The European Vegetation Survey questionnaire: an overview of phytosociological data, vegetation survey programmes and databases in Europe

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INTRODUCTION

At the 2nd Workshop of the European Vegetation Survey held in Rome in March 1993, it was agreed to produce a questionnaire to assess the extent of phytosociological data across Europe, the state of vegetation survey in the various countries and the degree to which data were encoded in computerised databases with associated software. Since then, this questionnaire has been circulated to nominated representatives for countries in the European Vegetation Survey network and also to vegetation scientists in countries not yet represented at the meetings. This has both widened our knowledge of the state of vegetation science and also encouraged new countries to participate more fully in our activities.

The responses to the questionnaire are collated in the Unit of Vegetation Science at Lancaster, and the information continually updated and summarised at each annual Workshop. This paper is an outline of the last summary presented at the 4th Workshop.

Countries represented in the network

Eighteen countries are now represented in the questionnaire responses: Albania, Austria, Czech Republic, France, Germany, Greece, Italy, Ireland, Latvia, The Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland, the United Kingdom and the former USSR. For each of these

Research supported by National Council of Italy, special project Raisa, sub-project no. 2, paper no. 1473.

countries, a representative has attempted to give an overview of the situation there. In some cases, such information is restricted to a particular part of the country (eg. Portugal) or several respondents have provided information about different regions (eg. Greece).

At the 4th Workshop, possible respondents were identified for Belgium, Denmark, Estonia, the Faroes, Finland, Hungary, Iceland, Norway, Poland and Sweden, and for gaps in countries already in the network but with an incomplete coverage.

Distribution of phytosociological data

There are probably well over 1 million relevés already recorded in the countries which have responded to the questionnaire. Not surprisingly, those countries with a substantial tradition of phytosociology have most relevés, as in Germany (200,000), France (perhaps up to 400,000), The Netherlands (160,000), Austria (100,000), Spain (150,000), Italy (40,000) and Switzerland (20,000). Many eastern European countries, too, have numerous relevés, like the Czech Republic, Slovakia, Slovenia, Romania and Russia. Even countries which came relatively late to vegetation science sometimes have many data, like the United Kingdom (50,000 relevés). In most countries the relevés are well distributed across the territory but in others, like Spain, Portugal and Greece, the geographical coverage in uneven.

The oldest relevés among the various countries date from the 1920s but, in some countries, the vast majority of data have been assembled in the past decade (eg. Albania, Latvia, UK and former USSR). The proportion of relevés published is very variable: in Germany, italy and the UK, a majority are accessible in relevé or synoptic tables; in other countries, even where there are many relevés, only a small proportion is yet published (eg. France, Switzerland).

Data standards

Most participating countries use a fairly traditional approach to recording relevés. The commonest scale for cover/abundance is the Braun-Blanquet scale with some countries using Domin instead (as is usual in the UK) or in addition (Czech Republic and Ireland), the Pignatti scale (Italy), Drude scale (Romania), van der Maarel scale (Slovakia), % cover or cover classes (Albania, Latvia).

Flora Europea is widely used for naming vascular taxa but almost all countries also have relevés which use other national or regional floras. Traditionally, relevés from Spain do not include records for bryophytes.

Data analysis and databases

In some countries, analysis of relevés and synthesis of tables is still carried out mostly by traditional hand-sorting methods, as in Albania, parts of Greece, Italy, Portugal, Romania, Slovenia and Spain. Increasingly, however, computational techniques are being used in almost the whole of Europe, with existing programs like Twinspan, Canoco and Mulva very popular, or new programs being written especially for the purpose. The commonest language for such software is Fortran, with Pascal also used in some cases. PCs have become widely available for vegetation analysis in most participating countries, though not yet in Albania or Romania.

Certain participating countries have particular locations where relevés are concentrated in computerised databases, either for entire national areas, eg. France, The Netherlands, Switzerland, the UK, or for particular regions, as in parts of Greece, Slovakia and Spain.

Specially-designed data-management software has sometimes been produced for such databases, like Turboveg in The Netherlands, CD-ISIS in Slovakia, Tablas in Spain and Vespan in the UK. Of these, the members of the European Vegetation Survey have committed themselves to adopting or interfacing with Turboveg and this is now installed in ten centres across the network, ready for more extensive development of databases. The Institute for Forest and Nature Research at Wageningen in The Netherlands is taking a lead in coordinating this aspect of the group's activities.

Some countries also have software for mapping relevés on a national scale, as in Turboveg and Vespan. The former now has a map of the whole of Europe on a UTM projection and with a 50x50 Km grid. Most countries maintain a library or bibliography of phytosociological references and some have bibliographic software like SCI-MATE or a Dbase system.

National survey programmes

When the European Vegetation Survey began its meetings, only three participating countries has national programmes of vegetation survey which were officially funded: Austria, The Netherlands and the UK. Germany also had a centrally coordinated programme but with voluntary participation and Switzerland a programme for the survey of forests.

Since then, Spain, Italy and Slovenia have begun programmes along with the Czech and Slovak Republics, where the support of the European Vegetation Survey has been instrumental in obtaining government funding for the work. In the former USSR, there is now some unfunded coordination of data, in Latvia a programme for survey of the coast and in Romania a survey of Transylvania is underway. Plans are also in preparation for Greece and Portugal.

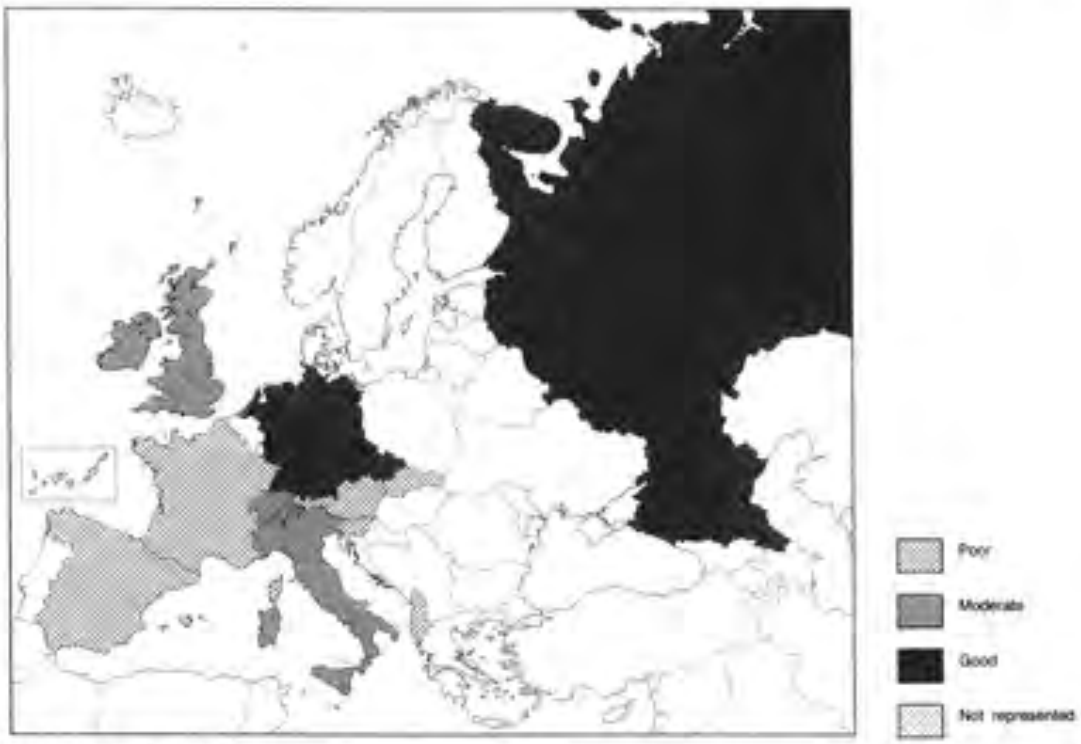
Across the European Vegetation Survey network, there is much cooperation and mutual assistance, at various levels of formality, among individuals and institutions. Sometimes, other projects are lending important support to the spirit of the European Vegetation Survey like the UK Darwin Initiative which, from autumn 1995, will provide funds for the Unit of Vegetation Science at Lancaster in the UK to help develop vegetation databases in Russia, Slovakia, the Czech Republic, Latvia and Albania.

The UK and Austria have already published the results of their national survey programmes with The Netherlands expecting publication in Autumn 1995. Other countries with firm plans for publication are the former USSR, Germany, Romania and, for forests, Switzerland. The usual publication language is the national tongue but English is the preferred choice for some future publications in Eastern Europe. Most countries use the Zürich-Montpellier scheme of syntaxa with the Code of Phytosociological Nomenclature, and few relate their syntaxa to the EU Corine classification of biotopes.

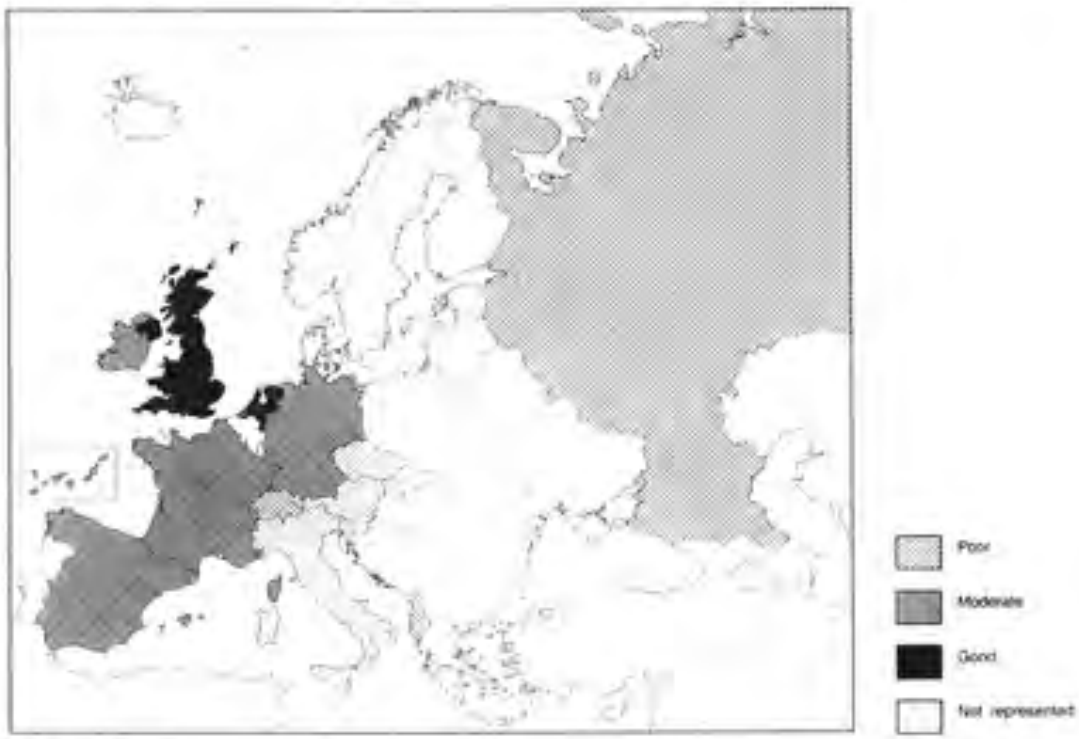
An overview of European vegetation

Every respondent to the European Vegetation Survey questionnaire is also asked to indicate the quality of coverage in their country of the major vegetation types: that is, the amount of relevés for each Zürich-Montpellier class, graded 'poor', 'moderate' or 'good'. Classes not represented in the country (or apparently not) are also noted. It is also possible for each respondent to add classes to the common list where new data appear to support the characterising of a further syntaxon of this rank. However, this question is not intended to provide an opportunity for negotiating the definition of many such syntaxa!

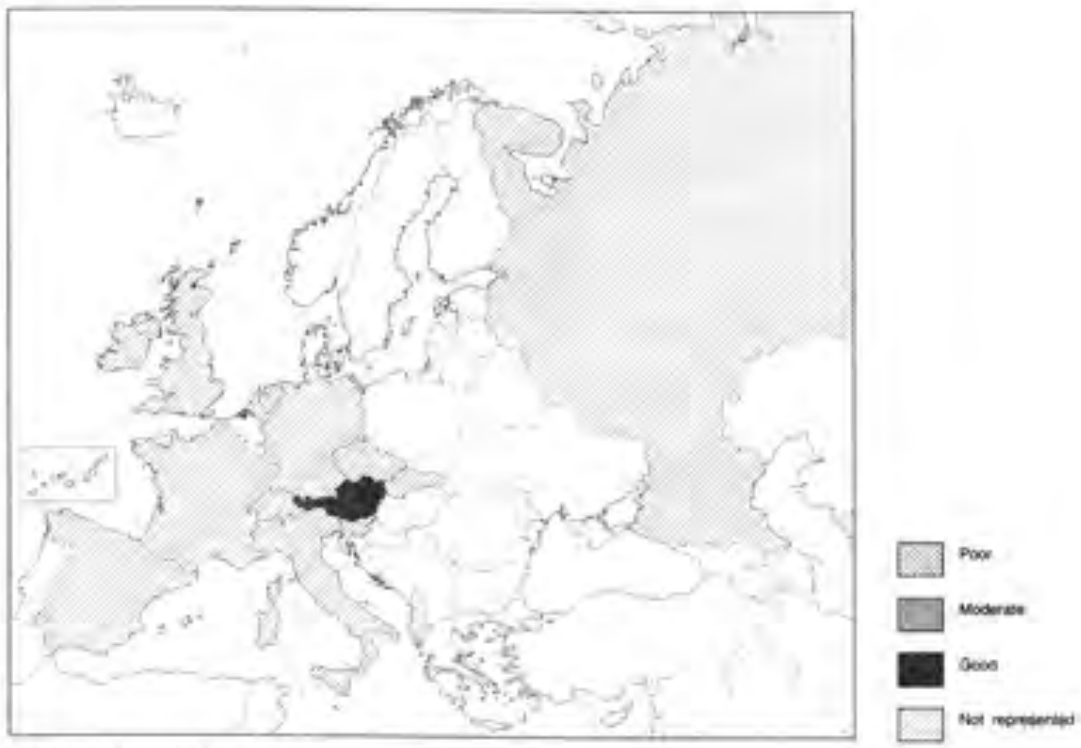
The results of this part of the survey are now being mapped on a European scale and figures 1 to 15 show a selection of such maps to indicate the value of an overview, even at this scale, of European vegetation. This information will be used by the editors of the various chapters in the book on *The Vegetation of Europe* that is being prepared by the European Vegetation Survey.



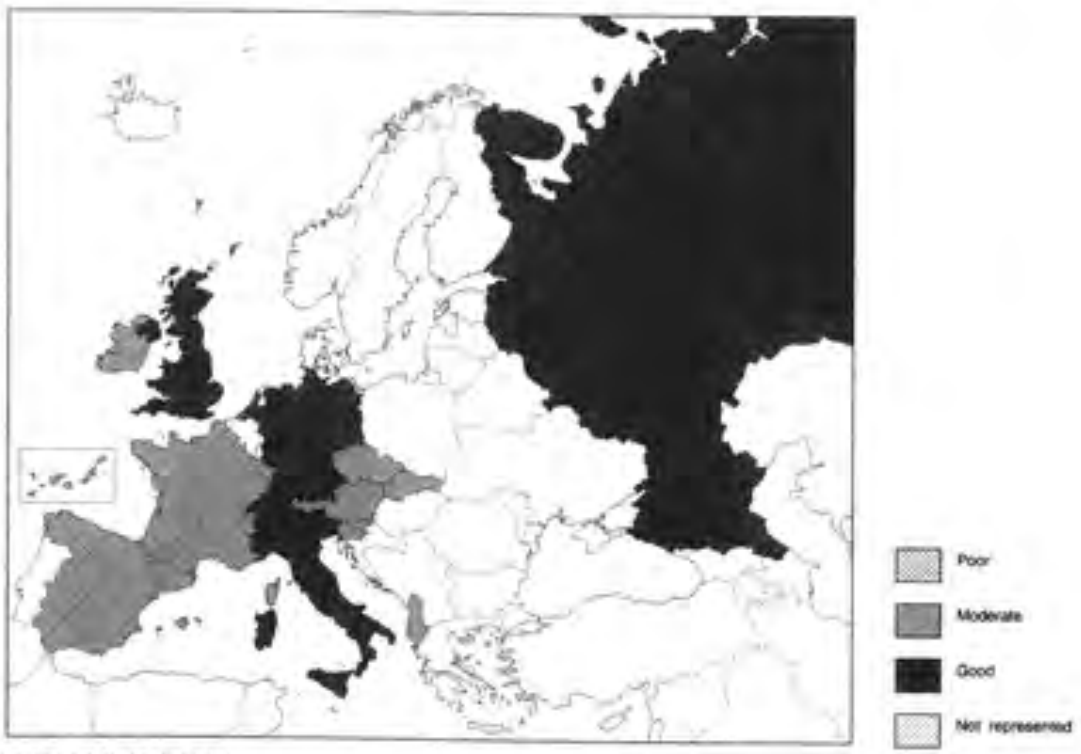
Potamogetonetea pectinati



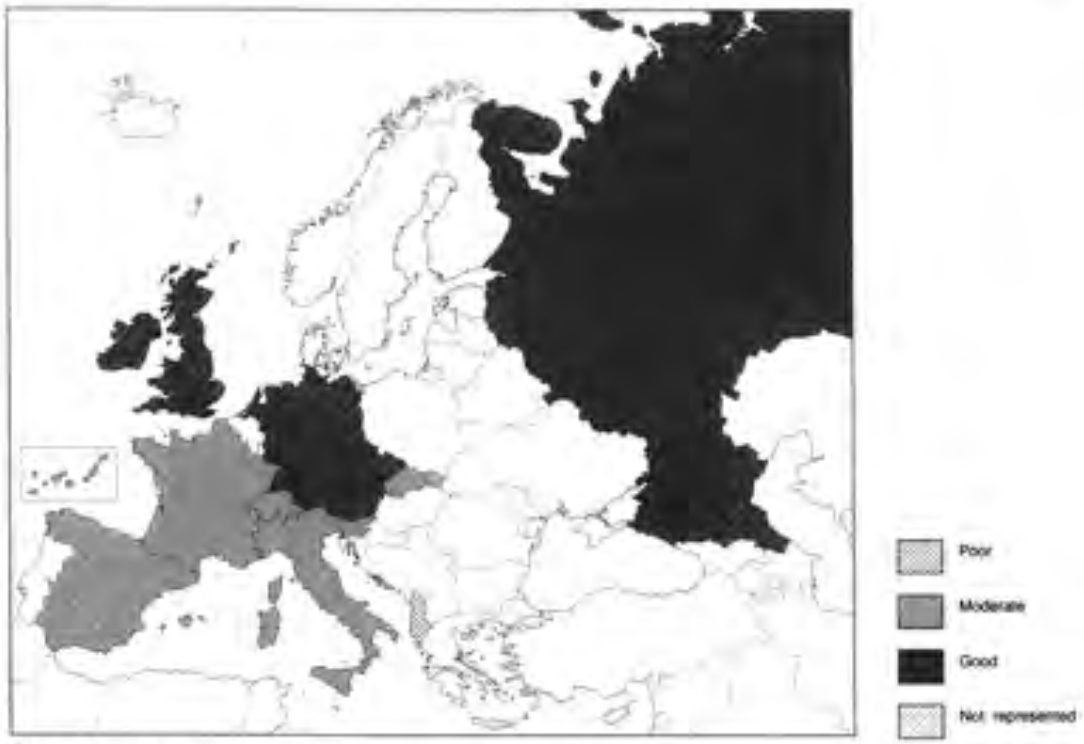
Saginetea maritima



Puccinellio-Salicornietea

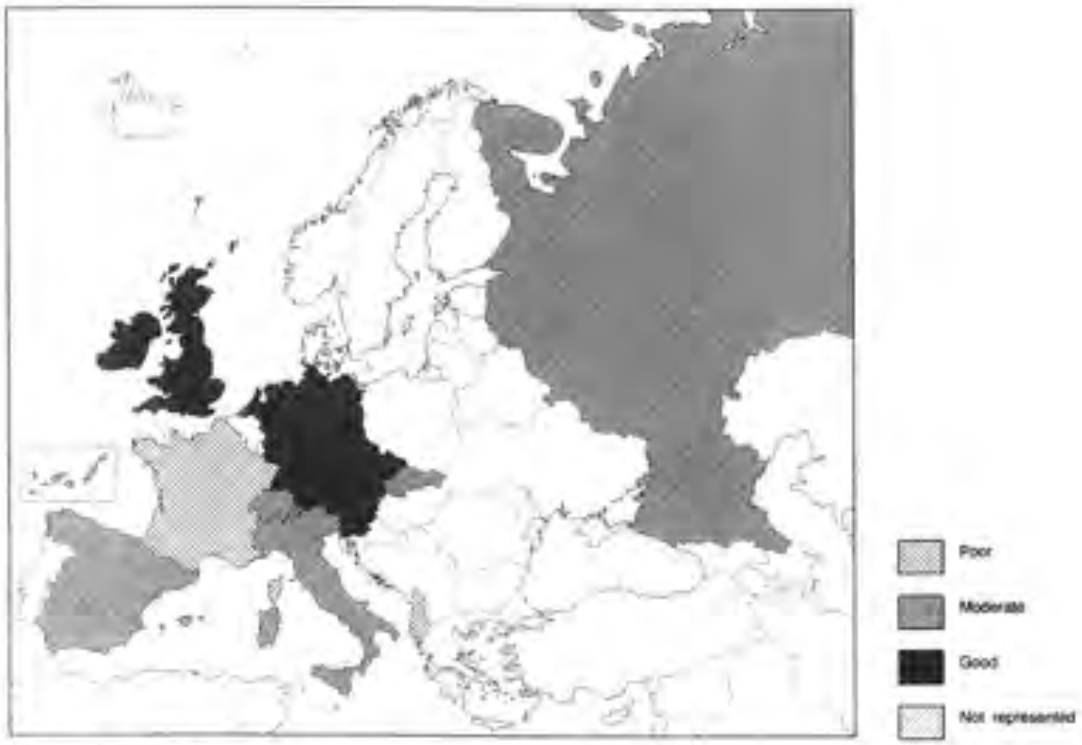


Phragmiteti-Magnocaricetea

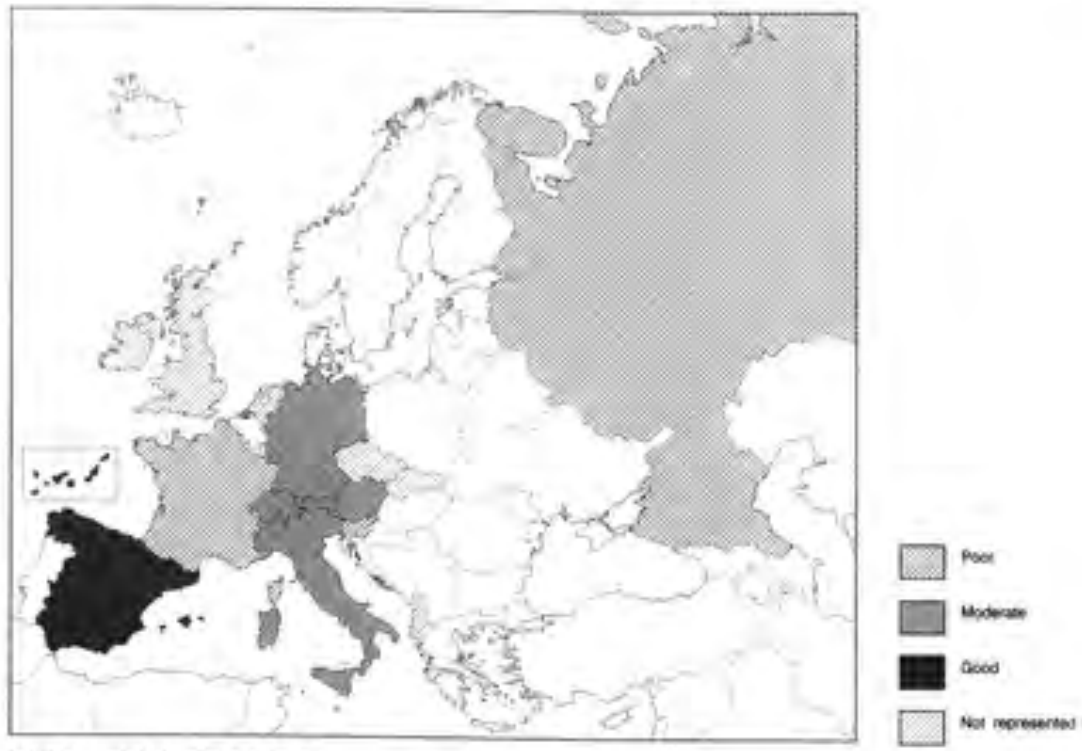


Molinio-Arrhenatheretea

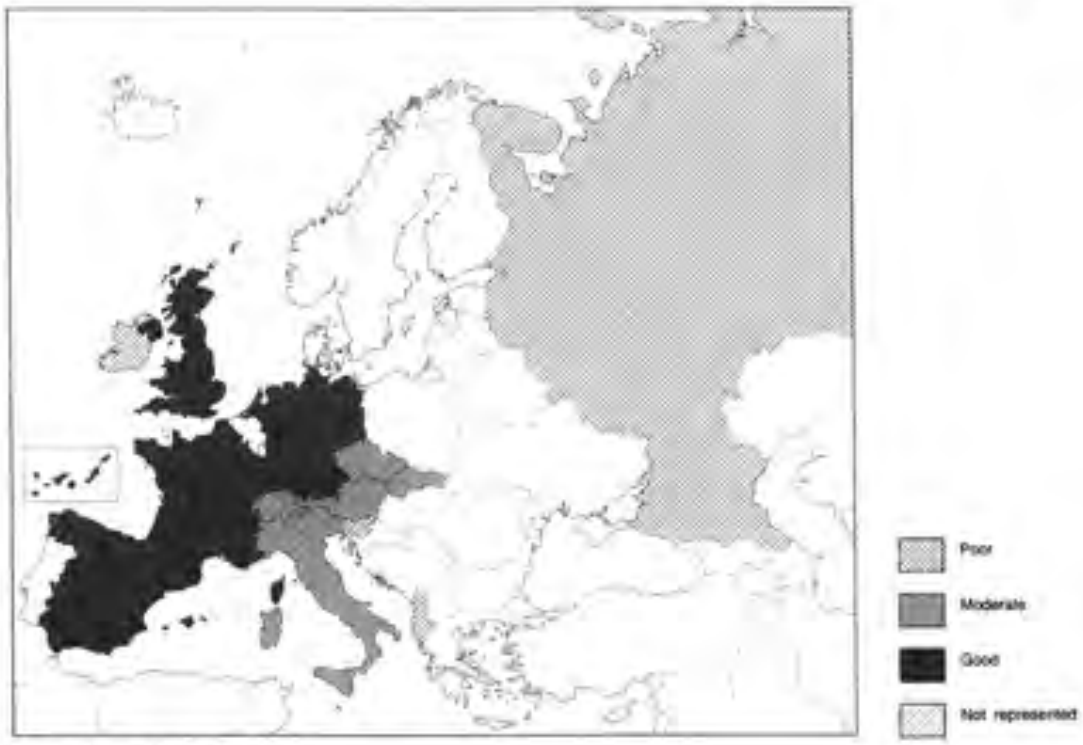
Festuco-Sesleńetea



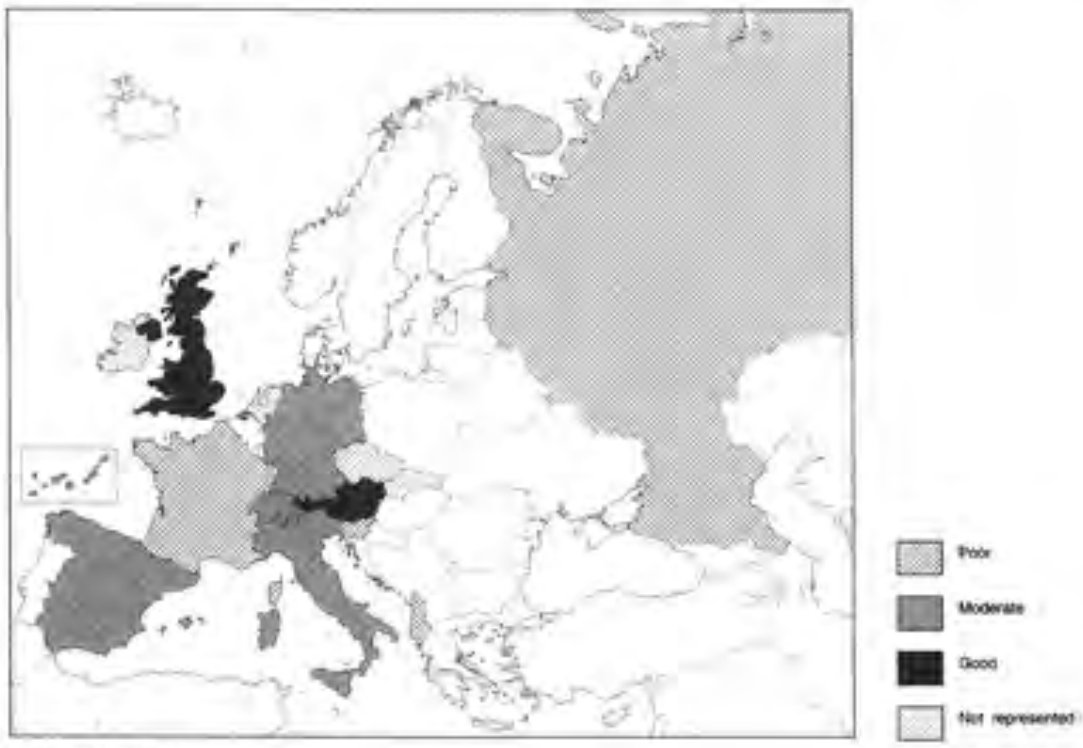
Oxycocco-Sphagnetea



Carici rupestris-Kobresietea bellardii



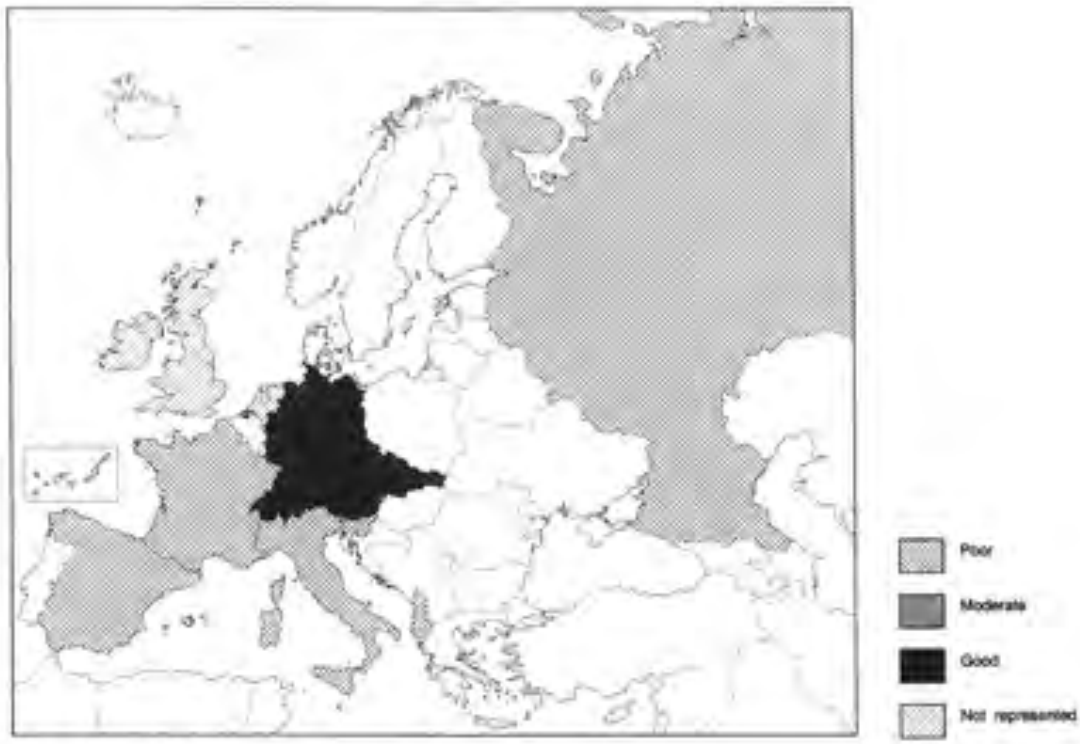
Calluno-Ulicetea/Nardo-Callunetea



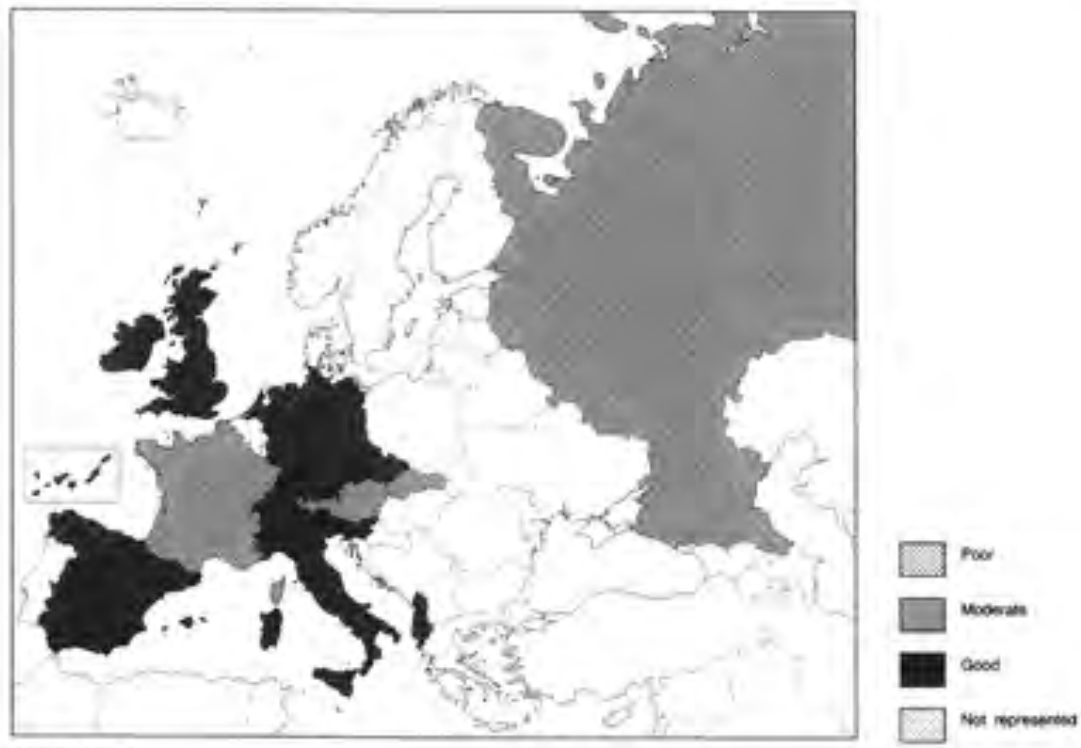
Loiseleurio-Vaccinietea

Oleo-Rhamnetea crenulatae

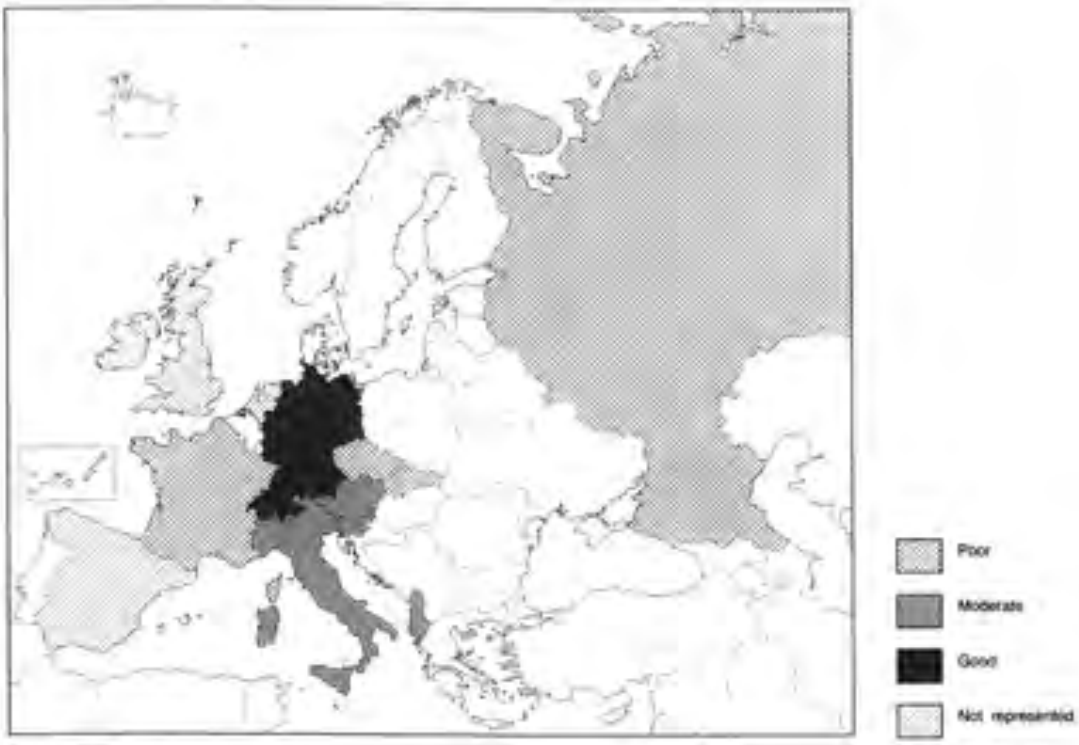
Cytiso-Pinetea canariensis



Betulo-Alnetea viridis



Querco-Fagetea



Erico-Pinetea