

# **The diversity of European vegetation**

**An overview of phytosociological alliances and their  
relationships to EUNIS habitats**

J.S. Rodwell  
J.H.J. Schaminée  
L. Mucina  
S. Pignatti  
J. Dring  
D. Moss

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# 1 Preface

## 1.1 Policy background

The policy of the Dutch government on international nature conservation supports the objectives of the Convention on Biological Diversity (CBD), which are: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the use of genetic resources. A specific goal of the convention, relevant to the topic of this book, is the development of a coherent system of protected areas (article 8, CBD).

The Dutch contribution to international nature conservation is described in the Programme for International Nature Conservation, which is contained in the national policy document on nature, forest and landscape in the 21<sup>st</sup> century: 'Nature for People, People for Nature'. One of the important policy issues is to support activities to ensure that a Pan-European Ecological Network will be realised by 2020. Recently, in the Dutch government policy document 'Nationaal Milieubeleidsplan 4' (National Policy Document on the Environment, number 4, 2001), the ideas about the needs and future functions of ecological networks have been taken further. In this document the Dutch government expresses support for the realisation of a global ecological network as an appropriate means for the long-term protection of threatened species and habitats.

The Dutch contribution to international nature conservation is diverse:

- On a bilateral base, the Dutch government supports nature management in nations by so-called MOU's (Memoranda of Understanding), agreements between a nation and the Dutch government on a specific nature conservation issue.
- The Dutch government has ratified and supports active international agreements and EU laws on nature conservation, as for example the Bern convention, the Birds Directive and the Habitat Directive and their instruments such as the Natura 2000 ecological network and the Emerald ecological network, for example by participation in such international fora as the Committee of Experts of the Pan European Ecological Network of PEBLDS and by the exchange of expertise with accession countries.
- The Dutch government is stimulating nature conservation in Central- and East Europe in an active way, by the PIN-MATRA instrument and by the EECONET Fund: a system of grants for organisations, working in the field of nature conservation.

- Finally, the Dutch government supports the development and the exchange of ideas on nature-conservation issues, especially if these are related to international nature conservation topics as indicated above. Projects such as a Europe-wide inventory of Important Bird Areas, Important Butterfly Areas and other Important Species Areas by appropriate co-operating international organisations, as well as projects for the development of inventories of Target-species for the Pan European Ecological Network, and projects aiming at the development of an indicative map of PEEN in Central- and Eastern Europe, have been funded. Also, organisations with a co-ordinating and/or stimulating role like the European Centre for Nature Conservation, and other organisations, are actively supported.

## **1.2 A unifying classification system for important habitats in Europe**

This book fits very well among the above mentioned aims and projects which the Dutch government seeks to support. It can be seen as an interface between the EUNIS habitat classification developed by the European Environment Agency's European Topic Centre on Nature Protection and Biodiversity (as a monitoring tool) and the international scientific ecological research (as a tool for improving nature management), by providing full crosswalks from higher – phytosociological – vegetation units to the EUNIS habitat classification. Furthermore, it provides the basis for connecting the habitat types of Annex I of the Habitats Directive (as being a legal tool), via a crosswalk with the EUNIS habitat classification, with the phytosociological classification system.

The publication will aid communication between a wide and diverse group of professionals involved with specific tasks like the implementation and monitoring of the Habitats Directive, or the Bern Convention (especially the realisation of the Natura 2000 and the Emerald ecological network) and the development of PEEN, but also professionals involved with scientific research in order to support the identification and management of core-areas, and professionals involved with everyday management of core-areas. Overall, the book delivers essential scientific information for the following activities:

- It supports the systematic identification throughout Europe of ecologically coherent core-areas, in full accordance with Annex I of the Habitats Directive, the EUNIS habitat classification and the Guidelines of PEEN;
- It provides a scientific framework for the description of important ecological characteristics of identified core-areas like the

vegetation-types occurring there, but also for other characteristics such as soil-type, water-type, the ecological buffering needed, and active/passive management;

- It provides a scientific framework for the identification of the relations between the target species of Annex II and IV, and other target species, with the ecological characteristics of the core-areas in which these species occur;
- It provides a means for coherent management of core-areas, of particular importance in the case of trans-boundary core-areas;
- It provides a means for unified monitoring of core-areas;
- It enables and stimulates coherent scientific research, supporting both the establishment of ecological networks and the management of core-areas.

### **1.3 Related projects and further research in this field**

This enterprise is part of a wider set of research projects and products, all aiming at support for European nature conservation and especially for the realisation of the Pan-European Ecological Network.

In 2000, a totally revised and updated inventory of Important Bird Areas in Europe appeared, co-funded by the Dutch Ministry of ANF. At this moment, two new projects, aiming at the identification of the important species-areas in Europe, are being carried out: the identification of Prime Butterfly Areas in Europe, due to appear in spring 2002, and Prime Herpetofaunal Areas in Europe, due to appear in 2004. In preparation is a similar project for the identification of Important Plant Areas in Europe, by Plantlife International/Planta Europa Network, co-funded by the Dutch Ministry of ANF. All these projects are carried out through international co-operation. A CD-Rom is in preparation, containing all the target-species of the Pan-European Ecological Network. This CD-Rom will include information on the legal status of species, the conservation status of species, indications on their distribution in Europe, the habitat preferences and suggestions for nature management. The higher syntaxonomical levels and their cross-walks to the EUNIS habitat classification as described in this book will help with the identification of the ecological demands of target-species and target-habitats.

As regards the coherence of ecological networks and the degree of connectivity needed for the conservation of target-species, a lot of research is necessary: research on scientific theories and their application on (meta-)populations, but also research on the actual presence of migrational- and other types of corridors in Europe, the habitats that are used, the interdistance and the number and size of stepping stones.

Identified Important Species Areas can play a key role in the identification of core-areas for ecological networks. The same is true of target-species, once they are identified. In 1995, a project identified core-areas for the Pan European Ecological Network in Western Europe. In the period 1999-2001 a parallel project was carried out, aimed at producing an indicative map of PEEN, identifying core-areas, corridors, buffer zones and zones for nature development in Central and Eastern Europe. All these materials can be brought together in a future indicative and inspirational map of PEEN, covering the whole of Europe.

Pan-European nature conservation efforts are aiming for the coherent and integrated protection and adequate management of target species and target habitats within a Pan European Ecological Network. On a wider scale, these projects may have a broad spin-off: first, adequate identification, legal protection and adequate management of core-areas covering not only target habitats but also covering a reasonable and representative number of target-species. A second hoped-for benefit is a more unified management of a coherent European system of nature reserves, especially of transborder areas and corridors.

A third spin-off could be intensified collaboration between parties, whether NGO or governmental, new initiatives and suggestions for legislation, both national and international, and integrated research on trans-bordering nature conservation issues.

Finally, farmers, foresters, land-owners can play an important role in the future management of the bufferzones, corridors and core-areas of the Pan-European Ecological Network. Research on the possibilities of integration of agricultural land-use within and around the ecological network will provide valuable benefits. In this way, the acceptance of ecological networks will be favoured.

All these activities are actively supported and communicated by flyers, booklets, reports and CD-Roms. Bilateral communication and presentations at meetings are used to exchange the insights developed in these projects. Interactive websites are developed, maintained and supported with this aim. Special efforts are focused on co-operation and network-building: this being an efficient and important means for the exchange of ideas and for the achievement progress in the field of nature-conservation.

**Drs. A.J.F.M. van Opstal, Senior Policy Advisor Ecosystems and the Environment**

*National Reference Centre for Agriculture, Nature and Fisheries  
Ministry of Agriculture, Nature Management and Fisheries.*

## 2 Introduction

### 2.1 The phytosociological background

Phytosociology is the science which attempts to describe the diversity of plant communities. From the start, in the early decades of the last century, phytosociologists have tried to apply a standardised approach to the tasks of sampling and characterising vegetation types (Braun-Blanquet 1928, Tüxen 1937) and to use a formal framework for naming and organising them within a syntaxonomic hierarchy of associations, alliances, orders and classes (Barkman et al. 1986, Mucina & Theurillat 1999). However, over the decades since then, an enormous phytosociological literature has accumulated with diverse proposals for classifying many kinds of vegetation throughout western Europe and beyond. Such endeavours have been uncoordinated and proposals for structuring the syntaxonomic hierarchy have often been contentious, from the level of the association right up to classes. Moreover, only occasionally has there been a more fundamental discussion of the theoretical basis of the whole enterprise of phytosociological classification (Pignatti et al. 1995, Mucina 1997a, 1997b).

Surveys of particular countries or parts of countries have brought a measure of regional stability to the classification of vegetation types in Europe, especially during the last decade. These projects have varied greatly in their scope and detail. Some publications are simply checklists of associations, others are more ambitious, though the formalities of describing the vegetation types - their species composition, relationships to habitat factors, distribution and so on - often differ. Also, some schemes of classification are supported by actual samples of vegetation (*relevés*), others by synoptic tables listing the frequencies of plant species; yet others have neither of these.

Nonetheless, surveys of some kind have now been published for Albania (Hoda et al. 2001), Austria (Mucina et al. 1993), Belgium (Lebrun et al. 1949), Bulgaria (Apostolova & Slavova 1997), the Czech Republic (Moravec et al. 1995; Moravec 1998-2000), France (Géhu 1998b; Julve 1993), Germany (Oberdorfer 1977-1992; Pott 1995, Schubert et al. 1995; Passarge 1996-1999; Dierschke et al. 1996-1999), Greece (Dimopoulos et al. 1995), Hungary (Borhidi 1996), Ireland (White & Doyle 1982), Italy (Biondi et al. 1997), Latvia (Pakalne et al. 1996), Lithuania (Baleviciene 1991; Baleviciene et al. 1998), The Netherlands (Schaminée et al. 1995-1999), Norway (Fremstad 1997), Poland (Matuszkiewicz 1984), Roumania (Coldea 1991; Coldea et al. 1997; Donita et al. 1992), Spain, Portugal, the

Balearic and Canary Islands (Rivas-Martinez et al. 1998, 2001), Slovakia (Valachovic et al. 1995; Jarolimek et al. 1997), the UK (Rodwell 1991-2000) and the former Yugoslavia (Jovanovic et al. 1986). More widely, there are important overviews of a huge extent of territory beyond the narrower limits of Europe, in the Ukraine (Solomakha et al. 1995) and Russia (Korotkov et al. 1991; Solomeshch et al. 1997). Some masterly accounts of vegetation in south-east Europe (Horvat et al. 1974), central Europe (Ellenberg 1986) and the north (Dierßen 1996) have also amply demonstrated the benefits of a phytosociological framework for understanding the ecology of vegetation types across whole regions. Figure 1 shows an overview of the present extent of phytosociological knowledge across Europe.

## **2.2 The European Vegetation Survey initiative**

In an attempt to develop a more coherent picture of vegetation across the whole of Europe and to foster a new spirit of collaboration among phytosociologists, the European Vegetation Survey (EVS), a Working Group of the International Association for Vegetation Science, has – since 1992 – convened annual workshops in Italy (Pignatti 1990; Mucina et al. 1993b; Rodwell et al. 1995). Besides providing formal support for national programmes of survey, the EVS has devoted particular meetings to understanding the syntaxonomy and ecology of some major vegetation types across Europe - beechwoods in 1998, high mountain vegetation in 1999, dry grasslands in 2000 and halophytic vegetation in 2001. Trans-national overviews originating from these workshops have included studies of meadows in north-west Europe (Zuidhoff et al. 1995), beechwoods across Europe (Dierschke 1997), scree vegetation in European mountains (Valachovic et al. 1997), coastal vegetation of the Holarctic (Géhu 1998a), the fern vegetation of the Mediterranean (Deil 1998), wall and rock crevice vegetation across Europe (Brullo & Guarini 1998) and the hemi-boreal forests of Siberia (Ermakov et al. 2000).

In parallel with these activities, the EVS has also developed an overview of vegetation types of Europe (including Macaronesia and the European parts of the former USSR) down to the level of alliances. The scheme uses a framework of classes already proposed by Mucina (1997a) and it has been produced top-down by integrating groups of orders and alliances contributed by EVS members with an expert knowledge of certain regions of Europe and/or particular groups of vegetation types. The overall hierarchic scheme is summarised in Figure 2. Each syntaxon has been given a brief vernacular description in English. Although these are not systematic in their content, they summarise within the limits of a line or

two, the key geographical, climatic, edaphic and biotic relationships of each syntaxon.

Mucina (1997a) acknowledged that, even at the broad level of classes, his own proposals would not find universal acceptance. The more finely divided scheme which we publish here will no doubt also attract criticism. We are very aware of the weaknesses of the classification and take full responsibility ourselves for what needs to be thought of as an important first step in cataloguing the biodiversity of Europe's vegetation.

### **2.3 Relationships between plant communities & threatened habitats**

One key application of an overview of European vegetation types is that it can provide a sound scientific basis for international initiatives in nature protection. Over much of western Europe, the pace in this process has been set by the European Union Habitats Directive. However, the uncertain definition of the Priority Habitats which are the focus of protection (CEC 1994) has made it very difficult for Member States to interpret their meaning in their own territories. The CORINE Biotopes Classification (Anonymous 1991; Devillers et al. 1991), which provides the original framework for defining these habitats, has now been developed further into the Palaeartic Habitats Classifications (Devillers & Devillers-Terschuren 1996) under the patronage of the Council of Europe. However, the definition of the vegetation types characteristic of each habitat is not necessarily any clearer there, nor more faithfully anchored in the scientific literature where its meaning might be pursued. With the appearance of the European Union Nature Information System (EUNIS) Habitat Classification (Davies & Moss 1999), there has come a fresh opportunity to provide a sound scientific cross reference to phytosociological definitions of vegetation types. With funding from the European Topic Centre on Nature Protection & Biodiversity, under contract to the European Environment Agency, the EVS team has therefore developed a cross-walk between the EUNIS Habitat Classification and phytosociological alliances (Rodwell et al. 1998). This cross-walk is included in this publication. An overview of European habitat classification schemes and their relationships is given in Figure 3.

A further cross-walk between EUNIS and Annex 1 of the Habitats Directive has also been prepared, by Moss & Davies (1999). Since Annex 1 is not a habitat classification, but a list of habitat types requiring protection through the European legislation, there is not a one-to-one correspondence between EUNIS habitat types at level 3 of the hierarchy and Annex 1, as shown in this cross-walk. For example, EUNIS E1.2 Perennial calcareous

grassland and basic steppes includes Annex I habitats 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), 6240 Sub-pannonic steppic grasslands, 6250 Pannonic loess steppic grasslands, 6260 Pannonic sand steppes and 6280 Nordic alvar and precambrian calcareous flatrocks. Conversely, Annex I habitat 9010 (Western Taïga) includes elements of EUNIS habitats G1.9 Non-riverine woodland with *Betula*, *Populus tremula*, *Sorbus aucuparia* or *Corylus avellana*, G1.B Non-riverine *Alnus* woodland, G3.A *Picea* taiga woodland and G3.B *Pinus* taiga woodland. As an illustration of these kinds of relationships, a small part of the EUNIS – Annex 1 cross-walk is presented in Figure 4. It is therefore not a simple matter to join the two cross-walks so as to link syntaxa to Annex 1. However, by taking both cross-walks further down the EUNIS hierarchy, this should be possible in future.

## 2.4 Benefits for sustaining biodiversity

Three particular benefits of using this classification and the crosswalk can now be seen, linking research and policy.

First, because we know more about the extent and distribution of the vegetation types defined by phytosociology, we can map the occurrence of Annex 1 Priority Habitats to ensure that they will be adequately protected within the Natura 2000 network and PEEN.

For example, the Tilio-Acerion is an alliance (L59B18 in the classification) of sub-montane maple and lime woods of humid ravines from among the mixed broadleaf woodlands of more fertile soils in the order Fagetalia and Class Querco-Fagetea. It typically has a diverse canopy of trees and a rich ground flora of herbs, ferns and bryophytes dependent on nutrient-rich moist soils. It is equivalent to a variety of EUNIS Habitats and is an Annex 1 Priority. Figure 5 shows the distribution of the woodland associations which make up the Tilio-Acerion in the Czech Republic (Chytrý et al. 2001).

Second, because phytosociology defines vegetation types on the basis of sound scientific data on species composition and structure, we can better understand what is meant by the ‘optimal condition’ of the Annex 1 Priority Habitats which EU Member States have a legal obligation to maintain. Now it will be easier to monitor the condition of these habitats in the Natura 2000 network and respond if changes in habitat quality fall below acceptable levels.

The third kind of application is about sustainability. Because phytosociology provides a framework within which we can learn more

about those climatic, soil and biotic factors which different vegetation types depend on, it enables us to understand which environmental conditions must be met to ensure the survival of vulnerable Annex I habitats.

For example, the Trisetum-Polygonum is an alliance (G26I03 in the classification) within the anthropogenic grasslands of the order Arrhenatheretalia and the class Molinio-Arrhenatheretea. It includes meadows of well-drained and relatively fertile soils in the montane regions of central and northern Europe. The distinctive mixtures of grasses and colourful tall herbs which characterise these swards are partly a reflection of a harsh montane climate with its short growing season and winter snowfalls that protect against frost-damage; and partly of the only moderate fertility of the soils, enriched just with natural manures from the grazing sheep and cattle and not by chemical fertilisers. Under regimes of traditional farming, the grasslands are grazed only in spring and autumn but, in the moist montane climate of early summer, the herbage can grow up to yield a substantial hay crop. We know therefore that to sustain these grasslands, which are equivalent to the EUNIS habitat *E2.3 Mountain hay meadows* and whose UK representatives are protected as an Annex I Priority Habitat, this distinctive combination of natural and management conditions must be met.

## **2.5 Next steps**

Now, the EVS initiative is entering an important new phase by making this overview of European vegetation the basis of an expert system (SynBioSys Europe) which will show the relationships between plant species, vegetation types and landscapes across the Continent. SynBioSys Europe will build on experience gained over the past decade at Alterra in Wageningen (Hennekens et al. 2000) and use a team of national representatives to accumulate data on the species composition, habitat relationships, distribution and value of plant communities. The expert system will make use of the widely expected database management system for vegetation data TURBOVEG (Hennekens & Schaminée 2001). A first example of how distribution patterns can be shown was presented during the 4<sup>th</sup> International Workshop of the European Vegetation Survey in 1995, dealing with the *Cynosurion cristati* (G-26B02 in the overview), that includes grasslands on mesotrophic, moist but generally freelydraining soils, mainly grazed by cattle (Zuidhoff et al. 1995). The distribution of this alliance (Figure 6) was based on original relevés, taken from TURBOVEG databases.

The expert system will connect with the recently-published European map of potential vegetation (Bohn et al. 2000) and elaborate on recent studies on species distribution in Europe (e.g. Van Opstal et al. 2000). A network of distributed databases will then be at the service of participating countries, working together to ensure the sustainability of the living fabric of Europe.

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## The overview

### Key to the Overview

In the following Overview, the names of the **FORMATIONS** are shown in large bold capitals, the names of the phytosociological **CLASSES** as small bold capitals, the names of the ORDERS as capitals and the names of the **Alliances** in bold. Every class, order and alliance is given a unique code using numbers and letters and has a simple descriptor indicating the character of the vegetation and the main features of its habitat. The names and code numbers of the *EUNIS habitats* which correspond to the phytosociological syntaxa are shown in italics.



## A COASTAL MUD-FLATS AND BRACKISH WATERS

- 01 **ZOSTERETEA**  
Eel-grass swards on muddy and sandy substrates in the sublittoral and eulittoral zones of temperate seas
- 01A **POSIDONIETALIA**  
Mediterranean eel-grass swards
- 01A01 **Cymodoceion nodosae**  
Mediterranean eel-grass swards of less dynamic deeper waters  
*A2.7 Littoral sediments dominated by aquatic angiosperms*  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*
- 01A02 **Posidonium oceanicae**  
Mediterranean eel-grass swards of more dynamic deep waters  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*  
Temperate eel-grass swards on muddy and sandy substrates in sublittoral and eulittoral zones
- 01B01 **Zosterion marinae**  
Temperate eel-grass swards on muddy and sandy substrates in sublittoral and eulittoral zones  
*A2.7 Littoral sediments dominated by aquatic angiosperms*  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*
- 02 **RUPPIETEA MARITIMAE**  
Submerged communities of brackish waters
- 02A **RUPPIETALIA MARITIMAE**  
Submerged communities of brackish waters
- 02A01 **Riellion helicophyllae**  
Pioneer ephemeral bryophyte communities of shallow saline lagoons in western Mediterranean
- 02A02 **Ruppion maritimae**  
Tassel-weed communities of brackish waters  
*A2.7 Littoral sediments dominated by aquatic angiosperms*  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*  
*C1.5 Permanent inland saline and brackish lakes, ponds and pools*
- 02A03 **Scirpion parvuli**  
Spike-rush communities of brackish waters  
*A2.7 Littoral sediments dominated by aquatic angiosperms*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*

## B SALT-MARSH, SAND-DUNE AND SEA-CLIFF VEGETATION

- 03 **SPARTINETEA MARITIMAE**  
Pioneer vegetation of perennial cord grasses on intertidal mud and sand
- 03A **SPARTINETALIA MARITIMAE**  
Pioneer vegetation of perennial cord grasses on intertidal mud and sand
- 03A01 **Spartinion maritimae**  
Pioneer vegetation of perennial cord grasses on intertidal mud and sand  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 04 **THERO-SALICORNIETEA**

- Pioneer communities of annual succulent halophytes on periodically flooded habitats
- 04A LEPIDIETALIA LATIFOLII  
Therophyte vegetation of inland salt pans of the Caspian region
- 04A01 **Lepidion latifolii**  
Meadow solonchak communities of the lower Volga floodplain and delta
- 04B THERO-SALICORNIALIA  
Pioneer communities of annual succulent halophytes on periodically flooded habitats
- 04B01 **Salicornion herbaceae**  
Pannonian-Caspian vegetation of salt pans dominated by short-lived succulents  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 04B02 **Salicornion patulae**  
Mediterranean pioneer glasswort communities of lagoons  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 04B03 **Thero-Salicornion**  
Pioneer glasswort communities of tidal mud-flats on Atlantic shores  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B1.1 Angiosperm communities of sand beach driftlines*  
*E6.1 Mediterranean inland saline grass and herb-dominated habitats*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 04B04 **Thero-Suaedion**  
Mediterranean therophyte succulent salt-marsh vegetation dominated by Suaeda  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B1.1 Angiosperm communities of sand beach driftlines*
- 05 **JUNCETEA MARITIMI**  
Perennial maritime grasslands and related herb-rich vegetation of coastal and inland salt-marshes and sea-cliffs
- 05A AGROPYRETALIA PUNGENTIS  
Communities of salt-marsh strandlines in warmer parts of Europe
- 05A01 **Agropyron pungentis**  
Communities of salt-marsh strandlines in warmer parts of Europe  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 05B GLAUCO-PUCCINELLIETALIA  
Usually closed swards on the saline silt and sand of salt-marshes, sea cliffs, and inland
- 05B01 **Armerion maritimae**  
Perennial communities of upper salt marshes, rarely inundated by spring tides  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*D5.2 Beds of large sedges normally without free-standing water*  
*D6.1 Inland saltmarshes*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 05B02 **Eleocharition uniglumis**  
Species-poor salt-marsh communities with a freshwater influence  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 05B03 **Puccinellion maritimae**  
Communities of lower, often inundated salt-marshes and inland salt marsh ephemeral communities  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*D6.1 Inland saltmarshes*
- 05B04 **Frankenio laevis-Armerion**

- Saltmarsh communities with *Frankenia* on the higher parts of Atlantic sandy shores
- 05B05 **Glauco maritimae-Juncion maritimi**  
Atlantic oligo-haline salt-marsh communities  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 05B06 **Puccinellio-Spergularion salinae**  
Ephemeral communities of disturbed saline habitats with fluctuating moisture regime  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*D6.1 Inland saltmarshes*  
*E6.1 Mediterranean inland saline grass and herb-dominated habitats*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 05B07 **Silenion maritimae**  
Closed swards of perennials on seacliff tops and ledges little splashed by salt-spray  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 05C HALO-AGROPYRETALIA  
Saline vegetation of heavy clayey soils of badlands in Italy
- 05C01 **Halo-Artemision**  
Halophilous vegetation of heavy clayey soils of Italian badlands
- 05D JUNCETALIA MARITIMI  
Mediterranean-atlantic rush-dominated saline meadows and swards
- 05D01 **Agropyro-Artemision coerulescentis**  
Mediterranean and Black Sea spring-line vegetation  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B3 Rock cliffs, ledges and shores, including the supralittoral*
- 05D02 **Juncion maritimi**  
Mediterraneo-Euxinic coastal saline wet meadows  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 05D03 **Plantaginion crassifoliae**  
Mediterranean damp dune-slack and lagoon margin communities  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 05D04 **Puccinellion caespitosae**  
Iberian continental salt-marsh edge communities  
*D6.2 Inland saline or brackish species-poor helophyte beds normally without free-standing water*
- 05E PUCCINELLIETALIA PHRYGANODIS  
Lower salt-marsh swards around Arctic coasts of Svalbard and Iceland
- 05E01 **Puccinellion phryganodis**  
Lower salt-marsh swards around Arctic coasts of Svalbard and Iceland  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 06 **SAGINETEA MARITIMAE**  
Ephemeral vegetation with winter annuals on bare or disturbed salt-marsh mud and sand
- 06A FRANKENIETALIA PULVERULENTAE  
Mediterranean ephemeral vegetation of clayey and muddy saline soils
- 06A01 **Frankenion pulverulentae**  
Ephemeral vegetation of spray-splashed muds of the Iberian peninsula  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*E6.1 Mediterranean inland saline grass and herb-dominated habitats*
- 06A02 **Gaudinio-Podospermion cani**  
Saline therophyte vegetation of Calabro-Sicilian badlands

- 06A03        **Hordeion marini**  
Ephemeral vegetation of saline clays in the Mediterranean region  
    *A2.6 Coastal saltmarshes and saline reedbeds*  
    *E6.1 Mediterranean inland saline grass and herb-dominated habitats*
- 06A04        **Limonion awei**  
Subnitrophilous aérohaline therophyte coastal swards of the south-central Mediterranean
- 06B        SAGINETALIA MARITIMAE  
Atlantic-Mediterranean ephemeral vegetation on sandy soils or salt-marsh fringes
- 06B01        **Lolio-Plantaginion commutatae**  
Aérohaline short-lived vegetation of disturbed coastal habitats of Dalmatia
- 06B02        **Romulion**  
East Mediterranean ephemeroid vegetation on humid salty sand  
    *A2.6 Coastal saltmarshes and saline reedbeds*  
    *E6.1 Mediterranean inland saline grass and herb-dominated habitats*
- 06B03        **Saginion maritimae**  
Atlantic and west Mediterranean ephemeral vegetation on bare or disturbed salt-marsh mud and sand  
    *A2.6 Coastal saltmarshes and saline reedbeds*  
    *B1.8 Moist and wet dune slacks*  
    *C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 06B04        **Spergularion macrorhizae**  
Halophilous short-lived vegetation of summer-dry high salt-marshes of Corsica
- 07        **SALICORNITEA FRUTICOSAE**  
Mediterranean and thermo-atlantic perennial salt-marsh scrub
- 07A        LIMONIETALIA  
West Mediterranean semi-arid saline sea-lavender communities
- 07A01        **Limoniastrion monopetali**  
Thermomediterranean strongly halophytic scrub  
    *A2.6 Coastal saltmarshes and saline reedbeds*
- 07A02        **Limonion catalaunico-viciosoi**  
Iberian semi-arid saline sea-lavender communities  
    *D6.2 Inland saline or brackish species-poor helophyte beds normally without free-standing water*
- 07A03        **Limonion confusi**  
North-west Mediterranean semi-arid sea-lavender communities
- 07A04        **Lygeo-Lepidion cardaminis**  
Iberian continental salt-pan communities  
    *D6.2 Inland saline or brackish species-poor helophyte beds normally without free-standing water*  
    *E6.1 Mediterranean inland saline grass and herb-dominated habitats*
- 07A05        **Lygeo sparti-Limonion furfuracei**  
South-east Iberian semi-arid saline sea-lavender communities  
    *D6.2 Inland saline or brackish species-poor helophyte beds normally without free-standing water*  
    *E6.1 Mediterranean inland saline grass and herb-dominated habitats*
- 07B        SALICORNITEA FRUTICOSAE  
Mediterranean and thermo-Atlantic halophilous succulent chenopodiaceous scrub
- 07B01        **Arthrocnemion glauci**  
Mediterranean hyper-saline succulent chenopodiaceous scrub on sandy soils  
    *A2.6 Coastal saltmarshes and saline reedbeds*
- 07B02        **Limonion ferulacei**

- Thermomediterranean saline dwarf sea-lavender scrub of North Africa and Sicily  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 07B03 **Salicornion fruticosae**  
 Mediterranean and thermo-atlantic vegetation of succulent dwarf shrubby chenopods  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 07B04 **Suaedion braun-blanqueti**  
 Inland Iberian halophilous succulent chenopodiaceous scrub  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 07B05 **Suaedion verae**  
 Slightly nitrophilous salt-marsh scrub of Mediterranean and Atlantic coasts  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 08 **FESTUCO-PUCCINELLIETEA**  
 Saline steppes and derived steppic grasslands of the continental regions of eastern and southern Europe
- 08A ARTEMISIO SANTONICAE-LIMONIETALIA GMELINII  
 Meso-xerophytic saline communities in southeast Europe and west Siberia
- 08A01 **Alhagion pseudalhagi**  
 Plant communities in the desert zone of the Caspian lowlands
- 08A02 **Artemision santonicae**  
 Solonetz communities of estuarine and river floodplains in southern Ukraine
- 08A03 **Astero tripolii-Puccinellion distantis**  
 Saltmarsh vegetation of depressions on riverine terraces of the steppe and forest-steppe zones of Ukraine
- 08A04 **Limonio tomentelli-Artemision santonicae**  
 Xerophilous steppes on solonetz soils in Voronezh Region of central European Russia
- 08A05 **Limonion sareptani**  
 Communities of limans in the semi-desert zone along the Lower Volga valley
- 08A06 **Limonion tomentelli**  
 Communities of padings on watersheds in the central chernozem zone of Russia
- 08A07 **Puccinellion fominii**  
 Saline vegetation of solonchaks soils of the coastal zones of Ukraine
- 08A08 **Puccinellion giganteae**  
 Solonetz and solonchak communities of coastal bars and islands in southern Ukraine
- 08A09 **Salicornio-Puccinellion**  
 Wet solonetz and solonchak communities of Ukraine and southeast Russia  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 08B ARTEMISIO SANTONICAE-PUCCINELLIETALIA FOMINII  
 Sarmato-Pannonian saline vegetation of succulent perennial eu-halophytes
- 08B01 **Artemisio santonicae-Puccinellion fominii**  
 Communities of obligatory eu-halophytes of the Ukraine
- 08B02 **Climacoptero-Suaedion**  
 Communities of obligatory perennial succulent eu-halophytes in the Caspian lowlands
- 08C CIRSIETALIA ESCULENTI  
 Saline meadows in valleys of rivers in forest-steppe and steppe areas of east Europe and west Siberia
- 08C01 **Cirsio-Hordeion brevisubulati**

- 08C02 Mesophytic meadows on floodplains of small rivers in the South Ural  
**Cirsion esculenti**
- 08C03 Mesophytic floodplain pastures in easternmost Europe and west Siberia  
**Geranion collini**  
Wet meadows of steppe and forest-steppe zones in the European part of Russia and western Siberia
- 08C04 **Glauco-Caricion dilutae**  
Wet saline meadows of the steppe zone in the South Ural region
- 08D FESTUCO-LIMONIETALIA  
Solonetz steppes of Ukraine and southeast Russia
- 08D01 **Caricion stenophyllae**  
Communities of steppes on solonetz soils of Eastern Europe in the semi-desert zone on liman slopes
- 08D02 **Festuco-Limonion gmelinii**  
Solonetz steppes of the steppe zone in the South Ural region  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08E GLYCYRRHIZETALIA GLABRAE  
Sub-saline meadow-steppe communities of the lower reaches of the Volga and Don river basins
- 08E01 **Elytrigio-Aeluropodion**  
Meadow-steppe communities in the Caspian region of Russia
- 08E02 **Glycyrrhizion echinatae**  
Sub-saline mesophytic meadows of the lower Don valley  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08E03 **Glycyrrhizion glabrae**  
Sub-saline mesophytic meadows of the lower Volga valley  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 08E04 **Limonion gmelinii-Artemision lerchianae**  
Meadow-steppes on moderately saline soils in the floodplain of the Ural River
- 08F PUCCINELLIETALIA  
Eurasian thermo-continental and sub-Mediterranean vegetation of saline pastures, meadows, salt-pans and badlands
- 08F01 **Atraphaco-Capparidion**  
Communities of Crimean seaside badlands
- 08F02 **Camphorosmo-Agropyron desertori**  
Meso-xerophytic communities on saline soils of the Crimea
- 08F03 **Camphorosmo-Suaedion corniculatae**  
Hypersaline annual chenopod-dominated communities on solonetz soils of the Caspian region and northwestern Siberia
- 08F04 **Festucion pseudovinae**  
Pontic-Pannonian saline pastures of steppic character  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08F05 **Limonion gmelinii**  
Macedonian and north Aegean saline vegetation of salt pans  
*E6.1 Mediterranean inland saline grass and herb-dominated habitats*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08F06 **Peucedano officinalis-Asterion sedifolii**  
Tall forb vegetation on calcareous slightly saline loess soils of the Pannonian Basin

- 08F07 *E6.2 Continental inland saline grass and herb-dominated habitats*  
**Puccinellion limosae**  
 Communities of moist salt-pans in south-east Europe  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*D6.1 Inland saltmarshes*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08F08 **Thero-Camphorosmion**  
 Hyper-saline annual chenopod-dominated communities on solonetz soils of the Pannonian region and the central Balkans
- 08G SCORZONERO-JUNCETALIA GERARDII  
 Moist halophytic meadows and pastures of south-east central and eastern Europe
- 08G01 **Agrostio stoloniferae-Beckmannion eruciformis**  
 Meadows and pastures of moist or wet slightly saline soils in the floodplains of rivers in the steppe zone of southern Russia  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 08G02 **Beckmannion eruciformis**  
 Subsaline, nutrient-rich vegetation of flooded meadows of the Pannonian region  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 08G03 **Halo-Trichophorion pumili**  
 Swards of Carpathian travertine sediments around mineral springs  
*D6.1 Inland saltmarshes*
- 08G04 **Scorzonero-Juncion gerardii**  
 Moist halophytic meadows and pastures of south-east central and eastern Europe  
*D6.1 Inland saltmarshes*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 09 **CRITHMO-STATICETEA**  
 Communities of rocks and walls influenced by salt-spray from the sea
- 09A CRITHMO-ARMERIETALIA MARITIMAE  
 Open communities of crevices on rocky seacliffs much splashed by salt spray
- 09A01 **Cochleario officinalis-Armerion maritimae**  
 Open communities of shaded crevices on spray-splashed sea-cliffs  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 09A02 **Crithmo-Armerion maritimae**  
 Open communities of crevices on rocky seacliffs much splashed by salt spray  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 09B CRITHMO-STATICETALIA  
 Vegetation of the (predominantly limestone) cliffs in the salt-spray zone of the Mediterranean
- 09B01 **Anthyllidion barbae-jovis**  
 Subhalophilous dwarf scrub on limestone cliffs of the southern Italian coast
- 09B02 **Astragalion tragacanthae**  
 Halophilous rupicolous vegetation of Catalonian coasts
- 09B03 **Crithmion maritimi**  
 Open communities on exposed salt-spray habitats of West Mediterranean coasts
- 09B04 **Crithmo-Daucion halophili**  
 Sea lavender communities of salt-spray habitats on coasts of southern Iberia and northern Morocco
- 09B05 **Crithmo-Frankenion hirsutae**

- Sea lavender communities on exposed cliffs of peninsular Greece and the Aegean islands
- 09B06 **Crithmo-Staticion**  
Sea lavender communities on exposed cliffs on the coasts of the Tyrrhenian and Adriatic Sea  
*B3 Rock cliffs, ledges and shores, including the supralittoral*  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*  
*F7.1 West Mediterranean spiny heaths*  
*F7.2 Central Mediterranean spiny heaths*
- 09B07 **Crucianellion rupestris**  
Coastal dwarf scrub on cliffs of Libya and islands in the south-central Mediterranean
- 09B08 **Kochio prostratae-Limonion meyeri**  
Plant communities of rocks affected by salt-spray in Crimea  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 09B09 **Launaeion cervicornis**  
Dwarf-shrub vegetation of lightly spray-splashed cliffs of the Balearic Islands  
*F7.1 West Mediterranean spiny heaths*
- 09B10 **Plantagini-Thymelaeion hirsutae**  
Slightly aerohaline vegetation of clayey coastal habitats of the western Mediterranean
- 09C FRANKENIO-ASTYDAMIETALIA  
Vegetation of salt-sprayed coastal cliffs of the Macaronesian Isles
- 09C01 **Festucion petraeae**  
Vegetation of salt-sprayed sea-cliffs on the Azores  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 09C02 **Frankenio-Astydamion latifoliae**  
Vegetation of salt-sprayed sea-cliffs of Madeira  
*B3.3 Rock cliffs, ledges and shores, with halophytic angiosperms*
- 10 **CAKILETEA MARITIMAE**  
Pioneer vegetation of nitrophilous summer annuals on strandlines of sand and shingle beaches
- 10A ATRIPLICETALIA LITTORALIS  
Halo-nitrophilous strandline communities of the mid-latitude Atlantic and Baltic shores
- 10A01 **Atriplici laciniatae-Salsolion kali**  
Atlantic and Baltic annual nitrophilous forb high-beach and dune communities  
*B1.1 Angiosperm communities of sand beach driftlines*  
*B2.1 Shingle beach driftline habitats*
- 10A02 **Atriplicion littoralis**  
Communities of salt-marsh and strandlines sometimes mixed with but not covered by sand  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B1.1 Angiosperm communities of sand beach driftlines*  
*B1.2 Sand beaches above the driftline*
- 10A03 **Thero-Atriplicion**  
Pioneer annual feebly halophyte vegetation of the Mediterranean  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 10B CAKILETALIA EDENTULAE  
Halo-nitrophilous strandline communities of the high-latitude (boreal)-Atlantic shores
- 10B01 **Cakilion edentulae**

- Halo-nitrophilous strandline communities of the high-latitude (boreal)-Atlantic shores
- B1.1 Angiosperm communities of sand beach driftlines*  
*B1.2 Sand beaches above the driftline*  
*B2.1 Shingle beach driftline habitats*
- 10C EUPHORBIETALIA PEPLIS  
Halo-nitrophilous strandline communities of the Mediterranean and Black Sea shores
- 10C01 **Cakilion euxinae**  
Pontic halo-nitrophilous strandline communities  
*B1.1 Angiosperm communities of sand beach driftlines*
- 10C02 **Euphorbion peplis**  
Mediterranean and Cantabro-Atlantic halo-nitrophilous strandline communities  
*B1.1 Angiosperm communities of sand beach driftlines*
- 11 **HONCKENYO-ELYMETEA ARENARI**  
Vegetation of coastal shingle, boulders or rocky cliffs, enriched with organic detritus, of boreal-Atlantic shores
- 11A ELYMETALIA GIGANTEI  
North Pontic and central Asian beach and dune communities
- 11A01 **Elymion gigantei**  
Black Sea coastal dune communities  
*B1.1 Angiosperm communities of sand beach driftlines*  
*B1.3 Shifting coastal dunes*
- 11B HONCKENYO-ELYMETALIA  
Vegetation of coastal shingle, boulders or rocky cliffs enriched with organic detritus
- 11B01 **Agropyro-Rumicion**  
Boreo-atlantic pioneer communities of beaches and dunes  
*D5.3 Swamps and marshes dominated by [Juncus effusus] or other large [Juncus] spp.*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 11B02 **Honckenyo-Crambion maritimae**  
Communities of enriched coastal habitats, mostly boreal  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B1.1 Angiosperm communities of sand beach driftlines*  
*B2.3 Upper shingle beaches with open vegetation*
- 11B03 **Honckenyo-Elymion arenarii**  
North Atlantic and Baltic dune grass and forb communities  
*B1.2 Sand beaches above the driftline*  
*B1.3 Shifting coastal dunes*  
*H5.3 Clay, silt, sand and gravel habitats with very sparse or no vegetation*
- 12 **AMMOPHILETEA**  
Vegetation of moving and fixed dominated by rhizomatous grasses, sedges and chamaephytic dwarf shrubs
- 12A AMMOPHILETALIA  
Vegetation of coastal dunes dominated by rhizomatous grasses or sedges
- 12A01 **Agropyron juncei**  
Pioneer vegetation of coastal foredunes in the Mediterranean  
*B1.3 Shifting coastal dunes*
- 12A02 **Agropyro-Minuartion peploidis**  
Pioneer vegetation of coastal foredunes of North Atlantic coasts

- 12A03 *B1.3 Shifting coastal dunes*  
**Ammophilion arundinaceae**  
Mediterranean and Atlantic grass-dominated dune communities  
*B1.2 Sand beaches above the driftline*  
*B1.3 Shifting coastal dunes*
- 12A04 **Sporobolion arenarii**  
Open Sporobolus swards on young coastal dunes of the Mediterranean
- 12B CRUCIANELLETTALIA MARITIMAE  
Mediterranean and Cantabro-Atlantic communities of stabilised coastal hind dunes
- 12B01 **Crucianellion maritimae**  
West Mediterranean chamaephyte hind-dune communities  
*B1.4 Coastal stable dune grassland (grey dunes)*
- 12B02 **Euphorbio portlandicae-Helichryson stoechadis**  
Thermo-atlantic chamaephyte hind-dune communities rich in lichens and bryophytes  
*B1.4 Coastal stable dune grassland (grey dunes)*
- 12B03 **Helichryson picardii**  
Ibero-atlantic chamaephyte hind-dune communities  
*B1.4 Coastal stable dune grassland (grey dunes)*
- 12B04 **Sileno thymifoliae-Jurineion kileae**  
Chamaephyte-rich vegetation of hind-dunes of southern shores of the Black Sea, including European Turkey

## C ROCK CREVICE, SCREE AND BOULDER-FIELD VEGETATION

- 13 **ASPLENIETEA TRICHOMANIS**  
Open vegetation with ferns and mosses in rock and wall crevices (and rarely on screes)
- 13A AMPHORICARPETALIA  
Limestone crevice communities of montane to alpine belts of the Dinarides
- 13A01 **Amphoricarpion autariati**  
Limestone crevice communities of subalpine and alpine belts of the Dinarides
- 13A02 **Amphoricarpion bertiscei**  
Communities of shady limestone crevices of the subalpine belt of the southeastern Dinari
- 13A03 **Amphoricarpion neumayeri**  
Limestone crevice communities of subalpine belts of the coastal southeastern Dinarides
- 13B ANDROSACETALIA VANDELLII  
Crevice vegetation of siliceous rocks at high altitudes of temperate and boreal Europe
- 13B01 **Androsacion vandellii**  
Open vegetation of siliceous rocks in the alpine and nival belt  
*H3.1 Acid siliceous inland cliffs*  
*H3.2 Basic and ultra-basic inland cliffs*  
*H3.6 Weathered rock and outcrop habitats*
- 13B02 **Cheilanthion hispanicae**  
Fern-rich crevice communities of the Iberian peninsula  
*H3.1 Acid siliceous inland cliffs*
- 13B03 **Dianthion gratianopolitani**  
Montane-subalpine basaltic rupicolous vegetation of Cantal (central France)  
*H3.1 Acid siliceous inland cliffs*
- 13B04 **Potentillion crassinerviae**

- Cyrno-Sardean open vegetation of silicate rocks  
*H3.1 Acid siliceous inland cliffs*
- 13B05 **Saxifragion cymosae**  
Herb-rich crevice vegetation of the western Balkans
- 13B06 **Saxifragion nevadensis**  
Herb-rich crevice vegetation of high mountains in the Sierra Nevada  
*H3.1 Acid siliceous inland cliffs*
- 13B07 **Saxifragion pedemontanae**  
Silicicolous communities of rock fissures of the Alpes Maritimes  
*H3.1 Acid siliceous inland cliffs*
- 13B08 **Saxifragion willkommiana**  
Herb-rich crevice vegetation of high mountains in central Spain  
*H3.1 Acid siliceous inland cliffs*
- 13B09 **Silenion lerchenfeldiana**  
Herb-rich crevice vegetation on granite in south-eastern Balkans  
*H3.1 Acid siliceous inland cliffs*
- 13C ANOMODONTO-POLYPODIETALIA  
Mediterranean and sub-mediterranean fern and moss crevice vegetation on shaded rocks
- 13C01 **Arenarion balearicae**  
Cyrno-Sardean and Balearic open vegetation of silicate rock crevices
- 13C02 **Bartramio-Polypodium serrati**  
Crevice vegetation on siliceous rocks  
*H3.3 Macaronesian inland cliffs*
- 13C03 **Hymenophyllum tunbrigensis**  
Sciophilous pteridophyte-rich communities on humid rocks in the Atlantic region
- 13C04 **Pohlio crudae-Asplenion septentrionalis**  
Calabro-Sicilian bryo-pteridophyte sciophilous chomophytic vegetation
- 13C05 **Polypodium serrati**  
Pteridophyte-rich epilithic communities of shaded calcareous rocks of the submediterranean and mediterranean regions  
*H3.2 Basic and ultra-basic inland cliffs*
- 13C06 **Selaginello denticulatae-Anogrammion leptophyllae**  
Bryo-pteridophyte communities of humid fringes and shaded loamy slopes and soft tufa rocks of the Mediterranean and Cantabro-Atlantic regions
- 13D ARENARIO BERTOLONII-PHAGNALETALIA SORDIDAE  
Calcicolous rupicolous vegetation of the Cyrno-Sardinian mountains
- 13D01 **Arenarion bertolonii**  
Calcicolous rupicolous vegetation of the mountains of Corsica  
*H3.2 Basic and ultra-basic inland cliffs*
- 13D02 **Centaureo filiformis-Micromerion cordatae**  
Calcicolous rupicolous vegetation of the mountains of Sardinia
- 13E ASPLENIETALIA GLANDULOSI  
Crevice vegetation of sunny limestone rocks in the thermomediterranean zone of the west and central Mediterranean
- 13E01 **Asplenion glandulosi**  
Crevice vegetation of coastal areas of western Spain, southern France and the Tyrrhenian Islands  
*H3.2 Basic and ultra-basic inland cliffs*
- 13E02 **Brassicium insularis**  
Crevice vegetation of the Cyrno-Sardean region and Pantelleria  
*H3.2 Basic and ultra-basic inland cliffs*

- 13E03        **Brassico balearicae-Helichryson rupestris**  
 Crevice vegetation of the Balearic Islands  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13E04        **Campanulion velutinae**  
 Limestone crevice vegetation of sunny rocks of southernmost Spain and  
 northern Morocco
- 13E05        **Centaureion pentadactyli**  
 Xerophilous crevice vegetation of Calabria
- 13E06        **Cosentinio bivalentis-Lafuenteion rotundifoliae**  
 Crevice vegetation of southern Spain
- 13E07        **Dianthion rupicola**  
 Mesophilous crevice vegetation of Sicily and Calabria  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13E08        **Saxifragion boissiero-reuteranae**  
 Crevice vegetation of southern Spain
- 13E09        **Teucrion buxifolii**  
 Crevice vegetation of the Iberian Levantine area  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13F        ASPLENIETALIA SEPTENTRIONALIS  
 Crevice vegetation of siliceous rocks at low altitudes of temperate and boreal Europe
- 13F01        **Antirrhinion asarinae**  
 Colline to sub-montane crevice vegetation in the Massif Central  
               *H3.1 Acid siliceous inland cliffs*
- 13F02        **Asplenio billotii-Umbilicion rupestris**  
 Crevice vegetation of siliceous rocks in the Atlantic regions of France
- 13F03        **Asplenion septentrionalis**  
 Low-altitude fern-rich crevice vegetation in the Carpathians and Hercynicum  
               *H3.1 Acid siliceous inland cliffs*
- 13F04        **Asplenion serpentini**  
 Fern-rich crevice vegetation of serpentine rocks  
               *E1.2 Perennial calcareous grassland and basic steppes*  
               *H3.1 Acid siliceous inland cliffs*
- 13F05        **Hypno-Polypodium vulgaris**  
 Fern- and moss-rich communities of shaded crevices in the colline to sub-  
 montane belts of central Europe  
               *H3.1 Acid siliceous inland cliffs*
- 13G        CENTAUREO-CAMPANULETALIA  
 Circum-Adriatic thermophilous vegetation of calcareous crevices
- 13G01        **Asperulion garganicae**  
 Vegetation of thermophilous calcareous crevices of coastal Apulia  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13G02        **Centaureo-Campanulion**  
 Thermophilous vegetation of calcareous crevices of the northern Adriatic coast  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13G03        **Centaureo-Portenschlagiellion**  
 Thermophilous vegetation of calcareous crevices of the central and southern  
 Adriatic coast  
               *H3.2 Basic and ultra-basic inland cliffs*
- 13H        CHEILANTHETALIA MARANTO-MADERENSIS  
 Mediterranean-Macaronesian thermophilous crevice vegetation of acid and  
 ultramafic rocks
- 13H01        **Cheilanthion pulchellae**  
 Mediterranean thermophilous crevice communities of acid and basic rocks

- 13H02        **Phagnalo saxatilis-Cheilanthion maderensis**  
Macaronesian (Canarian and Madeiran) crevice vegetation  
*H3.1 Acid siliceous inland cliffs*
- 13H03        **Polygonion icarici**  
Crevice vegetation of sunny siliceous rocks in the southern Aegean
- 13I        CIRSIETALIA CHAMAEPEUCIS  
Crevice vegetation of limestone fissures of the thermomediterranean Aegean
- 13I01        **Capparo-Amaracion**  
Endemic crevice communities of the Sporades  
*H3.2 Basic and ultra-basic inland cliffs*
- 13I02        **Inulion heterolepidis**  
Endemic crevice communities of the Dodecanese  
*H3.2 Basic and ultra-basic inland cliffs*
- 13I03        **Petromarulo-Centauryon argenteae**  
Endemic crevice communities of Crete  
*H3.2 Basic and ultra-basic inland cliffs*
- 13J        MOLTKEETALIA PETRAEAE  
Crevice vegetation of limestone fissures of the southern Adriatic
- 13J01        **Edraianthion**  
Crevice vegetation of limestone fissures of the southern Adriatic  
*H3.2 Basic and ultra-basic inland cliffs*
- 13K        ONOMETALIA FRUTESCENTIS  
Open vegetation of thermophilous limestone rocks of the Ionian coastal region
- 13K01        Campanulion versicoloris  
Open thermophilous vegetation of limestone rocks of the southern Ionian region  
*H3.2 Basic and ultra-basic inland cliffs*
- 13L        PARIETARIALIA  
Crevice vegetation of walls in temperate Europe, the Middle East and North Africa
- 13L01        **Brassicion oleraceae**  
Halo-nitrophilous communities of exposed cliffs and maritime walls of the Atlantic coast of Iberia
- 13L02        **Cymbalario-Asplenion**  
Fern-rich communities of crevices of sunny walls of regions with mild winter climate  
*H3.2 Basic and ultra-basic inland cliffs*
- 13L03        **Lavaterion maritimae**  
Crevice vegetation of walls in western mediterranean regions
- 13L04        **Parietario-Galion muralis**  
Nitrophilous vegetation of walls in the Mediterranean, sub-Mediterranean and Atlantic regions
- 13M        PETROCOPTIDETALIA PYRENAICAE  
Calcareous crevice vegetation of the western Pyrenees
- 13M01        **Petrocoptidion glaucifoliae**  
Calcareous crevice vegetation in northern Spain
- 13M02        **Valeriano-Petrocoptidion**  
Calcareous crevice vegetation of the western Pyrenees
- 13N        PETROMARULETALIA PINNATI  
Endemic crevice vegetation on limestones of Crete
- 13N01        **Asterion creticae**  
Low-altitude crevice vegetation of Crete  
*F5.1 Arborescent matorral*  
*F7.4 Hedgehog-heaths*

- 13N02        **Scutellarion sieberi**  
Mid-altitude crevice vegetation of Crete on limestone  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O        POTENTILLETALIA CAULESCENTIS  
Vegetation of calcareous crevices at high altitudes of the Alps, Carpathians,  
Apennines, Pyrenees and mountains of the northern Iberian Peninsula
- 13O01        **Androsaco-Drabion tomentosae**  
Crevice communities of the southern Alps  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O02        **Asplenio celtiberici-Saxifragion cuneatae**  
Crevice communities of shady rocks in northern Spain  
*H3.4 Wet inland cliffs*
- 13O03        **Cystopteridion**  
Crevice communities of shaded calcareous rocks in temperate and boreal  
Europe  
*H3.2 Basic and ultra-basic inland cliffs*  
*H3.4 Wet inland cliffs*
- 13O04        **Edraiantho graminifolii-Erysimion comati**  
Crevice communities of the subalpine belt in the central Balkans  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O05        **Gypsophilion petraeae**  
Crevice communities of sunny rocks in subalpine mountains in the southern  
and eastern Carpathians  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O06        **Jasionion foliosae**  
Crevice communities of shaded rocks in eastern and south-eastern Spain  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O07        **Micromerion croaticae**  
Crevice communities of sunny subalpine mountains in the northwest Dinarides  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O08        **Micromerion pulegii**  
Crevice communities of sunny rocks in the montane belt of the westernmost  
southern Carpathians  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O09        **Potentillion caulescentis**  
Vegetation of calcareous rocks and crevices of the subalpine belt  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O10        **Saxifragion australis**  
Vegetation of calcareous rocks and crevices in the Apennines  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O11        **Saxifragion camposii**  
Vegetation of sunny rocks in high mountains of the Sierra Nevada  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O12        **Saxifragion lingulatae**  
Vegetation of calcareous rocks and crevices in the Maritime Alps  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O13        **Saxifragion mediae**  
Vegetation of sunny rocks in the montane to high-alpine belt of the eastern  
Pyrenees  
*H3.2 Basic and ultra-basic inland cliffs*
- 13O14        **Saxifragion trifurcato-canaliculatae**  
Vegetation of sunny rocks in the high mountains of northern Spain  
*H3.2 Basic and ultra-basic inland cliffs*

- 13O15        **Violo biflorae-Cystopteridion alpinae**  
Vegetation of shaded rocks in the high mountains of northern Spain
- 13P        POTENTILLETALIA SPECIOSAE  
Crevice vegetation of sunny situations on limestone rocks in montane to alpine belts in the southern Balkans
- 13P01        **Galion degenii**  
Vegetation of sunny rocks on Pindos  
*H3.2 Basic and ultra-basic inland cliffs*
- 13P02        **Ramondion nathaliae**  
Vegetation of sunny rocks in the alpine belt of eastern Macedonia and Bulgaria  
*H3.2 Basic and ultra-basic inland cliffs*
- 13P03        **Saxifragion scardicae**  
Endemic calciphilous crevice vegetation of Greek Thessaly  
*H3.2 Basic and ultra-basic inland cliffs*
- 13P04        **Silenion auriculatae**  
Vegetation of sunny rocks in the Peloponnese  
*H3.2 Basic and ultra-basic inland cliffs*
- 13Q        SARCOCAPNETALIA ENNEAPHYLLAE  
Crevice vegetation of southernmost regions of the Iberian Peninsula
- 13Q01        **Sarcocapnion enneaphyllae**  
Crevice vegetation of southernmost regions of the Iberian Peninsula
- 13Q02        **Sarcocapnion speciosae**  
Crevice vegetation of southernmost regions of the Iberian Peninsula
- 14        **ADIANTETEA**  
Chasmophytic, fern- and moss-rich communities of water-splashed habitats of Mediterranean, sub-Mediterranean and Atlantic regions
- 14A        ADIANTETALIA CAPILLI-VENERIS  
Fern-rich chasmophyte communities of water-splashed habitats
- 14A01        **Adiantion**  
Chasmophyte fern-rich communities of water-splashed habitats  
*C2.1 Springs, spring brooks and geysers*
- 14A02        **Pinguiculion longifoliae**  
Endemic communities of mountains in the eastern Pyrenees
- 15        **PHAGNALO-RUMICETEA INDURATI**  
Saxicolous communities of southern Iberia
- 15A        PHAGNALO SAXATILIS-RUMICETALIA INDURATI  
Saxicolous communities of southern Iberia
- 15A01        **Andryalo ramosissimae-Crambion filiformis**  
Baetic serpentine-dolomite river gravel and scree communities
- 15A02        **Calendulo lusitanicae-Antirrhinion linkiani**  
Saxicolous communities of western and central Portugal
- 15A03        **Melico-Phagnalion intermedii**  
Saxicolous communities of southern Spain
- 15A04        **Rumici indurati-Dianthion lusitani**  
Xerophytic vegetation of sunny situations
- 15A05        **Saxifragion continentalis**  
Vegetation of shady situations
- 15A06        **Sesamoidion suffruticosae**  
Saxicolous communities of southern Iberia

- 16 **THLASPIETEA ROTUNDIFOLII**  
Vegetation of scree and rubble
- 16A **ANDROSACETALIA ALPINAE**  
Communities of siliceous screes
- 16A01 **Allosuro-Athyrium alpestris**  
Arctic-boreal communities of boulder fields  
*H2.3 Temperate-montane acid siliceous screes*
- 16A02 **Androsacion alpinae**  
Communities of siliceous-neutral screes and moraines  
*H2.3 Temperate-montane acid siliceous screes*
- 16A03 **Antitrichio-Rhodiolion roseae**  
Icelandic chionophilous communities of gravel substrates  
*H2.1 Boreal siliceous screes*
- 16A04 **Cerastio-Saxifragion cernuae**  
Spitzbergen scree and pioneer herb-rich communities  
*H2.1 Boreal siliceous screes*
- 16A05 **Holcion caespitosi**  
Sierra Nevada alpine scree communities  
*H2.5 Acid siliceous screes of warm exposures*
- 16A06 **Linario saxatilis-Senecionion carpetani**  
Central and northern Iberian siliceous scree communities  
*H2.5 Acid siliceous screes of warm exposures*
- 16A07 **Poion laxae**  
Communities of siliceous screes of the Balkans
- 16A08 **Saxifrago stellaris-Oxyrion digynae**  
Boreal communities of debris washed by snow melt  
*E4.2 Moss and lichen dominated mountain summits, ridges and exposed slopes*
- 16A09 **Senecionion leucophylli**  
Pyrenean subalpine open scree communities  
*H2.5 Acid siliceous screes of warm exposures*
- 16B **ANDRYALETALIA RAGUSINAE**  
Southwest European meso-, supra- and sub-mediterranean vegetation of riverine gravel terraces
- 16B01 **Glaucion flavi**  
Southwest European riverine shingle communities  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 16B02 **Pimpinello-Gouffeion**  
Catalonian submontane riverine gravel communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16B03 **Scrophularion sciophilae**  
Southern Spanish riverine gravel communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16C **ARABIDETALIA CAERULEAE**  
Vegetation of snow-beds on calcareous soils
- 16C01 **Arabidion caeruleae**  
Vegetation of snow-beds on calcareous soils  
*E4.1 Snow-patch grassland*  
*F2.1 Snow-patch dwarf willow scrub*
- 16D **DRYPIDETALIA SPINOSAE**  
East Mediterranean and South Balkan oromediterranean scree communities
- 16D01 **Campanulion hawkinsianae**

- Montane ultramafic and flysch scree communities of the Pindos Mountains (Greece)  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16D02 **Peltarion alliaceae**  
 Balkan montane limestone scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16D03 **Silenion caesia**  
 High-altitude limestone scree communities of peninsular Greece  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16D04 **Silenion marginatae**  
 Dinaric-Friulian montane base-rich scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16E EPILOBIETALIA FLEISCHERI  
 Communities of montane riverine gravel terraces of temperate mountain ranges
- 16E01 **Calamagrostion pseudophragmitis**  
 Pyrenean high-altitude vegetation of riverine gravel terraces  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 16E02 **Salicion incanae**  
 Alpine and Carpathian alpine and subalpine river gravel communities  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*  
*F9.1 Riverine and lakeshore [Salix] scrub*  
*H3.2 Basic and ultra-basic inland cliffs*
- 16F GALEOPISETALIA  
 Pyrenean to Carpathian sub-montane siliceous scree communities
- 16F01 **Galeopsion pyrenaicae**  
 Pyrenean submontane siliceous scree communities
- 16F02 **Galeopsion segetum**  
 Praealpic submontane siliceous scree communities  
*H2.3 Temperate-montane acid siliceous screes*
- 16G GALIO-PARIETARIETALIA OFFICINALIS  
 Thermophilous calcareous scree communities of colline to montane belts
- 16G01 **Leontodontion hyoseroidis**  
 Communities of low-altitude calcareous screes of eastern France  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16G02 **Parietaron officinalis**  
 Carpathian scree vegetation of steep slopes of forested gorges
- 16G03 **Scrophularion juratensis**  
 Communities of low-altitude calcareous screes of the Jura  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16G04 **Stipion calamagrostis**  
 Thermophilous communities of calcareous screes  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16G05 **Teucrium montani**  
 East Carpathian montane open scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16H POLYSTICHETALIA LONCHITIDIS  
 Fern-rich vegetation of calcareous and siliceous rocks in the Pyrenees and Alps
- 16H01 **Arrhenatherion sardei**  
 Oromediterranean grassy screes of Corsica
- 16H02 **Dryopteridion oreadis**  
 Pyrenean and Apennine subalpine siliceous scree and moraine communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16H03 **Petasition paradoxi**

- Carpathian to Pyrenean limestone gorge and montane scree communities  
*H2.4 Temperate-montane calcareous and ultra-basic screes*  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16I SCROPHULARIO-HELICHRYSSETALIA  
 South Italian thermophilous scree communities
- 16I01 **Euphorbion rigidae**  
 Low-altitude Calabro-Sicilian pioneer communities of riverine gravel banks
- 16I02 **Linarion purpureae**  
 Sicilian montane scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J THLASPIETALIA ROTUNDIFOLII  
 Alpine and subalpine calcareous scree communities
- 16J01 **Arenarion norvegicae**  
 Icelandic and Svalbard base-rich to neutral scree and moraine communities  
*H2 Screes*  
*H2.2 Boreal limestone screes*
- 16J02 **Bunion alpini**  
 Dinaric (Velebit) alpine chionophilous scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J03 **Drabion hoppeanae**  
 Alpic neutral to calcareous slate scree communities  
*H2.4 Temperate-montane calcareous and ultra-basic screes*
- 16J04 **Iberidion spathulatae**  
 Pyrenean calcareous scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J05 **Iberido-Linarion propinqua**  
 Orocantabrian and west Pyrenean thermophilous calcareous scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J06 **Linario-Festucion dimorphae**  
 Central and southern Apennine montane calcareous scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J07 **Linarion filicaulis**  
 Calcareous scree communities of high altitudes of the Cantabrian Mountains  
*F2.3 Subalpine deciduous scrub*  
*H2.5 Acid siliceous screes of warm exposures*  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J08 **Papaverion tatrici**  
 West Carpathian alpine and subalpine calcareous scree communities  
*H2.4 Temperate-montane calcareous and ultra-basic screes*
- 16J09 **Papavero-Thymion pulcherrimi**  
 Eastern and southern Carpathian alpine base-rich scree communities  
*H2.4 Temperate-montane calcareous and ultra-basic screes*
- 16J10 **Platycapno saxicolae-Iberidion granatensis**  
 Oro- and supramediterranean scree vegetation of Granada  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J11 Saxifragion praetermissae  
 Oro-Cantabrian and Pyrenean vegetation of neutral screes  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J12 **Saxifragion prenjae**  
 Subalpine chionophilous calcareous scree communities of the Dinarides  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J13 **Thlaspion rotundifolii**

- Vegetation of calcareous screes of subalpine and alpine belts of the Alps and Carpathians  
*E1.B Heavy-metal grassland*  
*H2.4 Temperate-montane calcareous and ultra-basic screes*  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J14 **Thlaspion stylosi**  
 Southern Apennine calcareous scree communities  
*H2.6 Calcareous and ultra-basic screes of warm exposures*
- 16J15 **Veronico-Papaverion degenii**  
 Endemic alpine limestone scree communities of the Pirin Mountains (Bulgaria)  
*H2.4 Temperate-montane calcareous and ultra-basic screes*
- 16K VIOLETALIA CALAMINARIAE  
 Swards on soils rich in heavy metals, natural or anthropogenic
- 16K01 **Armerion halleri**  
 North-central European heavy metal tolerant communities of spoil heaps
- 16K01 *E1.B Heavy-metal grassland*
- 16K02 **Thlaspion calaminariae**  
 Swards on soils rich in heavy metals, mostly in western Europe  
*E1.B Heavy-metal grassland*

## D FRESHWATER AQUATIC VEGETATION

- 17 **LEMNETEA**  
 Free-floating duckweed communities of still, relatively nutrient-rich, fresh waters in warmer parts of Europe
- 17A LEMNETALIA MINORIS  
 Free-floating duckweed communities of still, relatively nutrient-rich, fresh waters
- 17A01 **Lemnion minoris**  
 Duckweed communities of eutrophic and hypertrophic waters  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*
- 17A02 **Lemnion trisulcae**  
 Duckweed and liverwort communities of shallow, more mesotrophic waters  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*
- 17A03 **Lemno minoris-Hydrocharition morsus-ranae**  
 Communities of free-floating macrophytes in fairly nutrient-rich waters  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*
- 18 **CHARETEA FRAGILIS**  
 Submerged stonewort swards
- 18A CHARETALIA HISPIDAE  
 Submerged stonewort swards
- 18A01 **Charion fragilis**  
 Submerged stonewort swards of lime-rich freshwaters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*
- 18A02 **Charion vulgaris**  
 Submerged stonewort swards of more eutrophic waters

- C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 18B LAMPROTHAMNIETALIA PAPULOSI  
Submerged stonewort swards of brackish to hyper-saline waters
- 18B01 **Charion canescentis**  
Submerged stonewort swards of brackish to hyper-saline waters  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*  
*C1.5 Permanent inland saline and brackish lakes, ponds and pools*
- 18C NITELLEETALIA FLEXILIS  
Submerged stonewort swards of less lime-rich freshwaters
- 18C01 **Nitellion flexilis**  
Submerged stonewort swards of lime-rich freshwaters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 18C02 **Nitellion syncarpae-tenuissimae**  
Submerged stonewort swards of lime-rich freshwaters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 19 **POTAMETEA**  
Communities of rooted, floating or submerged plants in mesotrophic and eutrophic fresh waters
- 19A CALLITRICO-POTAMETALIA  
Crosswort, crowfoot and milfoil vegetation of moving waters and water margins
- 19A01 **Ranunculion fluitantis**  
Crowfoot and milfoil vegetation of moving waters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C2.1 Springs, spring brooks and geysers*  
*C2.2 Permanent non-tidal, fast, turbulent watercourses*  
*C2.3 Permanent non-tidal, slow, smooth-flowing watercourses*
- 19A02 **Ranunculion aquatilis**  
Crosswort vegetation of shallow water and margins of streams, ditches and pools  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.5 Permanent inland saline and brackish lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C2.1 Springs, spring brooks and geysers*  
*C2.2 Permanent non-tidal, fast, turbulent watercourses*
- 19B POTAMETALIA  
Communities of rooted, floating or submerged plants in mesotrophic and eutrophic fresh waters
- 19B01 **Ceratophyllion demersi**  
Communities of submerged free-floating macrophytes

- 19B02      **Nelumboion nuciferae**  
 Macrophyte communities in the Volga Delta dominated by *Nelumbo nucifera*  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*
- 19B03      **Nymphaeion albae**  
 Communities of rooted aquatics with floating leaves in sheltered nutrient-rich fresh water  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C2.1 Springs, spring brooks and geysers*  
*C2.2 Permanent non-tidal, fast, turbulent watercourses*  
*C2.3 Permanent non-tidal, slow, smooth-flowing watercourses*
- 19B04      **Parvopotamion**  
 Rooted aquatic communities in moderate to deep standing water, often open to winds and waves  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*
- 19B05      **Magnopotamion**  
 Vegetation dominated by floating rooted broad-leaved *Potamogeton* species  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 19B06      **Utricularion vulgaris**  
 Aquatic communities in sheltered, rather nutrient-rich, standing water
- 19C      ZANNICHELLIETALIA PEDICELLATAE  
 Communities of rooted aquatics in brackish waters
- 19C01      **Zannichellion pedicellatae**  
 Communities of rooted aquatics in brackish waters  
*A4.5 Shallow sublittoral sediments dominated by angiosperms*  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.5 Permanent inland saline and brackish lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*

## E SPRINGS, SHORELINE AND SWAMP VEGETATION

- 20      **MONTIO-CARDAMINETEA**  
 Vegetation of cold springs, commonly dominated by bryophytes
- 20A      **CARDAMINO-CHRYSOSPLENIETALIA**

- Vegetation of soft-water springs of the sub-montane to montane belts of central Europe
- 20A01     **Caricion remotae**  
Soft-water spring communities dominated by phanerogams  
*C2.1 Springs, spring brooks and geysers*
- 20A02     **Lycopodo-Cratoneurion commutati**  
Nutrient-rich vegetation of lime-rich tepid springs at lower altitudes  
*C2.1 Springs, spring brooks and geysers*
- 20B       MONTIO-CARDAMINETALIA  
Vegetation of cold springs, commonly dominated by bryophytes
- 20B01     **Cardamino nymannii-Saxifragion foliolosae**  
Water-spring communities of Spitzbergen  
*C2.1 Springs, spring brooks and geysers*
- 20B02     **Cardamino-Montion**  
Spring vegetation of base-poor waters  
*C2.1 Springs, spring brooks and geysers*
- 20B03     **Cratoneurion commutati**  
Calcareous spring communities, commonly dominated by mosses  
*C2.1 Springs, spring brooks and geysers*
- 20B04     **Dermatocarpion**  
Water-splashed epiphytic lichen communities  
*C2.1 Springs, spring brooks and geysers*
- 20B05     **Epilobio nutantis-Montion**  
Sub-atlantic moss-rich vegetation of oligotrophic, lime-poor springs  
*C2.1 Springs, spring brooks and geysers*
- 20B06     **Myosotidion stoloniferae**  
Communities of oligotrophic springs in northern Spain  
*C2.1 Springs, spring brooks and geysers*
- 20B07     **Philonotidion seriatae**  
Communities of oligotrophic springs of the Alps  
*C2.1 Springs, spring brooks and geysers*
- 21        **ISOËTO-LITTORELLETEA**  
Hairgrass swards and bladderwort and bog moss communities in oligotrophic waters
- 21A       LITTORELLETALIA  
Hairgrass swards and related communities in nutrient-poor, standing or slow-flowing waters
- 21A01     **Deschampsion litoralis**  
Shore hair-grass communities  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*
- 21A02     **Eleocharition acicularis**  
Vegetation of fluctuating waters with loamy soils in boreal and continental Europe  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*
- 21A03     **Hyperico elodis-Sparganion**  
Vegetation of soakways and shallow, fluctuating, mesotrophic to oligotrophic standing waters  
*B1.8 Moist and wet dune slacks*  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*

- C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*
- 21A04     **Isoëtion lacustris**  
 Quillwort vegetation of deeper, nutrient-poor waters of stony shores  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*
- 21A05     **Littorellion uniflorae**  
 Water lobelia and quillwort swards in nutrient-poor standing waters  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*
- 21A06     **Potamion graminei**  
 Rooted aquatic communities in nutrient-poor, moderate to deep, standing or slow-flowing waters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.3 Permanent eutrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*
- 21B        UTRICULARIETALIA INTERMEDIO-MINORIS  
 Bladderwort and bog-moss communities
- 21B01     **Scorpidio-Utricularion minoris**  
 Bladderwort communities of lime-rich bog pools and soakways  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 21B02     **Sphagno-Utricularion**  
 Bladderwort and bog-moss communities of dystrophic peaty waters  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C1.2 Permanent mesotrophic lakes, ponds and pools*  
*C1.4 Permanent dystrophic lakes, ponds and pools*
- 22        **ISOËTO-NANOJUNCETEA**  
 Pioneer ephemeral dwarf-cyperaceous vegetation on periodically flooded soils
- 22A        CRYPsidETALIA ACULEATAE  
 Therophyte vegetation of inland salt pans of the Sarmato-Pannonian region
- 22A01     **Cypero-Spergularion salinae**  
 Annual halophilous vegetation of bottoms and edges of drained temporary pools of the Pannonian basin  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 22A02     **Polygono salsuginei-Crypsion aculeatae**  
 Communities of depressions on the surface of spring muds in the Crimea
- 22A03     **Puccinellion peisonis**  
 Endemic pioneer inland salt-marsh swards of the Neusiedler See  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 22B        ISOËTALIA  
 Pioneer ephemeral dwarf-cyperaceous vegetation on periodically flooded soils in the Mediterranean
- 22B01     **Agrostion salmanticae**

- Communities of acid sands in hollows (vallicares) in north-west Iberia  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 22B02 **Isoëtion**  
 Temporary pools with quillworts in the Mediterranean zone
- 22B03 **Preslion cervinae**  
 Temporary pools on sandy soils in the Mediterranean zone  
*B1.8 Moist and wet dune slacks*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 22C NANOCYPERETALIA  
 Pioneer ephemeral dwarf-cyperaceous vegetation on periodically flooded soils in temperate Europe
- 22C01 **Cicendio-Solenopsision laurentiae**  
 Central and east Mediterranean ephemeral communities of oligotrophic temporarily flooded depressions
- 22C02 **Cicendion**  
 West Mediterranean-Atlantic ephemeral communities of oligotrophic temporarily flooded depressions
- 22C03 **Elatini macropodae-Damasonion alismae**  
 Mediterranean-Atlantic mesophytic ephemeral communities of temporary flooded depressions and edges of water bodies
- 22C04 **Eleocharition soloniensis**  
 Mesotrophic ephemeral communities of temporarily flooded depressions and edges of water bodies with continental distribution  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 22C05 **Lythron tribracteati**  
 Communities of long-lasting temporary summer pools in inland Iberia
- 22C06 **Nanocyperion**  
 Pioneer dwarf cyperaceous and therophyte communities on bare, periodically flooded ground  
*C2.1 Springs, spring brooks and geysers*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 22C07 **Ranunculion omiophyllo-hederacei**  
 Pioneer therophyte communities of shallow, mesotrophic water in southwestern Europe
- 22C08 **Verbenion supinae**  
 Submediterranean and Mediterranean periodically flooded muddy, nutrient-rich and saline banks  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 23 **PHRAGMITO-MAGNOCARICETEA**  
 Swamp, fen and marginal vegetation of fresh or brackish waters, dominated by graminoids, sedges and forbs
- 23A NASTURTIO-GLYCERIETALIA  
 Vegetation dominated by mixtures of grasses and herbs along fresh-water streams and ditch banks

- 23A01 **Glycerio-Sparganion**  
Vegetation dominated by small grasses and herbs along stream and ditch banks  
*C3.1 Species-rich helophyte beds*
- 23A02 **Phalaridion arundinaceae**  
Reed canary-grass vegetation of water margins, often with fluctuation  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*  
*D5.1 Reedbeds normally without free-standing water*
- 23B PHRAGMITETALIA  
Swamp and fen vegetation dominated by graminoids, sedges and forbs, often species poor
- 23B01 **Carici-Rumicion hydrolopathi**  
Vegetation with a floating raft of sedges in eutrophic waters  
*D2.3 Transition mires and quaking bogs*  
*D5.2 Beds of large sedges normally without free-standing water*
- 23B02 **Caricion broterianae**  
Iberio-Atlantic swamps of turbulent waters  
*D5.2 Beds of large sedges normally without free-standing water*
- 23B03 **Deschampsion argenteae**  
Herbaceous vegetation of edges of flowing waters of Madeira
- 23B04 **Magnocaricion elatae**  
Vegetation dominated by bulky sedges on peaty soils  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*D2.2 Poor fens*  
*D2.3 Transition mires and quaking bogs*  
*D5.2 Beds of large sedges normally without free-standing water*
- 23B05 **Oenanthion aquaticae**  
Vegetation of small emergent herbs on mud in and by the shallows of streams and ponds  
*C1.1 Permanent oligotrophic lakes, ponds and pools*  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*D5.1 Reedbeds normally without free-standing water*
- 23B06 **Phragmition communis**  
Swamps and fens dominated by tall graminoids in standing or gently moving waters and winter-flooded fens  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*D5.1 Reedbeds normally without free-standing water*  
*D5.2 Beds of large sedges normally without free-standing water*
- 23C SCIRPETALIA MARITIMI  
Graminoid and sedge vegetation of brackish waters
- 23C01 **Cirsio brachycephali-Bolboschoenion**  
Tall herb-rich reed vegetation on brackish soils in the Pannonian region  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*D5.1 Reedbeds normally without free-standing water*
- 23C02 **Scirpion maritimi**  
Vegetation of flushed depressions in upper salt-marshes of the Atlantic  
*C3.2 Water-fringing reedbeds and tall helophytes other than canes*  
*D5.1 Reedbeds normally without free-standing water*
- 23C03 **Typhion laxmannii**  
Tall-herb communities of slightly salty waters described from the semi-desert zone in the Volga Delta

## F BOGS AND FENS

- 24     **SCHEUCHZERIO-CARICETEA FUSCAE**  
Bog-pool, flush and mire vegetation dominated by small sedges and bryophytes
- 24A     **CARICETALIA DAVALLIANAE**  
Small-sedge rich-fen vegetation of oligo-mesotrophic calcareous peaty soils in springs and flushes
- 24A01     **Caricion atrofusco-saxatilis**  
Small-sedge rich-fen vegetation of calcareous flushes at high altitudes  
*C2.1 Springs, spring brooks and geysers*  
*D2.2 Poor fens*  
*D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*  
*D4.2 Basic mountain flushes and streamsides, with a rich arctic-montane flora*
- 24A02     **Caricion davallianae**  
Small-sedge rich-fen vegetation of calcareous oligotrophic flushes, soligenous mires and dune slacks at low altitude  
*B1.8 Moist and wet dune slacks*  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*  
*D2.2 Poor fens*  
*D2.3 Transition mires and quaking bogs*  
*D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*  
*D4.2 Basic mountain flushes and streamsides, with a rich arctic-montane flora*  
*D5.2 Beds of large sedges normally without free-standing water*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 24B     **CARICETALIA FUSCAE**  
Mires developing on mesotrophic and oligomesotrophic peats and peaty mineral soils
- 24B01     **Anagallido-Juncion bulbosi**  
Acidophilous mires of mountains of northern Spain
- 24B02     **Bellidio-Bellion nivali**  
Oromediterranean mires of Corsica  
*D2.2 Poor fens*
- 24B03     **Caricion fuscae**  
Vegetation of acid oligo-mesotrophic peats or peaty mineral soils of temperate Europe  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*B1.8 Moist and wet dune slacks*  
*C1.4 Permanent dystrophic lakes, ponds and pools*  
*D2.2 Poor fens*  
*D2.3 Transition mires and quaking bogs*  
*D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*  
*D4.2 Basic mountain flushes and streamsides, with a rich arctic-montane flora*  
*D5.3 Swamps and marshes dominated by [Juncus effusus] or other large [Juncus] spp.*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 24B04     **Caricion intricatae**  
Oromediterranean acidophilous mires of the Sierra Nevada

- 24B05        **Nartheccion scardici**  
Small-sedge fens at high altitudes in the central Balkans  
              *D2.2 Poor fens*
- 24B06        **Sphagno recurvi-Caricion canescentis**  
Small-sedge oligotrophic fens at the fringes of bog complexes
- 24B07        **Sphagno warnstorfiani-Tomenthypnion**  
Small-sedge oligo-mesotrophic fens developing over siliceous to base-rich substrates  
              *D2.2 Poor fens*  
              *D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*
- 24C        SCHEUCHZERIETALIA PALUSTRIS  
Small-sedge mires developing on oligotrophic and oligo-mesotrophic peats
- 24C01        **Caricion lasiocarpae**  
Mires developing on more mesotrophic peats  
              *C1.4 Permanent dystrophic lakes, ponds and pools*  
              *D1.1 Raised bogs*  
              *D2.3 Transition mires and quaking bogs*  
              *D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*
- 24C02        **Rhynchosporion albae**  
Vegetation of stagnant, acid, dystrophic waters in pools of Sphagnum bogs on deep peats  
              *C1.4 Permanent dystrophic lakes, ponds and pools*  
              *D1.1 Raised bogs*  
              *D1.2 Blanket bogs*  
              *D2.3 Transition mires and quaking bogs*
- 25        **OXYCOCCO-SPHAGNETEA**  
Ombrotrophic bog and wet heathland vegetation of acid oligotrophic peats
- 25A        ERICO-LEDETALIA  
Atlantic and sub-atlantic raised bogs
- 25A01        **Ericion tetralicis**  
Wet heath and bog vegetation on drying deeper peats or winter-waterlogged peaty intergrades  
              *D1.1 Raised bogs*  
              *D1.2 Blanket bogs*  
              *D2.2 Poor fens*  
              *F4.1 Wet heaths*
- 25A02        **Erico mackaiana-Sphagnion papilloso**  
Bogs of the eu-oceanic region of northwestern Iberia  
              *D2.3 Transition mires and quaking bogs*
- 25A03        **Oxycocco-Ericion tetralicis**  
Bog vegetation of deep, wet peats in raised, blanket and valley mires  
              *D1.1 Raised bogs*  
              *D1.2 Blanket bogs*  
              *D2.1 Valley mires*  
              *D2.2 Poor fens*  
              *F4.1 Wet heaths*
- 25B        SPHAGNETALIA MEDII  
Bog communities of sub-continental regions of Europe
- 25B01        **Eriophorion vaginati**  
Bogs of arctic regions, alpine belt and high altitudes of the boreal region

- 25B02 *D1.1 Raised bogs*  
**Sphagnion medii**  
 Bogs of sub-continental and montane regions  
*D1.1 Raised bogs*  
*G3.E Nemoral bog conifer woodland*
- 25C SPHAGNO-BETULETALIA  
 Birch and pine open bog woodlands
- 25C01 **Betulion pubescentis**  
 Birch-dominated swampy woodlands  
*D1.1 Raised bogs*  
*G1.5 Broadleaved swamp woodland on acid peat*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.E Nemoral bog conifer woodland*  
*G5.6 Early-stage natural and semi-natural woodlands and regrowth*
- 25C02 **Ledo-Pinion**  
 Pine-dominated swampy woodlands  
*F2.4 [Pinus mugo] scrub*  
*G5.6 Early-stage natural and semi-natural woodlands and regrowth*

## G TEMPERATE GRASSLANDS, HEATHS AND FRINGE VEGETATION

- 26 **MOLINIO-ARRHENATHERETEA**  
 Anthropogenic pastures and meadows on deeper, more or less fertile soils in lowland regions
- 26A ALTHAEETALIA OFFICINALIS  
 Meadows in the steppe and semi-desert zones of east Europe on moderately saline flooded soils
- 26A01 **Althaeion officinalis**  
 Meadows of the Lower Volga valley and surrounding limans on moderately saline flooded soils
- 26A02 **Euphorbion palustris**  
 Meadows in the steppe part of the Ural river valley on moderately saline flooded soils
- 26B ARRHENATHERETALIA  
 Pastures and meadows on well-drained relatively fertile mineral soils
- 26B01 **Arrhenatherion**  
 Meadows of well-drained, relatively fertile mineral soils at lower altitudes  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26B02 **Cynosurion cristati**  
 Pastures of relatively well-drained, fertile mineral soils at lower altitudes in central and western Europe  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E2.6 Agriculturally-improved, re-seeded and heavily fertilized grassland, including sports fields and grass lawns*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26B03 **Gaudinio fragilis-Cynosurion cristati**  
 Thermo-atlantic and supramediterranean mesic meadows of France and Spain

- E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*
- 26B04      **Pancicion serbicae**  
Thermophilous montane meadows of the central Balkans
- 26B05      **Phyteumo-Trisetion**  
Meadows of less fertile mineral soils in central Europe with influence of Atlantic climate  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E2.3 Mountain hay meadows*
- 26C      CIRSIETALIA VALLIS-DEMONIS  
Montane meadows in Sicily and Calabria
- 26C01      **Plantaginion cupanii**  
Montane mesic meadows in Sicily and Calabria  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*
- 26D      GALIETALIA VERI  
Dry steppic herb-rich meadows of Ukraine and southern Russia
- 26D01      **Artemision ponticae**  
Steppe meadows of the lower reaches of the Don river floodplain  
*E2.5 Meadows of the steppe zone*
- 26D02      **Polygonion krascheninnikovii**  
Meadows of tall herbs on fertile mineral soils of the forest and montane zones of the South Ural  
*E2.5 Meadows of the steppe zone*
- 26D03      **Seselion libanotis**  
Steppe meadows of the lower reaches of Ural river floodplain  
*E2.5 Meadows of the steppe zone*
- 26D04      **Trifolion montani**  
Dry meadows of forest-steppe and steppe in east Europe and Siberia  
*E2.5 Meadows of the steppe zone*
- 26E      HOLOSCHOENETALIA  
Humid meadows and reed communities in the Mediterranean region
- 26E01      **Dactylorhizo-Juncion striati**  
Calabro-Sicilian humid meadows of high altitudes  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*
- 26E02      **Deschampsion mediae**  
Humid pastures on loamy soils  
*E3.2 Mediterranean short humid grassland*
- 26E03      **Gaudinio fragilis-Hordeion bulbosi**  
Humid meadows on sandy soils along the Mediterranean coast
- 26E04      **Molinio-Holoschoenion**  
Reed communities on humid and seasonally sub-saline soils on ancient dune systems  
*C3.3 Water-fringing beds of tall canes*  
*C3.4 Species-poor beds of low-growing water-fringing or amphibious vegetation*  
*D5.2 Beds of large sedges normally without free-standing water*  
*E3.1 Mediterranean tall humid grassland*
- 26E05      **Sieglingion decumbentis**  
Wet meadows on edges of mountain water courses in Corsica
- 26F      MOLINIETALIA  
Meadows and pastures of moister soils, often peaty

- 26F01 **Alopecurion pratensis**  
Meadows of fresh nutrient-rich soils dominated by graminoids, in floodplains of large rivers in central and eastern Europe  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E3.3 Sub-mediterranean humid meadows*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26F02 **Calthion palustris**  
Wet meadows and pastures of fertile, often manured soils of western and central Europe  
*D5.2 Beds of large sedges normally without free-standing water*  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 26F03 **Carici distichae-Oenanthion fistulosae**  
Submediterranean-atlantic wet meadows of broad valleys of western Europe
- 26F04 **Cnidion venosi**  
Floodplain alluvial meadows of sub-continental regions of central Europe  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26F05 **Deschampsion cespitosae**  
Oligohaline moist tussocky meadows of southeast Europe  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26F06 **Filipendulion**  
Tall-herb vegetation, seldom mown or grazed, on moist fertile mineral soils and peats  
*D5.2 Beds of large sedges normally without free-standing water*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 26F07 **Juncion acutiflori**  
Meadows and pastures of moist peaty mineral soils with flushing or impeded drainage  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E3.5 Moist or wet oligotrophic grassland*
- 26F08 **Junco-Molinion**  
Meadows of moist but fresh soils in western Europe, usually unmanured  
*E3.5 Moist or wet oligotrophic grassland*
- 26F09 **Lythro-Euphorbion**  
Meadows of moist soils in the river valleys of the semi-desert zone of European Russia  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 26F10 **Molinion caeruleae**  
Wet unmanured low-altitude meadows of central Europe  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E3.5 Moist or wet oligotrophic grassland*
- 26F11 **Trifolion squamosi**  
Slightly saline inundated herb-rich meadows of hind-dune habitats  
*A2.6 Coastal saltmarshes and saline reedbeds*
- 26F12 **Veronico longifoliae-Lysimachion vulgaris**  
Central European sub-continental unmown tall-forb meadows on alluvia of large rivers

- E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 26G PASPALO-HELEOCHLOETALIA  
Periodically flooded grasslands of muddy alluvia in the Mediterranean region
- 26G01 **Paspalo-Agrostidion semiverticillati**  
Grassy carpets on muddy soils in the western Mediterranean region  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 26G02 **Trifolio fragiferi-Cynodontion**  
Slightly saline flooded disturbed grasslands of the Mediterranean region
- 26H PLANTAGINI-PRUNELLEETALIA  
Weedy grasslands on trampled soils of shaded habitats
- 26H01 **Plantagini-Prunellion**  
Weedy grasslands on trampled soils of shaded habitats  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 26I POO ALPINAЕ-TRISSETALIA  
High-altitude mesic hay meadows of the Alps
- 26I01 **Poion alpinae**  
Cattle pastures of heavy fertile soils in subalpine belt of the Alps and Carpathians  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E4.5 Alpine and subalpine enriched grassland*
- 26I02 **Poion supinae**  
Grasslands of heavily-trampled and overgrazed pastures at higher altitudes in temperate mountains of Europe
- 26I03 **Triseti-Polygonion bistortae**  
Meadows of well-drained, relatively fertile mineral soils in low-input agricultural systems of montane regions  
*E2.2 Coarse permanent grassland and tall herbs, usually mown but little grazed*  
*E2.3 Mountain hay meadows*  
*E4.5 Alpine and subalpine enriched grassland*
- 26J POTENTILLO-POLYGONETALIA  
Temporarily flooded disturbed grasslands of temperate Europe
- 26J01 **Alopecurion utriculati**  
Oligohaline mediterranean-subatlantic meadows of western Europe
- 26J02 **Potentillion anserinae**  
Low herb communities of variable habitats with wet-dry, or brackish-fresh conditions  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*B1.8 Moist and wet dune slacks*  
*C1.6 Temporary lakes, ponds and pools (wet phase)*  
*D6.1 Inland saltmarshes*  
*E2.1 Permanent mesotrophic pastures and aftermath-grazed meadows*  
*E2.6 Agriculturally-improved, re-seeded and heavily fertilized grassland, including sports fields and grass lawns*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*  
*E6.2 Continental inland saline grass and herb-dominated habitats*  
*H5.3 Clay, silt, sand and gravel habitats with very sparse or no vegetation*
- 26K TRIFOLIO-HORDEETALIA  
Amphiadriatic meadows of endorhoecic basins (poljes) and similar periodically-flooded habitats
- 26K01 **Molinio-Hordeion secalini**

- Dalmatian riverine and floodplain damp meadows  
*E3.3 Sub-mediterranean humid meadows*
- 26K02 **Ranunculion velutini**  
Apennine damp meadows of karstic plains  
*E3.3 Sub-mediterranean humid meadows*
- 26K03 **Trifolion pallidi**  
Riverine and damp meadows of the northern Dinarides  
*E3.3 Sub-mediterranean humid meadows*
- 26K04 **Trifolion resupinati**  
Oligohaline flooded meadows in central and southern Balkans and northern Greece  
*E3.3 Sub-mediterranean humid meadows*
- 27 **STIPO GIGANTEAE-AGROSTIETEA CASTELLANAE**  
Mediterranean-Iberoatlantic meso- to supra-mediterranean perennial grasslands
- 27A AGROSTIETALIA CASTELLANAE  
Iberian perennial pastures of meso- and supra-mediterranean belts
- 27A01 **Agrostio castellanac-Stipion giganteae**  
Pastures on humic brown soils in the mediterranean zone of Iberia  
*E1.A Mediterranean dry acid and neutral open grassland*
- 27A02 **Agrostion castellanac**  
Iberian meso- to supra-mediterranean perennial grasslands  
*E2.4 Iberian summer pastures (vallicares)*
- 27A03 **Festucion elegantis**  
Pastures on humic brown soils in humid Mediterranean mountains in Iberia  
*E1.8 Mediterranean dry acid and neutral closed grassland*
- 27B FESTUCETALIA JUBATAE  
Supra-mediterranean open grasslands of the Azores and Madeira
- 27B01 Deschampsio maderensis-Parafestucion albidac  
Supra-mediterranean open grasslands of Madeira
- 28 **FESTUCO-BROMETEA**  
Steppes, rocky steppes and sandy grasslands of the sub-continental temperate and sub-boreal regions
- 28A ASTRAGALO-POTENTILLETALIA  
Dry steppic grasslands of the submontane and montane belt of the south-central Balkans
- 28A01 **Armerio-Potentillion**  
Dry steppic grasslands over siliceous bedrock in the montane belt of Macedonia
- 28A02 **Koelerio-Festucion dalmaticac**  
Dry steppic grasslands over dolomite and ultramafic rock in Serbia
- 28A03 **Saturejo-Thymion**  
Dry steppic grasslands over ultramafic rocks of Macedonia and south Serbia
- 28B BRACHYPODIETALIA PHOENICOIDIS  
West and central Mediterranean dry perennial meadows and abandoned fields
- 28B01 **Brachypodion phoenicoidis**  
West and central Mediterranean dry perennial meadows and abandoned fields  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E5.1 Over-grazed arid Mediterranean garrigues (ermes)*
- 28C BROMETALIA ERECTI  
Meso-xerophilous grasslands on deep calcareous soils
- 28C01 **Artemisio albae-Dichanthion ischaemi**

- 28C02 Meso-xerophilous, calcareous grasslands  
**Bromion erecti**  
Meso-xerophytic swards in sub-oceanic regions of western Europe  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28C03 **Cirsio-Brachypodium pinnati**  
Meso-xerophytic swards in sub-continental regions of central and eastern Europe  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28C04 **Cytiso-Bromion caprini**  
Submediterranean subarid grasslands of mid-altitudes in Calabria  
*F7.4 Hedgehog-heaths*
- 28C05 **Danthonio-Brachypodium**  
Meso-xerophilous grasslands of the southern and eastern Carpathians  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28C06 **Festuco-Bromion**  
Meso-xerophytic swards of submediterranean regions of Provence and the Ligurian Alps
- 28C07 **Gentianello amarellae-Avenulion pratensis**  
Meso-xerophytic swards of north-west Europe
- 28C08 **Phleo ambigu-Bromion erecti**  
Meso-xerophytic submontane-montane swards of the northern and central Apennines  
*E1.5 Mediterraneo-montane grassland*
- 28C09 **Potentillo montanae-Brachypodium rupestris**  
Steppic grasslands of northern Spain and the Pyrenees  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28C10 **Teucro pyrenaici-Bromion erecti**  
Calcareous chamaephyte-rich dry pastures in the Cantabrian area  
*F7.4 Hedgehog-heaths*
- 28D BROMOPSJETALIA CAPPADOCICAE  
Steppes and dwarf semi-shrubby communities of Crimean mountains
- 28D01 **Adonido vernalis-Stipion tirsae**  
Crimean steppes and dwarf-shrub communities of low altitudes
- 28D02 **Carici humilis-Androsacion tauricae**  
Crimean steppes and dwarf-shrub communities of higher altitudes
- 28D03 **Veronico multifidae-Stipion ponticae**  
Communities of foothills in the eastern part of south Crimean coast and northern Crimean mountains
- 28E FESTUCETALIA VAGINATAE  
European Continental steppes and dry meadows on sandy soils
- 28E01 **Bromion tectorum**  
Pioneer vegetation among Pannonian steppe grasslands on acid sands  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 28E02 **Cynodonto-Teucro polii**  
Communities of older quartz sands and shell detritus on dunes with primitive soils in the Azov region  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28E03 **Festucion beckeri**  
Communities of Ukrainian sandy steppes  
*B1.4 Coastal stable dune grassland (grey dunes)*

- E1.2 Perennial calcareous grassland and basic steppes*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 28E04 **Festucion vaginatae**  
Communities of Pannonian sandy steppes  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*  
*E3.4 Moist or wet eutrophic and mesotrophic grassland*
- 28E05 **Scabiosion ucranicae**  
Sand steppes of plains around the western seaboard of the Black Sea  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28E06 **Verbascion pinnatifidii**  
Communities of young quartz sands and shell detritus behind avadunes in the Azov region  
*B1.3 Shifting coastal dunes*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F FESTUCETALIA VALESIIACAE  
Sub-continental to continental closed fescue pastures and swards
- 28F01 **Agropyron pectinati**  
Xerophilous steppes on slightly saline soils described from the middle Volga region  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F02 **Artemisio tauricae-Festucion**  
Xerothermic communities on volcanic substrates in the Crimea
- 28F03 **Danthonio-Stipion tirsae**  
Circum-Pannonian steppic grasslands on deep soils with fluctuating yearly moisture regime  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F04 **Diplachnion**  
Periodically arid swards on clayey soils in continental valleys of the eastern Alps  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F05 **Festucion valesiaca**  
Sub-continental closed fescue pastures and swards of central Europe  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 28F06 **Helianthemo-Globularion**  
Sub-boreal and boreal steppes of rendzinas on hard limestone (alvars)  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F07 **Stipion lessingiana**  
Steppes of deep soils in Moldova, Dobrudga and southern Ukraine  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F08 **Stipo-Poion carniolica**  
Very arid swards of continental valleys in the western Alps  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F09 **Stipo-Poion xerophila**  
Very arid swards of continental valleys in the central and eastern Alps  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28F10 **Thymo comosi-Festucion sulcatae**  
Steppic dry grasslands of Transsylvania

- 28G HALACSYETALIA SENDTNERI  
Steppic vegetation on ultramafic soils in the Balkans
- 28G01 **Centaureo-Bromion fibrosi**  
Rocky steppic grasslands over ultramafic bedrocks in Serbia and Albania
- 28G02 **Polygonion albanicae**  
Rocky steppic grasslands over ultramafic bedrocks in central Bosnia
- 28G03 **Potentillion visianii**  
Rocky steppic grasslands over ultramafic bedrocks in eastern Bosnia
- 28H HELICTOTRICHO-STIPETALIA  
Continental temperate grasslands of the steppe and semi-desert zones of the south Ural region and northern Kazakhstan
- 28H01 **Centaurion sumensis**  
Xerophilous steppe communities of stony substrates in the Middle Volga region  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28H02 **Helictotricho desertori-Stipion rubentis**  
Continental steppes of North Kazakhstan and the South Ural  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28H03 **Lathyro pallescentis-Helictotrichion schelliani**  
Xero-mesophilous steppes in the South Ural region
- 28H04 **Orostachyon spinosae**  
Floristically impoverished dry steppe communities of stony substrates  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28H05 **Scorzonero austriacae-Koelerion sclerophyllae**  
Xerophilous steppes of calcareous soils in the South Ural region  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28H06 **Tanaceto-Stipion lessingianae**  
Steppes of west Kazakhstan and adjacent parts of Russia
- 28I KOELERIO-PHLEETALIA PHLEOIDIS  
Silicolous rocky steppic grasslands of western and central Europe
- 28I01 **Chrysopogono-Danthonion**  
Steppic swards of lime-poor sandy soils in Serbia  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28I02 **Koelerio-Phleion phleoidis**  
Steppic rocky grasslands and swards of lime-poor sandy soils in central and Western Europe  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*  
*F4.2 Dry heaths*
- 28J POO-AGROSTIETALIA VINEALIS  
Mesoxerophilous acidophilous alluvial sandy grasslands of Ukraine
- 28J01 **Agrostio-Avenulion schellianae**  
Steppic acidophilous swards in eastern Europe
- 28J02 **Agrostion vinealis**  
Xero-mesophilous meadows on leached chernozem-like soils  
*E2.5 Meadows of the steppe zone*
- 28K SCORZONERO-CHRYSOPOGONETALIA  
Calcareous karstic grasslands of the Illyric-Dinaric region
- 28K01 **Centaureion dichroanthae**  
Illyrian-Praealpic steppic pastures on shallow calcareous soils
- 28K02 **Chrysopogoni-Saturejon**  
Illyrian-Dinaric steppic pastures on shallow calcareous soils

- E1.2 Perennial calcareous grassland and basic steppes*  
*F2.2 Evergreen alpine and subalpine heath and scrub*
- 28K03 I **Chrysopogono-Koelerion splendidis**  
Illyrian-Dinaric open steppic grasslands on calcareous substrates
- 28K04 **Scorzonerion villosae**  
Illyrian-Dinaric dry pastures on deep, partly decalcified terra rossa and argillaceous flysch sediments of the Illyric and Dinaric regions
- 28L SESLERIETALIA RIGIDAE  
Dealpine, closed, blue-grass dominated grasslands of the Alps, Hercynicum and Carpathians
- 28L01 **Diantho lumnitzeri-Seslerion albicantis**  
Dealpine grasslands on limestone and dolomite in south-east central Europe  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28L02 **Seslerio-Xerobromion**  
Dealpine calcareous grasslands of the northern fringes of the Alps and of Hercynicum  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28L03 **Seslerion rigidae**  
East Carpathian dealpine closed calcareous grasslands  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E4.4 Calciphilous alpine and subalpine grassland*
- 28M STIPO PULCHERRIMAE-FESTUCETALIA PALLENTIS  
Open xerophilous rocky grasslands of sunny aspects of central and southeast Europe
- 28M01 **Alysson bertolonii**  
Steppic vegetation on ultramafic soils in the northern Apennines and Tuscany  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M02 **Alyso saxatilis-Festucion pallentis**  
Open grasslands on mineral-rich siliceous rocks in the eastern Hercynicum  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M03 **Asplenio septentrionali-Festucion pallentis**  
Open grasslands on shallow silicicolous soils in southwestern Europe  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M04 **Avenulo adsurgentis-Festucion pallentis**  
Serpentine steppe vegetation of the eastern Alps  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M05 **Bromo pannonici-Festucion pallentis**  
Open xerophilous rocky calcareous grasslands of sunny aspects on northern fringes of the Pannonian Basin  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M06 **Chrysopogono-Festucion dalmaticae**  
Open xerophilous rocky calcareous grasslands of sunny aspects on southern and southeastern fringes of the Pannonian Basin  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M07 **Helianthemo cani-Festucion pallentis**  
Rocky steppic grasslands on calcareous substrata of the Hercynicum  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M08 **Pimpinello-Thymion zygoidi**  
Semi-evergreen phrygana-like vegetation of the east Balkan steppes  
*E1.2 Perennial calcareous grassland and basic steppes*
- 28M09 **Xerobromion**  
Xerophilous open swards in south-west central Europe

- E1.2 Perennial calcareous grassland and basic steppes*
- 28N THYMO CRETACEI-HYSSOPETALIA CRETACEI  
Xerothermic grasslands on chalky outcrops in south-west European Russia and Ukraine
- 28N01 **Artemisio hololeucaea-Hyssopion cretacei**  
Communities of the south-western central Russian uplands
- 28N02 **Centaureo carbonatae-Koelerion talievii**  
Grassy communities of the south-western central Russian uplands
- 28N03 **Euphorbio cretophilae-Thymion cretacei**  
Communities of the lower reaches of the North Donetz river valley
- 28N04 **Galio campanulatae-Poion versicoloris**  
Communities of calcareous soils on very steep rocky slopes of the Ukraine  
*E1.2 Perennial calcareous grassland and basic steppes*
- 29 **KOELERIO-CORYNEPHORETEA**  
Pioneer vegetation on primitive soils and rocky outcrops in regions with mild winter climate
- 29A ALYSSO-SEDETALIA  
Temperate pioneer grasslands and therophyte swards on calcareous immature soils
- 29A01 **Alyssoidis-Sedion albi**  
Thermophilous stonecrop communities of weathered calcareous rocks  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*
- 29A02 **Sedion micrantho-sediformis**  
Communities of calcareous outcrops in thermo-mesomediterranean southwestern Iberia
- 29A03 **Sedo-Cerastion**  
More or less closed swards on base rich, rather nutrient poor river dunes  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29B ARTEMISIO-KOELERIETALIA  
Bryophyte-rich grasslands on dry, calcareous soils in coastal dunes
- 29B01 **Koelerion arenariae**  
Ephemeral vegetation of bare but stable calcareous sands  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29B02 **Polygalo-Koelerion**  
More or less closed (but not dense) swards on calcareous sands  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*
- 29C CORYNEPHORETALIA CANESCENTIS  
Open swards on sand of sub-atlantic regions of western and central Europe
- 29C01 **Armerion girardii**  
Mediterranean sub-montane grasslands on dolomite sand in southern France  
*E1.3 Mediterranean xeric grassland*
- 29C02 **Corynephorion canescentis**  
Colonising vegetation of mobile acid sands on coastal and inland dunes  
*B1.4 Coastal stable dune grassland (grey dunes)*

- E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29C03     **Thero-Airion**  
Ephemeral vegetation of bare but stable acid sands or siliceous rocky outcrops  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29D     FESTUCO-SEDETALIA  
Dry grasslands on neutral sandy soils
- 29D01     **Koelerion glaucae**  
Grasslands of stable neutral sandy soils in central and northeastern Europe  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29D02     **Plantagini-Festucion ovinae**  
Closed swards of neutral to acidic, drought-prone soils  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*B1.9 Machair*  
*E1.2 Perennial calcareous grassland and basic steppes*  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*  
*E1.B Heavy-metal grassland*
- 29E     SEDO-POETALIA GLAUCAE  
Scandinavian pioneer vegetation on fine-grained and loam-rich shallow raw soils and rocky outcrops
- 29E01     **Veronico-Poion glaucae**  
Scandinavian pioneer vegetation on fine-grained and loam-rich shallow raw soils and rocky outcrops  
*H2 Screes*  
*H2.1 Boreal siliceous screes*
- 29F     SEDO-SCLERANTHETALIA  
Pioneer grasslands and herb communities on immature soils over base-poor rocks
- 29F01     **Hyperico perforati-Scleranthion perennis**  
Open grasslands on shallow soils on siliceous rocks in central Europe  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*
- 29F02     **Sedion anglici**  
Stonecrop communities of shallow soils in the Atlantic zone  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*
- 29F03     **Sedion pyrenaici**  
Stonecrop communities of siliceous rocks in the Pyrenees and western Iberia  
*H3.6 Weathered rock and outcrop habitats*
- 29F04     **Sedo albi-Veronicion dillenii**  
Therophyte and geophyte vegetation on stable siliceous rubble  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*
- 29F05     **Sedo-Scleranthion biennis**  
Stonecrop communities of sunny slopes in the alpic valleys  
*E1.1 Open thermophile pioneer vegetation of sandy or detritic ground*  
*H3.6 Weathered rock and outcrop habitats*

- 30     **CALLUNO-ULICETEA**  
Dwarf-shrub and mat-grass heaths on acidic soils from the planare to montane belts
- 30A     **NARDETALIA STRICTAE**  
Mat-grass swards on nutrient-poor soils at mid-altitudes
- 30A01     **Agrostion curtisii**  
Mesophytic oligotrophic low-altitude grasslands of thermo-atlantic regions of France  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*
- 30A02     **Carici macrostylae-Nardion strictae**  
Cantabrian species-rich mat-grass pastures
- 30A03     **Equiseto-Galion borealis**  
Slightly chionophilous grasslands on base-rich, deep soils of Iceland and Greenland
- 30A04     **Juncion squarrosi**  
Heath-rush vegetation on peaty soils  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E3.5 Moist or wet oligotrophic grassland*
- 30A05     **Nardo-Agrostion tenuis**  
Species-rich mat-grass pastures of central European mountains  
*E4.3 Acid alpine and subalpine grassland*
- 30A06     **Potentillion calabri**  
Calabrian (Sila) high-altitude species-rich mat-grass pastures  
*E1.8 Mediterranean dry acid and neutral closed grassland*  
*E4.3 Acid alpine and subalpine grassland*
- 30A07     **Potentillo-Polygonion vivipari**  
Slightly chionophilous heavily grazed pastures on base-rich soils of Scandinavia  
*E4.1 Snow-patch grassland*
- 30A08     **Violion caninae**  
Unfertilised mat-grass pastures at lower altitudes  
*B1.4 Coastal stable dune grassland (grey dunes)*  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*  
*F4.2 Dry heaths*
- 30B     **ULICETALIA MINORIS**  
Gorse and ericoid heaths of winter-mild western Europe and Morocco
- 30B01     **Daboecion cantabricae**  
Heathlands over ferric-humic podsols of northern Iberia  
*F4.1 Wet heaths*  
*F4.2 Dry heaths*
- 30B02     **Dactylido maritimae-Ulicion maritimi**  
Gorse heaths of Atlantic coast sea-cliffs  
*F4.2 Dry heaths*
- 30B03     **Ericion cinereae**  
Bell-heather communities on dry to fresh soils in sub-atlantic regions  
*B1.5 Coastal dune heaths*  
*F4.2 Dry heaths*
- 30B04     **Ericion umbellatae**  
Mediterranean-Ibero-Atlantic heaths of central-western and southwest Iberia and northwest Morocco  
*B1.5 Coastal dune heaths*  
*F4.2 Dry heaths*  
*F5.2 Maquis*

- F5.5 Thermo-Mediterranean shrub habitats*
- 30B05      **Genistion micrantho-anglicae**  
Hygrophilous heaths of Mediterranean and Ibero-Atlantic distribution on gley, humus-rich soils  
    *F4.1 Wet heaths*  
    *F4.2 Dry heaths*  
    *F5.5 Thermo-Mediterranean shrub habitats*
- 30B06      **Stauracanthion boivinii**  
Southern Iberian and Moroccan silicicolous brezal  
    *F5.2 Maquis*  
    *F5.5 Thermo-Mediterranean shrub habitats*
- 30B07      **Ulici-Ericion ciliaris**  
Gorse-Dorset heath communities of damper soils in the Atlantic region  
    *F4.1 Wet heaths*  
    *F4.2 Dry heaths*
- 30B08      **Ulicion minoris**  
Gorse heaths of the Atlantic region  
    *B1.5 Coastal dune heaths*  
    *F4.1 Wet heaths*  
    *F4.2 Dry heaths*
- 30C      VACCINIO-GENISTETALIA  
Heaths of temperate central and northwestern Europe
- 30C01      **Empetrium nigri**  
Coastal dune heathlands of northwestern and northern Europe  
    *B1.5 Coastal dune heaths*
- 30C02      **Genistion pilosae**  
Greenweed heathlands in the lowland and montane zone of northwestern and central Europe  
    *B1.5 Coastal dune heaths*  
    *E1.9 Dry, open perennial and annual siliceous grassland, including inland dune grassland*  
    *F2.2 Evergreen alpine and subalpine heath and scrub*  
    *F4.2 Dry heaths*
- 30C03      **Genisto-Vaccinion**  
Bilberry heaths of moist soils in the montane to subalpine belts of western Europe  
    *B1.5 Coastal dune heaths*  
    *F2.2 Evergreen alpine and subalpine heath and scrub*  
    *F4.2 Dry heaths*
- 31      **TRIFOLIO-GERANIETEA SANGUINEI**  
Thermophilous woodland fringe vegetation
- 31A      MELAMPYRO-HOLCETALIA  
Herbaceous vegetation of woodland margins and rides on impoverished acid sands
- 31A01      **Linarion triornithophorae**  
Acidophilous fringe vegetation of northern Spain  
    *E5.2 Thermophile woodland fringes*
- 31A02      **Melampyrion pratensis**  
Woodland margin and ride vegetation in drier situations  
    *E5.2 Thermophile woodland fringes*
- 31A03      **Origanion virentis**  
Species-rich fringe vegetation of the mesomediterranean belt of Cantabria  
    *E5.2 Thermophile woodland fringes*

- 31A04      **Potentillo erectae-Holcion mollis**  
Woodland margin and ride vegetation on damp soils of the western part of central Europe  
    *E5.2 Thermophile woodland fringes*  
    *E5.3 [Pteridium aquilinum] fields*
- 31A05      **Ranunculo cortusifolii-Geranion canariensis**  
Herb-rich fringe of Canary laurel forests
- 31B      ORIGANETALIA VULGARIS  
Herbaceous vegetation of woodland margins and rides on calcareous soils
- 31B01      **Dictamno-Ferulagion galbaniferae**  
Species-rich fringes of Illyrian forests  
    *E5.2 Thermophile woodland fringes*
- 31B02      **Galio littoralis-Geranion sanguinei**  
Fringe vegetation of dune thickets of the Atlantic coast  
    *B1.4 Coastal stable dune grassland (grey dunes)*  
    *E5.2 Thermophile woodland fringes*
- 31B03      **Geranion sanguinei**  
Drought-tolerant communities in sunny woodland edges on calcareous soils  
    *B1.4 Coastal stable dune grassland (grey dunes)*  
    *E5.2 Thermophile woodland fringes*
- 31B04      **Trifolion medii**  
Fringe communities of central European mesophilous forests  
    *E5.2 Thermophile woodland fringes*

## H DRY GRASSLANDS AND SEMI-DESERTS

- 32      **HELIANTHEMETEA GUTTATI**  
Mediterranean terrestrial plant communities dominated by annual low-grown herbs and grasses
- 32A      HELIANTHEMETALIA GUTTATI  
Mediterranean and submediterranean ephemeral communities on acid soils in fire prone habitats
- 32A01      **Helianthemion guttati**  
Early flowering communities on sandy soils  
    *B1.4 Coastal stable dune grassland (grey dunes)*  
    *E1.8 Mediterranean dry acid and neutral closed grassland*  
    *H6.3 Fumaroles, solfataras and mofettes*
- 32A02      **Molinerion laevis**  
Late flowering communities on sandy soils
- 32A03      **Scabioso-Trifolion dalmatici**  
Silicicolous therophyte swards of submediterranean character in southeast Serbia
- 32A04      **Sedion pedicellato-andegavensis**  
Communities of succulent annuals on fine gravel over silicate rocks
- 32A05      **Trifolion cherleri**  
Silicicolous therophyte swards of submediterranean character in Macedonia and northern Greece
- 32B      MALCOLMIETALIA  
Mediterranean ephemeral vegetation of coastal sand dunes and beaches
- 32B01      **Anthyllido hamosae-Malcolmion lacerae**  
Communities of coastal sandy habitats not exposed to saline influence  
    *B1.4 Coastal stable dune grassland (grey dunes)*

- 32B02        **Corynephoro-Malcolmion patulae**  
Ephemeral therophyte communities of inland sandy substrates of interior western Iberia  
      *E1.8 Mediterranean dry acid and neutral closed grassland*  
      *E1.A Mediterranean dry acid and neutral open grassland*
- 32B03        **Linarion pedunculatae**  
Coastal dunes exposed to saline influence  
      *B1.4 Coastal stable dune grassland (grey dunes)*
- 32B04        **Alkanno-Maresion nanae**  
Ephemeral therophyte communities of coastal and inland sandy areas of the Ibero-Levantine area
- 32B05        **Maresion nanae**  
Ephemeral therophyte communities of semi-mobile coastal dunes of the central and eastern Mediterranean
- 32B06        **Medicagini-Triplachnion nitentis**  
Short-lived communities of sandy and gravelly beaches of the eastern Aegean and southern Anatolia
- 32B07        **Ononidion tournefortii**  
Therophyte communities of deep coastal sandy soils of the Canary Islands
- 32C        POETALIA BULBOSAE  
Mediterranean and sub-mediterranean pastures heavily grazed, trampled and manured by sheep
- 32C01        **Plantaginion serrariae**  
Heavily grazed pastures
- 32C02        **Poo bulbosae-Astragalion sesamei**  
Heavily grazed pastures on calcareous soils in central and eastern Iberia
- 32C03        **Trifolio subterranei-Periballion**  
Heavily grazed pastures on siliceous soils in central and western Iberia
- 32C04        **Vulpio ciliatae-Crepidion neglectae**  
Therophyte swards of disturbed habitats rich in calcareous rubble in the central Mediterranean
- 32D        STIPO-BUPLEURETALIA SEMICOMPOSITI  
Subhalophilous therophyte swards of the most arid regions of the Mediterranean with influence of eremian elements
- 32D01        **Asterisco-Velezion rigidae**  
Subhalophilous therophyte swards of the continental regions of the Iberian Peninsula
- 32D02        **Dauco-Catananchion luteae**  
Subhalophilous therophyte swards on loamy-clayey soils of Sicily and southern Calabria  
      *E1.3 Mediterranean xeric grassland*
- 32D03        **Plantagini-Catapodion marini**  
Subhalophilous therophyte swards of the Tyrrhenian region  
      *E1.3 Mediterranean xeric grassland*
- 32E        TRACHYNIETALIA DISTACHYAE  
Mediterranean ephemeral communities and pastures on basic soils
- 32E01        **Trachynion distachyae**  
Ephemeral therophyte communities and pastures on base-rich soils  
      *E1.3 Mediterranean xeric grassland*
- 32E02        **Laguro-Vulpion fasciculatae**  
Subnitrophilous therophytic grasslands of disturbed coastal dunes of Corsica
- 32E03        **Omphalodion commutatae**  
Mediterranean ephemeral communities and pastures on magnesitic soils

- E1.3 Mediterranean xeric grassland*
- 32E04     **Sedo-Ctenopsion gypsophilae**  
Mediterranean ephemeral communities and pastures on gypsum substrates  
*E1.3 Mediterranean xeric grassland*
- 32E05     **Stipion retortae**  
Mediterranean ephemeral communities and pastures on calcareous soils or chalk loam  
*E1.3 Mediterranean xeric grassland*
- 32E06     **Vulpio-Lotion**  
Mediterranean therophyte communities on terra rosa and calcareous soils in the Illyric-Dinaric coastal region  
*E1.8 Mediterranean dry acid and neutral closed grassland*
- 32E07     **Vulpion ligusticae**  
Ephemeral communities on base-rich soils of the Tyrrhenian region
- 32E08     **Xeranthemion annui**  
Annual-rich vegetation of abandoned fields in Macedonia
- 33     **THERO-BRACHYPODIETEA RAMOSI**  
Mediterranean pseudo-steppes and related perennial grasslands
- 33A     CYMBOPOGONI-BRACHYPODIETALIA  
East Mediterranean pseudosteppes dominated by tufted perennial grasses
- 33A01     **Cymbopogoni-Brachypodion ramosi**  
Pseudosteppes on limestone in coastal areas of the Balkan Peninsula  
*E1.3 Mediterranean xeric grassland*
- 33B     HYPARRHENIETALIA HIRTAE  
Tall tufted grasslands of the west and central Mediterranean
- 33B01     **Hyparrhenion hirtae**  
Iberian and Sicilian tall tufted grasslands on exposed rocky slopes  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*  
*F6.2 Eastern garrigues*
- 33C     THERO-BRACHYPODIETALIA  
Mediterranean perennial grasslands (pseudosteppes)
- 33C01     **Agropyro pectinati-Lygeion**  
Spanish and South Italian dense grasslands on continental clayey basins  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*
- 33C02     **Avenulo-Ampelodesmion mauritanici**  
Thermomediterranean perennial tussocky grasslands dominated by Ampelodesmos mauritanicus of Calabria and Sicily
- 33C03     **Diantho humilis-Velezion rigidae**  
Pseudosteppic communities of montane regions of the Crimea  
*E1.3 Mediterranean xeric grassland*
- 33C04     **Festucion scariosae**  
Spanish dense Festuca grasslands on basic substrates mainly in mediterranean-montane zone  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*
- 33C05     **Moricandio-Lygeion sparti**  
Perennial, calcareous grasslands of mediterranean Italy  
*E1.3 Mediterranean xeric grassland*
- 33C06     **Stipion parviflorae**  
Calcareous sub-nitrophilous dry to semi-arid grasslands of the Ibero-Levantine area
- 33C07     **Stipion tenacissimae**

- South Spanish dense *Stipa* grasslands on limestone or chalk in the mediterranean-arid belt  
*E1.4 Mediterranean tall-grass and [Artemisia] steppes*
- 33C08 **Thero-Brachypodium**  
Mediterranean garrigues and pseudosteppes on calcareous substrates  
*E1.3 Mediterranean xeric grassland*  
*F6.1 Western garrigues*
- 33C09 **Trisetum velutini-Brachypodium boissieri**  
Mediterranean perennial grasslands of Spain
- 34 **PEGANO HARMALAE-SALSOLETEA VERMICULATAE**  
Thermomediterranean and Macaronesian halo-nitrophilous semidesert scrub
- 34A CHENOLETALIA TOMENTOSAE  
Macaronesian halo-nitrophilous semidesert scrub
- 34A01 **Chenoleion tomentosae**  
Macaronesian halo-nitrophilous semidesert scrub  
*F6.8 Xero-halophile scrubs*
- 34B FORSSKAOLEO ANGUSTIFOLIAE-RUMICETALIA LUNARIAE  
Macaronesian halo-nitrophilous scrub
- 34B01 **Argyranthemum succulentum-Calendula maderensis**  
Madeiran halo-nitrophilous coastal scrub
- 34B02 **Artemisia thusculae-Rumicetalia lunariae**  
Canarian halo-nitrophilous dwarf shrubs in moist or semi-arid climates
- 34B03 **Launaea arborescens-Schizogynion sericeae**  
Canarian halo-nitrophilous scrub in sub-desertic climates  
*F8.1 Canarian xerophytic habitats*
- 34B04 **Traganion moquinii**  
Canarian halo-nitrophilous coastal dune scrub in sub-desertic climates  
*B1.3 Shifting coastal dunes*  
*B1.4 Coastal stable dune grassland (grey dunes)*
- 34C HELICHRYSO STOECHADIS-SANTOLINETALIA SQUARROSAE  
Iberian sub-nitrophilous chamaephyte communities on degraded brown or red soils
- 34C01 **Artemisia glutinosa-Santolinum rosmarinifoliae**  
Iberian sub-nitrophilous chamaephyte communities on acid soils
- 34C02 **Santolinum pectinato-canescens**  
IBERIAN SUB-NITROPHILOUS CHAMAEPHYTE COMMUNITIES ON BASIC SOILS
- 34D NICOTIANO GLAUCAE-RICINETALIA COMMUNIS  
Tall scrub, rich in tropical neophytes, of the thermomediterranean zone
- 34D01 **Nicotiano glaucae-Ricinum communis**  
Tall scrub, rich in tropical neophytes, of the thermomediterranean zone
- 34E SALSOLO VERMICULATAE-PEGANETALIA HARMALAE  
Western Mediterranean halo-nitrophilous shrub communities in sub-desertic climates
- 34E01 **Artemisia arborescens**  
Subnitrophilous coastal scrub of the central and eastern Mediterranean
- 34E02 **Carthamo arborescens-Salsolium oppositifoliae**  
Thermomediterranean halo-nitrophilous scrub in semi-arid to arid southeastern Spain
- 34E03 **Haloxylum tamariscifolium-Atriplicion glaucae**  
Western Mediterranean halo-nitrophilous shrub on disturbed loamy soils
- 34E04 **Lycium europaeum-Ipomoeion purpureae**  
Halo-nitrophilous shrub communities
- 34E05 **Medicago citrinae-Lavaterion arborea**

- 34E06 Mediterranean halo-nitrophilous communities on coastal cliffs covered by guano  
**Salsolo vermiculatae-Peganion harmalae**  
Mediterranean inland sub-desertic halo-nitrophilous scrub on clayey soils
- 35 **ARTEMISIETEA LERCHIANAE**  
Aralo-Caspian sub-halophilous semideserts
- 35A **ARTEMISIETALIA LERCHIANAE**  
Caspian desert vegetation of stabilised loamy soils
- 35A01 **Anabasion aphyllae**  
Intensively grazed Caspian desert vegetation on loamy soils
- 35A02 **Artemision lerchianae**  
Moderately grazed Caspian desert vegetation on loamy soil
- 35B **ARTEMISIETALIA TSCHERNIEVIANAE**  
Caspian desert vegetation of sandy soils
- 35B01 **Euphorbion seguieranae**  
Caspian desert vegetation of stabilized sandy dunes
- 35B02 **Tamariceto-Salsolion australis**  
Caspian desert vegetation on mobile wind-modelled barchans and raised sand dune

## I OROMEDITERRANEAN GRASSLANDS AND SCRUB

- 36 **FESTUCETEA INDIGESTAE**  
Oromediterranean Iberian xerophilous siliceous Festuca indigesta grasslands
- 36A **FESTUCETALIA INDIGESTAE**  
Oromediterranean Iberian xerophilous siliceous Festuca indigesta grasslands
- 36A01 **Minuartio-Festucion curvifoliae**  
Alpine grasslands of the central Iberian mountains  
*E4.3 Acid alpine and subalpine grassland*
- 36A02 **Ptilotrichion purpurei**  
Chamaephyte-rich crioro-mediterranean grasslands of the Sierra Nevada  
*E4.3 Acid alpine and subalpine grassland*
- 36A03 **Teesdaliopsio-Luzulion caespitosae**  
Alpine and subalpine grasslands of the Cantabrian mountains  
*E4.3 Acid alpine and subalpine grassland*
- 36B **JASIONO SESSILIFLORAE-KOELERIETALIA CRASSIPEDIS**  
Pastures in the Mediterranean zone of Iberia
- 36B01 **Armerion eriophyllae**  
Pastures on serpentine in the Mediterranean zone of Iberia
- 36B02 **Hieracio castellani-Plantaginion radicatae**  
Pastures with cushion chamaephytes in northern Iberia  
*E1.A Mediterranean dry acid and neutral open grassland*  
*E4.3 Acid alpine and subalpine grassland*
- 37 **FESTUCO HYSTRICIS-ONONIDETEA STRIATAE**  
Dry, basiphilous pastures and scrub of hemicryptophytes and chamaephytes of humid to sub-humid, oro- to meso-mediterranean belts of south-west Europe
- 37A **FESTUCO HYSTRICIS-POETALIA LIGULATAE**  
Subalpine and upper mountain zone dwarf shrub on soils with traces of cryoturbation
- 37A01 **Festucion burnatii**

- High mountain pastures of the Cantabrian mountains  
*E1.5 Mediterraneo-montane grassland*
- 37A02 **Minuartio-Poion ligulatae**  
Oromediterranean pastures of central Iberia  
*E1.5 Mediterraneo-montane grassland*
- 37A03 **Plantagini discoloris-Thymion mastigophori**  
Supra- and oromediterranean montane pastures of central and northern Spain  
*E1.5 Mediterraneo-montane grassland*
- 37B ONONIDETALIA STRIATAE  
Calcareous pastures and low scrub of the colline to subalpine belts of southwestern Europe
- 37B01 **Echinospartion horridi**  
Communities of thorny cushions on basic substrates in the central Pyrenees  
*F7.4 Hedgehog-heaths*
- 37B02 **Euphorbion ligusticae**  
Ultramafic Ligurian garrigue
- 37B03 **Festucion scopariae**  
Upper-montane and subalpine dry pastures on basic substrates in the Pyrenees  
*E4.4 Calciphilous alpine and subalpine grassland*
- 37B04 **Festucion spadiceae**  
Subalpine, thermophilous swards of Festuca spadicea in southern France and northern Iberia  
*E4.3 Acid alpine and subalpine grassland*
- 37B05 **Genistion lobelii**  
Low shrub vegetation of wind exposed limestone rocks  
*E1.5 Mediterraneo-montane grassland*  
*F7.4 Hedgehog-heaths*
- 37B06 **Genistion occidentalis**  
Low shrubs on basic substrates in the Cantabrian Mountains and West Pyrenees  
*F7.4 Hedgehog-heaths*
- 37B07 **Lavandulo angustifoliae-Genistion cinereae**  
Supra- and oromediterranean garrigue of southern France
- 37B08 **Ononidion cristatae**  
Steppic grasslands of the upper montane belt in the southwestern Alps
- 37B09 **Ononidion striatae**  
Pastures on rendzina soils in sub-mediterranean hills  
*E1.5 Mediterraneo-montane grassland*  
*F6.6 Supra-Mediterranean garrigues*
- 37B10 **Seslerion elegantissimae**  
Supramediterranean calcareous Sesleria swards of southern France  
*E1.5 Mediterraneo-montane grassland*
- 38 **CARICI CARYOPHYLLEAE-GENISTETEA SALZMANNII**  
Cyro-Sardean supramediterranean and oromediterranean siliceous phrygana
- 38A **CARICI CARYOPHYLLEAE-GENISTETALIA SALZMANNII**  
Cyro-Sardean oromediterranean siliceous phrygana
- 38A01 **Anthyllion hermanniae**  
Low scrub on exposed and windy crests on siliceous rocks  
*F6.1 Western garrigues*  
*F7.2 Central Mediterranean spiny heaths*  
*F7.4 Hedgehog-heaths*
- 38A02 **Festuco-Armerion sardoae**

- Vegetation of cushion-like chamaephytes in windy habitats  
*F7.4 Hedgehog-heaths*
- 38B TEUCRIO-SANTOLINETALIA  
Secondary montane garrigue on siliceous and calcareous substrata of Sardinia
- 38B01 **Armerio sardoae-Genistion salzmannii**  
Siliceous secondary montane garrigues of Sardinia
- 38B02 **Polygalo-Seslerion insularis**  
Calcareous secondary montane garrigues of Sardinia
- 39 **SAGINETEA PILIFERAE**  
Cyano-Sardean oromediterranean siliceous grasslands
- 39A SAGINETALIA PILIFERAE  
Cyano-Sardean oromediterranean siliceous grasslands
- 39A01 **Plantaginion insularis**  
Cyano-Sardean oromediterranean siliceous grasslands in snow-carrying depressions (pozzines)  
*E4.3 Acid alpine and subalpine grassland*
- 39A02 **Sedo-Phleion brachystachyi**  
Cyano-Sardean oromediterranean siliceous grasslands of cold north aspects  
*E4.3 Acid alpine and subalpine grassland*
- 39A03 **Sesamoido-Poion violaceae**  
Cyano-Sardean oromediterranean siliceous grasslands of warm south aspects  
*E4.3 Acid alpine and subalpine grassland*
- 40 **RUMICI-ASTRAGALETEA SICULI**  
Sicilian oromediterranean cushion scrub
- 40A RUMICI-ASTRAGALETALIA SICULI  
Sicilian oromediterranean cushion scrub
- 40A01 **Rumici-Astragalion siculi**  
Sicilian oromediterranean cushion scrub  
*F7.4 Hedgehog-heaths*  
*H6.1 Sparsely vegetated volcanic mountain summits, lava and ash fields*
- 41 **DAPHNO-FESTUCETEA**  
Greek and Aegean oromediterranean calciphilous grasslands and phrygana
- 41A DAPHNO-FESTUCETALIA  
Greek and Aegean oromediterranean calciphilous grasslands and phrygana
- 41A01 **Astragalo angustifolii-Seslerion coerulantis**  
Thorny cushion vegetation in step-shaped scarps on limestone  
*F7.4 Hedgehog-heaths*
- 41A02 **Eryngio multifidi-Bromion fibrosi**  
Discontinuous herb layer, zonal on limestone in the alpine belt  
*F7.4 Hedgehog-heaths*
- 41A03 **Stipo pulcherrimae-Morinion persicae**  
Secondary discontinuous carpet vegetation on limestone after cutting  
*F7.4 Hedgehog-heaths*
- 41B SATUREJO-SCUTELLARIETALIA  
Cretan oro-mediterranean calciphilous rocky grasslands and screes
- 41B01 **Campanulion jacquinii**  
Rupicolous communities of high altitude in the Cretan mountains  
*F7.4 Hedgehog-heaths*
- 41B02 **Scutellarion hirtae**  
Vegetation of calcareous and dolomitic screes of high mountains of Crete

- 41B03            **Verbascion spinosi**  
 Communities of calcareous and dolomitic slopes of the high mountains of western Crete  
                   *F5.1 Arborescent matorral*  
                   *F7.3 East Mediterranean phrygana*  
                   *F7.4 Hedgehog-heaths*

## **J MONTANE TALL-HERB, GRASSLAND, FELL-FIELD AND SNOW-BED VEGETATION**

- 42            **MULGEDIO-ACONITETEA**  
 Scrub and tall-herb vegetation at high altitudes, moistened and fertilised by percolating water
- 42A            **ADENOSTYLETALIA ALLIARIAE**  
 Tall-herb and scrub communities on fertile soils at high altitudes of temperate and boreal Europe
- 42A01            **Adenostylion alliariae**  
 Tall-herb communities of central European mountains  
                   *E4.1 Snow-patch grassland*  
                   *E5.5 Subalpine moist or wet tall-herb and fern habitats*  
                   *F2.1 Snow-patch dwarf willow scrub*  
                   *F2.3 Subalpine deciduous scrub*
- 42A02            **Adenostylion pyrenaicae**  
 Tall-herb communities of the Pyrenees and northern Spain  
                   *E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42A03            **Alnion viridis**  
 Subalpine green alder scrub of the Alps and Balkans  
                   *F2.3 Subalpine deciduous scrub*
- 42A04            **Cirsion appendiculati**  
 Tall-herb communities of eastern and central Balkans  
                   *E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42A05            **Cirsion flavispinae**  
 Tall-herb communities of the Sierra Nevada  
                   *E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42A06            **Dryopterido-Athyrium**  
 Fern-rich communities of the Carpathians and Hercynicum  
                   *E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42A07            **Petasition doerfleri**  
 Tall-herb hygrophilous communities of the subalpine belt of the Dinarides
- 42A08            **Salicion helveticae**  
 Silicicolous willow krummholz in subalpine belt of the Alps  
                   *F2.3 Subalpine deciduous scrub*
- 42A09            **Salicion pentandrae**  
 Calciphilous willow krummholz in subalpine belt of the Alps  
                   *F2.3 Subalpine deciduous scrub*
- 42A10            **Salicion silesiaca**  
 Tall herb-rich willow scrubs of the western Carpathians and Hercynicum  
                   *F2.3 Subalpine deciduous scrub*
- 42A11            **Violion cornutae**  
 Tall herb communities of the Pyrenees
- 42B            **ADENOSTYLETALIA BRIQUETII**

- 42B01 Tall-herb communities of nutrient-rich moist soils at high altitudes in Corsica  
**Cymbalarion hepaticifoliae**  
 Shaded, mesophilous communities of oromediterranean belts in Corsica  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F2.3 Subalpine deciduous scrub*
- 42B02 **Doronicion corsici**  
 Tall-herb communities in the supramediterranean belt in Corsica  
*C2.1 Springs, spring brooks and geysers*  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42C CALAMAGROSTIETALIA VILLOSAE  
 Tall-herb and fern communities of acidic and more impoverished soils
- 42C01 **Calamagrostion arundinaceae**  
 Tall-grass species-rich communities on dry soils of the upper montane and subalpine belts of western and central Europe  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*  
*F2.3 Subalpine deciduous scrub*
- 42C02 **Calamagrostion villosae**  
 Tall-herb and fern communities of acidic and more impoverished soils  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*  
*F2.3 Subalpine deciduous scrub*
- 42C03 **Festucion carpaticeae**  
 Tall grass, chionophilous communities of upper montane and subalpine belts of the Carpathians  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42C04 **Poo chaixii-Deschampsion caespitosae**  
 High-altitude species-poor grasslands on moist soils of Hercynicum  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 42D RUMICETALIA ALPINI  
 Subalpine nitrophilous ruderal communities of Europe and the Caucasus
- 42D01 **Rumicion alpini**  
 Nitrophilous ruderal communities of the subalpine belt  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 43 **SALICETEA HERBACEAE**  
 Vegetation of long-lasting snow-beds and slopes irrigated by melt waters
- 43A SALICETALIA HERBACEAE  
 Vegetation of long-lasting snow-beds and slopes irrigated by melt waters
- 43A01 **Luzulion nivalis**  
 Herb-rich snow beds on lime-rich soils in the upper alpine belt of Scandinavia  
*E4.1 Snow-patch grassland*
- 43A02 Mucizonion sedoidis  
 Cryo-oromediterranean and alpine silicicolous snow-bed communities of Iberia  
*E4.1 Snow-patch grassland*
- 43A03 **Ranunculion crenati**  
 Herbaceous communities with long snow cover on limestone in Crna Gora
- 43A04 **Salicion herbaceae**  
 Dwarf-willow and moss dominated communities of snow-beds on lime-poor soils and rocks  
*E4.1 Snow-patch grassland*  
*F2.1 Snow-patch dwarf willow scrub*  
*H2.1 Boreal siliceous scree*  
*H2.3 Temperate-montane acid siliceous scree*
- 43A05 **Saxifrago-Ranunculion nivalis**

Herb-rich snow-bed communities with solifluction in Arctic and oro-Arctic boreal mountains

*E4.1 Snow-patch grassland*

*F2.1 Snow-patch dwarf willow scrub*

*H2.1 Boreal siliceous screes*

- 44 **ELYNO-SESLERIETEA**  
Alpine and subalpine calcareous grasslands
- 44A **ASTRAGALETALIA SEMPERVIRENTIS**  
Calcareous grasslands of montane to alpine belts of the northern Apennines and southwestern Alps
- 44A01 **Avenion montanae**  
Calcareous grasslands on rocky slopes  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44A02 **Avenion sempervirentis**  
Supramediterranean calcareous xerophilous open grasslands of the Alpes Maritimes and Ligurian Alps  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44A03 **Ononidion cenisiae**  
Calcareous grasslands in the Apennines and southwestern Alps  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44B **CREPIDETALIA DINARICAE**  
Montane to alpine calciphilous grasslands of the central Balkans
- 44B01 **Campanulion albanicae**  
Calcareous grasslands of the subalpine belt of the Bjelasica Mountains
- 44B02 **Campanulion linifoliae**  
Subalpine secondary grasslands on slightly acid soils in Montenegro  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44B03 **Festucion xanthinae**  
Secondary subalpine grasslands on slightly acid soils in east Serbia
- 44B04 **Oxytropidion urumovii**  
Mediterranean altimontane grasslands on volcanic rocks in Montenegro  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44C **ONOBRYCHIDO-SESLERIETALIA**  
Balkan montane and submediterranean altimontane calciphilous grasslands
- 44C01 **Edraiantho-Seslerion**  
Alpine tussock grasslands of central Balkan mountains (Macedonia)  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44D **SESLERIETALIA ALBICANTIS**  
Alpine and subalpine calcareous grasslands
- 44D01 **Armerion cantabricae**  
Subalpine and alpine calciphilous grasslands in the Cantabrian mountains  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44D02 **Calamagrostion variae**  
Calcareous meso-hygrophilous tall-grass montane to subalpine grasslands in the Carpathians
- 44D03 **Caricion austroalpinae**  
Montane limestone grasslands at the southern margin of the Eastern Alps  
*E4.4 Calciphilous alpine and subalpine grassland*
- 44D04 **Caricion ferrugineae**  
Alpine and subalpine calcareous sedge swards on steep, seasonally wet slopes of the Alps  
*E4.4 Calciphilous alpine and subalpine grassland*

- 44D05      **Caricion firmae**  
 Calcareous open sedge swards on terraced slopes in the alpine belt of the Alps and Carpathians  
     *E4.4 Calciphilous alpine and subalpine grassland*  
     *F2.2 Evergreen alpine and subalpine heath and scrub*
- 44D06      **Laserpitio-Ranunculion thorae**  
 Alpine and subalpine calcareous grasslands  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44D07      **Primulion intricatae**  
 Alpine calcareous grasslands of the Pyrenees  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44D08      **Seslerion albicantis**  
 Alpine and subalpine calcareous blue-grass swards  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44D09      **Seslerion bielzii**  
 Chionophilous calcareous alpine grasslands of the eastern and southern Carpathians  
     *E4.4 Calciphilous alpine and subalpine grassland*  
     *E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 44D10      **Seslerion tatrae**  
 Chionophilous calcareous alpine grasslands of the western Carpathians  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44E      SESLERIETALIA TENUIFOLIAE  
 Subalpine and alpine tussock grasslands in wind-exposed habitats of the northwestern Dinarides
- 44E01      **Festucion pungentis**  
 Terraced subalpine grasslands on steep slopes in the Dinarides  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44E02      **Festuco-Knaution longifoliae**  
 Subalpine grasslands of eastern Serbia  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44E03      **Seslerio-Festucion xanthinae**  
 Secondary montane grasslands on limestone, derived from beech and pine woodlands  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44E04      **Seslerion apenninae**  
 Subalpine and alpine tussock grasslands in wind-exposed habitats in the central and southern Apennines
- 44E05      **Seslerion nitidae**  
 Secondary calcareous grasslands of exposed sunny slopes in Macedonia  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 44E06      **Seslerion tenuifoliae**  
 Subalpine and alpine tussock grasslands in wind-exposed habitats in the Dinarides  
     *E4.4 Calciphilous alpine and subalpine grassland*
- 45      **CARICI RUPESTRIS-KOBRESIETEA BELLARDII**  
 Subalpine and alpine grasslands and dwarf-shrub heaths, tundra and fjell vegetation
- 45A      KOBRESIO-DRYADETALIA  
 Grassy and dwarf-shrub fjell vegetation of Scandinavia, Iceland and Arctic islands
- 45A01      **Caricion nardinae**  
 Chionophobic grassy and dwarf-shrub heaths on well-drained soils  
     *E4.4 Calciphilous alpine and subalpine grassland*

- F2.2 Evergreen alpine and subalpine heath and scrub*
- 45B OXYTROPIDO-ELYNETALIA  
Grassy alpine tundra of high mountains in central Europe and the Balkans
- 45B01 **Oxytropido-Elynion**  
Kobresia carpets in windy places in the alpine belt  
*E4.4 Calciphilous alpine and subalpine grassland*  
*F2.2 Evergreen alpine and subalpine heath and scrub*
- 46 **JUNCETEA TRIFIDI**  
Pastures, rush-heaths and fjell-field on lime-poor soils above the forest belt in alpine and subalpine zones
- 46A CARICETALIA CURVULAE  
Swards on lime-poor impoverished humic soils in the alpine and subalpine zones
- 46A01 **Achilleo-Arnicion**  
Montane mat-grass communities in the Balkans  
*E4.3 Acid alpine and subalpine grassland*
- 46A02 Androsacion ciliatae  
Central Pyrenees neutral to siliceous scree communities
- 46A03 **Anemonastro sibiricae-Festucion ovinae**  
Moderately chionophilous alpine grasslands of the Urals and south Siberian mountains
- 46A04 **Caricion curvulae**  
Alpine acid swards of the Alps and eastern and southern Carpathians  
*E4.3 Acid alpine and subalpine grassland*  
*E4.4 Calciphilous alpine and subalpine grassland*
- 46A05 **Deschampsio-Anthoxanthion**  
Grass and herb communities on slopes irrigated by frigid melt-waters in Scandinavia  
*E4.1 Snow-patch grassland*  
*E4.3 Acid alpine and subalpine grassland*  
*F2.1 Snow-patch dwarf willow scrub*
- 46A06 **Festucion eskiae**  
Subalpine and alpine grasslands of the Pyrenees  
*E4.3 Acid alpine and subalpine grassland*
- 46A07 **Festucion supinae**  
Chionophilous grasslands of the humid-perhumid Pyrenees  
*E4.3 Acid alpine and subalpine grassland*
- 46A08 **Juncion trifidi**  
Rush-heaths of Scandinavia, the Alps and the western Carpathians  
*E4.2 Moss and lichen dominated mountain summits, ridges and exposed slopes*  
*E4.3 Acid alpine and subalpine grassland*
- 46A09 **Nardo-Caricion rigidae**  
Moderately chionophilous mat-grass communities of Scandinavia and Riesengebirge  
*D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*  
*E4.3 Acid alpine and subalpine grassland*
- 46B FESTUCETALIA SPADICEAE  
Species-rich grasslands on deep mesotrophic acid soils in the mountains of the Alpic orogeny
- 46B01 **Agrostion schraderanae**  
Open grassy swards of ground disturbed by avalanches in the eastern Alps

- E4.3 Acid alpine and subalpine grassland*
- 46B02     **Festucion macrantherae**  
Grasslands on deep, decalcified soils of high altitudes of the central and southern Apennines
- 46B03     **Festucion pictae**  
Tall-herb communities in humid depressions and gullies of the alpine belt of the Carpathians  
*H2.3 Temperate-montane acid siliceous screes*
- 46B04     **Festucion variae**  
Dense grassy swards on steep, exposed and sunny slopes extending into the alpine belt  
*E4.3 Acid alpine and subalpine grassland*
- 46B05     **Nardion strictae**  
Dense chionophilous grassy swards of the subalpine and alpine belts of the Alps, Carpathians and northern Apennines  
*E4.3 Acid alpine and subalpine grassland*  
*E4.5 Alpine and subalpine enriched grassland*
- 46C     FESTUCETALIA VERSICOLORIS  
Tussocky grasslands on steep, terraced slopes in the subalpine belt of east Hercynicum and the Carpathians
- 46C01     **Agrostion alpinae**  
Tussocky grasslands on steep, terraced slopes in the subalpine belt of east Hercynicum  
*E4.4 Calciphilous alpine and subalpine grassland*
- 46D     SESLERIETALIA COMOSAE  
Alpine and subalpine swards on acid soils in the Balkans
- 46D01     **Jasionion orbiculatae**  
Swards on relatively acidic soils of sheltered habitats  
*E4.3 Acid alpine and subalpine grassland*
- 46D02     **Poion violaceae**  
Swards on strongly acidic soils of sheltered habitats  
*E4.3 Acid alpine and subalpine grassland*
- 46D03     **Potentillo ternatae-Nardion**  
Mat-grass swards of the alpine belt in the mountains of the eastern Balkans  
*E1.8 Mediterranean dry acid and neutral closed grassland*  
*E4.3 Acid alpine and subalpine grassland*
- 46D04     **Seslerion comosae**  
Alpine swards in windy habitats in the eastern and central Balkans  
*E4.3 Acid alpine and subalpine grassland*
- 46E     TRIFOLIETALIA PARNASSII  
Oromediterranean chionophilous mat-grass swards in the mountains of central Greece
- 46E01     **Trifolion parnassii**  
Acidophilous oromediterranean grasslands of central Greece  
*E4.3 Acid alpine and subalpine grassland*
- 46F     UDO-NARDETALIA  
Mat-grass swards of the Sierra Nevada and northern Atlas
- 46F01     **Campanulo herminii-Nardion strictae**  
Species-rich mat-grass swards of southern Iberian mountains  
*E1.8 Mediterranean dry acid and neutral closed grassland*  
*E4.3 Acid alpine and subalpine grassland*
- 46F02     **Plantaginion thalackeri**  
Mat-grass swards of the Sierra Nevada

*E4.3 Acid alpine and subalpine grassland*

**K MEDITERRANEAN GARRIGUE, MAQUIS, MATORRAL,  
TOMILLAR AND PHRYGANA**

- 47     **ROSMARINETEA OFFICINALIS**  
Low-grown calcicolous west Mediterranean scrub (matorral, garrigue, tomillar)
- 47A     **ANTHYLLIDETALIA TERNIFLORAE**  
Tomillar communities in regions with mediterranean-semiarid climate in southern Spain
- 47A01     **Anthyllido terniflorae-Salsolion papillosae**  
Communities on clayey soils or litosoils in the more arid part of the Spanish coast  
*F5.5 Thermo-Mediterranean shrub habitats*
- 47A02     **Sideritidion bourgaeanae**  
Tomillar communities in southern Spain  
*F5.5 Thermo-Mediterranean shrub habitats*
- 47A03     **Thymo moroderi-Sideritidion leucanthae**  
South Spanish tomillar on heavy soils under slight sea-borne salt influence  
*F5.5 Thermo-Mediterranean shrub habitats*
- 47B     **CONVOLVULETALIA BOISSIERI**  
Prostrate chamaephyte vegetation in mediterranean-montane Iberia
- 47B01     **Andryalion agardhii**  
Prostrate chamaephyte vegetation in mediterranean-montane Iberia  
*F7.4 Hedgehog-heaths*
- 47B02     **Lavandulion lanatae**  
Prostrate chamaephyte vegetation in mediterranean-montane Iberia
- 47C     **ERINACEETALIA ANTHYLLIDIS**  
Oromediterranean thorny-cushions of windy habitats
- 47C01     **Cerastio-Astragalion nebrodensis**  
Calciphilous hedgehog-heath phrygana in mountains of northern Sicily  
*F7.4 Hedgehog-heaths*
- 47C02     **Xeroacantho-Erinaceion**  
Oromediterranean hedgehog scrub of the Sierra Nevada and Atlas mountains  
*F7.4 Hedgehog-heaths*
- 47D     **GYPSOPHILETALIA**  
Chamaephytic lichen-rich communities on gypsum substrates of central and south-east Spain
- 47D01     **Lepidion subulati**  
Chamaephytic lichen-rich communities on gypsum substrates of central and south-east Spain  
*F6.7 Mediterranean gypsum scrubs*
- 47D02     **Thymo-Teucrion verticillati**  
Chamaephytic lichen-rich communities on gypsum substrates of central and south-east Spain  
*F6.7 Mediterranean gypsum scrubs*
- 47E     **ROSMARINETALIA OFFICINALIS**  
Dwarf shrub and herb communities in regions with humid mediterranean climate
- 47E01     **Cisto cretici-Genistion corsicae**  
Cymo-Sardean garrigue on brown soils and tarra rossa at low altitude
- 47E02     **Eryngio trifidi-Ulicion erinacei**  
Communities on clayey and calcareous soils in the warmer part of Iberia

- F5.5 Thermo-Mediterranean shrub habitats*
- 47E03     **Euphorbion pithusae**  
Low-grown garrigue on screes and hard-rock littoral substrata of Corsica
- 47E04     **Aphyllanthion**  
Communities on loam and marl, mostly with a summer water reserve in deep horizons  
      *E1.5 Mediterraneo-montane grassland*  
      *F6.1 Western garrigues*  
      *F6.6 Supra-Mediterranean garrigues*  
      *F7.4 Hedgehog-heaths*
- 47E05     **Hypericion balearici**  
Balearic dwarf shrub vegetation on exposed, windy rocks  
      *F6.1 Western garrigues*  
      *F7.2 Central Mediterranean spiny heaths*  
      *F7.4 Hedgehog-heaths*
- 47E06     **Hypericion ericoidis**  
East Iberian xeric communities of crevices in almost horizontal limestone layers  
      *F6.1 Western garrigues*
- 47E07     **Lavandulo lanatae-Genistion boissieri**  
Open basophilous endemic-rich heath of chamaephytes and dwarf shrubs in supramediterranean southern Spain (Baetic ranges)  
      *F6.6 Supra-Mediterranean garrigues*  
      *F7.4 Hedgehog-heaths*
- 47E08     **Rosmarinion officinalis**  
Communities on xeric substrates (eroded red or brown soils, xerorendzina) in the western Mediterranean  
      *F5.5 Thermo-Mediterranean shrub habitats*  
      *F6.1 Western garrigues*  
      *F7.2 Central Mediterranean spiny heaths*
- 47E09     **Sideritido incanae-Salvion lavandulifoliae**  
Communities on degraded marl and clayey soils in Spain  
      *F6.1 Western garrigues*
- 47E10     **Teucrium mari**  
Thermomediterranean coastal phrygana of Corsica  
      *F5.5 Thermo-Mediterranean shrub habitats*
- 48        **ONOSMO POLYPHYLLAE-PTILOSTEMONETEA**  
Crimean mediterranean garrigue over flysch
- 48A        ONOSMO POLYPHYLLAE-PTILOSTEMONETALIA  
Crimean mediterranean garrigue over flysch
- 48A01     **Ptilostemonion**  
Crimean mediterranean garrigue over flysch  
      *F6.4 Black Sea garrigues*
- 49        **CYTISETEA SCOPARIO-STRIATI**  
Thermomediterranean broom heathlands (retamal)
- 49A        CYTISETALIA SCOPARIO-STRIATI  
Thermomediterranean broom heathlands
- 49A01     **Adenocarpion decorticantis**  
Mediterranean montane retamoid shrublands of southern Spain  
      *F3.1 Temperate thickets and scrub*  
      *F5.5 Thermo-Mediterranean shrub habitats*

- 49A02      **Cytision oromediterraneo-scoparii**  
Thermomediterranean broom heathlands of mountains in Spain and Portugal
- 49A03      **Genistion floridae**  
Mediterranean montane broom heaths of central and northern Spain  
*F3.1 Temperate thickets and scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F5.5 Thermo-Mediterranean shrub habitats*
- 49A04      **Genistion polygaliphyllae**  
Mediterranean montane broom heaths of northwest Spain and Portugal  
*F3.1 Temperate thickets and scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*F7.4 Hedgehog-heaths*
- 49A05      **Retamion sphaerocarpace**  
Mediterranean montane heath, mainly on sandy soils  
*F5.5 Thermo-Mediterranean shrub habitats*
- 49A06      **Ulici europaei-Cytision striati**  
Mediterranean montane heaths of northwest Iberia and southwest France  
*F5.5 Thermo-Mediterranean shrub habitats*
- 49B      CYTISO VILLOSI-TELINETALIA MONSPESSULANAE  
Thermomediterranean broom heathlands
- 49B01      **Telinion monspessulano-linifoliae**  
Thermomediterranean broom heathlands
- 50      **CISTO-LAVANDULETEA**  
Low-grown mediterranean scrub (matorral, garrigue, tomillar, phrygana) on siliceous and ultramafic substrata
- 50A      LAVANDULETALIA STOECHADIS  
Xeric-acidophilous scrub on compact substrates from degraded forest brown soils
- 50A01      **Armerion nebrodensis**  
Acidophilous hedgehog scrub of north Sicilian mountains  
*F7.4 Hedgehog-heaths*
- 50A02      **Cistion ladaniferi**  
West and central Mediterranean xeric-acidophilous shrub communities  
*F5.2 Maquis*  
*F7.4 Hedgehog-heaths*
- 50A03      **Cistion laurifolii**  
Xeric-acidophilous shrub communities in districts with continental climate  
*F5.2 Maquis*  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 50A04      **Stachelino-Ulicion baetici**  
Xeric-acidophilous shrub communities on peridotites and serpentine rocks  
*F5.5 Thermo-Mediterranean shrub habitats*
- 50A05      **Ulici argentei-Cistion ladaniferi**  
Ibero-Moroccan thermo-mesomediterranean, xeric silicicolous scrub  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*
- 50B      STAURACANTHO GENISTOIDIS-HALIMIETALIA COMMUTATI  
Shrub communities on sandy soils and fossil dunes
- 50B01      **Coremion albi**  
Degraded or secondary shrub communities on sandy soils and fossil dunes  
*F5.2 Maquis*

F5.5 Thermo-Mediterranean shrub habitats

- 51 CISTO-MICROMERIETEA JULIANAE  
East Mediterranean hedgehog-heaths and low-grown broom phryganas
- 51A CISTO-ERICETALIA  
Sclerophyllous scrub on red soils and limestone in the Balkans and southern Italy
- 51A01 **Cisto-Ericion**  
Sclerophyllous scrub on red soils and limestone in the Balkans and southern Italy  
*F5.1 Arborescent matorral*  
*F5.2 Maquis*  
*F6.3 Illyrian garrigues*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*
- 51B POTERIETALIA SPINOSI  
Low-growing broom phryganas of the eastern Mediterranean
- 51B01 **Cisto-Hypericion bithynici**  
East-Mediterranean xeric and moderately acidophilous shrub communities  
*F6.2 Eastern garrigues*  
*F6.3 Illyrian garrigues*
- 51B02 **Dorycnio-Coridothymion capitati**  
Mesomediterranean low scrub of rocky calcareous soils in northern Greece  
*F6.2 Eastern garrigues*  
*F7.3 East Mediterranean phrygana*
- 51B03 **Hyperico empetrifolii-Micromerion graecae**  
Thermomediterranean phrygana of peninsular Greece and the Aegean region  
*F6.2 Eastern garrigues*
- 51B04 **Micromerion julianae**  
Mesomediterranean phrygana on humus soils in northern Greece  
*F7.3 East Mediterranean phrygana*
- 52 QUERCETEA ILICIS  
Mediterranean maquis, mediterranean pine woods and associated sclerophyllous scrub
- 52A PISTACIO LENTISCI-RHAMNETALIA ALATERNI  
Maquis and matorral centered in the thermomediterranean belt
- 52A01 **Acero sempervirenti-Cupressio sempervirentis**  
Cypress forest of the supramediterranean belt of Crete  
*F5.1 Arborescent matorral*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 52A02 **Alysson euboei**  
Ultramafic Pinus halepensis woodlands of Euboea and the Greek mainland
- 52A03 **Arbuto andrachnae-Quercion cocciferae**  
East Mediterranean degraded sclerophyllous scrub on calcareous soils of the mesomediterranean belt  
*F5.1 Arborescent matorral*  
*F6.2 Eastern garrigues*  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 52A04 **Arbuto unedonis-Laurion nobilis**  
Atlantic broadleaf laurel woodland of northern Spain  
*F5.1 Arborescent matorral*  
*F9.3 Southern riparian galleries and thickets*
- 52A05 **Asparago albi-Rhamnion oleoidis**  
West Mediterranean maquis in the semiarid and arid belts

- F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*
- 52A06 **Ceratonio-Rhamnion oleoidis**  
East Mediterranean scrub of the thermomediterranean belt  
*F5.1 Arborescent matorral*  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*G2.4 [Olea europaea] - [Ceratonia siliqua] woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*
- 52A07 **Ericion arboreae**  
Spanish sclerophyllous evergreen scrub  
*F5.2 Maquis*
- 52A08 **Genisto spartioidis-Phlomidion almeriensis**  
Thermophilous evergreen scrub of southern Spain  
*F5.5 Thermo-Mediterranean shrub habitats*
- 52A09 **Juniperion turbinatae**  
West Mediterranean juniper woodland on larger dune systems  
*B1.6 Coastal dune scrub*  
*F5.1 Arborescent matorral*  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*
- 52A10 **Oleo-Ceratonion siliquae**  
East and central Mediterranean maquis, matorral and thermophilous pine woodlands  
*B1.6 Coastal dune scrub*  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*G2.1 Mediterranean evergreen [Quercus] woodland*  
*G2.4 [Olea europaea] - [Ceratonia siliqua] woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 52A11 **Periplocion angustifoliae**  
South Mediterranean low maquis  
*F5.1 Arborescent matorral*  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 52A12 **Pino acutisquamae-Juniperion phoeniceae**  
Thermomediterranean maquis
- 52A13 **Quercion fruticosae**  
Coastal evergreen oak woodland of southwest Iberia
- 52A14 **Rhamno graeci-Juniperion lyciae**  
Aegeo-Anatolian low-grown coastal maquis and garrigue
- 52A15 **Rhamno lycioidis-Quercion cocciferae**  
West Mediterranean dense scrub of spiny oak in the semiarid regions  
*F5.2 Maquis*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*F6.1 Western garrigues*
- 52A16 **Rubo longifoliae-Coremion albi**  
Scrub of coastal dunes in south-west Iberia
- 52B QUERCETALIA ILICIS

- Evergreen oak woods and maquis of the Mediterranean
- 52B01 **Erico-Quercion ilicis**  
Acidophilous evergreen oak woods of the northwestern Mediterranean
- 52B02 **Quercion broteroi**  
Iberian evergreen or semi-evergreen forests in regions of mild mediterraneo-atlantic climate  
*G1.7 Thermophilous deciduous woodland*  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 52B03 **Quercion ilicis**  
Calciphilous evergreen oak woods of the northwestern Mediterranean  
*F5.1 Arborescent matorral*  
*F5.2 Maquis*  
*F6.1 Western garrigues*  
*F6.3 Illyrian garrigues*  
*G1.7 Thermophilous deciduous woodland*  
*G2.1 Mediterranean evergreen [Quercus] woodland*  
*G2.2 Eurasian continental sclerophyllous woodland*  
*G2.5 [Phoenix] groves*  
*G2.6 [Ilex aquifolium] woods*  
*G3.1 [Abies] and [Picea] woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 52B04 **Quercio rotundifoliae-Oleion sylvestris**  
Evergreen oak woods and maquis on deep soils of the thermomediterranean belt of the Iberian Peninsula  
*F5.3 Pseudomaquis*  
*G1.7 Thermophilous deciduous woodland*  
*G2.1 Mediterranean evergreen [Quercus] woodland*

## L TEMPERATE BROADLEAVED FORESTS AND SCRUB

- 53 **SALICETEA PURPUREAE**  
Willow and poplar scrub and woodland of margins of mountain and lowland rivers
- 53A **SALICETALIA PURPUREAE**  
Willow scrub and woodland of margins of lowland and mountain rivers
- 53A01 **Rubo caesii-Amorphion fruticosae**  
Scrub on gleyic temporarily-flooded soils of Ukraine
- 53A02 **Salicion albae**  
Willow scrub and woodland of sub-montane and lowland river shoals and terraces  
*F9.1 Riverine and lakeshore [Salix] scrub*  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 53A03 **Salicion eleagno-daphnoidis**  
Willow scrub of montane stream banks in the Alps and Carpathians  
*F9.1 Riverine and lakeshore [Salix] scrub*
- 53A04 **Salicion phyllicifoliae**

- 53A05 Willow scrub of montane stream banks and deltas in northern Europe  
**Salicion salviifoliae**  
Willow scrub of montane stream banks in Iberia  
*F9.1 Riverine and lakeshore [Salix] scrub*
- 53A06 **Salicion triandrae**  
Willow scrub of river banks below levées  
*F9.1 Riverine and lakeshore [Salix] scrub*
- 53A07 **Salicion triandro-neotrichae**  
Willow scrub of lime-rich montane stream banks in northern Spain  
*F9.1 Riverine and lakeshore [Salix] scrub*
- 53A08 **Securinegion buxifoliae**  
Thorny riparian scrub in southwestern Iberia  
*F9.3 Southern riparian galleries and thickets*
- 54 **POPULETEA ALBAE**  
Ash, Alder and Willow riparian woodlands
- 54A FRAXINETALIA  
Riparian woodlands of western, central and southeastern Europe
- 54A01 **Alnion incanae**  
Ash and alder woodland communities of flushed lime-rich soils in central and western Europe  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.2 Fluvial [Fraxinus] - [Alnus] and [Quercus] - [Ulmus] - [Fraxinus] woodland*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G1.B Non-riverine [Alnus] woodland*
- 54A02 **Alno-Quercion roboris**  
Southeast European and Italian ash-alder floodplain woods  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 54A03 **Fraxinion angustifoliae**  
Ash woodland swamps and fens in the Apennines  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.2 Fluvial [Fraxinus] - [Alnus] and [Quercus] - [Ulmus] - [Fraxinus] woodland*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*
- 54B POPULETALIA ALBAE  
Mediterranean and sub-mediterranean pioneer riparian woodlands
- 54B01 Lauro-Fraxinion oxycarpae  
Riparian woodlands of the eastern Balkans and Greece
- 54B02 **Osmundo-Alnion**  
Alder and willow woodlands of west Mediterranean streams  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.4 Broadleaved swamp woodland not on acid peat*  
*G1.5 Broadleaved swamp woodland on acid peat*

- 54B03        **Populion albae**  
 Submediterranean and mediterranean poplar and willow riparian woods  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*
- 55        **ALNETEA GLUTINOSAE**  
 Alder and willow woodlands of swamps, fens and wet pastures
- 55A        ALNETALIA GLUTINOSAE  
 Alder and willow woodlands of swamps, fens and wet pastures
- 55A01        **Alnion glutinosae**  
 Alder and willow woodlands of swamps, fens and wet pastures  
*G1.2 Fluvial [Fraxinus] - [Alnus] and [Quercus] - [Ulmus] - [Fraxinus] woodland*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*  
*G1.4 Broadleaved swamp woodland not on acid peat*  
*G1.5 Broadleaved swamp woodland on acid peat*
- 56        **FRANGULETEA**  
 Scrub and hedges on acid, nutrient poor, often peaty soils of western and central Europe
- 56A        RUBETALIA PLICATI  
 Acidophilous scrub, hedges and underscrub of forest clearings on dry sandy, nutrient-poor soils
- 56A01        **Lonicero-Rubion silvatici**  
 Bramble underscrub of woodland edges and clearings in the Atlantic zone
- 56A02        **Ulici-Sarothamnion**  
 Broom and gorse scrub
- 56B        SALICETALIA AURITAE  
 Willow scrub and woodland of mires
- 56B01        **Salicion cinereae**  
 Willow scrub and woodland of mires  
*D1.1 Raised bogs*  
*D2.2 Poor fens*  
*D4.1 Rich fens, including eutrophic tall-herb fens and calcareous flushes and soaks*  
*F9.2 [Salix] carr and fen scrub*  
*F9.3 Southern riparian galleries and thickets*  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*  
*G1.5 Broadleaved swamp woodland on acid peat*  
*G3.E Nemoral bog conifer woodland*
- 57        **NERIO-TAMARICETEA**  
 Mediterranean riparian gallery forests and riverine scrub
- 57A        PLATANETALIA ORIENTALIS  
 Riparian gallery forests in the eastern and central Mediterranean
- 57A01        **Platanion orientalis**  
 Riparian gallery forests in the eastern and central Mediterranean  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*
- 57B        TAMARICETALIA AFRICANAE  
 Scrub-woodlands of river banks and moist places in the west and south Mediterranean

- 57B01        **Imperato-Erianthion ravennae**  
Vegetation of humid and subsaline depressions in sand  
*C3.3 Water-fringing beds of tall canes*
- 57B02        **Nerion oleandri**  
East-Mediterranean riverine scrub with Nerium oleander  
*F9.3 Southern riparian galleries and thickets*
- 57B03        **Rubo ulmifolii-Nerion oleandri**  
Riverine Nerium scrub of southwest Europe
- 57B04        **Tamaricion africanae**  
Iberian tamarisk scrub of fresh-water streams  
*F9.3 Southern riparian galleries and thickets*
- 57B05        **Tamaricion boveano-canariensis**  
Southern Iberian sub-halophilous tamarisk scrub  
*F9.3 Southern riparian galleries and thickets*
- 57B06        **Tamaricion parviflorae**  
Tamarisk scrub of the south-west Balkans  
*F9.1 Riverine and lakeshore [Salix] scrub*
- 57C        TAMARICETALIA RAMOSISSIMAE  
Tamarisk scrub of southeast Europe and central Asia
- 57C01        **Agropyro fragilis-Tamaricion ramosissimae**  
Desert communities dominated by Tamarix ramosissima
- 57C02        **Artemisio scopariae-Tamaricion**  
Tamarisk scrub of the southeast Balkans
- 57C03        **Galio humifusi-Tamaricion ramosissimae**  
Xeromesophilous communities of Tamarix ramosissima and Elaeagnus angustifolia
- 58        **RHAMNO-PRUNETEA**  
Sub-scrub and scrub vegetation seral or marginal to broadleaved woodland
- 58A        PRUNETALIA SPINOSAE  
Sub-scrub and scrub vegetation seral or marginal to broadleaved woodland
- 58A01        **Amygdalion nanae**  
Scrub communities of the steppe zone of Ukraine and south Russia  
*E1.2 Perennial calcareous grassland and basic steppes*
- 58A02        **Berberidion vulgaris**  
Thermophilous scrub on sunny, stony slopes in southern and central Europe  
*B1.6 Coastal dune scrub*  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F3.1 Temperate thickets and scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 58A03        **Berberido creticae-Prunion cocomiliae**  
Thermophilous thorn scrub of the submediterranean regions of the Apennine and Balkan peninsulas
- 58A04        **Carpino-Prunion**  
Mesophilous hedges and scrub of mesotrophic, base-rich soils in the Atlantic zone  
*F3.1 Temperate thickets and scrub*
- 58A05        **Cytisium sessilifolii**  
Thermophilous broom scrub of submontane and montane belts of the central and southern Apennines
- 58A06        **Frangulo alni-Pyrion cordatae**

- Mesophytic thorny hedges and scrub on base-poor soils in the colline zone of the Cantabrian fringe  
*F3.1 Temperate thickets and scrub*
- 58A07 **Geo-Acerion platanoidis**  
 Anthropogenic woodlands in cities of the South Ural
- 58A08 **Lonicero-Berberidion hispanicae**  
 Supra- and oro-mediterranean scrub on base-rich substrates in the Baetic and north African mountains  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*
- 58A09 **Pruno tenellae-Syringion**  
 Thermophilous scrub on dry soils of the northern and central Balkans  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*
- 58A10 **Pruno-Rubion radulae**  
 Bramble communities on neutral and base-rich soils in western and central Europe  
*B1.6 Coastal dune scrub*  
*E5.3 [Pteridium aquilinum] fields*  
*F3.1 Temperate thickets and scrub*  
*F5.3 Pseudomaquis*  
*F5.5 Thermo-Mediterranean shrub habitats*  
*H3.1 Acid siliceous inland cliffs*
- 58A11 **Pruno-Rubion ulmifolii**  
 Bramble communities of southern Europe  
*B1.6 Coastal dune scrub*  
*C3.3 Water-fringing beds of tall canes*  
*E5.3 [Pteridium aquilinum] fields*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*
- 58B SALICETALIA ARENARIAE  
 Atlantic scrub of coastal dune sands
- 58B01 **Ligustro-Hippophaeion**  
 Elder, privet and sea buckthorn scrub of Atlantic dunes  
*B1.6 Coastal dune scrub*
- 58B02 **Salicion arenariae**  
 Willow and sea buckthorn scrub communities of dune slacks and ridges  
*B1.6 Coastal dune scrub*
- 58C SAMBUCETALIA RACEMOSAE  
 Seral elder and willow scrub of nutrient-rich mull soils
- 58C01 **Arctio-Sambucion nigrae**  
 Elder scrub of derelict habitations in the Atlantic zone
- 58C02 **Sambuco racemosae-Salicion capreae**  
 Seral elder and willow scrub of nutrient-rich mull soils  
*F2.3 Subalpine deciduous scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G5.8 Recently felled areas*
- 58C03 **Senecioni ovati-Corylion**  
 Hazel scrub on nutrient-rich soils in the (sub)montane zone of central Europe
- 59 **QUERCO-FAGETEA**  
 Mixed broadleaved woodland of more temperate climates in central and western Europe
- 59A BETULO PENDULAE-POPULETALIA TREMULAE  
 Birch-poplar woodlands

- 59A01 **Betulion carpatico-pubescentis**  
Birch woodlands in mountain regions of southwestern Europe
- 59A02 **Betulion fontquerio-celtibericae**  
Birch woodlands in Spain  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*
- 59A03 **Corylo-Populion tremulae**  
Secondary forests of disturbed areas in humid to hyperhumid temperate regions of Spain and France  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*
- 59B FAGETALIA SYLVATICAE  
Broadleaved woodland and scrub communities of more fertile soils
- 59B01 **Aconito septentrionalis-Piceion obovatae**  
Mixed forests of *Picea obovata*, *Abies sibirica* and *Tilia cordata* on fertile soils of the South Ural  
*G3.A [Picea] taiga woodland*  
*G3.B [Pinus] taiga woodland*  
*G4.3 Mixed sub-taiga woodland with acidophilous [Quercus]*
- 59B02 **Aconito septentrionalis-Tilion cordatae**  
Broadleaved forests of the forest and forest-steppe zones on fertile soils of the South Ural
- 59B03 **Aremonio-Fagion**  
Beech and mixed beech-fir woods of the Illyrian region and western Dinarides  
*G1.6 [Fagus] woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G3.1 [Abies] and [Picea] woodland*
- 59B04 **Carpinion betuli**  
Broadleaved woodlands rich in hornbeam on lime-rich and neutral mull soils  
*F3.1 Temperate thickets and scrub*  
*F5.1 Arborescent matorral*  
*G1.2 Fluvial [Fraxinus] - [Alnus] and [Quercus] - [Ulmus] - [Fraxinus] woodland*  
*G1.4 Broadleaved swamp woodland not on acid peat*  
*G1.6 [Fagus] woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G2.6 [Ilex aquifolium] woods*  
*G3.1 [Abies] and [Picea] woodland*
- 59B05 **Cephalanthero-Fagion**  
Thermophilous beech forests mostly on limestone  
*G1.6 [Fagus] woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 59B06 **Doronico orientalis-Fagion moesiaci**  
Beech and mixed beech-fir woods of the Dinarides east of the Drina and of the Rodopi  
*G1.6 [Fagus] woodland*  
*G3.1 [Abies] and [Picea] woodland*

- 59B07 **Endymio non-scripti-Fagion**  
Beech woods of the British Isles and Atlantic fringes of western Europe
- 59B08 **Erythronio-Carpinion**  
Illyrian hornbeam forests  
*G1.6 [Fagus] woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 59B09 **Fagion sylvaticae**  
Beech and mixed beech-fir woods of western central and northern Europe  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*G1.6 [Fagus] woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G1.B Non-riverine [Alnus] woodland*  
*G2.6 [Ilex aquifolium] woods*  
*G3.1 [Abies] and [Picea] woodland*  
*G3.5 [Pinus nigra] woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*  
*G4.3 Mixed sub-taiga woodland with acidophilous [Quercus]*  
*G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland*
- 59B10 **Galio rotundifolii-Fagion**  
Relict beech woods of Corsica
- 59B11 **Geranio nodosi-Fagion**  
Beech and mixed beech-fir woods of the northern and central Apennines  
*G1.6 [Fagus] woodland*
- 59B12 **Geranio striati-Fagion**  
Beech and mixed beech-fir woods of the southern Apennines and southern regions of the Balkan Peninsula  
*G1.6 [Fagus] woodland*  
*G3.1 [Abies] and [Picea] woodland*
- 59B13 **Lonicero alpigenae-Fagion**  
Beech and mixed beech-fir woods of the northern fringes of the Alps  
*G1.6 [Fagus] woodland*  
*G3.1 [Abies] and [Picea] woodland*
- 59B14 **Pulmonario longifoliae-Quercion roboris**  
Mixed oak woods in southwestern Europe  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 59B15 **Querco roboris-Tilion cordatae**  
East European broadleaved and mixed forests from the European part of Russia and the Baltic countries  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 59B16 **Scillo lilio-hyacinthi-Fagion**  
Beech and mixed beech-fir woods of the Pyrenees and the Cantabrian region  
*G1.6 [Fagus] woodland*
- 59B17 **Symphyto cordati-Fagion**  
Beech and mixed beech-fir woods of the Carpathians  
*G1.6 [Fagus] woodland*

- 59B18 *G3.1 [Abies] and [Picea] woodland*  
**Tilio-Acerion**  
 Sub-montane maple and lime woods on steep slopes with a mild and humid mesoclimate  
*F3.1 Temperate thickets and scrub*  
*G1.6 [Fagus] woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 59C RHODODENDRO PONTICI-FAGETALIA ORIENTALIS  
 Euxinic beech and hornbeam forests
- 59C01 **Fagion orientalis**  
 Oriental beech woods of Crimea
- 59C02 Rhododendro pontici-Fagion orientalis  
 Beech forest with Fagus orientalis of southern Bulgaria and European Turkey  
*G1.6 [Fagus] woodland*  
*G3.1 [Abies] and [Picea] woodland*
- 60 **QUERCETEA PUBESCENTIS**  
 Thermophilous woodlands with deciduous oaks of eastern sub-Mediterranean regions
- 60A FRAXINO ORNI-COTINETALIA  
 Thermophilous mantle communities fringing oak sibljak woodlands of eastern sub-Mediterranean regions
- 60A01 **Fraxino orni-Cotinion**  
 Thermophilous mantle communities of circum-Pannonian oak woodlands  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*G1.7 Thermophilous deciduous woodland*
- 60A02 **Paliuro-Carpinion orientalis**  
 Sub-mediterranean xerophilous scrub (sibljak) in the Balkans and Italy  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F5.3 Pseudomaquis*  
*F6.2 Eastern garrigues*  
*F6.3 Illyrian garrigues*  
*F6.6 Supra-Mediterranean garrigues*
- 60A03 **Syringo-Carpinion orientalis**  
 Thermophilous mantle communities of the central Balkan oak woodlands  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F5.3 Pseudomaquis*  
*G1.7 Thermophilous deciduous woodland*
- 60B QUERCETALIA PUBESCENTI-PETRAEAE  
 European xerothermophilous forests
- 60B01 **Abietion cephalonicae**  
 Greek fir montane forests  
*G3.1 [Abies] and [Picea] woodland*  
*G3.5 [Pinus nigra] woodland*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 60B02 **Aceri granatensis-Quercion fagineae**  
 Mesophytic oak and fir forests of Iberia  
*G1.7 Thermophilous deciduous woodland*  
*G2.1 Mediterranean evergreen [Quercus] woodland*  
*G3.5 [Pinus nigra] woodland*
- 60B03 **Aceri tatarici-Quercion**  
 Xerophilous oak woods of deep soil in the Sarmato-Pannonian region

- G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 60B04 **Carpinion orientalis**  
 Hornbeam woodlands in the Balkans and Italy  
*F3.1 Temperate thickets and scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F5.3 Pseudomaquis*  
*G1.3 Mediterranean [Populus], [Fraxinus], [Ulmus] and related riparian woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 60B05 **Carpino orientalis-Quercion pubescentis**  
 Crimean thermophilous oak woodlands on deep brown forest soils over limestone
- 60B06 **Cytiso-Quercion pubescentis**  
 Mountainous thermophilous oak woodlands
- 60B07 **Elytrigio nodosae-Quercion pubescentis**  
 Crimean thermophilous open oak woodlands on deep dry soils on south-facing slopes
- 60B08 **Junipero excelsae-Quercion pubescentis**  
 Crimean thermophilous pseudomaquis replacing oak woodlands  
*F5.3 Pseudomaquis*  
*G1.7 Thermophilous deciduous woodland*  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 60B09 **Lathyrion veneti**  
 Mediterranean acidophilous deciduous forests of Corsica  
*G1.7 Thermophilous deciduous woodland*  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 60B10 **Lathyro montani-Quercion cerridis**  
 Mediterranean acidophilous deciduous forests of Italy
- 60B11 **Lathyro-Quercion roboris**  
 Thermophilous forests of the South Ural region
- 60B12 **Lonicero etruscae-Quercion pubescentis**  
 Thermophilous submediterranean deciduous oak woods of central Italy
- 60B13 **Melitto-Quercion**  
 Deciduous oak forests of southern Greece  
*G1.7 Thermophilous deciduous woodland*
- 60B14 **Paeonio broteroi-Abietion pinsapo**  
 Baetic fir woods with Abies pinsapo  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 60B15 **Quercion confertae**  
 Thermophilous mixed oak forests in the Balkans, Greece and southern Italy  
*F5.1 Arborescent matorral*  
*G1.6 [Fagus] woodland*  
*G1.7 Thermophilous deciduous woodland*

- G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*
- 60B16     **Quercion petraeae**  
 Central European thermophilous oak forests on acidic bedrocks  
*F5.3 Pseudomaquis*  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*
- 60B17     **Quercion pubescenti-sessiliflorae**  
 Downy oak forest of the western sub-mediterranean zone and of the fringes of central European mountains  
*G1.7 Thermophilous deciduous woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G2.1 Mediterranean evergreen [Quercus] woodland*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*
- 61        **QUERCETEA ROBORIS**  
 Acidophilous species-poor oak, oak-birch and beech deciduous woods on nutrient-poor soils
- 61A        LUZULO-FAGETALIA  
 Acidophilous beech forests in central and western Europe
- 61A01     **Ilici-Fagion**  
 Acidophilous beech forests of south-west Europe  
*G1.6 [Fagus] woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*
- 61A02     **Luzulo-Fagion**  
 Acidophilous beech forests of central and north-west Europe  
*G1.6 [Fagus] woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*
- 61B        QUERCETALIA ROBORIS  
 Oak and oak-birch woods on acid soils in western, central and eastern Europe
- 61B01     **Agrostio capillaris-Quercion petraeae**  
 Oak and oak-birch woods on acid soils in central Europe
- 61B02     **Castaneo-Quercion petraeae**  
 Submediterranean acidophilous chestnut-oak woods of the Balkans and southeastern Europe  
*G1.A Meso- and eutrophic [Quercus], [Carpinus], [Fraxinus], [Acer], [Tilia], [Ulmus] and related woodland*
- 61B03     **Convallario majalis-Quercion roboris**  
 Acidophilous species-poor oak woods on gleyic podzolized soils of the Ukraine
- 61B04     **Dicrano-Quercion**  
 Oak and oak-birch woods on extreme nutrient poor xerovague soils in northwestern Europe
- 61B05     **Genisto germanicae-Quercion**  
 Oak and oak-birch woods of central and east-central Europe  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*
- 61B06     **Molinio-Quercion roboris**  
 West European wet acidophilous oak-woods on gleyic soils

- 61B07 **Pino-Quercion**  
Acidophilous pine-oak woods of sub-boreal eastern Europe  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 61B08 **Quercion pyrenaicae**  
Oak woods of south-west Europe  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G2.1 Mediterranean evergreen [Quercus] woodland*
- 61B09 **Quercion roboris**  
Oak and oak-birch woods of acid soils in central and western Europe  
*E5.3 [Pteridium aquilinum] fields*  
*G1.6 [Fagus] woodland*  
*G1.7 Thermophilous deciduous woodland*  
*G1.8 Acidophilous [Quercus]-dominated woodland*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G2.6 [Ilex aquifolium] woods*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 61B10 **Vaccinio myrtilli-Quercion petraeae**  
Oak and oak-birch woods of acid soils in northwestern Europe

## M MONTANE HEATHS AND CONIFEROUS FORESTS

- 62 **LOISELEURIO-VACCINIETEA**  
Arctic-boreal and (sub)alpine dwarf-shrub heathlands
- 62A **RHODODENDRO-VACCINIETALIA**  
Arctic-boreal and (sub)alpine dwarf-shrub heathlands
- 62A01 **Bruckenthalion spiculifoliae**  
Subalpine acidophilous heath of the southern Carpathians and Stara Planina (Balkans)  
*F2.2 Evergreen alpine and subalpine heath and scrub*
- 62A02 **Loiseleurio-Diapension**  
Arctic-boreal chionophilous tundra scrub  
*E4.2 Moss and lichen dominated mountain summits, ridges and exposed slopes*  
*E4.3 Acid alpine and subalpine grassland*  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F4.2 Dry heaths*
- 62A03 **Loiseleurio-Vaccinion**  
Arctic chionophobous heath of wind-swept exposed slopes and summits  
*F1.2 Moss and lichen tundra*  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F4.2 Dry heaths*
- 62A04 **Phyllodoco-Vaccinion myrtilli**  
Moderately chionophilous communities of snow-bound slopes of Scandinavia  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G3.B [Pinus] taiga woodland*

- 62A05      **Rhododendro-Vaccinion**  
 Subalpine chionophilous wind-swept dwarf shrub heath of the Alps and Carpathians  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F2.3 Subalpine deciduous scrub*  
*F2.4 [Pinus mugo] scrub*  
*F7.2 Central Mediterranean spiny heaths*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*  
*G3.3 [Pinus uncinata] woodland*
- 62A06      **Juniperion nanae**  
 Juniper scrub of dry, wind-swept habitats of the western and central Alps  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F2.3 Subalpine deciduous scrub*  
*G3.3 [Pinus uncinata] woodland*
- 63      **ERICO-PINETEA**  
 Calcareous relict montane pine woods of the Balkans, the Alps and Carpathians
- 63A      **ERICO-PINETALIA**  
 Calcareous relict montane pine woods of the Balkans, the Alps and Carpathians
- 63A01      **Erico-Pinion sylvestris**  
 Relict open pine woods of the Alps, Carpathians and northern Dinarides  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F7.2 Central Mediterranean spiny heaths*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*  
*G3.3 [Pinus uncinata] woodland*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.5 [Pinus nigra] woodland*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63A02      **Fraxino orni-Ericion**  
 Balkan relict pine woods on ultramafic rocks and dolomites  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63A03      **Fraxino orni-Pinion nigrae**  
 Central and southern Balkan open Pinus nigra woods on calcareous substrates  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.5 [Pinus nigra] woodland*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63A04      **Juniperion excelsae**  
 Balkan open conifer woods on limestone and schist  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63A05      **Pinion heldreichii**  
 Calcareous and ultramafic Balkan open Pinus leucodermis woods  
*G3.6 Subalpine mediterranean [Pinus] woodland*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63A06      **Pinion kochianae**  
 Calcareous Crimean open pine woods  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G4.C Mixed [Pinus sylvestris] - thermophilous [Quercus] woodland*
- 63B      **RHODODENDRO HIRSUTI-ERICETALIA CARNEAE**  
 Dwarf heath on calcareous soils in the Alps and northern Dinarics
- 63B01      **Epipactido atropurpureae-Pinion mugo**  
 Calcicolous krummholz in the subalpine belt of the central Apennines

- 63B02      **Ericion carneae**  
Dwarf heath on calcareous soils in the Alps and northern Dinarics  
*F2.2 Evergreen alpine and subalpine heath and scrub*
- 63B03      **Pino mugo-Ericion**  
Calciphilous krummholz of *Pinus mugo*  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F2.4 [Pinus mugo] scrub*  
*F7.2 Central Mediterranean spiny heaths*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*  
*G3.3 [Pinus uncinata] woodland*
- 64      **PYROLO-PINETEA**  
Euro-Siberian (sub)continental thermophilous pine woods
- 64A      ASTRAGALO MONSPESSULANI-PINETALIA SYLVESTRIS  
Thermophilous inner alpine pine woods with undergrowth of steppic character
- 64A01      **Ononido-Pinion**  
Thermophilous inner alpine pine woods with undergrowth of steppic character  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 64B      **Festuco-Pinetalia sylvestris**  
Continental north-temperate and sub-boreal pine woods on stabilized sands
- 64B01      **Cytiso ruthenici-Pinion**  
Boreal and sub-continental pine woodlands  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.B [Pinus] taiga woodland*  
*G4.7 Mixed [Pinus sylvestris] - acidophilous [Quercus] woodland*
- 64B02      **Festuco vaginatae-Pinion**  
Pine woods on old sand dunes of the Pannonian Basin  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 65      **PINO-JUNIPERETEA**  
Oromediterranean and supra-mediterranean dry acidic juniper-pine woods and scrub of Iberia, Italy and the western Alps
- 65A      JUNIPERETALIA HEMISPHAERICA  
Oromediterranean secondary oligotrophic dwarf scrub of the Iberian Peninsula, northern Tyrrhenian fringes and North African Atlas
- 65A01      **Cytision oromediterranei**  
Silicolous pine woodland and juniper scrub in the Iberian mountains  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*F3.2 Mediterraneo-montane broadleaved deciduous thickets*  
*F7.4 Hedgehog-heaths*  
*G3.3 [Pinus uncinata] woodland*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 65A02      **Genisto versicoloris-Juniperion hemisphaericae**  
Silicolous dwarf broom and juniper scrub in the oromediterranean belt of the Sierra Nevada
- 65A03      **Pruno prostratae-Juniperion sabiniae**  
Oromediterranean and supra-mediterranean calcicolous dry juniper scrub of central and southern Iberia
- 65B      PINO-JUNIPERETALIA  
Pine woodlands in mediterranean-montane climate
- 65B01      **Avenello ibericae-Pinion ibericae**  
Oromediterranean silicolous dry pine woodlands of the Iberian Peninsula
- 65B02      **Daphno oleoidis-Juniperion alpinae**

- 65B03 Calcareous juniper scrub of montane and subalpine belts of the central and southern Apennines  
**Juniperion thuriferae**  
 West mediterranean-montane juniper woods or scrub  
*G3.5 [Pinus nigra] woodland*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 65B04 **Junipero intermediae-Pinion catalaunicae**  
 Pine woodlands of the montane belt of the Pyrenees  
*G3.3 [Pinus uncinata] woodland*  
*G3.7 Lowland to montane mediterranean [Pinus] woodland (excluding [Pinus nigra])*
- 65B05 **Pino sylvestris-Juniperion sabiniae**  
 Pyrenean and West Alpic oromediterranean pine woods and juniper scrub  
*F2.2 Evergreen alpine and subalpine heath and scrub*  
*G3.3 [Pinus uncinata] woodland*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*
- 66 **VACCINIO-PICEETEA**  
 Coniferous forest communities, and related heaths, of more acidic soils
- 66A **ATHYRIO-PICEETALIA**  
 Mesophilous spruce and fir forests of central and northern European mountains
- 66A01 **Abieti-Piceion**  
 Mesophilous spruce-fir forests on brown forest soils of central European mountains  
*G3.1 [Abies] and [Picea] woodland*  
*G4.6 Mixed [Abies] - [Picea] - [Fagus] woodland*
- 66A02 **Chrysanthemo rotundifolii-Piceion**  
 Herb-rich mesophilous spruce forests of central and northern European mountains  
*G3.1 [Abies] and [Picea] woodland*
- 66B **JUNIPERO-PINETALIA MUGO**  
 Subalpine silicicolous krummholz of mountains of central and southwestern Europe
- 66B01 **Pinion mugo**  
 Subalpine silicicolous krummholz of mountains of central and southwestern Europe  
*F2.4 [Pinus mugo] scrub*  
*F7.2 Central Mediterranean spiny heaths*  
*G3.1 [Abies] and [Picea] woodland*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*
- 66C **PICEETALIA EXCELSAE**  
 European coniferous forest communities of nutrient-poor acid soils
- 66C01 **Dicrano-Pinion**  
 Pine and juniper woodland communities of acid soils  
*B1.7 Coastal dune woods*  
*F3.1 Temperate thickets and scrub*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.B [Pinus] taiga woodland*  
*G3.E Nemoral bog conifer woodland*
- 66C02 **Piceion excelsae**  
 Spruce and birch related woodland communities  
*F2.2 Evergreen alpine and subalpine heath and scrub*

- F2.3 Subalpine deciduous scrub*  
*F2.4 [Pinus mugo] scrub*  
*F7.2 Central Mediterranean spiny heaths*  
*G1.9 Non-riverine woodland with [Betula], [Populus tremula], [Sorbus aucuparia] or [Corylus avellana]*  
*G3.1 [Abies] and [Picea] woodland*  
*G3.2 Alpine [Larix] - [Pinus cembra] woodland*  
*G3.4 [Pinus sylvestris] woodland south of the taiga*  
*G3.A [Picea] taiga woodland*  
*G3.E Nemoral bog conifer woodland*
- 66C03     **Pinion peucis**  
Montane and subalpine silicicolous woodlands of the Balkans  
*G3.6 Subalpine mediterranean [Pinus] woodland*
- 66C04     **Pinion uncinatae**  
Acidophilous forests of Pinus uncinata of the western Alps and Pyrenees  
*G3.3 [Pinus uncinata] woodland*

## N WEED COMMUNITIES

- 67     **STELLARIETEA MEDIAE**  
Weed communities of arable crops, gardens and waste places
- 67A     **ATRIPLICI-CHENOPODIETALIA ALBI**  
Weed communities of arable crops, gardens and waste places
- 67A01     **Arnoseridion minimae**  
Weed communities of cereal fields on lime-deficient soils
- 67A02     **Galeopsion bifidae**  
Segetal communities of oligotrophic soils in the forest zone of European Russia
- 67A03     **Lolio remotae-Linion**  
Central European flax field weed communities
- 67A04     **Panico-Setarion**  
Weed communities of root crops and summer cereals dominated by graminoids
- 67A05     **Polygono-Chenopodion polyspermi**  
Weed communities of root crops and summer cereals dominated by herbs
- 67A06     **Scleranthion annui**  
European arable weed communities of neutral to acid loamy and sandy-loam soils
- 67A07     **Spergulo-Oxalidion**  
European arable weed communities of moist loamy soils
- 67B     **CENTAUREETALIA CYANI**  
Weed communities of arable crops, gardens and waste places
- 67B01     **Anthemido ruthenicae-Sisymbrium orientalis**  
Cereal weed communities on chernozem and sandy meadow soils in steppe zone of Ukraine
- 67B02     **Caucalidion lappulae**  
Spring segetal communities of cereal crops on base-rich soils in central Europe
- 67B03     **Chenopodio albi-Descurainion sophiae**  
Cereal weed communities on typical chernozem soils in the forest-steppe and steppe zones of Ukraine
- 67B04     **Fumarion wirtgenii-agrariae**  
Central Mediterranean winter-crop arable weed communities
- 67B05     **Lactucion tataricae**

- 67B06 Weed communities on chernozem soils of the south Ural steppe zone  
**Papaverion rhoeadis**
- 67B07 Weed communities of grey-forest soils in Ukraine  
**Ridolfion segeti**
- 67B08 Weed communities of semi-arid areas of North Africa and Spain  
**Roemerion hybridae**  
Spring segetal communities on clayey and calcareous soils of mesomediterranean and lower supramediterranean zones of western Europe  
*11.3 Arable land with unmixed crops grown by low-intensity agricultural methods*
- 67B09 **Sherardion arvensis**  
Central European arable weed communities
- 67B10 **Trifolio-Medicaginion sativae**  
Perennial weed communities of animal food crops in central and south Europe
- 67B11 **Veronico chaubardii-Scandicion graecae**  
Southern Greek weed communities of calcareous, loamy and clayey soils
- 67B12 **Veronico politae-Taraxacion**  
Weed communities in permanent fodder plant cultures on loamy and clayey soils
- 67B13 **Veronico-Euphorbion**  
Communities of arable and garden weeds on base-rich soils
- 67B14 **Veronico-Fumarion**  
European vineyard weed communities
- 67B15 **Vicio narbonensis-Milion vernalis**  
Segetal communities of cereals in northern Greece
- 67C CHENOPODIETALIA MURALIS  
Mediterranean nitrophilous ruderal communities of low-grown herbs
- 67C01 **Chenopodion muralis**  
Mediterranean ruderal communities of semi-shaded, nutrient-rich places
- 67C02 **Mesembryanthemion crystallini**  
Nitrophilous communities of succulents on sub-halophytic soils
- 67D ERAGROSTIETALIA  
Thermophilous grass-rich ruderal vegetation on dry sandy substrates
- 67D01 **Amarantho-Chenopodion**  
East and southeast European thermophilous weed communities of crops on sandy soils
- 67D02 **Diptotaxidion eruroidis**  
West and central Mediterranean weed communities of sandy, acidic, nutrient-poor soils
- 67D03 **Eragrostio-Polygonion arenastri**  
Summer-dry west and central European trampled plant communities on dry sandy soils
- 67D04 **Euphorbion prostratae**  
Iberian and Macaronesian xerophilous trampled communities of disturbed sandy soils
- 67D05 **Matricario chamomillae-Chenopodion albi**  
Weed communities of warm-temperate regions of east Europe on slightly salty, heavy soils
- 67D06 **Polycarpo-Eleusinion indicae**  
Thermophilous communities rich in C4 species of trampled habitats in Italy and the Illyrian region
- 67D07 **Salsolion ruthenicae**

- Central European and Pannonian ruderal communities of disturbed gravelly and sandy soils  
*E1.2 Perennial calcareous grassland and basic steppes*
- 67E SISYMBRIETALIA  
Ruderal communities of arable crops, gardens and waste places
- 67E01 **Atriplicion nitentis**  
Central and east European ruderal communities of tall fast-growing herbs
- 67E02 **Fedio-Convulvulion cupaniani**  
Ruderal communities in southern Europe
- 67E03 **Malvion neglectae**  
Nitrophilous ruderal communities of low-grown herbs of temperate Europe  
*E6.2 Continental inland saline grass and herb-dominated habitats*
- 67E04 **Salsolo-Atriplicion nitentis**  
Ruderal communities of dry mineral habitats of industrial wastes and roadsides in the South Ural
- 67E05 **Sisymbrium officinalis**  
Tall-herb ruderal communities of spring annuals of sandy and loamy skeletal soils of temperate winter-mild Europe
- 67F THERO-BROMETALIA  
Overgrazed vegetation of abandoned fields on nutrient-poor soils in the Mediterranean area
- 67F01 **Alyso granatensis-Brassicion barrelieri**  
Spring pioneer communities of nutrient-poor soils of the Spanish Meseta Central  
*E1.6 Subnitrophilous grassland*
- 67F02 **Resedo lanceolatae-Moricandion**  
South Iberian arid xerophilous sub-nitrophilous low-herb communities  
*E1.6 Subnitrophilous grassland*
- 67F03 **Cerintho majoris-Fedion cornucopiae**  
South Iberian segetal communities of lime-rich clays
- 67F04 **Echio plantaginei-Galactition tomentosae**  
Mediterranean tall short-lived herb communities on lime- and nutrient-rich soils
- 67F05 **Hordeion murini**  
Mediterranean ruderal communities rich in winter annual grasses
- 67F06 **Laguro ovati-Bromion rigidi**  
Therophytic closed grasslands on disturbed coastal sand dunes of western Europe
- 67F07 **Linario polygalifoliae-Vulpion alopecuroidis**  
South Spanish therophyte-rich disturbed coastal dune pasture communities
- 67F08 **Taeniathero-Aegilopion geniculatae**  
Thermophilous annual grassy communities of formerly overgrazed disturbed habitats of the Spanish Meseta Central  
*E1.6 Subnitrophilous grassland*
- 68 **POLYGONO-POETEA ANNUAE**  
Therophyte-rich vegetation of trampled habitats
- 68A POLYGONO ARENASTRI-POETALIA ANNUAE  
Therophyte-rich vegetation of trampled habitats
- 68A01 **Matricario-Polygonion avicularis**  
Weed communities of drier trampled and shaded places in temperate climates
- 68A02 **Polycarpion tetraphylli**  
Central and west Mediterranean and sub-mediterranean communities

- 68A03            **Saginion procumbentis**  
Strongly-trampled vegetation in moister places
- 69            **ARTEMISIETEA VULGARIS**  
Perennial and thistle-rich (sub)xerophilous ruderal communities of temperate and mediterranean regions
- 69A            **ACHILLEETALIA MILLEFOLII**  
Weed communities of agricultural crops of perennial grasses in the South Ural region
- 69A01            **Achilleion millefolii**  
Weed communities of agricultural crops of perennial grasses in the South Ural region
- 69B            **AGROPYRETALIA REPENTIS**  
Anthropogeneous dry tall-grass perennial swards on loamy soils
- 69B01            **Agropyro-Kochion**  
Short grasslands on loess with relics of Pannonian steppes  
*E1.2 Perennial calcareous grassland and basic steppes*
- 69B02            **Bassio-Artemision austriacae**  
Xerophyte communities of grazed steppes in Ukraine and southeast Russia
- 69B03            **Bromo-Oryzopsis miliaceae**  
West and central Mediterranean xerophytic, moderately nitrophilous tall grass disturbed communities
- 69B04            **Convolvulo arvensis-Agropyron repentis**  
Tall-herb mainly grass-dominated perennial ruderal vegetation on loamy, base-rich soils of central and southeast Europe
- 69B05            **Inulo viscosae-Agropyron repentis**  
Tall-herb perennial ruderal communities on loamy soils of the submediterranean regions of Italy, southeast Europe and the Balkans
- 69C            **CARTHAMETALIA LANATI**  
Biennial and annual weed communities of the Mediterranean
- 69C01            **Onopordion illyrici**  
Thistle vegetation of disturbed calcareous substrates of the submediterranean and higher-altitudes of the Mediterranean
- 69C02            **Onopordion castellani**  
Thistle vegetation of lime-rich substrates in Iberia
- 69C03            **Silybo-Urticion**  
Tall thistle vegetation of the central Mediterranean  
*E5.1 Over-grazed arid Mediterranean garrigues (ermes)*
- 69D            **ONOPORDETALIA ACANTHII**  
Xero-mesophilous ruderal communities of biennials on nutrient-rich soils
- 69D01            **Arction lappae**  
Mesophytic communities of moister soils in cooler climates
- 69D02            **Carduo carpetani-Cirsion odontolepidis**  
Nitrophilous supra-oromediterranean thistle communities of the Spanish Meseta Central
- 69D03            **Cirsion richterano-chodati**  
Biennial vegetation of disturbed soils in Cantabria and the Pyrenees at high altitudes
- 69D04            **Dauco-Melilotion**  
Xero-mesophilous ruderal communities of biennials on nutrient-rich soils of central Europe
- 69D05            **Erysimo wittmannii-Hackelion**

- Therophyte-rich vegetation of mammal lairs under stone overhangs in the Alps and Carpathians
- 69D06 **Onopordion acanthii**  
Xero-mesophilous ruderal communities of tall thorny biennials on nutrient-rich soils of subcontinental Central Europe
- 70 **GALIO-URTICETEA**  
Tall-herb mesophilous anthropogeneous fringe vegetation of woodlands and scrub and semi-natural tall saum of water courses of temperate Europe
- 70A **CHELIDONIO-ROBINIETALIA**  
Spontaneous Robinia and Acer negundo woodlands
- 70A01 **Balloto nigrae-Robinion**  
Robinia groves and scrub with weedy understorey on loamy-sandy dry soils
- 70A02 **Chelidonio-Acerion negundi**  
Eastern European spontaneous groves and scrub dominated by Acer negundo
- 70A03 **Chelidonio-Robinion**  
Robinia groves and scrub with weedy understorey on loamy-clayey, mesic soils
- 70B **CONVOLVULETALIA SEPIUM**  
Semi-natural saum vegetation on banks of rivers and other water bodies of temperate Europe
- 70B01 **Bromo ramosi-Eupatorion cannabini**  
Tall-herb and liane-rich vegetation of river banks in Spain
- 70B02 **Cynancho-Convolvulion sepium**  
Mediterranean tall-herb riparian vegetation
- 70B03 **Galio veri-Aristolochion clematidis**  
Herb-rich communities on sandy soils with alternating water regime of riverine alluvia of Dnipro River (Ukraine)
- 70B04 **Nardosmion laevigatae**  
Natural nitrophilous communities of tall perennial herbs of mountain rivers and streams in south Urals
- 70B05 **Petasision officinalis**  
Tall-herb vegetation of raw alluvium soils on montane streamsides in Carpathians and Hercynicum
- 70B06 **Senecionion fluviatilis**  
Communities of tall herbaceous nitrophiles around eutrophic lakes and ditches  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 70B07 **Senecionion samniti**  
Nitrophilous tall-herb communities of mountain streamsides of the central and southern Apennines
- 70C **GERANIO-CARDAMINETALIA HIRSUTAE**  
Mediterraneo-Atlantic mesic nitrophilous fringe winter-annual vegetation
- 70C01 **Drabo muralis-Cardaminion hirsutae**  
Therophytic sciophilous fringe communities of atlantic regions of France
- 70C02 **Geranio purpurei-Torilidion neglectae**  
Canary Island herbaceous fringe communities of mesic to wet laurel woodland
- 70C03 **Geranio pusilli-Anthriscion caucalidis**  
Mesic nitrophilous fringe vegetation of Atlantic to sub-Mediterranean regions
- 70C04 **Parietarion lusitanico-mauritanicae**  
Mesic nitrophilous fringe vegetation of Mediterranean regions
- 70C05 **Veronico-Urticion urentis**  
Central and east Mediterranean heliophilous and nitrophilous winter-annual communities

- 70D      **LAMIO ALBI-CHENOPODIETALIA BONI-HENRICI**  
Ruderal and semi-natural communities of tall mesophilous and nitrophilous perennials
- 70D01      **Aegopodion podagrariae**  
Communities of sunny and semi-shaded margins and clearings of woody vegetation  
*A2.6 Coastal saltmarshes and saline reedbeds*  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*  
*E5.5 Subalpine moist or wet tall-herb and fern habitats*
- 70D02      **Allion triquetri**  
West Mediterranean communities of shady fringes
- 70D03      **Anthriscion nemorosae**  
Oak-woodland fringe communities dominated by winter annuals of central Italy
- 70D04      **Balloto-Conion maculati**  
Nitrophilous perennial tall-herb communities of man-made habitats at high-altitudes in (sub)mediterranean southern Europe
- 70D05      **Carduo-Urticion dioicae**  
Sub-montane to subalpine communities on more base-rich substrates in central Europe
- 70D06      **Galio-Alliarion**  
Thermophilous semi-natural communities of nitrophilous perennials of sunny forest meadow ecotones  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 70D07      **Impatiens noli-tangere-Stachyion sylvaticae**  
Mesophilous and sciophilous forest-fringe and clearing vegetation of deciduous woods of colline to submontane belts in central Europe  
*E5.4 Moist or wet tall-herb and fern fringes and meadows*
- 71      **EPILOBIETEA ANGUSTIFOLII**  
Species-poor vegetation of damp fertile soils in woodland margins, clearings and burned places
- 71A      **ATROPETALIA**  
Tall-herb vegetation of clearings of deciduous woodlands
- 71A01      **Asparago verticillati-Crataegion tauricae**  
Thermophilous shrub communities of Crimea
- 71A02      **Atropion**  
Herbaceous forest-clearing communities associated with deciduous forests on nutrient-rich soils of central and western Europe  
*G5.8 Recently felled areas*
- 71A03      **Carici piluliferae-Epilobion angustifolii**  
Herbaceous forest-clearing communities associated with deciduous forests on nutrient-poor soils of central and western Europe  
*E1.7 Non-Mediterranean dry acid and neutral closed grassland*  
*G5.8 Recently felled areas*
- 71A04      **Linarion niveae**  
Vegetation of clearings in Iberian acidophilous oak woodlands
- 72      **BIDENTETEA TRIPARTITI**  
Pioneer vegetation dominated by nutrient-demanding summer annuals on periodically flooded edges of water bodies and heavily nutrient-loaded ruderal habitats
- 72A      **BIDENTETALIA TRIPARTITAE**

- Pioneer vegetation dominated by nutrient-demanding summer annuals on periodically flooded edges of water bodies and heavily nutrient-loaded ruderal habitats
- 72A01        **Bidenton tripartitae**  
Pioneer vegetation dominated by nutrient-demanding summer annuals on periodically flooded bottoms and edges of water bodies  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 72A02        **Chenopodion rubri**  
Pioneer vegetation dominated by nutrient-demanding summer annuals in heavily nutrient-loaded ruderal habitats  
*C3.5 Pioneer and ephemeral vegetation of periodically inundated shores*
- 73        **ORYZETEA SATIVAE**  
Weed communities of rice fields
- 73A        CYPERO DIFFORMIS-ECHINOCHLOETALIA ORYZOIDIS  
Weed communities of rice fields
- 73A01        **Oryzo sativae-Echinochloion oryzoidis**  
Weed communities of rice fields  
*I1.5 Bare tilled, fallow or recently abandoned arable land*

## O ZONAL AND ENDEMIC VEGETATION OF MACARONESIA

- 74        **POLYCARPAEO NIVEAE-TRAGANETEA MOQUINI**  
Macaronesian halophilous coastal dune scrub
- 74A        ZYGOPHYLLO FONTANESII-POLYCARPAETALIA NIVEAE  
Macaronesian halophilous coastal dune scrub
- 74A01        **Ononido ramosissimae-Polycarpion niveae**  
Macaronesian halophilous coastal dune scrub  
*B1.3 Shifting coastal dunes*
- 75        **AEONIO-GREENOVIETEA**  
Macaronesian chasmophytic vegetation of exposed volcanic rocks
- 75A        SONCHO-SEMPERVIVETALIA  
Macaronesian succulent dwarf shrubs
- 75A01        **Greenovion aureae**  
Canarian montane succulent dwarf shrubs  
*F8.1 Canarian xerophytic habitats*  
*H6.1 Sparsely vegetated volcanic mountain summits, lava and ash fields*
- 75A02        **Sinapidendro angustifolii-Aeonion glutinosi**  
Macaronesian succulent chasmophytic communities
- 75A03        **Soncho-Sempervivion**  
Macaronesian lowland and sub-montane dwarf shrubs  
*F8.1 Canarian xerophytic habitats*  
*F8.2 Madeiran xerophytic habitats*
- 76        **OLEO CERASIFORMIS-RHAMNETEA CRENULATAE**  
Macaronesian matorral and related scrub
- 76A        CISTO MONSPELIENSIS-MICROMERIETALIA HYSSOPIFOLIAE  
Macaronesian xerophytic dwarf shrubs (tomillares) on soils with eroded profiles
- 76A01        **Cisto monspeliensis-Micromerion hyssopifoliae**  
Canarian xerophytic dwarf shrubs (tomillares) on soils with eroded profiles
- 76A02        **Soncho ustulati-Artemision argenteae**

- 76B Maderean xerophytic dwarf scrub (tomillares) on soils with eroded profiles  
OLEO-RHAMNETALIA CREMULATAE  
Macaronesian woodlands and shrubs on soils with well-developed profiles
- 76B01 **Oleo maderensis-Maytenion umbellatae**  
Maderean woodlands and scrub on well-developed soils
- 76B02 **Mayteno-Juniperion canariensis**  
Canarian woodlands and shrubs on soils with well-developed profiles  
*G2.4 [Olea europaea] - [Ceratonja siliqua] woodland*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 77 **KLEINIO NERIIFOLIAE-EUPHORBIETEA CANARIENSIS**  
Macaronesian succulent scrub on semi-desert lava beds (taibal and cardonal)
- 77A KLEINIO-EUPHORBIETALIA CANARIENSIS  
Macaronesian succulent scrub on semi-desert lava beds (taibal and cardonal)
- 77A01 **Aeonio-Euphorbion canariensis**  
Macaronesian succulent scrub on semi-desert lava beds (taibal and cardonal)  
*F8.1 Canarian xerophytic habitats*  
*F8.2 Madeiran xerophytic habitats*
- 78 **SPARTOCYTISETEA SUPRANUBII**  
Canarian high-mountain volcanic semideserts
- 78A SPARTOCYTISETALIA SUPRANUBII  
Canarian high-mountain volcanic semideserts
- 78A01 **Spartocytisium nubigeni**  
Canarian high-mountain volcanic semideserts  
*F7.4 Hedgehog-heaths*  
*H6.1 Sparsely vegetated volcanic mountain summits, lava and ash fields*
- 79 **CYTISO-PINETEA CANARIENSIS**  
Canarian pine woods
- 79A CYTISO-PINETALIA CANARIENSIS  
Canarian pine woods and related scrub
- 79A01 **Cisto-Pinion canariensis**  
Canarian pine woods and related scrub  
*G3.8 Canary Island [Pinus canariensis] woodland*
- 80 **PRUNO HIXAE-LAURETEA AZORICAE**  
Macaronesian laurisilva and related scrub
- 80A ANDRYALO-ERICETALIA  
Macaronesian maquis
- 80A01 **Myrico fayae-Ericion arboreae**  
Macaronesian broad-leaved maquis  
*F4.3 Macaronesian heaths*  
*G2.7 Canarian heath woodland*  
*G3.8 Canary Island [Pinus canariensis] woodland*
- 80B PRUNO-LAURETALIA AZORICAE  
Macaronesian broad-leaved forests (laurisilva)
- 80B01 **Bystropogono punctati-Telinion maderensis**  
Macaronesian broad-leaved woods
- 80B02 **Ixantho-Laurion azoricae**  
Macaronesian broad-leaved forests  
*G2.3 Macaronesian [Laurus] woodland*
- 80B03 **Juniperion brevifoliae**

- Azorean Juniper scrub with laurophyll species  
*G3.8 Canary Island [Pinus canariensis] woodland*  
*G3.9 Coniferous woodland dominated by [Cupressaceae] or [Taxaceae]*
- 80B04 **Polysticho falcinelli-Ericion arboreae**  
 Macaronesian secondary forests with undergrowth of Erica arborea
- 80B05 **Sibthorpio peregrinae-Clethrion arboreae**  
 Madeiran broad-leaved laurisilva forests  
*G2.3 Macaronesian [Laurus] woodland*
- 80B06 **Telino canariensis-Adenocarpion foliolosi**  
 Macaronesian genistoid shrub-heath
- 80B07 **Visneo mocanerae-Apollonion barbujanae**  
 Macaronesian broad-leaved laurisilva forests
- 80C RUBO BOLLEI-SALICETALIA CANARIENSIS  
 Macaronesian riparian woodlands and scrub
- 80C01 **Rubio periclymeni-Rubion ulmifolii**  
 Macaronesian spiny shrubs in humid habitats  
*G3.8 Canary Island [Pinus canariensis] woodland*
- 80C02 **Salicion canariensis**  
 Canarian willow scrub in humid habitats  
*G1.1 Riparian [Salix], [Alnus] and [Betula] woodland*

## ABOUT THE AUTHORS

**John Rodwell** is Professor of Plant Ecology at Lancaster University in the UK. He coordinated the British National Vegetation Classification and is editor of the five-volume *British Plant Communities*. John Rodwell is independent international expert of the European Topic Centre on Nature Protection and Biodiversity. He is one of the initiators and coordinator of the European Vegetation Survey.

**Joop Schaminée** is employed at Alterra, Green World Research in Wageningen, the Netherlands, at present as senior researcher. He was project leader of the Dutch National Vegetation Classification, of which the results are published in five volumes. Joop Schaminée is president of the Dutch Society for Phytosociology and, since 1998, Secretary General of International Association for Vegetation Science. Like Rodwell, he is an independent international expert of the European Topic Centre on Nature Protection and Biodiversity, and one of the initiators of the European Vegetation Survey.

**Laco Mucina** received his education in Slovakia (Bratislava) and the Netherlands (Nijmegen). His research activities concentrate on problems of vegetation surveys and data-management aspects in vegetation science, plant ecology and biogeography; he coordinated the Austrian National Vegetation Classification programme, of which the results were published in three volumes. He has served as lecturer and performed research at various universities in former Czechoslovakia, the Netherlands, Austria, Italy, Sweden and South Africa. At present, Laco Mucina is associated as Professor in botany with the University of the North, Qwa-Qwa Campus, South Africa, and serves as Vice-President of International Association for Vegetation Science. Mucina, too, was one of the initiators of the European Vegetation Survey.

**Sandro Pignatti** is at present professor of Ecology at the University of Rome 'La Sapienza' (formerly in Trieste). He is past president of the International Association of Vegetation Science (IAVS). He initiated the European Vegetation Survey and is president of the annual meetings of this working group in Rome. Among the books he has published, we mention *Flora d'Italia* (1982), *Ecologia del paesaggio* (1994) and *I boschi d'Italia* (1998). Sandro Pignatti is a Member of the Accademia Nazionale dei Lincei.

**Julian Dring** is a zoological taxonomist and worked for the Institute of Terrestrial Ecology and the Nature Conservancy Council. At present, he is Database Development Officer in the Unit of Vegetation Science at Lancaster University. He developed the software version of the Syntaxa-EUNIS Crosswalk which is published here. Together with John Rodwell, he worked on the Darwin Project (1995-1998).

**Dorian Moss** is Head of the Environmental Information Centre at the Centre for Ecology & Hydrology, Monks Wood. Originally trained as a mathematician, he took a PhD in the ecology of birds before joining the Institute of Terrestrial Ecology (the predecessor of CEH) as a biometrician. He was leader of the CORINE Biotopes Project and, with his colleague Cynthia Davies, began the development of the EUNIS habitat classification in 1996. He works closely with the European Environment Agency and is a member of the management committee of its European Topic Centre on Nature Protection and Biodiversity.

## Captions figures

Figure 1. Relationships between EUNIS and other European habitat classification systems.

Figure 2. Number of phytosociological units (formations, classes, orders, alliances) in Europe, including Asiatic Russia and Macaronesia.

Figure 3. Extend of phytosociological knowledge across Europe. Three categories have been distinguished (high, moderate, low), on the base of number of releves, the existence of national data bases and the publication of a national overview. The map does not show Macaronesia (high) and Asiatic Russia (low).

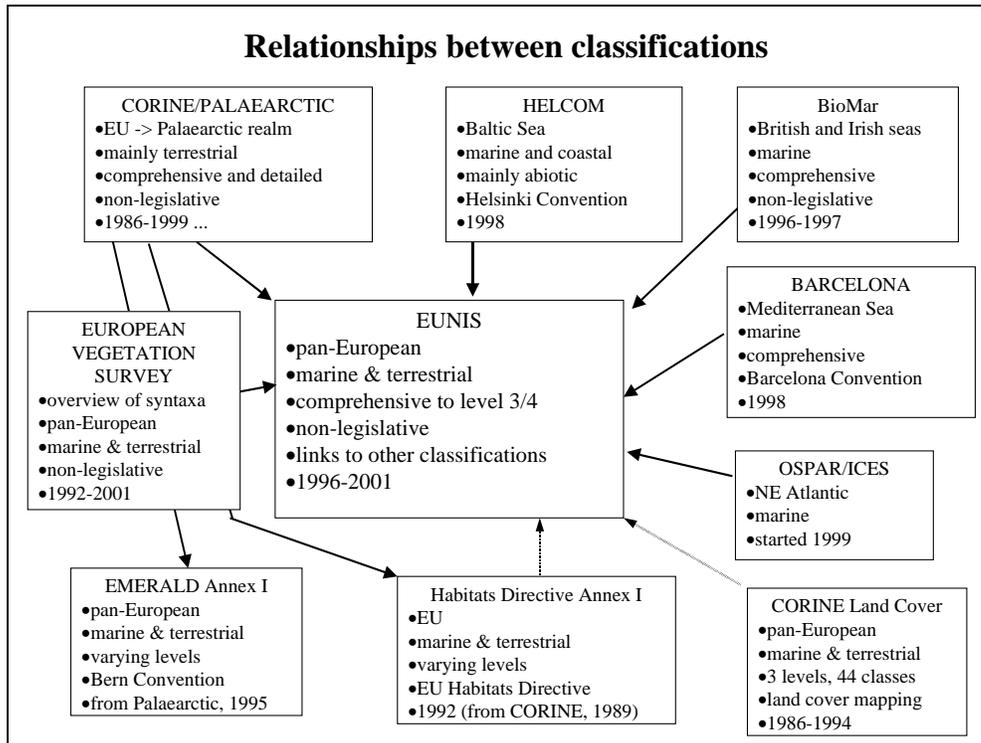
Figure 4. An example of the EUNIS habitat classification level 3 links to Habitat Directive Annex I. Relation codes: = EUNIS and Annex I habitats are equivalent; > EUNIS habitat is included within the Annex I habitat; < EUNIS habitat includes the Annex I habitat; # Partial overlap between the definitions; ? Relationship is not known (Moss & Davies 1999).

Figure 5. The distribution of the *Tilio-Acerion* woodlands in the Czech Republic (Chytry et al. 2001).

Figure 6. The distribution of the *Cynosurion cristati* in Europe. --- = *Lolio-Cynosuretum*, 1 = *Centaureo-Cynosuretum*, 2 = *Lino-Cynosuretum*, 3 = *Junco-Cynosuretum*, 4 = *Galio-Trifolietum*, 5 = *Anthoxantho-Agrostietum*, 6 = *Anthemido-Cynosuretum* and *Bromo-Cynosuretum*, and 7 = *Festuco-Agrostietum* (Zuidhoff et al. 1995).



Figure 1



*Figure 2*

<b>Phytosociological unit</b>	<b>Number</b>
Formations	15
Classes	80
Orders	233
Alliances	933

Figure 4

- A Marine habitats**
- A1 Littoral rock and other hard substrata**
- A1.1 Littoral rock very exposed to wave action  
# 1170 *Reefs*
  - A1.2 Littoral rock moderately exposed to wave action  
# 1170
  - A1.3 Littoral rock sheltered from wave action  
# 1170
  - A1.6 Littoral caves and overhangs  
# 8330 *Submerged or partly submerged sea caves*
- A2 Littoral sediments**
- A2.1 Littoral gravels and coarse sands  
# 1130 *Estuaries*
  - A2.2 Littoral sands and muddy sands  
> 1140 *Mudflats and sandflats not covered by seawater at low tide*
  - A2.3 Littoral muds  
> 1140
  - A2.6 Coastal saltmarshes and saline reedbeds
    - < 1310 *Salicornia and other annuals colonising mud and sand*
    - < 1320 *Spartina swards (Spartinion maritima)*
    - < 1330 *Atlantic salt meadows (Glauco-Puccinellietalia maritima)*
    - # 1410 *Mediterranean salt meadows (Juncetalia maritimi)*
    - < 1420 *Mediterranean and thermo-Atlantic halophilous scrubs*
    - < 1630 *Boreal baltic coastal meadows*
  - A2.7 Littoral sediments dominated by aquatic angiosperms  
# 1140 *Mudflats and sandflats not covered by seawater at low tide*

Figure 5

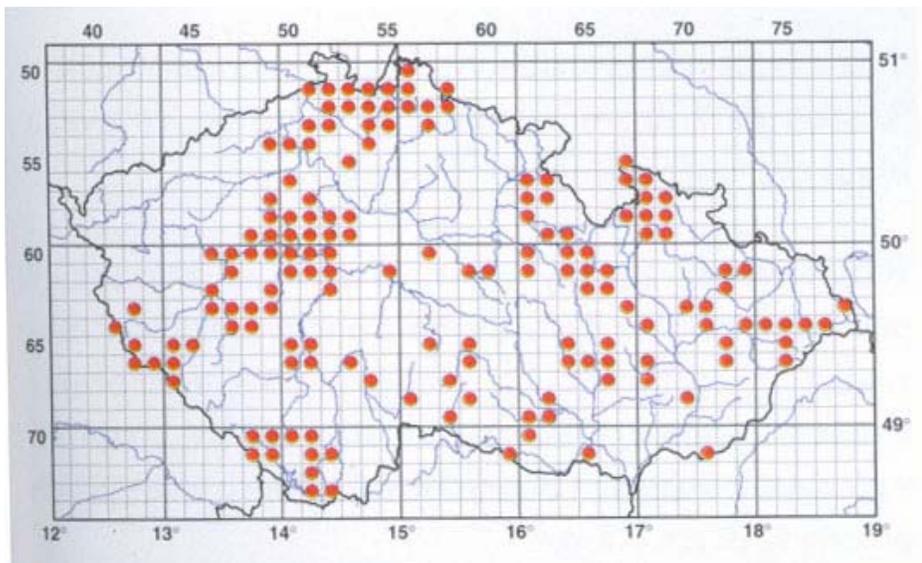
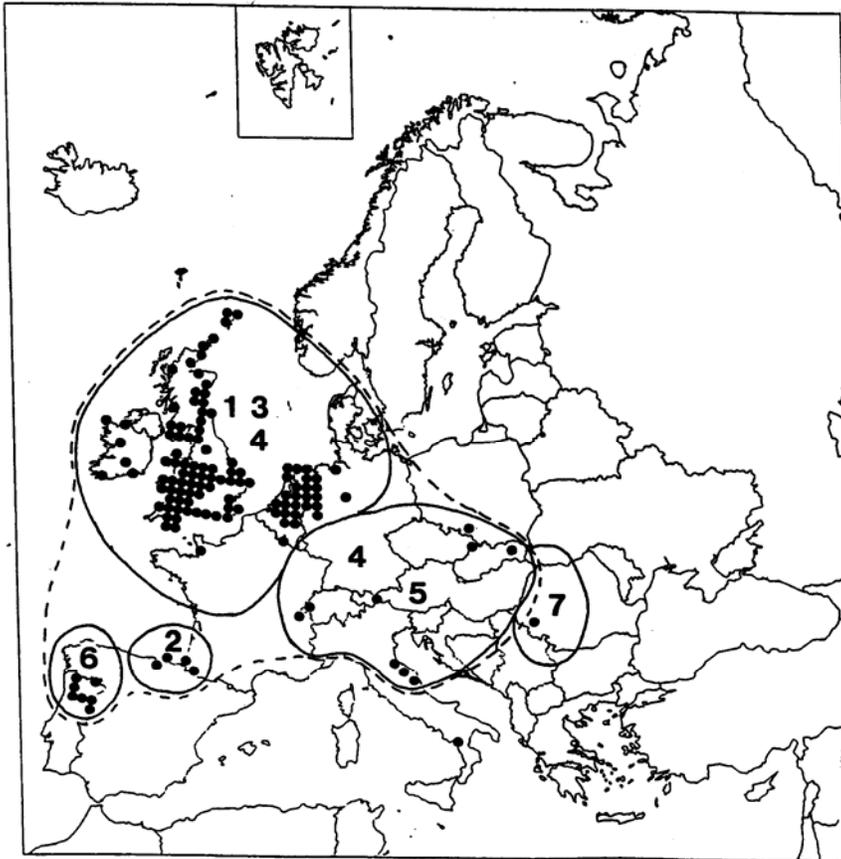


Figure 6



## Captions photographs

### LIGGEND (HALF-GROOT FORMAAT)

- Picture 1. *In autumn, the dwarf-shrub Vaccinium myrtillus colours the subalpine heathlands of the Genisto-Vaccinion in the Black Forest (Southern Germany) pinkish orange (photo: J.H.J. Schaminée).*
- Picture 2. *At many places in the lower Volga area (Russia), the zonal steppe vegetation has been replaced by xerophytic, weed-rich communities of the Bassio-Artemision austriacae, due to overgrazing. The dominant namegiving plant Artemisia austriaca colours the stands grey (photo: J.A.M. Janssen).*
- Picture 3. *In almost permanently inundated depressions in the floodplains of the lower Volga (Russia), aquatic communities of the Nymphaeion albae and helophytic communities of the Glycerio-Sparganion can form mosaics. Both vegetation types are generally poor in species. In the helophytic stands on this picture, Sium latifolia, Butomus umbellatus and Sagittaria sagittifolia are preponderant (photo: J.A.M. Janssen).*
- Picture 4. *In the subalpine zone of the Picos de Europa (Northern Spain), dwarfshrub heathlands of the Daboecion cantrabicae are found on plateaus with relatively deep soils (photo: J.A.M. Janssen).*
- Picture 5. *Primula farinosa is a small but striking plant of marshes and wet meadows on base-rich soils in subalpine areas throughout Europe; here, it often occurs in communities of the Caricion davallianae. In the cross-walk, this alliance is linked with eight EUNIS types, among which D4.2: Basic mountain flushes and streamsides, with a rich arctic-montane flora. The subalpine form of the Caricion davallianae has no equivalent in the Annex I list of the Habitat Directive (photo: J.H.J. Schaminée).*
- Picture 6. *In non-calcareous wet dune slacks, like these on the Danish Wadden island of Rømø, communities of the Ericion tetralicis may develop, which are dominated by dwarfshrubs like Erica tetralicis, Vaccinium uliginosum and Empetrum nigrum (photo: J.H.J. Schaminée).*
- Picture 7. *The hautes-chaumes of the Massif Central in France are characterized by dwarf-shrub heathlands (Genisto-Vaccinion), grasslands (Nardion strictae) and tall forb communities (Calamagrostion arundinaceae). Lower down the slopes, these communities are gradually replaced by beech krummholz of the Fagion sylvatici (photo: J.H.J. Schaminée).*
- Picture 8. *Species rich mountain meadows in the Monts du Forez (Massif Central, France) belong to the Trisetio-Polygonion bistortae. In the*

southern part of this mountain range, the communities are locally dominated by *Narcissus poeticus* (photo: J.H.J. Schaminée).

- Picture 9. In early spring, *Narcissus bulbocodium* is a striking species of the *Nardus*-rich grasslands of the Serra de Estrela in Portugal, belonging to the class *Juncetea trifidi* (photo: J.H.J. Schaminée).
- Picture 10. Weed communities of the *Caucalidion lappulae* may develop in cereal crops on little fertilized, base-rich soils, like here on the island of Rügen in the southern part of the Baltic Sea (photo: J.H.J. Schaminée).
- Picture 11. Semi-desert lava beds in Macaronesia may be covered by succulent scrubs of the *Aeonio-Euphorbion canariensis*, like here on low-situated slopes of the northern outlyers of the volcanic mountains at Tenerife. Locally, the palm *Phoenix canariensis* is a striking tree in these communities (photo: J.H.J. Schaminée).
- Picture 12. High mountain volcanic semidesert communities of the *Spartocytision nubigeni* are present at several macaronesian islands; the largest stands are found in the caldero of the Teyde on Terenife, at an altitude of 1800-2200 m (photo: J.H.J. Schaminée).
- Picture 13. *Allium schoenoprasum* subsp. *sibiricum* in a dry grassland vegetation on the 'stora alvaret' of Öland (Sweden). These limestone grasslands, comprising many rare and endangered species, belong to the *Helianthemo-Globularion* (photo: J.H.J. Schaminée).
- Picture 14. *Lobelia dortmanna* is a characteristic species of the *Littorellion uniflora*, which is confined to slightly-buffered unpolluted lakes and heathlands pools. In Connemara (Western Ireland), the minerals that prevent strong acidification of the water body derive from the underlying limestone bedrocks (photo: J.H.J. Schaminée).
- Picture 15. In Western Ireland, different types of blanket bogs (lowland, highland, mountain) may develop in areas with an annual precipitation of more than 1,300 mm. In contrast to raised bogs, these (*Oxycocco-Ericion tetralicis*) peatlands are not restricted to valleys or other depressions but follow the gentle topography of the landscape (photo: J.H.J. Schaminée).
- Picture 16. As a result of overgrazing by sheep, salt marshes of the *Armerion maritimae* may be transformed into uniform, species poor grasslands, like here along the shores of Killary harbour near Leenane in Western Ireland. In the background mount Mweelrea (photo: J.H.J. Schaminée).
- Picture 17. *Tulipa saxatilis*, an early-spring flowering endemic plant of Crete, may find shelter in spiny bushes of *phrygana*, like here on the Omalos plain at an altitude of 1000 m (photo: J.H.J. Schaminée).

Picture 18. On Mallorca, the endemic *Cyclamen balearicum* is found mostly in evergreen forests of the *Quercion ilicis*. On Mallorca, these mediterranean climax forests are best developed in a belt between 500 and 1200 m (photo: J.A.M. Janssen).

Picture 19. In southern Europe, as here in the coastal region of Portugal near Lisboa, *Cistus* species play an important role in scrub communities of the *Cisto-Lavanduletea*. One of the low-growing species of this group is *Cistus crispus*, easily recognised by its undulate leaves and rather small purplish-red flowers (photo: J.H.J. Schaminée).

Picture 20. In the alpine belt of the Alps and Carpathians, *Dryas octopetala* may dominate communities of the *Caricion firmae*. The species grows on slightly weathered calcareous rocks, as here near Serfaus in Austria (photo: J.H.J. Schaminée).

#### STAAND (GROOT FORMAAT)

Picture 21. In lowland regions, like here in Münsterland in Western Germany, woodlands of the *Carpinion betuli* form the climax vegetation on badly drained, loamy, nutrient-rich soils. The species-rich herb layer is characterized by *Paris quadrifolia*, *Melica uniflora* and *Oxalis acetosella* among others (photo: J.H.J. Schaminée).

Picture 22. *Dictamnus albus* is a striking species of calcareous fringe communities of the *Geranion sanguinei*, like here at Kyffhäuser (Eastern Germany). The plant produces such an amount of etheric oils that it can be put into fire just by holding a match to it (photo: J.H.J. Schaminée).

Picture 23. *Isoplexis canariensis* is an endemic *Scrophulariaceae* species of Macaronesia (Tenerife), where it can be found in *laurisilva* forests of the *Ixantho-Laurion azoricae* (photo: J.H.J. Schaminée).

Picture 24. Mongan bog near Athlone is one of the best-developed raised bogs (*Oxycocco-Ericion tetralicis*) in Ireland. The peat body reaches a depth of almost 15 m and the surface shows a striking pattern of hummocks and hollows, each dominated by specific *Sphagnum* species (photo: J.H.J. Schaminée).

#### LIGGEND (HALF-GROOT FORMAAT)

Picture 25. On dolomite in the Tematin hills of Slovakia, dry grasslands of the *Festucion valesiacae* have been derived by clearance of thermophilous oak woodland and are now threatened by abandonment of grazing (photo M. Chýtrý).

- Picture 26. *Stormy weather in Antibes (Southern France) illustrates the high spray input typical of the Crithmion maritimi, an alliance of Mediterranean coastal crevice communities on natural rocks and sea walls (photo J.S. Rodwell).*
- Picture 27. *Sunrise on a frosty winter morning lights up the extensive Seslerion albicantis pastures characteristic of carboniferous limestone hills of northern England, long cleared of forest and now grazed by sheep (photo J.S. Rodwell).*
- Picture 28. *On abandoned arable fields among arolla pine (Pinus pinea) forest of the Mediterranean coast in central Italy, tall weedy vegetation of the Echio-Galactition is characteristic; the pinky-white flowering Asphodelus aestivus is a dominant species in this community (photo J.S. Rodwell).*
- Picture 29. *On ungrazed sea cliffs along the western coast of Europe, the mild, moist Atlantic climate sustains Ulici-Ericion heaths with Ulex gallii (flowering yellow here), Erica vagans and Erica ciliaris (photo J.S. Rodwell).*
- Picture 30. *Near to the ancient temple of Segesta in Sicily, abandoned arable fields have weed communities of the Hordeion murini rich in annual grasses and colourfull herbs that germinate in the rains of winter (photo J.S. Rodwell).*
- Picture 31. *On mediterranean shores, like here on the Balearic island of Mallorca, dead remnants of Posidonia oceanica bear witness to eelgrass-swards of the Posidonion oceanicae nearby in the sea. The Posidonion oceanicae is an example of an one-to-one relationship with the Annex I list of the Habitat Directive (1120 Posidonia beds). In the EUNIS habitat classification this alliance is part of A4.5: Shallow sublittoral sediments dominated by angiosperms (photo J.H.J. Schaminée).*
- Picture 32. *Nitrophilous tall-forb communities of the Rumicion alpini, like here in the subalpine belt in the German Alps near Brauneck, are indicative of places where cattle gather. Rumex alpinus and the yellow flowering Senecio alpinus are dominant (photo J.H.J. Schaminée).*
- Picture 33. *Macaronesian chasmophytic vegetation with Aeonium spathulatum on exposed volcanic rocks at higher altitude near San Juan de los Llanos on Tenerife are assigned to the class Aeonio-Greenovietea (photo J.H.J. Schaminée).*

STAAND (GROOT FORMAAT)

- Picture 34. *Luxurious Adiantion fern vegetation develops in the crevices of natural and man-made habitats like this fountain in the Orto Botanico in*

Rome where there is constant drenching with sprays of fresh water (photo J.S. Rodwell).

- Picture 35. *The lush vegetation of the Tilio-Acerion lime-maple woodlands is confined to cool, humid ravines throughout central and north-west Europe (photo J.S. Rodwell).*
- Picture 36. *Madeiran broad-leaved laurel forests are classified in an endemic alliance, the Sibthorpio peregrinae-Clethrion arboreae. The best way to explore these almost inaccessible evergreen forests is via so-called levadas, artificial water-courses (photo J.H.J. Schaminée).*
- Picture 37. *Apium repens is a small, creeping Umbelliferae from Central and Eastern Europe. It occurs on wet places that are generally grazed by cattle. Phytosociologically, it can be assigned to the alliance Potentillion anserinae (G-26J02 in the overview). The related EUNIS type is E3.4: Moist or wet eutrophic and mesotrophic grasslands. Although this unit has some links with the Annex I list of the Habitat Directive, this specific Potentillion habitat is not included. Nevertheless, Apium repens finds protection under the Habitat Directive Annex II species list (photo J.H.J. Schaminée).*
- Picture 38. *In the Netherlands, the Cynosurion cristati is represented by two associations, the Lolio-Cynosuretum and the Galio-Trifolietum (Schaminée et al. 1996). The first plant community is the most common of the two and widely distributed throughout the country. Among the few herbs in this rather species poor grassland, Bellis perennis and Ranunculus bulbosus are the most conspicuous (photo J.H.J. Schaminée).*
- Picture 39. *Trisetio-Polygonion hay-meadows are characteristic of traditional sub-montane farms with low-input pastoral agriculture like this one in the Pennine hills of northern England (photo J.S. Rodwell).*
- Picture 40. *Cutting a crop of herbage for hay to feed farm animals through the winter is an essential element of managing Trisetio-Polygonion meadows (photo J.S. Rodwell).*