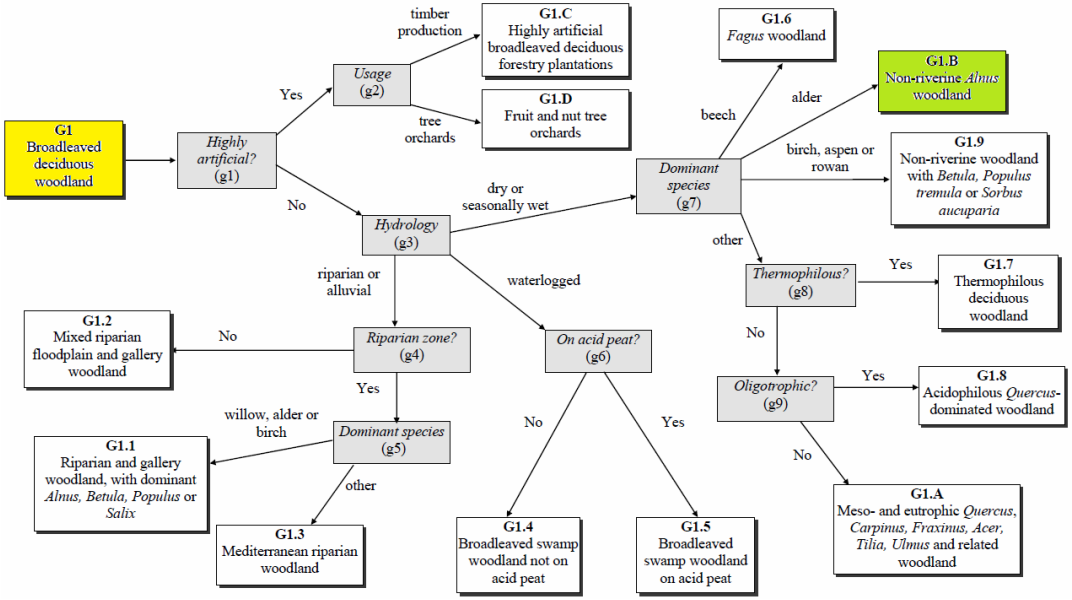
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): Western Taïga (9010); Natural forests of primary succession stages of landupheaval coast (9030)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Seasonally wet; Moist / mesic; Dry
- Related phytosociological units: Alnion incanae; Fagion sylvaticae

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Non-riverine Alnus woodland on mineral soil

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: ALN-01A, POP-02A

Distribution: no probability maps produced

EUNIS Level 3 (2004): G1.C — Highly artificial broadleaved deciduous forestry plantations

Cultivated deciduous broad-leaved tree formations planted for the production of wood, composed of exotic species, of native species out of their natural range, or of native species planted in clearly unnatural stands, often as monocultures.

Source: A. Barbati

Crosswalk to EFT Category / Type(s) (2010):

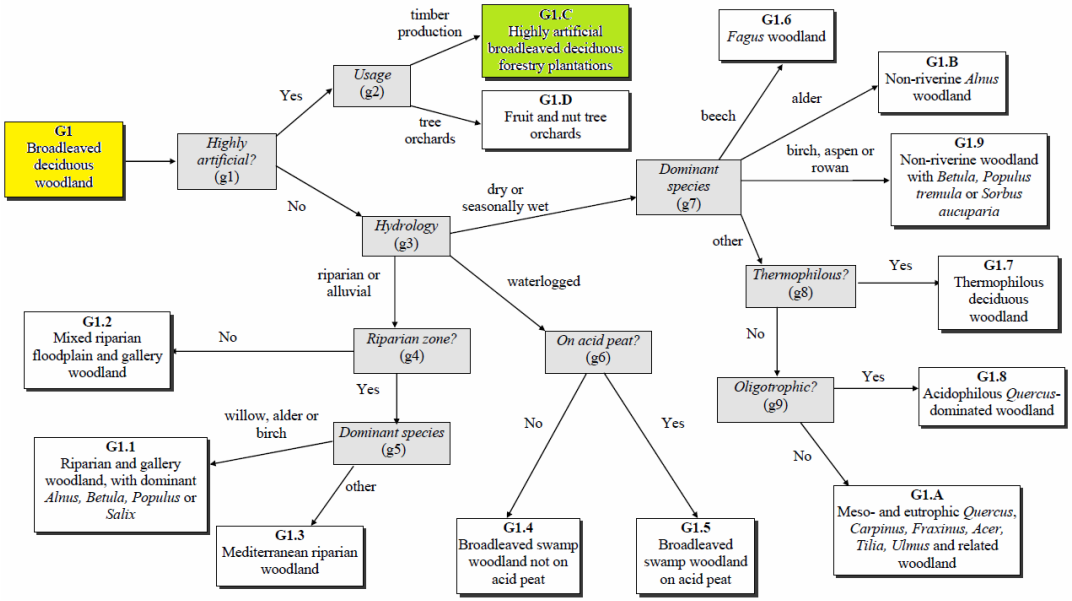
- **Unclear relationship to 14. Introduced tree species forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): none
Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forest planting; Artificial planting; Forest replanting; Forestry clearance; Removal of forest undergrowth; Removal of dead and dying trees; Forest exploitation without replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance; Active management
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Broadleaved deciduous plantations of non site-native trees
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: RHA-01B, RHA-01C, RHA-01D
Distribution: no probability maps produced

EUNIS Level 3 (2004): G1.D — Fruit and nut tree orchards

Stands of trees cultivated for fruit or flower production, providing permanent tree cover once mature.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **Not covered by EFT**

EUNIS Forest Habitat Classification (2004)

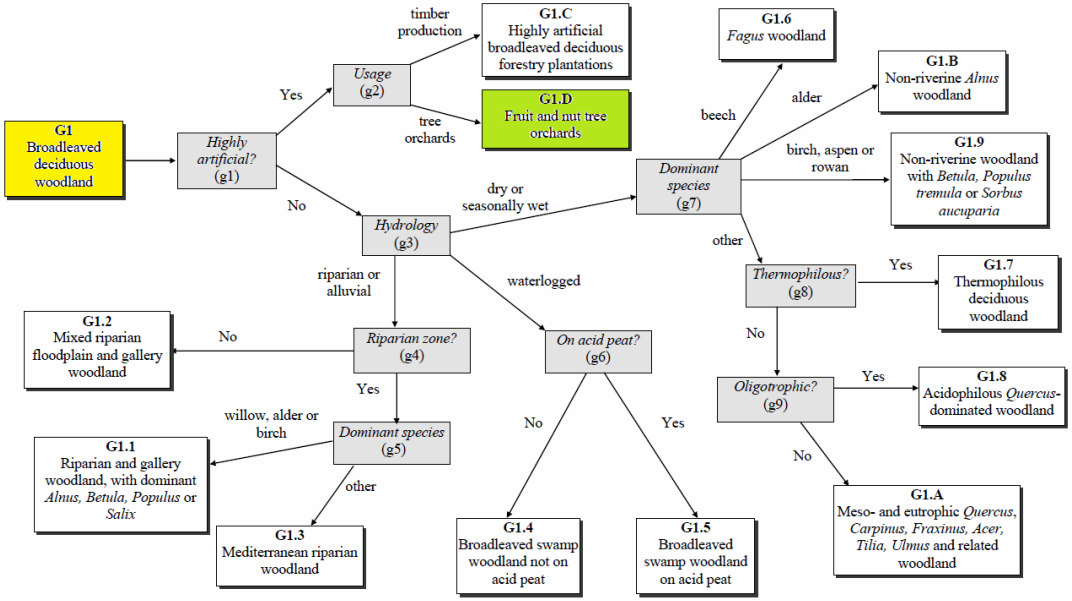
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Fruit and nut orchards; Forest planting; Artificial planting; Forest replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance; Active management
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Broadleaved deciduous woodland (G1) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed change: G1.D is not a woodland and should be removed, could go into EUNIS group I of Level 1 (Regularly or recently cultivated agricultural, horticultural and domestic habitats)

Implications for EFT classification: n/a

Distribution: no probability maps produced

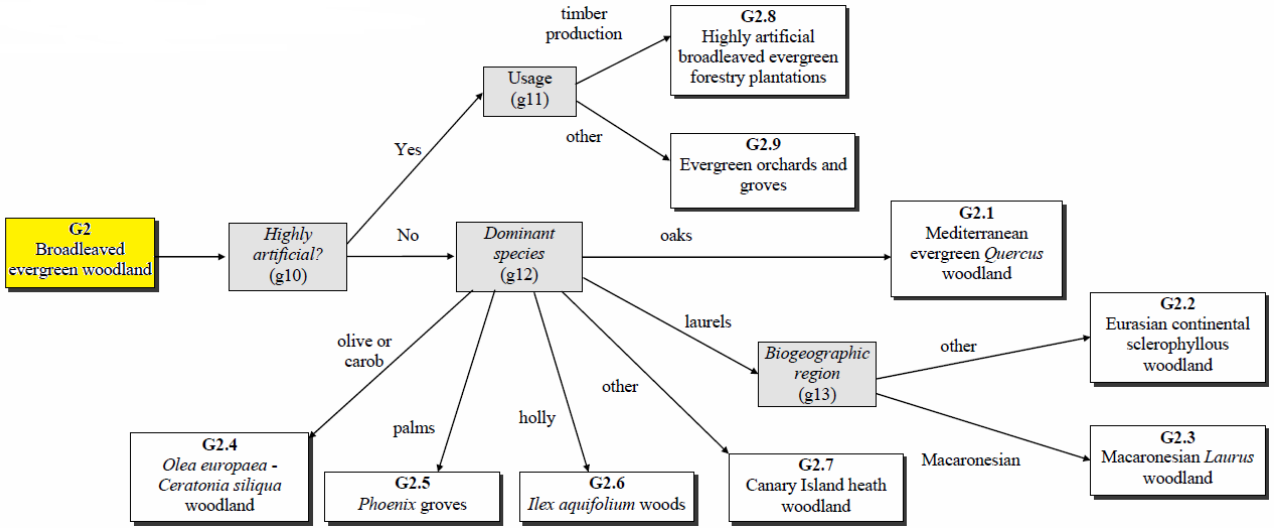
EUNIS Level 2 (2004): G2 — Broadleaved evergreen woodland

Temperate forests dominated by broad-leaved sclerophyllous or lauriphyllous evergreen trees, or by palms. They are characteristic of the Mediterranean and warm-temperate humid zones.

EUNIS Forest Habitat Classification (2004)
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Descriptive or diagnostic parameters:

- Human activities may include: Forestry practices; Forest planting; Artificial planting; Forest replanting
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%

G2 EUNIS Habitat Classification: criteria for Broadleaved evergreen woodland (G2) to Level 3



Explanatory notes:
(g10) *Highly artificial broadleaved evergreen forests (often of exotic species) of uniform age and structure, completely dependent on man's operations and with impoverished associated communities (path = Yes) are separated from less highly managed habitats.* ***(g11)*** *Highly artificial evergreen forestry plantations normally primarily used for timber production are separated from those used for other purposes (including olive groves and palm plantations).* ***(g12)*** *Habitats are separated according to their dominant species: evergreen oaks (Quercus); laurels (Laurus); holly (Ilex); palms (Phoenix); olive (Olea europea) or carob (Ceratonia siliqua); and other very tall, forest-like formations dominated by Erica arborea, Myrica faya, Arbutus canariensis or Visnea mocanera.* ***(g13)*** *Laurel (Laurus)-dominated habitats characteristic of the Macaronesian biogeographic region are separated from those of the Mediterranean and Atlantic regions (path = other).*

EUNIS Level 3 (2004): G2.1 — Mediterranean evergreen oak woodland. Mediterranean evergreen [Quercus] woodland

Woodland with dominant evergreen arborescent Quercus, e.g. Quercus alnifolia, Quercus coccifera, Quercus ilex, Quercus rotundifolia, Quercus suber.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **9. Broadleaved evergreen forest / 9.1 Mediterranean evergreen oak forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

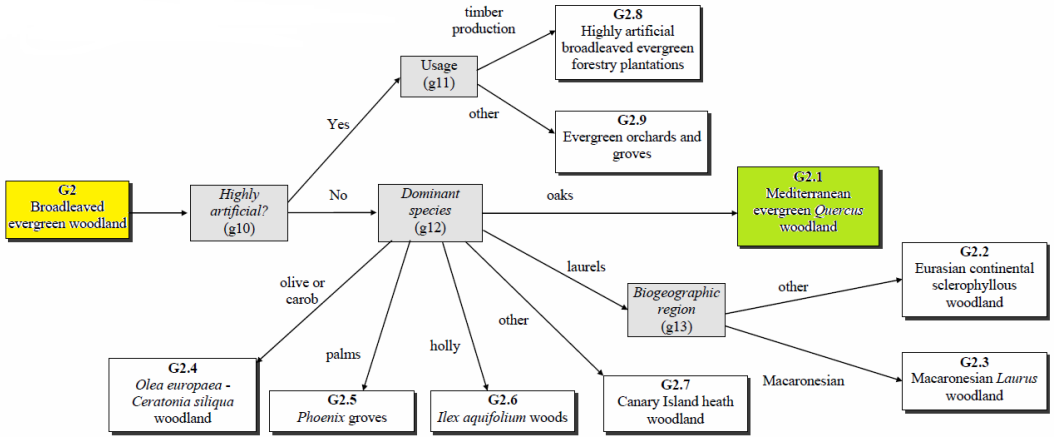
Legally designated habitat (EU Habitats Directive Annex I): Quercus suber forests (9330); Quercus ilex and Quercus rotundifolia forests (9340)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Aceri granatensis-Quercion fagineae; Arbuto andrachnae-Quercion cocciferae; Cistion laurifolii; Lathyrion veneti; Oleo-Ceratonion siliquae; Paeonio broteroi-Abietion pinsapo; Quercetalia ilicis; Quercion broteroi; Quercion ilicis; Quercion pubescenti-sessiliflorae; Quercion pyrenaicae; Querco rotundifoliae-Oleion sylvestris

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

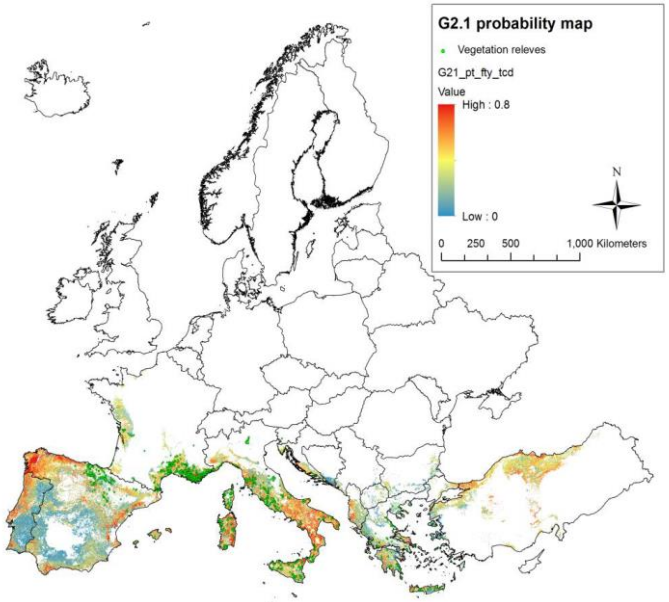
Proposed new name: Mediterranean evergreen Quercus woodland

Proposed new description: Woodland dominated by evergreen broadleaved oaks (most widely Quercus ilex) with associated sclerophyllous and lauriphyllous trees and shrubs in the summer-drought climate of the mediterranean lowlands and foothills. The tree canopy is often low and much modified, with widespread transitions to scrubby maquis/matorral and open dehesa/montado wood pasture.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: QUI-02A, QUI-02D, QUI-03A, QUI-03B, QUI-03C, QUI-03D, QUI-03E, QUI-03F, QUI-03G

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G2.2 — Eurasian continental sclerophyllous woodland

Lauriphyllous and mixed lauriphyllous-xerophyllous evergreen forests of the Warm-Temperate Humid zones of the Eurasian continent and continental shelf islands and of humid enclaves within the Mediterranean zones. Lauriphyllous forests of the oceanic Macaronesian archipelagoes are listed separately under G2.3.

Crosswalk to EFT Category / Type(s) (2010):

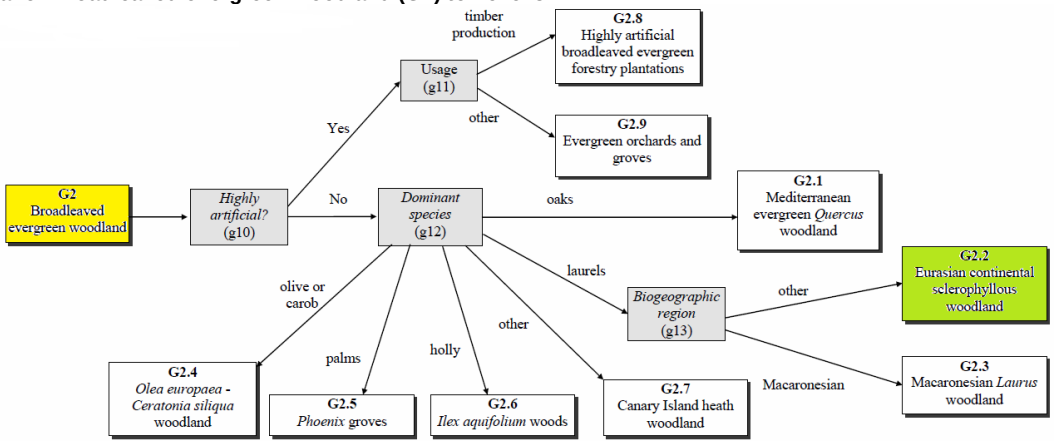
- **9. Broadleaved evergreen forest / 9.5 Other sclerophlyllous forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): none
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)
Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Quercion ilicis

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Mainland lauriphyllous woodland
Proposed new description: Evergreen lauriphyllous short-stature woodland, often dominant by bay (Laurus nobilis) or strawberry tree (Arbutus unedo) in warm temperate oceanic and hyper-humid situations, now surviving as small relics in sheltered situations like ravines along the Atlantic coast of Portugal and Spain and in Sardinia, southern Italy and Sicily. Typically species-poor with an associated flora similar to G2.1.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: QUI-03I
Distribution: not enough data to create a reliable model

EUNIS Level 3 (2004): G2.3 — Macaronesian laurel woodland. Macaronesian [Laurus] woodland

Humid to hyper-humid, mist-bound, luxuriant, evergreen, lauriphyllous forests of the cloud belt of the Macaronesian islands, extremely rich in floral and faunal species, among which many are restricted to these communities. Genera such as Picconia, Semele, Gesnouinia, Lactucosonchus, Ixanthus are entirely endemic to these communities, while others, such as Isoplexis, Visnea and Phyllis reach in them their maximum development; in addition, each of the formations of the various archipelagoes harbours distinctive endemic species. Laurel forests are the most complex and remarkable relict of the humid sub-tropical vegetation of the Mioceno-Pliocene late Tertiary of southern Europe. Areas of intact forests have been drastically reduced to a level below which the preservation of their elements could not be sustained.

Source: J. Teodósio

Crosswalk to EFT Category / Type(s) (2010):

- **9. Broadleaved evergreen forest / 9.4 Macaronesian laurisilva**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

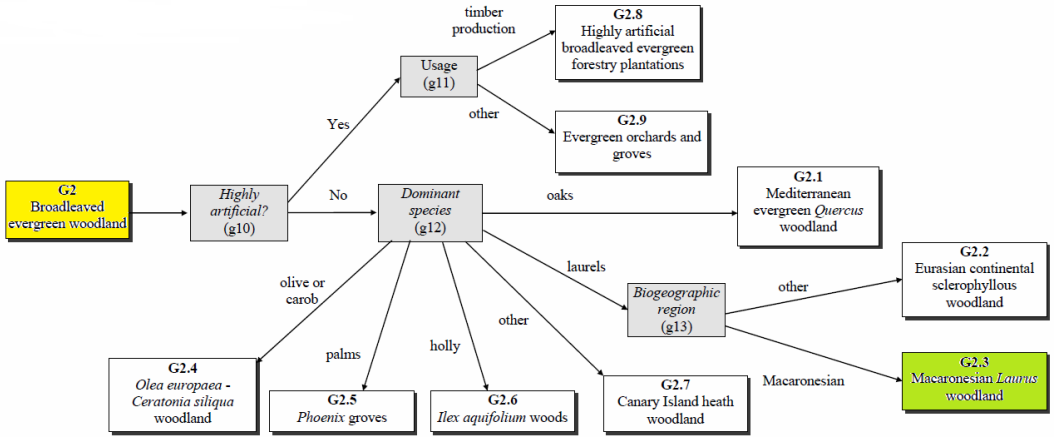
Legally designated habitat (EU Habitats Directive Annex I): Macaronesian laurel forests (Laurus, Ocotea)(9360)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Ixantho-Laurion azoricae; Pruno-Lauretea azoricae; Sibthorpio peregrinae-Clethrion arboreae

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Macaronesian lauriphyllous woodland

Proposed new description: Evergreen lauriphyllous woodland on deep soils in the hyper-humid, frostfree, fog belt of the Macaronesian hills. The tree and shrub canopy is very diverse and rich in endemics, with striking differences related to climatic conditions across the different island groups, local topography and long isolation of the floras.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: AZO-01A, AZO-02A, AZO-02B, LAU-02A, LAU-02B, LAU-02C

Distribution: no probability maps produced

EUNIS Level 3 (2004): G2.4 — Olive - carob woodland. [Olea europaea] – [Ceratonia siliqua] woodland

Thermo-Mediterranean or thermo-Canarian woodland dominated by arborescent Olea europaea var. sylvestris, *Ceratonia siliqua*, *Pistacia lentiscus*, *Myrtus communis* or, in the Canary Islands, by *Olea europaea* ssp. *cerasiformis* and *Pistacia atlantica*. Most formations will be listed as arborescent matorral F5.1, but a few stands have a sufficiently tall, closed canopy to qualify for this unit.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **9. Broadleaved evergreen forest / 9.2 Olive-carob forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

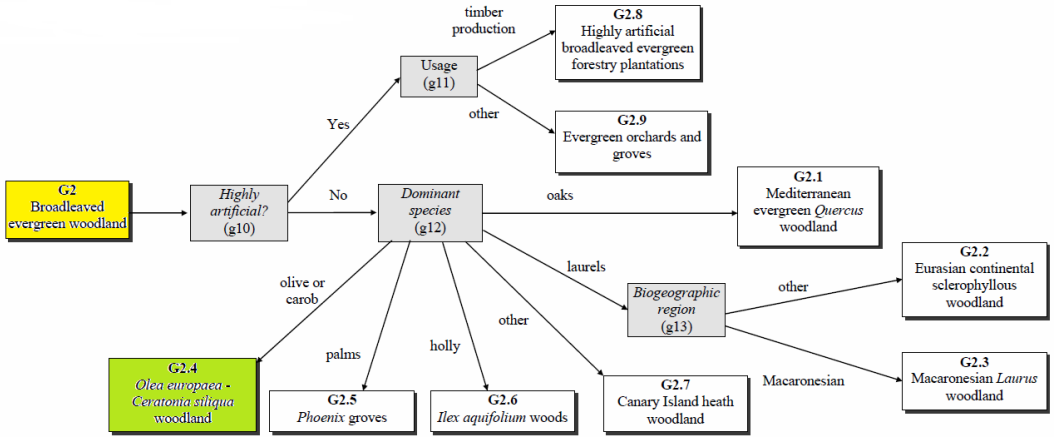
Legally designated habitat (EU Habitats Directive Annex I): Olea and Ceratonia forests (9320)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Ceratonio-Rhamnion oleoidis; Mayteno-Juniperion canariensis; Oleo-Ceratonion siliquae

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

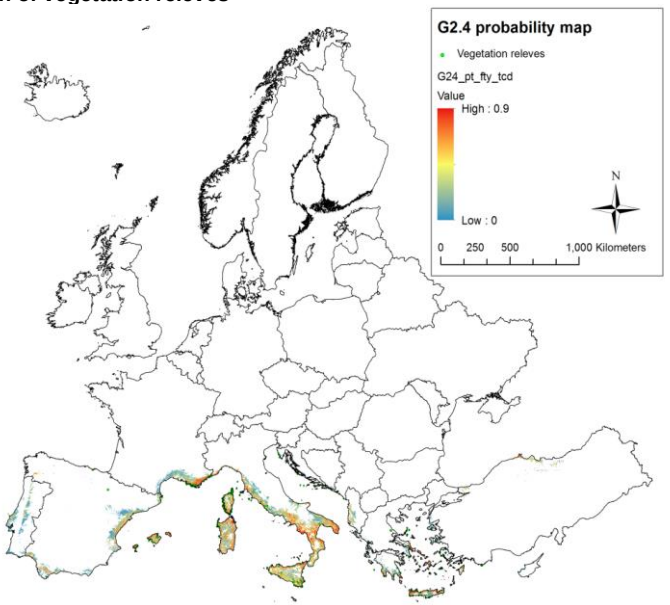
Proposed new name: Olea oleaster-Ceratonia siliqua woodland

Proposed new description: Olive (Olea europea), carob (Ceratonia siliqua) and mastic (Pistacia lentiscus) woodland with a tall, closed tree canopy in the drought-prone lowlands and foothills of the Mediterranean and Macaronesia.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: QUI-01A, QUI-02B

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G2.5 — Palm groves. [Phoenix] groves

Woods, often riparian, formed by palm trees of the Mediterranean and Macaronesian zones, Phoenix theophrasti of Crete and western Anatolia, and Phoenix canariensis of the Canary Islands.

Crosswalk to EFT Category / Type(s) (2010):

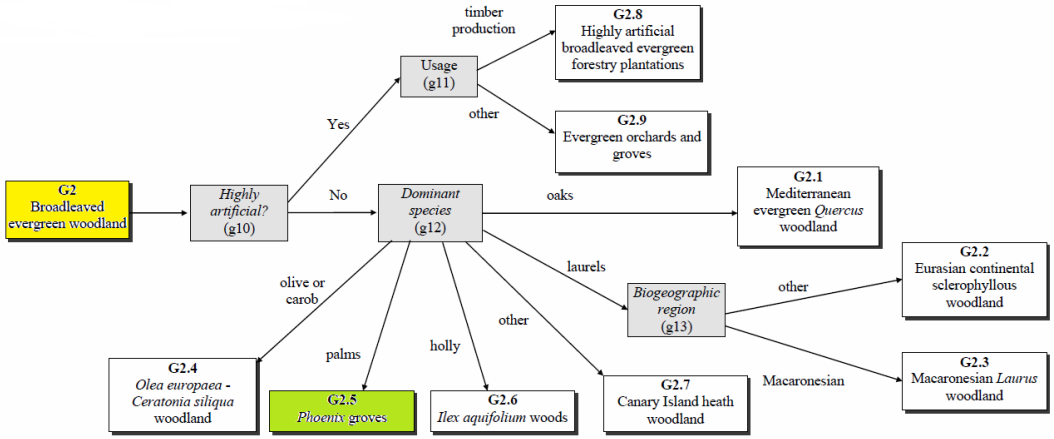
- **9. Broadleaved evergreen forest / 9.3 Palm groves**

EUNIS Forest Habitat Classification (2004)

Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)
Legally designated habitat (EU Habitats Directive Annex I): Palm groves of Phoenix (9370)
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)
Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Kleinio neriifoliae-Euphorbietea canariensis; Oleo cerasiformis-Rhamneteacrenulatae; Quercion ilicis

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Phoenix groves
Proposed new description: Fragmentary woodlands of palms (Phoenix spp.) and dragon trees (Dracaena spp.), dependent on periodic torrents, often along temporary stream-sides, in the very dry to arid eastern Mediterranean and Macaronesian lowlands.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: NER-01F, OLE-01C
Distribution: not enough data to create a reliable model

EUNIS Level 3 (2004): G2.6 — Holly woods. [Ilex aquifolium] woods

Woods dominated by tall arborescent Ilex aquifolium. They occur in the supra-Mediterranean level of Sardinia and Corsica and in Atlantic mountains of northwestern Spain, mostly as a facies of relict yew-holly forests G3.9. Other scattered occurrences exist in the nemoral zone of western Europe, as facies of beech forest G1.6 or acidophilous oak forest G1.8.

Crosswalk to EFT Category / Type(s) (2010):

- **9. Broadleaved evergreen forest / 9.5 Other sclerophlyllous forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

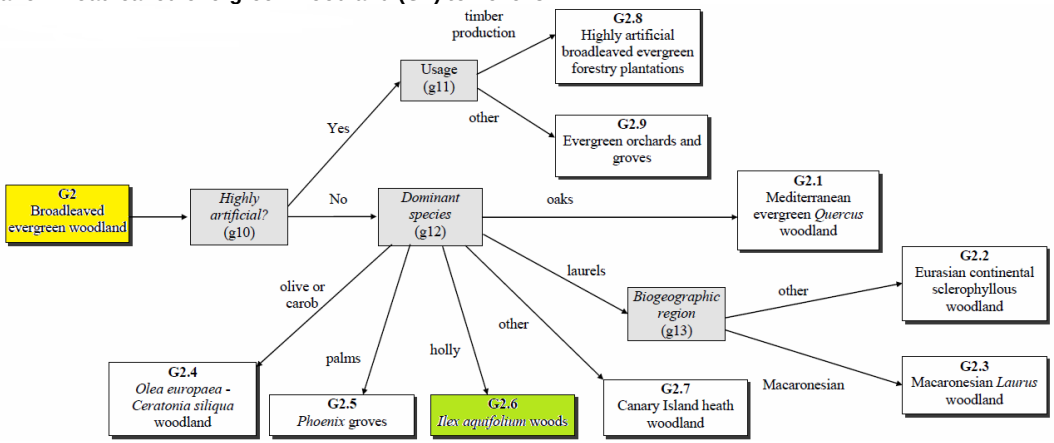
Legally designated habitat (EU Habitats Directive Annex I): Forests of Ilex aquifolium (9380)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Carpinion betuli; Fagion sylvaticae; Quercion ilicis; Quercion roboris

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

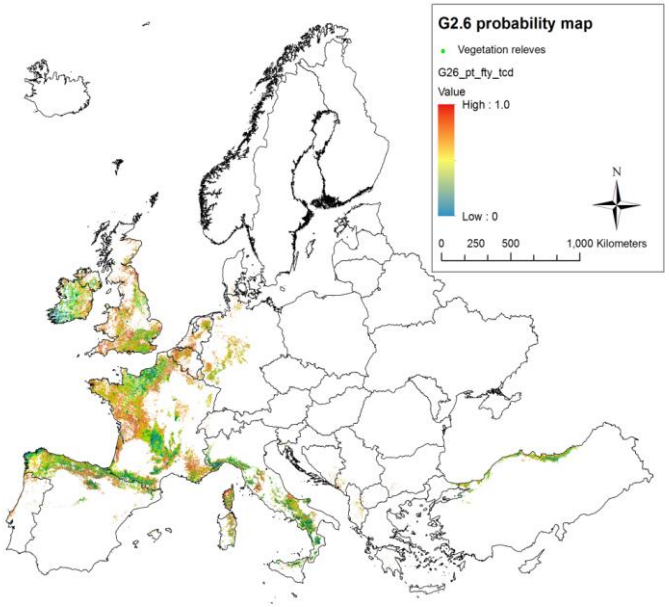
Proposed new name: Ilex aquifolium woodland

Proposed new description: Holly- (Ilex aquifolium-) dominated woodland occurring in scattered localities across Europe and probably an arborescent survival of G3.9 Taxus woodland at middle altitudes in the Mediterranean zone and of G1.6 Fagus and G1.8 Quercus in the nemoral lowlands.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: FAG-01I, FAG-02A, FAG-02B, QUI-03D, ROB-01B, ROB-01C, ROB-02A

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G2.7 — Canary Island heath woodland

Very tall, forest-like, formations dominated by Erica arborea, Myrica faya, Arbutus canariensis or Visnea mocanera, occurring naturally in the most wind-exposed and the driest stations within the "monte verde" of the Canary Island cloud belt; they also occur extensively as degradation stages of the Laurus woodland G2.3 or as secondary colonists.

Crosswalk to EFT Category / Type(s) (2010):

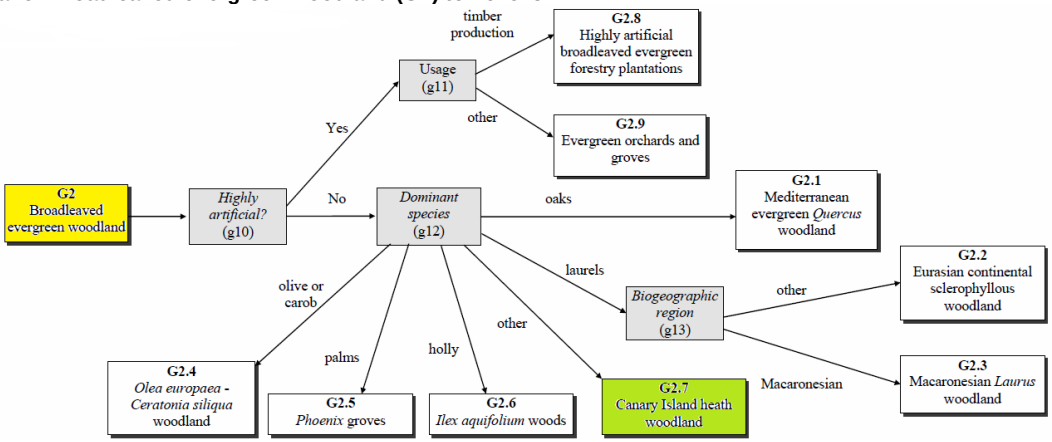
- **9. Broadleaved evergreen forest / 9.5 Other sclerophlyllous forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): none
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): TEMPERATE BROAD-LEAVED EVERGREEN FORESTS (45)
Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Myrico fayae-Ericion arboreae

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Macaronesion heathy woodland
Proposed new description: Small-stature woodland variously dominated by arborescent ericoids, laurels (Laurus spp.), strawberry tree (Arbutus unedo) and Canarian holly (Ilex canariensis) in situations that range from cold and hyper-humid slopes and exposed fog-bound outcrops to sub-humid and dry foothills of Madeira and the Canaries.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: LAU-01A, LAU-01B, LAU-01C, LAU-01D, LAU-01E
Distribution: no probability maps produced

EUNIS Level 3 (2004): G2.8 — Highly artificial broadleaved evergreen forestry plantations

Cultivated evergreen broad-leaved tree formations planted for the production of wood, composed of exotic species, of native species out of their natural range, or of native species planted in clearly unnatural stands, often as monocultures.

Crosswalk to EFT Category / Type(s) (2010):

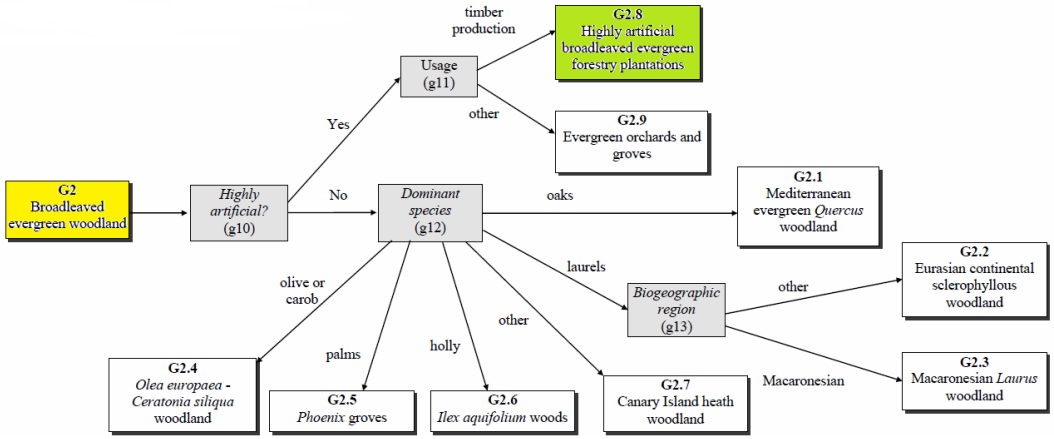
- **14. Introduced tree species forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): none
Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forest planting; Artificial planting; Forest replanting; Forestry clearance; Removal of forest undergrowth; Removal of dead and dying trees; Forest exploitation without replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance; Active management
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Broadleaved evergreen plantations of non site-native trees
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: n/a
Distribution: no probability maps produced

EUNIS Level 3 (2004): G2.9 — Evergreen orchards and groves

In Europe these are mostly olives and citrus.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

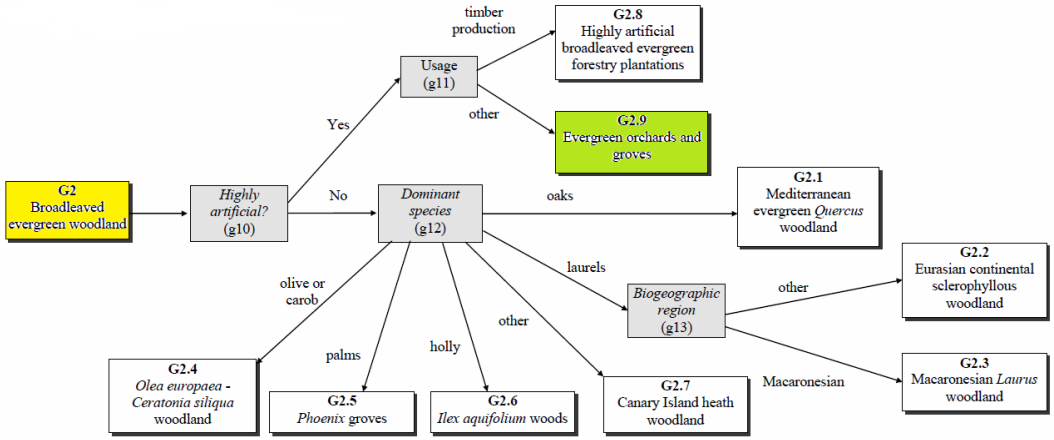
- **Not covered by EFT**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)
Legally designated habitat (EU Habitats Directive Annex I): none
Descriptive or diagnostic parameters:

- Human activities and impacts: Fruit and nut orchards; Artificial planting; Forest replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance; Active management
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Broadleaved evergreen woodland (G2) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed change: G2.9 is not a woodland and should be removed, could go into EUNIS group I of Level 1 (Regularly or recently cultivated agricultural, horticultural and domestic habitats)
Implications for EFT classification: n/a
Distribution: no probability maps produced

EUNIS Level 2 (2004): G3 — Coniferous woodland

Woodland, forest and plantations dominated by coniferous trees, mainly evergreen (Abies, Cedrus, Picea, Pinus, Taxus, Cupressaceae) but also deciduous Larix. Excludes mixed forests (G4) where the proportion of broadleaved trees exceeds 25%.

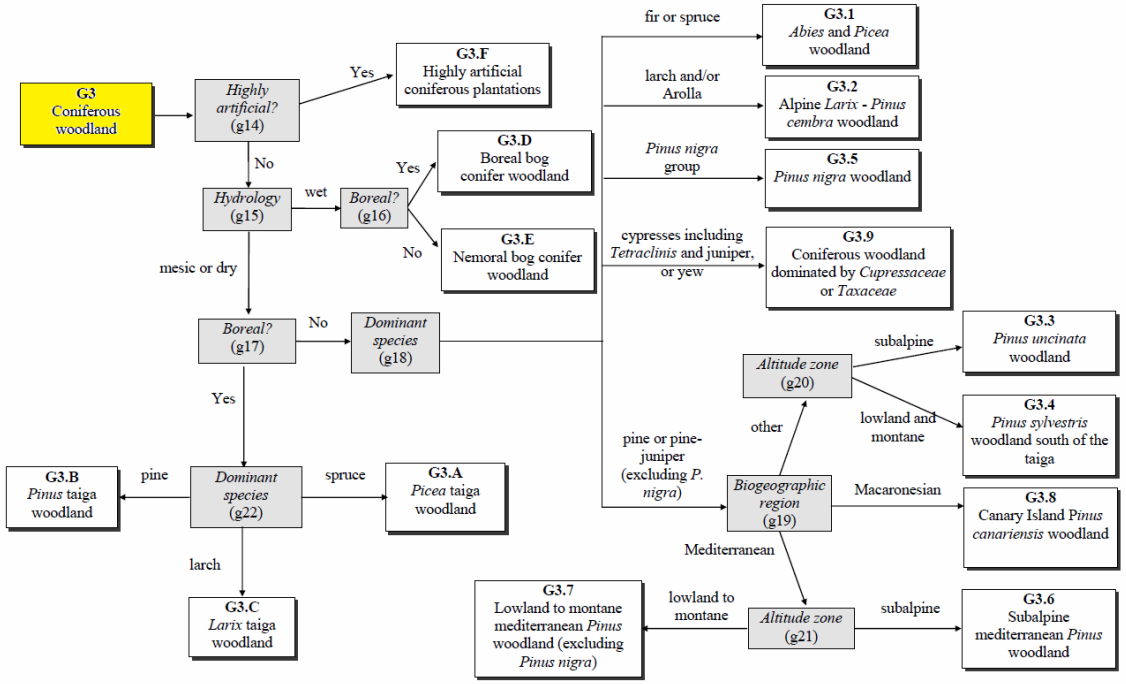
EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forest planting; Artificial planting; Forest replanting
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

G3 EUNIS Habitat Classification: criteria for Coniferous woodland (G3) to Level 3



Explanatory notes:

(g14) *Highly artificial coniferous forests (often of exotic species) of uniform age and structure, completely dependent on man's operations and with impoverished associated communities (path = Yes) are separated from less highly managed habitats.* ***(g15)*** *Two hydrological regimes are distinguished: wet (with the water table at or close to the surface for at least half the year); and mesic or dry.* ***(g16)*** *Wet coniferous woodland habitats characteristic of the Boreal zone are distinguished (path = Yes).* ***(g17)*** *Mesic or dry coniferous woodland habitats characteristic of the Boreal zone are distinguished (path = Yes).* ***(g18)*** *Mesic and dry non-Boreal habitats are separated according to their dominant species groups: fir (Abies spp.) or spruce (Picea spp.); larch (Larix spp.) and/or Arolla (Pinus cembra); Pinus nigra group (Pinus nigra, Pinus dalmatica, Pinus laricio, Pinus pallasiana); cypresses (Cupressus and Tetraclinis), juniper (Juniperus) or yew (Taxus baccata); pine or pine-juniper (excluding P. nigra).* ***(g19)*** *Pine (Pinus) and juniper (Juniperus)-dominated woodlands are separated between biogeographic region: Mediterranean; Macaronesian and other (Atlantic, Continental, Alpine, etc.).* ***(g20)*** *Pine woodlands in the subalpine altitude zone (usually dominated by Pinus uncinata) are distinguished from those in the lowland and montane altitude zones usually dominated by Pinus sylvestris. Note that Pinus sylvestris forests may occur in the subalpine zone but follow path = lowland and montane. (g21) Mediterranean pine woodlands other than of Pinus nigra are separated by altitude into a group in the montane and subalpine zones close to the tree-line (dominated by Pinus heldreichii (=Pinus leucodermis), Pinus peuce) and thermophilous pine woodlands in lowland to montane situations (dominated by Pinus halepensis, P. pinea and P. pinaster).* ***(g22)*** *Coniferous woodlands of the taiga zone are separated between those dominated by spruce; by pine; and by larch.*

EUNIS Level 3 (2004): G3.1 — Fir and spruce woodland. [Abies] and [Picea] woodland

Woodland dominated by Abies or Picea.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.3 Nemoral spruce forest; 2.8 Nemoral Silver fir forest**
- **3. Alpine coniferous forest / 3.2 Subalpine and mountainous spruce and mountainous mixed spruce-silver fir forest**
- **7. Mountainous beech forest / 7.9 Mountainous Silver fir forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

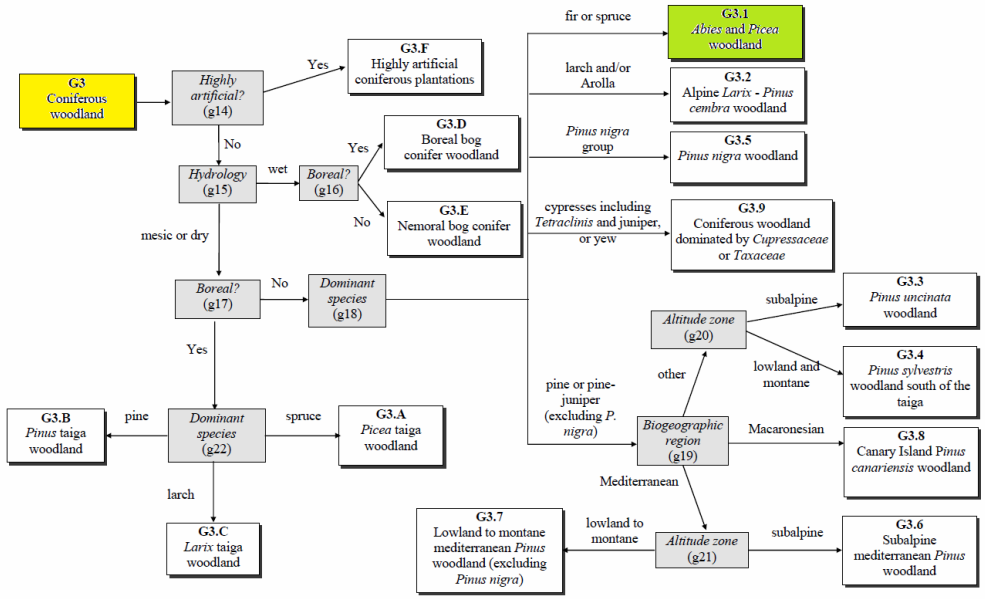
Legally designated habitat (EU Habitats Directive Annex I): Hellenic beech forests with Abies borisii-regis (9270); Acidophilous Picea forests of the montane to alpine levels (Vaccinio- Piceetea)(9410); Southern Apennine Abies alba forests (9510); Abies pinsapo forests (9520)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Abietion cephalonicae; Abieti-Piceion; Aremonio-Fagion; Carpinion betuli; Chrysanthemo rotundifolii-Piceion; Doronico orientalis-Fagion moesiaci;

Fagetalia sylvaticae; Fagion sylvaticae; Geranio striati-Fagion; Lonicero alpigenae-Fagion; Piceion excelsae; Pinion mugo; Quercion ilicis; Rhododendro pontici-Fagion orientalis; Symphyto cordati-Fagion

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

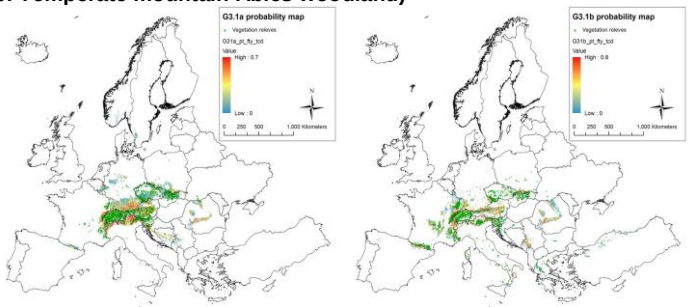
Proposed division: G3.1a Temperate mountain Picea woodland, G3.1b Temperate mountain Abies woodland, G3.1c Mediterranean mountain Abies woodland

Proposed new descriptions: G3.1a Temperate mountain Picea woodland, Evergreen coniferous woodland dominated by spruce (Picea abies and, in the Dinaric mountains, relict P. omorika), often with some fir (Abies alba) on usually acidic, even very oligotrophic, wet, cold or rocky soils in the montane and sub-alpine belts of nemoral mountains; **G3.1b Temperate mountain Abies woodland,** Woodlands of fir (Abies alba) in nemoral mountains, often with beech (Fagus sylvatica) towards the sub-montane limit, spruce (Picea abies) where site conditions are harsher at higher altitudes. On generally acidic soils though extending on to more base-rich and mesotrophic soils where distinctive contingents of herbs augment or replace the usually heathy field layer; **G3.1c Mediterranean mountain Abies woodland,** Evergreen coniferous woodlands of more sunless or fog-bound slopes and gullies in the lower to mid altitudinal belts of mediterranean mountains where firs of very limited distribution dominate in highly distinctive relic stands: Spanish fir (A. pinsapo), Greek fir (A. cephalonica), King Boris's fir (A. borisiiregis), Apennine or Sicilian stands of silver fir (A. alba) and Sicilian fir (A. nebrodensis).

Implications for EFT classification: 2.3 Nemoral spruce forest (G3.1a), 3.2 Subalpine and mountainous spruce and mountainous mixed spruce-silver fir forest (G3.1a), 2.8 Nemoral Silver fir forest (G3.1b), 7.9 Mountainous Silver fir forest (G3.1c), 10.6 Mediterranean and Anatolian fir forest (G3.1c)

List of alliances to 2013 EuroVegChecklist: FAG-01E, FAG-01F, FAG-01G, FAG-01I, FAG-01J, FAG-01K, FAG-04A, PIC-01A, PIC-01B, PIC-01C, PIC-01E, PIC-04A, PUB-02N, PUB-02O, ROB-02A, ROB-02C

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés (right, G3.1a: Temperate mountain Picea woodland; left, G3.1b: Temperate mountain Abies woodland)



EUNIS Level 3 (2004): G3.2 — Alpine larch - Arolla woodland. Alpine [Larix] - [Pinus cembra] woodland

Forests of the subalpine and sometimes montane levels of the Alps and the Carpathians, dominated by Larix decidua or Pinus cembra; the two species may form either pure or mixed stands, and may be associated with Picea abies or, in the western Alps, Pinus uncinata.

Source: G. Frank

Crosswalk to EFT Category / Type(s) (2010):

- **3. Alpine forest / 3.1 Subalpine larch-arolla pine and dwarf pine forest**

EUNIS Forest Habitat Classification (2004)

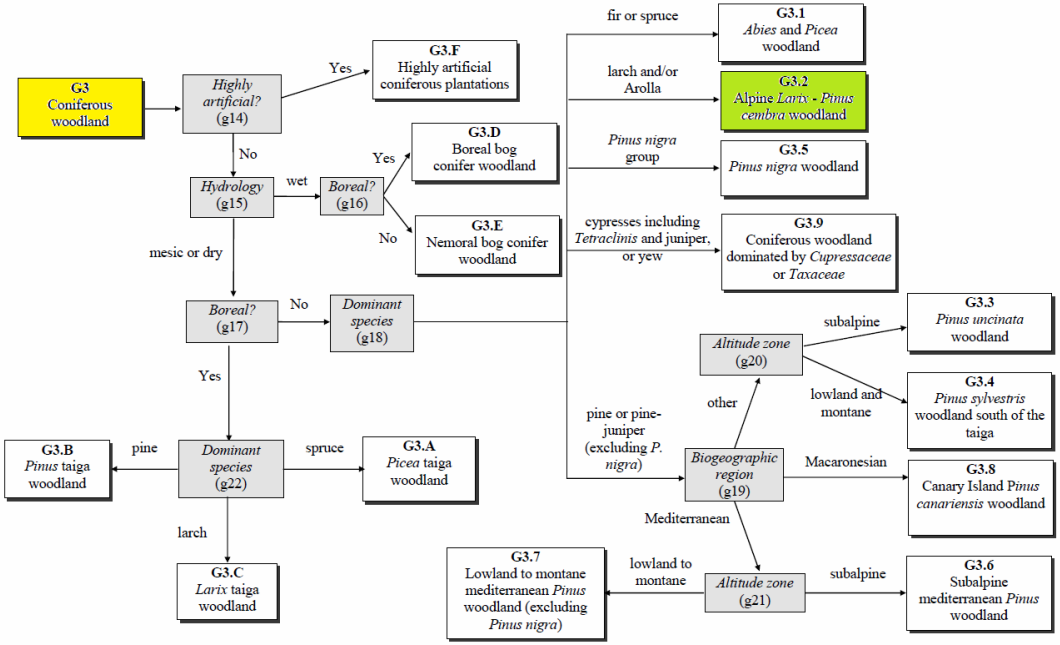
Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)

Legally designated habitat (EU Habitats Directive Annex I): Alpine Larix decidua and/or Pinus cembra forests (9420)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Erico-Pinion sylvestris; Piceion excelsae; Pinion mugo; Pino mugo-Ericion; Quercion pubescenti-sessiliflorae; Rhododendro-Vaccinion

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

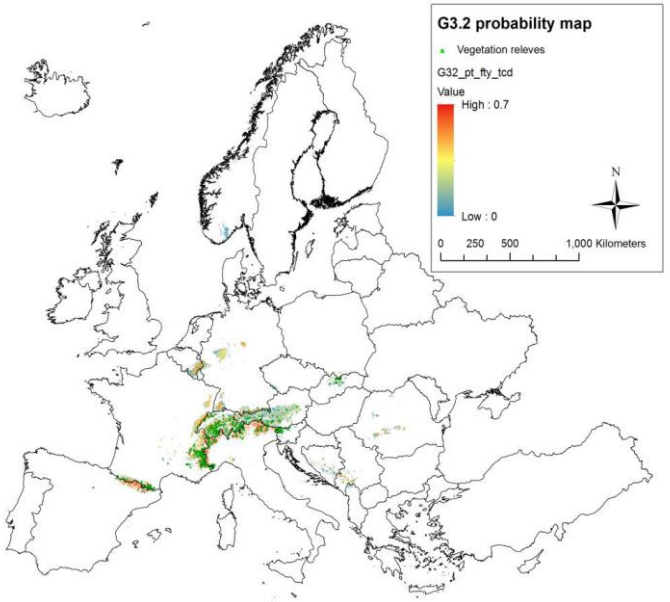
Proposed new name: Temperate subalpine Larix-Pinus woodland

Proposed new description: Coniferous, in part deciduous, woodland of larch (Larix decidua) or Arolla pine (Pinus cembra) in the mid sub-alpine belt of temperate mountains in the central Alps and Carpathians with long but shallow snow-lie and a short growing season. Dwarf mountain pine (P. mugo), spruce (Picea abies), fir (Abies alba), rhododendrons and other sub-shrubs are never more than subordinate but various whitebeams (Sorbus spp.) are characteristic associates.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: ERI-01A, PIC-01A

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G3.3 — Mountain pine (Pinus uncinata) woodland. [Pinus uncinata] woodland

Mostly subalpine forests of the Alps, the Jura, the Pyrenees and the Iberian Range, dominated by Pinus uncinata, usually open and with a very developed shrubby understory.

Source: G. Frank

Crosswalk to EFT Category / Type(s) (2010):

- **3. Alpine forest**

EUNIS Forest Habitat Classification (2004)

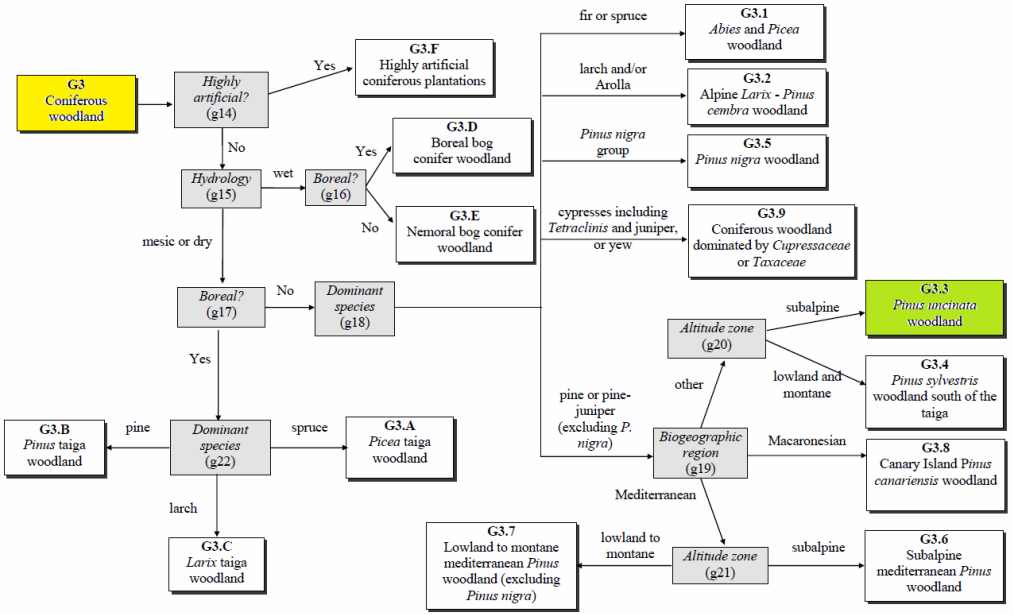
Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)

Legally designated habitat (EU Habitats Directive Annex I): Subalpine and montane Pinus uncinata forests (if on gypsum or limestone)(9430)

Descriptive or diagnostic parameters:

- Altitude zones (terrestrial and marine): Subalpine
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Cytision oromediterranei; Erico-Pinion sylvestris; Juniperion nanae; Junipero intermediae-Pinion catalaunicae; Pinion uncinatae; Pino mugo-Ericion; Pino
- sylvestris-Juniperion sabinae; Rhododendro-Vaccinion

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed change: G3.3 [Pinus uncinata] woodland should be merged into G3.2 [Alpine [Larix] - [Pinus cembra] woodland] (this category corresponds to the same phytosociological units, with Pinus species as the usual dominant)]

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: ERI-01A, PIC-01A, PIC-01D

Distribution: no probability maps produced

EUNIS Level 3 (2004): G3.4 — Scots pine woodland south of the taiga. [Pinus sylvestris] woodland south of the taiga

Forests of Pinus sylvestris ssp. sylvestris and Pinus sylvestris ssp. hamata of the Nemoral and Mediterranean zones and of their transitions to the Steppe zone. Included are, in particular, the forests of Scotland, of the Alpine system, of the Mediterranean peninsulas, of the lowlands of Central Europe, of the East European Nemoral zone and its adjacent wooded steppes, formed by Pinus sylvestris ssp. sylvestris, as well as those of Anatolia, of the Caucacus and of Crimea, formed by Pinus sylvestris ssp. hamata. Excluded are the formations situated within the range of natural lowland occurrence of Picea abies.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.2 Nemoral Scots pine forest**
- **3. Alpine forest / 3.3 AlpineScots pine and Black pine forest**
- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.4 Mediterranean and Anatolian Scots pine forest**

EUNIS Forest Habitat Classification (2004)

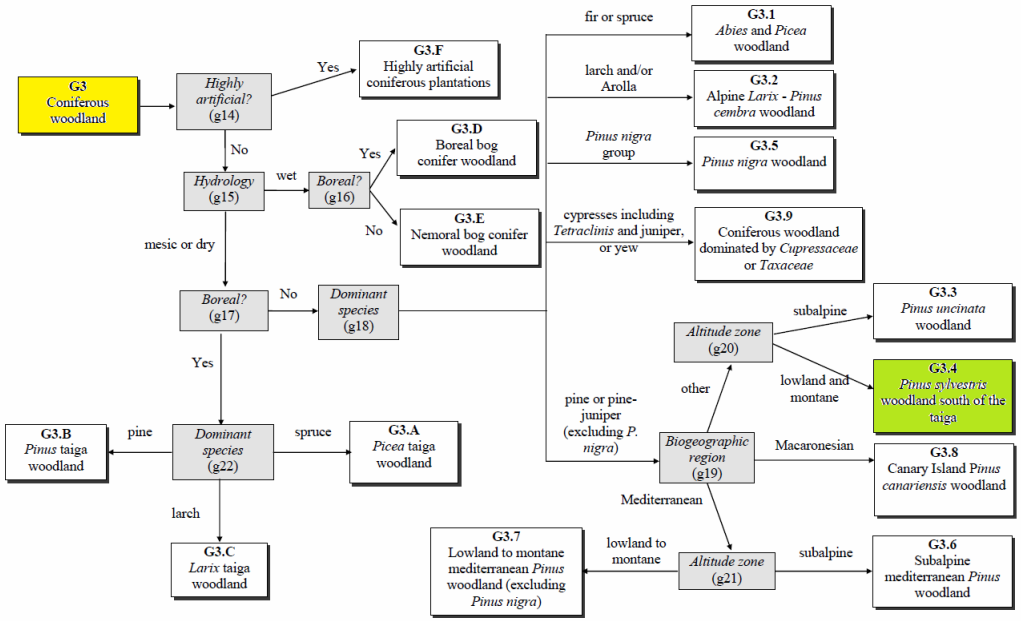
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): Caledonian forest (91C0)

Descriptive or diagnostic parameters:

- Altitude zones (terrestrial and marine): Planar; Collinar; Submontane; Montane (sensu stricto)
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Betulion pubescentis; Cytision oromediterranei; Cytiso ruthenici-Pinion; Dicrano-Pinion; Erico-Pinetalia; Erico-Pinetea; Erico-Pinion sylvestris; Festuco vaginatae-Pinion; Fraxino orni-Ericion; Fraxino orni-Pinion nigrae; Ononido-Pinion; Piceion excelsae; Pinion kochianae; Pino sylvestris-Juniperion sabinae; Pino-Juniperetalia; Pino-Juniperetea; Pino-Quercion; Pyrolo-Pinetea; Quercetalia pubescenti-petraeae; Quercion roboris

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

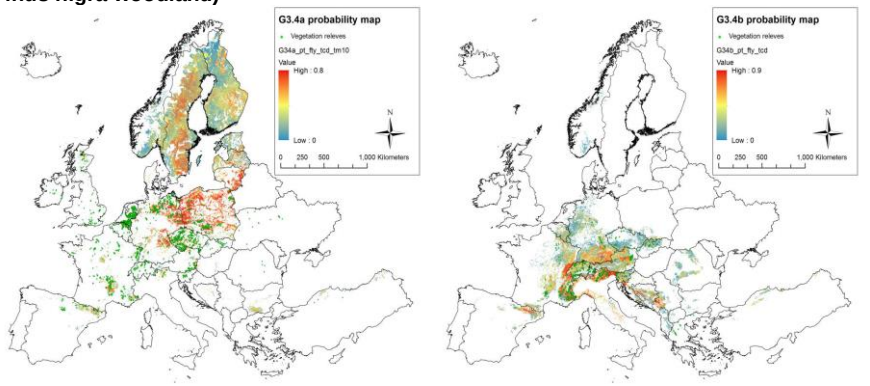
Proposed division (SEE ALSO G3.5): G3.4a Temperate Continental Pinus sylvestris woodland, G3.4b Temperate and sub-mediterranean montane Pinus sylvestris-Pinus nigra woodland.

Proposed new description: G3.4a Temperate Continental Pinus sylvestris woodland, Woodlands dominated by pine (Pinus sylvestris), often with some birch (Betula pendula and B. pubescens), aspen (Populus tremula), juniper (Juniperus communis) and various whitebeams (Sorbus spp.), on acidic to base-rich soils through the north nemoral zone and into the hemi-boreal; **G3.4b Temperate and sub-mediterranean montane Pinus sylvestris-Pinus nigra woodland,** Evergreen coniferous woodlands, generally dominated by either Scot's pine (Pinus sylvestris) or black pine (P. nigra and, towards the southern limit, various subspecies), less commonly with some spruce (Picea abies) and deciduous associates, often in isolated and small stands on base-rich soils through the mountains of the south temperate and sub-mediterranean zones.

Implications for EFT classification: 2.2 Nemoral Scots pine forest 2.4 Nemoral Black pine forest (G3.4a), 3.3 Alpine Scots pine & black pine forest (G3.4b).

List of alliances to 2013 EuroVegChecklist: BRA-01A, BRA-01B, BRA-01C, ERI-01A, ERI-01B, ERI-01D, ERI-02B, PIC-02A, PYR-01A, PYR-02A, SAB-01A, SAB-01C, SAB-01D, SAB-02A

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés (right, G3.4a: Temperate continental Pinus sylvestris woodland; left, G3.4b: Temperate and submediterranean montane Pinus sylvestris-Pinus nigra woodland)



EUNIS Level 3 (2004): G3.5 — Black pine (Pinus nigra) woodland. [Pinus nigra] woodland

Forests dominated by pines of the Pinus nigra group.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.4 Nemoral Black pine forest**
- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.2 Mediterranean and Anatolian Black pine forest**

EUNIS Forest Habitat Classification (2004)

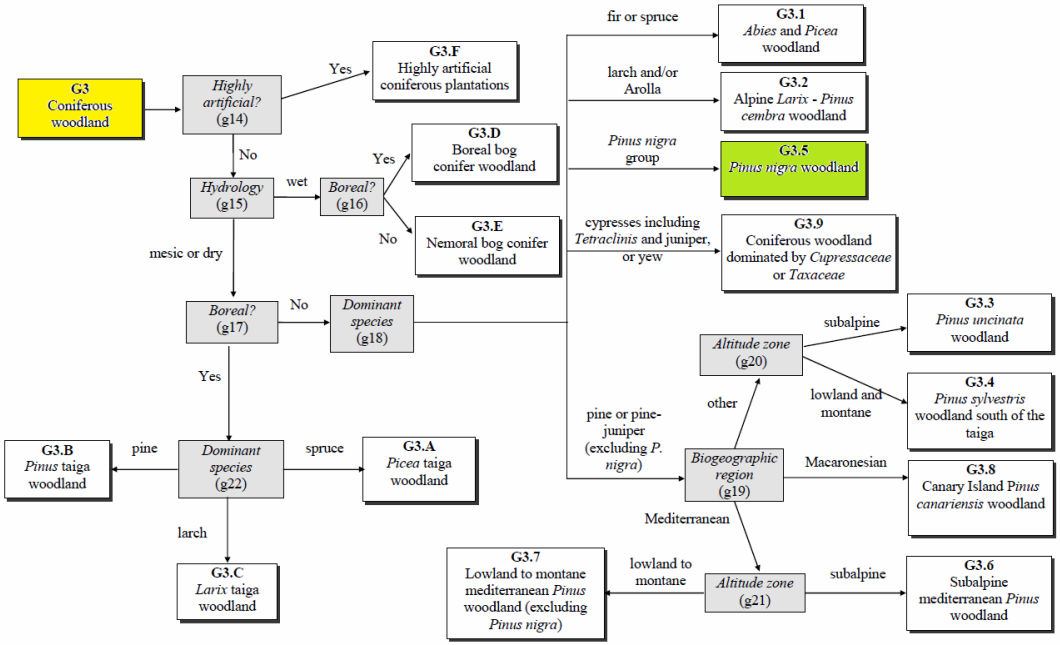
Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)

Legally designated habitat (EU Habitats Directive Annex I): (Sub-) Mediterranean pine forests with endemic black pines (9530)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Abietion cephalonicae; Aceri granatensis-Quercion fagineae; Erico-Pinion sylvestris; Fagion sylvaticae; Fraxino orni-Pinion nigrae; Juniperion thuriferae

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed division (SEE ALSO G3.4): G3.4c Mediterranean montane Pinus sylvestris-Pinus nigra woodland. G3.5 [Pinus nigra] woodland should to be merged into the G3.4b and G3.4c types.

Proposed new description for G3.4c: Evergreen coniferous woodland of more drought-prone situations at scattered localities through the mountains of the mediterranean zone, dominated by black pine (Pinus nigra) and, except on Mediterranean islands, sometimes with subordinate Scots pine (Pinus sylvestris), both trees often occurring as vicariant forms in different localities.

Implications for EFT classification: 10.2 Mediterranean and Anatolian Black pine forest (G3.4c), 10.4 Mediterranean and Anatolian Scots pine forest (G3.4c).

List of alliances to 2013 EuroVegChecklist: ERI-01A, ERI-01C, ERI-01D, ERI-01F, ERI-02A, PUB-02N, PUB-03A, SAB-01A, SAB-01B, SAB-04A, SAB-04D

Distribution of G3.4c Mediterranean montane Pinus sylvestris-Pinus nigra woodland: not enough data to create a reliable model.

EUNIS Level 3 (2004): G3.6 — Subalpine Mediterranean pine woodland. Subalpine Mediterranean [Pinus] woodland

Woods of Pinus heldreichii, Pinus leucodermis or Pinus peuce.

Source: P. Regato

Crosswalk to EFT Category / Type(s) (2010):

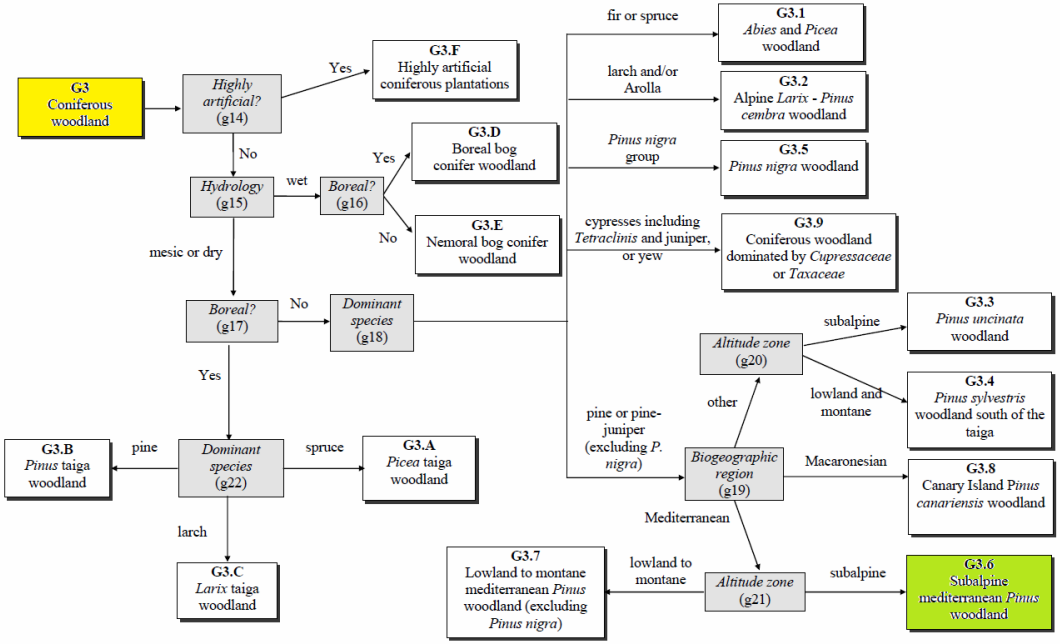
- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.5 Alti-Mediterranean pine forest**

EUNIS Forest Habitat Classification (2004)

Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)
Legally designated habitat (EU Habitats Directive Annex I): none
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): HIGH ORO-MEDITERRANEAN PINE FORESTS (42.7)
Descriptive or diagnostic parameters:

- Altitude zones (terrestrial and marine): Montane (sensu stricto); Subalpine
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Pinion heldreichii; Pinion peucis

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Mediterranean and Balkan subalpine Pinus heldreichii-peucis woodland
Proposed new description: Evergreen coniferous woodland of timberlines in the mountains of the Balkans and southern Italy, dominated by Bosnian pine (Pinus heldreichii) on base-rich soils in more sunny and drought-prone situations or by Macedonian pine (P. peuce) on siliceous soils.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: ERI-01E, PIC-01F
Distribution: not enough data to create a reliable model.

EUNIS Level 3 (2004): G3.7 — Lowland to montane mediterranean pine woodland (excluding black pine Pinus nigra). Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])

Mediterranean and thermo-Atlantic forests of thermophilous pines, mostly appearing as successional stages or plagioclimax replacements of Mediterranean evergreen broadleaved woodland G2.1 or G2.4. Long-established plantations of these pines, within their natural area of occurrence, and with an undergrowth basically similar to that of G2.1 and G2.4, are included.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.7 Atlantic Maritime pine forest**
- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.1 Mediterranean pine forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

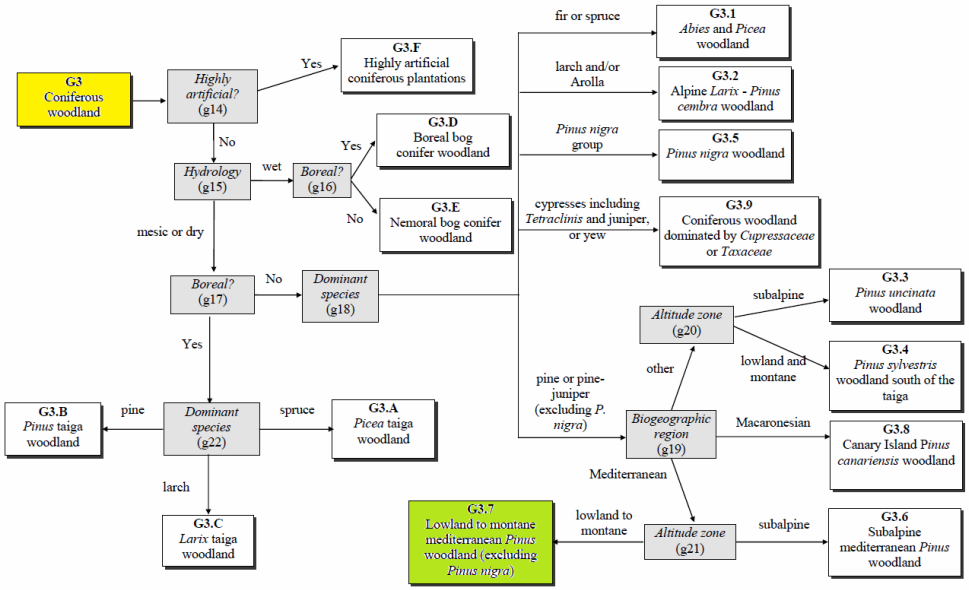
Legally designated habitat (EU Habitats Directive Annex I): Wooded dunes with Pinus pinea and/or Pinus pinaster (2270); Mediterranean pine forests with endemic Mesogean pines (9540)

Descriptive or diagnostic parameters:

- Altitude zones (terrestrial and marine): Planar; Collinar; Submontane; Montane (sensu stricto)
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees; Thermophile species
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Ceratonio-Rhamnion oleoidis; Cisto-Ericion; Cisto-Lavanduletea; Fagion sylvaticae; Junipero excelsae-Quercion pubescentis; Junipero intermediae-Pinion catalaunicae; Oleo-Ceratonion siliquae; Quercetalia ilicis; Quercetea

ilicis; Quercion ilicis

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

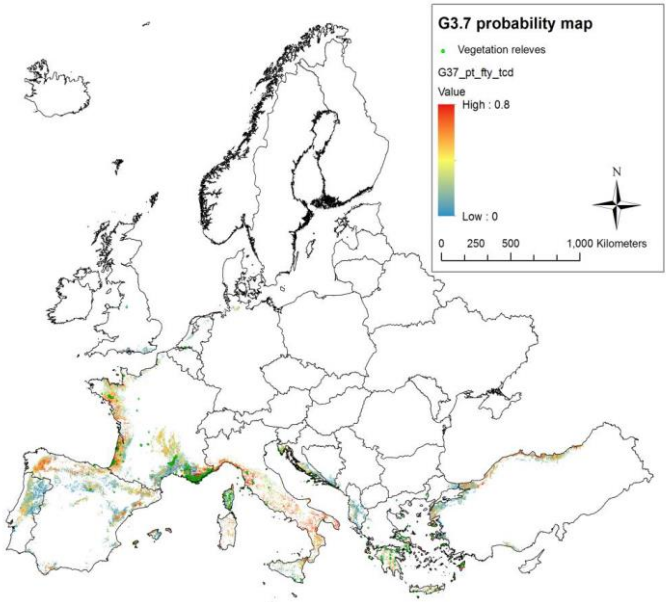
Proposed new name: Mediterranean lowland to submontane Pinus woodland

Proposed new description: Evergreen coniferous woodland dominated by various thermophilous pines: Maritime pine (Pinus pinaster in eastern mediterranean and warm atlantic zones), Aleppo pine (P. halepensis) and Stone pine (P. pinea all around the southern European coast) and Aegean pine (P. brutia in Greece and on Aegean islands), the first three often favouring unstable substrates or preclimax situations.

Implications for EFT classification: n/a

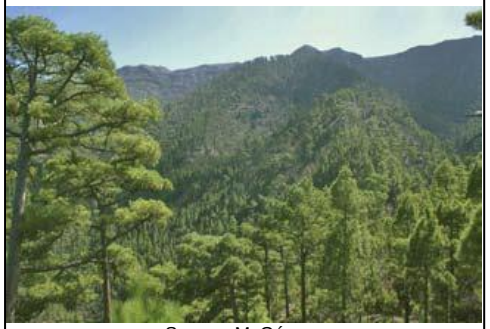
List of alliances to 2013 EuroVegChecklist: QUI-01A, QUI-01G, QUI-02B, QUI-02E, QUI-03D, QUI-03H, SAB-04A

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G3.8 — Canary Island pine (Pinus canariensis) woodland. Canary Island [Pinus canariensis] woodland

Forests of endemic Pinus canariensis, of the dry montane level at around 800 to 2000 m (locally down to 500 and up to 2500 m) in Tenerife, La Palma, Gran Canaria and Hierro, with Chamaecytisus proliferus, Adenocarpus foliolosus, Cistus symphytifolius, Lotus campylocladus, Lotus hillebrandii, Lotus spartioides, Daphne gnidium, Juniperus cedrus, Micromeria spp.; these forests, of which well-preserved examples have become rare, are the only habitat of Fringilla teydea, Dendrocopos major canariensis and Dendrocopos major thanneri.



Source: M. Génova

Crosswalk to EFT Category / Type(s) (2010):

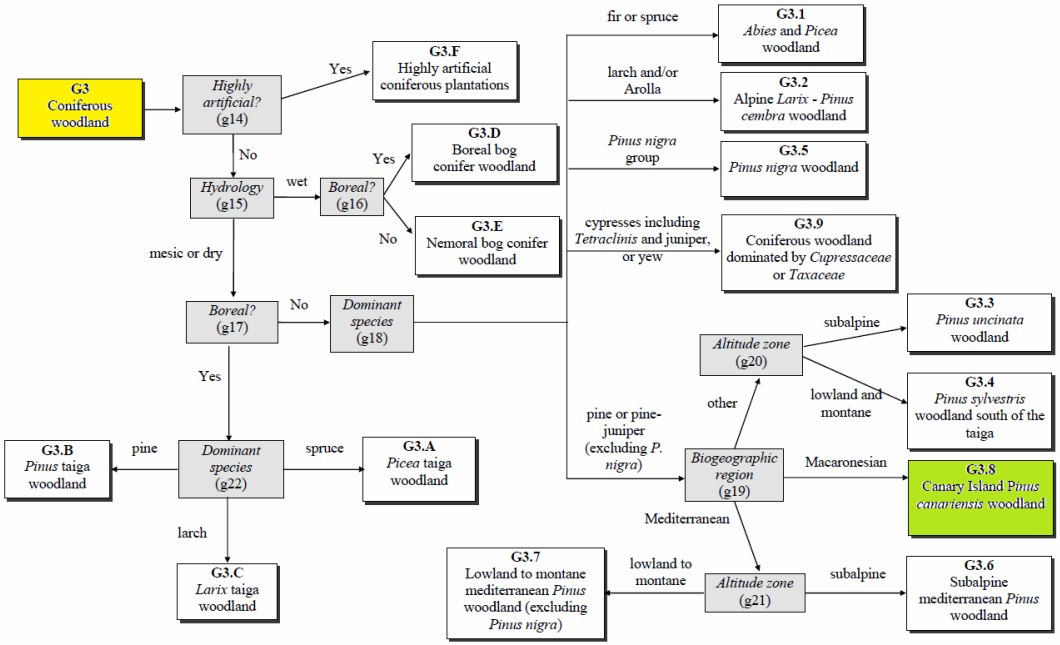
- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.3 Canarian pine forest**

EUNIS Forest Habitat Classification (2004)

Source: Devillers, P., Devillers-Terschuren, J. and Vander Linden, C. (2001)
Legally designated habitat (EU Habitats Directive Annex I): Canarian endemic pine forests (9550)
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): CANARY ISLANDS PINE FORESTS (42.9)
Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Cisto-Pinion canariensis; Juniperion brevifoliae; Myrico fayae-Ericion arboreae; Rubio periclymeni-Rubion ulmifolii

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Pinus canariensis woodland
Proposed new description: Woodland of endemic Canarian pine (Pinus canariensis) occurring mostly at high altitudes in dry sunny situations above the fog belt, locally on foothill rock outcrops and old lava flows, in the western Canary Islands.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: CAN-01A
Distribution: no probability maps produced

EUNIS Level 3 (2004): G3.9 — Coniferous woodland dominated by Cupressaceae or Taxaceae. Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]

Woods dominated by Cupressus sempervirens, Juniperus spp. or Taxus baccata of the nemoral and Mediterranean mountains and hills.

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.7 Juniper forest; 10.8 Cypress forest; 10.9 Cedar forest; 10.10 Tetraclinis articulata stands; 10.11 Mediterranean yew stands**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

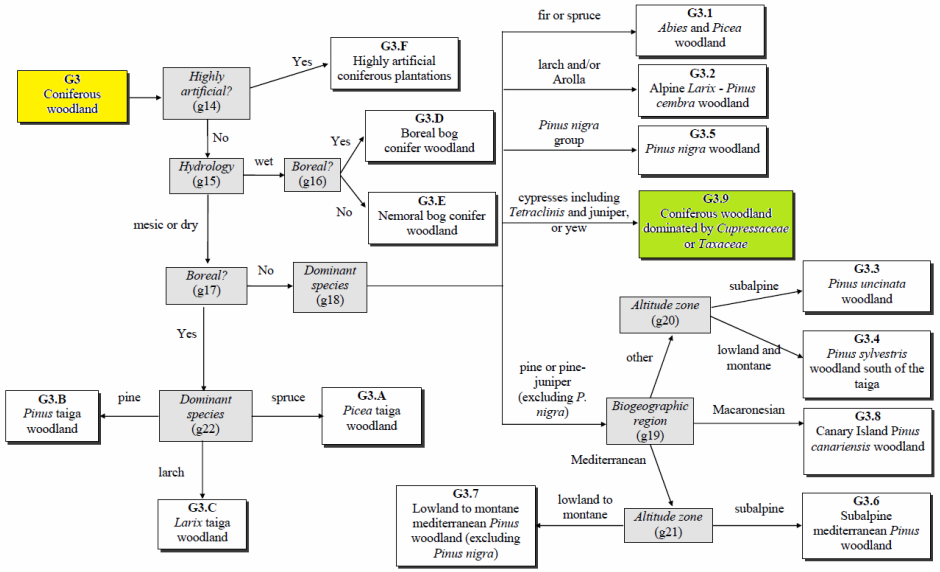
Legally designated habitat (EU Habitats Directive Annex I): Taxus baccata woods of the British Isles (91J0); Cupressus forests (Acero-Cupression) (9290); Endemic forests with Juniperus spp (9560); Tetraclinis articulata forests (9570); Mediterranean Taxus baccata woods (9580)

Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): WESTERN PALAEARCTIC CYPRESS, JUNIPER AND YEW FORESTS (42.A)

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Cupressus trees; Yew trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Acero sempervirenti-Cupression sempervirentis; Fagion sylvaticae; Juniperion brevifoliae; Juniperion excelsae; Juniperion thuriferae; Junipero excelsae-Quercion pubescentis; Mayteno-Juniperion canariensis; Oleo-Ceratonion siliquae; Periplocion angustifoliae; Quercetea pubescentis; Quercion ilicis

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

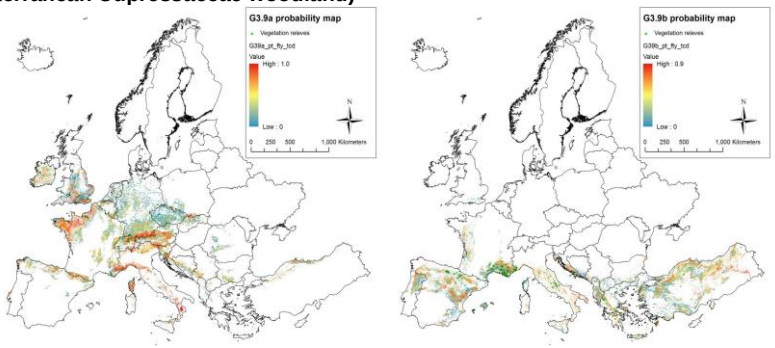
Proposed division: G3.9a Taxus baccata woodland, G3.9b Mediterranean Cupressaceae woodland, G3.9c Macaronesian Juniperus woodland

Proposed new description: G3.9a Taxus baccata woodland, Evergreen woodlands overwhelmingly dominated by yew (Taxus baccata), sometimes with holly (Ilex aquifolium), whitebeam (Sorbus aria) and box (Buxus sempervirens), maybe in halted successions or as senescent survivals, occurring very locally on base-rich soils in the mediterranean zone and in the British Isles; **G3.9b Mediterranean Cupressaceae woodland**, Evergreen woodlands of cypress (Cupressus sempervirens), junipers (Juniperus excelsa, J. foetidissima, J. drupacea, J. thurifera) or alerce (Tetraclinis articulata) with a usually open canopy with scrubby understorey and grassy field layer, on shallow, usually base-rich soils, in dry rocky situations scattered through the mediterranean zone; **G3.9c Macaronesian Juniperus woodland,** Evergreen woodlands of endemic macaronesian junipers (Juniperus turbinate ssp. canariensis, J. cedrus ssp. cedrus and ssp. maderensis, J. brevifolia) in diverse habitats as sometimes very small isolated populations, each with distinctive associated floras.

Implications for EFT classification: 10.11 Mediterranean yew stands (G3.9a), 10.7 Juniper forest (some) (G3.9b), 10.8 Cypress forest (G3.9b), 10.9 Cedar forest (G3.9b), 10.10 Tetraclinis articulata (G3.9b), 10.7 Juniper forest (some) (G3.9c)

List of alliances to 2013 EuroVegChecklist: AZO-01A, CAN-01B, FAG-01C, FAG-02A, FAG-03C, OLE-01A, QUI-01F, QUI-02C, SAB-01B, SAB-04B, SAB-04C, SAB-04D

Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés (right, G3.9a: Taxus baccata woodland; left, G3.9b: Mediterranean Cupressaceae woodland)



EUNIS Level 3 (2004): G3.A — Spruce taiga woodland. [Picea] taiga woodland

Boreal spruce or spruce-pine forests of Fennoscandia, northeastern Poland, the Baltic States, Belarus and European Russia, with G3.B constituting the westernmost section of the continuous Eurasian northern taiga belt.

Source: K. Sjöberg

Crosswalk to EFT Category / Type(s) (2010):

- **1. Boreal forest / 1.1 Spruce and spruce-birch boreal forest**

EUNIS Forest Habitat Classification (2004)

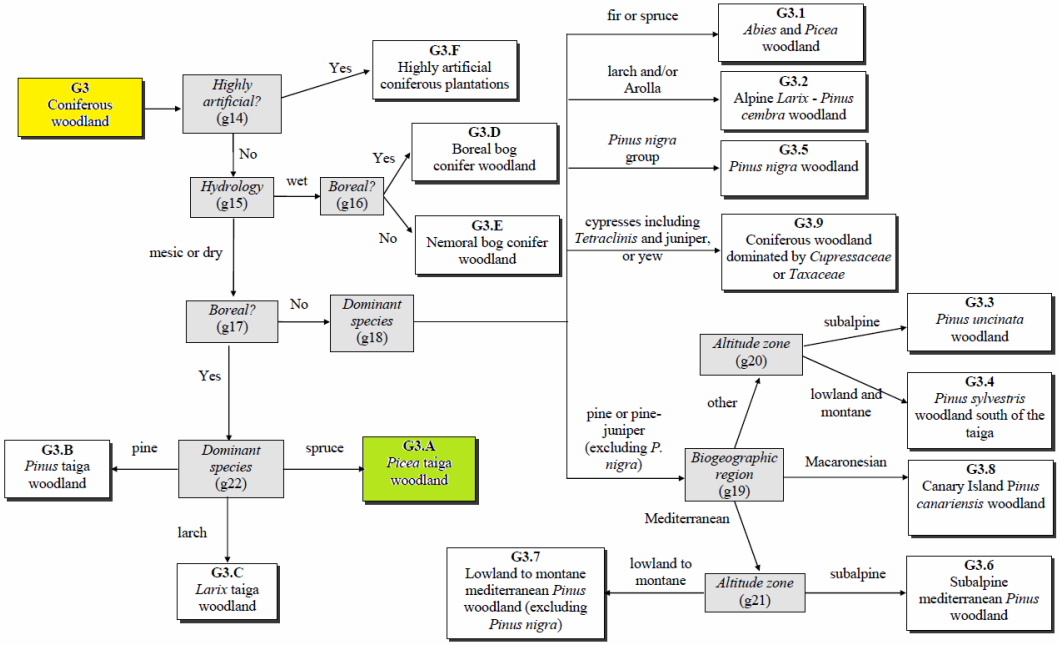
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): Western Taïga (9010); Fennoscandian herb-rich forests with Picea abies (9050)

Descriptive or diagnostic parameters:

- Climate zones: Boreal
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Aconito septentrionalis-Piceion obovatae; Athyrio-Piceetalia; Piceion excelsae; Vaccinio-Piceetea

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Picea taiga woodland

Proposed new description: Woodland naturally dominated by spruce but frequently with an admixture of some Scot's pine (Pinus sylvestris) and birch (Betula pendula and B. pubescens) on more mesic soils through the north-eastern continental and boreal regions, often with a subordinate deciduous broadleaf component in the canopy and understorey and rich and varied field-layer, mosses and lichens.

Implications for EFT classification: n/a

List of alliances to 2013 EuroVegChecklist: PIC-01A, PIC-03A, PIC-05A

Distribution: not enough data to create a reliable model

EUNIS Level 3 (2004): G3.B — Pine taiga woodland. [Pinus] taiga woodland

Boreal pine forests of Fennoscandia, northeastern Poland, the Baltic States, Belarus and European Russia, with G3.A constituting the westernmost section of the continuous Eurasian northern taiga belt.

Source: K. Sjöberg

Crosswalk to EFT Category / Type(s) (2010):

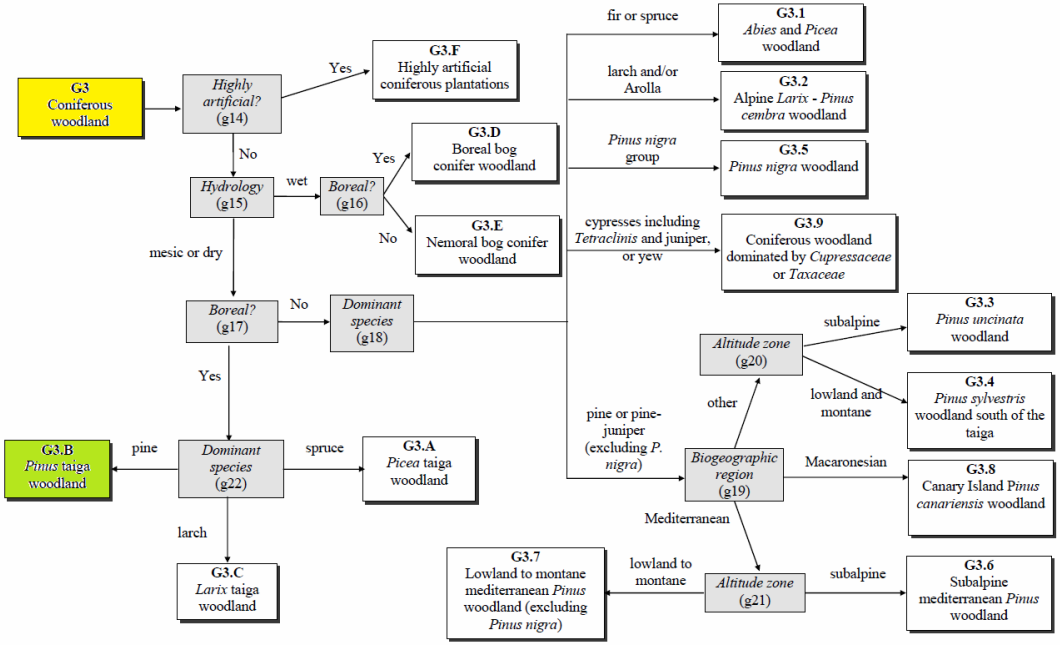
- **1. Boreal forest / 1.2 Pine and pine-birch boreal forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): Western Taïga (9010)
Descriptive or diagnostic parameters:

- Climate zones: Boreal
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry
- Related phytosociological units: Aconito septentrionalis-Piceion obovatae; Athyrio-Piceetalia; Cytiso ruthenici-Pinion; Dicrano-Pinion; Phyllodoco-Vaccinion myrtilli

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Pinus sylvestris taiga woodland
Proposed new description: Woodland naturally dominated by Scot's pine (Pinus sylvestris) but often with some birch (Betula pendula and B. pubescens) and spruce (Picea abies and P. obovata) on lithomorphic and podsolized soils of dry and barren situations through the north-eastern continental and boreal regions with a generally heathy field layer but, when on eskers, a specialised herb flora.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: PIC-02A, PIC-02B
Distribution: no probability map produced

EUNIS Level 3 (2004): G3.C — Larch taiga woodland. [Larix] taiga woodland

Boreal larch, forests of Fennoscandia, the Baltic States, Belarus and European Russia, occuring in limited, edaphic pockets within the area dominated by G3.A and G3.B.

Crosswalk to EFT Category / Type(s) (2010):

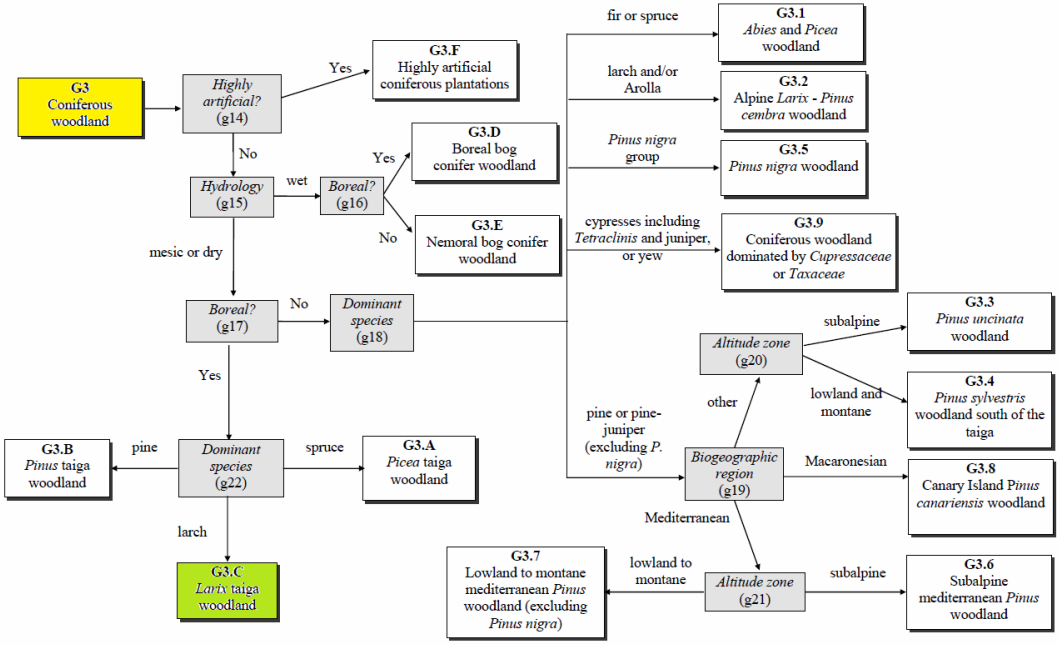
- **Not described in EFT**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): none
Descriptive or diagnostic parameters:

- Climate zones: Boreal
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees; Pine trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Moist / mesic; Dry

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Larix taiga woodland
Proposed new description: Deciduous coniferous woodland of Siberian larch (Larix sibirica) which extends west from its extensive realm in European Russia as small stands with an open, low-stature canopy on patches of moist, nutrient-poor sandy soils among spruce and pine taiga in the Boreal zone.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: PIC-02B, PIC-05A
Distribution: no probability map produced

EUNIS Level 3 (2004): G3.D — Boreal bog conifer woodland

Woods of Pinus spp. or Picea spp., sometimes mixed with Betula pubescens, colonizing bogs and fens in the boreal and boreonemoral zones.

Source: Dreamstime.com

Crosswalk to EFT Category / Type(s) (2010):

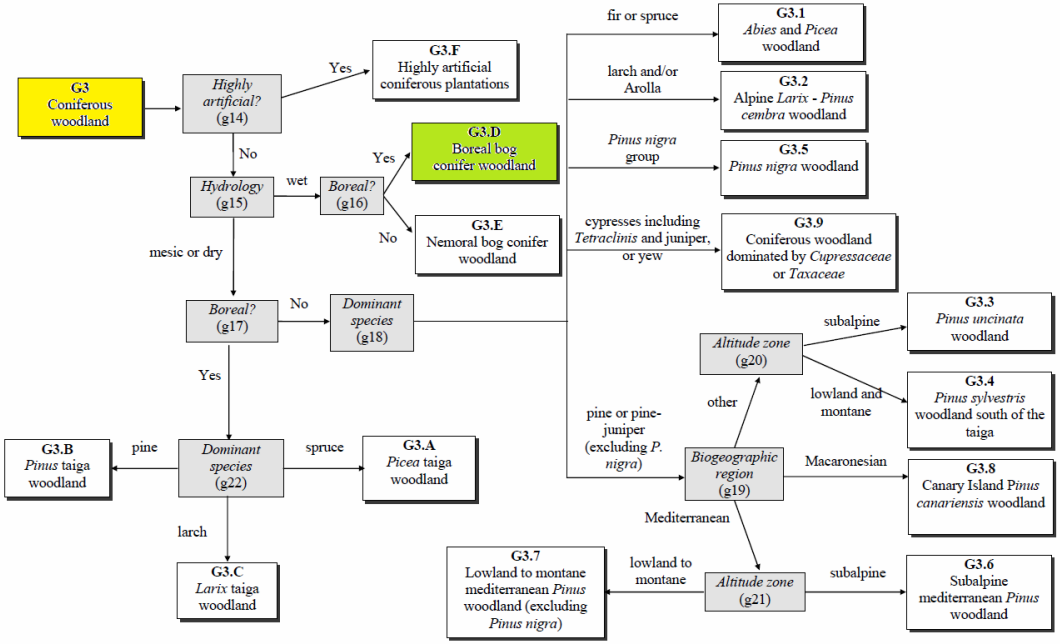
- **11. Mire and swamp forest / 11.1 Spruce mire forest; 11.2 Pine mire forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): Bog woodland (91D0)
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): BIRCH AND CONIFER MIRE WOODS (44.A)
Descriptive or diagnostic parameters:

- Climate zones: Boreal
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Waterlogged; Wet and very wet; Seasonally wet

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Boreal bog conifer woodland
Proposed new description: Evergreen coniferous woodland, often open and low-growing, dominated by spruce (Picea abies, especially to the north) or Scot's pine (Pinus sylvestris, more to the south) and sometimes forming extensive stands on peaty soils on or around bogs or in depressions kept moist by high ground water table, through the Boreal zone.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: OXY-02B, PIC-05A, VAC-01A, VAC-01B, VAC-02A, VAC-03A
Distribution: no probability map produced

EUNIS Level 3 (2004): G3.E — Nemoral bog conifer woodland

Woods of Pinus spp. or Picea spp., sometimes mixed with Betula pubescens, colonizing bogs and fens in the nemoral zone. Conifer-dominated bog woodland occurs mainly in the boreal and boreonemoral zones, but extends into the nemoral, wooded steppe and steppe zones.

Crosswalk to EFT Category / Type(s) (2010):

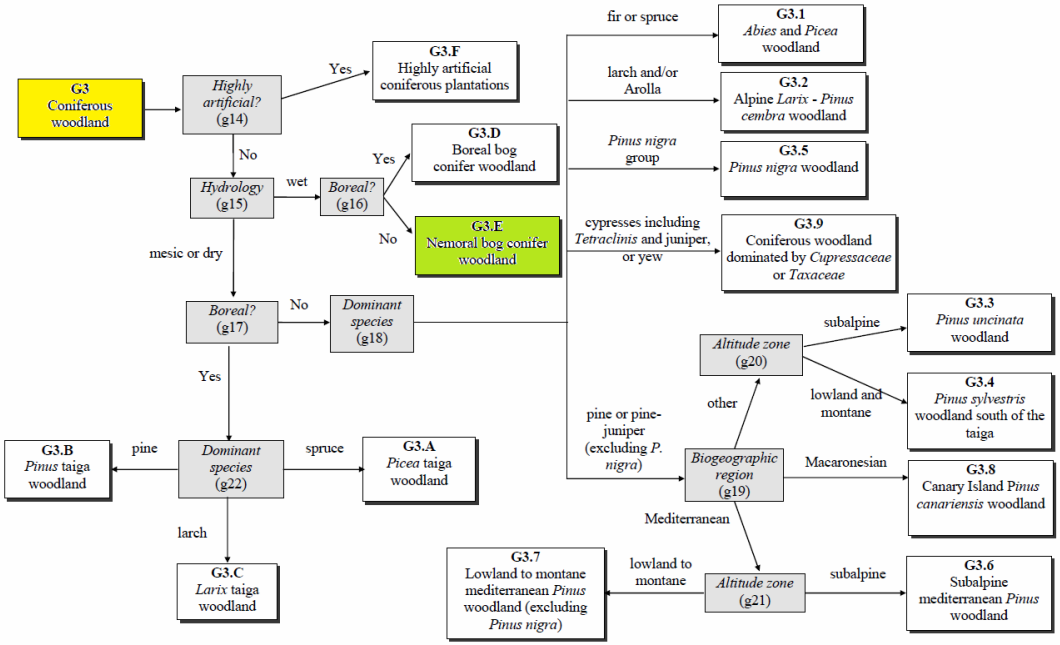
- **11. Mire and swamp forest / 11.1 Spruce mire forest; 11.2 Pine mire forest**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)
Legally designated habitat (EU Habitats Directive Annex I): Bog woodland (91D0)
Legally designated habitat (Council of Europe Bern Convention Res. No. 4 1996): BIRCH AND CONIFER MIRE WOODS (44.A)
Descriptive or diagnostic parameters:

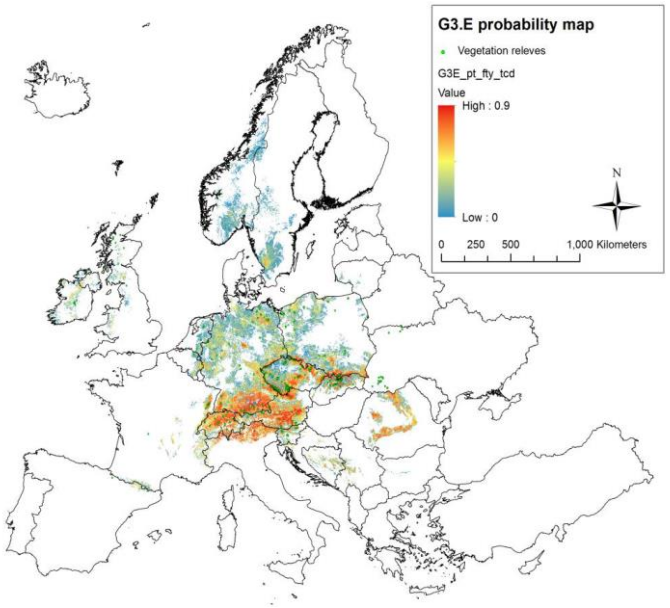
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Characteristics of wetness or dryness: Waterlogged; Wet and very wet; Seasonally wet
- Related phytosociological units: Betulion pubescentis; Dicrano-Pinion; Piceion excelsae; Salicion cinereae; Sphagnion medii; Sphagno-Betuletalia

Criteria for Coniferous woodland (G3) to Level 3



Review of EUNIS Forest Habitat Classification (2013)

Proposed new name: Temperate bog conifer woodland
Proposed new description: Evergreen coniferous woodland, often open and low-growing, dominated by Scot's pine (Pinus sylvestris) or spruce (Picea abies) on often drier but sometimes extensive peats, on bog margins or in depressions kept moist by high ground water table, through the nemoral zone.
Implications for EFT classification: n/a
List of alliances to 2013 EuroVegChecklist: OXY-02B, VAC-01A, VAC-01B, VAC-02A
Distribution based on integration Maxent prediction and high resolution data + distribution of vegetation relevés



EUNIS Level 3 (2004): G3.F — Highly artificial coniferous plantations

Plantations of exotic conifers or of European conifers out of their natural range, or of native species planted in clearly unnatural stands, typically as monocultures in situations where other species would naturally dominate.

Source: Dreamstime.com

Crosswalk to EFT Category / Type(s) (2010):

- **14 Introduced tree species forest**

EUNIS Forest Habitat Classification (2004)

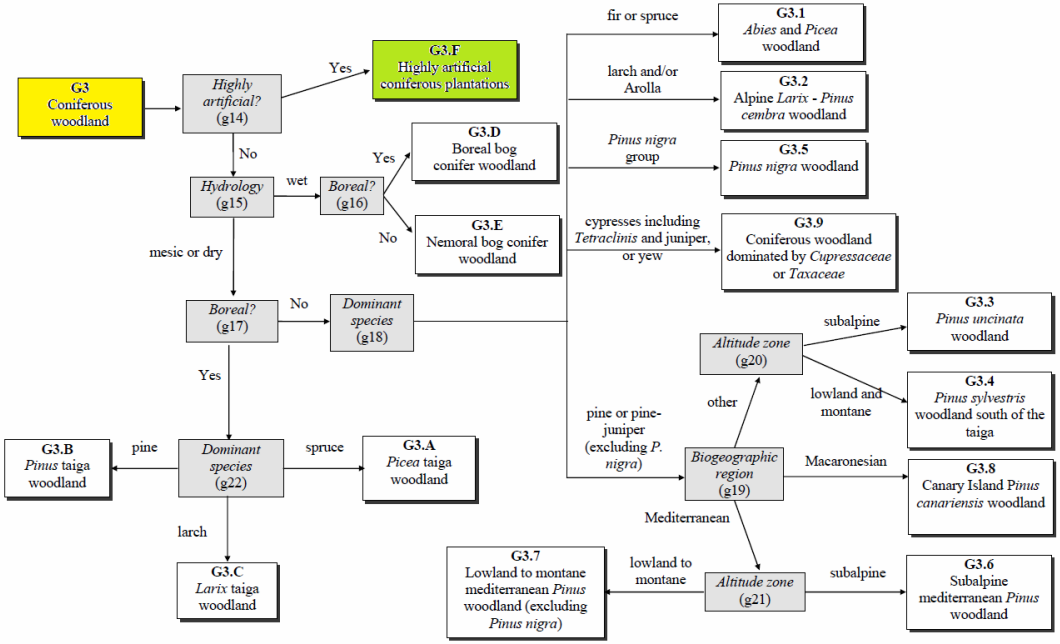
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forest planting; Artificial planting; Forest replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Coniferous woodland (G3) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 2 (2004): G4 — Mixed deciduous and coniferous woodland

Forest and woodland of mixed broad-leaved deciduous or evergreen and coniferous trees of the nemoral, boreal, warm-temperate humid and mediterranean zones.They are mostly characteristic of the boreonemoral transition zone between taiga and temperate lowland deciduous forests, and of the montane level of the major mountainranges to the south. Neither coniferous, nor broadleaved species account for more than 75% of the crown cover. Deciduous forests with an understorey of conifers or with a small admixture of conifers in the dominant layer are included in unit G1. Conifer forests with an understorey of deciduous trees or with a small admixture of deciduous trees in the dominant layer are included in unit G3.

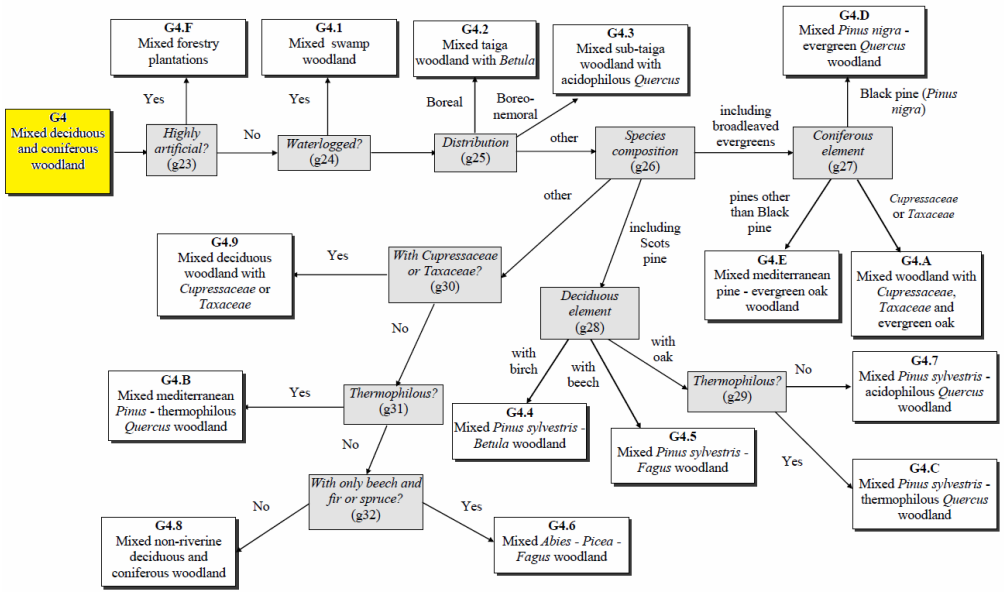
EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forest planting; Artificial planting; Forest replanting
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

G4 EUNIS Habitat Classification: criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



Explanatory notes:

(g23) *Highly artificial mixed broadleaved deciduous and coniferous forests (often of exotic species and of uniform age and structure), completely dependent on man's operations and with impoverished associated communities (path = Yes) are separated from less highly managed habitats.* ***(g24)*** *Habitats which are waterlogged (permanently wet, with the water table at or close to the surface) are separated (path = Yes) from those with other hydrological regimes.****(g25)*** *Coniferous woodland characteristic of the Boreal zone with an admixture of birch; or of the Boreo-nemoral zone with an admixture of other deciduous species (usually oaks); are separated from other mixed woodlands.* ***(g26)*** *The dominant species or species type separates three categories of mixed woodlands: those including broadleaved evergreens; those including Scots pine (Pinus sylvestris); and those where the species composition comprises other species.****(g27)*** *Mixed woodland habitats including broadleaved evergreen species are separated according to the main coniferous species present: with cypresses and yews (Cupressaceae or Taxaceae); with mixed pines other than Black pine (Pinus nigra); and those including Black pine (Pinus nigra).* ***(g28)*** *Mixed woodland habitats including Scots pine (Pinus sylvestris) are separated according to the main deciduous species present: those with oaks; those with beech; and those with birch.* ***(g29)*** *Woodland habitats characterised by a mixture of Scots pine and thermophilous oak species are separated (Path = Yes).* ***(g30)*** *Habitats characterised by a mixture of deciduous tree species and cypresses or yews (Cupressaceae or Taxaceae) are distinguished (path = Yes).* ***(g31)*** *Habitats characterised by a mixture of pines, juniper and thermophilous oak species are separated (Path = Yes).* ***(g32)*** *Other mixed coniferous and deciduous woodland habitats are separated according to their species composition: those with only beech and fir or spruce are separated (path = Yes) from those with combinations of the deciduous species birch, aspen or rowan and occasionally some beech together with fir, spruce or pine.*

EUNIS Level 3 (2004): G4.1 — Mixed swamp woodland

Broadleaved swamp woodland (G1.4 or G1.5) in combination with bog conifer woodland (G3.D or G3.E). Includes Pinus spp. or Picea spp. mixed with Betula pubescens, Alnus, Populus or Quercus.

Source: K. Sjöberg

Crosswalk to EFT Category / Type(s) (2010):

- **11. Mire and swamp forest / 11.1 Spruce mire forest**

EUNIS Forest Habitat Classification (2004)

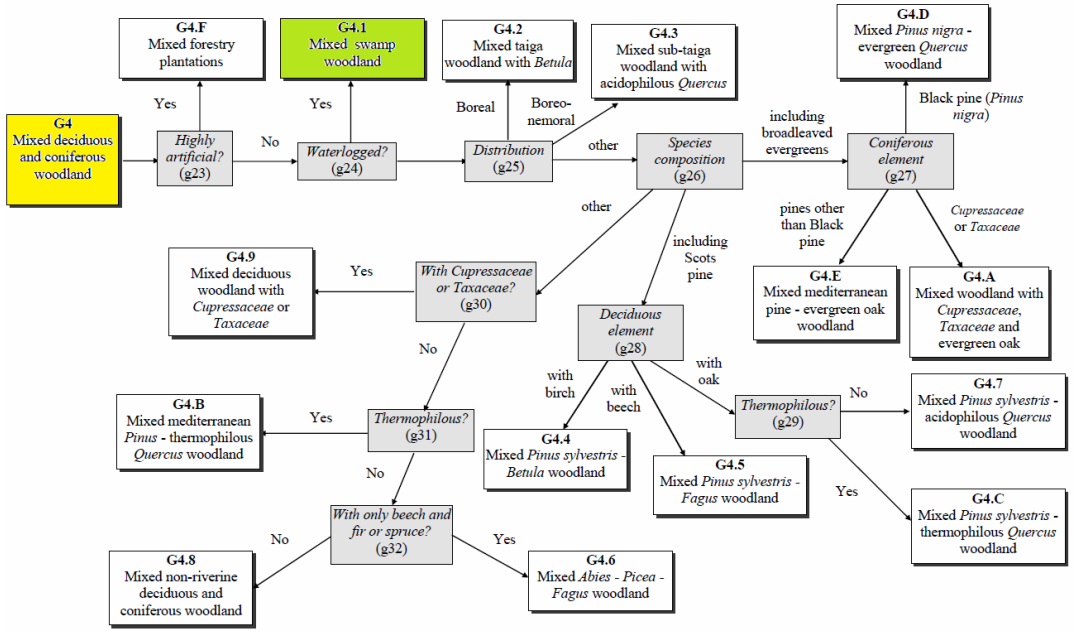
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Characteristics of wetness or dryness: Waterlogged

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.2 — Mixed taiga woodland with birch. Mixed taiga woodland with [Betula]

Boreal taiga conifer woodland (G3.A, G3.B or G3.C) mixed with a significant component of Betula woodland (G1.91).

Crosswalk to EFT Category / Type(s) (2010):

- **1. Boreal forest / 1.1 Spruce and spruce-birch boreal forest; 1.2 Pine and pine-birch boreal forest**

EUNIS Forest Habitat Classification (2004)

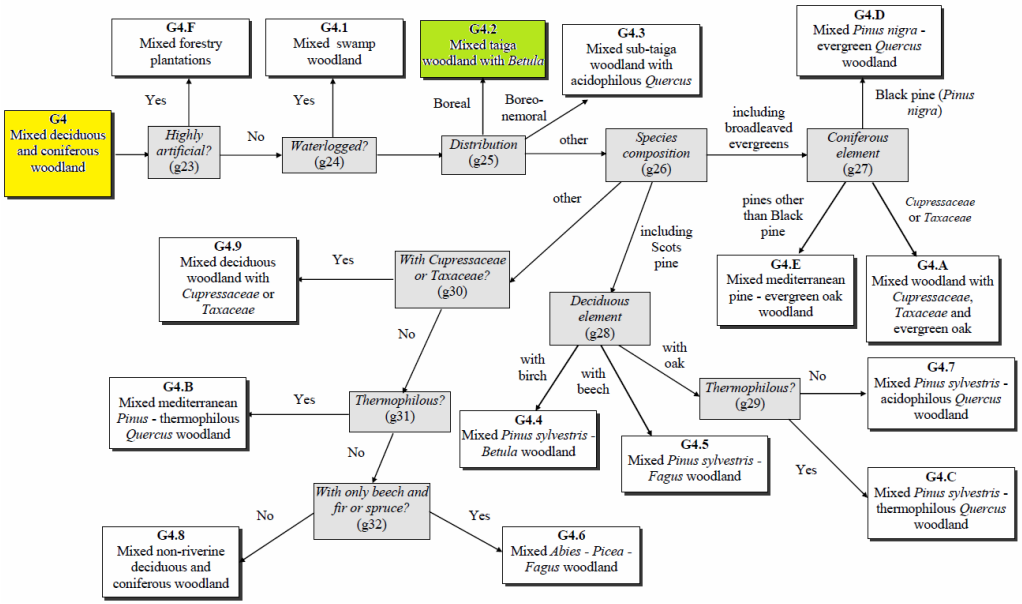
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.3 — Mixed sub-taiga woodland with acidophilous oak. Mixed sub-taiga woodland with acidophilous [Quercus]

The boreo-nemoral southern fringe of the taiga conifer woodland (G3.A, G3.B or G3.C) mixed with a significant component of acidophilous Quercus robur or Quercus petraea woodland (G1.8).

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.1 Hemiboreal forest**

EUNIS Forest Habitat Classification (2004)

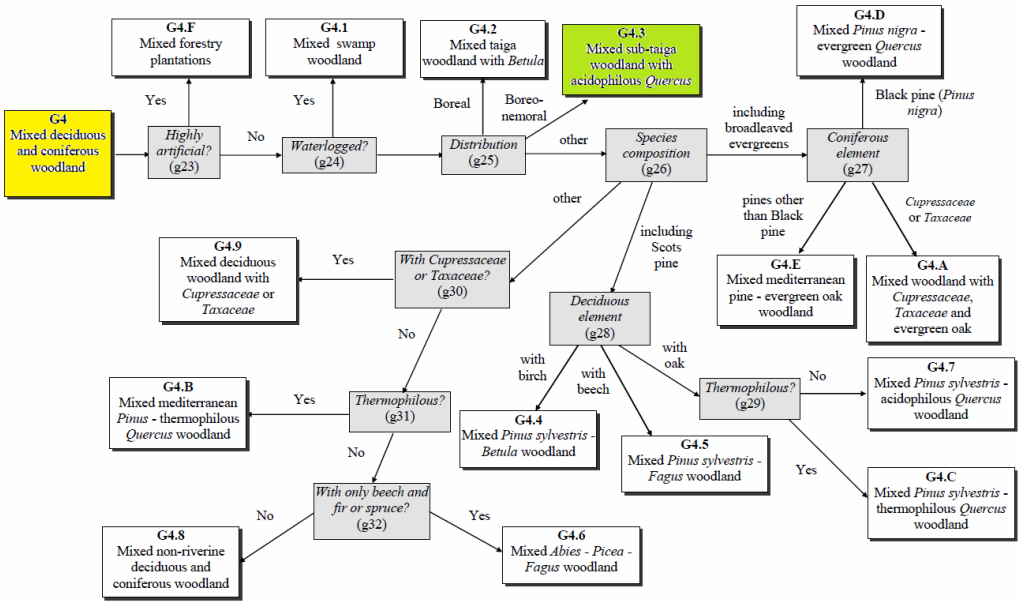
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Aconito septentrionalis-Piceion obovatae; Fagetalia sylvaticae; Fagion sylvaticae

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.4 — Mixed Scots pine - birch woodland. Mixed [Pinus sylvestris] - [Betula] woodland

Pinus sylvestris woodland south of the taiga (G3.4) intimately mixed with Betula woodland (G1.9).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.5 Mixed Scots pine-birch forest**

EUNIS Forest Habitat Classification (2004)

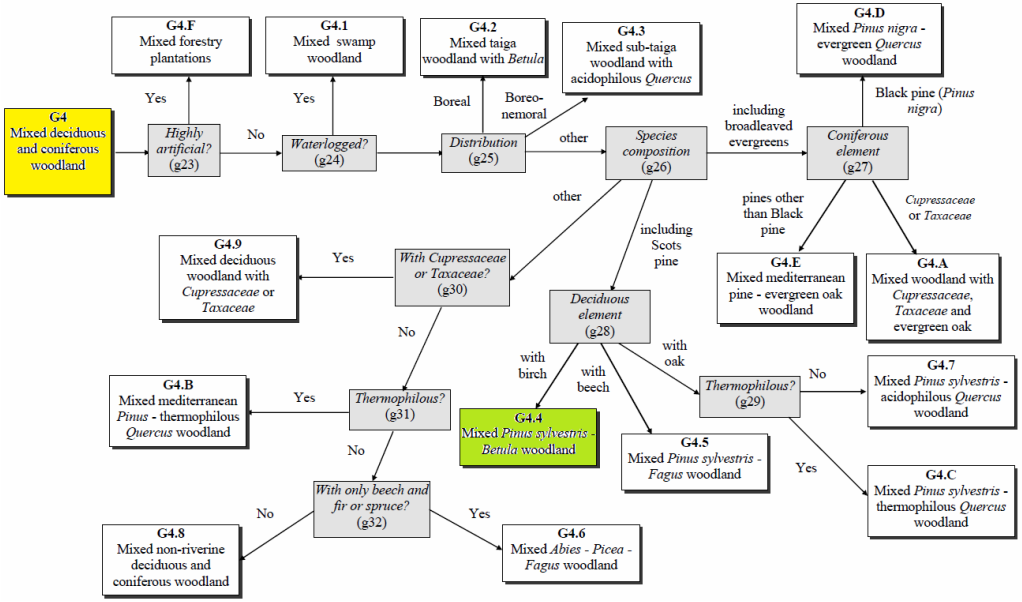
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.5 — Mixed Scots pine - beech woodland. Mixed [Pinus sylvestris] - [Fagus] woodland

Pinus sylvestris woodland south of the taiga (G3.4) intimately mixed with Fagus woodland (G1.6).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **Unclear relationship to 7. Mountainous beech forest / 7.6 Moesian mountainous beech forest**

EUNIS Forest Habitat Classification (2004)

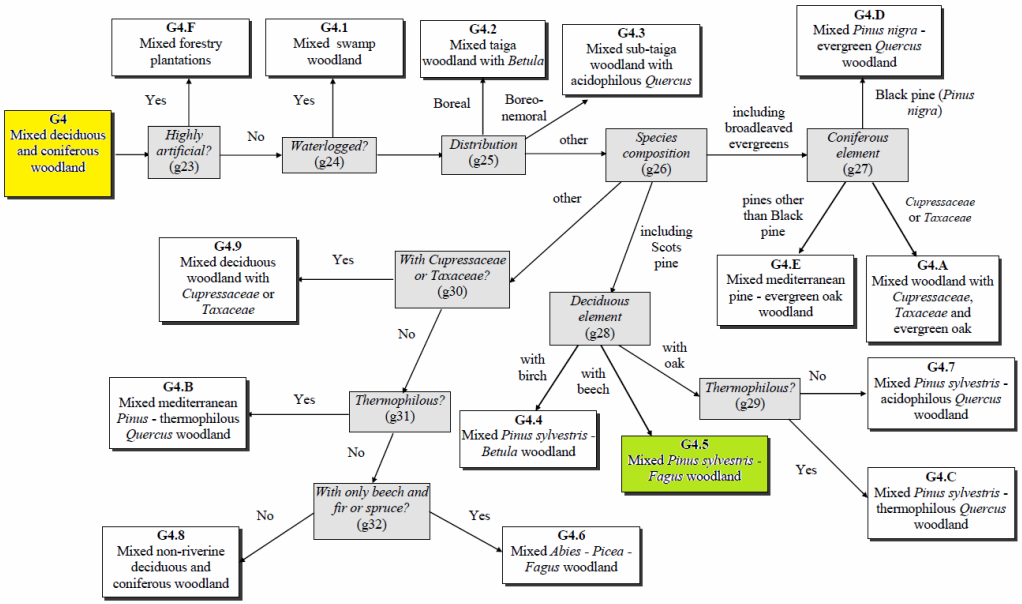
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.6 — Mixed fir - spruce - beech woodland. Mixed [Pinus sylvestris] - [Fagus] woodland

Forests in which Fagus sylvatica in western and central Europe or other Fagus species including Fagus orientalis in southeastern Europe and Pontic Asia (G1.6), is associated in the main canopy with fir Abies spp. and/or spruce Picea spp. (G3.1), sometimes with an admixture of other conifers, in particular, pines Pinus spp. Characteristic of the montane level of the major European mountains south of the boreal zone.

Source: T. Standovár

Crosswalk to EFT Category / Type(s) (2010):

- **7. Mountainous beech forest / 7.1 South-western European mountainous beech forest; 7.3 Apennine-Corsican mountainous beech forest; 7.4 Illyrian mountainous beech forest; 7.5 Carpathian mountainous beech forest; 7.6 Moesian mountainous beech forest; 7.8 Oriental beech and hornbeam oriental beech forest**

EUNIS Forest Habitat Classification (2004)

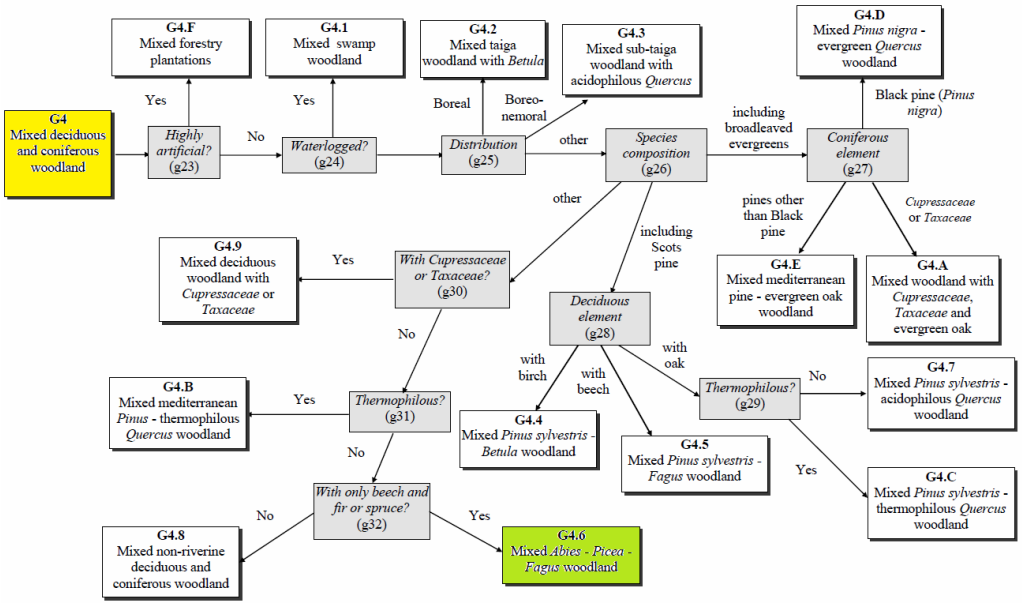
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Abieti-Piceion; Fagion sylvaticae

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.7 — Mixed Scots pine - acidophilous oak woodland. Mixed [Pinus sylvestris] - acidophilous [Quercus] woodland

Pinus sylvestris woodland south of the taiga (G3.4) intimately mixed with acidophilous Quercus woodland (G1.8).

Source: V. Jalvo-García

Crosswalk to EFT Category / Type(s) (2010):

- **2. Hemiboreal forest and nemoral coniferous and mixed broadleaved-coniferous forest / 2.6 Mixed Scots pine-pedunculate oak forest**

EUNIS Forest Habitat Classification (2004)

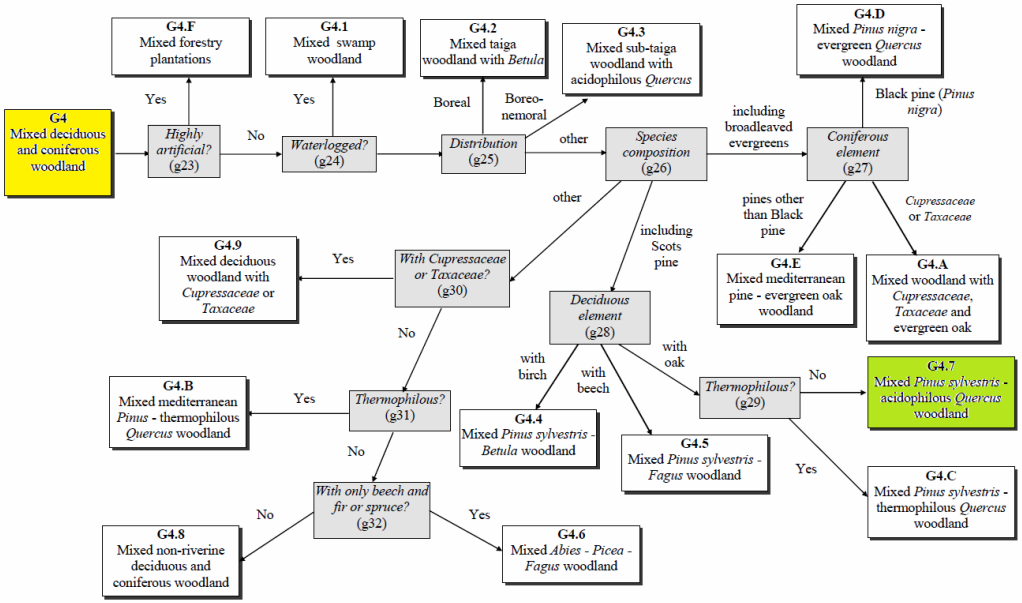
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees;
- Acidophile species
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Cytiso ruthenici-Pinion

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.8 — Mixed non-riverine deciduous and coniferous woodland

Mixed non-riverine woodland without a significant Pinus component, comprising elements of Fagus, Betula, Populus tremula or Sorbus aucuparia (G1.6 or G1.9) together with Abies and Picea woodland (G3.1).

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

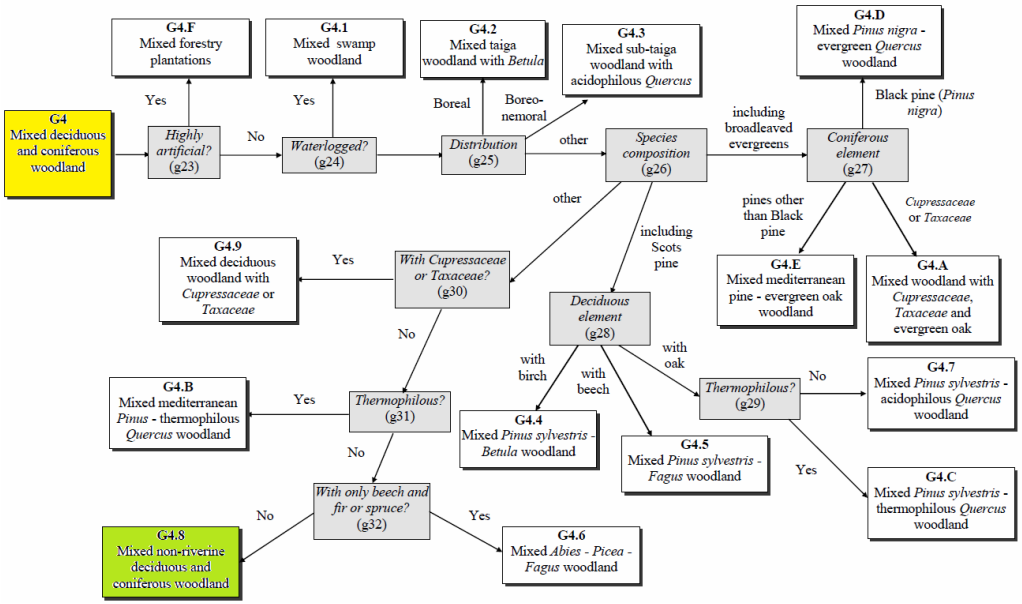
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.9 — Mixed deciduous woodland with Cupressaceae or Taxaceae.

Mixed deciduous woodland with [Cupressaceae] or [Taxaceae]

Mixed non-riverine woodland without a significant Pinus component, comprising elements of meso- and eutrophic Quercus, Carpinus, Fraxinus, Acer, Tilia, Ulmus and related woodland (G1.A) together with Cupressaceae or Taxaceae woodland (G3.9).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

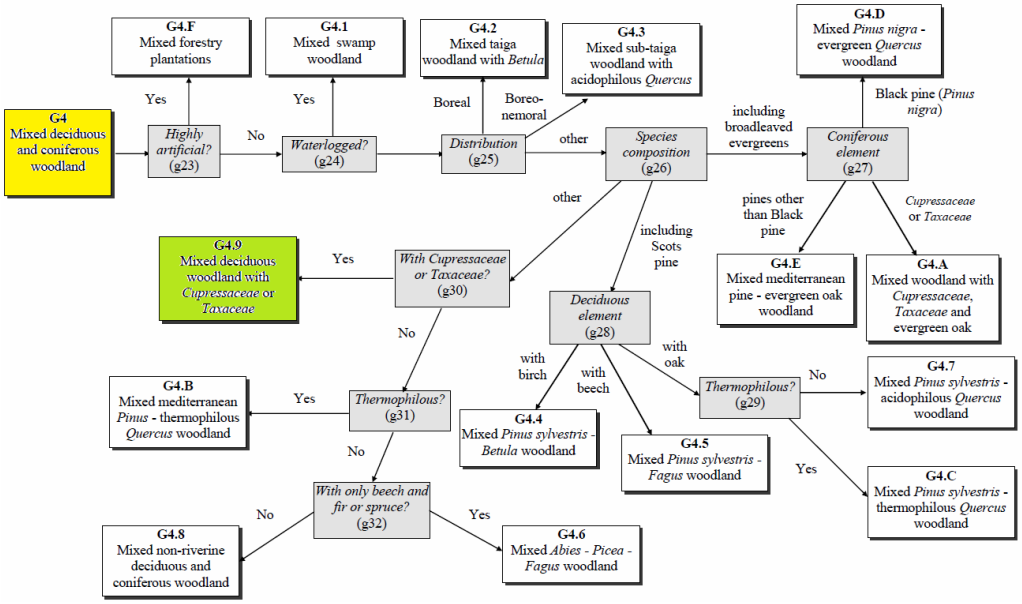
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Cupressus trees; Yew trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.A — Mixed woodland with Cupressaceae, Taxaceae and evergreen oak. Mixed woodland with [Cupressaceae], [Taxaceae] and evergreen oak

Mediterranean evergreen oak woodland (G2.1) in combination with Cupressaceae or Taxaceae woodland (G3.9).

Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

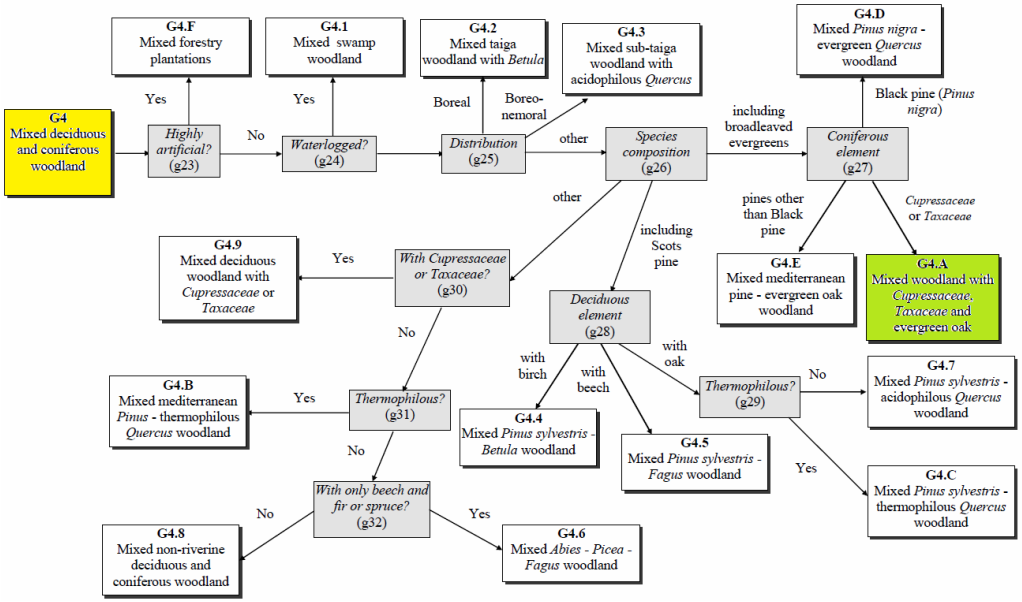
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Broadleaved evergreen trees; Cupressus trees; Yew trees; Mixed broadleaved and coniferous trees

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.B — Mixed mediterranean pine - thermophilous oak. Mixed mediterranean [Pinus] - thermophilous [Quercus] woodland

Mediterranean and thermo-Atlantic forests of thermophilous pines (G3.7) in combination with deciduous or semideciduous thermophilous Quercus species or by other southern trees such as Carpinus orientalis, Castanea sativa or Ostrya carpinifolia (G1.7).

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

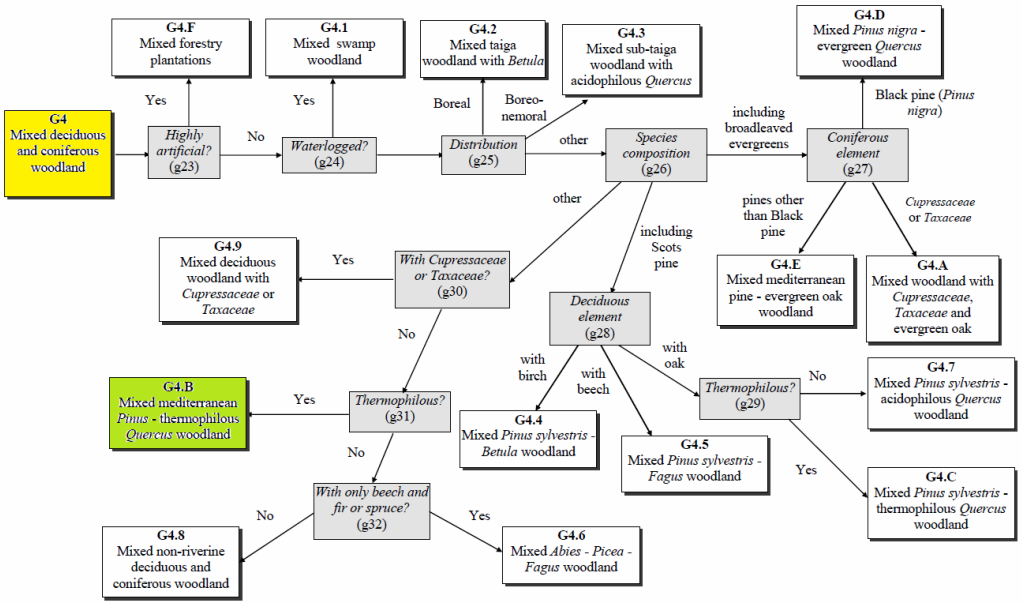
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Climate zones: Mediterranean; Warm non-mediterranean
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees;
- Thermophile species
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.C — Mixed Scots pine - thermophilous oak woodland. Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland

Forests or woods of sub-Mediterranean climate regions and supra-Mediterranean altitudinal levels, and of western Eurasian steppe and substeppe zones, in which deciduous or semideciduous thermophilous Quercus species, or sometimes Carpinus spp., Ostrya carpinifolia, share the main canopy with Pinus sylvestris, Pinus pallasiana, Pinus saltzmannii, Pinus nigra, thermophilous pines, junipers or cypresses. They constitute pine-oak facies of thermophilous deciduous woodland (G1.7).

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

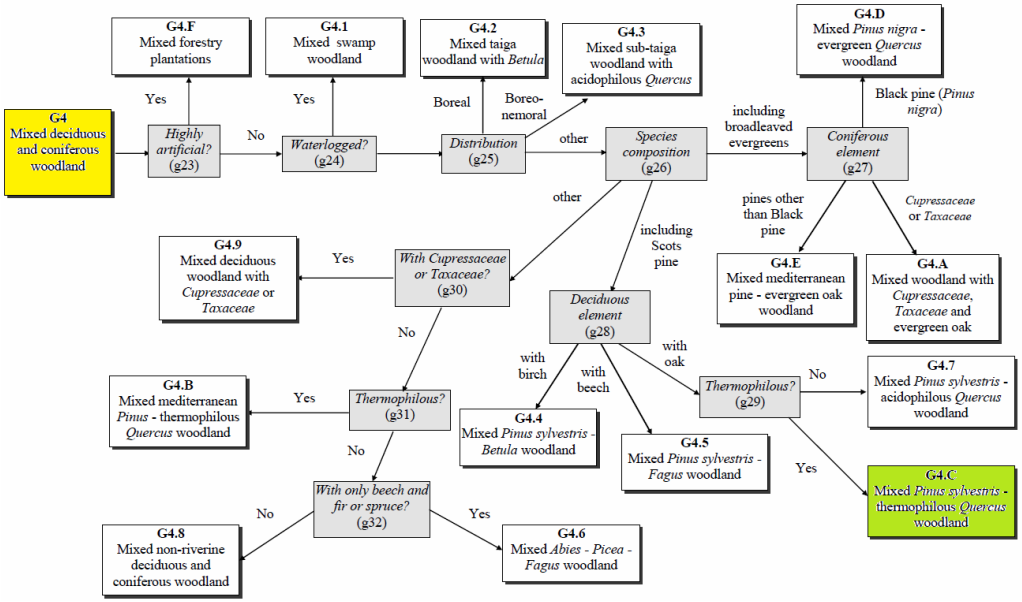
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Climate zones: Mediterranean; Warm non-mediterranean
- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees; Thermophile species
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Abietion cephalonicae; Carpinion orientalis; Erico-Pinion sylvestris; Fraxino orni-Ericion; Fraxino orni-Pinion nigrae; Juniperion excelsae; Pinion heldreichii; Pinion kochianae

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.D — Mixed Black pine (Pinus nigra) - evergreen oak woodland.

Mixed [Pinus nigra] - evergreen [Quercus] woodland

Mediterranean evergreen oak woodland (G2.1) in combination with Pinus nigra woodland (G3.5).

Source: P. Regato

Crosswalk to EFT Category / Type(s) (2010):

- **Unclear relationship to 10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.2 Mediterranean and Anatolian Black pine forest**

EUNIS Forest Habitat Classification (2004)

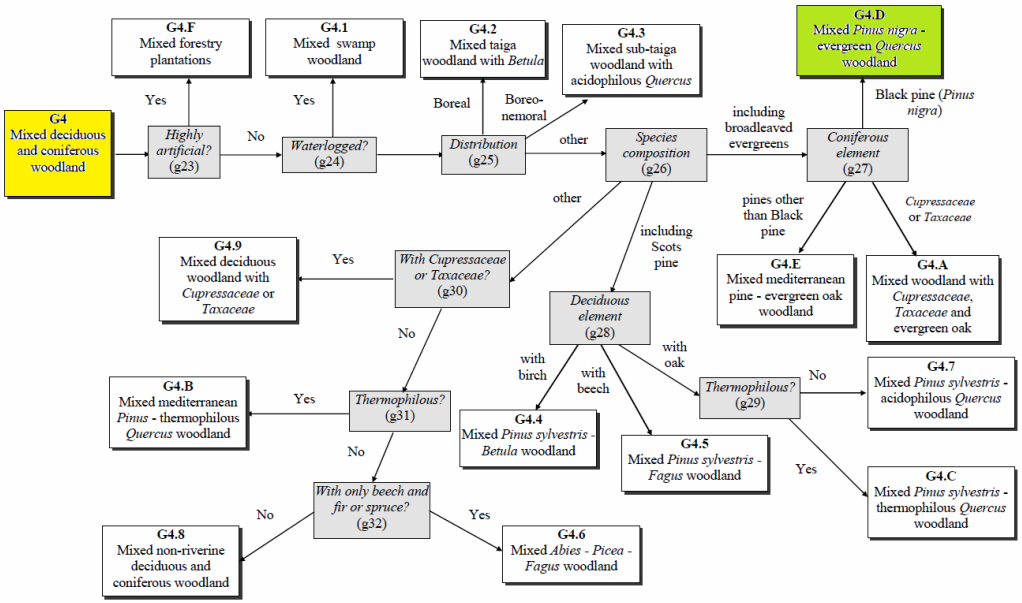
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees; Mixed
- broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

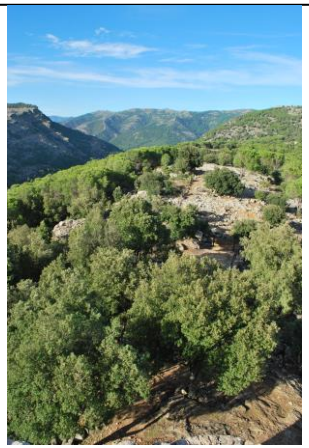
Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.E — Mixed mediterranean pine - evergreen oak woodland

Mediterranean evergreen oak woodland (G2.1) in combination with lowland to montane mediterranean pine woodland (excluding woodland with significant Pinus nigra (G3.7)).



Source: C. García-Feced

Crosswalk to EFT Category / Type(s) (2010):

- **Unclear relationship to 10. Coniferous forests of the Mediterranean, Anatolian and Macaronesian regions / 10.1 Thermophilous pine forest**

EUNIS Forest Habitat Classification (2004)

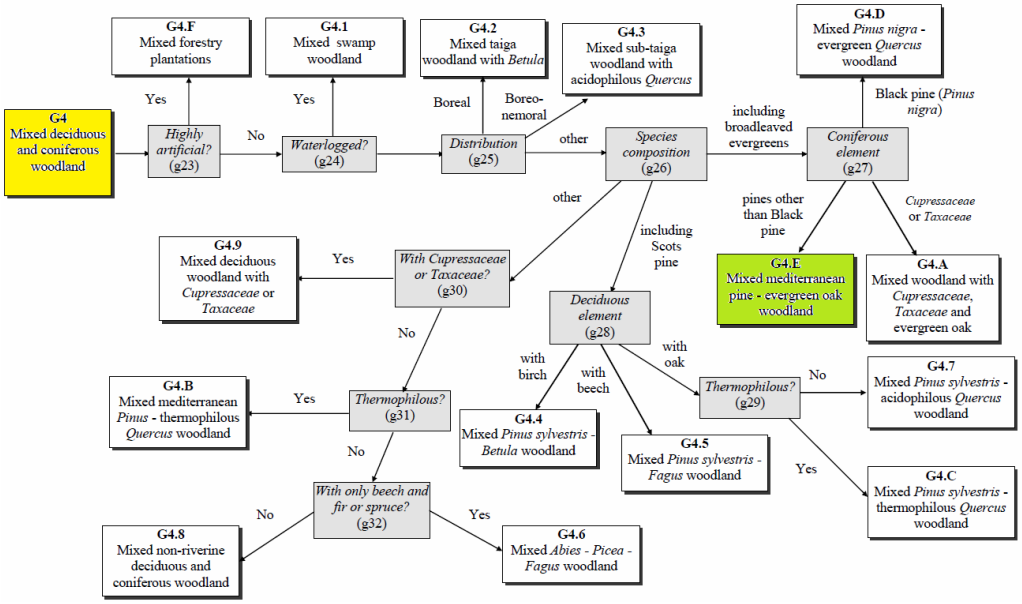
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Levels of habitat usage (when used in criteria): Low level use / disturbance; No human use
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G4.F — Mixed forestry plantations

Mixed plantations of coniferous and deciduous species where at least one constituent is exotic or outside its natural range, or if composed of native species then planted in clearly unnatural stands.

Crosswalk to EFT Category / Type(s) (2010):

- **Position in EFT not clear**

EUNIS Forest Habitat Classification (2004)

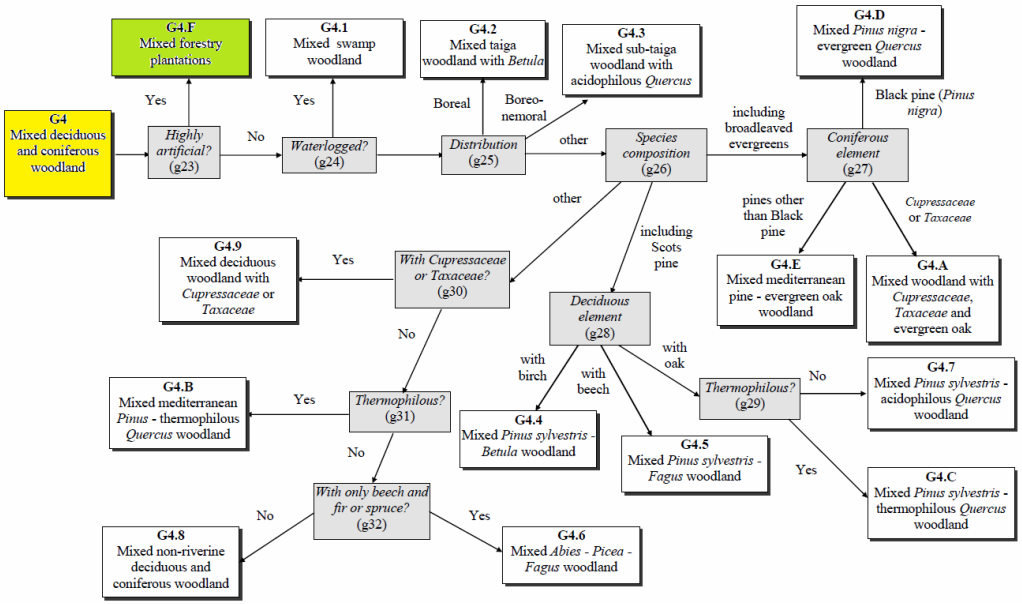
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forest planting; Artificial planting; Forest replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): > 0.5 ha

Criteria for Mixed deciduous and coniferous woodland (G4) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

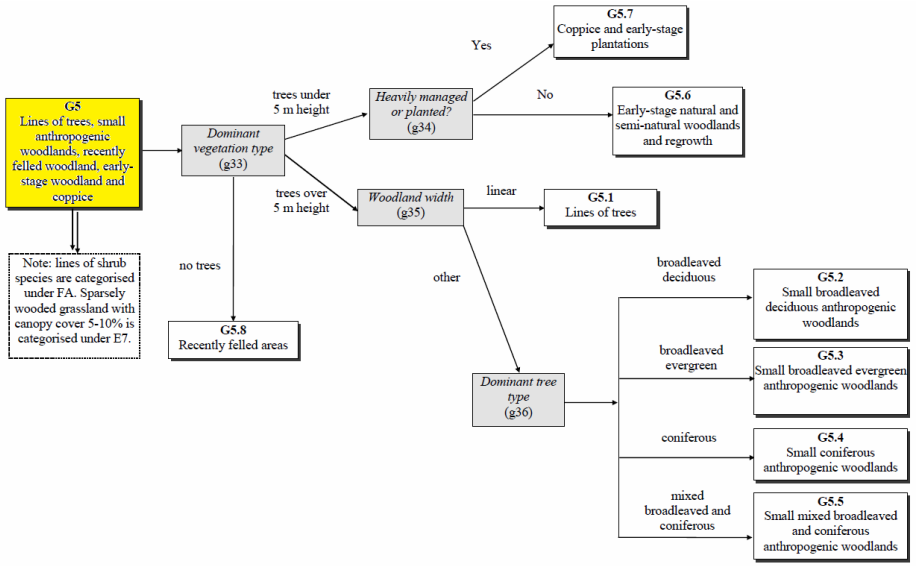
EUNIS Level 2 (2004): G5 — Lines of trees, small Anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice

Stands of trees greater than 5 m in height or with the potential to achieve this height, either in more or less continuous narrow strips or in small (less than about 0.5 ha) plantations or small (less than about 0.5 ha) intensively-managed woods. Woodland and coppice that is temporarily in a successional or non-woodland stage but which can be expected to develop into woodland in the future. Excludes parkland (E7.1, E7.2).

EUNIS Forest Habitat Classification (2004)
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)
Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forest planting; Artificial planting; Forest replanting;
- Forestry clearance; Coppicing
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Trees < =5m / low trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): < 0.5 ha; linear feature

G5 EUNIS Habitat Classification: criteria for Lines of trees, small Anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



Explanatory notes:
(g33) *The dominant vegetation type separates three categories of these miscellaneous woodlands: trees under 5 m height (including young stages of forest re-growth or early colonisation by tree species, trees planted for early whole tree harvesting, such as Christmas trees, and coppice, where tree species are artificially maintained in the shrub phase); areas normally part of the forest area but very recently clear-felled and not yet restocked and with no succession to weedy vegetation or temporarily unstocked due to natural causes such as wind-throw, (path = no trees); or trees over 5 m height.* ***(g34)****Young plantations and woodlands maintained in the young stage through coppicing are separated (path = Yes) from stands of young trees arising from natural colonisation or forest regrowth.****(g35)*** *More or less continuous lines of trees and linear plantations comprising one to three distinct lines of trees, such as windbreaks and avenues, are separated from other small, intensively managed woods, small woods strongly influenced by anthropogenic activities and small plantations. Small woodlands are those up to about 0.5 ha in extent. Tree cover may often comprise completely or partially non-native species.* ***(g36)*** *Small anthropogenic woods and small plantations (less than about 0.5 ha in extent) are characterised by the dominant tree types, which may be mixtures of species within the categories broadleaved deciduous; broadleaved evergreen; coniferous; and mixed broadleaved and coniferous. Small natural and semi-natural woodlands are characterised with their larger counterparts in G1 – G4. Note that broadleaved woodland is defined as wooded land on which more than 75% of the tree crown cover consists of broadleaved species and that coniferous woodland is defined as wooded land on which more than 75% of the tree crown cover consists of coniferous species (based on FAO definition). Mixed woodland is defined as wooded land on which neither coniferous, nor broadleaved species account for more than 75% of the crown cover.*

EUNIS Level 3 (2004): G5.1 — Lines of trees

More or less continuous lines of trees forming strips within a matrix of grassy or cultivated land or along roads, typically used for shelter or shading. Lines of trees differ from hedgerows (FA) in being composed of species that can grow to at least 5 m in height and are not regularly cut down to a height below 5 m.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

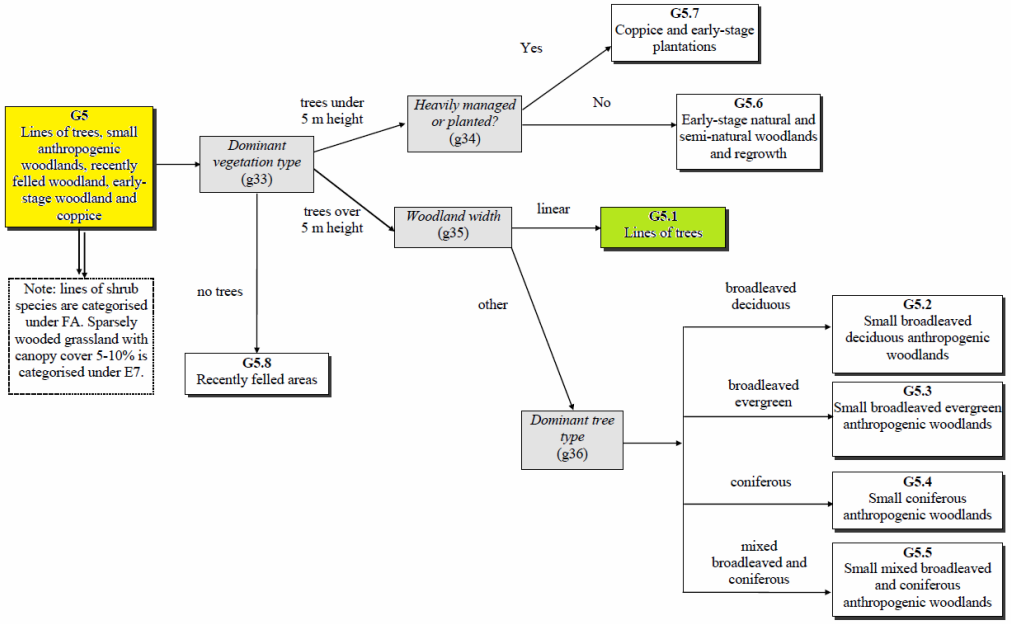
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Dominant life forms: Trees > 5m / tall trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): Linear feature

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.2 — Small broadleaved deciduous anthropogenic woodlands

Plantations and small intensively-managed woods of deciduous broadleaved trees less than about 0.5 ha in area.
If evergreen broadleaved species are present, they have a lower canopy cover than deciduous species.

Crosswalk to EFT Category / Type(s) (2010):

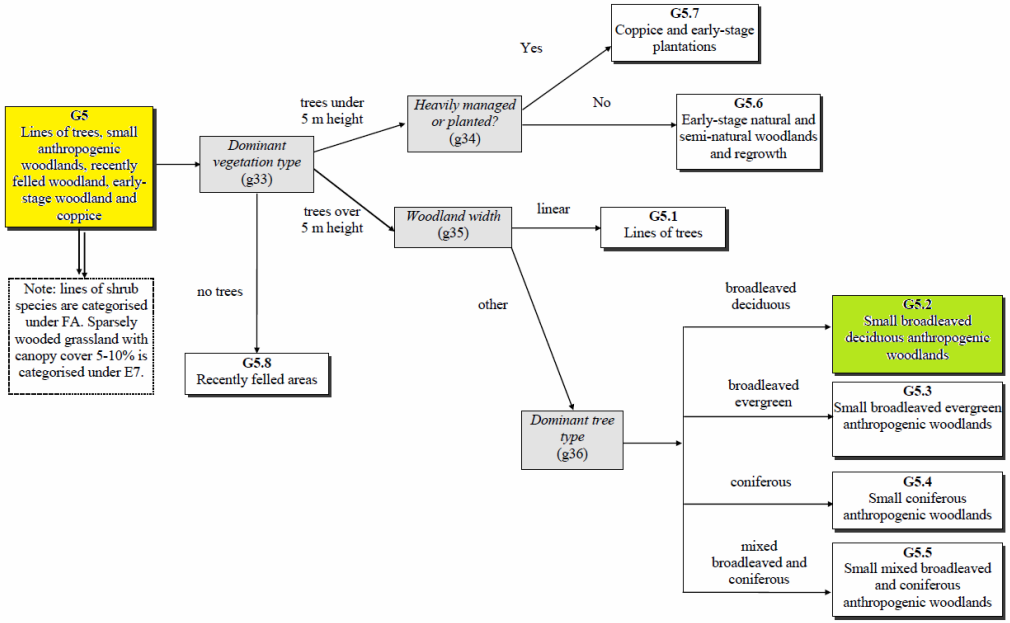
- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)
Legally designated habitat (EU Habitats Directive Annex I): none
Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved deciduous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): < 0.5 ha

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.3 — Small broadleaved evergreen anthropogenic woodlands

Plantations and small intensively-managed woods of broadleaved evergreen trees less than about 0.5 ha in area. If deciduous broadleaved species are present, they have a lower canopy cover than evergreen species.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

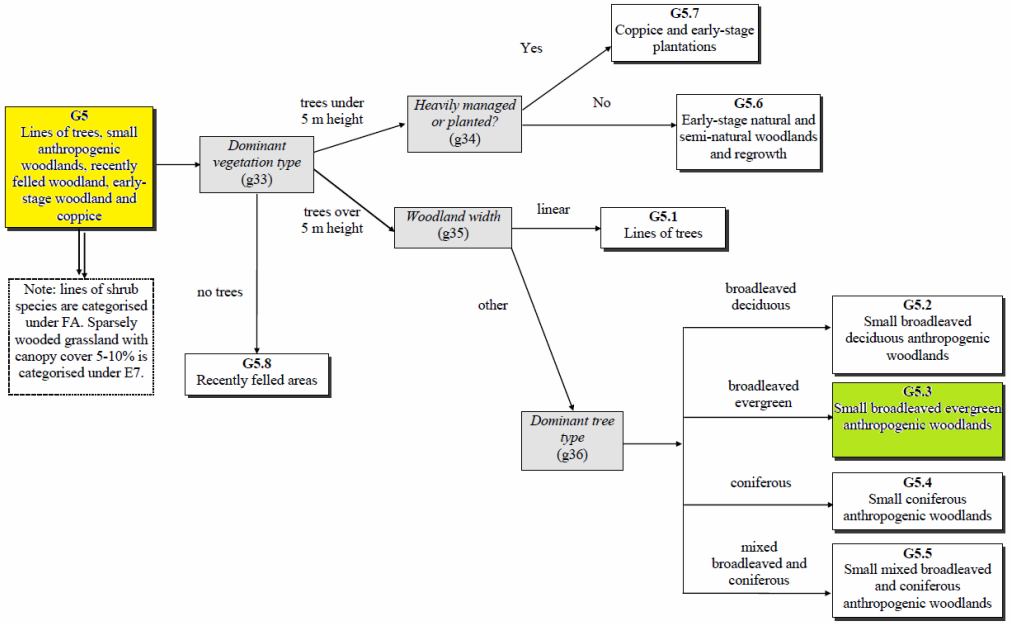
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Broadleaved evergreen trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): < 0.5 ha

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.4 — Small coniferous anthropogenic woodlands

Plantations and small intensively-managed woods of coniferous trees less than about 0.5 ha in area. If broadleaved species present, they have canopy cover less than 25%.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

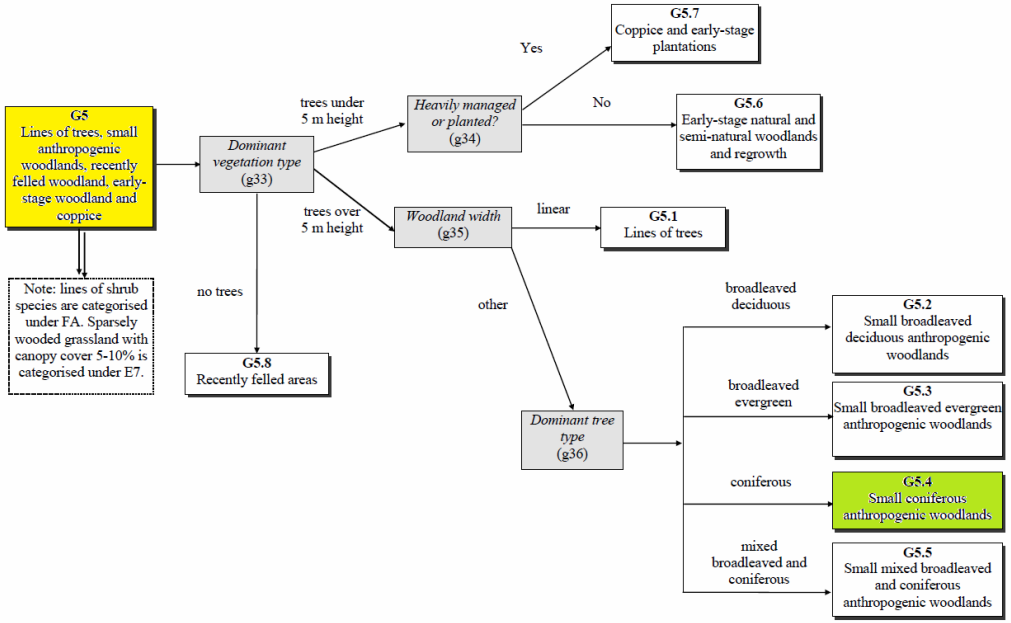
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): < 0.5 ha

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.5 — Small mixed broadleaved and coniferous anthropogenic woodlands

Plantations and small intensively-managed woods less than about 0.5 ha in area, with mixed of coniferous and broadleaved trees. The proportion of conifers is in the range 25-75%.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

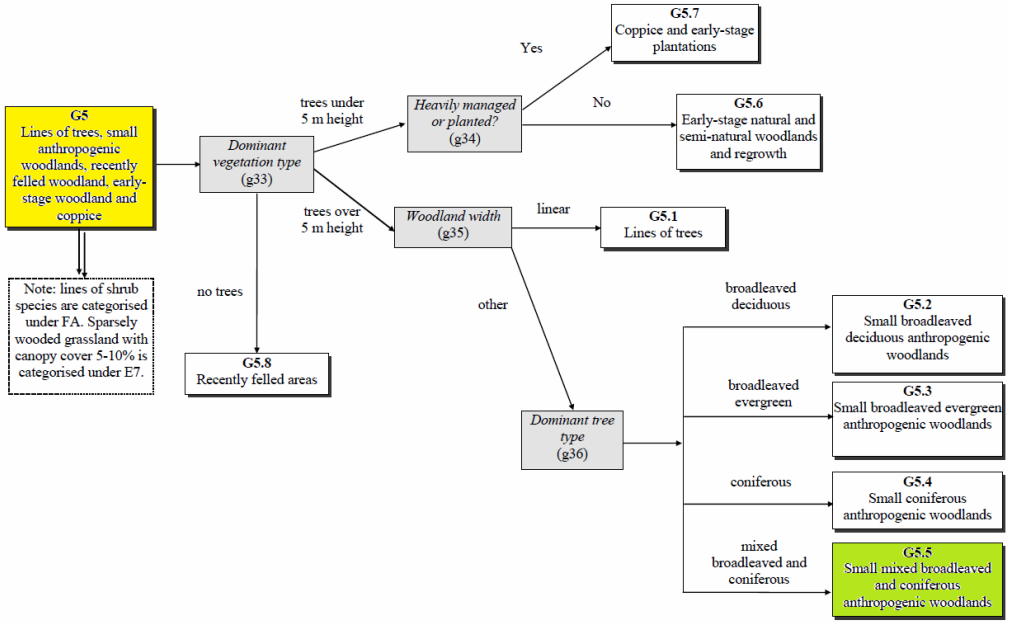
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees > 5m / tall trees; Mixed broadleaved and coniferous trees
- Cover characteristics (when used as criteria): Trees >10%
- Spatial characteristics (when used in criteria): < 0.5 ha

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.6 — Early-stage natural and semi-natural woodlands and regrowth

Early stages of woodland regrowth or newly-colonizing woodland composed predominantly of young individuals of high-forest species that are still less than 5 m in height. Includes young native woodland replanted with indigenous trees and naturally-colonizing stands of non-native trees.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

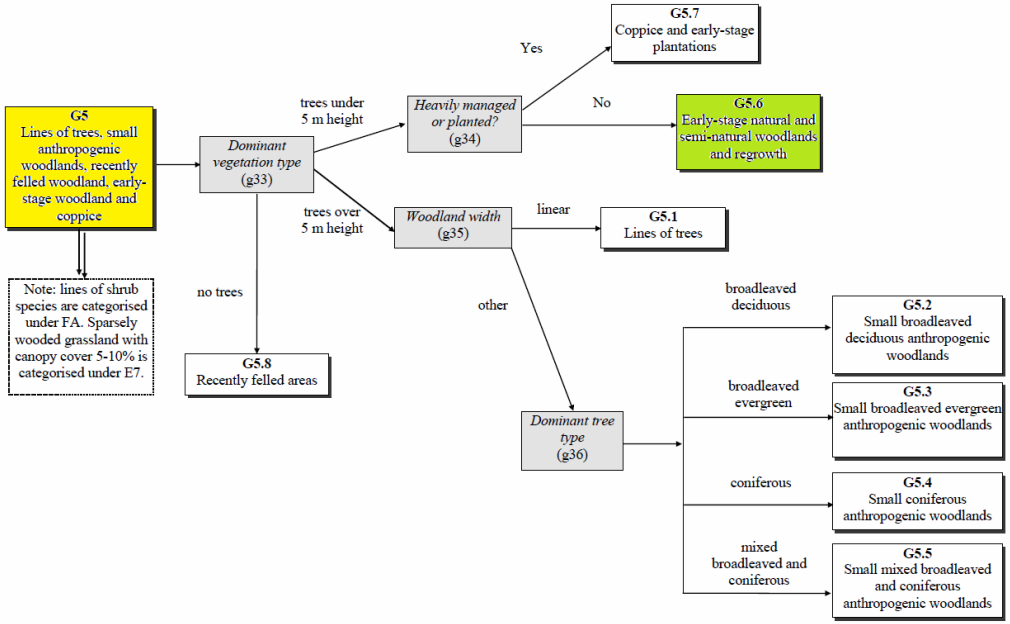
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): Active raised bogs (7110)

Descriptive or diagnostic parameters:

- Human activities and impacts: Whole plant harvesting
- Levels of habitat usage (when used in criteria): No human use
- Dominant life forms: Trees < =5m / low trees
- Cover characteristics (when used as criteria): Trees >10%
- Related phytosociological units: Betulion pubescentis; Ledo-Pinion; Quercetea pubescentis; Querco-Fagetea; Rhamno-Prunetea; Vaccinio-Piceetea

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.7 — Coppice and early-stage plantations

Woodland treated as coppice without standards. Plantations with a dominant canopy of young trees that are still less than 5 m in height. Plantations of dwarf trees or shrubs cultivated for wood or small-tree production, with a regular whole-plant harvesting regime, including short-rotation Salix beds for biomass production, Christmas tree crops, tree nurseries.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

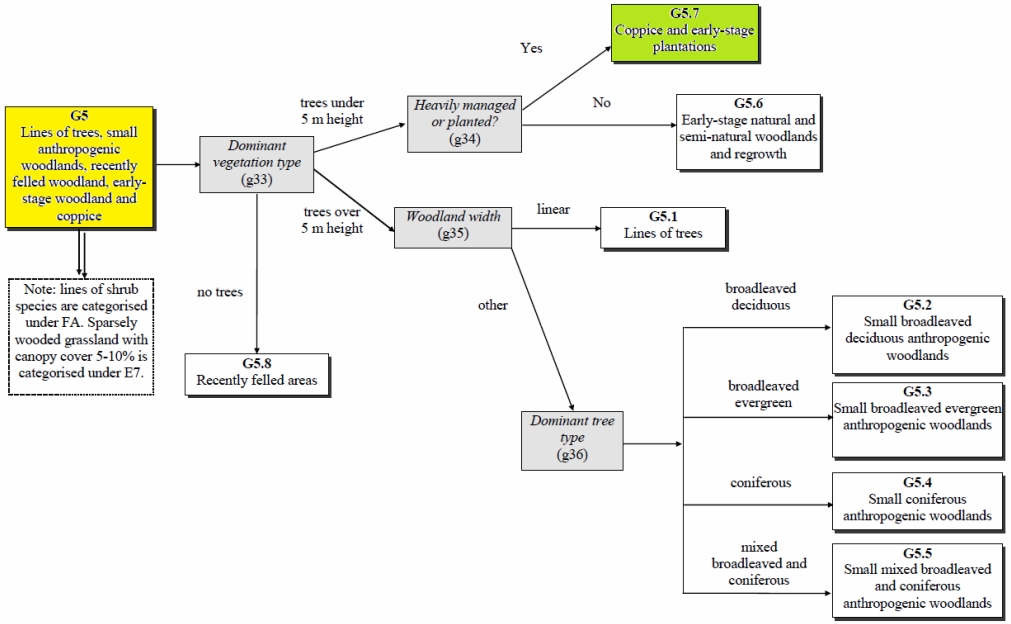
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004b)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Whole plant harvesting; Forestry practices; Forest planting; Artificial planting; Forest replanting; Coppicing; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Intensive use / disturbance
- Dominant life forms: Trees; Trees < =5m / low trees
- Cover characteristics (when used as criteria): Trees >10%

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013

EUNIS Level 3 (2004): G5.8 — Recently felled areas

Land that recently has supported deciduous or coniferous woodland after the trees have been clear-felled or burnt. Includes woodland with successional vegetation dominated by tall herbs, grasses or shrubs, provided that these will soon be overtopped by a tree canopy.

Crosswalk to EFT Category / Type(s) (2010):

- **No correspondence given**

EUNIS Forest Habitat Classification (2004)

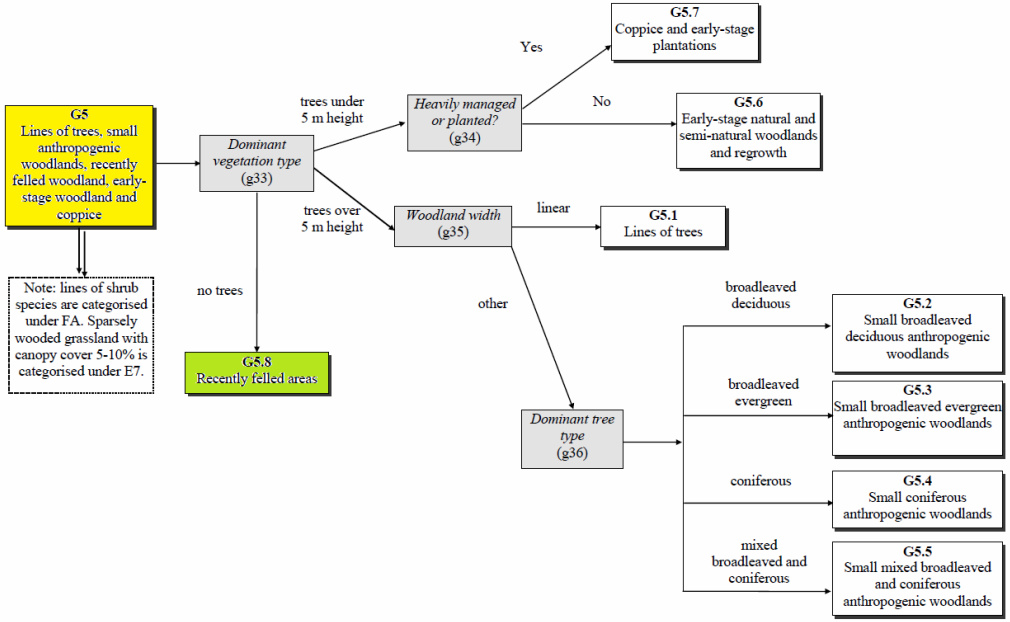
Source: Hill, M.O., Moss, D. & Davies, C.E. (2004a)

Legally designated habitat (EU Habitats Directive Annex I): none

Descriptive or diagnostic parameters:

- Human activities and impacts: Forestry practices; Forestry clearance; Forest exploitation without replanting; Anthropogenic impacts
- Levels of habitat usage (when used in criteria): Active management
- Related phytosociological units: Atropion; Carici piluliferae-Epilobion angustifolii; Sambuco racemosae-Salicion capreae

Criteria for Lines of trees, small anthropogenic woodlands, recently felled woodland, early-stage woodland and coppice (G5) to Level 3



No review of EUNIS Forest Habitat Classification in 2013