Chapter 5
Biogeographic Units of the Iberian Peninsula and Baelaric Islands to District Level. A Concise Synopsis

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Abstract The following biogeographic units for the Iberian Peninsula and Balearic Islands have been established according to the conceptual geobotanical proposals of Rivas-Martínez et al. (Parte I. Itinera Geobotanica 17:5–436, 2007; Parte II. Itinera Geobotanica 18 (1):5–424, 2011a; Glob Geobot 1(1):1–634, 2011b; Int J Geobot Res 1(1):21–40, 2011c and Int J Geobot Res 4(1):1–64, 2014): one kingdom (Holartic), two regions (Eurosiberian, Mediterranean), eight provinces, 16 subprovinces, 49 sectors and 264 districts. The potential natural vegetation: climatophilous, climato-temporihygrophilous, xerophilous, hygrophilous sigmetum or geopermasigmetum (series and geopermaseries) are shown for each province and sector. We also point out some of their specific features. Biogeographic maps up to district level are shown.

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5.1 Notions on Biogeography

Biogeography is the science which studies the distribution of species, communities, habitats, biocoenoses and natural ecosystems on Earth, as well as the relationships between them. It takes into account the distribution areas of taxa and syntaxa (chorology), in addition to information from other natural sciences (geography, botany, zoology, soil science, bioclimatology, geology, etc.), attempting to establish a hierarchical biogeographic classification of the territories on the planet. The main typological units in decreasing rank are: kingdom, region, province, sector, district, country, landscape cell and tesella (Rivas-Martínez et al. 2007, 2011a, b, c, 2014). Terrestrial biogeography has been twinned with phytogeography due to the value of vascular plant species and communities in its definition and delimitation on Earth. Oceanic biogeography should be studied with oceanological research methods.

The elementary biogeographic terrestrial unit of the lowest rank is the tessella, defined as a geographic space of greater or lesser extension, that is ecologically homogeneous, which means that it has only a single type of potential natural vegetation (climatophilous, edaphoxerophilous or edaphohygrophilous) and, as a consequence, only one successional trend of natural substitution communities (see Chap. 3). Within the framework of dynamic-catenal phytosociology, when zonation takes place in areas under extreme conditions, such as polar, fluvial, lake and marine landscapes, deserts, high mountain summits, dunes, rock formations, coastal cliffs, etc., the specialized vegetation growing in each of the elementary spaces is not replaced by perennial non-nitrified seral communities; in such cases the ecological homogeneous spaces or tesella are considered permatesella. Both, the tesella and the permatessella, are the only biogeographic units which can be repeated disjointed. In a bottom-to-top progression, we will define the various territorial categories used in biogeography:

- The landscape cells, such as horsts, peneplains, river valleys, lake systems, marshes, high mountain summits, etc., are constituted by a mosaic of tessellas or permatessellas with their corresponding complexes of plant communities, assembled by networks of geosigmeta and geopermasigmeta based on the geomorphology and the soils of the territory.
- The biogeographical country must be an extensive and clearly delimited geographic territory which possesses an abundant group of landscape cells, species, associations, and above all, its own topographical geosigmeta.
- The district is a group of biogeographical countries, characterized by the existence of a high number of differential species and even endemic taxa, especially in the coastal, oreadic (high elevation areas) or interior halophilous zones, which permit their distinction from the adjacent territories; it also comprises as characteristic units some associations, series, geoseries and geoclinoseries (cliserial zonations, see Chap. 3) which are absent from nearby districts.
- The sector is a set of biogeographical districts with a large-scale geographic entity, which possesses its own endemic taxa, associations and vegetation series,

as well as original topographical and geoclinosequential (altitudinal zonations) geoseries which are generally due to the existence of exclusive geoclinoseries, climatophilous series, permanent and subserial communities, as well as paleoclimatic evidences and former migratory routes.

- The province is a vast geographic territory which, as well as possessing a large number of endemisms and differential species (its own subelement), has particular macroseries. It is also characteristic of each biogeographical province to hold geomacroseries and a particular altitudinal vegetation zonation or exclusive geoclinoseries.
- The region is a very extensive territory, formed by a group of biogeographical provinces which has a flora or regional floristic element with endemic species, genera or even families; in addition it has its own particular megaseries, geomegaseries and geomegapermaseries and in consequence, its own bioclimatic and vegetation belts (Rivas-Martínez 2005).
- Finally, the kingdom is the supreme unit of biogeography, generally pluricontinental and multinsular, which in addition to taxonomic and ecosystematic considerations, addresses the origins of the flora and fauna, as well as the origin of the great continents, orogenies and particular macrobioclimates.

As it is by now traditional in this science, the denominations of the biogeographic units –both the primary and the auxiliary units (from the subregion to the area)– are given based on known geographical, orographic or historical designations which are considered to be more or less coincident with the area they are intending to represent. Orthographically, all the units are considered to be proper names identifying the zone. The names of high ranks (provinces or higher) are formed, if necessary, by two geographical nouns, joined by means of a hyphen; on the contrary, the lower ranks (sector or less) are joined by the conjunction 'and'; all the double biogeographical names maintain the initial capital in both and conserve their condition of a proper noun.

It must be emphasized that the biogeographical units can only be accurately delimited through their diagnosis and through the corresponding maps. All the territories –except the tessella and permatessella– must be contiguous by land, lake or sea routes, and include all the small orographic accidents and lithological diversity which exist in the area. Sometimes, in the biogeographical territories as a whole, there are introgressions by other adjacent territories, and these "islands" frequently occur in regions with a varied lithology or in areas near regional or provincial boundaries. Their possible typological independence, always of a lower rank than the area into which they introgress, depends on their originality, floristic richness and phytocoenotics, as well as on their surface area.

One of the criteria traditionally used for recognizing and delimiting biogeographic units as well as determinin their entity, is to incorporate the information of the geographic distribution of those taxa (families, genera, species and subspecies) which are narrowly restricted to a particular area up to the biogeographical province rank. These taxa are termed endemic taxa or endemisms. Endemisms have been

successfully used to define and delimit the chorological or biogeographical units (provinces, sectors and districts), and they form part of the phytogeographical subelement which characterize them. Moreover, it is better to name the endemisms (taxa or syntaxa) which occupy a greater area or are regional, and those which for migratory reasons are dispersed across various biogeographical regions, as phytogeographical elements or geoelements of those higher units.

5.2 Concepts on Vegetation Series and Lanscape Phytosociology

Nowadays, the development of dynamic-catenal phytosociology and the syntaxonomic knowledge of broad territories of the Earth, as well as the cartographic delimitation of vegetation series, geoseries and geopermaseries, when available, have become the essential criteria for defining biogeographical units, in addition to suitably compiled and mapped bioclimatic and soil factors.

The vegetation series, also termed sigmetum (in honor of S.I.G.M.A.), expresses the whole set of plant communities or stages which can be found within similar tessellar spaces as a result of the succession process, and includes both the representative association of the mature stage, series head or potential natural vegetation, which is used as a nomenclatural reference, and the initial or subseral associations that may replace it. Based on this concept, the vegetation series or sigmetum represents the basic unit or essential model of dynamic phytosociology. Distinctions can also be made between climatophilous, xerophilous, temporihygrophilous and hygrophilous series. Climatophilous or zonal series are located on mature soils according to the mesoclimate, and only receive rainwater: mesophytic, submesophytic and subxerophytic; the temporihygrophilous series, included among the climatophilous, are those which have additional water contribution due to their topographical circumstances, and they thus develop on flooded or very wet soils throughout part of the year, and –at least during the summer or dry period– the soil horizons are well-drained and aerated. Finally the xerophilous series are found in particularly dry or xerophytic soils or biotopes such as lithosols, arenosols, very windy sites, steep slopes, crests, ledges, etc.; and the hygrophilous series grow on particularly wet soils and biotopes such as fluvisols, halosols, histosols, etc., and are found in river beds, marsh areas, salt flats, peat bogs, etc.

The vegetation geoseries or geosigmetum is the basic unit of dynamic-catenal phytosociology. It corresponds to a catena of vegetation series which is found around a given bioclimatic belt and biogeographic territory in the heart of the universal crest-slope-valley model. This topographic framework makes it possible to distinguish the three geomorphological aspects of any complete catena where the vegetation series constituting the geosigmetum are located in zones; the xerophilous series and geoseries (hyperxerophilic and xerophilic) are located in the driest sites (crests, escarpments, lithosols, etc.); the climatophilous and

temporihygrophilous series and geoseries are located on slopes and foothills where greater humidity is contributed by rainfall and run-on; and the hygrophilous series and geoseries are found in the valleys and watercourses (fluvial, lake and watercourses), among which the river fractogeosigmetum (partial geosigmetum) is of great importance to plant landscape science due to its extrazonality, and also, in combination with the xerophilous and climatophilous sigmeta and geosigmeta, to the definition and structuring of regional and global biogeography.

The vegetation geopermaseries, also known as geopermasigmeta, is the catenal expression of a set of neighboring permaseries or permasigmeta, delimited by changing topographic or soil situations. These are determined by conditions of extreme climate (high mountains and polar areas) and exceptional microtopographic and soil conditions (walls, rock formations, marine cliffs, salt flats, etc.) which give rise to a large number of neighboring ecological residences populated by diverse permanent perennial plant communities (continuous vegetation permaseries) with absence of non-nitrophilous seral perennial communities which appear to have reached their equilibrium. The most favorable sites for the existence of geopermaseries or geopermasigmeta, in adition to sites corresponding to permanent types of vegetation in extreme high-mountain and polar region bioclimates, are ledges, rock crevasses, cliffs and coastal rock formations bathed by sea waters, peat bogs, wind drifts, mobile sand dunes, lake shores, streams etc. (Rivas-Martínez et al. 2011b).

5.3 Biogeographic Units of the Iberian Peninsula and Balearic Islands to District Level

According to the concepts previously defined, we show the hierachical typology of the biogeographic units recognized in the the Iberian Peninsula and Balearic Islands at the present time. In some cases we also comment on some exclusive units from France. In this case, we indicate it as [France]. The name of biogeographic units are in English, followed by its Spanish name in brackets and in the case of districts its extension is given in square kilometers, also in brackets. To achieve this synthesis we have considered various proposals from other authors, such as the most general approaches of Quézel (1985), Takhtajan (1986), Costa (1997), Rivas-Martínez et al. (2011b) to more specific or wider territories such as the proposals of Rivas-Martínez (1969, 1973, 1985, 1987, 1988), Pons and Quézel (1985), Alcaraz (1996), and also the proposals concerning limited territories such as those by Braun-Blanquet and Bolòs (1958), Rivas Goday and Borja (1961), Rivas Goday and Rivas-Martínez (1968), Alcaraz (1984), Peinado and Martínez Parras (1987), Navarro Andrés and Valle Gutiérrez (1987), Rivas-Martínez and Pizarro (1988), Loidi and Báscones (1995), Molina et al. (1993), Rivas-Martínez (1963, 1981), Rivas Goday (1964), Rigual (1972), Esteve (1973), Rivas-Martínez et al. (1984, 1987, 1990a, b, c, 1991a, b, 1997), Folch (1986), Bolòs (1967, 1987), Costa (1987),

Izco (1987), Ladero et al. (1987), Martínez-Parras and Peinado (1987), Asensi and Díaz Garretas (1987), Pérez Raya et al. (1990), Molero Mesa and Pérez Raya (1987), Díaz González and Fernández Prieto, (1988, 1994), Alcaraz et al. (1989, 1991), Peinado et al. (1992), Navarro, G. (1989), Berastegui et al. (1997), Loidi et al. (1997), Villa et al. (1997), Cantó P. (2007). We also referred to the most recent approaches established by Rivas-Martínez and Loidi (1999), Cantó (2007) and Rivas-Martínez et al. (2014).

According to our studies the territory of the Iberian Peninsula and Balearic Islands share two biogeographic regions: the Eurosiberian and Mediterranean, both included in the Holartic Kingdom. The numeric synthesis is shown in the next table:

Biogeographic unit	Eurosiberian region	Mediterranean region	Total
Subregions	2	1	3
Provinces	2	6	8
Subprovinces	6	10	16
Sectors	12	37	49
Districts	64	182	264

The listing below shows the biogeographic typology pointing out its hierarchical structure up to district level and also the approximate extension in square kilometers. Its geographical distribution can be seen in the corresponding maps (Figs. 5.1, 5.2 and 5.3).

I. Eurosiberian Region (*Región Eurosiberiana*)

IA. Alpine-Caucasian Subregion (*Subregión Alpina-Caucásica*)

Ia. Pyrenean Province (*Provincia Pirenaica*)

Iaa. East Pyrenean Subprovince (*Subprovincia Pirenaica oriental*)

1. East Pyrenean Sector (*Sector Pirenaico Oriental*)

1a. High Ampurdán Pyrenean District (*Distrito Pirenaico Altoampurdanés*) (944 km^2)
1b. Conflent and Ripollés District (*Distrito Conflentino-Ripollés*) (2069 km^2)
1c. Andorra and Cerdaña District (*Distrito Andorrano-Cerdañés*) (1916 km^2)
1d. High Pallars East Pyrenean District (*Distrito Pirenaico Oriental Altopallarés*) (2466 km^2)
1e. Ariège East Pyrenean District (*Distrito Pirenaico Oriental Ariegense*) [France]
1f. Cadí Sierran District (*Distrito Serrano Cadiés*) (863 km^2)
1g. South Berguedá and Solsona District (*Distrito Surberguedano-Solsonés*) (2109 km^2)
1h. Montseny District (*Distrito Montsignático*) (852 km^2)
1i. Osona and Olot District (*Distrito Ausetano-Olotense*) (2638 km^2)

Fig. 5.1 Biogeographic map of the Iberian Peninsula and Balearic Islands at province level

Iab. Central Pyrenean Subprovince (*Subprovincia PIRENAICA CENTRAL*)

2. Central Pyrenean Sector (*Sector Pirenaico Central*)

2a. Central High Pyrenean District (*Distrito Altopirenaico Central*) (1928 km^2)

2b. Bigorra Central Pyrenean District (*Distrito Pirenaico Central Bigorrés*) [France]

2c. Arán Central Pyrenean District (*Distrito Pirenaico Central Aranés*) (346 km^2)

3. West Pyrenean Sector (*Sector Pirenaico occidental*)

3a. Aragón West Pyrenean District (*Distrito Pirenaico Occidental Aragonés*) (474 km^2)

3b. Navarra West Pyrenean District (*Distrito Pirenaico Occidental Navarro*) (1298 km^2)

3c. French West Pyrenean District (*Distrito Pirenaico Occidental Francés*) [France]

Fig. 5.2 Biogeographic map of the Iberian Peninsula and Balearic Islands at subprovince level

Iac. Aragón Prepyrenean Subprovince (*Subprovincia Prepirenaica Aragonesa*)

4. Aragón Prepyrenean Sector (*Sector Prepirenaico Aragonés*)

4a. Low Pallars District (*Distrito Bajopallarés*) (2175 km^2)
4b. Low Ribagorza and Sobrarbe District (*Distrito Bajorribagorzano-Sobrarbés*) (2634 km^2)
4c. Guara Sierran District (*Distrito Serrano Guarense*) (1222 km^2)
4d. Jacetania District (*Distrito Jacetano*) (1936 km^2)

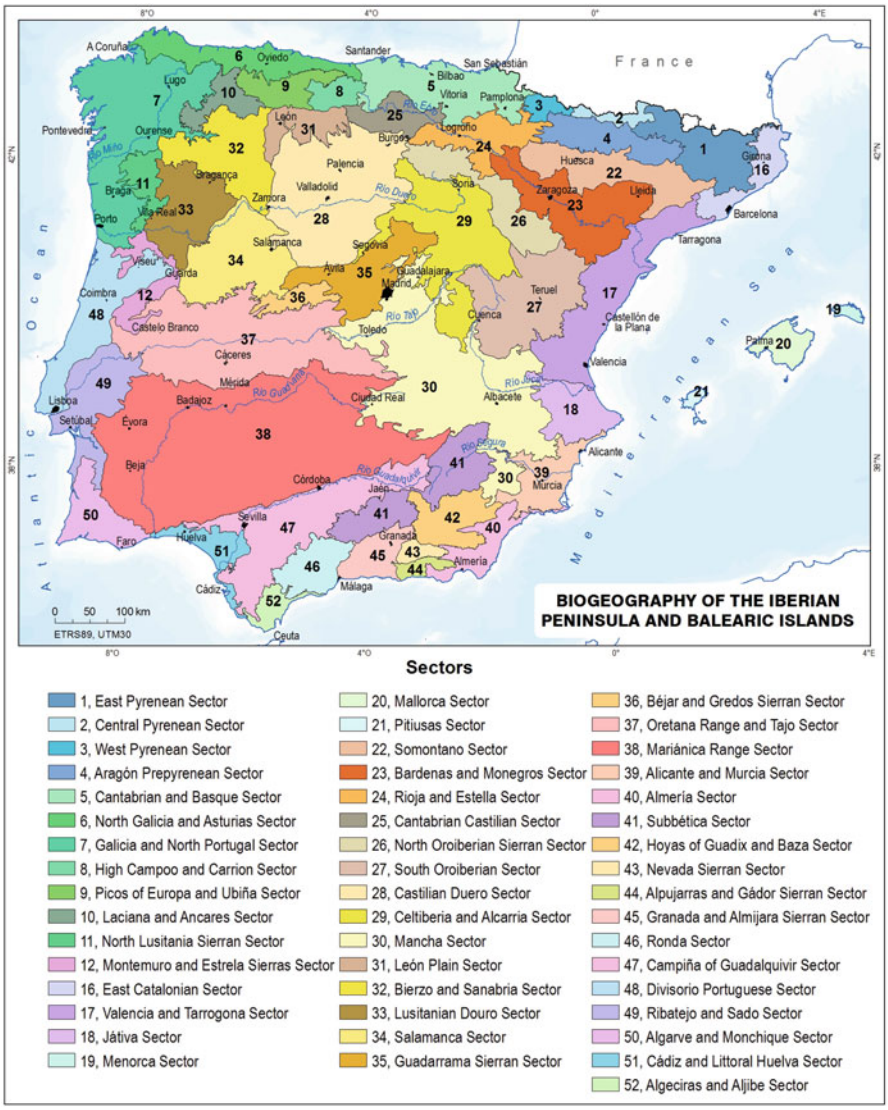


Fig. 5.3 Biogeographic map of the Iberian Peninsula and Balearic Islands at sector level

IB. Atlantic-Central European Subregion (*Subregión Atlántica-Centroeuropea*)

Ib. European Atlantic Province (*Provincia Atlántica Europea*)

Iba. Cantabrian atlantic Subprovince (*Subprovincia Cantabroatlántica*)

5. Cantabrian and Basque Sector (*Sector Cántabro-Vascónico*)

5a. Labourd and Baztán District (Distrito *Labortano-Baztanés*) (933 km^2)
5b. Guipúzcoa District (Distrito *Guipuzcoano*) (2046 km^2)
5c. Biscay District (Distrito *Vizcaíno*) (2965 km^2)
5d. Valnera and Trasmiera District (Distrito *Valnerano-Trasmierano*) (948 km^2)
5e. North Cantabrian District (Distrito *Cántabro Septentrional*) (1907 km^2)
5f. South Cantabrian District (Distrito *Cántabro Meridional*) (1390 km^2)
5g. Pamplona District (Distrito *Pamplonés*) (1785 km^2)
5h. Urbasa Sierran District (Distrito *Serrano Urbaseño*) (1038 km^2)
5i. Álava District (Distrito *Alavés*) (1637 km^2)
5j. Losa and Omecillo District (Distrito *Losino-Omecillés*) (762 km^2)

6. North galicia and Asturias Sector (*Sector Galaico septentrional-Asturiano*)

6a. Cuera and Sueve Sierras District (Distrito *Serrano Cuerano-Suevense*) (218 km^2)
6b. Oviedo District (Distrito *Ovetense*) (4058 km^2)
6c. Northwest Asturias District (Distrito *Asturiano Noroccidental*) (2798 km^2)
6d. North Galician District (Distrito *Galaico Septentrional*) (2620 km^2)

7. Galicia and north Portugal Sector (*Sector Galaico-Portugués septentrional*)

7a. Lugo District (Distrito *Lucense*) (4456 km^2)
7b. Brigantium District (Distrito *Brigantino*) (2327 km^2)
7c. Compostela District (Distrito *Compostelano*) (6361 km^2)
7d. Cíes and Ons Islands District (Distrito *Insular de Cíes y Ons*) (11 km^2)
7e. Low Miño and Pontevedra Sierran District (Distrito *Bajomiñense-Serrano Pontevedrés*) (5509, km^2)
7f. Braga District (Distrito *Bracarense*) (4225 km^2)
7g. Porto and Low Douro District (Distrito *Portueño-Bajoduriense*) (2384 km^2)
7h. Valdeorras District (Distrito *Valdeorrense)* (448 km^2)
7i. Orense and Lemos District (Distrito *Orensano-Lemosano*) (1638 km^2)
7j. Navia District (Distrito *Naviano*) (1521 km^2)

Ibb. Orocantabrian Subprovince (*Subprovincia Orocantábrica*)

8. High Campoo and Carrión Sector (*Sector Altocampurriano-Carrionés*)

8a. High Campoo District (Distrito *Altocampurriano*) (919 km^2)
8b. Lieébana District (Distrito *Lebaniego*) (529 km^2)
8c. High Esla and Carrión District (Distrito *Altoeslano-Altocarrionés*) (1150 km^2)
8d. Espigüete Sierran District (Distrito *Serrano Espigüeteño*) (386 km^2)

9. Picos of europa and Ubiña Sector (*Sector Picoeuropeano-Ubiñense*)

9a. Picos of Europa District (Distrito *Picoeuropeano*) (710 km^2)
9b. Redes District (Distrito *Redesano*) (643 km^2)
9c. Somiedo and Ubiña District (Distrito *Somedano-Ubiñense*) (1168 km^2)
9d. Central Orocantabrian District (Distrito *Orocantábrico Central*) (1028 km^2)
9e. Mampodre Sierran District (Distrito *Serrano Mampodrense*) (281 km^2)
9 f. Babia and Torío District (Distrito *Babiano-Toriano*) (1119 km^2)

10. Laciana and Ancares Sector (*Sector Lacianiego-Ancarense*)

10a. Laciana District (Distrito *Lacianiego*) (931 km^2)
10b. High Narcea District (Distrito *Altonarceense*) (1143 km^2)
10c. Omaña District (Distrito *Omañés*) (536 km^2)
10d. Ancares Sierran District (Distrito *Serrano Ancarense*) (756 km^2)
10e. Caurel Sierran District (Distrito *Serrano Caureliano*) (1006 km^2)

Ibc. Atlantic Orolusitania Subprovince (*Subprovincia Orolusitana Atlántica*)

11. North lusitania Sierran Sector (*Sector Serrano Norlusitano*)

11a. Peneda and Xurés Sierras District (Distrito *Serrano Penedano-Juresiano*) (2113 km^2)
11b. Barroso and Cabreira Sierras District (Distrito *Serrano Barroseño-Cabreirés*) (892 km^2)
11c. Alvão and Marão Sierras District (Distrito *Serrano Alvão-Marão*) (995 km^2)

12. Montemuro and Estrela Sierras Sector (*Sector Serrano Montemuro-Estrelense*)

12a. Montemuro and Caramulo Sierras District (Distrito *Serrano Montemuro-Caramulo*) (1955 km^2)
12b. Estrela Sierran District (Distrito *Serrano Estrelense*) (2694 km^2)
12c. Guarda District (Distrito *Guardense*) (567 km^2)

II. Mediterranean Region (*Región Mediterránea*)

IIA. West Mediterranean Subregion (*Subregión Mediterránea Occidental*)

IIa. Valencia-Provençe and Balearic Province (*Provincia Valenciana-Provenzal-Balear*)

IIaa. Catalonian and Provençe Subprovince (*Subprovincia Catalana-Provenzal*)

16. East Catalonian Sector (*Sector Catalán Oriental*)

16a. Rosellón District (Distrito *Rosellonés*) [France]
16b. Selva and Ampurdán District (Distrito *Selvatano-Ampurdanés*) (3447 km^2)
16c. Vallés District (Distrito *Vallesano*) (1404 km^2)
16d. High Penedés and Montserrat District (Distrito *Altopenedesano-Montserratino*) (951 km^2)

IIab. Valencia Subprovince (*Subprovincia Valenciana*)

17. Valencia and Tarragona Sector (*Sector Valenciano-Tarraconense*)

17a. Low Penedés and Alt Camp District (Distrito *Bajopenedesano-Altocampino*) (1857 km^2)
17b. Igualada and Prades District (Distrito *Igualadino-Pradesano*) (1429 km^2)
17c. Low Ebro District (Distrito *Bajoebrense*) (1450 km^2)
17d. Gandesa and Priorato District (Distrito *Gandesano-Priorateño*) (1288 km^2)
17e. Beceite and Morella District (Distrito *Puertobeceitano-Morellano*) (2133 km^2)
17f. Maestrat District (Distrito *Maestrazguero*) (3115 km^2)
17g. Espadán Sierran and Castellón District (Distrito *Serrano Espadano-Castellonense*) (2782 km^2)
17h. Huerta of Valencia an Túria District (Distrito *Huertano Valenciano-Turiano*) (4611 km^2)

18. Játiva Sector (*Sector Setabense*)

18a. Játiva District (Distrito *Setabense*) (2494 km^2)
18b. Alcoy and Denia District (Distrito *Alcoyano-Dianense*) (2658 km^2)
18c. Allora and Cofrentes District (Distrito *Allorano-Cofrentino*) (1122 km^2)
18d. Yecla and Villena District (Distrito *Yeclano-Villenense*) (1332 km^2)

IIac. Balearic Islands Subprovince (*Subprovincia Balear*)

19. Menorca Sector (*Sector Menorquín*)

19a. North Menorca District (Distrito *Menorquín Septentrional*) (324 km^2)
19b. South Menorca District (Distrito *Menorquín Meridional*) (377 km^2)

20. Mallorca Sector (*Sector Mallorquín*)

20a. Mallorca East Sierran District (Distrito *Serrano Levantino Mallorquín*) (540 km^2)
20b. Mallorca Central Plain District (Distrito *Llano Central Mallorquín*) (2143 km^2)
20c. Mallorca Tramuntana Sierran District (Distrito *Serrano Tramuntano Mallorquín*) (964 km^2)
20d. Cabrera Islands District (Distrito *Insular de Cabrera*) (13 km^2)

21. Pitiusas Sector (*Sector Pitiúsico*)

21a. Ibiza Island District (Distrito *Insular Ebusitano*) (574 km^2)
21b. Formentera Island District (Distrito *Insular Formenterano*) (83 km^2)

IIb. Central Iberian Mediterranean Province (*Provincia Mediterránea Ibérica Central*)

IIba. Low Aragón and high ebro Subprovince (*Subprovincia Bajoaragonesa-Altoebrense*)

22. Somontano Sector (*Sector Somontano*)

22a. Manresa and Segarra District (Distrito *Manresano-Segárrico*) (2536 km^2)
22b. Noguera District (Distrito *Noguerano*) (2932 km^2)
22c. Aragón Somontano District (Distrito *Somontano Aragonés*) (4888 km^2)
22d. Cinco Villas District (Distrito *Cincovillés*) (2038 km^2)

23. Bardenas and Monegros Sector (*Sector Bardenero-Monegrino*)

23a. Alcañiz District (Distrito *Alcañizano*) (3219 km^2)
23b. Low Cinca and Segriá District (Distrito *Bajocincano-Segriano*) (3260 km^2)
23c. Monegros District (Distrito *Monegrino*) (2638 km^2)
23d. Belchite and Híjar District (Distrito *Belchitano-Hijarense*) (1738 km^2)
23e. Bardenas District (Distrito *Bardenero*) (1751 km^2)
23f. Zaragoza Steppe District (Distrito *Zaragozano Estepario*) (4083 km^2)

24. Rioja and Estella Sector (*Sector Riojano-Estellés*)

24a. Low Rioja and Tafalla District (Distrito *Bajorriojano-Tafallés*) (4677 km^2)
24b. High Rioja and Estella District (Distrito *Altorriojano-Estellés*) (2552 km^2)
24c. Low Irati and Sangüesa District (Distrito *Bajoiratiano-Sangüesino*) (1128 km^2)

25. Cantabrian Castilian Sector (*Sector Castellano Cantábrico*)

25a. Bureba District (Distrito *Burebano*) (1078 km^2)
25b. Burgos Páramo District (Distrito *Parameño Burgalés*) (1208 km^2)
25c. High Burgos Merindades District (Distrito *Merindano Altoburgalés*) (1225 km^2)
25d. Miranda and Treviño District (Distrito *Mirandés-Treviñés*) (665 km^2)
25e. Palencia Low Campoo District (Distrito *Bajocampurriano Palentino*) (880 km^2)

IIbb. Oroiberian Subprovince (*Subprovincia Oroibérica*)

26. North Oroiberian Sector (*Sector Oroibérico Septentrional*)

26a. Moncayo Sierran District (Distrito *Serrano Moncayense*) (1947 km^2)
26b. Bilbilis and Cucalón Sierran District (Distrito *Bilbilitano-Serrano Cucalonense*) (4841 km^2)
26c. Cameros Sierran District (Distrito *Serrano Camerano*) (1476 km^2)
26d. Urbión Sierran District (Distrito *Serrano Urbionense*) (1197 km^2)
26e. Demanda Sierran District (Distrito Serrano Demandés) (1347 km^2)

27. South Oroiberian Sector (*Sector Oroibérico Meridional*)

27a. High Jiloca District (Distrito *Altojiloquense*) (1642 km^2)
27b. Gúdar Sierran District (Distrito *Serrano Gudárico*) (1607 km^2)
27c. Javalambre Sierran District (Distrito *Serrano Javalambrense*) (2173 km^2)
27d. Ademuz and Teruel District (Distrito *Ademuceño-Turolense*) (1662 km^2)
27e. Aliaga and Montalbán District (Distrito *Aliagueño-Montalbanés*) (2244 km^2)
27f. Albarracín District (Distrito *Albarracinense*) (1678 km^2)
27g. North Cuenca Sierran District (Distrito *Serrano Conquense Septentrional*) (3784 km^2)

27h. South Cuenca Sierran District (Distrito *Serrano Conquense Meridional*) (3819 km^2)

IIbc. Castilian Subprovince (*Subprovincia Castellana*)

28. Castilian Duero Sector (*Sector Castellano Duriense*)

28a. Castilian Ribaduero District (Distrito *Riberoduriense Castellano*) (4880 km^2)
28b. Low Arlanza and Cerrato District (Distrito *Bajoarlanzano-Cerrateño*) (2560 km^2)
28c. Tierra of Campos District (Distrito *Terracampino*) (11,795 km^2)
28d. Tierras of Medina and Armuña District (Distrito *Medinense-Armuñés*) (2274 km^2)
28e. Burgos District (Distrito *Burgalés*) (1923 km^2)
28f. Tierra of Pinares and Low Adaja District (Distrito *Terrapinariego-Bajoadajense*) (2750 km^2)
28g. Tierra of Arévalo and Moraña District (Distrito *Arevalense-Morañés*) (4491 km^2)

29. Celtiberia and Alcarria Sector (*Sector Celtibérico-Alcarreño*)

29a. Soria District (Distrito *Soriano*) (7009 km^2)
29b. High Arlanza and Covarrubias District (Distrito *Altoarlanzano-Covarrubiense*) (777 km^2)
29c. Segovia District (Distrito *Segoviano*) (1698 km^2)
29d. High Jalón District (Distrito *Altojalonés*) (2019 km^2)
29e. Molina District (Distrito *Molinés*) (2845 km^2)
29f. High Alcarria District (Distrito *Altoalcarreño*) (5655 km^2)
29g. Obispalía District (Distrito *Obispaleño*) (2966 km^2)

30. Mancha Sector (*Sector Manchego*)

30a. Low Madrid District (Distrito *Bajomatritense*) (6201 km^2)
30b. Sagra District (Distrito *Sagreño*) (4782 km^2)
30c. Sanjuán Mancha District (Distrito *Manchego Sanjuanés*) (11,028 km^2)
30d. Calatrava District (Distrito *Calatraveño*) (3209 km^2)
30e. Montiel District (Distrito *Montielense*) (2501 km^2)
30f. Cuenca Mancha District (Distrito *Manchego Conquense*) (4526 km^2)
30g. Júcar Mancha District (Distrito *Manchego Sucronense*) (7213 km^2)
30h. Jumilla and Hellín District (Distrito *Jumillano-Hellinense*) (3567 km^2)
30i. Espuña Sierran District (Distrito *Serrano Espuñense*) (2762 km^2)

IIc. West Iberian Mediterranean Province (*Provincia Mediterránea Ibérica Occidental*)

IIca. Carpetania and León Subprovince (*Subprovincia Carpetana-Leonesa*)

31. León plain Sector (*Sector Planileonés*)

31a. Valdavia District (Distrito *Valdaviés*) (1189 km^2)
31b. León Páramo District (Distrito *Parameño Leonés*) (4177 km^2)

32. Bierzo and Sanabria Sector (*Sector Berciano-Sanabrés*)

32a. Bierzo District (Distrito *Berciano*) (1451 km^2)
32b. Cabrera and Montes of León District (Distrito *Cabreireño-Monteleonés*) (1414 km^2)
32c. Zamora and Sanabria District (Distrito *Zamorano-Sanabrés*) (5825 km^2)
32d. Queixa Sierran District (Distrito *Serrano Queixense*) (2339 km^2)
32e. Maragatería District (Distrito *Maragato*) (2450 km^2)

33. Lusitanian Douro Sector (*Sector Lusitano Duriense*)

33a. Braganza District (Distrito *Braganzano*) (4041 km^2)
33b. Chaves and Verín District (Distrito *Chavesano-Verinense*) (3149 km^2)
33c. Terraquente District (Distrito *Terraquentino*) (1178 km^2)
33d. Vila Real District (Distrito *Vilarrealeño*) (1798 km^2)
33e. North Beira District (Distrito *Beirense Septentrional*) (1490 km^2)

34. Salamanca Sector (*Sector Salmantino*)

34a. Low Salamanca District (Distrito *Bajosalmantino*) (2984 km^2)
34b. Tormes District (Distrito *Tormesino*) (1982 km^2)
34c. High Salamanca District (Distrito *Altosalmantino*) (9787 km^2)
34d. Batuecas and Malcata Sierran District (Distrito *Batueco-Serrano Malcateño*) (1050 km^2)

35. Guadarrama Sierran Sector (*Sector Serrano Guadarrámico*)

35a. Ayllón Sierran District (Distrito *Serrano Ayllonense*) (2223 km^2)
35b. Riaza District (Distrito *Riazano*) (437 km^2)
35c. Ávila District (Distrito *Abulense*) (917 km^2)
35d. Corneja and Amblés District (Distrito *Cornejano-Amblense*) (1325 km^2)
35e. High Guadarrama District (Distrito *Altoguadarrámico*) (3274 km^2)
35f. High Madrid District (Distrito *Altomatritense*) (2313 km^2)
35g. Central Alberche District (Distrito *Alberchense Central*) (1100 km^2)

36. Bejar and Gredos Sierran Sector (*Sector Serrano Bejarano-Gredense*)

36a. Ávila Paramera Sierran District (Distrito *Serrano Parameño Abulense*) (391 km^2)
36b. Serrota Sierran District (Distrito *Serrano Serrotense*) (576 km^2)
36c. East Gredos Sierran District (Distrito *Serrano Gredense Oriental*) (597 km^2)
36d. High Gredos Sierran District (Distrito *Serrano Altogredense*) (441 km^2)
36e. Tormantos Sierran District (Distrito *Serrano Tormantino*) (617 km^2)
36f. Béjar Sierran District (Distrito *Serrano Bejarano*) (412 km^2)

IIcb. Lusitania And Extremadura Subprovince (*Subprovincia Lusa-Extremadurense*)

37. Oretana Range and Tajo Sector (*Sector Cordillerano Oretano-Tagano*)

37a. Talavera District (Distrito *Talaverano*) (4600 km^2)
37b. Vera District (Distrito *Verato*) (2695 km^2)
37c. Coria District (Distrito *Coriano*) (4321 km^2)
37d. Eastern Montes of Toledo District (Distrito *Montitoledano Oriental*) (3594 km^2)
37e. Villuercas Sierran District (Distrito *Serrano Villuerquino*) (1912 km^2)
37f. Cáceres Central District (Distrito *Cacereño Central*) (8804 km^2)
37g. São Mamede Sierran District (Distrito *Serrano São Mamedano*) (850 km^2)
37h. South Beira District (Distrito *Beirense Meridional*) (6687 km^2)
37i. Zêzere District (Distrito *Zezerense*) (1306 km^2)

38. Mariánica Range Sector (*Sector Cordillerano Mariánico*)

38a. East Mariánica District (Distrito *Mariánico Oriental*) (7508 km^2)
38b. Central Guadiana Sierran District (Distrito *Serrano Centroguadianés*) (5862 km^2)
38c. Pedroches and Alcudia District (Distrito *Pedrocheño-Alcudiense*) (11,352 km^2)
38d. Serena District (Distrito *Sereniano*) (8541 km^2)
38e. Llerena District (Distrito *Llerenense*) (5912 km^2)
38f. Tierra of Barros and Badajoz District (Distrito *Terrabarroseño-Pacense*) (4545 km^2)
38g. Aracena Sierran District (Distrito *Serrano Aracenense*) (3574 km^2)
38h. Andévalo District (Distrito *Andevalense*) (8021 km^2)
38i. Alentejo District (Distrito *Alentejano*) (19,765 km^2)

IId. Murcia and Almería Province (*Provincia Murciana-Almeriense*)

39. alicante and Murcia Sector (*Sector Alicantino-Murciano*)

39a. Alicante District (Distrito *Alicantino*) (1783 km^2)
39b. North Murcia District (Distrito *Murciano Septentrional*) (1636 km^2)
39c. South Murcia District (Distrito *Murciano Meridional*) (3874 km^2)

40. Almería Sector (*Sector Almeriense*)

40a. East Almería District (Distrito *Almeriense Oriental*) (2974 km^2)
40b. Gata Cape District (Distrito *Charidemo*) (276 km^2)
40c. West Almería District (Distrito *Almeriense Occidental*) (2289 km^2)
40d. Alhamilla Sierran District (Distrito *Serrano Alhamillense*) (384 km^2)

IIe. Bética Province (*Provincia Bética*)

41. Subbética Sector (*Sector Subbético*)

41a. Alcaraz Sierran District (Distrito *Serrano Alcaraceño*) (1348 km^2)
41b. Murcia Subbética District (Distrito *Subbético Murciano*) (2535 km^2)
41c. Cazorla Sierran District (Distrito *Serrano Cazorleño*) (2020 km^2)
41d. Segura Sierran District (Distrito *Serrano Segureño*) (1501 km^2)
41e. Mágina Sierran District (Distrito *Serrano Maginense*) (1900 km^2)
41f. Southwest Jaén Sierran District (Distrito *Serrano Giennense Suroccidental*) (1785 km^2)
41g. Córdoba Subbetica District (Distrito *Subbético Cordobés*) (1816 km^2)

42. Hoyas of Guadix and Baza Sector (*Sector Hoyano Accitano-Bastitano*)

42a. Hoya of Guadix District (Distrito *Hoyano Accitano*) (1447 km^2)
42b. Hoya of Baza District (Distrito *Hoyano Bastitano*) (1390 km^2)
42c. María Sierran District (Distrito *Serrano Mariense*) (1177 km^2)
42d. Estancias Sierran District (Distrito *Serrano Estanciano*) (1210 km^2)
42e. Filabres Sierran District (Distrito *Serrano Filábrico*) (1052 km^2)
42f. Baza Sierran District (Distrito *Serrano Bastitano*) (1118 km^2)

43. Nevada Sierran Sector (*Sector Serrano Nevadense*)

43a. East Nevada Sierran District (Distrito *Serrano Nevadense Oriental*) (665 km^2)
43b. High Nevada Sierran District (Distrito *Serrano Altonevadense*) (867 km^2)

44. Alpujarras and Gádor Sierran Sector (*Sector Alpujarreño-Serrano Gadorense*)

44a. Gádor Sierran District (Distrito *Serrano Gadorense*) (635 km^2)
44b. Alpujarras District (Distrito *Alpujarreño*) (930 km^2)

45. Granada and Almijara sierran Sector (*Sector Granadino-Serrano Almijarense*)

45*a*. **Vega** of Granada District (Distrito *Vegano Granadino*) (1817 km^2)
45b. Alfacar Sierran District (Distrito *Serrano Alfacarino*) (609 km^2)
45c. Trevenque Sierran District (Distrito *Serrano Trevenquino*) (290 km^2)
45d. Almijara Sierran District (Distrito *Serrano Almijarense*) (929 km^2)
45e. Tejeda Sierran District (Distrito *Serrano Tejedense*) (565 km^2)
45f. Axarquía District (Distrito *Axarquiense*) (1038 km^2)

46. Ronda Sector (*Sector Rondeño*)

46a. Antequera District (Distrito *Antequerano*) (2534 km^2)
46b. Ronda Sierran District (Distrito *Serrano Arundense*) (1724 km^2)
46c. Hoya of Málaga District (Distrito *Hoyano Malagueño*) (1685 km^2)
46d. Bermeja Sierran District (Distrito *Serrano Bermejense*) (372 km^2)

47. Campiña of guadalquivir Sector (*Sector Hispalense*)

47a. High Campiña District (Distrito *Altocampiñés*) (4988 km^2)
47b. Low Campiña District (Distrito *Bajocampiñés*) (10,653 km^2)
47c. Aljarafe District (Distrito *Aljarafeño*) (1363 km^2)
47d. Jerez and Medina Sidonia District (Distrito *Jerezano-Asidonense*) (4572 km^2)

IIf. Coastal Lusitania and west Andalusia Province (*Provincia Costera Lusitana-Andaluza occidental*)

IIfa. Divisorio Portuguese Subprovince (*Subprovincia Divisoria Portuguesa*)

48. Divisorio Portuguese Sector (*Sector Divisorio Portugués*)

48a. Littoral Beira District (Distrito *Beirense Litoral*) (3031 km^2)
48b. West Beira District (Distrito *Beirense Occidental*) (4661 km^2)
48c. Estremadura and Coimbra District (Distrito *Estremeño-Conimbricense*) (5115 km^2)
48d. Berlengas Islands District (Distrito *Insular Berlenguense*) (1 km^2)
48e. Lisboa District (Distrito *Ollisiponense*) (1375 km^2)
48f. Sintra Sierran District (Distrito *Serrano Sintrano*) (129 km^2)

IIfb. Cádiz and Sado Subprovince (*Subprovincia Gaditana-Sadense*)

49. Ribatejo and Sado Sector (*Sector Ribatagano-Sadense*)

49a. Ribatejo District (Distrito *Ribatagano*) (7494 km^2)
49b. Arrabida Sierran District (Distrito *Serrano Arrabidense*) (128 km^2)
49c. Sado District (Distrito *Sadense*) (4273 km^2)

50. Algarve and Monchique Sector (*Sector Algárvico-Monchiquense*)

50a. Algarve District (Distrito *Algárvico*) (1604 km^2)
50b. San Vicente Cape District (Distrito *Promontorio Vicentino*) (2 km^2)
50c. San Vicente Coastal District (Distrito *Costero Vicentino*) (450 km^2)
50d. Monchique Sierran District (Distrito *Serrano Monchiquense*) (5331 km^2)

51. Cádiz and Littoral Huelva Sector (*Sector Gaditano-Onubense Litoral*)

51a. Littoral Huelva District (Distrito *Onubense Litoral*) (2218 km^2)
51b. Marismas District (Distrito *Marismeño*) (1763 km^2)
51c. Littoral Cádiz District (Distrito *Gaditano Litoral*) (685 km^2)

52. algeciras and Aljibe Sector (*Sector Algecireño-Aljíbico*)

52a. Aljibe Sierran District (Distrito *Serrano Aljíbico*) (1389 km^2)
52b. Algeciras and Genal River District (Distrito *Algecireño-Genalense*) (956 km^2)
52c. Marbella District (Distrito *Marbellí*) (332 km^2)

5.4 Provincial Biogeographic Units and Their Realtionships with the Vegetation Series at Sector Level

A total of 8 provinces have been recognized in the Iberian Peninsula and Balearic Islands in the biogeographic typology given above. The sectors and biogeographic districts belonging to each province are shown.

Province by province, we show their sectors and list their potential natural vegetation units. For each unit of potential natural vegetation we indicate whether it is climatophilous, xerophilous, climato-temporihygrophilous, hygrophylous or whether it is a geopermaseries, as well as some specific or edaphic characteristic. (● presence, – absence).

The geographic positions of districts are clearly shown in the maps of provinces and subprovinces.

Biogeographic Typology of the Pyrenean Province at Sector Level (Figs. 5.4 and 5.5)

Ia. Pyrenean Province (*Provincia Pirenaica*)

Iaa. East Pyrenean Subprovince (*Subprovincia Pirenaica oriental*)

1. East Pyrenean Sector (*Sector Pirenaico Oriental*)

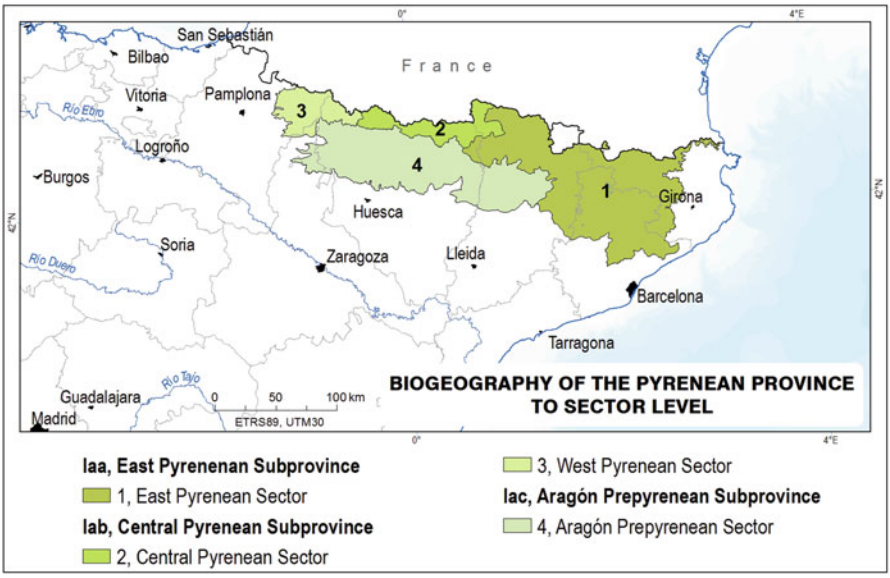
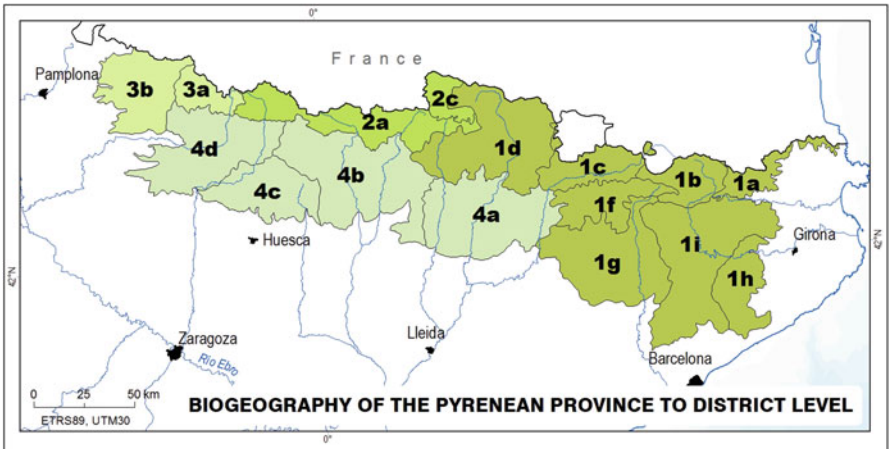


Fig. 5.4 Biogeographic map of the Pyrenean Province at sector level



1. East Pyrenean Sector
- 1a, High Ampurdán Pyrenean District
- 1b, Conflent and Ripollés District
- 1c, Andorra and Cerdaña District
- 1d, High Pallars East Pyrenean District
- 1f, Cadí Sierran District
- 1g, South Berguedá and Solsona District
- 1h, Montseny District
- 1i, Osona and Olot District

2. Central Pyrenean Sector
- 2a, Central High Pyrenean District
- 2c, Arán Central Pyrenean District

3. West Pyrenean Sector
- 3a, Aragón West Pyrenean District
- 3b, Navarra West Pyrenean District

4. Aragón Prepyrenean Sector
- 4a, Low Pallars District
- 4b, Low Ribagorza and Sobrarbe District
- 4c, Guara Sierran District
- 4d, Jacetania District

Fig. 5.5 Biogeographic map of the Pyrenean Province at district level

Iab. Central Pyrenean Subprovince (*Subprovincia Pirenaica central*)

2. Central Pyrenean Sector (*Sector Pirenaico Central*)
3. West Pyrenean Sector (*Sector Pirenaico occidental*)

Iac. Aragón Prepyrenean Subprovince (*Subprovincia Prepirenaica Aragonesa*)

4. aragón Prepyrenean Sector (*Sector Prepirenaico Aragonés*)

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Pyrenean Province

Pyrenean province	1	2	3	4
Climatophilous sigmeta				
Veronico officinalis-Pino pyrenaicae S. (acidophilous)	●	–	–	–
Buxo sempervirentis-Abieti albae S. (neutro-acidophilous)	●	–	–	–
Geranio nodosi-Fago sylvaticae S. (acidophilous)	●	–	–	–
Lathyro linifolii-Querco petraeae S. (acidophilous)	●	–	–	–
Polygalo calcareae-Pino catalaunicae S. (basophilous)	●	–	–	○
Galio rotundifolii-Pino pyrenaicae S. (acidophilous)	–	●	–	–
Teucrio pyrenaici-Pino pyrenaicae S. (basophilous)	–	●	–	–
Pulmonario affinis-Abieti albae S. (sligth acidophilous)	–	●	–	–
Lysimachio nemorum-Fago sylvaticae S. (neutro-acidophilous)	–	●	–	–
Festuco altissimae-Abieti albae S. (neutro-acidophilous)	–	●	–	–
Emero majoris-Abieti albae S. (neutrophilous)	–	–	●	–
Goodyero repentis-Pino pyrenaicae S. (basophilous)	–	–	●	–
Pulmonario longifoliae-Querco fagineae S. (basophilous)	–	–	●	–
Roso arvensis-Querco pubescentis S. (basophilous)	–	–	●	–
Echinosparto horridi-Pino pyrenaicae S. (basophilous)	–	–	–	●
Pino uncinato-pyrenaicae S. (acidophilous)	–	–	–	●
Buxo sempervirentis-Querco subpyrenaicae S. (basophilous)	–	–	–	●
Pulsatillo fontqueri-Pino uncinatae S. (neutro-basophilous)	●	–	–	●
Prunello hastifoliae-Querco petraeae S. (acidophilous)	●	●	–	–
Luzulo nivae-Fago sylvaticae S. (acidophilous)	●	●	–	–
Rhododendro ferruginei-Abieti albae S. (acidophilous)	●	●	–	–
Arctostaphylo uvaeursi-Pino uncinatae S. (acidophilous)	●	●	–	–
Rhododendro ferruginei-Pino uncinatae S. (acidophilous)	●	●	–	–
Sorbo aucupariae-Fago sylvaticae S. (neutro-acidophilous)	●	–	●	–
Goodyero repentis-Abieti albae S.(acidophilous)	–	●	●	–
Pteridio aquilini-Querco pubescentis S. (neutro-acidophilous)	●	●	–	●
Helleboro occidentalis-Fago sylvaticae S. (neutro-acidophilous)	●	●	–	●
Scillo liliohyacinthi-Fago sylvaticae S. (neutro-acidophilous)	●	●	●	●
Buxo sempervirentis-Fago sylvaticae S. (neutrophilous)	●	●	●	●
Buxo sempervirentis-Querco pubescentis S. (basophilous)	●	●	●	●
Roso pendulinae-Fago sylvaticae S. (neutro-acidophilous)	●	●	●	●

(continued)

Pyrenean province	1	2	3	4
Climato-temporihygrophilous and xerophilous sigmeta				
Carici basilaris-Querco suberis S. (acidophilous)	●	–	–	–
Buxo sempervirentis-Querco rotundifoliae S. (basophilous)	–	–	–	●
Asplenio onopteridis-Querco ilicis S. (acidophilous)	●	●	–	●
Xerophilous sigmeta				
Astragalo salvatoris-Junipero macrocarpae S. (littoral)	●	–	–	–
Asplenio adiantinigri-Querco rotundifoliae S. (acidophilous)	●	–	–	–
Buxo sempervirentis-Junipero phoeniceae S. (basophilous)	–	–	–	●
Lonicero xylostei-Pino salzmannii S. (calco-dolomitic)	–	–	–	●
Daphno laureolae-Querco ilicis S. (basophilous)	●	●	–	●
Climato-temporihygrophilous sigmeta				
Doronico pardalianchis-Fraxino excelsioris S. (neutrofila)	●	–	–	–
Poo nemoralis-Tilio platyphylli S. (colluvio basophilous)	–	–	●	–
Brachypodio sylvatici-Fraxino excelsioris S. (neutrophilous)	–	–	●	–
Isopyro thalictroidis-Querco roboris S. (neutrophilous)	●	●	●	–
Climato-temporihygrophilous and hygrophilous sigmeta & geosigmeta				
Aceri opali-Querco petraeae S. (neutro-acidophilous)	●	–	–	–
Hyperico androsaemi-Ulmo glabrae S. (neutrophilous)	–	–	●	–
Violo mirabilis-Ulmo glabrae S. (neutrophilous)	–	–	–	●
Roso pendulinae-Acero pseudoplatani S. (acidophilous)	●	●	–	–
Hygrophilous geosigmeta				
Lamio flexuosi-Alno glutinosae Gs. (soft freshwater)	●	–	–	–
Carici pendulae-Salici atrocinereae Gs. (soft freshwater)	●	–	–	–
Carici pendulae-Alno glutinosae Gs. (soft freshwater)	●	–	–	–
Lithospermo purpureocaerulei-Ulmo minoris Gs. (hard freshwater)	●	–	–	–
Rusco aculeati-Fraxino angustifoliae Gs. (soft freshwater)	●	–	–	–
Salici atrocinereo-daphnoidis Gs. (hard freshwater)	●	–	–	–
Salici angustifolio-daphnoidis Gs. (hard freshwater)	–	–	–	●
*Agrostio stoloniferae-Myricario germanicae Gs. (*hard freshwater)	–	–	–	●
Equiseto hyemalis-Alno glutinosae Gs. (hard freshwater)	●	●	–	–
Lathraeo clandestinae-Populo nigrae Gs. (hard freshwater)	–	–	●	●
Veratro albi-Salici bicoloris Gs. (soft freshwater)	●	●	●	●
Salici lambertiano-angustifoliae Gs. (hard freshwater)	●	●	●	●
Betulo meridionalis-Salici albae Gs. (hard freshwater)	●	●	●	●
Permasigmeta and geopermasigmeta				
Armerio ruscinonensis Ps. (rock littoral)	●	–	–	–
Hieracio breviscapi-Festucoairoidis Gps. (acidophilous)	●	–	–	–
Oxytropido halleri-Kobresio myosuroidis Gps.(basophilous)	●	–	–	–
Saxifrago bryoidis-Minuartio sedoidis Gps. (acidophilous)	●	–	–	–
Oreochloo blankae-Carici curvulae Gps. (acidophilous)	–	●	–	–
Oxytropido foucaudii-Kobresio myosuroidis Gps. (basophilous)	–	●	–	–
Minuartio cerastiifoliae-Androsaco ciliatae Gps. (basophilous)	–	●	–	–
Minuartio sedoidis-Androsaco ciliatae Gps. (acidophilous)	–	●	–	–

1. East Pyrenean Sector, 2. Central Pyrenean Sector, 3. West Pyrenean Sector, 4. Prepyrenean Sector

Biogeographic Typology of the European Atlantic Province at Sector Level (Figs. 5.6 and 5.7)

Ib. European Atlantic Province (*Provincia Atlántica Europea*)

Iba. Cantabrian atlantic Subprovince (*Subprovincia Cantabroatlántica*)

5. Cantabrian and Basque Sector (*Sector Cántabro-Vascónico*)
6. North Galicia and Asturias Sector (*Sector Galaico septentrional-Asturiano*)
7. Galicia and north Portugal Sector (*Sector Galaico-Portugués septentrional*)

Ibb. Orocantabrian Subprovince (*Subprovincia Orocantábrica*)

8. High Campoo and Carrión Sector (*Sector Altocampurriano-Carrionés*)
9. Picos of europa and Ubiña Sector (*Sector Picoeuropeano-Ubiñense*)
10. Laciana and Ancares Sector (*Sector Lacianiego-Ancarense*)

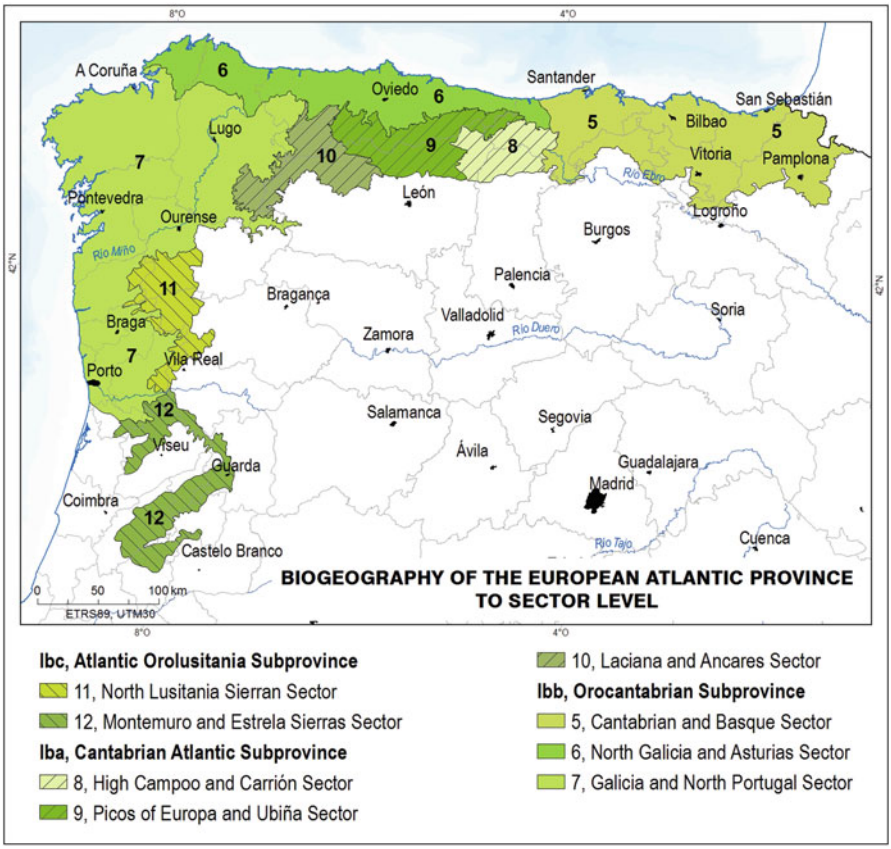
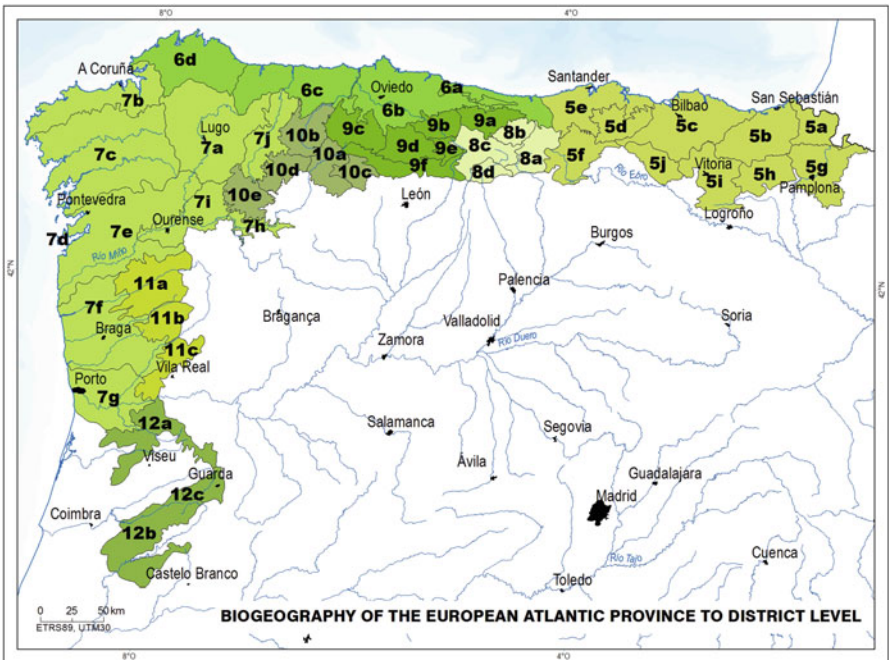


Fig. 5.6 Biogeographic map of the European Atlantic Province at sector level



5. Cantabrian and Basque Sector
5a, Labourd and Baztán District
5b, Guipúzcoa District
5c, Biscay District
5d, Valnera and Trasmiera District
5e, North Cantabrian District
5f, South Cantabrian District
5g, Pamplona District
5h, Urbasa Sierran District
5i, Álava District
5j, Losa and Omecillo District
6. North Galicia and Asturias Sector
6a, Cuera and Sueve Sierras District
6b, Oviedo District
6c, Northwest Asturias District
6d, North Galicia District
7. Galicia and North Portugal Sector
7a, Lugo District
7b, Brigantium District
7c, Compostela District
7d, Cíes and Ons Islands District
7e, Low Miño and Pontevedra Sierran District
7f, Braga District
7g, Porto and Low Douro District
7h, Valdeorras District
7i, Orense and Lemos District
7j, Navia District
8. High Campoo and Carrión Sector
8a, High Campoo District
8b, Liébana District
8c, High Esla and Carrión District
8d, Espigüete Sierran District
9. Picos of Europa and Ubiña Sector
9a, Picos of Europa District
9b, Redes District
9c, Somiedo and Ubiña District
9d, Central Orocantabrian District
9e, Mampodre Sierran District
9f, Babia and Torío District
10. Laciana and Ancares Sector
10a, Laciana District
10b, High Narcea District
10c, Omaña District
10d, Ancares Sierran District
10e, Caurel Sierran District
11. North Lusitania Sierran Sector
11a, Peneda and Xurés Sierras District
11b, Barroso and Cabreira Sierras District
11c, Alvão and Marão Sierras District
12. Montemuro and Estrela Sierras Sector
12a, Montemuro and Caramulo Sierras District
12b, Estrela Sierran District
12c, Guarda District

Fig. 5.7 Biogeographic map of the European Atlantic Province at district level

Ibc. Atlantic Orolusitania Subprovince (*Subprovincia Orolusitana Atlántica*)

11. North lusitania Sierran Sector (*Sector Serrano Norlusitano*)
12. Montemuro and Estrela Sierras Sector (*Sector Serrano Montemuro-Estrelense*)

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the European Atlantic Province

European Atlantic province	5	6	7	8	9	10	11	12
Climatophilous sigmeta								
Saxifrago hirsutae-Fago sylvaticae S. (acidophilous)	●	–	–	–	–	–	–	–
Hyperico pulchri-Querco roboris S. (acidophilous)	●	–	–	–	–	–	–	–
Pulmonario longifoliae-Querco petraeae S. (acidophilous)	●	–	–	–	–	–	–	–
Pulmonario longifoliae-Querco fagineae S. (basophilous)	●	–	–	–	–	–	–	–
Roso arvensis-Querco pubescentis S. (basophilous)	●	–	–	–	–	–	–	–
Melampyro pratensis-Querco pyrenaicae S. (acidophilous)	●	–	–	–	–	–	–	–
Blechno spicant-Querco roboris S. (acidophilous)	–	●	–	–	–	–	–	–
Viburno tini-Querco roboris S. (acidophilous)	–	–	●	–	–	–	–	–
Rusco aculeati-Querco roboris S. (acidophilous)	–	–	●	–	–	–	–	–
Lonicero periclymeni-Querco pyrenaicae S. (acidophilous)	–	–	●	–	–	–	–	–
Lithodoro diffusae-Junipero sabinae S. (basophilous)	–	–	–	–	●	–	–	–
Junipero sabino-orocantabrica S. (basophilous)	–	–	–	–	●	–	–	–
Carici sylvaticae-Fago sylvaticae S. (neutrophilous)	–	–	–	–	●	–	–	–
Vaccinio myrtilli-Pino ibericae S. (acidophilous, relic)	–	–	–	–	●	–	–	–
Vaccinio myrtilli-Junipero alpinae S. (acidophilous)	–	–	–	–	–	●	–	–
Omphalodo nitidae-Fago sylvaticae S. (neutro-acidophilous)	–	–	–	–	–	●	–	–
Eryngio juresiani-Betulo celtibericae S. (acidophilous)	–	–	–	–	–	–	●	–
Vaccinio myrtilli-Querco roboris S. (acidophilous)	–	–	–	–	–	–	●	–
Lycoposdio clavati-Junipero alpinae S. (acidophilous)	–	–	–	–	–	–	–	●
Holco mollis-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	–	–	●
Saxifrago spathularis-Fago sylvaticae S. (acidophilous)	–	●	●	–	–	–	–	–
Carici caudatae-Fago sylvaticae S. (neutrophilous)	–	●	–	–	●	–	–	–
Daphno cantabricae-Arctostaphylo uvaeursi S. (basophilous)	–	–	–	●	●	–	–	–
Blechno spicant-Fago sylvaticae S. (acidophilous)	–	–	–	●	●	–	–	–
Vaccinio microphylli-Junipero alpinae S. (acidophilous)	–	–	–	●	●	●	–	–
Linario triornithophorae-Querco petraeae S. (acidophilous)	–	–	–	●	●	●	–	–
Luzulo henriquesii-Querco petraeae S. (acidophilous)	–	–	–	●	●	●	–	–
Linario triornithophorae-Querco pyrenaicae S. (acidophilous)	–	–	–	●	●	●	–	–
Avenello ibericae-Fago sylvaticae S. (acidophilous)	–	–	–	●	●	●	–	–
Saniculo europaeae-Ilici aquifolii S. (neutrophilous)	–	–	–	●	●	●	–	–
Avenello ibericae-Querco orocantabricae S. (acidophilous)	–	–	–	●	●	●	●	–
Luzulo henriquesii-Betulo celtibericae S. (acidophilous)	–	–	–	–	●	●	●	–
Epipactido helleborines-Fago sylvaticae S. (neutrophilous)	–	–	–	–	●	●	–	–

(continued)

European Atlantic province	5	6	7	8	9	10	11	12
Climato-temporihygrophilous and xerophilous sigmeta								
Spiraeo obovatae-Querco rotundifoliae S. (basophilous)	●	–	–	–	–	–	–	–
Physospermo cornubiensis-Querco suberis S. (acidophilous)	–	–	●	–	–	–	–	–
Cephalanthero longifoliae-Querco rotundifoliae S. (basophilous)	–	–	–	–	●	–	–	–
Berberido cantabricae-Querco fagineae S. (basophilous)	–	–	–	–	●	–	–	–
Genisto falcatae-Querco rotundifoliae S. (basophilous)	–	–	●	–	–	●	–	–
Xerophilous sigmeta								
Teucrio salviastri-Querco suberis S. (acidophilous)	–	–	●	–	–	–	–	–
Lithodoro diffusae-Querco rotundifoliae S. (basophilous)	–	–	–	–	●	–	–	–
Teucrio salviastri-Querco rotundifoliae S. (acidophilous)	–	–	●	–	–	–	–	●
Lauro nobilis-Querco ilicis S. (basophilous)	●	●	–	–	–	–	–	–
Climato-temporihygrophilous sigmeta								
Crataego laevigatae-Querco roboris S. (neutro-basophilous)	●	–	–	–	–	–	–	–
Fraxino angustifoliae-Ulmo glabrae S. (acidophilous)	–	●	–	–	–	–	–	–
Omphalodo nitidae-Fraxino angustifoliae S. (acidophilous)	–	–	●	–	–	–	–	–
Calluno vulgaris-Rhododendro pontici S. (acidophilous)	–	–	●	–	–	–	–	–
Hyperico androsaemi-Querco roboris S. (neutro-acidophilous)	–	–	●	–	–	–	–	–
Helleboro occidentalis-Tilio cordatae S. (neutrophilous)	–	–	–	–	●	–	–	–
Luzulo henriquesii-Pruno lusitanicae S.	–	–	–	–	–	–	●	–
Frangulo alni-Pruno lusitanicae S.	–	–	–	–	–	–	–	●
Polysticho setiferi-Fraxino excelsioris S. (neutrophilous)	●	●	–	–	–	–	–	–
Climato-temporihygrophilous and hygrophilous sigmeta & geosigmeta								
Hyperico androsaemi-Ulmo glabrae S. (neutrophilous)	●	–	–	–	–	–	–	–
Luzulo henriquesii-Acero pseudoplatani S. (neutro-acidophilous)	–	–	–	–	–	●	–	–
Hygrophilous geosigmeta								
Viburno lantanae-Ulmo minoris Gs. (hard freshwater)	●	–	–	–	–	–	–	–
Humulo lupuli-Alno glutinosae Gs. (hard freshwater)	●	–	–	–	–	–	–	–
Lonicero xylostei-Alno glutinosae Gs. (hard freshwater)	●	–	–	–	–	–	–	–
Hedero hibernicae-Fraxino angustifoliae Gs. (soft freshwater)	–	–	●	–	–	–	–	–
Senecioni bayonnensis-Alno glutinosae Gs. (soft freshwater)	–	–	●	–	–	–	–	–
Holoschoeno vulgaris-Salici arenariae Ps. (psammophilous)	–	–	●	–	–	–	–	–
Carici reuterianae-Betulo celtibericae Gs. (soft freshwater)	–	–	–	–	–	–	●	–
Salici lambertiano-salviifoliae Gs. (soft freshwater)	–	–	–	–	–	–	–	●

(continued)

European Atlantic province	5	6	7	8	9	10	11	12
Salici angustifolio-albae Gs. (soft freshwater)	●	●	–	–	–	–	–	–
Hyperico androsaemi-Alno glutinosae Gs. (hard freshwater)	●	●	–	–	–	–	–	–
Salici salviifoliae Gs. (soft freshwater)	–	●	●	–	–	–	–	–
Valeriano pyrenaicae-Alno glutinosae Gs. (soft freshwater)	–	●	–	–	–	●	–	–
Salici cantabrico-bicoloris Gs. (hard freshwater)	–	–	–	●	●	–	–	–
Salici cantabricae Gs. (hard freshwater)	–	–	–	●	●	–	–	–
Salici cantabrico-albae Gs. (hard freshwater)	–	–	–	●	●	–	–	–
Euphorbio hybernae-Fraxino excelsioris Gs. (hard freshwater)	–	–	–	●	●	–	–	–
Festuco giganteae-Fraxino excelsioris Gs. (hard freshwater)	–	–	–	●	●	●	–	–
Geopermasigmeta								
Spergulario rupicolae-Armerio depilatae Gps. (haloanemogenous rock littoral)	–	●	–	–	–	–	–	–
Junco trifidi-Oreochloo blankae Gps. (acidophilous)	–	–	–	●	–	–	–	–
Oxytropido neglectae-Kobresio myosuroidis Gps. (basophilous)	–	–	–	–	●	–	–	–
Leucanthemo crassifolii-Festuco pruinosae Gps. (haloanemogenous rock littoral)	●	●	–	–	–	–	–	–
Puccinellio maritimae-Sarcocornio perennis Gps. (halophilous mareal)	●	●	●	–	–	–	–	–
Otantho maritimi-Ammophilo australis Gps. (coastal dune)	●	●	●	–	–	–	–	–
Crithmo maritimi-Armerio pubigerae Gps. (haloanemogenous rock littoral)	–	●	●	–	–	–	–	–
Oxytropido neglecto-halleri Gps. (basophilous)	–	–	–	●	●	–	–	–
Teesdaliopsio confertae-Festuco eskiae Gps. (acidophilous)	–	–	–	●	●	●	–	–

5. Cantabrian and Basque Sector, 6. North Galicia and Asturias Sector, 7. Galicia and North Portugal Sector, 8. High Campoo and Carrión Sector, 9. Picos of Europa and Ubiña Sector, 10. Laciana and Ancares Sector, 11. North Lusitania Sierran Sector, 12. Montemuro and Estrela Sierran Sector

Biogeographic Typology of the Valencia-Provençe and Balearic Province at Sector Level

IIa. Valencia-Provençe and Balearic Province (*Provincia Valenciana-Provenzal-Balear*) (Figs. 5.8, 5.9 and 5.10)

IIaa. Catalonian and Provençe Subprovince (*Subprovincia Catalana-Provenzal*)

16. East Catalonian Sector (*Sector Catalán Oriental*)

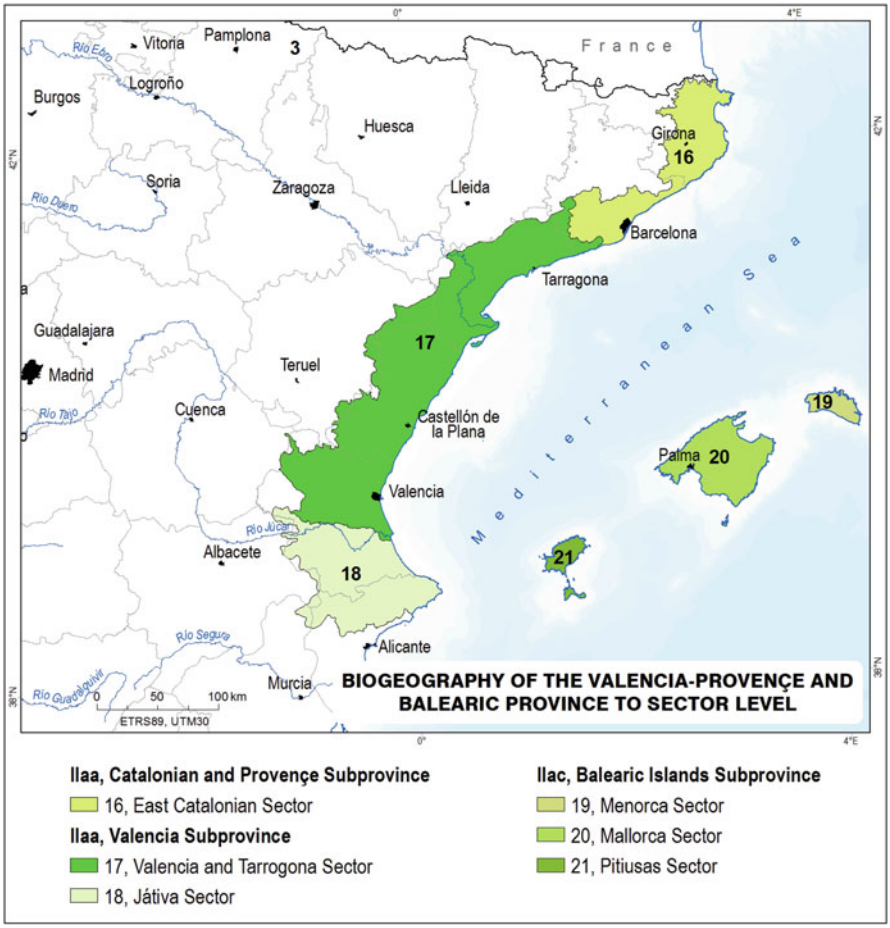


Fig. 5.8 Biogeographic map of the Valencia-Provençe and Balearic Province at sector level

IIab. Valencia Subprovince (*Subprovincia Valenciana*)

17. Valencia and Tarragona Sector (*Sector Valenciano-Tarraconense*)
18. Játiva Sector (*Sector Setabense*)

IIac. Balearic Islands Subprovince (*Subprovincia Balear*)

19. Menorca Sector (*Sector Menorquín*)
20. Mallorca Sector (*Sector Mallorquín*)
21. Pitiusas Sector (*Sector Pitiúsico*)

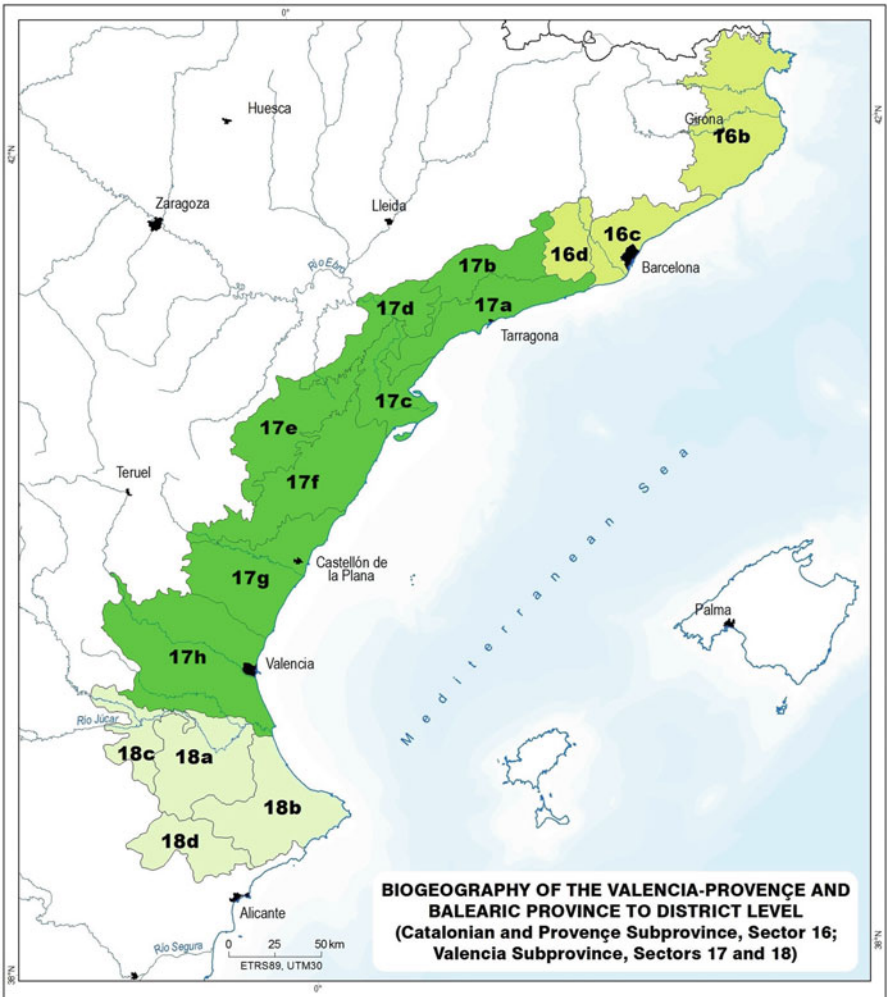


Fig. 5.9 Biogeographic map of the Valencia-Provençe and Balearic Province at district level (Catalonian and Provençe subprovince and Valencia subprovince)

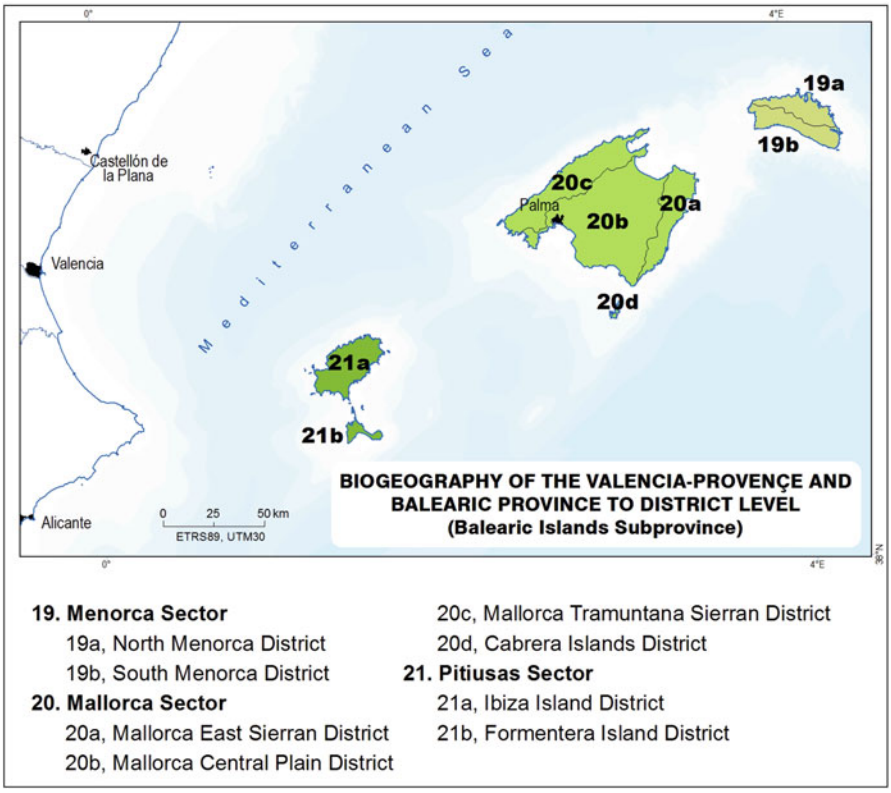


Fig. 5.10 Biogeographic map of the Valencia-Provençe and Balearic Province at district level (Balearic Isalnds subprovince)

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Valencia-Provençe and Balearic province

Valencia-Provençe and Balearic province	16	17	18	19	20	21
Climatophilous sigmeta						
Carici depauperatae-Querco pubescentis S. (acidophilous)	●	–	–	–	–	–
Primulo acaulis-Fago sylvaticae S. (neutrophilous)	–	●	–	–	–	–
Violo willkommii-Querco fagineae S. (basophilous)	–	●	–	–	–	–
Telino patentis-Querco fagineae S. (basophilous)	–	●	–	–	–	–
Cephalanthero rubrae-Querco pyrenaicae S. (acidophilous)	–	●	–	–	–	–
Fraxino orni-Querco fagineae S. (basophilous)	–	–	●	–	–	–
Viburno tini-Fraxino orni S. (basophilous)	–	–	●	–	–	–
Primulo balearicae-Acero granatensis S. (basophilous)	–	–	–	–	●	–
Cneoro tricocci-Ceratonio siliquae S. (basophilous)	–	–	–	–	●	–
Viburno tini-Querco ilicis S. (basophilous)	●	●	●	–	–	–
Asplenio onopteridis-Querco suberis S. (basophilous)	–	●	●	–	–	–

(continued)

Valencia-Provençe and Balearic province	16	17	18	19	20	21
Climatophilous and xerophilous sigmeta						
Arbuto unedonis-Pino halepensis S. (basophilous)	–	●	–	–	–	–
Asplenio onopteridis-Querco ilicis S. (acidophilous)	–	●	–	–	–	–
Prasio majoris-Oleo sylvestris S. (basophilous on leptosols)	–	–	–	●	–	–
Carici bracteosae-Querco ilicis S. (acidophilous, basophilous and dolomite)	–	–	–	●	–	–
Clematido cirrhosae-Querco rotundifoliae S. (basophilous and dolomite)	–	–	–	–	●	–
Cyclamini balearici-Querco ilicis S. (basophilous and dolomite)	–	–	–	–	●	–
Cneoro tricocci-Pistacio lentisci S. (basophilous)	–	–	–	–	–	●
Pistacio lentisci-Pino halepensis S. (basophilous)	–	●	●	–	–	–
Hedero helicis-Querco rotundifoliae S. (basophilous)	–	●	●	–	–	–
Rubio longifoliae-Querco rotundifoliae S. (basophilous)	–	●	●	–	–	–
Xerophilous sigmeta						
Daphno laureolae-Querco ilicis S. (basophilous)	●	–	–	–	–	–
Buxo sempervirentis-Pino catalaunicae S. (calco-dolomitic)	–	●	–	–	–	–
Telino patentis-Pino salzmannii S. (calco-dolomitic)	–	●	–	–	–	–
Phillyreo angustifoliae-Rhamno angustifolii S. (psammophilous)	–	●	–	–	–	–
Arctostaphylo crassifoliae-Pino catalaunicae S. (acidophilous)	–	●	–	–	–	–
Chamaeropo humilis-Junipero phoeniceae S. (basophilous)	–	–	●	–	–	–
Aro sagittifolii-Phillyreo rodriguezii S. (basophilous)	–	–	–	●	–	–
Rubio longifoliae-Junipero macrocarpae S. (psammophilous)	–	–	–	–	●	–
Genisto majoricae-Buxo balearicae S. (calco-dolomític)	–	–	–	–	●	–
Rhamno ludovicisalvatoris-Junipero turbinatae S. (dolomite)	–	–	–	–	●	–
Buxo sempervirentis-Junipero phoeniceae S. (basophilous)	●	●	–	–	–	–
Junipero turbinatae S. (coastal dune)	–	●	●	–	–	–
Rhamno infectorii-Junipero phoeniceae S. (basophilous)	–	●	●	–	–	–
Junipero turbinatae-Pino halepensis S. (basophilous & calco-dolomitic)	–	–	●	●	–	–
Clematido balearicae-Junipero turbinatae S. (coastal dune)	–	–	–	●	●	●
Climato-temporihygrophilous sigmeta						
Carici depressae-Querco canariensis S. (neutro-acidophilous)	●	–	–	–	–	–
Carici basilaris-Querco suberis S. (acidophilous)	●	–	–	–	–	–
Hygrophilous geosigmeta						
Lamio flexuosi-Alno glutinosae Gs. (soft freshwater)	●	–	–	–	–	–
Carici pendulae-Salici atrocinereae Gs. (soft freshwater)	●	–	–	–	–	–
Lithospermo purpureocaerulei-Ulmo minoris Gs. (hard freshwater)	●	–	–	–	–	–
Carici pendulae-Alno glutinosae Gs. (soft freshwater)	●	–	–	–	–	–
Erico erigenae-Salici pedicellatae Gs. (hard freshwater)	–	–	●	–	–	–
Vinco difformis-Fraxino angustifoliae Gs. (hard freshwater)	–	–	–	–	●	–
Vinco difformis-Populo albae Gs. (hard freshwater)	–	●	●	–	–	–
Coriario myrtifoliae-Salici angustifoliae Gs. (hard freshwater)	–	●	●	–	–	–
Saccharo ravennae-Tamarici canariensis Gs. (hard freshwater)	–	●	●	–	–	–
Populo albae Gs. (hard freshwater)	●	●	●	–	–	–

(continued)

Valencia-Provençe and Balearic province	16	17	18	19	20	21
Saponario officinalis-Salici lambertianae Gs. (hard freshwater)	●	●	●	–	–	–
Hedero helicis-Ulmo minoris Gs. (hard freshwater)	●	●	●	–	–	–
Geopermasigmeta						
Crithmo maritimi-Limonio dufourii Gps. (haloanemogenous rock littoral)	–	●	–	–	–	–
Crithmo maritimi-Limonio girardiani Gps. (haloanemogenous rock littoral)	–	●	–	–	–	–
Crithmo maritimi-Limonio rigualii Gps. (haloanemogenous rock littoral)	–	–	●	–	–	–
Limonio minuto-fontqueri Gps. (basophilous)	–	–	–	●	–	–
Limonio atruchio-minuti Gps. (haloanemogenous rock littoral)	–	–	–	●	–	–
Limonio caprariensis Gps (haloanemogenous rock littoral)	–	–	–	–	●	–
Crithmo maritimi-Limonio balearici Gps. (haloanemogenous rock littoral)	–	–	–	–	●	–
Limonio pseudodictyoclado-carregadorensis Gps. (haloanemogenous rock littoral)	–	–	–	–	●	–
Limonio pseudebusitani Gps. (haloanemogenous rock littoral)	–	–	–	–	–	●
Medicagini marinae-Ammophilo arundinaceae Gps. (coastal dune)	●	●	●	●	●	●
Limonio bellidifolii-Sarcocornio fruticosae Gps. (halophilous)	●	●	●	●	●	●

16. East Catalonian Sector, 17. Valencia and Tarragona Sector, 18. Játiva Sector, 19. Menorca Sector, 20. Mallorca Sector, 21. Pitiusas Sector

Biogeographic Typology of the Central Iberian Mediterranean Province at Sector Level (Figs. 5.11, 5.12, 5.13 and 5.14)

IIb. Central Iberian Mediterranean Province (*Provincia Mediterránea Ibérica Central*)

IIba. Low Aragón and high ebro Subprovince (*Subprovincia Bajoaragonesa-Altoebrense*)

22. Somontano Sector (*Sector Somontano*)
23. Bardenas and Monegros Sector (*Sector Bardenero-Monegrino*)
24. Rioja and Estella Sector (*Sector Riojano-Estellés*)
25. Cantabrian Castilian Sector (*Sector Castellano Cantábrico*)

IIbb. Oroiberian Subprovince (*Subprovincia Oroibérica*)

26. North Oroiberian Sierran Sector (*Sector Serrano Oroibérico Septentrional*)
27. South Oroiberian Sector (*Sector Oroibérico Meridional*)

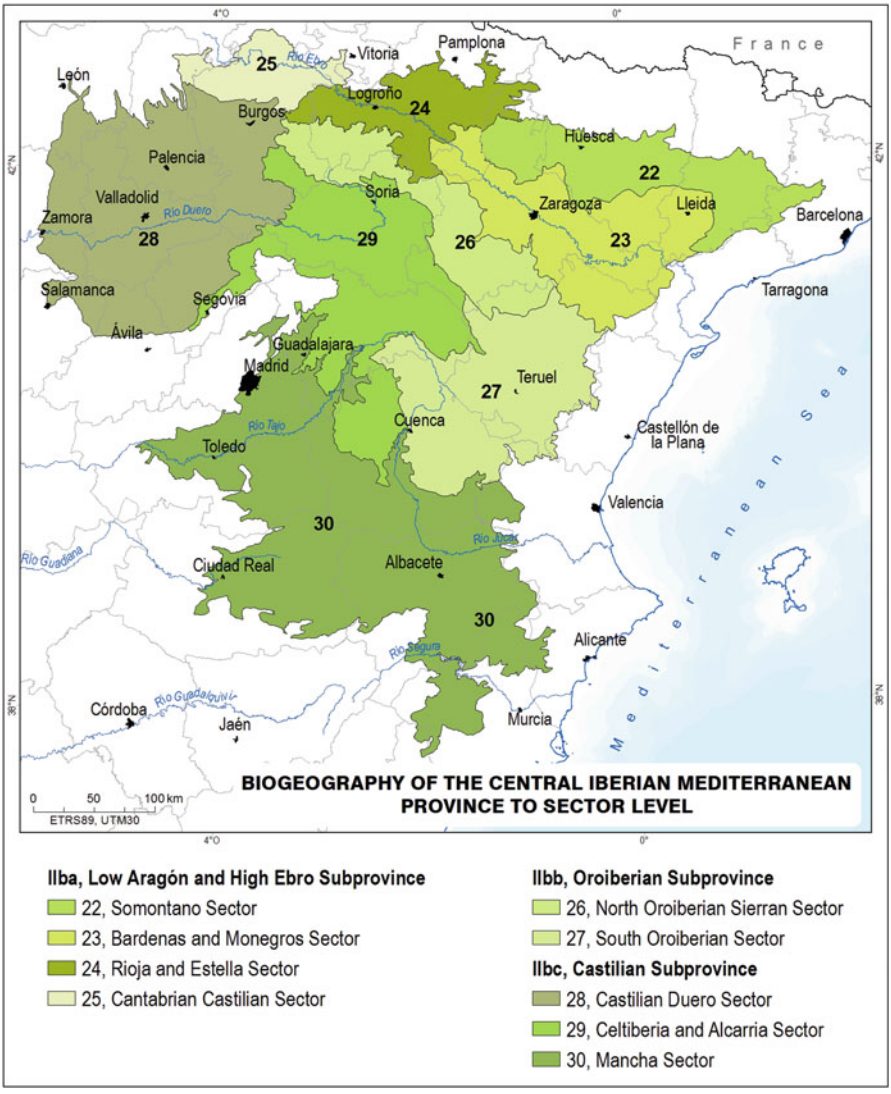
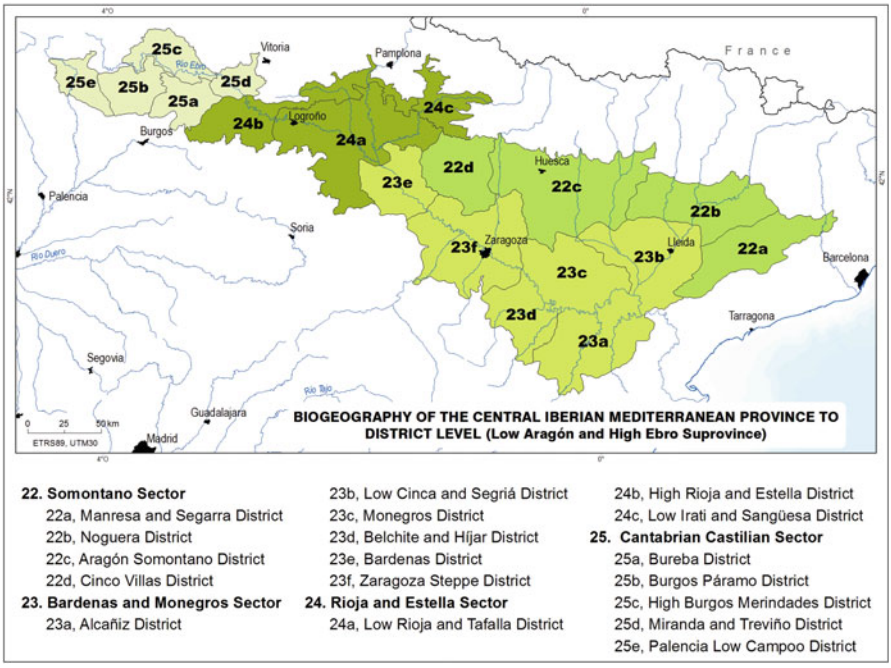


Fig. 5.11 Biogeographic map of the Central Iberian Mediterranean Province at sector level

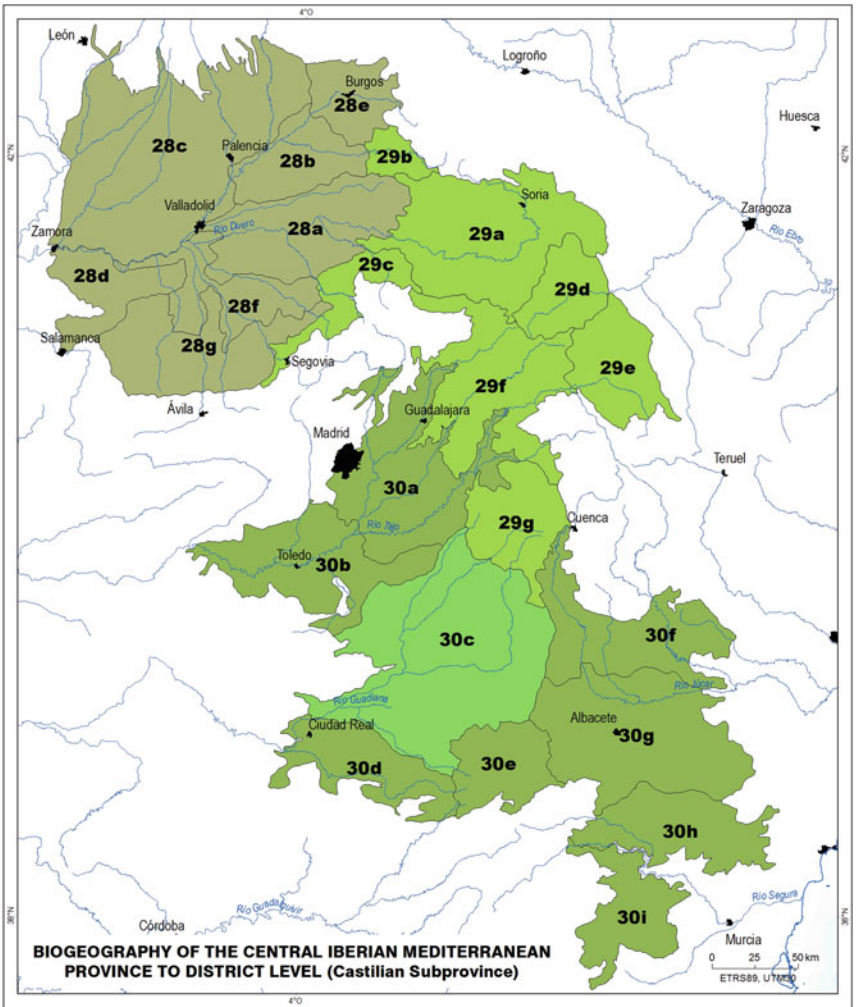
IIbc. Castilian Subprovince (*Subprovincia Castellana*)

28. Castilian Duero Sector (*Sector Castellano Duriense*)
29. Celtiberia and Alcarria Sector (*Sector Celtibérico-Alcarreño*)
30. Mancha Sector (*Sector Manchego*)



22. Somontano Sector
22a, Manresa and Segarra District
22b, Noguera District
22c, Aragón Somontano District
22d, Cinco Villas District
23. Bardenas and Monegros Sector
23a, Alcañiz District
23b, Low Cinca and Segriá District
23c, Monegros District
23d, Belchite and Híjar District
23e, Bardenas District
23f, Zaragoza Steppe District
24. Rioja and Estella Sector
24a, Low Rioja and Tafalla District
24b, High Rioja and Estella District
24c, Low Irati and Sangüesa District
25. Cantabrian Castilian Sector
25a, Bureba District
25b, Burgos Páramo District
25c, High Burgos Merindades District
25d, Miranda and Treviño District
25e, Palencia Low Campoo District

Fig. 5.12 Biogeographic map of the Central Iberian Mediterranean Province (Low Aragon and High Ebro) at district level



28. Castilian Duero Sector
- 28a, Castilian Ribaduero District
- 28b, Low Arlanza and Cerrato District
- 28c, Tierra of Campos District
- 28d, Tierras of Medina and Armuña District
- 28e, Arlanzón Basin District
- 28f, Tierra of Pinares District
- 28g, Tierra of Arévalo and Moraña District

29. Celtiberia and Alcarria Sector
- 29a, Soria District
- 29b, High Arlanza and Covarrubias District
- 29c, Segovia District
- 29d, High Jalón District
- 29e, Molina District
- 29f, High Alcarria District
- 29g, Obispalía District

30. Mancha Sector
- 30a, Low Madrid District
- 30b, Sagra District
- 30c, Sanjuán Mancha District
- 30d, Calatrava District
- 30e, Montiel District
- 30f, Cuenca Mancha District
- 30g, Júcar Mancha District
- 30h, Jumilla and Hellín District
- 30i, Espuña Sierran District

Fig. 5.13 Biogeographic map of the Central Iberian Mediterranean Province (Castilian subprovince) at district level

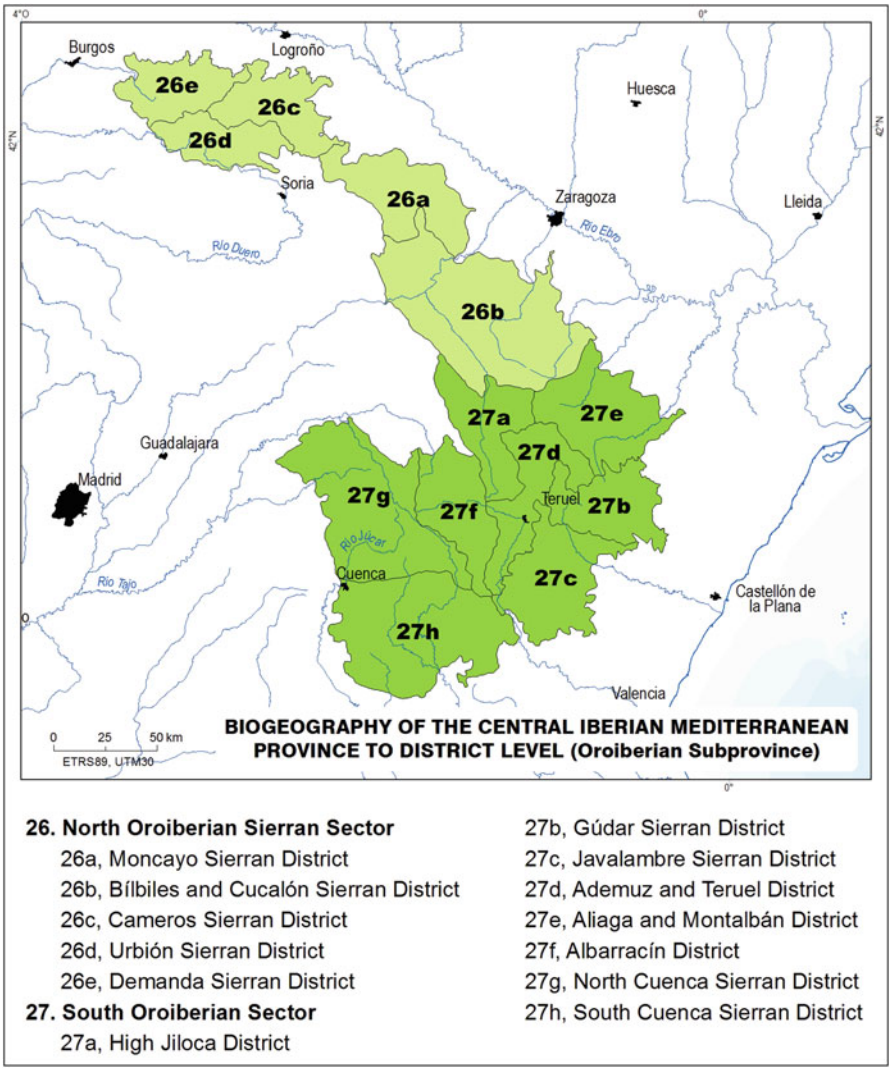


Fig. 5.14 Biogeographic map of the Central Iberian Mediterranean Province (Oroiberian subprovince) at district level

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Central Iberian Mediterranean Province

Central Iberian Mediterranean province	22	23	24	25	26	27	28	29	30
Climatophilous sigmeta									
Violo willkommii-Querco fagineae S. (basophilous)	●	–	–	–	–	–	–	–	–
Vaccinio myrtilli-Pino ibericae S. (acidophilous, relic)	–	–	–	–	●	–	–	–	–
Carici sylvaticae-Fago sylvaticae S. (neutrophilous)	–	–	–	–	●	–	–	–	–
Avenello ibericae-Pino uncinatae S. (acidophilous)	–	–	–	–	●	–	–	–	–
Galio rotundifolii-Fago sylvaticae S. (acidophilous)	–	–	–	–	●	–	–	–	–
Vaccinio myrtilli-Junipero alpinae S. (acidophilous)	–	–	–	–	●	–	–	–	–
Saniculo europaeae-Ilici aquifolii S. (neutrophilous)	–	–	–	–	●	–	–	–	–
Junipero sabinae-Pino ibericae S. (basophilous)	–	–	–	–	–	●	–	–	–
Ononido aragonensis-Pino ibericae S. (basophilous)	–	–	–	–	–	●	–	–	–
Junipero sabinae-Pino uncinatae S. (basophilous)	–	–	–	–	–	●	–	–	–
Calluno vulgaris-Pino ibericae S. (basophilous)	–	–	–	–	–	●	–	–	–
Sileno melliferae-Querco faginae S. (basophilous)	–	–	–	–	–	●	–	–	–
Asparago acutifolii-Querco rotundifoliae S. (basophilous)	–	–	–	–	–	–	–	–	●
Galio odorati-Querco petraeae S. (acidophilous, relic)	–	–	–	●	●	●	–	–	–
Melico uniflorae-Betulo celtibericae S. (acidophilous)	–	–	–	●	●	●	–	–	–
Junipero hemisphaerico-thuriferae S. (basophilous)	–	–	–	●	●	●	–	–	–
Epipactido helleborines-Fago sylvaticae S. (neutrophilous)	–	–	–	●	●	–	–	–	–
Cephalanthero rubrae-Querco fagineae S. (basophilous)	–	–	–	–	–	–	●	●	●
Luzulo forsteri-Querco pyrenaicae S. (acidophilous)	–	–	–	●	●	●	–	●	–
Climatophilous and xerophilous sigmeta									
Junipero phoeniceo-thuriferae S. (calc-gypsophila)	–	●	–	–	–	–	–	–	–
Arbuto unedonis-Pino halepensis S. (basophilous)	–	●	–	–	–	–	–	–	–
Ephedro nebrodensis-Junipero sabinae S. (basophilous)	–	–	–	–	●	–	–	–	–

(continued)

Central Iberian Mediterranean province	22	23	24	25	26	27	28	29	30
Teucrio scorodoniae-Querco rotundifoliae S. (acidophilous)	–	–	–	–	●	–	–	–	–
Junipero thuriferae-Pino latisquamae S. (basophilous, calco-dolomitic)	–	–	–	–	–	●	–	–	–
Querco cocciferae-Pino halepensis S. (basophilous)	–	–	–	–	–	–	–	–	●
Rhamno lycioidis-Querco cocciferae S. (basophilous)	●	●	●	–	–	–	–	–	–
Querco rotundifoliae S.(basophilous)	●	●	●	–	●	–	–	–	–
Spiraeo obovatae-Querco fagineae S. (basophilous)	–	–	●	●	–	–	–	–	–
Junipero thuriferae-Querco rotundifoliae S. (basophilous)	–	–	–	–	–	●	●	●	●
Xerophilous sigmeta									
Rhamno lycioidis-Junipero phoeniceae S. (basophilous)	–	–	–	–	–	●	●	●	●
Climato-temporihygrophilous & hygrophilous sigmeta & geosigmeta									
Buxo sempervirentis-Querco rotundifoliae S. (basophilous)	●	–	–	–	–	–	–	–	–
Aceri campestris Fraxino excelsioris S. (neutro-acidophilous)	–	–	–	–	●	–	–	–	–
Hygrophilous geosigmeta									
Viburno lantanae-Ulmo minoris Gs. (hard freshwater)	–	–	–	●	–	–	–	–	–
Rubo lainzii-Salici atrocinereae Gs. (soft freshwater)	–	–	–	–	●	–	–	–	–
Astrantio majoris-Corylo avellanae Gs. (hard freshwater)	–	–	–	–	–	●	–	–	–
Erico erigenae-Salici pedicellatae Gs. (hard freshwater)	–	–	–	–	–	–	–	–	●
Rubio longifoliae-Nerio oleandri Gs. (very hard freshwater)	–	–	–	–	–	–	–	–	●
Humulo lupuli-Alno glutinosae Gs. (hard freshwater)	–	–	●	●	–	–	–	–	–
Populo nigrae-Salici neotrichae Gs. (soft freshwater)	–	–	–	–	–	–	●	●	–
Aro cylindracei-Ulmo minoris Gs. (soft freshwater)	–	–	–	–	–	–	●	●	–
Salici salviifoliae Gs. (soft freshwater)	–	–	–	●	●	●	–	–	–
Salici lambertiano-albae Gs. (hard freshwater)	–	–	–	●	●	●	–	–	–
Rubio tinctorum-Populo albae Gs. (hard freshwater)	●	●	●	–	–	–	–	●	●
Salici neotrichae Gs. (hard freshwater)	●	●	●	–	–	–	–	●	●
Opopanaco chironium-Ulmo minoris Gs. (hard freshwater)	●	●	●	●	●	●	●	●	●
Salici discoloro-angustifoliae Gs. (soft freshwater)	●	●	●	●	●	●	●	●	●

(continued)

Central Iberian Mediterranean province	22	23	24	25	26	27	28	29	30
Tamarici canariensis Gs. (soft freshwater)	●	●	●	●	●	●	●	●	●
Suaedo braunblanquetii-Tamarici boveanae Gs. (halophilous)	●	●	●	●	●	●	●	●	●
Suaedo braunblanquetii-Tamarici canariensis Gs. (halophilous)	●	●	●	●	●	●	●	●	●
Geopermasigmeta									
Antennario dioicae-Festuco curvifoliae Gps. (acidophilous)	–	–	–	–	●	–	–	–	–
Armerio microcephalae-Festuco aragonensis Gps. (acidophilous)	–	–	–	–	●	–	–	–	–
Suaedo braunblanquetii Gps. (halophilous)	●	●	●	–	–	–	–	–	–
Puccinellio caespitosae-Sauedo braunblanquetii Gps. (halophilous)	–	–	–	–	–	–	●	●	●

22. Somontano Sector, 23. Bardenas and Monegros Sector, 24. Rioja and Estella Sector, 25. Cantabrian Castilian Sector, 26. North Oroiberian Sierran Sector, 27. South Oroiberian Sector, 28. Castilian Duero Sector, 29. Celtiberia and Alcarria Sector, 30. Mancha Sector

Biogeographic Typology of the West Iberian Mediterranean Province at Sector Level (Figs. 5.15, 5.16 and 5.17)

IIc. West Iberian Mediterranean Province (*Provincia Mediterránea Ibérica Occidental*)

IIca. Carpetania and León Subprovince (*Subprovincia Carpetana-Leonesa*)

31. León Plain Sector (*Sector Planileonés*)
32. Bierzo and Sanabria Sector (*Sector Berciano-Sanabrés*)
33. Lusitanian Douro Sector (*Sector Lusitano Duriense*)
34. Salamanca Sector (*Sector Salmantino*.)
35. Guadarrama Sierran Sector (*Sector Serrano Guadarrámico*)
36. Bejar and Gredos Sierras Sector (*Sector Serrano Bejarano-Gredense*)

IIcb. Lusitania And Extremadura Subprovince (*Subprovincia Lusa-Extremadurense*)

37. Oretana Range and Tajo Sector (*Sector Cordillerano Oretano-Tagano*)
38. Mariánica Range Sector (*Sector Cordillerano Mariánico*)

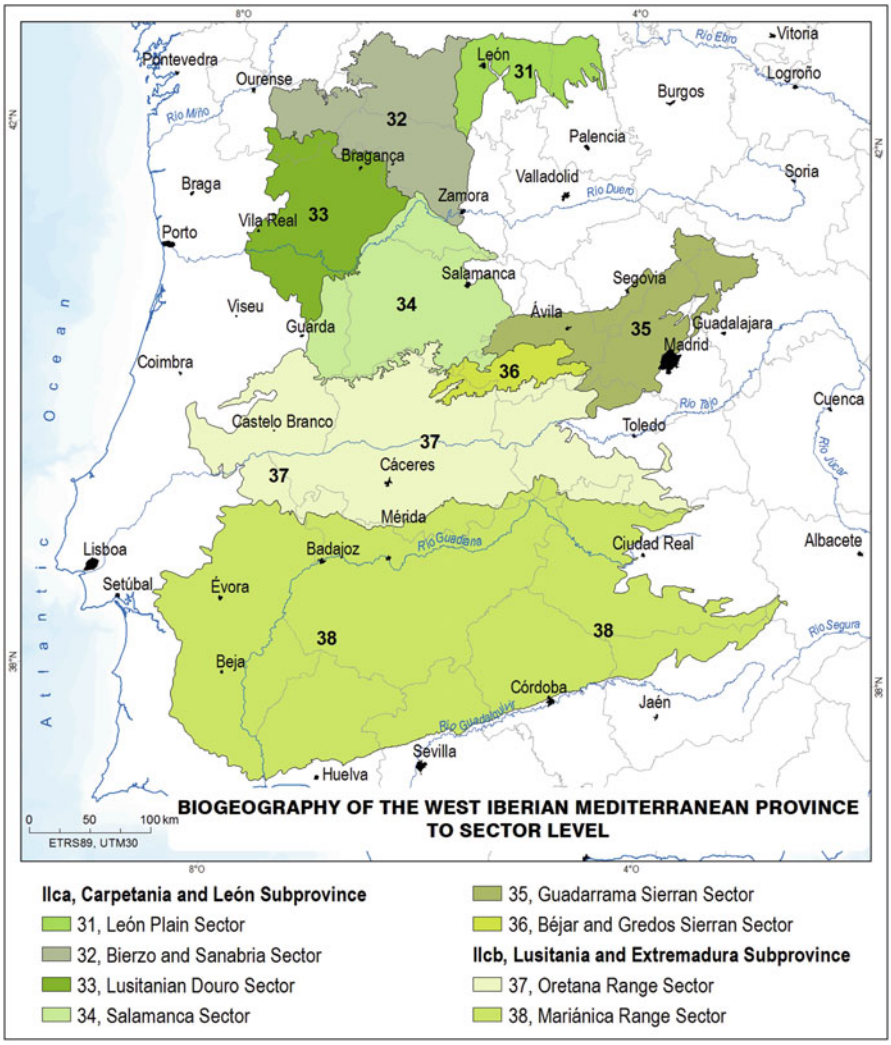
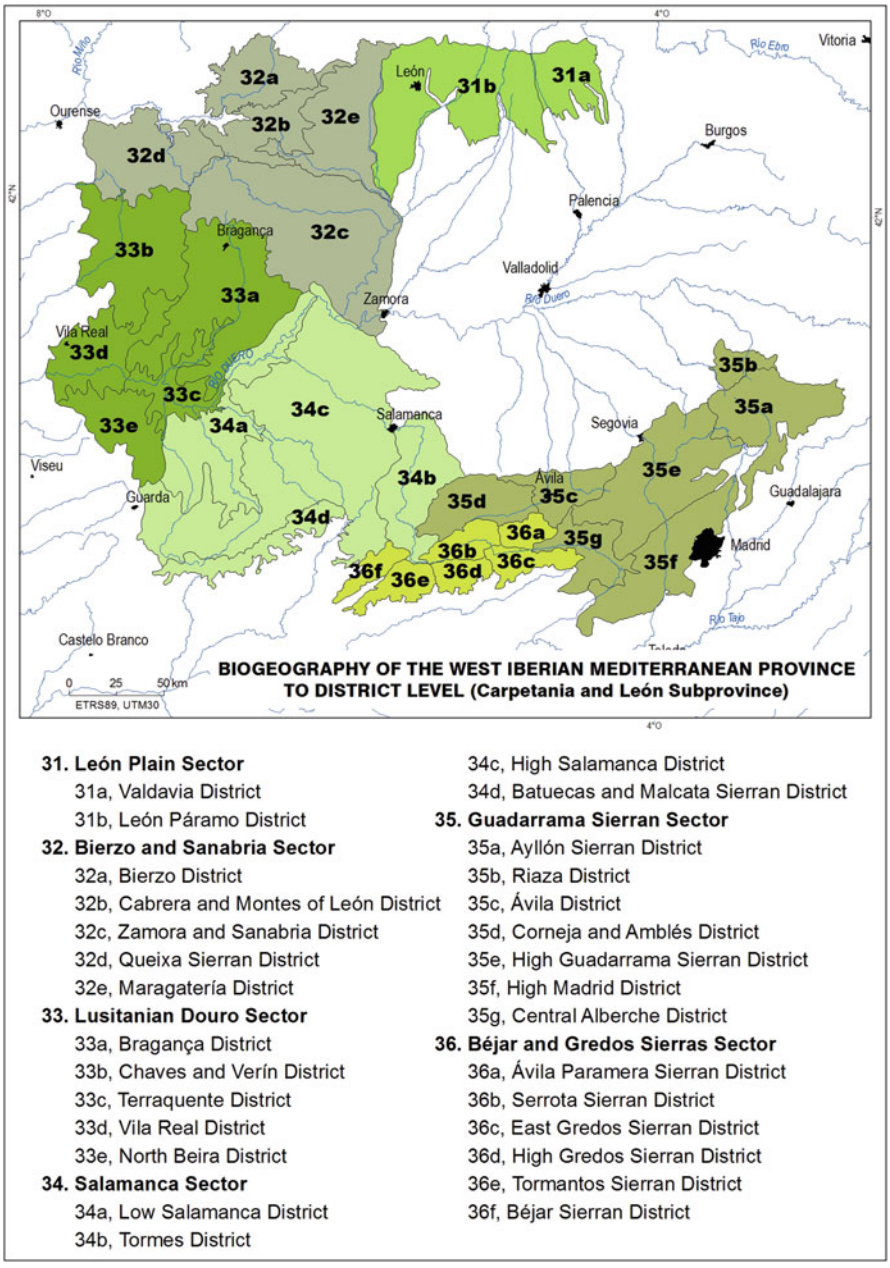


Fig. 5.15 Biogeographic map of the West Iberian Mediterranean Province at sector level



31. León Plain Sector
- 31a, Valdavia District
- 31b, León Páramo District

32. Bierzo and Sanabria Sector
- 32a, Bierzo District
- 32b, Cabrera and Montes of León District
- 32c, Zamora and Sanabria District
- 32d, Queixa Sierran District
- 32e, Maragatería District

33. Lusitanian Douro Sector
- 33a, Bragança District
- 33b, Chaves and Verín District
- 33c, Terraquente District
- 33d, Vila Real District
- 33e, North Beira District

34. Salamanca Sector
- 34a, Low Salamanca District
- 34b, Tormes District
- 34c, High Salamanca District
- 34d, Batuecas and Malcata Sierran District

35. Guadarrama Sierran Sector
- 35a, Ayllón Sierran District
- 35b, Riaza District
- 35c, Ávila District
- 35d, Corneja and Amblés District
- 35e, High Guadarrama Sierran District
- 35f, High Madrid District
- 35g, Central Alberche District

36. Béjar and Gredos Sierras Sector
- 36a, Ávila Paramera Sierran District
- 36b, Serrota Sierran District
- 36c, East Gredos Sierran District
- 36d, High Gredos Sierran District
- 36e, Tormantos Sierran District
- 36f, Béjar Sierran District

Fig. 5.16 Biogeographic map of the West Iberian Mediterranean Province (Carpetanian and León subprovince) at district level

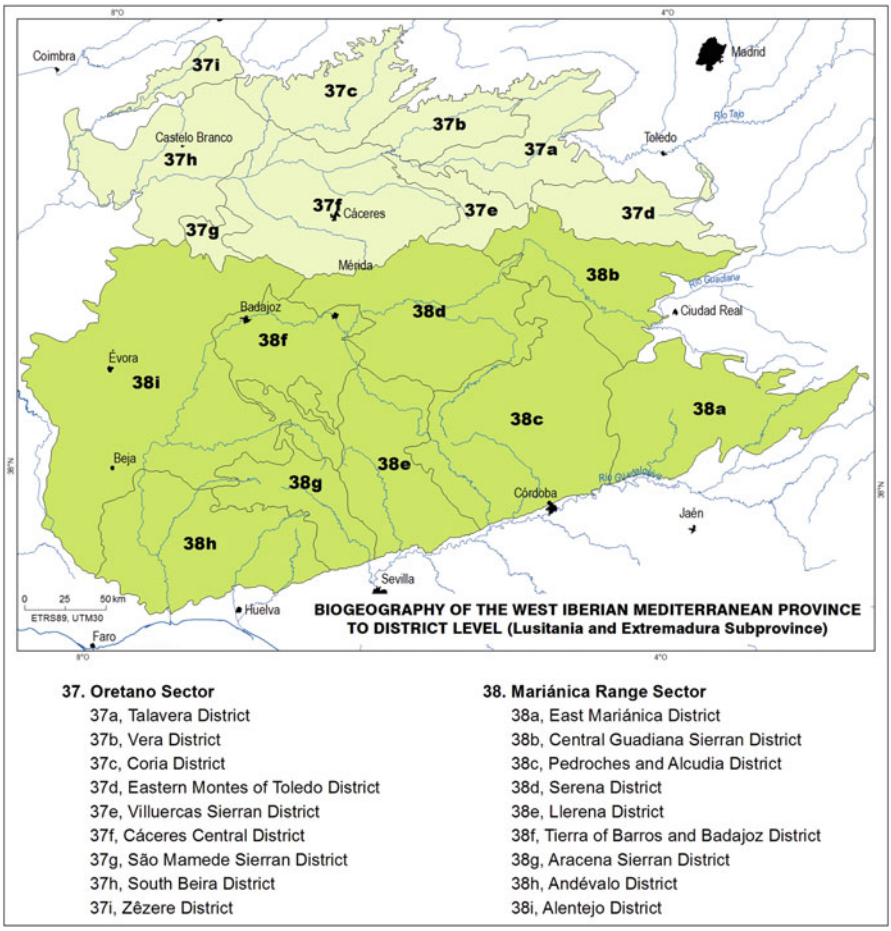


Fig. 5.17 Biogeographic map of the West Iberian Mediterranean Province (Lusitania and Extremadura subprovince) at district level

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the West Iberian Mediterranean province

West Iberian Mediterranean province	31	32	33	34	35	36	37	38
Climatophilous sigmeta								
Vaccinio myrtilli-Junipero alpinae S. (acidophilous)	–	●	–	–	–	–	–	–
Avenello ibericae-Querco orocantabricae S. (acidophilous)	–	●	–	–	–	–	–	–
Luzulo henriquesii-Betulo celtibericae S. (acidophilous)	–	●	–	–	–	–	–	–
Genisto sanabrensis-Junipero alpinae S. (acidophilous)	–	●	–	–	–	–	–	–
Genisto falcatae-Querco pyrenaicae S. (acidophilous)	–	●	–	–	–	–	–	–

(continued)

West Iberian Mediterranean province	31	32	33	34	35	36	37	38
Junipero lagunae-Querco suberis S. (acidophilous)	–	–	●	–	–	–	–	–
Hedero hibernicae-Querco fagineae S. (basophilous)	–	–	●	–	–	–	–	–
Galio odorati-Querco petraeae S. (acidophilous, relic)	–	–	–	–	●	–	–	–
Luzulo forsteri-Querco pyrenaicae S. (acidophilous)	–	–	–	–	●	–	–	–
Melico uniflorae-Betulo celtibericae S. (acidophilous)	–	–	–	–	●	–	–	–
Avenello ibericae-Pino ibericae S. (acidophilous)	–	–	–	–	●	–	–	–
Festuco merinoi-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	●	–	–
Smilaco asperae-Querco suberis S. (acidophilous)	–	–	–	–	–	–	●	–
Asparago aphylli-Querco suberis S. (acidophilous)	–	–	–	–	–	–	–	●
Lavandulo viridis-Querco suberis S. (acidophilous)	–	–	–	–	–	–	–	●
Doronico plantaginei-Querco canariensis S. (acidophilous)	–	–	–	–	–	–	–	●
Sanguisorbo hybridae-Querco broteroi S. (acidophilous)	–	–	–	–	–	–	–	●
Arisaro sinorrhini-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	–	●	●
Pulmonario longifoliae-Querco pyrenaicae S. (acidophilous)	●	–	–	–	●	–	–	–
Pyro bourgaeanae-Querco pyrenaicae S. (acidophilous)	–	●	–	●	–	–	–	–
Holco mollis-Querco pyrenaicae S. (acidophilous)	–	–	●	●	–	–	–	–
Pteridio aquilini-Pino ibericae S. (acidophilous)	–	–	–	–	●	●	–	–
Avenello ibericae-Junipero alpinae S. (acidophilous)	–	–	–	–	●	●	–	–
Asparago albi-Oleo sylvestris S. (acidophilous)	–	–	–	–	–	–	●	●
Sorbo torminalis-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	–	●	●
Arbuto unedonis-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	–	●	●
Sanguisorbo hybridae-Querco suberis S. (acidophilous)	–	–	–	–	–	–	●	●
Rhamno fontquerani-Querco rotundifoliae S. (basophilous)	–	–	–	–	–	–	●	●
Pistacio terebinthi-Querco broteroi S. (acidophilous)	–	–	–	–	–	–	●	●
Climatophilous and xerophilous sigmeta								
Junipero lagunae-Querco rotundifoliae S. (acidophilous)	●	–	–	–	●	–	–	–
Genisto hystricis-Querco rotundifoliae S. (acidophilous, relic)	–	●	●	●	–	–	–	–
Pyro bourgaeanae-Querco rotundifoliae S. (acidophilous)	–	–	–	–	–	–	●	●
Xerophilous sigmeta								
Rusco aculeati-Junipero lagunae S. (acidophilous, relic)	–	–	●	–	–	–	–	–
Festuco merinoi-Junipero lagunae S. (acidophilous)	–	–	–	–	–	●	–	–
Cytiso eriocarpi-Junipero lagunae S. (acidophilous)	–	–	–	–	–	–	●	–
Phlomido purpureae-Junipero turbinatae S. (acidophilous)	–	–	–	–	–	–	–	●

(continued)

West Iberian Mediterranean province	31	32	33	34	35	36	37	38
Phlomido purpureae-Pistacio lentisci S. (acidophilous)	–	–	–	–	–	–	–	●
Climato-temporihygrophilous sigmeta								
Clematido campaniflorae-Celtido australis S. (acidophilous)	–	–	●	–	–	–	–	–
Fraxino angustifoliae-Acero monspessulani S. (acidophilous)	–	–	●	–	–	–	–	–
Frangulo alni-Pruno lusitanicae S.	–	–	–	–	–	–	●	–
Campanulo primulifoliae-Rhododendro pontici S. (acidophilous)	–	–	–	–	–	–	–	●
Euphorbio monchiquensis-Querco canariensis S. (acidophilous)	–	–	–	–	–	–	–	●
Pyro bourgaeanae-Querco broteroi S. (acidophilous)	–	–	–	–	–	–	●	●
Oennatho crocatae-Querco pyrenaicae S. (acidophilous)	–	–	–	–	–	–	●	●
Climato-temporihygrophilous and hygrophilous sigmeta & geosigmeta								
Paeonio broteri-Abieti pinsapo S. (calco-dolomitic)	–	–	–	–	–	–	–	●
Hygrophilous geosigmeta								
Salici salviifoliae Gs. (soft freshwater)	●	–	–	–	–	–	–	–
Nerio oleandri-Salici pedicellatae Gs. (hard freshwater)	–	–	–	–	–	–	–	●
Campanulo primulifoliae-Alno glutinosae Gs. (soft freshwater)	–	–	–	–	–	–	–	●
Irido foetidissimae-Fraxino angustifoliae Gs. (soft freshwater)	–	–	–	–	–	–	–	●
Aro cylindracei-Ulmo minoris Gs. (soft freshwater)	●	●	–	●	–	–	–	–
Populo nigrae-Salici neotrichae Gs. (soft freshwater)	●	●	–	●	–	–	–	–
Rubo lainzii-Salici atrocinereae Gs. (soft freshwater)	–	●	–	●	●	●	–	–
Salici lambertiano-salviifoliae Gs. (soft freshwater)	–	–	–	●	●	●	●	–
Galio broteriani-Alno glutinosae Gs. (soft freshwater)	●	●	●	●	●	●	–	–
Querco pyrenaicae-Fraxino angustifoliae Gs. (soft freshwater)	●	●	●	●	●	●	–	–
Salici atrocinereae-Populo albae Gs. (hard freshwater)	–	–	–	–	–	–	●	●
Salici atrocinereo-australis Gs. (soft freshwater)	–	–	–	–	–	–	●	●
Pyro bourgaeanae-Flueggeo tinctoriae Gs. (soft freshwater)	–	–	–	–	–	–	●	●
Geopermasigmeta								
Teesdaliopsio confertae-Festuco summilusitanae Gps. (acidophilous)	–	●	–	–	–	–	–	–
Hieracio myriadeni-Festuco carpetanae Gps. (acidophilous)	–	–	–	–	●	–	–	–
Agrostio rupestris-Armerio bigerrensis Gps. (acidophilous)	–	–	–	–	–	●	–	–

31. León Plain Sector, 32. Bierzo and Sanabria Sector, 33. Lusitanian Douro Sector, 34. Salamanca Sector, 35. Guadarrama Sierran Sector, 36. Béjar and Gredos Sierran Sector, 37. Oretana Range and Tajo Sector, 38. Mariánica Range Sector

Biogeographic Typology of the Murcia and Almería Province at Sector Level (Figs. 5.18 and 5.19)

IId. Murcia and Almería Province (*Provincia Murciana-Almeriense*)

39. alicante and Murcia Sector (*Sector Alicantino-Murciano*)
40. Almería Sector (*Sector Almeriense*)

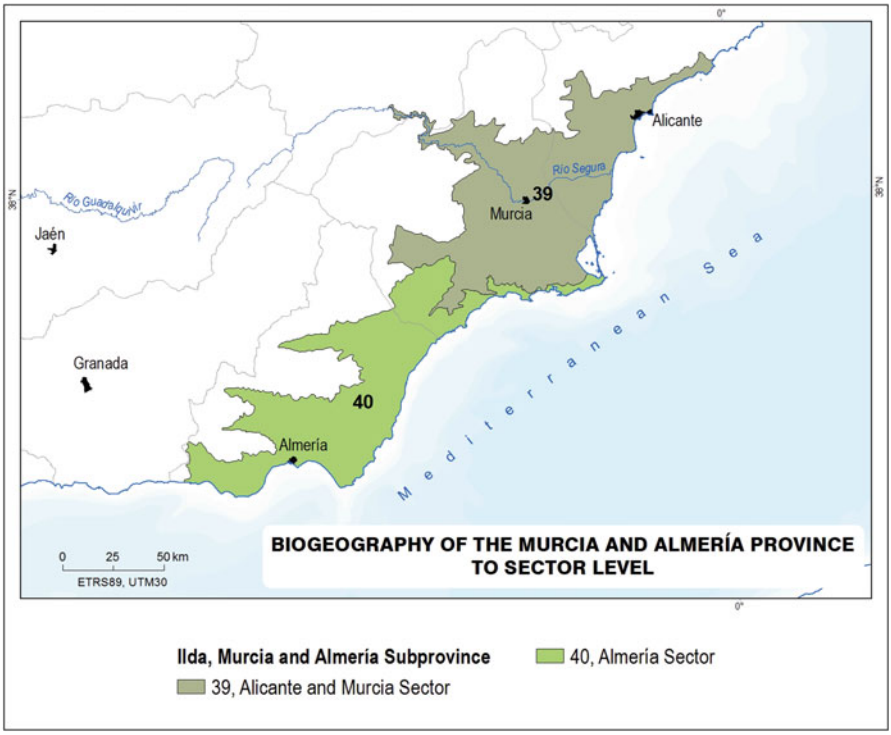


Fig. 5.18 Biogeographic map of the Murcia and Almería province at sector level

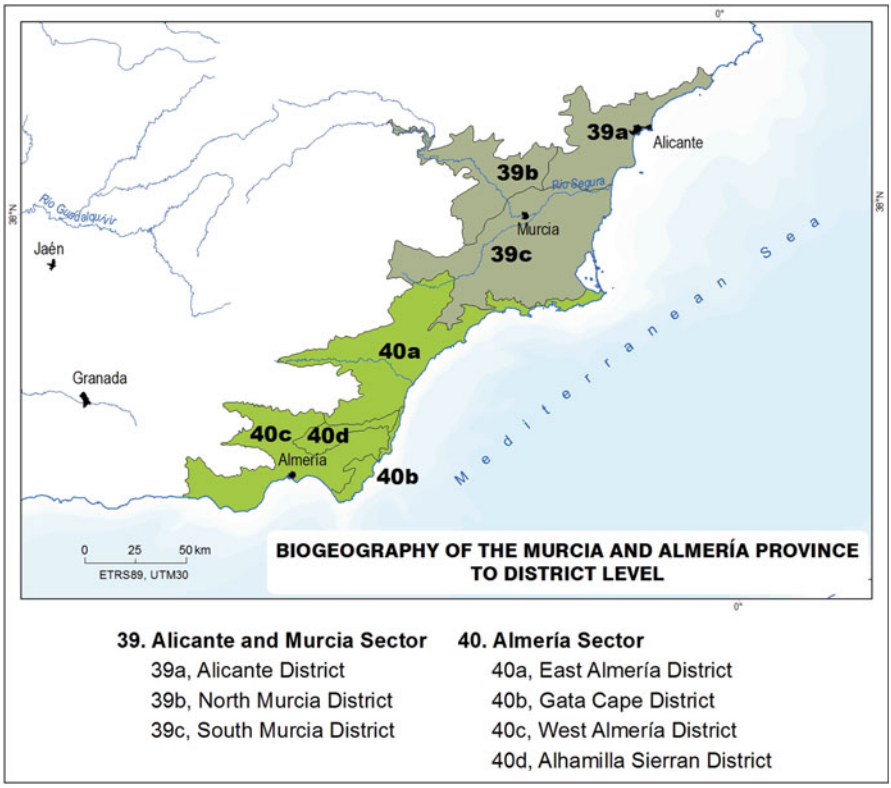


Fig. 5.19 Biogeographic map of the Murcia and Almería Province at district level

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Murcia and Almería province

Murcia and Almería province	39	40
Climatophilous sigmeta		
Zizipho loti S. (psammophilous)	–	●
Zizipho loti-Mayteno europaei S. (basophilous)	–	●
Mayteno europaei-Periploco angustifoliae S. (basophilous)	–	●
Chamaeropo humilis-Junipero phoeniceae S. (basophilous)	●	●
Climatophilous and xerophilous sigmeta		
Rhamno capillaris-Periploco angustifoliae S. (basophilous)	●	–
Arisaro simorrhini-Tetraclinido articulatae S. (basophilous)	–	●
Chamaeropo humilis-Rhamno lycioidis S. (basophilous)	●	●
Querco cocciferae-Pino halepensis S. (basophilous)	●	●
Xerophilous sigmeta		
Coremato albi-Junipero macrocarpae (relict dune)	●	–
Rhamno angustifolii-Junipero turbinatae S. (dune)	●	●

(continued)

Murcia and Almería province	39	40
Climato-temporihygrophilous sigmeta		
Rubio longifoliae-Nerio oleandri S. (very hard freshwater)	●	●
Hygrophilous geosigmeta		
Zizipho loti-Nerio oleandri Gs. (very hard freshwater)	–	●
Lonicero biflorae-Populo albae Gs.	●	●
Geopermasigmeta		
Limonio cossoniani-Lycio intricati Gps. (haloanemogenous rock littoral)	●	●
Frankenio corymbosae-Arthrocnemo macrostachyi Gps. (halophilous littoral)	●	●
Cistancho phelypaeae-Sarcocornio fruticosae Gps. (halophilous)	●	●
Loto cretici-Ammophilo australis Gps. (coastal dune)	●	●

39. Alicante and Murcia Sector, 40. Almería Sector

Biogeographic Typology of the Bética Province at Sector Level (Figs. 5.20 and 5.21)

IIe. Bética Province (*Provincia Bética*)

41. Subbética Sector (*Sector Subbético*)
42. Hoyas of Guadix and Baza Sector (*Sector Hoyano Accitano-Bastitano*)
43. Nevada Sierran Sector (*Sector Serrano Nevadense*)
44. Alpujarras and Gádor Sierran Sector (*Sector Alpujarreño-Serrano Gadorense*)

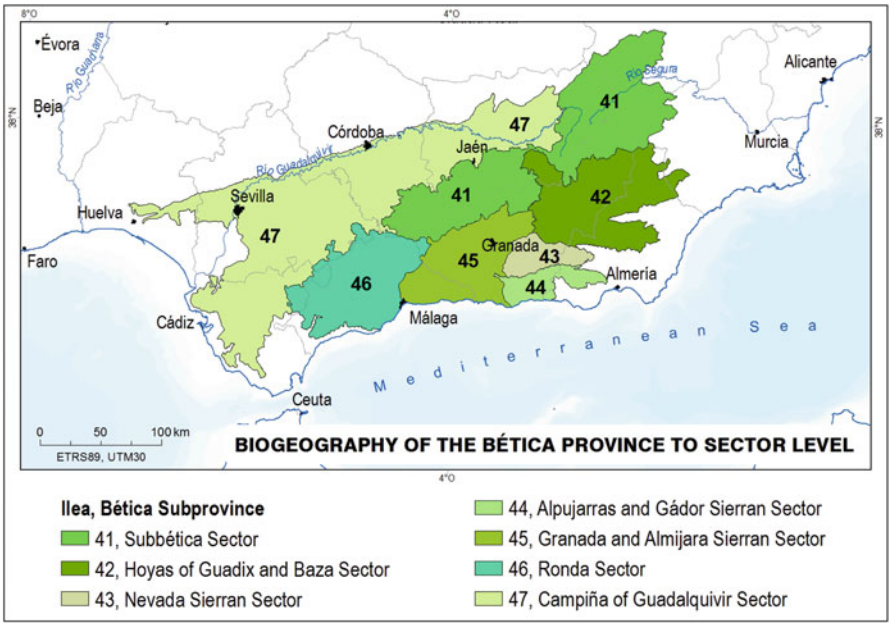


Fig. 5.20 Biogeographic map of the Bética Province at sector level

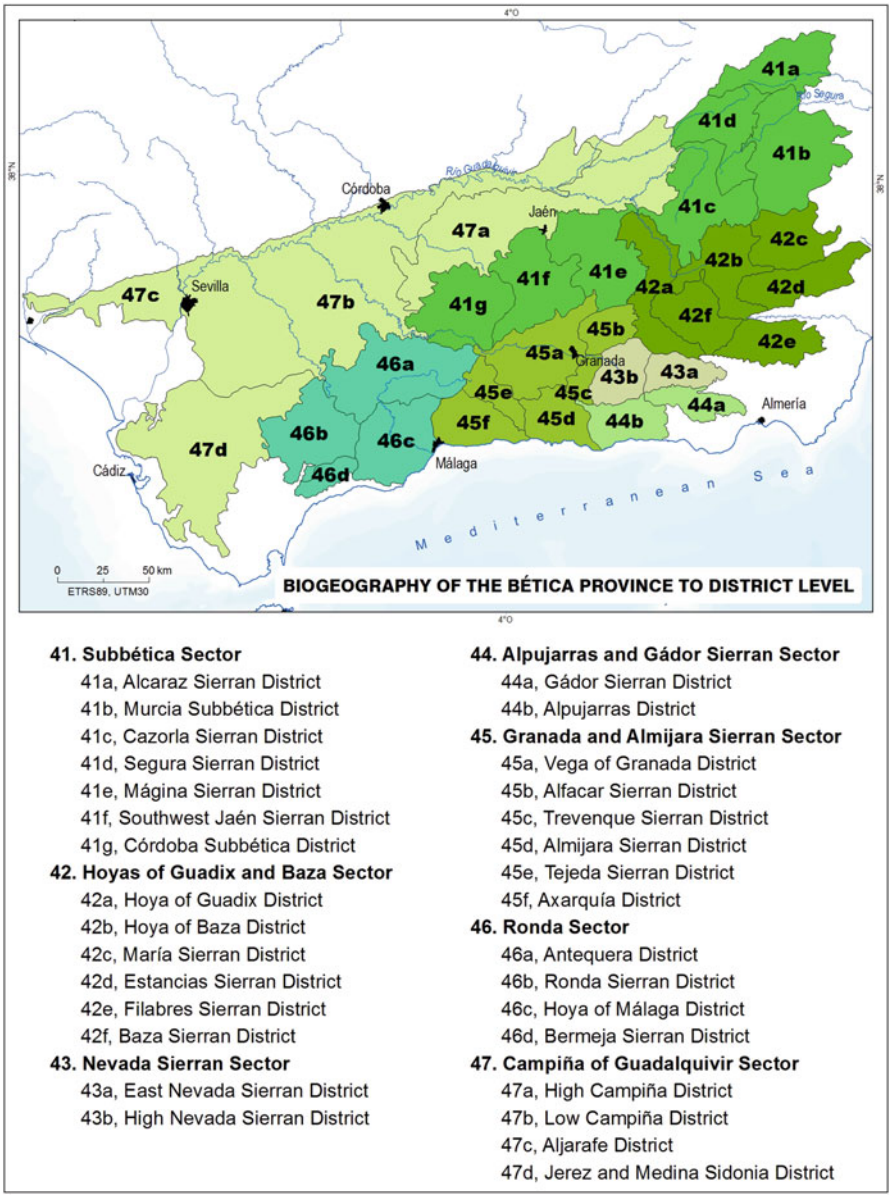


Fig. 5.21 Biogeographic map of the Bética Province at district level

45. Granada and Almijara sierran Sector (*Sector Granadino-Serrano Almijarense*)
46. Ronda Sector (*Sector Rondeño*)
47. Campiña of guadalquivir Sector (*Sector Hispalense*)

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Bética Province

Bética province	41	42	43	44	45	46	47
Climatophilous sigmeta							
Junipero sabinae-Pino latisquamae S. (basophilous)	●	–	–	–	–	–	–
Berberido hispanicae-Querco pyrenaicae S. (acidophilous)	●	–	–	–	–	–	–
Adenocarpo decorticantis-Querco pyrenaicae S. (acidophilous)	–	–	●	–	●	–	–
Adenocarpo decorticantis-Querco suberis S. (acidophilous)	–	–	–	●	●	–	–
Oleo sylvestris-Querco suberis S. (acidophilous)	–	–	–	●	●	●	–
Adenocarpo decorticantis-Querco rotundifoliae S. (acidophilous)	–	●	●	●	●	●	–
Rhamno infectorii-Junipero sabinae S. (basophilous, calco-dolomitic)	●	●	●	●	●	●	●
Berberido hispanicae-Querco alpestris S. (basophilous, calco-dolomitic)	●	●	●	●	●	●	●
Aro neglecti-Oleo sylvestris S. (vertic soils)	●	●	●	●	●	●	●
Climatophilous and xerophilous sigmeta							
Junipero phoeniceae-Pino latisquamae S. (calco-dolomitic)	●	–	–	–	–	–	–
Berberido hispanicae-Junipero thuriferae S. (basophilous and calco-dolomitic)	●	–	–	–	–	–	–
Ephedro fragilis-Pino halepensis S. (basophilous)	–	●	–	–	–	–	–
Genisto versicoloris-Cytiso nevadensis S. (acidophilous)	–	●	–	–	–	–	–
Rhamno almeriensis-Pino halepensis S. (calco-dolomitic)	–	–	–	●	–	–	–
Mayteno europaei-Oleo sylvestris S. (basophilous)	–	–	–	–	●	–	–
Bunio macucae-Abieti pinsapo S. (ultramafic)	–	–	–	–	–	●	–
Querco cocciferae-Pino acutisquamae S. (ultramafic)	–	–	–	–	–	●	–
Daphno hispanicae-Pino nevadensis S. (calco-dolomitic)	–	●	–	–	●	–	–
Rhamno oleoidis-Querco rotundifoliae S. (basophilous, calco-dolomitic)	–	–	–	●	●	●	●
Pino acutisquamae S. (dolopsammophilous)	–	–	–	–	●	●	–
Paeonio coriaceae-Querco rotundifoliae S. (basophilous)	●	●	●	●	●	●	●
Berberido hispanicae-Querco rotundifoliae S. (basophilous, calco-dolomitic)	●	●	●	●	●	●	●
Xerophilous sigmeta							
Rhamno lycioidis-Pino halepensis S. (calco-dolomitic)	●	–	–	–	–	–	–
Berberido hispanicae-Junipero phoeniceae S. (basophilous & calco-dolomitic)	●	–	–	–	–	–	–
Chamaeropo humilis-Junipero phoeniceae S. (basophilous)	–	–	–	●	●	–	–
Cneoro tricocci-Buxo balearicae S. (calco-dolomitic)	–	–	–	–	●	–	–
Rhamno myrtifolii-Junipero phoeniceae S. (dolomite and dolopsammophilous)	–	–	–	–	●	●	–
Asparago horridi-Junipero turbinatae S. (calco-dolomitic)	–	–	–	–	–	●	–
Vinco difformis-Ceratonio siliquae S. (basophilous)	–	–	–	–	–	●	–
Climato-temporihygrophilous sigmeta							
Viburno tini-Querco alpestris S. (basophilous)	●	–	–	–	–	–	–

(continued)

Bética province	41	42	43	44	45	46	47
Oleo sylvestris-Querco alpestris S. (basophilous)	–	–	–	–	–	–	●
Daphno latifoliae-Acero granatensis S. (basophilous)	●	●	●	●	●	●	●
Hygrophilous geosigmeta							
Limonio delicatuli-Nerio oleandri Gs. (halophilous)	–	●	–	–	–	–	–
Aceri granatensis-Fraxino angustifoliae Gs. (soft freshwater)	–	–	●	–	–	–	–
Carici camposii-Salici atrocinereae Gs. (soft freshwater)	–	–	●	–	–	–	–
Erico terminalis-Salici angustifoliae Gs. (hard freshwater)	–	–	–	–	●	–	–
Crataego brevispinae-Populo albae Gs. (hard freshwater)	–	–	–	–	–	–	●
Crataego granatensis-Salici neotrichae Gs. (hard freshwater)	●	●	●	–	–	–	●
Galio viridiflori-Salici pedicellatae Gs. (hard freshwater)	–	–	–	●	●	–	–
Erico terminalis-Nerio oleandri Gs. (hard freshwater, serpentinícola)	–	–	–	●	●	–	–
Dorycnio recti-Salici pedicellatae Gs. (hard freshwater)	–	–	–	–	●	●	–
Salici pedicellatae-Populo albae Gs. (hard freshwater)	–	–	–	●	●	●	–
Nerio oleandri-Populo albae Gs. (hard freshwater)	●	●	●	●	●	●	●
Biaro carratracensis-Ulmo minoris Gs. (hard freshwater)	●	●	●	●	●	●	●
Suaedo braunblanquetii-Tamarici canariensis Gs. (lacustrine, halophilic)	●	●	●	●	●	●	●
Geopermasigmeta							
Erigeronto frigidi-Festuco clementei Gps. (acidophilous)	–	–	●	–	–	–	–
Crithmo maritimi-Limonio malacitani Gps. (haloanemogenous rock littoral)	–	–	–	●	●	●	–
Cistancho phelypaeae-Sarcocornio fruticosae Gps. (halophilous)	–	–	–	●	●	●	–
Loto cretici-Ammophilo australis Gps. (coastal dune)	–	–	–	●	●	●	–

41. Subbético Sector, 42. Hoyas of Guadix and Baza Sector, 43. Nevada Sierran Sector, 44. Alpujarras and Gádor Sierran Sector, 45. Granada and Almijara Sierran Sector, 46. Ronda Sector, 47. Campiña of Guadalquivir Sector

Biogeographic Typology of the Lusitania and West Andalusia Coastal Province at Sector Level (Figs. 5.22 and 5.23)

IIf. Andalusia and west Lusitania Coastal Province (*Provincia Costera Lusitana-Andaluza occidental*)

IIfa. Divisorio Portuguese Subprovince (*Subprovincia Divisoria Portuguesa*)

48. Divisorio Portuguese Sector (*Sector Divisorio Portugués*)

IIfb. Cádiz and Sado Subprovince (*Subprovincia Gaditana-Sadense*)

49. Ribatejo and Sado Sector (*Sector Ribatagano-Sadense*)
50. Algarve and Monchique Sector (*Sector Algárvico-Monchiquense*)
51. Cádiz and Littoral Huelva Sector (*Sector Gaditano-Onubense Litoral*)
52. Aljibe Sector (*Sector Aljíbico*) (Figs. 5.22 and 5.23)

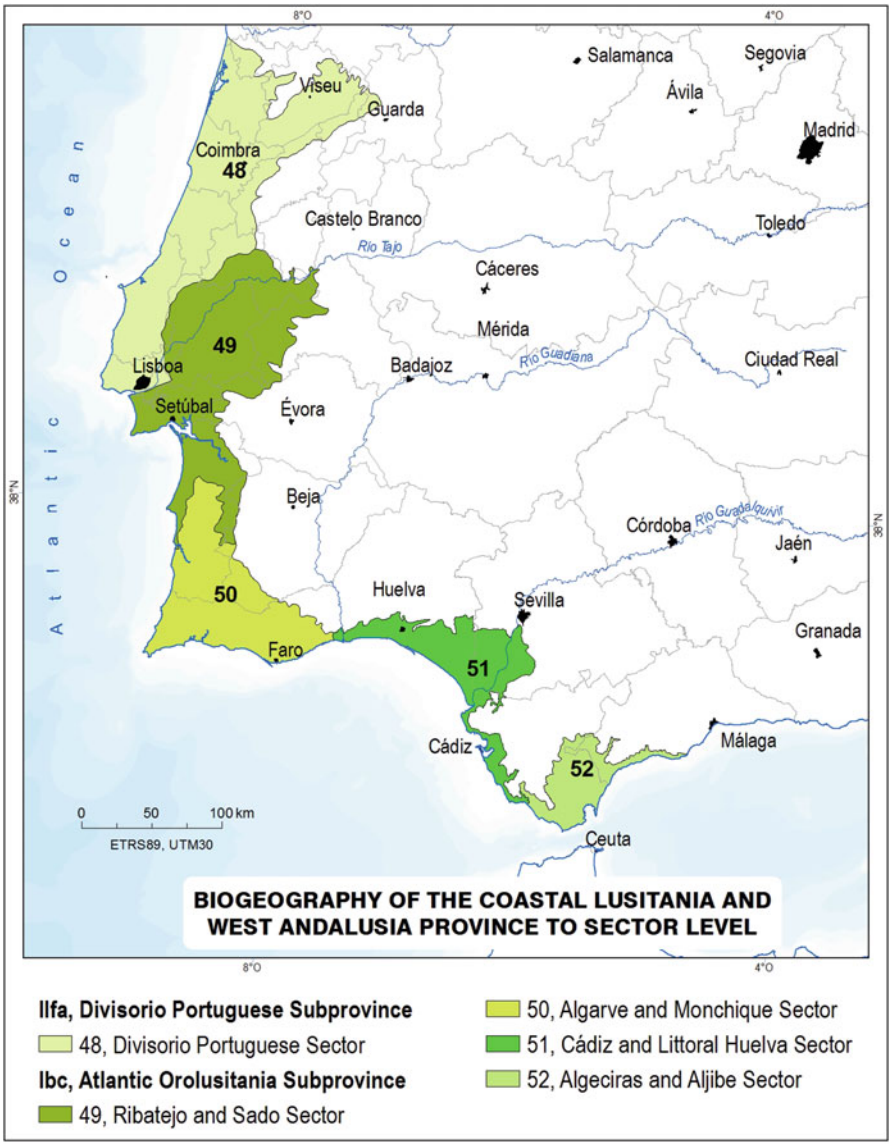


Fig. 5.22 Biogeographic map of the Lusitania and West Andalusia Coastal Province at sector level

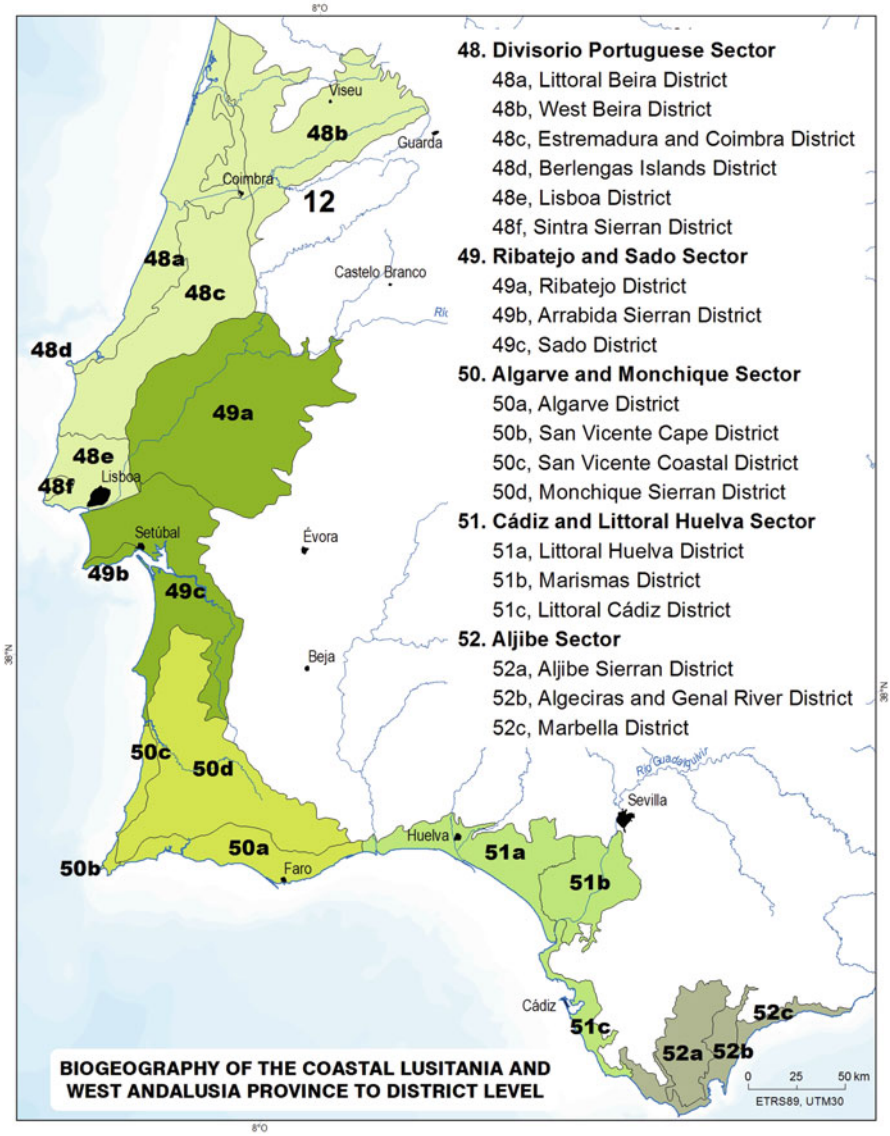


Fig. 5.23 Biogeographic map of the Lusitania and West Andalusia Coastal Province at district level

Sigmeta, geosigmeta and geopermasigmeta of the biogeographic sectors in the Lusitania and West Andalusia Coastal Province

Lusitania and West Andalusia Coastal province	48	49	50	51	52
Climatophilous sigmeta					
Sanguisorbo hybridae-Querco broteroir S. (acidophilous)	●	–	–	–	–
Asparago aphylli-Querco suberis S. (acidophilous)	–	●	–	–	–
Lavandulo viridis-Querco suberis S. (acidophilous)	–	–	●	–	–
Querco alpestris-broteroi S. (basophilous, relic)	–	–	●	–	–
Oleo sylvestris-Querco suberis S. (acidophilous)	–	–	–	●	–
Luzulo baeticae-Querco pyrenaicae S. (acidophilous)	–	–	–	–	●
Teucrio baetici-Querco suberis S. (acidophilous)	–	–	–	–	●
Viburno tini-Oleo sylvestris S. (basophilous)	●	●	–	–	–
Arisaro sinorrhini-Querco broteroi S. (basophilous)	●	●	–	–	–
Viburno tini-Querco rivas-martinezii S. (basophilous)	●	●	●	–	–
Arisaro sinorrhini-Querco pyrenaicae S. (acidophilous)	●	●	●	–	–
Climatophilous and xerophilous sigmeta					
Daphno gnidi-Junipero navicularis S. (acidophilous)	–	●	–	–	–
Aristolochio baeticae-Junipero turbinatae S. (basophilous)	–	–	●	–	–
Rhamno oleoidis-Querco rotundifoliae S. (basophilous, calco-dolomitic)	–	–	●	–	–
Xerophilous sigmeta					
Lonicero implexae-Querco rotundifoliae S. (basophilous)	●	–	–	–	–
Querco cocciferae-airensis S.	●	–	–	–	–
Vinco difformis-Lauro nobilis S. (basophilous)	●	–	–	–	–
Phlomido purpureae-Junipero turbinatae S. (basophilous)	–	–	●	–	–
Ulici argentei-Querco rotundifoliae S. (acidophilous)	–	–	●	–	–
Vinco difformis-Ceratonio siliquae S. (basophilous)	–	–	–	–	●
Osyrio quadripartitae-Junipero turbinatae S. (acidophilous)	●	●	–	–	–
Querco cocciferae-Junipero turbinatae S. (basophilous)	●	●	●	–	–
Climato-temporihygrophilous and xerophilous sigmeta					
Aro neglecti-Querco suberis S. (psammophilous)	●	●	●	●	●
Climato-temporihygrophilous sigmeta					
Oenantho crocatae-Querco pyrenaicae S.	●	–	–	–	–
Campanulo primulifoliae-Rhododendro pontici S. (acidophilous)	–	–	●	–	–
Euphorbio monchiquensis-Querco canariensis S. (acidophilous)	–	–	●	–	–
Rusco hypophylli-Querco canariensis S. (basophilous)	–	–	–	–	●
Vinco difformis-Ulmo minoris S. (acidophilous)	●	●	–	–	–
Ulici welwitschiani-Querco broteroi S. (basophilous)	●	–	●	–	–
Hygrophilous geosigmeta					
Holoschoeno vulgaris-Salici arenariae Gs. (psammophilous, relic)	●	–	–	–	–
Carici lusitanicae-Salici atrocinereae Gs. (soft freshwater)	–	●	–	–	–
Campanulo primulifoliae-Alno glutinosae Gs. (soft freshwater)	–	–	●	–	–
Viti sylvestris-Salici atrocinereae Gs. (dystrophic lentic freshwater)	–	–	–	●	–
Crataego brevispinae-Populo albae Gs. (hard freshwater)	–	–	–	–	●
Arisaro proboscidei-Alno glutinosae Gs. (soft freshwater)	–	–	–	–	●

(continued)

Lusitania and West Andalusia Coastal province	48	49	50	51	52
Rhododendro pontici-Alno glutinosae Gs. (soft freshwater)	–	–	–	–	●
Clematido campaniflorae-Salici neotrichae Gs. (soft freshwater)	●	●	–	–	–
Salici atrocinereo-australis Gs. (soft freshwater)	–	●	●	–	–
Irido foetidissimae-Fraxino angustifoliae Gs. (soft freshwater)	●	●	●	–	–
Rubio longifoliae-Coremo albi Gs. (psammophilous)	●	●	●	–	–
Equiseto telmateiae-Salici pedicellatae Gs. (hard freshwater)	–	–	–	●	●
Osyrio quadripartitae-Junipero turbinatae Gs. (coastal dune)	●	●	●	●	●
Geopermasigmeta					
Limonio emarginati Gps. (haloanemogenous rock littoral)	–	–	–	–	●
Puccinellio ibericae-Sarcocornio perennis Gps. (halophilous tidal)	●	●	●	●	●
Loto cretici-Ammophilo australis Gps. (coastal dune)	●	●	●	●	●

48. Divisorio Portuguese Sector, 49. Ribatejo and Sado Sector, 50. Algarve and Monchique Sector, 51. Cádiz and Littoral Huelva Sector, 52. Aljibe Sector

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