

ITINERA GEOBOTANICA



VOLUMEN 15 (1)

Fecha: 11 de Septiembre de 2002

ASOCIACION ESPAÑOLA DE FITOSOCIOLOGIA (AEFA)

FEDERATION INTERNATIONALE DE PHYTOSOCIOLOGIE (FIP)

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ITINERA GEOBOTANICA es una publicación periódica de la Asociación Española de Fitosociología (AEFA), adherida a la Federación Internacional de Fitosociología (FIP), en la que se darán a conocer monografías fitosociológicas itinerantes, pródromos biogeográficos y bioclimáticos y otros temas geobotánicos de interés regional o global. Su difusión se asegurará a través del Servicio de Publicaciones de la Universidad de León.

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**VASCULAR PLANT COMMUNITIES OF SPAIN
AND PORTUGAL.**

ADDENDA TO THE SYNTAXONOMICAL CHECKLIST OF 2001

*Salvador Rivas-Martínez, Tomás E. Díaz, Federico Fernández-González,
Jesús Izco, Javier Loidi, Mario Lousã & Ángel Penas*

VASCULAR PLANT COMMUNITIES OF SPAIN AND PORTUGAL.

ADDENDA TO THE SYNTAXONOMICAL CHECKLIST OF 2001

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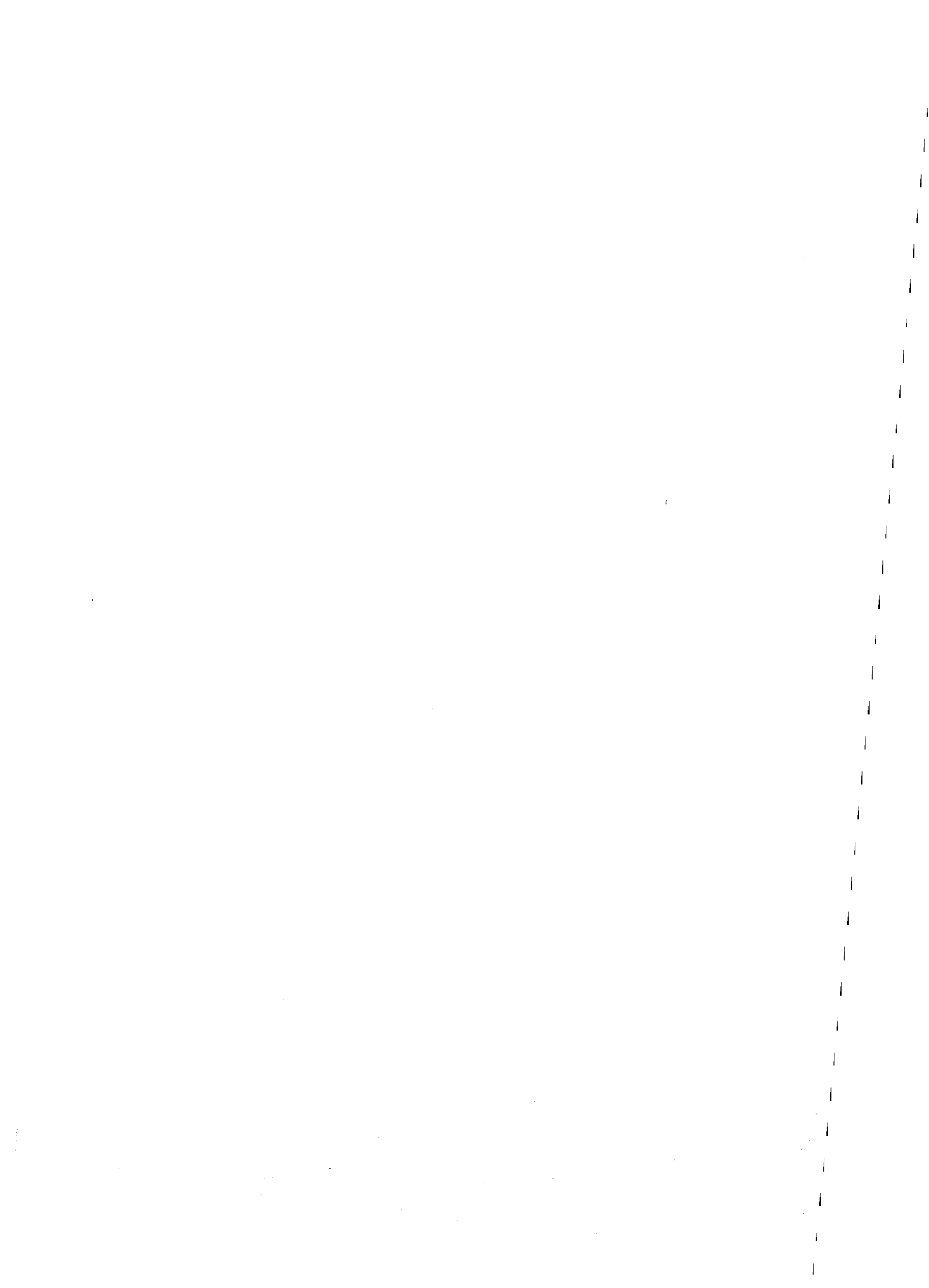
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A. PHYTOSOCIOLOGIC, BIOCLIMATIC AND BIOGEOGRAPHIC TERMS, NOTIONS AND UNITS

Terms, index, notions and more detailed information can be found in Rivas-Martínez (1996, 1997) Rivas-Martínez, Sánchez-Mata & Costa (1999) and "Global Bioclimatics" (in progress, multicop.).

1. Phytosociological terms and notions

Phytosociology. Science dealing with biocoenosis from a botanical perspective (phytocoenosis or phytosyntaxa). In other words, it is concerned with plant communities, their relationships with the environment and the temporary processes modifying them. With all this information, by means of inductive and statistic methods, based on the reality of the phytosociological releve, it attempts to create an universal hierarchic typology with the association as the basic unit of the syntaxonomical system. Nowadays we distinguish, besides classic or Braun-Blanquet's Phytosociology (association level), Dynamic-Catena or Integrated Landscape Phytosociology, whose units are the series or sigmetum (Dynamic or Successional Phytosociology) and the geoseries or geosigmetum (Catena Phytosociology).

Association. Fundamental and basic unit of the Phytosociology. It is a plant community-type with particular floristic, biogeographic, ecological, successional, historic and anthropogenic features. It owns a particular ecological and geographic territory, some characteristic and differential species or a precise characteristic statistically reliable combination of species and diagnostic bioindicators. It may be determined from the comparative study of releves, in which the floristic composition is annotated and quantified, like the rest of the ecological and geographic information of a particular homogeneous plant community. Making association releves is the most important part of the phytosociological research. Associations with similar floristic composition, dynamic stage, structure, habitat or vicariant distribution may be taken together in types or units of higher rank (alliances, orders, classes).

Climax. Final equilibrium and self-perpetuating stage in geobotanic succession. Plant communities that territorially represent the final stage or potential natural vegetation of any vegetation series. Adj.: climactic, climactical.

Climactic dominion. Area in which a climatophilous plant association has really or virtually the meso-climax function. Taking into account its usual pluri-teselar diversity, more homogeneous lower ranked units could be recognized inside.

Potential natural vegetation. Steady plant community which should be present in an area, as a consequence of the progressive succession, if there were not human influences. In practise, potential vegetation is considered synonymous to climax and to primitive vegetation (not altered yet by humans). We must distinguish between the climatophilous series of the natural potential vegetation (the mesic one or edaphically in the middle of every territory) and the edaphophilous series or permanent plant communities (the xeric and hydric possible series in the same territory).

Succession. Natural process by which certain plant communities or vegetation stages replace each other in a particular order, within the same place unit or *Tesela*. We may speak of progressive succession, which tends upwards to the stable optimum or climax (progression, pre-seral stages), and of regressive succession, the opposite (regression, sub-seral stages). The progressive and regressive processes do not follow necessarily the same stages.

Sigmatum. Typological unit in Dynamic Phytosociology (Symphytosociology), it is also called Synassociation or Vegetation Series. It is a geobotanic notion that tries to express all the plant communities, or collection of stages, that can be found in similar *teselar* places as a result of the succession processes: and so, a *Geosigmatum* includes not only the representative vegetation type of the mature stage, or head series, but also the initial or sub-serial communities replacing it.

Catena. Ensemble of contiguous plant communities ordered by any changing ecological factor (temperature, moisture, topography, etc.). It is the landscape representation of the zonation phenomena.

Geosigmatum. Also denominated *geosigmassociation* or *geoseries*, it is the basic unit of the Integrated Landscape Phytosociology (*Geosymphytosociology*). It seeks to be the catenal and successional expression of landscape science. It is built up with the contiguous *sigmeta* or vegetation series. It is the most important notion and unit in the Phytosociological Landscape Science, the one which has been used in our bioclimatic and biogeographic new approaches. If we integrate to a series their contiguous ones, that is, if we take into account, besides the succession, the catenal phenomenon, -for instance, the climatic, philous and edaphophilous series that can be in contact- we have this more complex and integrated unit known as *geoseries* or *geosigmatum*.

Microgeosigmatum. Vegetation transects or *microcatenas* constituted by *microsigmassociations*, usually with reduced surface. They are delimited by exceptional microtopographic and edaphic features which, in a small piece of ground, cause numerous ecological niches and *teselas*, covered by non-stratified permanent plant communities whose dynamic balance seems to have been reached. Under these conditions, the reference to a mature plant community of the theoretic regional *sigmeta* is not possible or should be ambiguous. In general, the *microgeosigmeta* are *monostratum* vegetation-types ordered in *microcatenas* according to their determinant mesologic features. The most auspicious biotopes for the *microsigmatum* development are the cliffs and rock crevices, bogs, snowdrifts, mobile dunes, shores of lakes and ponds, springs, etc. The study of these neighbouring plant communities complexes must be made within their geomorphologic and ecological limits, following the increasing degree of their causing ecological factor.

For their hierarchic ordination (-etum, -ion, -etalia, -etca) it must be noted their biogeographic location, their bioclimatic peculiarities, as well as their statistical fidelity to the rest of communities also present in the *microcatena*, not to mention the possible vicinances with similar *microcatenas* in other territories.

Types of forests. In the following table we summarize both forest types and the correspondent tree life-forms, according to the height at their canopy top. We consider as tree a plant having a permanently woody main stem or trunk and usually developing branches at some distance from the ground; an extense or small group of trees interlocking branches or canopies form woodlands or forests. Shrub is a woody plant, like a tree, having multiple permanent stem branching from o near the ground; a group of shrub, form shrub. berries, scrubs, or scrublands.

Microforest	3-12m.....	Microphanerophyte (small tree)
Mesoforest	12-24m.....	Mesophanerophyte (medium tree)
Macroforest.....	24-50m.....	Macrophanerophyte (tall tree)
Megaforest	> 50m.....	Megaphanerophyte (gigant tree)

2. Bioclimatic terms and notions

Bioclimatology. Ecological science dealing with the relations between the climate and the distribution of the living species on the Earth. The aim of this subject is to determine the relation between certain numerical values of temperature and precipitation and the geographic distribution areas of single plant species as well as of plant communities. Laterly, information from biogeocenosis has also been added. Recently, useful knowledge from the Dynamic-Catenal Phytosociology and from landscape science, that it is to say, from the vegetation series and geoseries, has been incorporated.

Until now, there have been few bioclimatic classifications and systems proposed for global use. Among the best known, those of Köppen (1918), Gaussen (1954, 1955), Troll & Paffen (1964), and Walter (1970, 1976, 1985) could be mentioned. Although most of them are good, and even widely accepted, we do not consider that they have provided adequate solutions and correlations to some important aspects of occurrences in the geobiosphere, particularly in vegetation approaches.

Bioclimatic Units. In the new 'Worldwide Bioclimatic Classification System' proposed (Rivas-Martínez, in progress), five macrobioclimates, twenty-seven bioclimates and five bioclimatic variants are recognized. The macrobioclimate is the highest typological unit of our bioclimatic classification. It is an eclectic biophysical model, delimited by means of climatic and vegetation values, with a wide territorial jurisdiction. The five macrobioclimates are: Tropical, Mediterranean, Temperate, Boreal and Polar. Each of them, and every one of their subordinate units or bioclimates, is represented by a characteristic group of plant formations, biocoenosis and plant communities. Within almost every bioclimate, a number of variations in the seasonal rainfall patterns of rain allow us to recognize the bioclimatic variants. Additionally, within every bioclimate, variations in the thermic and ombrothermic values make it possible to distinguish the bioclimatic belts: thermotypes and ombrotypes. If macrobioclimates, bioclimates, bioclimatic variants as well as biocli-

matic belts (thermo- and ombrotypes) are taken into account, about three hundred isobioclimates find territorial representation on the Earth.

Bioclimatic Variants. Typological units which can be recognized within macrobioclimates. With the use of these units we clarify several climatic peculiarities regarding rainfall patterns. We distinguish the following bioclimatic variants: Steppic, Submediterranean, Bixeric, Antitropical and Pluviserotinal.

Steppic: Bioclimatic variant (Stp), which can be recognized within the Mediterranean, Temperate, Boreal and Polar macrobioclimates. Its characteristic features are: the Continentality Index must be higher than 18 ($I_c > 18$), the summer quarter rainfall must be more than 1.2 times that of the winter quarter [$P_s > 1.2 P_w$], the Ombrothermic Index must fall within 0.1 and 4.6 [$0.1 < I_o < 4.6$], and, at least during one summer month, the rainfall in mm (P_{si}) must be less than two and a half times the temperature in centigrade degrees [$P_{si} < 2.5 T_{si}$]. The steppic character can be recognized in many continental vegetation-types by the xerophytic appearance of their communities, adapted to the hydric limitation during both solstices [$P_s > 1.2 P_w$].

The most characteristic steppic vegetation-types on the Earth, according to these isobioclimates, are the Temperate areas, known as steppes and steppic forests in Eurasia, or the extensive prairies or wooded prairies in North America. The Steppic Mediterranean vegetation-types of a xeric and desertic character are also common. The steppic 'tundra' and 'taiga' formations which belong to the Boreal and Polar macrobioclimates, are restricted to territories with low summer rainfall.

In general, we can assume that the steppic character is mainly a type of relatively high continentality together with an attenuated summer drought or mediterraneity as well as with drought during the winter solstice.

Submediterranean: Bioclimatic variant (Sbm), which can be recognized only within the Temperate macrobioclimate. Its characteristic feature is that at least during one summer month the rainfall is less than twice the temperature [$I_{osi} = P_{si}/T_{si} < 2$, $P_{si} < 2T_{si}$] or during the two consecutive driest summer months, the rainfall P_{s2} is less than two and a half times the temperature [$I_{os2} = P_{s2}/T_{s2} < 2.5$, $P_{s2} < 2.5 T_{s2}$].

The most characteristic temperate submediterranean vegetation-types are the plant communities growing along the ecotones between the Temperate bioclimates without summer drought and the typical Mediterranean bioclimates with a summer drought period of more than two months.

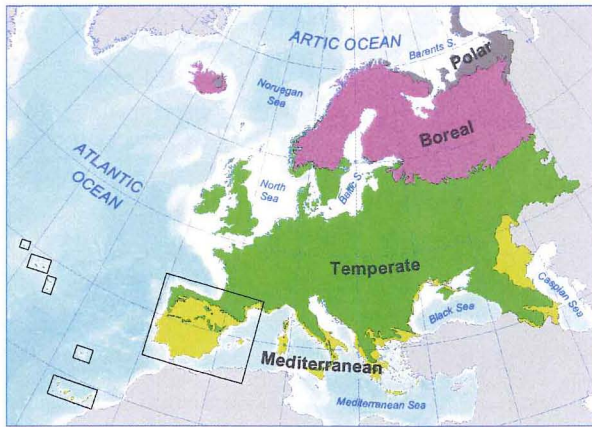
Thermotypes. The threshold thermotype horizon values based on Thermicity Index (It), Compensated Thermicity Index (Itc), and Positive Temperature (Tp) for the Mediterranean, Temperate and Boreal macroclimates are listed below. Tp is used only if Continentality Index [$I_c \geq 21$ or It, Itc < 120].

BIOCLIMATIC MAP OF PORTUGAL AND SPAIN - BIOCLIMATES

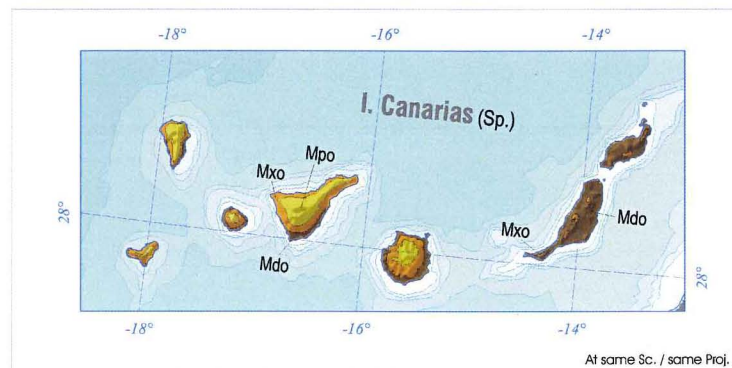
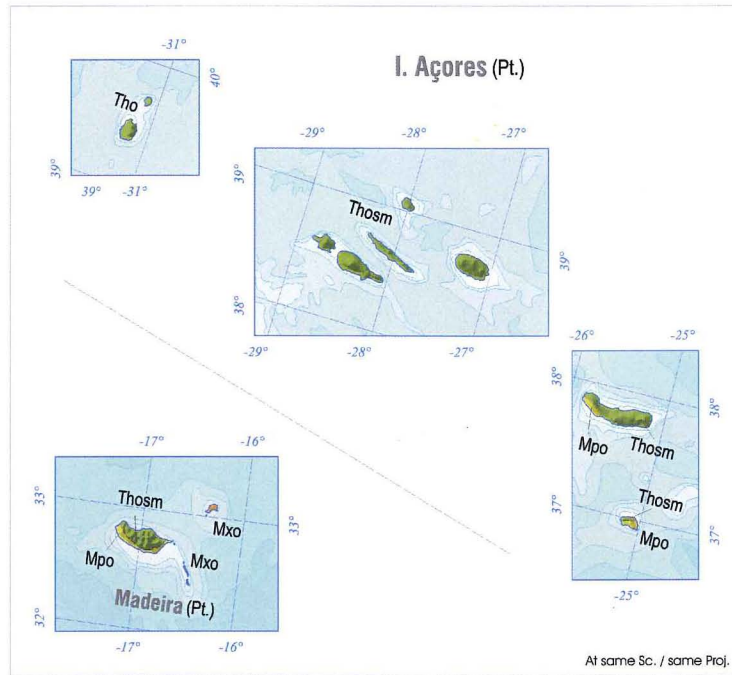
Salvador RIVAS-MARTÍNEZ, Ángel PENAS & Tomás E. DÍAZ
(2002, July, 31)

1 : 7.000.000
50 25 0 50 100 km

Macrobioclimates



Equidistant Conic Projection / App. Scale: 1:90.000.000



Projection: Universal Transversal Mercator (Zone 30N)

Bioclimates & Variants				
MEDITERRANEAN	Mpo		Mediterranean pluviseasonal oceanic	
	Mpost		Mediterranean pluviseasonal oceanic steppic	
	Mpc		Mediterranean pluviseasonal continental	
	Mxo		Mediterranean xeric oceanic	
	Mxost		Mediterranean xeric oceanic steppic	
	Mxcst		Mediterranean xeric continental steppic	
	Mdo		Mediterranean desertic oceanic	
	TEMPERATE	Tho		Temperate hyperoceanic
		Thosm		Temperate hyperoceanic submediterranean
		Toc		Temperate oceanic
Tocsm			Temperate oceanic submediterranean	
Tocst			Temperate oceanic steppic	
Txe			Temperate xeric	

Mediterranean	lt, ltc	Tp
Lower inframediterranean	515-580	> 2650
Upper inframediterranean	450-515	2450-2650
Lower thermomediterranean	400-450	2300-2450
Upper thermomediterranean	350-400	2150-2300
Lower mesomediterranean	280-350	1825-2150
Upper mesomediterranean	210-280	1500-1825
Lower supramediterranean	145-210	1200-1500
Upper supramediterranean	80-145	900-1200
Lower oromediterranean	-	675-900
Upper oromediterranean	-	450-675
Lower cryoromediterranean	-	150-450
Upper cryoromediterranean	-	1-150
Gelid mediterranean	-	0
Temperate	lt, ltc	Tp
Lower infratempere	445-480	> 2450
Upper infratempere	410-445	2350-2450
Lower thermotempere	355-410	2175-2350
Upper thermotempere	300-355	2000-2175
Lower mesotempere	240-300	1700-2000
Upper mesotempere	180-240	1400-1700
Lower supratempere	100-180	1100-1400
Upper supratempere	-	800-1100
Lower orotempere	-	590-800
Upper orotempere	-	380-590
Lower cryorotempere	-	80-380
Upper cryorotempere	-	1-80
Gelid temperate	-	0
Boreal		Tp
Lower thermoboreal		750-800
Upper thermoboreal		700-750
Lower mesoboreal		600-700
Upper mesoboreal		500-600
Lower supraboreal		440-500
Upper supraboreal		380-440
Lower oroboreal		230-380
Upper oroboreal		80-230
Lower cryoroboreal		40-80
Upper cryoroboreal		1-40
Gelid boreal		0

Ombrotypes. The threshold of ombrotype horizon values, based on the Ombrothermic Index (Io), that we recognize in the world are listed below. Arid, hyperarid and ultrahyperarid types only exist in Tropical and Mediterranean macrobioclimates.

Ultrahyperarid.....	< 0.1
Lower hyperarid.....	0.1-0.2
Upper hyperarid.....	0.2-0.3
Lower arid.....	0.3-0.6
Upper arid.....	0.6-1.0
Lower semiarid.....	1.0-1.5
Upper semiarid.....	1.5-2.0
Lower dry.....	2.0-2.8
Upper dry.....	2.8-3.6
Lower subhumid.....	3.6-4.8
Upper subhumid.....	4.8-6.0
Lower humid.....	6.0-9.0
Upper humid.....	9.0-12.0
Lower hyperhumid.....	12.0-18.0
Upper hyperhumid.....	18.0-24.0
Ultrahyperhumid.....	> 24.0

Continental Index. It is the figure in Celsius degrees that represent the yearly thermic average interval expressing the range between the average temperature of the warmest and coldest month of the year (Ic = Tmax-Tmin). (*) It could be divided in semi-hyperoceanic (Ic 11-13) and euoceanic (Ic 13-17).

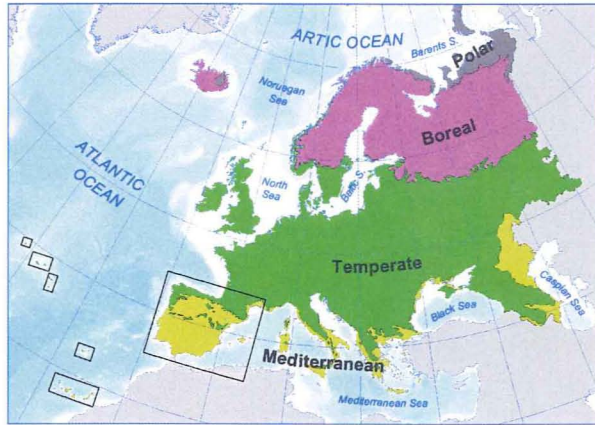
Types	Subtypes	Ic
Hyperoceanic (Ic 0-11)	Extremely hyperoceanic	0-4
	Euhyperoceanic	4-8
	Barely hyperoceanic	8-11
Oceanic (Ic 11-21)	Euoceanic (*)	11-17
	Semicontinental	17-21
Continental (Ic 21-65)	Subcontinental	21-28
	Eucontinental	28-46
	Hypercontinental	46-65

BIOCLIMATIC MAP OF PORTUGAL AND SPAIN - THERMOCLIMATIC BELTS

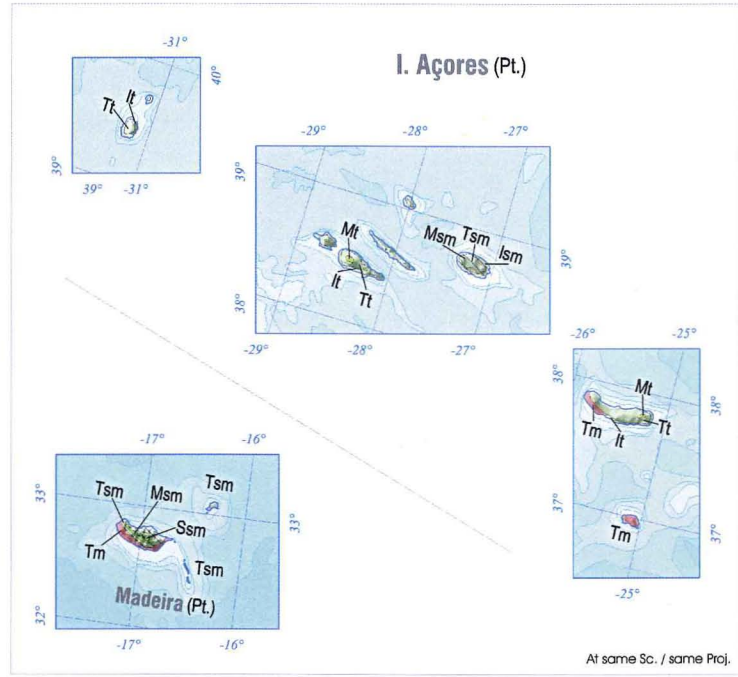
Salvador RIVAS-MARTÍNEZ, Ángel PENAS & Tomás E. DÍAZ
(2002, July, 31)

1 : 7.000.000
50 25 0 50 100 km

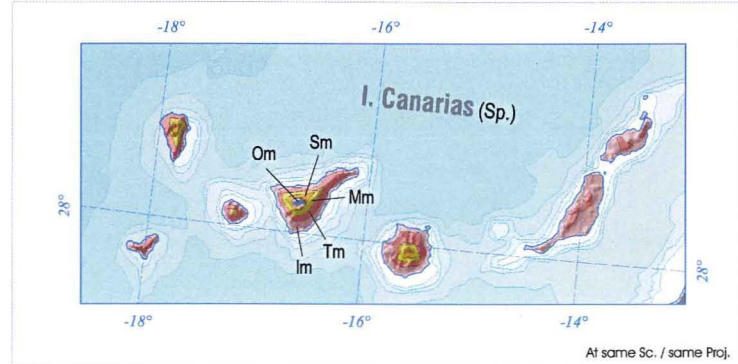
Macrobioclimates



Equidistant Conic Projection / App. Scale: 1:90.000.000



At same Sc. / same Proj.



At same Sc. / same Proj.



Projection: Universal Transversal Mercator (Zone 30N) -6° -4° -2° 0° 2° 4°

Thermoclimatic belts					
Im	Inframediterranean	It	Infratemperate	St	Supratemperate
Tm	Thermomediterranean	Ism	Infra-submediterranean	Ssm	Supra-submediterranean
Mm	Mesomediterranean	Tt	Thermotemperate	Ot	Orotemperate
Sm	Supramediterranean	Tsm	Thermo-submediterranean	Osm	Oro-submediterranean
Om	Oromediterranean	Mt	Mesotemperate		
		Msm	Meso-submediterranean		

3. Biogeographic notions and typology

Tesela. Elemental unit in Biogeography. It is a territory or geographic area, greater or smaller in size, but ecologically homogeneous because only one vegetation series, that is, only one potential vegetation-type and only one sequence of successional plant communities, can settle within it.

Biogeography. Formerly Phytogeography, it is the science of the plant species and plant communities distribution on the Earth, its causes and relationships. Studying the actual and preterite areas of the taxa and syntaxa and with the knowledge and modelization coming from other natural sciences (Zoology, Physical Geography, Edaphology, Bioclimatology, etc.), tries to establish a global hierarchical typology of the Biosphere. Its typological main units in hierarchic decreasing order are: Kingdom, Region, Province, Sector, District and Tesela.

The biogeographic taxonomy proposed and used by us in this work could be compared, and is related to the phyto-chorologic proposals of Engler & Gilg (1919) and Takhtajan (1986). The last mentioned proposal could be called 'corionomic', because it is mainly based in the area superposition and in the richness of several vascular plant taxa, particularly families and genus present in some geographic territories ('corias' or 'phytocorias').

Our proposal has more conceptual and territorial similarities with the hybrid 'floristic-vegetation' approach proposed by Brockmann-Jerosch & Rübél (1912), with the biostructural approach of Urdvady (1975) and, above all, with the genuine phytosociological related approach of Schmithüsen (1968, 1976). Anyhow, we think it useful to combine the concepts and nomenclature within all the valid approaches (vg. floristic region should be similar to vegetation region, vegetation circle or plant communities circle). We must not forget that the Biogeography as bioecological-geographic science focuses in the delimitation and systematization of the present Earth biodiversity, habitats and territories (ecozones).

Worldwide we recognize in total four Kingdoms with seven Subkingdoms and forty four Regions. The Kingdoms and Subkingdoms are: I. Holarctic (13 Regions), II. Palearctic: IIa. African (7 Regions), IIb. Indo-Malayan (5 Regions), IIc. Polynesian (3 Regions), III. Neotropical-Austroamerican: IIIa. Neotropical (9 Regions), IIIb. Austroamerican (3 Regions), IV. New Zealandian-Australian: IVa. New Zealandian (1 Region), IVb. Australian (3 Regions). The number of regions for each continent is: Eurasia, 15 Regions; North America, 9 Regions; South America, 9 Regions; Africa, 9 Regions; Australia and Polynesia, 7 Regions.

Biogeographic typology of Spain and Portugal. Up to the biogeographic sector level we recognize the following typology in Spain and Portugal territories (Maghrebian, Ceuta and Melilla excluded): 1 Kingdom, 2 Regions, 4 Subregions, 10 Provinces, 15 Subprovinces and 66 Sectors. [In brackets, the Spanish biogeographic names].

Holarctic Kingdom [*Holártico*]

B. Eurosiberian Region [*Eurosiberiana*]

Bb. Atlantic-Central European Subregion [*Atlántico-Centroeuropa*]

4. Atlantic European Province [*Atlántica Europea*]

4a. Cantabrian-Atlantic Subprovince [*Cántabro-Atlántica*]

4.1. Cantabrian-Basque Sector [*Cántabro-Euskaldún*]

4.2. Galician-Asturian Sector [*Galaico-Asturiano*]

4.3. Galician-Portuguese Sector [*Galaico-Portugués*]

4.4. Juresian Sector [*Juresiano*]

4b. Orocantabric Subprovince [*Orocantábrica*]

4.5. Campurrian-Carrionese Sector [*Campurriano-Carrionés*]

4.6. Ubinnean-Picoeuropean Sector [*Ubiñense-Picoeuropeano*]

4.7. Lacian-Ancarense Sector [*Laciano-Ancarense*]

4d. Azorean Subprovince [*Azórica*]

4.8. Santa María and Formigas Isles Sector [*Santa María y Hormigas*]

4.9. São Miguel Isle Sector [*San Miguel*]

4.10. Terceira Isle Sector [*Terceira*]

4.11. Pico Isle Sector [*Pico*]

4.12. Faial Isle Sector [*Faial*]

4.13. São Jorge and Graciosa Isles Sector [*San Jorge y Graciosa*]

4.14. Flores and Corvo Isles Sector [*Flores y Corvo*]

Bc. Alpine-Caucasian Subregion [*Alpino-Caucásica*]

7. Cévennean-Pyrenean Province [*Cevenense-Pirenaica*]

7a. Pyrenean Subprovince [*Pirenaica*]

7.1. Prepyrenean Sector [*Prepirenaico*]

7.2. Central Pyrenean Sector [*Pirenaico Central*]

7.3. Eastern Pyrenean Sector [*Pirenaico Oriental*]

C. Mediterranean Region [*Mediterránea*]

Ca. Western Mediterranean Subregion [*Mediterránea Occidental*]

14. Coastal Lusitan-Andalusian Province [*Lusitano-Andaluzá Litoral*]

14a. Gaditan-Algarvian Subprovince [*Gaditano-Algarviense*]

14.1. Aljibic Sector [*Aljibico*]

14.2. Gaditan-Coastal Onubense Sector [*Gaditano-Onubense Litoral*]

14.3. Algarvian Sector [*Algarviense*]

14b. Sadensean-Dividing Portuguese Subprovince [*Sadense-Divisorio Portuguesa*]

14.4. Ribatagan-Sadensean Sector [*Ribatagano-Sadense*]

14.5. Dividing Portuguese Sector [*Divisorio Portugués*]

15. Mediterranean West Iberian Province [*Mediterránea Ibérica Occidental*]

- 15a. Lusitan-Extremadurean Subprovince [*Luso-Extremadurensis*]
 - 15.1. Toledan-Taganean Sector [*Toledano-Tagano*]
 - 15.2. Marianic-Monchiquensean Sector [*Mariánico-Monchiquense*]
 - 15.3. Lower Beirensen Sector [*Bajo Beirensis*]
- 15b. Carpetan-Leonese Subprovince [*Carpetano-Leonesa*]
 - 15.4. Guadarramean Sector [*Guadarrámico*]
 - 15.5. Bejaran-Gredensean Sector [*Bejarano-Gredense*]
 - 15.6. Salmanticensean Sector [*Salmantino*]
 - 15.7. Estrelensean Sector [*Estrelense*]
 - 15.8. Lusitan Duriensean Sector [*Lusitano Duriense*]
 - 15.9. Bercian-Sanabriensean Sector [*Berciano-Sanabriense*]
 - 15.10. Leonese Sector [*Leonés*]
- 16. Betic Province [*Bética*]
 - 16.1. Hispalensean Sector [*Hispalense*]
 - 16.2. Rondean Sector [*Rondense*]
 - 16.3. Malacitan-Almijarensen Sector [*Malacitano-Almijarensis*]
 - 16.4. Alpujarrean-Gadorensen Sector [*Alpujarreño-Gadorensis*]
 - 16.5. Nevadensian Sector [*Nevadense*]
 - 16.6. Subbetic Sector [*Subbético*]
 - 16.7. Guadician-Bacensean Sector [*Guadijeño-Baztetano*]
- 17. Murcian-Almeriensean Province [*Murciano-Almeriense*]
 - 17.1. Almeriensean Sector [*Almeriense*]
 - 17.2. Alicante-Murcian Sector [*Alicantino-Murciano*]
- 18. Mediterranean Central Iberian Province [*Mediterránea Ibérica Central*]
 - 18a. Castilian Subprovince [*Castellana*]
 - 18.1. Castilian Duriensean Sector [*Castellano Duriense*]
 - 18.2. Celtiberian-Alcarrean Sector [*Celtibérico-Alcarreño*]
 - 18.3. Manchean Sector [*Manchego*]
 - 18b. Oroiberian Subprovince [*Oroibérica*]
 - 18.4. Castilian Cantabrian Sector [*Castellano Cantábrico*]
 - 18.5. Riojan Sector [*Riojano*]
 - 18.6. Sorian Oroiberian Sector [*Oroibérico Soriano*]
 - 18.7. Maestracensean Sector [*Maestracense*]
 - 18c. Low Aragonese Subprovince [*Bajo Aragonesa*]
 - 18.8. Bardenan-Monegrensean Sector [*Bardenas y Monegros*]
 - 18.9. Somontane Aragonese Sector [*Somontano Aragónés*]
- 19. Balearic-Catalan-Provençal Province [*Catalana-Provenzal-Balear*]
 - 19a. Balearic Subprovince [*Balear*]
 - 19.1. Minorcan Sector [*Menorquín*]
 - 19.2. Majorcan Sector [*Mallorquín*]
 - 19.3. Pythyusan Sector [*Pitiúsico*]

- 19b. Catalan-Valencian Subprovince [*Catalana-Valenciana*]
 - 19.4. Setabensean Sector [*Setabense*]
 - 19.5. Valencian-Tarraconensean Sector [*Valenciano-Tarraconense*]
 - 19.6. Vallesan-Empordanese Sector [*Vallesano-Empordanés*]
- Cc. Canarian Subregion [*Canaria*]
 - 24. Canarian Province [*Canaria*]
 - 24a. Western Canarian Subprovince [*Canaria Occidental*]
 - 24.1. Grancanarian Sector [*Grancanario*]
 - 24.2. Teneriffean Sector [*Tinerfeño*]
 - 24.3. Palmean Sector [*Palmero*]
 - 24.4. Gomernan Sector [*Gomero*]
 - 24.5. Herrennean Sector [*Herreño*]
 - 24b. Eastern Canarian Subprovince [*Canaria Oriental*]
 - 24.6. Majorean Sector [*Majorero*]
 - 24.7. Lanzarotean Sector [*Lanzaroteño*]
 - 24.8. Salvajensean Sector [*Salvajense*]
 - 25. Madeiran Province [*Madeirense*]
 - 25.1. Madeiran Sector [*Madeirense*]
 - 25.2. Porto Santo and Desertas Isles Sector [*Porto Santo y Desertas*]

Biogeographic typology of Europe. According to the Biogeographic Map of Europe (Rivas-Martínez, Penas & T.E. Díaz 2001, April 27, scale 1:16 mill., Cartographic Service, University of Leon, Spain), up to province level we recognize the following typology in Europe: 1 Kingdom, 3 regions, 6 subregions and 25 provinces. [Between brackets the spanish biogeographic names].

Holarctic Kingdom [*Holártico*]

A. Circumarctic Region [*Circumártica*]

1. Arctic European Province [*Ártica Europea*]

B. Eurosiberian Region [*Eurosiberiana*]

Ba. Euroasiatic Boreal Subregion [*Boreal Eurasiática*]

2. Boreal European Province [*Boreal Europea*]

3. Western Siberian Province [*Siberiana Occidental*]

Bb. Atlantic-Central European Subregion [*Atlántico-Centroeuropa*]

4. Atlantic European Province [*Atlántica Europea*]

5. Central-European Province [*Centroeuropa*]

6. Sarmatian Province [*Sarmática*]

Bc. Alpine-Caucasian Subregion [*Alpino-Caucásica*]

7. Cevennean-Pyreanean Province [*Cevenense-Pirenaica*]

8. Alpine Province [*Alpina*]

9. Apennine-Balkan Province [*Apenino-Balcánica*]
10. Pannonio-Carpathian Province [*Panónico-Carpática*]
11. Escitic Province [*Escítica*]
12. Euxinean Province [*Euxínica*]
13. Caucasian Province [*Caucásica*]

C. Mediterranean Region [*Mediterránea*]

Ca. Western Mediterranean Subregion [*Mediterránea Occidental*]

14. Coastal Lusitan-Andalusian Province [*Lusitano-Andaluza Litoral*]
15. Mediterranean West Iberian Province [*Mediterránea Ibérica Occidental*]
16. Betic Province [*Bética*]
17. Murcian-Almeriense Province [*Murciano-Almeriense*]
18. Mediterranean Central Iberian Province [*Mediterránea Ibérica Central*]
19. Balearic-Catalan-Provençal Province [*Baleárico-Catalano-Provençal*]

Cb. Eastern Mediterranean Subregion [*Mediterránea Oriental*]

20. Italo-Tyrrhenian Province [*Italo-Tirrénica*]
21. Adriatic Province [*Adriática*]
22. Graeco-Aegean Province [*Greco-Egea*]
23. Cilician-Phoenicean Province [*Cilicio-Fenicea*]

Cc. Canarian Subregion [*Canaria*]

24. Canarian Province [*Canaria*]
25. Madeiran Province [*Maderense*]

BIOGEOGRAPHIC MAP OF PORTUGAL AND SPAIN TO SECTOR LEVEL
Salvador RIVAS-MARTÍNEZ, Ángel PENAS & Tomás E. DÍAZ

Legend

Holarctic Kingdom [*Holarctico*]

B. Eurosiberian Region [*Eurosiberiana*]

Bb. Atlantic-Central European Subregion [*Atlántico-Centroeuropa*]

- 4. Atlantic European Province [*Atlántica Europea*]
- 4a. Cantabrian-Atlantic Subprovince [*Cántabro-Atlántica*]
- 4.1. Cantabrian-Basque Sector [*Cántabro-Euskaldún*]; 4.2. Galician-Asturian Sector [*Galaico-Asturiano*]; 4.3. Galician-Portuguese Sector [*Galaico-Portugués*]; 4.4. Juresian Sector [*Juresiano*]
- 4b. Orocantabric Subprovince [*Orocantábrica*]
- 4.5. Campurrian-Carriónese Sector [*Campurriano-Carrionés*]; 4.6. Ubinnean-Picoeuropean Sector [*Ubiñense-Picoeuropeano*]; 4.7. Laciaan-Ancarensean Sector [*Laciano-Ancarense*]
- 4d. Azorean Subprovince [*Azórica*]
- 4.8. Santa María and Formigas Isles Sector [*Santa María y Hormigas*]; 4.9. São Miguel Isle Sector [*San Miguel*]; 4.10. Terceira Isle Sector [*Terceira*]; 4.11. Pico Isle Sector [*Pico*]; 4.12. Faial Isle Sector [*Faya*]; 4.13. São Jorge and Graciosa Isles Sector [*San Jorge y Graciosa*]; 4.14. Flores and Corvo Isles Sector [*Flores y Corvo*]

Bc. Alpine-Caucasian Subregion [*Alpino-Caucásica*]

- 7. Cévennean-Pyrenean Province [*Cevenense-Pirenaica*]
- 7a. Pyrenean Subprovince [*Pirenaica*]
- 7.1. Prepyrenean Sector [*Prepirenaico*]; 7.2. Central Pyrenean Sector [*Pirenaico Central*]; 7.3. Eastern Pyrenean Sector [*Pirenaico Oriental*]

C. Mediterranean Region [*Mediterránea*]

Ca. Western Mediterranean Subregion [*Mediterránea Occidental*]

- 14. Coastal Lusitan-Andalusian Province [*Lusitano-Andaluzza Litoral*]
- 14a. Gaditan-Algarvian Subprovince [*Gaditano-Algarviense*]
- 14.1. Aljibic Sector [*Aljibico*]; 14.2. Gaditan-Coastal Onubensean Sector [*Gaditano-Onubense Litoral*]; 14.3. Algarvian Sector [*Algarviense*]
- 14b. Sadensean-Dividing Portuguese Subprovince [*Sadense-Divisorio Portuguesa*]
- 14.4. Ribatagan-Sadensean Sector [*Ribatagano-Sadense*]; 14.5. Dividing Portuguese Sector [*Divisorio Portugués*]
- 15. Mediterranean West Iberian Province [*Mediterránea Ibérica Occidental*]
- 15a. Lusitan-Extremadurean Subprovince [*Luso-Extremadurensis*]
- 15.1. Toledan-Taganean Sector [*Toledano-Tagano*]; 15.2. Marianic-Monchiquense Sector [*Mariánico-Monchiquense*]; 15.3. Lower Beirensean Sector [*Bajo Beirense*]
- 15b. Carpetan-Leonese Subprovince [*Carpetano-Leonesa*]
- 15.4. Guadarramean Sector [*Guadarrámico*]; 15.5. Bejaran-Gredensean Sector [*Bejarano-Gredense*]; 15.6. Salmanticensean Sector [*Salmantino*]; 15.7. Estrelensean Sector [*Estrelense*]; 15.8. Lusitan Duriensean Sector [*Lusitano Duriense*]; 15.9. Bercian-Sanabriensean Sector [*Berciano-Sanabriense*]; 15.10. Leonese Sector [*Leonés*]

16. Betic Province [*Bética*]

- 16.1. Hispalense Sector [*Hispalense*]; 16.2. Rondean Sector [*Rondense*]; 16.3. Malacitan-Almijarensian Sector [*Malacitano-Almijarensis*]; 16.4. Alpujarrean-Gadorensean Sector [*Alpujarreño-Gadorense*]; 16.5. Nevadensian Sector [*Nevadense*]; 16.6. Subbetic Sector [*Subbético*]; 16.7. Guadician-Bacensean Sector [*Guadijeño-Baztetano*]

17. Murcian-Almeriensean Province [*Murciano-Almeriense*]

- 17.1. Almeriensean Sector [*Almeriense*]; 17.2. Alicantine-Murcian Sector [*Alicantino-Murciano*]

18. Mediterranean Central Iberian Province [*Mediterránea Ibérica Central*]

- 18a. Castilian Subprovince [*Castellana*]
- 18.1. Castilian Duriensean Sector [*Castellano Duriense*]; 18.2. Celtiberian-Alcarrean Sector [*Celtibérico-Alcarreño*]; 18.3. Manchegan Sector [*Manchego*]
- 18b. Oroiberian Subprovince [*Oroibérica*]
- 18.4. Castilian Cantabrian Sector [*Castellano Cantábrico*]; 18.5. Riojan Sector [*Riojano*]; 18.6. Sorian Oroiberian Sector [*Oroibérico Soriano*]; 18.7. Maestracensean Sector [*Maestracense*]
- 18c. Low Aragonese Subprovince [*Bajo Aragonesa*]
- 18.8. Bardenan-Monegrensean Sector [*Bardenas y Monegros*]; 18.9. Somontane Aragonese Sector [*Somontano Aragonés*]

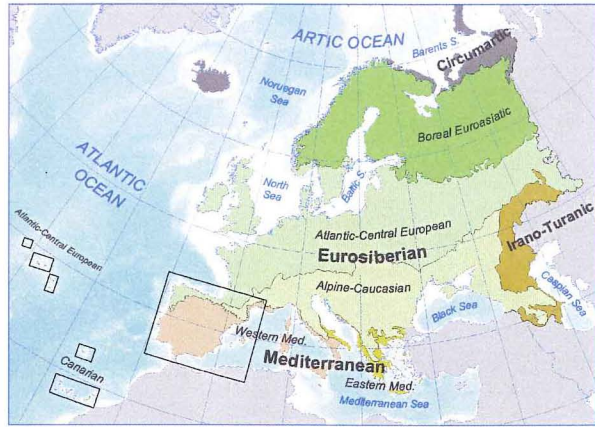
19. Balearic-Catalan-Provençal Province [*Catalana-Provenzal-Balear*]

- 19a. Balearic Subprovince [*Balear*]
- 19.1. Minorcan Sector [*Menorquín*]; 19.2. Majorcan Sector [*Mallorquín*]; 19.3. Pythysan Sector [*Pitiúsico*]
- 19b. Catalan-Valencian Subprovince [*Catalana-Valenciana*]
- 19.4. Setabensean Sector [*Setabense*]; 19.5. Valencian-Tarraconensean Sector [*Valenciano-Tarraconense*]; 19.6. Vallesan-Empordanese Sector [*Vallesano-Empordanés*]

Cc. Canarian Subregion [*Canaria*]

- 24. Canarian Province [*Canaria*]
- 24a. Western Canarian Subprovince [*Canaria Occidental*]
- 24.1. Grancanarian Sector [*Grancanario*]; 24.2. Teneriffean Sector [*Tinerfeño*]; 24.3. Palmean Sector [*Palmero*]; 24.4. Gomeran Sector [*Gomero*]; 24.5. Herrennean Sector [*Herreño*]
- 24b. Eastern Canarian Subprovince [*Canaria Oriental*]
- 24.6. Majorean Sector [*Majoreño*]; 24.7. Lanzarotean Sector [*Lanzaroteño*]; 24.8. Salvajensean Sector [*Salvajense*]
- 25. Madeiran Province [*Madeirense*]
- 25.1. Madeiran Sector [*Madeirense*]; 25.2. Porto Santo and Desertas Isles Sector [*Porto Santo y Desertas*]

Regions & Subregions



Equidistant Conic Projection / App. Scale: 1:90.000.000

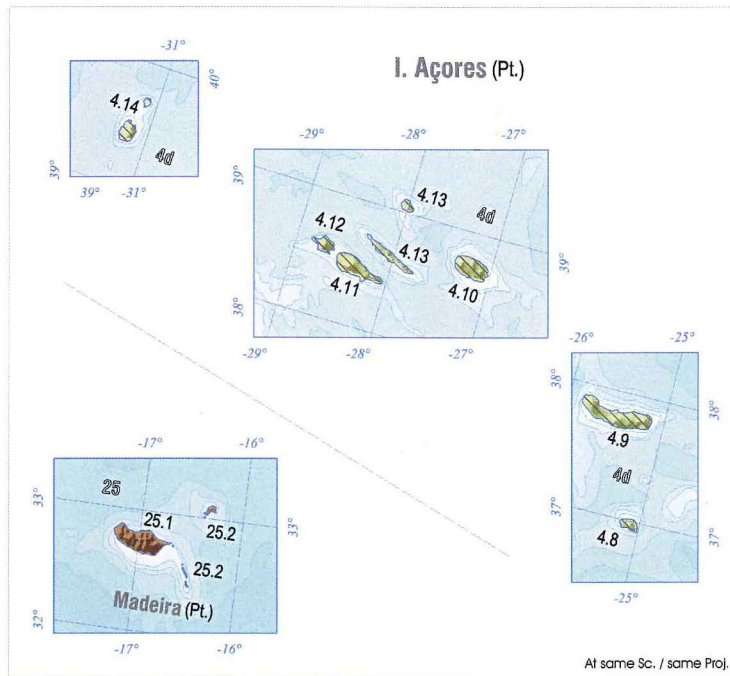
BIOGEOGRAPHIC MAP OF PORTUGAL AND SPAIN TO SECTOR LEVEL

Salvador RIVAS-MARTÍNEZ, Ángel PENAS & Tomás E. DÍAZ
(2002, July, 31)

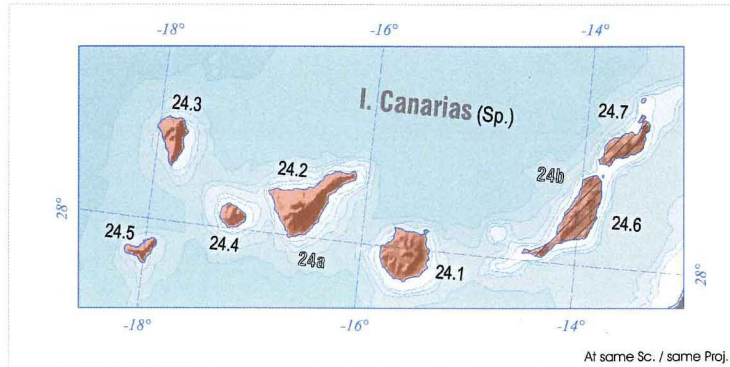
1 : 7.000.000
50 25 0 50 100 km



Projection: Universal Transversal Mercator (Zone 30N)



At same Sc. / same Proj.



At same Sc. / same Proj.

Provinces & Subprovinces

- | | |
|---|---|
| <ul style="list-style-type: none"> 4. Atlantic European Province [Atlántica Europea] 4a. Cantabrian-Atlantic Subprovince [Cántabro-Atlántica] 4b. Orocantabric Subprovince [Orocantábrica] 4d. Azorean Subprovince [Azórica] 7. Cévennean-Pyrenean Province [Cevenense-Pirenaica] 7a. Pyrenean Subprovince [Pirenaica] 14. Coastal Lusitan-Andalusian Province [Lusitano-Andaluza Litoral] 14a. Gaditan-Algarvian Subprovince [Gaditano-Algarviense] 14b. Sadensean-Dividing Portuguese Subprovince [Sadense-Divisorio Portu-guesa] 15. Mediterranean West Iberian Province [Mediterránea Ibérica Occidental] 15a. Lusitan-Extremadurean Subprovince [Luso-Extremadurensis] 15b. Carpetan-Leonese Subprovince [Carpetano-Leonesa] | <ul style="list-style-type: none"> 16. Betic Province [Bética] 17. Murcian-Almeriense Province [Murciano-Almeriense] 18. Mediterranean Central Iberian Province [Mediterránea Ibérica Central] 18a. Castilian Subprovince [Castellana] 18b. Oroiberian Subprovince [Oroiberica] 18c. Low Aragonese Subprovince [Bajo Aragonesa] 19. Balearic-Catalan-Provençal Province [Catalana-Provenzal-Balear] 19a. Balearic Subprovince [Balear] 19b. Catalan-Valencian Subprovince [Catalana-Valenciana] 24. Canarian Province [Canaria] 24a. Western Canarian Subprovince [Canaria Occidental] 24b. Eastern Canarian Subprovince [Canaria Oriental] 25. Madeiran Province [Madeirense] |
|---|---|

B. NEW SYNTAXA AND ALTERED NAMES

In alphabetical order we legitimize and define the 205 new syntaxa, new names (*nomina nova*) and new types of syntaxa, proposed in the "Syntaxonomical checklist of vascular plant communities of Spain and Portugal to association level" published by Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas in *Itinera Geobot.* 14: 5-341. 2001, in accordance with the regulations of the International Code of Phytosociological Nomenclature (Weber, Moravec & Theurillat in *J. Veg. Sci.* 11(5): 739-768. 2000). In a small number of instances syntaxa not mentioned in the "Checklist 2001" are also defined and numbered in this chapter. In the case of new high syntaxa we also list, quote and communicate the distribution of all the Spanish and Portuguese associations that are included in such syntaxa. The authors responsible for the new syntaxon names and comments appear in the following list, and also in brackets below each entry or particular syntaxa.

1. List of the new syntaxa

<i>Adenocarpum argyrophylli</i> Rivas-Martínez, Cantó, Sánchez-Mata & Belmonte ass. nova.....	65.1.1
<i>Alchemillo fissae-Luzuletum candollei</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	48.1.1
<i>Alchemillo saxatilis-Saxifragetum pentadactylis</i> Gruber & Focquet ex Benito & Rivas-Martínez ass. nova.....	27.6.1
<i>Ampelodesmo mauritanicae-Arbutetum unedonis</i> Llorens, Gil & Tébar ass. nova.....	75.6.1
<i>Andryalo laxiflorae-Hyparrhenietum hirtae</i> Peinado, Martínez-Parras & Alcaraz ex Díez Garretas & Asensi ass. nova.....	56.7.2
<i>Anthoxantho ovati-Vulpietum geniculatae</i> Cantó ass. nova.....	39.10.1
<i>Anthyllido lusitanicae-Tuberarietum guttatae</i> Aguiar & Penas ass. nova.....	50.1.3
<i>Apietum bermejoi</i> Llorens & Gil ass. nova.....	12.3.1
<i>Armerio microcephalae-Festucetum aragonensis</i> (Rivas-Martínez & G. Navarro in G. Navarro 1989) Rivas-Martínez, Cantó & Sánchez-Mata ass. nova.....	49.2.3
<i>Armerio transmontanae-Plantaginetum radicatae</i> Aguiar ass. nova.....	49.5.2
<i>Aro italicum-Oleetum sylvestris</i> Rivas-Martínez & Cantó ass. nova.....	75.3.1
<i>Artemisio albae-Dichanthion ischaemi</i> X. Font ex Rivas-Martínez & M.L. López all. nova.....	51.4
<i>Artemisio valentinae-Camphorosmetum monspeliacae</i> Rivas-Martínez, Cantó & Sánchez-Mata ass. nova.....	37.1.7
<i>Asparago acutifolii-Quercetum rotundifoliae</i> Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata ass. nova.....	75.1.6
<i>Asparago albi-Quercetum cocciferae</i> Rivas-Martínez ass. nova.....	75.5.3
<i>Asperulo odoratae-Quercetum petraeae</i> [v. <i>Luzulo henriquesii-Quercenion petraeae</i>].....	76.8.5
<i>Asperulo odoratae-Quercetum petraeae</i> (Rivas-Martínez & G. Navarro in G. Navarro 1989) Rivas-Martínez & Cantó ass. nova [v. <i>Luzulo henriquesii-Quercenion petraeae</i>].....	76.8.5
<i>Asplenio adiantum-nigri-Quercetum rotundifoliae</i> (Carreras, Carrillo, Ninot & Vigo 1997) Rivas-Martínez ass. nova.....	75.1.7
<i>Asplenio azoricae-Cymbalarietum muralis</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova.....	28.2.1

<i>Asplenio csikii-Petrocoptidetum crassifoliae</i> Rivas-Martínez, Costa & P. Soriano ass. nova [v. <i>Petrocoptido-Sarcocapneta</i>]	29.3.3
<i>Asplenio csikii-Petrocoptidetum pseudoviscosae</i> Rivas-Martínez, Costa & P. Soriano ass. nova [v. <i>Petrocoptido-Sarcocapneta</i>]	29.3.4
<i>Asplenion marini</i> Rivas-Martínez & Izco all. nova	28.4
<i>Astragalion tragacanthae</i> (Folch ex Rivas-Martínez, Fernández-González & Loidi 1999) Rivas-Martínez, Fernández-González & Loidi all. nova	19.5
<i>Astragalo tragacanthae-Juniperetum macrocarpae</i> Rivas-Martínez & Cantó ass. nova	75.9.2
<i>Avenello ibericae-Juniperetum nanae</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova	74.5.1
<i>Avenello ibericae-Pinetum uncinatae</i> (Rivas-Martínez & Tarazona in Rivas-Martínez, G. Navarro, Mendiola & Tarazona 1987) Rivas-Martínez & J.A. Molina ass. nova	74.4.2
<i>Avenello ibericae-Quercetum orocantabricae</i> Rivas-Martínez, Amigo, Bueno, T.E. Díaz, F. Prieto, Izco, Penas & Puente ass. nova [v. <i>Luzulo henriquesii-Quercenion petraeae</i>]	76.8.9
<i>Bartramio strictae-Polypodiunion cambrici</i> (O. Bolòs & Vives 1957) Rivas-Martínez suball. nova, stat. nov.	30.1b
<i>Beto maritimae-Lavateretum arboreae</i> Arbesú, Bueno & F. Prieto ass. nova	34.4.6 = 37.4.2
<i>Betulion carpatico-pubescentis</i> Rivas-Martínez & Costa all. nova [v. <i>Betulo pendulae-Populetalia tremulae</i>]	76.13
<i>Betulion fontqueri-celtibericae</i> Rivas-Martínez & Costa all. nova [v. <i>Betulo pendulae-Populetalia tremulae</i>]	76.14)]
<i>Betulo pendulae-Populetalia tremulae</i> Rivas-Martínez & Costa ordo novus	76d
<i>Callitricho brutiae-Ranunculetum peltati</i> Pizarro & Rivas-Martínez ass. nova	3.3.3
<i>Callitricho brutiae-Ranunculetum pseudofluitantis</i> Pizarro & Rivas-Martínez ass. nova	3.4.1
<i>Callitricho lusitanicae-Ranunculetum penicillati</i> Pizarro ass. nova	3.4.2
<i>Calluno-Pinetum ibericae</i> (Vigo 1968) Rivas-Martínez & J.A. Molina nom. nov.	74.4.3
<i>Campanulo herminii-Festucetum rivularis</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova	60.4.5
<i>Cardamino hirsutae-Geranietea purpurei</i> (Rivas-Martínez, Fernández-González & Loidi 1999) Rivas-Martínez, Fernández-González & Loidi classis nova	41
<i>Caricetum camposii-paniculatae</i> Molero, J. López & Rivas-Martínez ass. nova	12.4.2
<i>Caricetum echinatae-nigrae</i> (Rivas-Martínez 1964) Rivas-Martínez nom. nov.	14.2.2
<i>Carici asturicae-Callunetum vulgaris</i> Bueno & F. Prieto ass. nova	61.4.2
<i>Carici asturicae-Genistetum obtusirameae</i> Bueno & F. Prieto ass. nova	65.3.2
<i>Carici echinatae-Trichophoretum caespitosi</i> Rivas-Martínez, Costa & P. Soriano ass. nova	14.2.5
<i>Carici hochstetteriana-Picconietum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>]	73.2.1
<i>Carici pendulae-Fraxinetum excelsioris</i> Biurrun & García-Mijangos ass. nova	71.1.4
<i>Catapodio marini-Frankenietum pulverulentae</i> (Rivas-Martínez, Costa & Loidi 1992) Rivas-Martínez, Costa & Loidi nom. nov.	22.2.3
<i>Catapodio spicati-Saginetum maritimae</i> (O. Bolòs & Vigo 1984) Rivas-Martínez ass. nova	22.2.2
<i>Chamaecytiso canariae-Adenocarpetum villosi</i> (Sunding 1972) Rivas-Martínez & Wild. pret nom. nov.	82.2.1
<i>Cirsio gregarii-Dactyletum juncinellae</i> Molero & J. López ass. nova	49.1.4
<i>Cirsio gregarii-Deschampsietum hispanicae</i> Ríos & Alcaraz ass. nova	59.8.3

<i>Coremato albi-Juniperetum macrocarpae</i> M.B. Crespo, De la Torre, Alcaraz, Costa & Solanas ass. nova.....	75.9.4
<i>Corynephoru macrantheri-Arenarietum algarbiensis</i> P. Silva & Teles ex Rivas-Martínez & Izco ass. nova.....	50.6.1
<i>Cotoneastro pyrenaici-Juniperetum nanae</i> (Turmel 1955) Rivas-Martínez & J.A. Molina nom. nov.....	77.3.1
<i>Cratoneuro flicini-Anagallidetum tenellae</i> Ríos & Alcaraz ass. nova.....	11.2.3
<i>Crepido pusillae-Filaginatum petro-ianii</i> Llorens & Gil ass. nova.....	38.4.2
<i>Crithmo maritimi-Frankenietum laevis</i> Arbesú, Bueno & F. Prieto ass. nova [v. <i>Limonio ovalifolii-Frankenion laevis</i>].....	20.5.2
<i>Ctenopsietum delicatulae</i> Sardinero, Fernández-González & Sánchez-Mata ass. nova.....	50.3.5
<i>Cutandietalia maritima</i> Rivas-Martínez, Díez Garretas & Asensi ordo novus.....	50d
<i>Cynomorio coccinei-Lycietum intricati</i> (Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990) Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa nom. nov.....	37.2.3
<i>Cytisium oromediterraneo-scoparii</i> Rivas-Martínez, Cantó & Sánchez-Mata all. nova.....	65.6
<i>Cytiso baetici-Telinatum monspessulanae</i> [v. <i>Cytiso villosi-Telinetalia monspessulanae</i> (65b)].....	65.7.1
<i>Cytiso baetici-Telinatum monspessulanae</i> Rivas-Martínez, Galán & Cantó ass. nova [v. <i>Cytiso villosi-Telinetalia monspessulanae</i>	65.7.1]]
<i>Cytiso oromediterranei-Genistetum obtusirameae</i> R. Alonso, Puente, Penas & F. Salegui ass. nova.....	65.3.6
<i>Cytiso villosi-Telinetalia monspessulanae</i> Rivas-Martínez, Galán & Cantó ordo novus.....	65b
<i>Dactylido hispanicae-Stipetum juncaeae</i> Penas, M.E. García, De Paz, L. Herrero, R. Alonso & F. Salegui ass. nova.....	56.5.2
<i>Daphno gnidii-Quercetum cocciferae</i> Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata ass. nova.....	75.7.5
<i>Daucu halophili-Astragaletum vicentini</i> (Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990) Rivas-Martínez, Fernández-González & Loidi nom. nov. [v. <i>Astragalion tragacanthae</i>].....	19.5.3
<i>Deschampsio refractae-Molinietum caeruleae</i> (Rivas Goday & Borja 1961) Rivas-Martínez nom. nov.....	59.1.2
<i>Diantho langeani-Festucetum rivas-martinezii</i> Penas, Puente, R. Alonso, A. Fernández, Lence, Del Río, J. Alonso & F. Salegui ass. nova.....	49.5.4
<i>Diantho lusitani-Antirrhinetum rupestris</i> Molero, Marín & M. López ass. nova.....	32.3.6
<i>Dryopterido azoricae-Lauretum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>].....	73.3.1
<i>Dryopterido azoricae-Laurion azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar all. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>].....	73.3
<i>Elaphoglosso semicylindrici-Polypodietum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova.....	30.3.2
<i>Eleocharito multicaulis-Rhynchosporietum albae</i> C. Valle & F. Navarro ex Rivas-Martínez ass. nova.....	14.1.3
<i>Elytrigio campestris-Brachypodietum phoenicoidis</i> Rivas-Martínez & Izco ass. nova.....	51.3.2
<i>Epilobio brachycarpi-Chenopodietum opulifolii</i> Rivas-Martínez, C. Navarro & Cantó ass. nova.....	39.8.8
<i>Erodietum gausseianii</i> Rivas-Martínez & Cantó ass. nova [v. <i>Lavaterion maritimae</i>].....	28.5.3

<i>Eryngio maritimi-Sporoboletum arenarii</i> (Arènes ex Géhu & Biondi 1994) Rivas-Martínez & Cantó nom. nov. [v. <i>Sporobolion arenarii</i>]	16.3.1
<i>Eryngio-Ulicenion erinacei</i> (Rothmaler 1943) Rivas-Martínez suball. nova	64.2a
<i>Euphorbietum acuminato-merinoi</i> Aguiar & Penas ass. nova	50.13.10
<i>Euphorbio hybernae-Fraxinetum excelsioris</i> L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui ass. nova	71.1.5
<i>Euphorbio pithysae-Anthemidetum maritimae</i> Llorens, Llop & Gil ass. nova	19.2.1
<i>Festucion frigidae</i> Rivas-Martínez, Díez Garretas, Asensi, Molero & F. Valle all. nova	14.6
<i>Festuco hystricis-Ononidetea striatae</i> Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas classis nova	52
<i>Festuco petraeae-Corematetum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>]	73.1.3
<i>Festuco pruinosa-Brachypodietum rupestris</i> Arbesú, Bueno & F. Prieto ass. nova	20.6.8
<i>Frankenio capitatae-Suaedetum verae</i> Reyes, Rivas-Martínez & Wildpret ass. nova	23.4.7
<i>Galio idubedae-Nardetum strictae</i> (Rivas Goday & Borja 1961) Rivas-Martínez nom. nov.	60.4.16 = 60.1.5
<i>Galio veri-Arrhenatheretum bulbosi</i> (Rivas Goday & Borja 1961) Rivas-Martínez nom. nov.	59.4.3
<i>Genisto falcatae-Quercetum pyrenaicae</i> Penas & T.E. Díaz ex Rivas-Martínez ass. nova	76.7.7
<i>Genisto scorpii-Cistetum laurifolii</i> Penas, De Paz, M.E. García, M.J. López, R. Alonso, Del Río & F. Salegui ass. nova	62.2.3
<i>Geo rivales-Cirsietum rosulati</i> Ríos & Alcaraz ass. nova	59.7.9
<i>Glycerio declinatae-Alopecuretum aequalis</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova	12.2.7
<i>Gnaphalio uliginosi-Spergularietum capillaceae</i> L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui ass. nova	9.5.5
<i>Halophiletum decipientis</i> Wildpret & M.C. Gil ass. nova	4.1.2
<i>Helianthemo almeriensis-Sideritidenion pusillae</i> (Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989) Rivas-Martínez suball. nova	64.11b
<i>Helichryson obconico-devium</i> Rivas-Martínez, Capelo, J.C. Costa, Lousã, Fontinha, Jardim & Sequeira all. nova	19.6
<i>Heteropogono contorti-Hyparrhenietum sinaicae</i> M.B. Crespo ass. nova	56.7.8
<i>Holcetum gayani</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova	50.3.4
<i>Holco mollis-Betuletum celtibericae</i> Amigo & M.I. Romero ass. nova [v. <i>Betulo pendulae-Populetales tremulae</i>]	76.14.1
<i>Hugueninietum suffruticosae</i> Rivas-Martínez, Costa & P. Soriano ass. nova	42.1.9
<i>Iberido saxatilis-Erinaceetum anthyllidis</i> G. Navarro ex Rivas-Martínez ass. nova	52.7.18 = 64.5.12
<i>Inuletum revolutae</i> O. Bolòs ex Rivas-Martínez ass. nova	34.12.5 = 34.6.5
<i>Jasiono brevisepalae-Festucetum curvifoliae</i> M.E. García, L. Herrero, T.E. Díaz, Penas & F. Salegui ass. nova	49.3.2
<i>Junipero lagunae-Quercetum suberis</i> Rivas-Martínez, Aguiar, Cantó & Ladero ass. nova	75.2.4
<i>Junipero sabiniae-Pinetum mauretanicae</i> Rivas-Martínez, Gómez-Mercado & F. Valle ass. nova	74.1.3
<i>Laguro ovati-Silenetum balearicae</i> Llorens & Gil ass. nova	50.7.4
<i>Laserpitio eliasii-Coryletum avellanae</i> [v. <i>Betulo pendulae-Populetales tremulae</i>]	76.14.2
<i>Laserpitio eliasii-Coryletum avellanae</i> Puente, M.J. López, Penas & F. Salegui ass. nova [v. <i>Betulo pendulae-Populetales tremulae</i>]	76.14.2

<i>Lauro azoricae-Juniperetea brevifoliae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Díaz & Aguiar classis nova	73
<i>Lavandulion lanatae</i> (Martínez-Parras, Peinado & Alcaraz 1984) Rivas-Martínez, Molero & Pérez-Raya all. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>]	64.15
<i>Lavandulo stoechadis-Cistetum monspeliensis</i> (Lapraz 1974) Rivas-Martínez ass. nova	62.1.6
<i>Lavaterion maritimae</i> Rivas-Martínez & Cantó all. nova	28.5
<i>Lavatero maritimae-Erodietum crispi</i> Franquesa ex Rivas-Martínez & Cantó ass. nova [v. <i>Lavaterion maritimae</i>]	28.5.4
<i>Lilio pyrenaici-Molopospermetum peloponesiacci</i> Rivas-Martínez, Costa & P. Soriano ass. nova	42.3.2
<i>Limonio binervosi-Armerietum depilatae</i> T.E. Díaz & F. Prieto ass. nova	20.5.5
<i>Limonio ovalifolii-Frankenion laevis</i> Arbesú, Bueno & F. Prieto all. nova	20.5
<i>Limonio ruizii-Sarcocornietum alpini</i> Rivas-Martínez, Cantó & Sánchez-Mata ass. nova	23.3.1
<i>Linario filicaulis-Ranunculetum cabrerensis</i> R. Alonso, Puente, Penas & F. Salegui ass. nova	33.4.4
<i>Linario triornithophorae-Coryletum avellanae</i> R. Alonso, Puente, Penas & F. Salegui ass. nova [v. <i>Betulo pendulae-Populetales tremulae</i>]	76.14.3
<i>Lonicero periclymeni-Quercetum pyrenaicae</i> Rivas-Martínez ass. nova	76.7.15
<i>Luzulo baeticae-Quercetum pyrenaicae</i> Rivas-Martínez ass. nova	76.7.9
<i>Luzulo henriquesii-Quercenion petraeae</i> Rivas-Martínez & Izco suball. nova	76.8b
<i>Medicagini littoralis-Stipetum capensis</i> M.B. Crespo ass. nova	39.13.9
<i>Mnio horni-Vandenboschietum speciosae</i> T.E. Díaz, M.C. Fernández & Collado ass. nova	30.3.4
<i>Moehringietum castellanae</i> Rivas-Martínez, Cantó & Izco ass. nova [v. <i>Petrocoptido-Sarcocapneta</i>]	29.1.8
<i>Montio amporitanae-Ranunculetum hederacei</i> Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero ass. nova [v. <i>Ranunculion omiophyllo-hederacei</i>]	11.5.1
<i>Myosotido stoloniferae-Ranunculetum omiophylli</i> Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero ass. nova [v. <i>Ranunculion omiophyllo-hederacei</i>]	11.5.2
<i>Myriophyllo alterniflori-Potametum natantis</i> Rivas-Martínez, Fernández-González, Sánchez-Mata, Pizarro & Sardinero ass. nova	3.2.1
<i>Onopordenea acanthii</i> Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi subclassis nova	34B
<i>Onopordetum acantho-castellani</i> Rivas-Martínez & Sánchez-Mata ass. nova	34.10.10
<i>Orlayo grandiflorae-Aegilopetum geniculatae</i> Romo ex Rivas-Martínez & Izco ass. nova	39.13.11
<i>Paeonio broteroi-Abietion pinsapo</i> (Rivas-Martínez 1987) Rivas-Martínez & Asensi all. nova	76.11
<i>Parafestucetalia albidae</i> Rivas-Martínez, Capelo, J.C. Costa, Lousã, Fontinha, Jardim & Sequeira ordo novus	57b
<i>Parietarion lusitanico-mauritanicae</i> Rivas-Martínez & Cantó all. nova	41.3
<i>Petrocoptidetalia pyrenaicae</i> Rivas-Martínez, Cantó & Izco ordo novus [v. <i>Petrocoptido-Sarcocapneta</i>]	29b
<i>Petrocoptidetum montserratii</i> Rivas-Martínez, Cantó & Izco ass. nova [v. <i>Petrocoptido-Sarcocapneta</i>]	29.3.6
<i>Petrocoptidion glaucifoliae</i> (P. Fernández, Penas & T.E. Díaz 1983) Rivas-Martínez, Cantó & Izco all. nova [v. <i>Petrocoptido-Sarcocapneta</i>]	29.4
<i>Petrocoptido pyrenaicae-Sarcocapneta enneaphyllae</i> Rivas-Martínez, Cantó & Izco classis nova	29

<i>Pinetum uncinato-pyrenaicae</i> Rivas-Martínez, Costa, J.A. Molina & P. Soriano ass. nova.....	74.3.2
<i>Pinguiculo nevadensis-Eleocharitetum quinqueflorae</i> Rivas-Martínez, Asensi, Díez Garretas, Molero & F. Valle ass. nova.....	14.2.11
<i>Polycarpaeo niveae-Euphorbion paraliae</i> Rivas-Martínez & Wildpret all. nova [v. <i>Poly. carpaeo-Traganetea</i>].....	81.2
<i>Polycarpaeo niveae-Traganetea moquini</i> Santos ex Rivas-Martínez & Wildpret classis nova.....	81
<i>Polysticho falcinelli-Ericion arboreae</i> Rivas-Martínez, Capelo, J.C. Costa, Lousã, Fontinha, Jardim & Sequeira all. nova.....	82.7
<i>Potentillo anserinae-Agrostietum stoloniferae</i> R. Alonso, Lence, Puente, Penas & F. Salegui ass. nova.....	59.13.1
<i>Pruno mahalebo-Cornetum sanguineae</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	66.1.3
<i>Pteridio aquilini-Cytisetum oromediterranei</i> Gavilán, Cantó, Fernández-González, Rivas-Martínez & Sánchez-Mata ass. nova.....	65.1.6
<i>Pteridio aquilini-Pinetum ibericae</i> Rivas-Martínez & J.A. Molina ass. nova.....	74.4.5
<i>Pteridio pubescentis-Ericenion azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar suball. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>].....	73.1b
<i>Pteridio pubescentis-Ericetum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>].....	73.1.4
<i>Pulmonario affinis-Abietetum albae</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	76.3.2
<i>Pulmonario affinis-Betuletum pendulae</i> Vigo ex Rivas-Martínez & Costa ass. nova [v. <i>Betulo pendulae-Populetales tremulae</i>].....	76.12.5
<i>Pulmonario longifoliae-Quercion roboris</i> Rivas-Martínez & Izco all. nova.....	76.4
<i>Ranunculion omiophyllo-hederacei</i> Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero all. nova.....	11.5
<i>Ranunculo aduncis-Geranium sylvatici</i> Ríos & Alcaraz ass. nova.....	43.5.6
<i>Ranunculo thorae-Seslerietum caeruleae</i> Vigo ex Rivas-Martínez ass. nova [v. <i>Salicion pyrenaicae</i>].....	45.2.7
<i>Resedetum suffruticosae</i> Rivas-Martínez & Sánchez-Mata ass. nova.....	34.10.13
<i>Retamion monospermae</i> Rivas-Martínez & Cantó all. nova.....	65.8
<i>Rhamno catharticae-Ribesetum alpini</i> L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui ass. nova.....	66.1.4
<i>Rhamno lycioidis-Pinetum halepensis</i> (J. Torres, A. García, Salazar, Cano & F. Valle 1999) Rivas-Martínez nom. nov.....	75.14.3
<i>Rhamno oleoidis-Quercetum rotundifoliae</i> Rivas-Martínez ass. nova.....	75.3.7
<i>Rosmarinetea officinalis</i> Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas classis nova.....	64
<i>Roso pendulinae-Fagetum sylvaticae</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	76.1.6
<i>Rubetum caesio-canescens</i> Ríos & Alcaraz ass. nova.....	66.2.11 = 66.2.4
<i>Salicion cantabricae</i> Rivas-Martínez & T.E. Díaz suball. nova hoc loco.....	71.5b
<i>Salici capreae-Betuletum fontqueri</i> Molero & Rivas-Martínez ass. nova [v. <i>Betulo pendulae-Populetales tremulae</i>].....	76.14.9
<i>Salici neotrichae-Populetum nigrae</i> T.E. Díaz & Penas ex Rivas-Martínez & Cantó ass. nova [v. <i>Salici-Populetea</i>].....	71.2.8
<i>Salici purpureae-Populetea nigrae</i> (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscos, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez & Cantó classis nova.....	71
<i>Salicion pyrenaicae</i> Vigo ex Rivas-Martínez all. nova.....	45.2

<i>Sambuco racemosae-Prunetum padi</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	66.5.1
<i>Sarcocapno saetabensis-Chaenorhinetum tenelli</i> M.B. Crespo ass. nova [v. <i>Petrocop. tido-Sarcocapnetaea</i>]	29.2.6
<i>Saturejo salzmännii-Drosophylletum lusitanici</i> (Galán & Vicente 1996) Rivas-Martínez ass. nova.....	61.5.4
<i>Saxifragetum bourgeanae</i> Díez Garretas, Asensi & Martín ass. nova.....	27.14.5
<i>Saxifragetum retusae</i> Gruber ex Rivas-Martínez ass. nova.....	27.6.8
<i>Scrophulario auriculatae-Epilobietum hirsuti</i> Ríos & Alcaraz ass. nova.....	40.5.6
<i>Sedetum campanulati</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova.....	11.4.2
<i>Sedetum lagascae</i> Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero ass. nova.....	9.4.9
<i>Selaginello denticulatae-Saxifragetum gemulosae</i> F.J. Pérez, T.E. Díaz, P. Fernández & Salvo ex Rivas-Martínez & Izco ass. nova.....	30.5.3
<i>Senecioni adonidifolii-Cytisetum oromediterranei</i> (Rivas-Martínez 1968) Rivas-Martínez & Cantó nom. nov. [v. <i>Cytision oromediterraneo-scoparii</i>]	65.6.2
<i>Senecioni laderoi-Juncetum inflexi</i> M.E. García, L. Herrero, C. Pérez, Penas & F. Salegui ass. nova.....	59.15.13
<i>Senecioni lopezii-Quercetum lusitanicae</i> Rivas-Martínez ass. nova.....	75.11.3
<i>Sideritido ilicifoliae-Thymenion loscosii</i> Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata suball. nova.....	64.5c
<i>Silybetum hispanici</i> Rivas-Martínez, Cantó, M.B. Crespo & Sánchez-Mata ass. nova.....	34.11.7
<i>Sisymbrietum erysimoidis</i> (Ladero, O. Socorro, Molero, M. López, Zafra, Marín, Hurtado & Pérez-Raya 1981) Rivas-Martínez & Ladero ass. nova.....	39.8.9
<i>Solenopsio balearicae-Naufragetum balearicae</i> (Duvigneaud 1970) Llorens & Gil ass. nova.....	30.4.4
<i>Southbyo tophaceae-Pinguiculetum dertosensis</i> Asensi & Díez Garretas ass. nova.....	26.2.5
<i>Spergulario rupicolae-Sedetum anglici</i> Arbesú, Bueno & F. Prieto ass. nova.....	55.1.4
<i>Sporobolion arenarii</i> (Géhu ex Géhu & Biondi 1994) Rivas-Martínez & Cantó all. nova.....	16.3
<i>Stipetum cazorlensis</i> (J. Torres & Cano in J. Torres, A. García, Salazar & Cano 2001) Rivas-Martínez ass. nova.....	56.5.5
<i>Suaedetum spicato-splendentis</i> Rivas-Martínez, Cantó & Sánchez-Mata ass. nova.....	25.1.6
<i>Suaedo braun-blanquetii-Tamaricetum canariensis</i> Rivas-Martínez, Cantó & Sánchez-Mata ass. nova.....	70.3.6
<i>Telinion monspessulano-linifoliae</i> Rivas-Martínez, Galán & Cantó all. nova [v. <i>Cytiso villosi-Telinetalia monspessulanae</i>]	65.7
<i>Teucro expansi-Gypsophiletum hispanicae</i> Rivas-Martínez & Fernández-González ass. nova.....	64.9.16
<i>Teucro leonis-Erinaceetum anthyllidis</i> P. Sánchez & Alcaraz ass. nova.....	64.4.3
<i>Thymo gracilis-Cistetum ladaniferi</i> Asensi & Díez Garretas ass. nova.....	62.3.11
<i>Tofieldio calyculatae-Caricetum pulicaris</i> Rivas-Martínez, Costa & P. Soriano ass. nova.....	14.4.6
<i>Trisetio velutini-Brachypodion boissieri</i> Rivas-Martínez, Molero & Pérez-Raya all. nova.....	56.6
<i>Umbilico gaditani-Asplenietum marini</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Asplenion marini</i>]	28.4.4
<i>Vaccinio microphylli-Callunetum vulgaris</i> Bueno & F. Prieto ass. nova.....	77.3.5
<i>Vaccinio myrtilli-Pinetum ibericae</i> Rivas-Martínez & J.A. Molina ass. nova.....	74.4.6
<i>Viburno lantanae-Ulmetum minoris</i> Biurrun & García-Mijangos ass. nova.....	71.2.18

<i>Viburno tini-Quercetum roboris</i> (Br.-Bl., P. Silva & Rozeira 1956) J.C. Costa, Capelo, Honrado, Aguiar & Lousã ass. nova.....	76.7.19
<i>Vinco difformis-Ceratonietum siliquae</i> (Martín, Díez Garretas & Asensi 1992) Rivas-Martínez ass. nova.....	75.3.14
<i>Woodwardio radicans-Prunetum azoricae</i> Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar ass. nova [v. <i>Lauro azoricae-Juniperetea brevifoliae</i>].....	73.3.2

2. Syntaxon descriptions

ADENOCARPETUM ARGYROPHYLLI ass. nova hoc loco (65.1.1)

[*Adenocarpetum argyrophylli* Rivas-Martínez & Belmonte in Opusc. Bot. Pharm. Complut. 5: 72. 1989 (art. 2b)]

(*Genistion floridae*, *Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Typus associatio: Table 1, rel. 4 [Cáceres: Torrejón el Rubio, Parque Natural del Monfragüe, Risco de la Gitana. 39°50'N-6°05'W. 470 m, N, 20 m²].

Characteristic species: *Adenocarpus argyrophyllus*.

Diagnosis: Broom formations well characterized by the silicicolous Lusitan-Extremaduran endemic *Adenocarpus argyrophyllus*. They are permanent communities on the rupes-trian lithosols of the mesomediterranean subhumid belt of the quartzitic mountains from Extremadura in the environments of the series *Pistacio terebinthi-Quercus fagineae* sigmetum, *Arbuto-Quercus pyrenaicae* sigmetum and *Pyro bourgaeane-Quercus rotundifoliae* sigmetum. They also appear on the granitic lithosols of the suprasediterranean humid belt of the summit areas of the Sierra de San Vicente (Toledo), contacting the climatophilous oak communities of the *Sorbo torminalis-Quercetum pyrenaicae*, where we recognize the subass. *genistosum cinerascens* nova (holotypus, rel. 9), well differentiated by *Genista cinerascens*, *Cytisus scoparius* subsp. *scoparius* and *Pteridium aquilinum*.

[RIVAS-MARTÍNEZ, CANTÓ, SÁNCHEZ-MATA & BELMONTE]

Table 1
65.1.1 *Adenocarpetum argyrophylli*

(*Genistion floridae*, *Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Altitude (1=10m)	58	55	76	47	59	58	67	130	130	75
Number of species	6	6	7	7	8	8	13	10	7	8
Ordinal number	1	2	3	4*	5	6	7	8	9	10
Characteristic species:										
<i>Adenocarpus argyrophyllus</i>	4	3	4	4	3	3	4	5	3	V
<i>Cytisus multiflorus</i>	+	.	+	+	2	1	+	.	.	IV
<i>Cytisus eriocarpus</i>	.	2	+	.	.	1	1	.	.	III
<i>Pteridium aquilinum</i>	.	.	.	.	.	.	.	2	2	II
<i>Genista cinerascens</i>	.	.	.	.	.	.	.	+	3	II
<i>Adenocarpus complicatus</i>	.	.	.	+	.	.	.	.	.	I
<i>Cytisus scoparius</i>	.	.	.	.	.	.	.	.	+	II
Companion species:										
<i>Arrhenatherum elatius</i>	1	2	1	2	1	2	1	1	.	V
<i>Dianthus lusitanus</i>	2	.	+	1	1	1	+	.	.	IV
<i>Jumiperus oxycedrus</i>	.	.	+	.	+	1	+	+	1	IV
<i>Quercus rotundifolia</i>	.	1	.	+	1	.	1	.	+	III
<i>Digitalis thapsi</i>	+	1	.	+	2	.	.	.	.	III
<i>Lavandula sampaioana</i>	+	.	+	.	.	+	1	.	.	III
<i>Cistus ladanifer</i>	.	.	.	.	+	+	1	.	.	II

Other species. Companion species: *Conopodium majus* + in 2. *Quercus pyrenaica* 1, *Santolina rosmarinifolia* 1, *Euphorbia oxyphylla* +, *Rosa canina* + in 7. *Luzula lactea* 2, *Agrostis castellana* 1, *Armeria lacaitae* 1, *Festuca ampla* 1, *Koeleria crassipes* 1 in 8. *Asphodelus aestivus* 1 in 9.

Localities: 1. Cáceres: Serradilla. Cruz del Cancho. 29S QE 41. SE, 40 m². 2. Cáceres: Mirabel. Sierra de los Canchos. 29S QE 31. NE, 40 m². 3. Cáceres: Casas de Miravete. Canchal del Agujero. 30S TK 60. SW, 10 m². 4. Holotypus ass. Cáceres: Torrejón el Rubio, Parque Natural de Monfragüe, Risco de la Gitana. 39° 50'N-6° 05'W. N, 20 m². 5. Cáceres: Casas de Miravete. Río Frío. 30S TK 60. SW, 20 m². 6. Cáceres: Serradilla. Cancho de la Cueva. 29S QE 41. SE, 20 m². 7. Cáceres: Casas de Miravete. Canchal de la Peñuela. 30 S TK 60. S, 20 m². 8. Toledo: Real de San Vicente. Pico Pelados. 30T UK 54. NW, 40 m². 9. Holotypus subass. Toledo: Real de San Vicente. Pico Pelados. 30T UK 54. N, 40 m². 10. Synthesized table.

ALCHEMILLO FISSAE-LUZULETUM CANDOLLEI ass. nova hoc loco (48.1.1)

(*Salicion herbaceae*, *Salicetalia herbaceae*, *Salicetea herbaceae*)

Typus associatio: Table 2, rel. 8 [Huesca: Benasque, moraine of Aneto glacier. 42° 39'N-0° 40'E. 2440 m, NE, 10 m²].

Table 2
48.1.1 *Alchemillo fissae-Luzuletum candollei*

(*Salicion herbaceae*, *Salicetalia herbaceae*, *Salicetea herbaceae*)

Altitude (1=10 m)	248	248	268	268	272	244	258	244	244	258	255
Number of species	5	5	5	5	7	8	8	11	10	13	8
Ordinal number	1	2	3	4	5	6	7	8*	9	10	11
Characteristic species:											
<i>Luzula candollei</i>	3	4	4	3	5	4	3	3	4	4	V
<i>Alchemilla fissa</i>	2	2	1	3	.	1	1	3	1	+	V
<i>Sibbaldia procumbens</i>	2	.	1	1	2	+	+	1	+	2	V
<i>Veronica alpina</i>	1	1	.	.	1	1	+	1	1	2	V
<i>Gnaphalium supinum</i>	.	1	+	.	.	3	.	1	2	.	III
<i>Cardamine alpina</i>	.	.	.	.	1	.	1	+	1	+	III
<i>Salix herbacea</i>	.	.	.	.	.	.	.	1	.	.	I
<i>Carex pyrenaica</i>	.	.	.	.	.	.	.	.	.	+	I
Companion species:											
<i>Pritzelago alpina</i>	+	.	.	1	.	+	.	1	.	.	III
<i>Armeria alpina</i>	.	1	+	.	.	.	+	.	.	.	II
<i>Taraxacum dissectum</i>	.	.	.	.	1	.	1	.	.	1	II
<i>Ranunculus pyrenaicus</i>	.	.	.	1	.	.	.	.	.	1	II
<i>Oxyria digyna</i>	.	.	.	.	+	.	.	.	+	.	II
<i>Leucanthemopsis alpina</i>	.	.	.	.	.	+	.	.	+	.	II
<i>Leontodon pyrenaicus</i>	.	.	.	.	.	.	1	.	.	1	II

Other species. Companion species: *Carex approximata* + in 5. *Trifolium alpinum* + in 6. *Athyrium distentifolium* +, *Pedicularis pyrenaica* +, *Viola biflora* + in 8. *Cystopteris pseudoregia* 1, *Saxifraga moschata* + in 9. *Nardus stricta* 2, *Carex parviflora* +, *Poa alpina* +, *Primula integrifolia* + in 10.

Localities: 1. Huesca: Benasque, upper Ibón of Ballibierna. W, 5%, 4 m². 2. Huesca: Benasque, upper Ibón of Ballibierna. N, 10 m². 3. Huesca: Collado de Ballibierna. NE, 4 m². 4. Huesca: Benasque, second upper Ibón of Ballibierna, Little Ice Age stony blocks. 5. Huesca: Benasque, Circo de Coronas. SE, 10 m². 6. Huesca: Benasque, upper Ibón of Ballibierna. E, 10 m². 7. Huesca: Benasque, Lago Coronas. N, 30%, 4 m². 8. Holotypus ass. Huesca: Benasque, moraine of Aneto glacier. 42° 39'N-0° 40'E. NE, 10 m². 9. Huesca: Benasque, Barrancs, glacial cirrus of Aneto. E, 4 m². 10. Huesca: Benasque, Lago Coronas. N, 30%, 10 m². 11. Synthesized table.

Characteristic species (territorials): *Alchemilla fissa*, *Luzula alpinopilosa* subsp. *candollei*, *Veronica alpina*.

Diagnosis: Silicicolous cryorotemperate snow-bed early colonizer perennial community, spread in glacial high mountains of Central Pyrenees.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

ALCHEMILLO SAXATILIS-SAXIFRAGETUM PENTADACTYLIS Gruber & Focquet ass. nova hoc loco (27.6.1)

[*Saxifragetum mixtae saxifragetosum bryoidis* Gruber 1978 nom. inval. (art. 1), *Saxifraga-Alchemilletum saxatilis* Focquet in Doc. Phytosoc. 7: 171. 1982 (art. 5), *Saxifraga pentadactylis-Alchemilletum saxatilis* Focquet ex Benito in Acta Bot. Malacitana 25: 212. 2000 (art. 5)]
(*Androsacion vandellii*, *Androsacetalia vandellii*, *Asplenietea trichomanis*)

Typus associatio: M. Gruber (1978): La végétation des Pyrénées Ariègeoises et Catalanes occidentales (these doct.), page 44, tb. 2, rel. 19. Fac. Sciences St. Jérôme. Marseille nom. inval. (art. 1). [France, Ariège: Pic Rouge de Belcaire, alt. 2620 m, NE, 100 m²]. Characteristic species: 1 *Saxifraga pentadactylis*, + *Alchemilla saxatilis*, + *Asplenium septentrionale*, + *Draba dubia* subsp. *laevipes*, + *Potentilla nivalis*, + *Saxifraga aspera*, + *Saxifraga bryoides*. Companion species: + *Huperzia selago*, + *Phyteuma hemisphaericum*, + *Sedum brevifolium*.

Characteristic species (territorials): *Saxifraga intricata*, *Saxifraga pentadactylis*.

Diagnosis: Silicicolous cryorotemperate chasmophyte perennial community, well characterized by the Pyrenean endemics *Saxifraga pentadactylis* subsp. *pentadactylis* and *Saxifraga intricata*. It grows on fissured cliffy rock faces in Central and East Pyrenees.

[BENITO & RIVAS-MARTÍNEZ]

AMPELODESMO MAURITANICAE-ARBUTETUM UNEDONIS ass. nova hoc loco (75.6.1)

(*Oleo-Ceratonion*, *Pistacio lentisci-Rhamnetalia alaterni*, *Quercetea ilicis*)

Typus associatio: Table 3, rel. 9 [Mallorca. Artá: Sa Poca Son. Alt.: 242 m, exp.: NW, area: 90 m²].

Characteristic species (territorials): *Clematis cirrhosa* var. *balearica*, *Olea europaea* subsp. *sylvestris*, *Rubia peregrina* subsp. *longifolia*, *Smilax aspera* var. *balearica*, *Teucrium chamaedrys* subsp. *pinnatifidum*.

Diagnosis: Phanerophytic sclerophyllous community with an optimum in the thermo-mediterranean subhumid-humid bioclimatic belts of the Balearic biogeographical Subprovince. It is usually found in gravelly soils derived from dolomitic rocks, and locally in clayey soils from the Keuper, as a substitution stage of *Quercus ilex* forests.

[LLORENS, GIL & TÉBAR]

Table 3
75.6.1 *Ampelodesmo mauritanicae*-*Arbutetum unedonis*
(*Oleo-Ceratonion*, *Pistacio-Rhamnetaalia alaterni*, *Quercetea ilicis*)

Altitude (1=10 m)	25	23	15	14	17	16	20	22	24	15	55	23	20	<u>22</u>
Number of species	16	12	16	12	14	12	12	16	13	15	9	9	9	<u>13</u>
Ordinal number	1	2	3	4	5	6	7	8	9*	10	11	12	13	14
Characteristic species:														
<i>Arbutus unedo</i>	4	4	2	5	4	3	2	2	4	2	2	2	2	V
<i>Ampelodesmos mauritanica</i>	.	1	+	+	1	+	.	+	1	1	+	3	3	V
<i>Phillyrea angustifolia</i>	1	1	1	+	1	+	1	.	.	+	.	+	+	IV
<i>Rubia longifolia</i>	1	+	+	+	+	+	.	+	+	1	.	.	+	IV
<i>Pistacia lentiscus</i>	+	.	+	+	+	+	.	1	+	1	+	.	.	IV
<i>Pinus halepensis</i>	+	.	+	.	+	+	1	+	.	.	.	+	.	III
<i>Smilax balearica</i>	+	.	+	.	+	.	.	1	+	1	.	.	+	III
<i>Quercus coccifera</i>	1	.	2	+	.	+	3	3	.	.	.	.	.	III
<i>Quercus ilex</i>	.	+	.	+	+	.	.	+	+	+	.	.	.	III
<i>Teucrium pinnatifidum</i>	+	+	.	.	.	.	.	.	+	+	.	.	+	II
<i>Lonicera implexa</i>	+	.	.	.	+	.	.	+	+	+	.	.	.	II
<i>Rhamnus alaternus</i>	+	.	+	.	+	.	.	+	.	.	.	.	.	II
<i>Chamaerops humilis</i>	+	.	+	.	.	.	.	+	.	.	.	.	+	II
<i>Osyris alba</i>	.	+	.	.	+	.	.	+	.	+	.	.	.	II
<i>Asparagus acutifolius</i>	.	+	.	.	.	.	+	.	+	.	.	+	.	II
<i>Clematis balearica</i>	+	.	.	.	.	+	.	.	.	+	.	.	.	II
<i>Olea sylvestris</i>	.	+	.	.	.	.	+	.	.	+	.	.	.	II
Companion species:														
<i>Calicotome spinosa</i>	.	+	+	1	.	.	+	+	+	3	2	+	+	IV
<i>Dorycnium pentaphyllum</i>	+	+	+	+	+	.	+	+	.	.	+	+	.	IV
<i>Cistus salvifolius</i>	+	.	+	+	.	.	+	+	.	+	.	+	.	III
<i>Erica multiflora</i>	+	.	.	+	.	+	.	1	+	.	.	+	.	III
<i>Cistus albidus</i>	.	1	+	+	.	.	+	.	.	.	+	.	.	II

Other species. Characteristic species: *Erica arborea* 1 in 9, + in 11. *Myrtus communis* + in 9 and 11. *Juniperus oxycedrus* + in 6. *Daphne gnidium* + in 13. Companion species: *Carlina corymbosa* + in 1 and 10. *Teucrium capitatum* + in 3 and 6. *Cistus monspeliensis* + in 5, 1 in 7. *Rosmarinus officinalis* + in 6 and 11. *Fumana thymifolia* + in 3. *Cyclamen balearicum* + in 5. *Bonjeanea hirsuta* 1 in 7.

Localities: 1. Mallorca. Artá: Puig des Coscolls. 100 m². 2. Mallorca. Artá: Na Carro. NE, 120 m². 3. Mallorca. Entre Porreres y Lluçmajor. S, 110 m². 4. Mallorca. Palma: Coll de sa Creu. NE, 100 m². 5. Mallorca. Artá: Son Forteza. NW, 100 m². 6. Eivissa : Serra de San Joan. NE, 120 m². 7. Mallorca.

Palma: Son Cotoner. S, 120 m². 8. Mallorca. Palma: Entre Capdellá y Galilea. SE, 100 m². 9. Holotypus ass. Mallorca. Artá: Sa Poca Son. NW, 90 m². 10. Mallorca. Artá: Puig d'Esquerria. E, 100 m². 11. Mallorca. Lluc (Keuper). NW, 90 m². 12. Mallorca. Artá: Sa Duaia. SW, 100 m². 13. Mallorca. Felanitx: Puig de Santucrí. E, 100 m². 14. Synthesized table.

ANDRYALO LAXIFLORAE-HYPARRHENIETUM HIRTAE Peinado, Martínez-Parras & Alcaraz
ass. nova hoc loco (56.7.2)

[*Andryalo laxiflorae-Hyparrhenietum hirtae* Peinado, Martínez-Parras & Alcaraz in Bartolomé, Peinado, Martínez-Parras, Alcaraz & J. Alvarez Cruz 1989 nom. inval. (art. 1)]
(*Hyparrhenion hirtae*, *Hyparrhenietalia hirtae*, *Lygeo-Stipetea*)

Typus associatio: Cádiz: Between Medina-Sidonia and Vejer de la Frontera, 80 m, 20 m². Characteristic species: 3 *Hyparrhenia sinaica*, 2 *Hyparrhenia hirta*, 1 *Dactylis hispanica*, + *Andryala laxiflora*, + *Bituminaria bituminosa*. Companion species: 1 *Melica magnoalii*, 1 *Phagnalon saxatile*, + *Carlina hispanica*, + *Cynodon dactylon*, + *Galactites tomentosa*.

Characteristic species (territorials): *Andryala laxiflora*, *Hyparrhenia hirta*, *Hyparrhenia sinaica*.

Diagnosis: Perennial subnitrophilous grassland community of Gaditan-Algarvian and Aracenan-Pacensian distribution. It is dominated by paleotropical *Andropogoneae* such as *Hyparrhenia hirta* and *Hyparrhenia sinaica* and other companion species such as *Andryala laxiflora*, a silicicolous southwest Iberian and Tangerine element with thick capitula covered with dense, glandular-hairy indumentum.

[DÍEZ GARRETAS & ASENSI]

ANTHOXANTHO OVATI-VULPIETUM GENICULATAE ass. nova hoc loco (39.10.1)

(*Echio plantaginei-Galactition tomentosae*, *Thero-Brometalia*, *Stellarietea mediae*)

Typus associatio: Table 4, rel. 6 [Toledo: Castillo de Bayuela. 30TUK54. 400 m, SW, 10 m²].

Characteristic species (territorials): *Anthoxanthum ovatum*, *Gaudinia fragilis*, *Hordeum geniculatum*, *Phalaris paradoxa*, *Vulpia geniculata*.

Diagnosis: Lusitan-Extremadurean mesomediterranean euoceanic community, slightly nitrophilous and flowering in late spring, where many tall grasses are abundant: *Vulpia geniculata*, *Anthoxanthum ovatum*, *Gaudinia fragilis*, *Phalaris paradoxa*, *Bromus hordeaceus*, *Hordeum geniculatum*, etc., as well as several legumes: *Trifolium resupinatum*, *Medicago arabica*. Developed on sandy siliceous soils, on depressions and lower part of valleys with shallow temporary floods, they evolve to perennial grasslands in course of the time, because sheep and cattle grazing, the *Agrostis castellana* formations (*Gaudinio-Agrostietum castellanae*) or the *Poa bulbosa* formations (*Trifolio subterranei-Poetum bulbosae*). A.

new alliance: *Vulpia geniculatae-Hordeion geniculati* (in progress) will be proposed for this type of therophytic mediterranean slightly nitrophilous temporary wet ephemeral communities.

[CANTÓ]

Table 4
39.10.1 *Anthoxantho ovati-Vulpietum geniculatae*
(*Echio-Galactition, Thero-Brometalia, Stellarietea mediae*)

Altitude (l=10 m)	42	45	40	40	40	40	40	<u>41</u>
Number of species	11	11	11	12	12	13	14	<u>12</u>
Ordinal number	1	2	3	4	5	6*	7	8
Characteristic species:								
<i>Vulpia geniculata</i>	5	2	4	5	4	5	5	V
<i>Gaudinia fragilis</i>	3	2	2	1	2	1	1	V
<i>Phalaris paradoxa</i>	2	2	1	1	1	1	2	V
<i>Anthoxanthum ovatum</i>	+	3	3	2	1	2	2	V
<i>Bromus hordeaceus</i>	1	.	+	1	2	1	1	IV
<i>Trifolium resupinatum</i>	.	1	3	1	2	2	1	IV
<i>Geranium dissectum</i>	.	+	+	1	1	+	1	IV
<i>Medicago arabica</i>	.	.	.	1	+	+	1	III
<i>Hordeum leporinum</i>	1	.	.	.	+	+	.	III
<i>Echium plantagineum</i>	.	1	.	1	.	.	+	III
<i>Hordeum geniculatum</i>	.	.	3	.	3	2	.	III
<i>Coleostephus myconis</i>	1	.	.	.	+	.	.	II
<i>Bromus diandrus</i>	.	.	+	.	.	1	.	II
<i>Galactites tomentosa</i>	.	.	.	+	.	.	+	II
<i>Raphanus raphanistrum</i>	.	.	.	+	.	.	+	II
Companion species:								
<i>Poa infirma</i>	.	.	2	.	+	1	.	III
<i>Trifolium repens</i>	.	1	.	1	.	.	.	II

Other species. Characteristic species: *Trifolium campestre* 2, *Cynosurus echinatus* 1, *Lolium rigidum* 1, *Parentucellia viscosa* 1 in 1. *Holcus annuus* 1, *Leontodon longirostris* 1 in 2. *Diplotaxis catholica* + in 3. *Plantago lagopus* +, *Sonchus asper* +, *Vicia sativa* + in 7. Companion species: *Plantago coronopus* 1, *Silene gallica* 1 in 1. *Juncus squarrosus* 1 in 2.

Localities: 1. Toledo: Cervera de los Montes, deviation to Pepino. 30TUK43. N, 5%, 10 m². 2. Toledo: Sartajada. 30TUK45. S, 20 m². 3. Toledo. Castillo de Bayuela. El Cruce. 30TUK54. S, 2%, 10 m². 4. Toledo: Garciotún. 30TUK64. N, 5%, 10 m². 5. Toledo. Castillo de Bayuela, between Castillo de Bayuela and Nuño Gómez. 30TUK54. S, 5%, 20 m². 6. Holotypus ass. Toledo. Castillo de Bayuela. 30TUK54. SW, 10%, 10 m². 7. Toledo. Garciotún. 30TUK64. E, 5%, 10 m². 8. Synthesized table.

ANTHYLLIDO LUSITANICAE-TUBERARIETUM GUTTATAE ass. nova hoc loco (50.1.3)
 (*Tuberarion guttatae*, *Tuberarietalia guttatae*, *Tuberarietea guttatae*)

Typus associatio: Table 5, rel. 9 [Tras-os-Montes: Bragança, Parada. 480 m., S, 20%, 4 m²].

Table 5
50.1.3 Anthyllido lusitanicae-Tuberarietum guttatae
 (*Tuberarion guttatae*, *Tuberarietalia guttatae*, *Tuberarietea guttatae*)

Altitude (1=10m)	41	57	61	65	54	64	60	52	48	50	55
Number of species	11	15	18	19	18	18	19	24	25	25	19
Ordinal number	1	2	3	4	5	6	7	8	9*	10	11
Characteristic species:											
<i>Tuberaria guttata</i>	2	1	2	1	2	2	3	2	2	3	V
<i>Coronilla dura</i>	2	+	1	2	1	1	2	1	1	1	V
<i>Anthyllis lotoides</i>	1	1	2	1	1	+	2	1	1	1	V
<i>Leontodon longirostris</i>	+	1	1	+	3	.	+	+	3	3	V
<i>Trifolium arvense</i>	2	.	1	+	2	2	2	1	2	2	V
<i>Hypochoeris glabra</i>	1	.	1	+	+	.	1	+	1	+	IV
<i>Trifolium campestre</i>	2	1	.	2	.	1	2	+	.	+	IV
<i>Anthyllis lusitanica</i>	.	+	.	1	+	.	1	1	+	+	IV
<i>Logfia minima</i>	+	.	.	.	+	1	1	.	+	+	III
<i>Tolpis barbata</i>	.	.	.	.	+	+	+	+	+	1	III
<i>Vulpia myuros</i>	1	2	2	.	.	.	.	+	.	1	III
<i>Aira cupaniana</i>	+	.	.	.	+	.	.	+	+	+	III
<i>Galium parisiense</i>	+	.	.	.	.	+	1	.	+	1	III
<i>Ornithopus compressus</i>	.	.	1	.	.	+	1	1	+	.	III
<i>Vicia lutea</i>	.	+	.	.	1	.	+	.	+	.	II
<i>Crucianella angustifolia</i>	.	.	.	+	+	.	.	.	+	+	II
<i>Briza maxima</i>	.	.	.	+	.	+	.	+	+	.	II
<i>Asterolinon linum-stellatum</i>	.	.	.	.	.	.	+	+	+	+	II
<i>Trifolium angustifolium</i>	.	+	.	.	.	1	.	+	.	.	II
<i>Jasione montana</i>	.	.	1	.	+	+	.	.	.	.	II
<i>Eryngium tenue</i>	.	.	.	+	.	+	.	.	.	+	II
<i>Petrorhagia nanteuilii</i>	.	.	.	.	.	.	1	+	+	.	II
Companion species:											
<i>Vicia angustifolia</i>	.	.	.	+	1	.	+	1	+	+	III
<i>Andryala integrifolia</i>	.	.	1	+	.	+	.	+	.	.	II

Other species. Characteristic species: *Aira caryophyllea* + in 3 and 6. *Micropyrum tenellum* + in 4 and 8. *Euphorbia merinoi* + in 4 and 10. *Vulpia bromoides* 1 in 5 and 9. *Anthoxanthum aristatum* + in 5, 1 in 10. *Trifolium glomeratum* + in 7, 1 in 9. *Daucus durieua* + in 7 and 9. *Logfia gallica* + in 7, 1 in 10. *Lathyrus angulatus* + in 8 and 9. *Moenchia erecta* + in 3. *Lathyrus sphaericus* + in 4. *Vulpia muralis* 1, *Campanula lusitanica* +, *Trifolium bocconeii* + in 6. *Linaria amethystea* +, *Psilurus incurvus* +, *Silene gallica* + in 8. *Vicia disperma* + in 9. *Brachypodium distachyon* +, *Cerastium brachy-*

petalum +, *Teesdalia coronopifolia* + in 10. Companion species: *Sanguisorba verrucosa* 1 in 2, + in 3 and 4. *Carlina corymbosa* 1 in 2, + in 4. *Pimpinella villosa* 1 in 2, + in 5. *Lotus carpetanus* + in 2 and 5. *Bromus madritensis* + in 3 and 9. *Trifolium hirtum* 1, *Avena barbata* +, *Eryngium campestre* + in 2. *Bromus tectorum* 3, *Rumex angiocarpus* 1, *Biserrula pelecinus* +, *Sesamoïdes purpurascens* + in 3. *Sedum forsteranum* + in 4. *Cynosurus echinatus* + in 6. *Astragalus cymbaecarpus* + in 8. *Sherardia arvensis* + in 9. *Misopates orontium* +, *Torilis nodosa* + in 10.

Localities: 1. Lu, Trás-os-Montes: Vimioso, Matela. 29TPF99. SE, 20%, 3 m². 2. Lu, Trás-os-Montes: Bragança, Alfaião, near to aldeia. 29TPG82. S, 25%, 4 m². 3. Lu, Trás-os-Montes: Macedo de Cavaleiros, Salselas. 29TPG70. 5 m². 4. Lu, Trás-os-Montes: Bragança, Babe, near to the road Alta Lombada. 29TPG93. E, 40%, 8 m². 5. Lu, Trás-os-Montes: Bragança, Grijó de Parada. 29TPG92. WSW, 5%, 10 m². 6. Lu, Trás-os-Montes: Macedo de Cavaleiros, Estação de Sendas. 29TPG70. N, 25%, 9 m². 7. Lu, Trás-os-Montes: Bragança, Quintanilha, Vidoleiros. 29TQG02. SSE, 20%, 16 m². 8. Lu, Trás-os-Montes: Mogadouro, Soutelo. 29TPF88. ENE, 30%, 9 m². 9. Holotypus ass. Lu, Trás-os-Montes: Bragança, Parada. 29TPG91. S, 20%, 4 m². 10. Lu, Trás-os-Montes: Bragança, S. Pedro, near to the bridge Penacal. 29TPG82. SW, 50%, 4 m². 11. Synthesized table.

Characteristic species (territorials): *Anthyllis vulneraria* subsp. *lusitanica*, *Coronilla dura*, *Hymenocarpos lotoides*.

Diagnosis: Floristically homogeneous and rather diverse annual community, with an optimum in the mesomediterranean subhumid areas of the Lusitan Duriensean Sector, it also appears locally in the Bercian-Sanabriensean Sector only in favourable exposures or substrata (basic rocks). It usually grows on thin soils (leptosols) derived from schist or basic rocks, in the clearings of *Cistus ladanifer* communities, as a substitution stage of Lusitan Duriensean cork oak (*Quercus suber*) or holly oak (*Quercus rotundifolia*) forests. The most relevant taxa of its characteristic species combination are: *Anthyllis vulneraria* subsp. *lusitanica*, *Coronilla repanda* subsp. *dura*, *Galium parisiense*, *Hymenocarpos lotoides*, *Hypochaeris glabra*, *Leontodon longirostris*, *Logfia minima*, *Ornithopus compressus*, *Tolpis barbata*, *Trifolium campestre*, *Vulpia myuros* and *Tuberaria guttata*.

[AGUIAR & PENAS]

APIETUM BERMEJOI ass. nova hoc loco (12.3.1)

(*Rorippion nasturtii-aquatici*, *Nasturtio-Glycerietalia*, *Phragmito-Magnocarietea*)

Typus associatio: Table 6, rel. 1 [Minorca. Cap Negre Alt.: 20 m, exp. NE, 0.1 m²].

Characteristic species: *Apium bermejoi*.

Diagnosis: Aerohaline and temporary wet annual and perennial cespitose community, well characterized by the local endemic small umbeliferous *Apium bermejoi*, that grows in the NE littoral of Minorca (Balearic Islands). The syntaxonomical position is intermediate between *Rorippion nasturtii-aquatici* and *Launaeion cervicornis* (*Crithmo-Limonieta*).

[LLORENS & GIL]

Table 6

12.3.1 *Apietum bermejoi**(Rorippion nasturtii-aquatici, Nasturtio-Glycerietalia, Phragmito-Magnocaricetea)*

Altitude (1=10 m)	2	2	3	<u>2</u>
Number of species	3	3	5	4
Ordinal number	1*	2	3	4
Characteristic species:				
<i>Apium bermejoi</i>	5	5	3	3
Companion species:				
<i>Polycarpon colomense</i>	.	+	+	2
<i>Bellium bellidioides</i>	+	.	.	1
<i>Senecio rodriguezii</i>	+	.	.	1
<i>Plantago coronopus</i>	.	1	.	1
<i>Sagina maritima</i>	.	.	1	1
<i>Daucus commutatus</i>	.	.	+	1
<i>Limonium fontqueri</i>	.	.	+	1

Localities: 1. Holotypus ass. Minorca. Cap Negre. NE, 0.1 m². 2. Minorca. Cap Negre. NE, 0.1 m². 3. Minorca. Cap Negre. NE, 1 m² (Rivas-Martínez, 23.04.1996). 4. Synthesized table.

ARMERIO MICROCEPHALAE-FESTUCETUM ARAGONENSIS (Rivas-Martínez & G. Navarro in G. Navarro 1989) ass. nova, stat. nov. hoc loco (49.2.3)

[*Antennario dioicae-Festucetum aragonensis armerietosum microcephalae* Rivas-Martínez & G. Navarro in G. Navarro in Opusc. Bot. Pharm. Complut. 5: 12, tb. 1. 1989 (basion.) (art. 27d, 46H)]
(*Minuartio-Festucion curvifoliae, Festucetalia indigestae, Festucetea indigestae*)

Typus associatio: G. Navarro in Opusc. Bot. Pharm. Complut. 5: 12-13, tb. 1, rel. 2. 1989. Holotypus. [Zaragoza: Moncayo, Pico Lobera. 2230 m, SSE, 100 m²]. Characteristic species: 2 *Festuca aragonensis*, 2 *Armeria bigerrensis* subsp. *microcephala*, 2 *Biscutella pyrenaica*, 2 *Hieracium vahlii*, 2 *Silene ciliata* subsp. *elegans*, 2 *Luzula hispanica*, 2 *Jasione crispa* subsp. *centralis*, 1 *Veronica fruticans*; Companion species: 2 *Antennaria dioica*, 2 *Deschampsia iberica*, 1 *Ranunculus ollissiponensis* subsp. *alpinus*, 1 *Senecio pyrenaicus* subsp. *aragonensis*, 1 *Juniperus communis* subsp. *nana*, 1 *Cetraria nivalis*, 1 *Rumex angiocarpus*, 1 *Saxifraga granulata*, + *Cerastium alpinum*, + *Solidago virgaurea* subsp. *fallitirones*.

Characteristic species: *Armeria bigerrensis* subsp. *microcephala*, *Festuca aragonensis*.

Diagnosis: Climatophilous psicroxerophilous silicicolous short pastures, formed mainly by grassy, clustered hemicryptophytes and pulviniform chamaephytes, characteristic of the upper humid orotemperate submediterranean belt (cryorosubmediterranean and orosubmediterranean) of the summit areas of the Moncayo (Moncayense district, Sorian Oroiberian Sector). It is developed on spurs and windy slopes often without winter snow covering,

over 2000 m, it is well characterized and independent from the other summit associations of the Sorian Oroiberian Sector by the Moncayo endemics: *Armeria bigerrensis* subsp. *microcephala* and *Festuca aragonensis*. The absence of the silicicolous orophytes: *Festuca curvifolia*, *Minuartia recurva*, *Leucanthemopsis alpina* subsp. *cuneata*, and *Luzula caespitosa*, is also important in the Moncayense district. These latter species are common in the climatophilous geovicarian urbionense association *Antennario dioicae-Festucetum curvifoliae*.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

ARMERIO TRANSMONTANAE-PLANTAGINETUM RADICATAE ass. nova hoc loco (49.5.2)

(*Hieracio castellani-Plantaginion radicatae*, *Jasiono-Koelerietalia crassipedis*, *Festucea indigestae*)

Typus associatio: Table 7, rel. 6 [Tras-os-Montes: Bragança, Mofreira, in the way to Moimenta, 950 m, 10 m²].

Characteristic species (territorials): *Armeria transmontana*, *Dianthus langeanus*, *Dianthus laricifolius*.

Diagnosis: Shallow and rocky acid soils pioneer perennial community, frequent on cliffs and quartzitic outcrops, dominated by *Armeria transmontana*, *Dianthus langeanus*, *Dianthus laricifolius*, *Koeleria crassipes*, *Plantago radicata* and *Thymus zygis*. In this association, two subassociations are easily recognised. The subass. *plantaginetosum radicatae* has a biogeographic optimum in the Bercian-Sanabriensean Sector and it is differentiated by the presence of *Agrostis truncatula* subsp. *commista*, *Anthemis alpestris*, *Corynephorus canescens*, *Dianthus langeanus*, *Festuca elegans*, *Ornithogalum concinnum* and *Rumex anjiocarpus*. The subass. *dianthetosum laricifolii* (typus rel. 7) is a Lusitan Duriensean community differentiated by *Asperula scabra*, *Dianthus laricifolius* and *Melica ciliata* subsp. *magnolii*.

[AGUIAR]

ARO ITALICI-OLEETUM SYLVESTRIS ass. nova hoc loco (75.3.1)

[*Tamo-Oleetum sylvestris* sensu Rivas-Martínez, Mem. Mapa Series Veg. España: 153. 1987 non Benabid in Travaux Inst. Scientifique (Rabat), ser. Bot. 34: 7, tb. 2. 1985 (art. 5)]

(*Quercu rotundifoliae-Oleion sylvestris*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Cádiz: From Medina Sidonia to Cantora hill, 160 m, 10%, 200 m². 36°25'N-5°53'W. Characteristic species: 4 *Olea europaea* subsp. *sylvestris*, 2 *Arum italicum*, 2 *Clematis cirrhosa*, 2 *Pistacia lentiscus*, 2 *Smilax aspera* var. *altissima*, 1 *Arisarum simorrhinum* var. *subexertum*, 1 *Aristolochia baetica*, 1 *Asparagus albus*, 1 *Crataegus brevispina*, 1 *Eryngium tricuspdatum*, 1 *Phlomis purpurea*, 1 *Rhamnus oleoides*, + *Chamaerops humilis*, + *Ruscus aculeatus*. Companion species: 2 *Piptatherum miliaceum*, 1 *Brachypodium retusum*, 1 *Vinca difformis*, + *Bryonia dioica*, + *Smyrniolum olusatrum*.

Characteristic species (territorials): *Arisarum simorrhinum* var. *subexertum*, *Aristolochia baetica*, *Arum italicum*, *Crataegus brevispina*, *Olea europaea* subsp. *sylvestris*, *Phlomis purpurea*, *Rhamnus oleoides*, *Tamus communis*, *Vinca difformis*.

Table 7

49.5.2 *Armerio transmontanae-Plantagininetum radicatae*

(*Hieracio castellani-Plantaginion radicatae*, *Jasione-Koelerietalia crassipedis*, *Festucetea indigestae*)

Altitude (I=10m)	105	103	122	110	92	95	65	53	<u>93</u>
Number of species	16	18	11	15	13	9	17	14	<u>14</u>
Ordinal number	1	2	3	4	5	6*	7	8	9
Characteristic species:									
<i>Armeria transmontana</i>	1	+	+	+	2	1	1	+	V
<i>Plantago radicata</i>	2	1	2	2	.	3	2	2	V
<i>Lotus carpetanus</i>	1	+	1	+	.	.	1	.	IV
<i>Dianthus langeanus</i>	.	.	+	+	2	2	.	.	III
<i>Hieracium castellanum</i>	1	.	.	.	.	1	.	.	II
<i>Herniaria scabrida</i>	.	+	.	.	.	.	1	.	II
<i>Koeleria crassipes</i>	.	.	.	+	.	.	.	2	II
<i>Sedum brevifolium</i>	.	.	.	.	2	+	.	.	II
<i>Dianthus laricifolius</i>	.	.	.	.	.	.	2	1	II
Companion species:									
<i>Agrostis castellana</i>	+	+	.	+	2	1	2	1	V
<i>Avenula sulcata</i>	2	1	1	1	.	2	.	.	IV
<i>Agrostis commista</i>	1	.	1	1	1	.	.	.	III
<i>Thymus zygis</i>	.	3	.	2	.	.	3	2	III
<i>Jasione montana</i>	1	+	1	.	.	.	.	.	III
<i>Lavandula sampaioana</i>	1	+	.	.	.	.	.	+	III
<i>Halimium viscosum</i>	3	.	3	2	.	.	.	.	III
<i>Rumex angiocarpus</i>	+	+	.	.	+	.	.	.	III
<i>Hypericum linarifolium</i>	+	.	.	.	+	+	.	.	III
<i>Micropyrum tenellum</i>	.	1	.	.	1	1	.	.	III

Other species. Characteristic species: *Anthemis alpestris* 1, *Festuca elegans* 1 in 3. *Arenaria que-rioides* 1, *Festuca summilusitana* 1 in 4. Companion species: *Corynephorus canescens* + in 1 and 2. *Poa bulbosa* + in 2, 1 in 4. *Andryala integrifolia* 1 in 7, + in 8. *Eryngium campestre* + in 7 and 8. *Logfia minima* + in 7 and 9. *Thymus mastichina* 1, *Arenaria montana* +, *Helichrysum stoechas* + in 1. *Petrorhagia nanteuilii* 1, *Campanula rapunculus* +, *Cynosurus echinatus* +, *Genista hystrix* +, *Trisetaria ovata* + in 2. *Pterospartum lasianthum* 2, *Halimium alyssoides* 1 in 3. *Echinopartum ibericum* 2, *Festuca gr. ovina* 1, *Helianthemum rothmaleri* 1 in 4. *Arrhenatherum bulbosum* 2, *Holcus gayanus* 1, *Silene nutans* 1, *Anarrhinum bellidifolium* +, *Conopodium marizianum* + in 5. *Chamaemelum no-bile* 2, *Cistus ladanifer* 2, *Dactylis hispanica* 1, *Leontodon longirostris* 1, *Trifolium campestre* 1, *Trifolium glomeratum* 1, *Tuberaria guttata* 1, *Vulpia muralis* + in 7. *Asperula scabra* 1, *Genista hys-trix* 1, *Arrhenatherum bulbosum* +, *Carlina corymbosa* +, *Centaurea langeana* + in 8.

Localities: 1. Lu, Bragança: Castrelos, Conlelas. 29TPG73. 70%, 6 m² 2. Lu, Bragança: Gostei, Formil, close to the house of Corriças. 29TPG72. 60%, 8 m² 3. Lu, Bragança: Rebordãos, close to the road to da Serra. 29TPG82. 70%, 8 m² 4. Lu, Bragança: Zoio, Martim, Serra de Nogueira. 29TPG72. 60%, 15 m² 5. Lu, Bragança: Carragosa, Soutelo. 29TPG83. 50%, 16 m² 6. Holotypus ass. Lu, Bragança: Mofreita, near to the road of Moimenta. 29TPG74. 60%, 10 m². 7. Holotypus subass. Lu, Bragança: Babe. 29TPG93. 60%, 16 m² 8. Lu, Bragança: Gimonde. 29TPG93. 60%, 12 m² 9. Synthesized table.

Diagnosis: Meso-microforests in which the wild olive (*Olea europaea* subsp. *sylvestris*) is the dominant tree, with an undergrowth rich in evergreen (*Phillyrea latifolia*, *Pistacia lentiscus*, *Rhamnus oleoides*, *Phlomis purpurea*) or deciduous shrubs (*Crataegus brevispina*), as well as an important number of vines (*Aristolochia baetica*, *Clematis cirrhosa*, *Smilax aspera*, *Tamus communis*, *Vinca difformis*) and geophytes (*Arisarum vulgare* var. *subexertum*, *Arum italicum*). These thermophilous Betic and Gaditan-Algarvian wild olive forests grow on soils where the expandable clayey prevents the sclerophyllous trees such as the evergreen oak (*Quercus rotundifolia*) from establishing or turns it difficult as in the case of the cork oak (*Quercus suber*). Both the two evergreen species are usually the dominant trees in the head of the climatophilous series of the thermomediterranean forests with dry and subhumid ombrotype, mainly in those growing on soils without vertic or gleic character. The substitution stages of these climatophilous verticicolous *Olea* forests (*Olea sylvestris*) belong to endemic thermomediterranean West Iberian communities, such as the shrub formations of *Pistacia lentiscus* and hawthorns of the *Asparago albi-Rhamnetum oleoidis*, some Betic-Jerezan associations of perennial pastures of clustered grasses of the alliance *Gaudinio-Hordeio bulbosi*, and the verticicolous thyme formations of the *Asperulo hirsutae-Ulicetum scabri*.

The floristic separation of the Iberian association *Aro italici-Oleetum sylvestris* from its Rif-Tingitane geovicariant *Tamo-Oleetum sylvestris* Benabid 1985, also with its optimum in the vertisols, can be established by the existence in the Iberian *Olea* forests of *Crataegus brevispina*, *Phlomis purpurea* subsp. *purpurea* and *Rhamnus oleoides* subsp. *oleoides*, as well as the absence of *Ampelodesmos mauritanica*, *Buxus balearica*, *Calicotome intermedia*, *Crataegus maura*, *Tetraclinis articulata*, etc., present in the Northafrican association.

[RIVAS-MARTÍNEZ & CANTÓ]

ARTEMISIO ALBAE-DICHANTHION ISCHAEMI X. Font all. nova hoc loco (51.4)

[*Artemisio albae-Xerobromenion* X. Font in Arxius Secc. Ci. Inst. Estud. Catalans 105: 95. 1993 (art. 5), *Genistello sagittalis-Xerobromenion* X. Font in Arxius Secc. Ci. Inst. Estud. Catalans 105: 105. 1993 (art. 5), *Xerobromion* "thermofile" et *Xerobromion* "acidophile" sensu X. Font 1989 non *Xerobromion* (Br.-Bl. & Moor 1938) Moravec in Holub, Hejný, Moravec & Neuhäusl 1967] (*Brachypodietalia phoenicoidis*, *Festuco-Brometea*)

Typus aliancia: *Cleistogeno serotinae-Dichanthietum ischaemi* Carreras & X. Font in Carreras, Carrillo, X. Font, Ninot & Vigo in Collect. Bot. (Barcelona) 14: 182, holotypus: tb. 5, rel. 2. 1983. [Lleida: Alt Urgell, entre Martinet i Pont de Bas, Pic del Aguila. CG 89. 970 m, S, 20, 75 m²].

Characteristic species: *Artemisia alba*, *Artemisia campestris* subsp. *campestris*, *Centaurea paniculata* subsp. *leucophaea*, *Cleistogenes serotina*, *Dichanthium ischaemum*, *Melica ciliata* subsp. *ciliata*.

Diagnosis: Submediterranean meso-supratemperate subhumid to lower humid xerophytic inner valley Prepyrenean and East Pyrenean steppe-like communities rich in graminoid and

chamaephytes, growing on nutrient rich or poor shallow soils. Could be regarded as geovariant of *Diplachnion serotinae* Br.-Bl. 1961 of the inner Alps.

Achilleo odoratae-Bothriochloetum ischaemi Vigo in Collect. Bot. (Barcelona) 7(2): 1182. 1968 (51.4.1)

Distribution: Silicolous xeric on humid ombrotype in high Ter and Llobregat rivers (Alt Berguedà, Ripollès).

Cleistogeno serotinae-Dichanthietum ischaemi Carreras & X. Font in Carreras, Carrillo, X. Font, Ninot & Vigo in Collect. Bot. (Barcelona) 14: 182, tb. 5. 1983 (51.4.2)

Distribution: From Cinca to Segre rivers, neutrophilous and thermophilous community characterized by *Cleistogenes serotina* (Sobrarbe, Ribagorza, Pallars, Alt Urgell, Andorra and Baixa Cerdanya).

Diantho geminiflori-Phleetum phleoidis X. Font in Arxius Secc. Ci. Inst. Estud. Catalans 105: 113, tb. 16. 1993 (51.4.3)

Distribution: Neutrophilous to acidophilous xeric High Pyrenean community, intermediate with *Chamaespartio-Agrostienion capillaris*, from Isabena to Cinca rivers.

Festuco andres-molinae-Saturejetum montanae G. Montserrat, Actas del Congreso de Botánica en homenaje a Francisco Loscos: 743, tb. 2. 2000 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousa & Penas 2002 (corr. nova) (51.4.4)

Distribution: Calcicolous xeric rich in shifting stones Prepyrenean Ribagorzan.

Jurineo humilis-Stipetum eriocaulis Romo in Arxius Secc. Ci. Inst. Estud. Catalans 90: 430, tb. 27. 1989 (51.4.5)

Distribution: Calcicolous wind exposed Prepyrenean Montsiccianean (Pallars Jussà, Alt Urgell).

Koelerio gracilis-Avenuletum ibericae Br.-Bl. in Br.-Bl. & Moor 1938 corr. O. Bolòs in Carreras, Carrillo, X. Font, Ninot & Vigo in Collect. Bot. (Barcelona) 14: 156, tb. 1. 1983 (51.4.6)

[ass. à *Avena amethystina* et *Koeleria gracilis* Br.-Bl. & Moor, Prod. Group. Vég. (Bromion erecti) 5: 21. 1938]

Distribution: Neutrophilous to acidophilous xeric Eastern Pyrenean community, intermediate with *Chamaespartio-Agrostienion capillaris* (Conflent, Cerdanya, Andorra, Ariege, Pallars).

Polygalo gerundensis-Ononidetum spinosae O. Bolòs in Veg. Montseny: 59. 1983 (51.4.7)

Distribution: Acidophilous xeric Montsignatic.

Teucrio montani-Avenuletum mirandanae Carrillo & Ninot in Carreras, Carrillo, X. Font, Ninot & Vigo in Collect. Bot. (Barcelona) 14: 188, tb. 6. 1983 (51.4.8)

Distribution: Basophilous xeric in calc-schist shallow soils (Pallars Sobirà).

[RIVAS-MARTÍNEZ & M.L. LÓPEZ]

ARTEMISIO VALENTINAE-CAMPHOROSMETUM MONSPELIACAE ass. nova hoc loco (37.1.7)

(*Salsola vermiculatae-Peganion harmalae*, *Salsolo-Peganetalia*, *Pegano-Salsotelea*)

Typus associatio: Table 8, rel. 5 [Huesca: Between Lanaja and Castejón de Monegros, Valzapatas, 30TYM215145, vertic soils, temporally wet, 620 m, 20 m²].

Characteristic species: *Camphorosma monspeliaca*.

Table 8

37.1.7 *Artemisia valentinae-Camphorosmetum monspeliacae*

(*Salsola vermiculatae-Peganion harmalae*, *Salsolo-Peganetalia*, *Pegano-Salsotelea*)

Altitude (1=10m)	37	52	62	43	62	62	38	62	41	73	28	<u>51</u>
Number of species	5	5	6	7	7	7	8	8	8	9	9	7
Ordinal number	1	2	3	4	5*	6	7	8	9	10	11	12

Characteristic species:

<i>Camphorosma monspeliaca</i>	3	4	4	4	3	3	2	4	4	3	3	V
<i>Artemisia valentina</i>	.	2	1	2	2	2	3	1	2	2	3	V
<i>Salsola vermiculata</i>	+	1	1	+	+	+	+	+	.	.	+	IV
<i>Atriplex halimus</i>	1	+	.	.	.	.	.	.	.	.	.	II

Companion species:

<i>Brachypodium retusum</i>	.	.	+	.	+	+	.	+	.	.	1	III
<i>Eryngium campestre</i>	.	.	+	.	.	.	+	+	+	.	.	III
<i>Festuca andres-moliniae</i>	.	.	.	+	1	+	.	+	1	.	.	III
<i>Poa bulbosa</i>	.	.	.	1	.	.	1	+	2	+	.	III
<i>Avenula bromoides</i>	.	.	+	.	+	+	.	.	.	1	.	III
<i>Dactylis hispanica</i>	.	.	.	1	.	.	.	.	2	2	1	III
<i>Koeleria vallsiana</i>	.	.	.	+	.	.	.	.	.	+	2	II
<i>Thymus vulgaris</i>	.	.	.	.	.	+	.	+	.	.	.	II

Other species. Characteristic species: *Helichrysum stoechas* + in 11. Companion species: *Aizoon hispanicum* 1, *Sisymbrium runcinatum* + in 1. *Medicago sativa* + in 2. *Stipa iberica* + in 5. *Astragalus alopecuroides* +, *Herniaria fruticosa* +, *Plantago albicans* + in 7. *Marrubium alysson* + in 9. *Helianthemum hirtum* 1, *Parapholis incurva* +, *Spergularia heldreichii* + in 10. *Globularia alypum* + in 11.

Localities: 1. Huesca: Sariñena. Between Pallaruelo de Monegros and Castejón de Monegros. El Campo de Ripoll, open places with vertic soils temporally flooded, 30TYM318187, 10 m². 2. Huesca: Alcubierre. Sierra de Alcubierre. Barranco de S. Caprasio, Balsa Pina. Sheep trails,

30TYM111289, 10 m². 3, 5, 6 and 8. Huesca: Between Lanaja and Castejón de Monegros, Valzapatas, open places with vertic soils temporally flooded, 30TYM215145, 20 m². Holotypus ass.: rel. 5. 4. Huesca: Between Lanaja and Castejón de Monegros, 'Ermita de S. Martín', open places and sheep trails with vertic soils temporally flooded, close to *Lygeum spartum* communities (*Eremopyro cristati-Lygeetum sparti*), 30TYM215225, 20 m². 7. Zaragoza: Leciniena. Balse de Leciniena. Sheep trails, 30TXM978301, 4 m². 9. Huesca: Lanaja. 'Paridera de Fuente Amarga'. Open places and sheep trails, 30TYM209256, 10 m². 10. Huesca: Alcubierre. Sierra de Alcubierre. Valdelupo, 'Corrales de Casaús', 30TYM097255, 10 m². 11. Huesca: Gurrea de Gállego. 'Acequia del Soto' between La Paul and the Hermitage of 'Nuestra Señora del Salz', gypseous cliff-foothills, 20% slope, 30TXM828490, 20 m². 12. Synthesized table.

Diagnosis: Communities from cattle tracks and clayey resting lands where the sheep pass through, in which the compact procumbent shrub with erect flowering branches *Camphorosma monspeliaca* (sisallo alcanforado) is often abundant. It has its best representation on the clayey nitrificated or gypsum-clayey soils with vertic character and a slightly temporary hydromorphy, in the mesomediterranean xeric and pluviestational dry belt in the middle basin Ebro river (Bardenan-Monegrensean Sector). It can form mosaics together with other perennial meadow communities of the *Salsolo-Peganion* or *Astragalo-Poion bulbosae*, in the territories belonging to the vegetation series of the *Rhamno-Quercus cocciferae* sigmetum and *Junipero phoeniceo-thuriferae* sigmetum. Now it is a threatened habitat because of the great decrease of shepherding caused by changes in the use of the territory.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

ASPARAGO ACUTIFOLII-QUERCETUM ROTUNDIFOLIAE ass. nova hoc loco (75.1.6)

[*Quercetum rotundifoliae* "alcarreño" Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 340, tb. 6. 1960 (art. 2c, 3b), *Bupleuro rigidi-Quercetum rotundifoliae* Rivas-Martínez 1982 (art. 2b)]

(*Quercenion rotundifoliae*, *Quercion ilicis*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Table 9, rel. 1 [Guadalajara: Pozo de Guadalajara. 40° 29'N-03° 10'W. Humic luvisol on limestone. 820 m, W, 5%, 200 m²].

Characteristic species (territorials): *Aristolochia paucinervis*, *Asparagus acutifolius*, *Bupleurum rigidum*, *Quercus rotundifolia*, *Silene mellifera*.

Diagnosis: Stone-oak (*Quercus rotundifolia*) microforests representing the potential vegetation in the dry mesomediterranean territories of the Manchegan Sector, on base-rich soils developed on limestones, or calcareous or gypseous marles. Although they have been traditionally merged with the low Aragonese stone-oak microforests belonging to the association *Quercetum rotundifoliae*, both associations can be differentiated by the higher frequency in the former of plants like *Asparagus acutifolius*, *Daphne gnidium*, *Silene mellifera*, *Aristolochia paucinervis*, *Colutea hispanica*, etc, while the differential elements of the latter are *Centaurea linifolia*, *Rosa pimpinellifolia*, etc.

[RIVAS-MARTÍNEZ, CANTÓ, FERNÁNDEZ-GONZÁLEZ & SÁNCHEZ-MATA]

Table 9

75.1.6 *Asparagus acutifolii-Quercetum rotundifoliae**(Quercenion rotundifoliae, Quercion ilicis, Quercetalia ilicis, Quercetea ilicis)*

Altitude (1=10m)	82	62	65	60	77	<u>69</u>
Number of species	18	14	21	8	21	<u>16</u>
Ordinal number	1*	2	3	4	5	6
Characteristic species:						
<i>Quercus rotundifolia</i>	5	5	5	4	5	V
<i>Asparagus acutifolius</i>	1	3	+	+	1	V
<i>Rubia peregrina</i>	2	3	1	.	+	IV
<i>Rhamnus lycioides</i>	.	+	+	+	1	IV
<i>Jasminum fruticans</i>	1	.	.	+	1	III
<i>Daphne gnidium</i>	+	.	+	.	.	II
<i>Teucrium pinnatifidum</i>	2	.	.	.	1	II
<i>Bupleurum rigidum</i>	2	.	.	.	+	II
<i>Silene mellifera</i>	+	.	.	.	+	II
<i>Rhamnus alaternus</i>	.	+	.	.	2	II
<i>Quercus coccifera</i>	.	.	+	.	2	II
<i>Colutea hispanica</i>	.	.	+	.	+	II
Companion species:						
<i>Aristolochia pistolochia</i>	.	+	+	.	1	III
<i>Asphodelus cerasiferus</i>	.	2	1	.	.	II
<i>Geranium purpureum</i>	.	+	1	.	.	II
<i>Galium aparinella</i>	.	+	+	.	.	II
<i>Thymus zygis</i>	.	+	+	.	.	II
<i>Stipa tenacissima</i>	.	+	.	1	.	II
<i>Dactylis hispanica</i>	.	+	.	.	1	II
<i>Arrhenatherum album</i>	.	+	.	.	+	II
<i>Helianthemum rotundifolium</i>	.	.	+	.	+	II

Other species. Characteristic species: *Lonicera etrusca* 1, *Ruscus aculeatus* 1 in 1. *Aristolochia paucinervis* + in 1. *Ephedra nebrodensis* 1 in 4. *Juniperus lagunae* 2, *Pistacia terebinthus* 2, *Carex distachya* 1, *Lonicera implexa* + in 5. Companion species: *Brachypodium retusum* 1, *Dorycnium pentaphyllum* 1, *Genista scorpius* 1, *Avenula pauneroi* +, *Cistus albidus* +, *Geum sylvaticum* +, *Rhamnus infectorius* + in 1. *Cistus clusii* + in 2. *Bryonia dioica* +, *Bupleurum frutescens* +, *Carex halleriana* +, *Ononis fruticosa* +, *Salvia lavandulifolia* +, *Teucrium pseudochamaepitys* +, *Thapsia villosa* +, *Thymus vulgaris* + in 3. *Crataegus monogyna* +, *Leuzea conifera* + in 4. *Melica minuta* +, *Rosa micrantha* +, *Silene vulgaris* + in 5.sn

Localities: 1. Holotypus ass. Guadalajara: Pozo de Guadalajara. 40° 29'N-03° 10'W. Humic luvisol on limestone. W, 5%, 200 m² (Rivas-Martínez, 10.06.72) 2. Madrid: Morata de Tajuña. W, 100 m². 3. Madrid: Perales de Tajuña. NE, 100 m². 4. Toledo: Seseña. E, 80 m². 5. Madrid: San Agustín de Guadalix, cretacic limestones. NE, 150 m². 6. Synthesized table.

ASPARAGO ALBI-QUERCETUM COCCIFERAE ass. nova hoc loco (75.5.3)

[*Asparago-Rhamnetum oleoidis cocciferetosum* Rivas Goday in Rivas Goday, Borja, Esteve, Galliano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 324, tb. 3. 1960 p.p.]

(*Asparago albi-Rhamnion oleoidis*, *Pistacio-Rhamnetalia alaterni*, *Quercetea ilicis*)

Typus associatio: Badajoz: Los Santos de Maimona, Sierra de los Santos. 38° 26'N-06° 18'W. Humic luvisol on hard and poor limestone. 560 m, S, 15%, 100 m². Characteristic species: 3 *Quercus coccifera*, 2 *Asparagus albus*, 2 *Olea sylvestris*, 2 *Phlomis purpurea*, 1 *Eleaeoselinum foetidum*, 1 *Pistacia lentiscus*, 1 *Rhamnus fontqueri*, + *Asparagus acutifolius*, + *Jasminum fruticans*, + *Rubia peregrina* subsp. *longifolia*. Companion species: 1 *Bryonia dioica*, 1 *Cistus albidus* 1 *Dactylis hispanica*, + *Thapsia villosa*. (Rivas-Martínez, 02.07.78).

Characteristic species (territorials): *Asparagus albus*, *Phlomis purpurea*, *Rhamnus fontqueri*.

Diagnosis: Dense evergreen scrubland or maquis, lower mesomediterranean dry to sub-humid basophilous Marianic-Monchiquensean secondary or mantle community of *Quercus rotundifolia* natural potential vegetation microforests, dominated by *Quercus coccifera* subsp. *coccifera*, *Olea sylvestris*, *Rhamnus fontqueri*, *Pistacia lentiscus*, *Phlomis purpurea* subsp. *purpurea* and some dumosum lianes like *Asparagus albus*, *Asparagus acutifolius* or *Rubia peregrina* subsp. *longifolia*.

[RIVAS-MARTÍNEZ]

ASPLENIO ADIANTI-NIGRI-QUERCETUM ROTUNDIFOLIAE (Carreras, Carrillo, Ninot & Vigo 1997) ass. nova, stat. nov. hoc loco (75.1.7)

[*Quercetum rotundifoliae asplenietosum adianti-nigri* Carreras, Carrillo, Ninot & Vigo in *Fragm. Fl. Geobot.* 42(1): 99, tb. 1. 1997 (basion.) (art. 27d, 46H)]

(*Quercenion rotundifoliae*, *Quercion ilicis*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Carreras, Carrillo, Ninot & Vigo in *Fragm. Fl. Geobot.* 42(1): 99, tb. 1, rel. 9. 1997 [Lérida, Pallars Sobirá: Can Escales, between Vall Ferrera and Vall de Cardós. 940 m, 8°, 150 m²]. Characteristic species: 5 *Quercus rotundifolia* (sub. *Q. ilex* subsp. *ballota*), 1 *Pistacia terebinthus*, 1 *Teucrium chamaedrys*, 1 *Rubia peregrina*, + *Asparagus acutifolius*, + *Juniperus phoenicea*. Differential species: 2 *Galium maritimum*, 1 *Asplenium adiantum-nigrum*, + *Hieracium sabaudum*, *Quercus-Fagetea* species: + *Acer monspessulanum*, + *Amelanchier ovalis*, + *Prunus spinosa*, + *Quercus cerruoides*, + *Rosa sicula*. Companion species: 1 *Carex halleriana*, 1 *Festuca* gr. *ovina*, 1 *Saponaria ocyoides*, 1 *Silene nutans*, + *Arabis hirsuta*, 1 *Arenaria serpyllifolia*, + *Clinopodium vulgare*, + *Dactylis glomerata*, + *Galium pumilum*, + *Juniperus communis*, + *Melica ciliata*, + *Pinus sylvestris*, + *Psoralea bituminosa*, + *Sedum album*, + *Trifolium arvense*, + *Vicia hirsuta*.

Characteristic species (territorials): *Acer monspessulanum*, *Asplenium adiantum-nigrum*, *Galium maritimum*, *Juniperus communis*, *Juniperus oxycedrus* subsp. *lagunae*, *Ju-*

niperus phoenicea, *Quercus cerrioides*, *Quercus rotundifolia*, *Rosa sicula*, *Rubia peregrina*.

Diagnosis: Evergreen oak *Quercus rotundifolia* microforest, growing on dry and sunny slopes, mainly on dystric siliceous cambisols and leptosols, in the meso and supratemperate submediterranean subhumid bioclimatic belt; found in deep, steep, dry valleys in Eastern Pyrenean Biogeographic Sector (Pallars Sobirà, Andorra, Alt Urgell). Well characterized in contrast with the mesomediterranean and supramediterranean or submediterranean associations *Quercetum rotundifoliae* and *Buxo-Quercetum rotundifoliae* by: *Asplenium adiantum-nigrum*, *Asplenium trichomanes*, *Festuca liviense*, *Galium maritimum*, *Hieracium glaucinum* (prob. subsp. *similatum*), *Hieracium sabaudum* (prob. subsp. *lugdunense*), *Hylotelephium maximum*, *Juniperus oxycedrus* var. *lagunae*, *Lathyrus linifolius*, *Pteridium aquilinum*, *Sedum rupestre*, *Teucrium scorodonia*, *Veronica officinalis*, etc., and also by the absence of: *Brachypodium retusum*, *Buxus sempervirens*, *Lonicera implexa*, *Quercus coccifera*, *Rhamnus alaternus*, *Rhamnus lycioides*, *Sorbus aria*, *Teucrium pyrenaicum*, *Viburnum lantana*, *Viburnum tinus*, etc.

[RIVAS-MARTÍNEZ]

ASPLENIO AZORICAE-CYMBALARIETUM MURALIS ass. nova hoc loco (28.2.1)

(*Cymbalaria-Asplenion*, *Parietarietalia*, *Parietarietea*)

Typus associatio: Açores, Ilha Terceira: Angra do Heroísmo, wet wall inside the village, alt. 90 m., SW, 10 m². Characteristic species: 3 *Cymbalaria muralis*, 2 *Asplenium azoricum*, 1 *Erigeron karwinskianus*, + *Chelidonium majus*. Companion species: 1 *Mercurialis annua*, + *Polypodium azoricum*.

Characteristic species (territorials): *Asplenium azoricum*, *Cymbalaria muralis*, *Umbilicus gaditanus*.

Diagnosis: Urban old walls made of volcanic rocks, humid and shaded nitrophilous chasmophyte community of humid temperate submediterranean Azores Islands, well characterized by the endemic fern *Asplenium azoricum*.

[RIVAS-MARTÍNEZ, LOUSÁ, F. PRIETO, J.C. COSTA, DÍAS & AGUIAR]

ASPLENION MARINI all. nova hoc loco (28.4)

(*Parietarietalia*, *Parietarietea*)

Typus alliancia: *Asplenietum marini* Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 233, tb. 3. 1952 [lectotypus hoc loco: rel. 2].

Characteristic species: *Asplenium marinum*.

Diagnosis: Chasmophytic subnitrophilous communities rich in marine proanthropophyte ferns living on rock crevices under active salt-spray.

Asplenietum marini Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 233, tb. 3. 1952 (28.4.1)

Distribution: Cantabrian-Atlantic supralittoral: siliceous rocks.

Cochleario danicae-Matricarietum maritimae J. & P. Guitián ex Izco & Amigo in Izco, Amigo & D. García in Lazaroa 21: 39. 2001 (28.4.2)

Distribution: Cantabrian-Atlantic coast: ornithocoprophilous.

Parietario judaicae-Asplenietum sagittati Rivas-Martínez, Costa & Loidi in Itinera Geobot. 6: 172, tb. 38. 1992 nom. mut. (28.4.3)

Distribution: Balearic and Setabensean coasts.

[RIVAS-MARTÍNEZ & IZCO]

Umbilico gaditani-Asplenietum marini ass. nova hoc loco (28.4.4) (*)

Typus associatio: Table 10, rel. 1 [Açores: Ilha do Faial, Varadouro. 38° 33'N-28° 47'W. SW, 4 m²].

Characteristic species (territorials): *Asplenium marinum*, *Umbilicus gaditanus*.

Diagnosis: Azorean supralittoral association under active salt-spray in catena with the rest of exposed coastal microsigmeta communities: *Spergularietum azoricae*, *Festucetum petraeae*.

[RIVAS-MARTÍNEZ, LOUSÁ, F. PRIETO, J.C. COSTA, DÍAS & AGUIAR] (*)

Table 10

28.4.4 *Umbilico gaditani-Asplenietum marini*
(*Asplenion marini*, *Parietarietalia*, *Parietarietea*)

Altitude (1=10m)	0-1	0-1	0-1	0-1	0-1	0-1	<u>0-1</u>
Number of species	3	3	5	4	4	4	4
Ordinal number	1*	2	3	4	5	6	7
Characteristic species:							
<i>Asplenium marinum</i>	2	2	1	2	2	2	V
<i>Umbilicus gaditanus</i>	+	.	+	+	1	1	V
Companion species:							
<i>Spergularia azorica</i>	+	+	+	.	+	+	V
<i>Sagina maritima</i>	.	+	+	.	.	.	II
<i>Euphorbia azorica</i>	.	.	+	.	.	.	I
<i>Polyopogon maritimus</i>	.	.	.	+	.	.	I
<i>Festuca petraea</i>	.	.	.	+	.	.	I
<i>Crithmum maritimum</i>	.	.	.	.	1	.	I
<i>Asplenium billotii</i>	.	.	.	.	.	+	I

Localities: 1,2. Açores: Ilha do Faial, Varadouro. 38° 34'N-28° 43'W. SW, 4 m². Holotypus ass.: rel. 1. 3. Açores: Ilha do Pico, Cachorro. 38° 22'N-28° 23'W. N, 2 m². 4, 5, 6. Açores: Faro de Manhã. 38° 23'N- 28° 15'W. SE, 2 m². 7. Synthesized table.

ASTRAGALION TRAGACANTHAE (Folch ex Rivas-Martínez, Fernández-González & Loidi 1999) all. nova, stat. nov. hoc loco (19.5)

[*Astragalenion massiliensis* Folch ex Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 372. 1999 (corresp. name) (art. 27a, 45), *Astragalenion massiliensis* Folch, *La vegetació dels Països Catalans*, 2ª ed.: 411. 1986 (art. 5, 8), *Crithmo-Helichryson* Rothmaler in *Feddes Repert. Spec. Nov. Regni Veg.* 128: 54. 1943 (art. 3f)]

(*Crithmo-Limonietalia*, *Crithmo-Limonietea*)

Typus aliancia: *Astragalo massiliensis-Senecionetum cinerariae* O. Bolòs & Vigo in *Arxius Secc. Ci. Inst. Estud. Catalans* 73: 195. 1984.

Characteristic species: *Astragalus tragacantha* subsp. *tragacantha*, *Astragalus tragacantha* subsp. *vicentinus*, *Festuca ruscinonensis*, *Polycarpon catalaunicum*, *Senecio cineraria*.

Diagnosis: Sea wind exposed pulvinate aérohalophilous communities, thermomediterranean dry and low subhumid, growing on granitic and cohesive calcareous rocky coast of Baix-Vallespir and Empordà (Ruscinic territory). They also occur in Algarvian (Sagres) and Catalan-Valencian exposed rocky coast.

Cisto repentis-Astragaletum tragacanthae Franquesa 1995 nom. mut. et inv. (19.5.1)

[*Astragalo massiliensis-Cistetum repentis* Franquesa in *Arxius Secc. Ci. Inst. Estud. Catalans* 109: 153, tb. 49. 1995 (art. 45, 42)]

Distribution: Ruscinic coast: siliceous rocks.

Senecioni cinerariae-Astragaletum tragacanthae O. Bolòs & Vigo 1984 nom. mut. et inv. (19.5.2)

[*Astragalo massiliensis-Senecionetum cinerariae* O. Bolòs & Vigo in *Arxius Secc. Ci. Inst. Estud. Catalans* 73: 195, tb. 9. 1984 (art. 45, 42)]

Distribution: Ruscinic coast and Meda Gran Isle: calcicolous.

Daucus halophili-Astragaletum vicentini (Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990) nom. nov. hoc loco (19.5.3)

[*Astragaletum vicentini* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 3: 95, tb. 16. 1990 (art. 31, 39), *Astragaletum vicentinum* Rothmaler 1943 (art. 37)]

Typus: Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 3: 95, tb. 16, holotypus: rel. 3. 1990. [Algarve: Cabo de San Vicente. 29SNA09. 50 m, W, 4 m²]. Characteristic species: 3 *Asteriscus maritimus*, 3 *Astragalus tragacantha* subsp. *vicentinus*, 2 *Dactylis marina*, 1 *Calendula incana*, 1 *Crithmum maritimum*, 1 *Limonium ovalifolium*. Companion species: 1 *Plantago coronopus*.

Characteristic species (territorials): *Astragalus tragacantha* subsp. *vicentinus*, *Daucus halophilus*.

Distribution: Sagres Peninsula (Algarve).

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ & LOIDI]

ASTRAGALO TRAGACANTHAE-JUNIPERETUM MACROCARPAE ass. nova hoc loco (75.9.2) (*)*(Oleo-Ceratonion, Pistacio-Rhamnetalia alaterni, Quercetea ilicis)*Typus associatio: Table 11, rel. 1 [Girona: Alt Empordà, Cap de Creus. 42° 18'N-3° 20'E. S, 10%, 80 m, 40 m²].Characteristic species (territorials): *Astragalus tragacantha*, *Festuca ruscinonensis*, *Juniperus macrocarpa*.**Table 11****75.9.2 *Astragalo tragacanthae-Juniperetum macrocarpae***
(Oleo-Ceratonion, Pistacio-Rhamnetalia alaterni, Quercetea ilicis)

Altitude (1=10m)	8	6	5	<u>6</u>
Number of species	15	15	16	<u>15</u>
Ordinal number	1*	2	3	4
Characteristic species:				
<i>Juniperus macrocarpa</i>	4	4	5	3
<i>Pistacia lentiscus</i>	2	1	2	3
<i>Asparagus acutifolius</i>	2	2	1	3
<i>Smilax aspera</i>	2	1	+	3
<i>Euphorbia characias</i>	1	1	1	3
<i>Phillyrea angustifolia</i>	1	1	1	3
<i>Astragalus tragacantha</i> (terr.)	+	1	1	3
<i>Festuca ruscinonensis</i> (terr.)	+	+	2	3
<i>Rubia longifolia</i>	1	+	.	2
Companion species:				
<i>Cistus salvifolius</i>	2	2	2	3
<i>Brachypodium retusum</i>	1	1	1	3
<i>Daucus hispanicus</i>	+	+	+	3
<i>Echinops ritro</i>	1	.	+	2
<i>Polycarpon catalaunicum</i>	.	+	1	2
<i>Sedum sediforme</i>	.	+	1	2
<i>Dactylis hackelii</i>	.	+	+	2

Other species. Companion species: *Carlina hispanica* +, *Helichrysum maritimum* + in 1. *Senecio cineraria* + in 3.Localities: 1. Holotypus ass. Girona: Alt Empordà, Cap de Creus. 42° 18'N-3° 20'E. S, 10%, 40 m². 2. Girona: Alt Empordà, Cap de Creus. E, 20%, 20 m². 3. Girona: Alt Empordà, Cap de Creus. SE, 15%, 10 m². 4. Synthesized table.Diagnosis: Thermomediterranean dry-low subhumid dwarfed scrubby xeric permanent community growing on granite and cohesive calcareous shallow soils exposed to strong sea wind, mostly in the coast of Cap de Creus (Ruscinic territory, Vallesan-Empordanese Sector); characterized by *Juniperus macrocarpa* and other *Pistacio-Rhamnetalia* species and

differentiated by aerohaline plants as: *Astragalus tragacantha*, *Festuca ruscinonensis*, *Polycarpon catalaunicum*, etc.

[RIVAS-MARTÍNEZ & CANTÓ] (*)

AVENELLO IBERICAE-JUNIPERETUM NANAE ass. nova hoc loco (74.5.1)

(*Cytision oromediterranei*, *Juniperetalia hemisphaericae*, *Junipero-Pinetea*)

Typus associatio: Table 12, rel. 4 [Ávila: Sierra de Gredos, El Casquerazo. 30T4K0657. 2430 m, SW, 40 m²].

Characteristic species (territorials): *Avenella iberica*, *Juniperus communis* subsp. *nana*, *Sempervivum vicentii* subsp. *pau*, *Sideritis lurida* subsp. *relegata*.

Table 12

74.5.1 Avenello ibericae-Juniperetum nanae

(*Cytision oromediterranei*, *Juniperetalia hemisphaericae*, *Junipero-Pinetea*)

Altitude (1=10m)	243	235	228	243	232	200	232	183	238	218	225
Number of species	5	6	7	7	7	8	8	12	12	13	9
Ordinal number	1	2	3	4*	5	6	7	8	9	10	11
Characteristic species:											
<i>Juniperus nana</i>	5	4	4	5	4	5	4	5	5	3	V
<i>Avenella iberica</i>	2	2	2	3	1	2	2	2	2	1	V
<i>Sempervivum pau</i>	.	.	.	.	+	.	2	.	1	1	II
<i>Sideritis relegata</i>	.	.	.	.	.	.	.	.	+	.	I
Companion species:											
<i>Saxifraga orogredensis</i>	1	.	2	+	1	+	2	.	.	.	III
<i>Solidago fallit-tirones</i>	.	1	.	.	+	.	+	1	1	.	III
<i>Cryptogramma crispa</i>	+	.	.	.	1	+	.	.	.	+	II
<i>Festuca gredensis</i>	.	.	.	+	.	+	.	.	.	1	II
<i>Santolina oblongifolia</i>	.	.	.	.	1	.	.	1	+	.	II
<i>Arrhenatherum carpetanum</i>	.	.	.	.	.	1	+	.	.	1	II

Other species: *Koeleria crassipes* + in 2 and 4. *Echium flavum* 2 in 2, + in 9. *Murbeckiella boryi* + in 3 and 6. *Agrostis rupestris* 1 in 3, + in 10. *Jasione centralis* + in 3 and 10. *Sedum brevifolium* + in 4 and 10. *Agrostis castellana* + in 6, 1 in 8. *Festuca iberica* 1 in 7 and 9. *Silene nutans* 1 in 8, + in 9. *Armeria rivasmartinezii* + in 8 and 10. *Phyteuma hemisphaericum* 1 in 1. *Linaria saxatilis* + in 2. *Luzula hispanica* + in 3. *Jurinea humilis* + in 4. *Conopodium pyrenaicum* + in 7. *Centaurea avilae* 1, *Erica arborea* 1, *Jasione sessiliflora* 1, *Antirrhinum grosii* +, *Leontodon bourgaeanus* + in 8. *Acinos meridionalis* +, *Biscutella pauana* +, *Eryngium hispanicum* + in 9. *Leucanthemopsis alpina* +, *Miurnaria jurensis* +, *Sedum candollei* + in 10.

Localities: 1. Ávila: Sierra de Gredos, Zapardiel de la Ribera, Cuchillar de las Navajas. 30TUK0557. S, 20 m². 2. Ávila: Sierra del Barco, Puerto Castilla, north buttress of Juraco. 30TTK790553. N, 25

m². 3. Ávila: Sierra de Gredos, Zapardiel de la Ribera, Portilla de los Machos. 30TUK0657. E, 40 m². 4. Holotypus ass. Ávila: Sierra de Gredos, Zapardiel de la Ribera, El Casquerazo. 30TUK0657. SW, 40 m². 5. Ávila: Sierra de Gredos, Navalperal de Tormes, Portilla del Rey. 30TUK0758. SE, 20 m². 6. Ávila: Sierra del Barco, Nava del Barco, Barrerón del Campanar. 30TTK820579. W, 25 m². 7. Ávila: Sierra de Gredos, Zapardiel de la Ribera, Cuchillar del Gutre. 30TUK0460. S, área: 20 m². 8. Ávila: Sierra de Béjar, Solana de Ávila, arroyo Malillo, rocky spurs. 30TTK700648. S, 25 m². 9. Ávila: Sierra de Gredos, Navalperal de Tormes, Portilla del Rey peak. 30TUK0758. S, 10 m². 10. Ávila: Sierra del Barco, Nava del Barco, rocky spurs of Barrerón del Campanar. 30TTK817572. NW, 10 m². 11. Synthesized table.

Diagnosis: Dwarf-juniper (*Juniperus communis* subsp. *nana*) scrub that constitutes the potential vegetation in the upper orotemperate submediterranean belt of the central-eastern ranges of the Iberian Central System (Bejaran-Gredensean and Guadarramean Sectors), reaching some cryorosubmediterranean stations with scarce snow cover like summit ridges and stony steep slopes. Representations of this association are more common above 1900-2000 m around rock outcrops and other rocky or stony habitats, because of the sensitivity of the dwarf juniper to fire and grazing, that promote in the orosubmediterranean belt the extension of the broom scrub dominated by *Cytisus oromediterraneus* (*Senecioni-Cytisetum oromediterranei*, *Cytiso oromediterranei-Echinopartetum barnadesii*, *Cytiso oromediterranei-Echinopartetum pulviniformis*) and the cryoxerophilous fescue grasslands (*Hieracio myriadeni-Festucetum curvifoliae*, *Agrostio rupestris-Armerietum bigerrensis*).

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

AVENELLO IBERICAE-PINETUM UNCINATAE (Rivas-Martínez & Tarazona in Rivas-Martínez, G. Navarro, Mendiola & Tarazona 1987) ass. nova, stat. nov. hoc loco (74.4.2)

[*Vaccinio myrtilli-Juniperetum nanae pinetosum uncinatae* Rivas-Martínez & Tarazona in Rivas-Martínez, G. Navarro, Mendiola & Tarazona in Lazaroa 7: 539, tb. 3, rel. 17. Holotypus subass. 1987 (basion.) (art. 27d, 46H)]

(*Avenello ibericae-Pinion ibericae*, *Junipero-Pinetalia*, *Junipero-Pinetea*)

Typus associatio: Rivas-Martínez, G. Navarro, Mendiola & Tarazona in Lazaroa 7: 539, tb. 3, rel. 17. 1987 (sub. *Vaccinio myrtilli-Juniperetum nanae pinetosum uncinatae*). [Soria: Reserva Nacional de Urbión, Castillo de Vinuesa, alt. 2020 m., SE, 10%, 200 m²]. Characteristic species: 4 *Pinus uncinata*, 3 *Juniperus nana*, 3 *Vaccinium myrtillus*, 3 *Calluna vulgaris*, + *Pinus uncinata* x *Pinus iberica*. Companion species: 1 *Erica arborea*, 1 *Nardus stricta*, + *Arenaria montana*.

Characteristic species (territorials): *Pinus uncinata*, *Pinus uncinata* x *Pinus sylvestris* var. *iberica* (*Pinus* x *rhaetica* nothovar. *borgiae*).

Diagnosis: Orotemperate submediterranean hyperhumid *Pinus uncinata* Oroiberian micro-mesoforests association, growing on strongly acid tangel ranker developed on silicic rocks, in the summits (1850-2050 m) of the Reserva Nacional de Urbión around the Castillo de Vinuesa peak.

[RIVAS-MARTÍNEZ & J.A. MOLINA]

BARTRAMIO STRICTAE-POLYPODIENION CAMBRICI (O. Bolòs & Vives 1957) suball. nova hoc loco, stat. nov. (30.1b)

[*Sedo cepaeae*-*Polypodiunion serrulati* M.B. Crespo in Ecol. Medit. 19: 6. 1993 (art. 27), *Pterogonio gracilis*-*Polypodiunion vulgaris* M.B. Crespo in Ecol. Medit. 19: 8. 1993 (art. 27)]
(*Polypodium cambrici*, *Anomodonto-Polypodietalia*, *Anomodonto-Polypodietea*)

Typus suballiancia (holotypus): *Sedo-Polypodietum serrati* O. Bolòs & Vives in Collect. Bot. (Barcelona) 5(2): 533. 1957.

Characteristic species (dif. suball.): *Sedum cepaea* L., *Bartramia stricta* Brid., *Exormotheca pustulosa* Mitt., *Sedum hirsutum* All., *Targionia hypophylla* L., *Hylotelephium maximum* (L.) Holub in Severöces.

Diagnosis: Epiphytic and comophytic shaded communities of rhizomatous ferns (mostly *Polypodium cambricum*), bryophytes and seed plants of rainy Temperate and Mediterranean oceanic territories, growing on nutrient-poor substrata.

This new suballiance is included in the alliance *Polypodium serrati* Br.-Bl. in Br.-Bl., Rous-sine & Nègre, Group. Vég. France Médit. 1952 (*Polypodium cambrici* (30.1) nom. mut. propos.). At the same time by the art. 28 (CPN 2000) a second suballiance that contains the original diagnosis of the alliance and the nomenclatural type must be denominated - and since 1.1.1979 the name of the second suballiance that includes the type must be formed solely by altering the rank-indicating termination - consequently: 30.1a. *Polypodiunion cambrici* (*serrati*) suball. nova, that correspond to the nutrient-rich substrata communities of the same territory and environmental conditions.

[RIVAS-MARTÍNEZ]

BETO MARITIMAE-LAVATERETUM ARBOREAE ass. nova hoc loco (34.4.6 = 37.4.2)
(*Dauco-Melilotion*, *Artemisietalia vulgaris*, *Artemisietea vulgaris*)

Typus associatio: Table 13, rel. 2 [Asturias: Cudillero, Islote de Grados. 29TQJ2230. 0-10 m, 10 m²].

Characteristic species (territorials): *Lavatera arborea*, *Beta maritima*, *Matricaria maritima*.

Diagnosis: Community of *Lavatera arborea* and *Beta maritima* growing on soils with great accumulation of marine birds' droppings, and whose optimum is in littoral Cantabrian-Atlantic areas scarcely visited by men, mainly in the rocky isles. Besides the nitrohalophilous and halophilous plants common in the cliffs, in these communities there are nitrophilous species from non-saline environments. The Cantabrian-Atlantic association *Beto-Lavateretum arboreae* can be in contact with the communities of *Crithmo-Armerion maritimae*, with the aerohaline heaths of the *Dactylido maritimae-Ulicion maritimi* and not too far of the chasmophyte nitrophilous aerohalitic marine forb communities of *Brassicion oleaceae* (*Parietarietea*).

[ARBESÚ, BUENO & F. PRIETO]

Table 13

34.4.6 *Beto maritimae-Lavateretum arboreae**(Dauco-Melilotion, Artemisietalia vulgaris, Artemisietea vulgaris)*

Altitude (1=10 m)	0-1	0-1	0-1	<u>0-1</u>
Number of species	7	13	9	10
Ordinal number	1	2*	3	4
Characteristic species:				
<i>Lavatera arborea</i>	4	3	5	3
<i>Beta maritima</i>	+	2	2	3
<i>Matricaria maritima</i>	1	2	.	2
<i>Atriplex prostrata</i>	1	1	.	2
<i>Urtica membranacea</i>	.	.	1	1
Companion species:				
<i>Crithmum maritimum</i>	+	+	.	2
<i>Armeria depilata</i>	+	+	.	2
<i>Spergularia rupicola</i>	2	1	.	2

Other species. Companion species: *Daucus gummifer* 1 in 2 and 3. *Festuca pruinosa* + in 2, 1 in 3. *Inula crithmoides* + in 2, 1 in 3. *Polygonum aviculare* + in 2, 1 in 3. *Sonchus oleraceus* + in 2, 1 in 3. *Trifolium occidentale* + in 2, 1 in 3.

Localities: 1, 2. Asturias: Cudillero, Islote de Grados. 29TQJ2230. 10 m². Holotypus ass. rel 2. 3. Asturias: Llanes, Castro de San Martín. 30TUP5410. 10 m². 4. Synthesized table.

BETULO PENDULAE-POPULETALIA TREMULAE Rivas-Martínez & Costa ordo novus hoc loco (76d)

[*Betulo pendulae-Populetales tremulae* Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 489. 1998 (art. 8)]

(*Quercus-Fagetea*)

Typus ordo: *Corylo-Populion tremulae* (Br.-Bl. ex O. Bolòs 1973) Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 489. 1998 (76.12) [*Corylo-Populion tremulae* Br.-Bl. in Geobot. Selecta 1: 68. 1961 (art. 2b, 8) typus: *Pruno brigantiacae-Populetum tremulae* Br.-Bl. in Geobot. Selecta 1: 68. 1961 (art. 2b, 7), *Corylo-Populion tremulae* Br.-Bl. ex O. Bolòs in Pirineos 108: 82. 1973, holotypus: *Hepatico-Coryletum* Br.-Bl. in Br.-Bl., Rous-sine & Nègre, Group. Vég. France Médit.: 256. 1952].

Characteristic species: *Betula pendula*, *Corylus avellana*, *Populus tremula*, *Salix caprea*, *Sorbus aucuparia*, *Sorbus intermedia*.

Diagnosis: Oceanic and subcontinental temperate and boreal, meso to lower orotemperate and thermo to mesoboreal, humid to ultrahyperhumid, deciduous light wood natural or secondary forest of deciduous hardwood and conifer climactic forest (*Quercus-Fagetea*, *Vaccinio-Piceetea*, *Junipero-Pinetea*), growing on acid or neutral soils and distributed throughout European Eurosiberian Region, and also in the humid or hyperhumid supra and orotem-

perate thermoclimatic belts of submediterranean mountains of Western Mediterranean Subregion.

Remarks: In the Iberian Peninsula three alliances with different ecological requirements and distribution can be recognized: 76.12. *Corylo-Populion tremulae*, supra to lower orotemperate and thermo to mesoboreal, from the Pyrenees to Scandinavia and Russia, characterized by *Betula pendula* (typus: *Hepatico-Coryletum* Br.-Bl. in Br.-Bl.; Roussine & Nègre 1952); 76.13. *Betulion carpatico-pubescentis* all. nova hoc loco chionophilous, hygrophilous and orophilous, orotemperate birch forest, of Alpine-Caucasian mountain territories, characterized by *Betula pubescens* and *Betula carpatica* (typus: *Betuletum pubescenti-carpaticae* Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 485. 1998); 76.14. *Betulion fontqueri-celtibericae* all. nova hoc loco, supra and orotemperate, primary chionophilous and secondary birch forest, endemic of the temperate and submediterranean mountains of the Iberian Peninsula (excl. Pyrenees), characterized by *Betula fontqueri* subsp. *fontqueri* and *Betula celtiberica* (typus: *Luzulo cantabricae-Betuletum celtibericae* Rivas-Martínez in Anales Inst. Bot. Cavanilles 22: 380. 1965). Finally, on the oceanic upper supratemperate humid to ultrahyperhumid sandy coast of the North Sea and in the oceanic boreal territories of West Scandinavia, a fourth new alliance: *Betulion tortuosae*, characterized by *Betula tortuosa*, could be recognized as climactical in the rainy areas as well as seral in the dryer zones (typus: *Corno suecicae-Betuletum tortuosae* Aune 1973).

Corylo-Populion tremulae (Br.-Bl. ex O. Bolòs 1973) Rivas-Martínez & Costa 1998 (76.12)

[*Corylo-Populion tremulae* Br.-Bl. in Geobot. Selecta 1: 68. 1961 (art. 2b, 8), *Corylo-Populion tremulae* Br.-Bl. ex O. Bolòs in Pirineos 108: 82. 1973 (76.12a) (corresp. name), *Pulmonario affinis-Betulenion pendulae* Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas in Itinera Geobot. 14: 183. 2001 (76.12b) (art. 2b)]

Typus alliancia: *Hepatico-Coryletum* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 256. 1952.

Characteristic species: *Betula pendula* var. *pendula*, *Betula pendula* var. *meridionalis*, *Betula x aschersoniana* (*Betula pendula* x *Betula pubescens*).

Diagnosis: Deciduous seral secondary forests and woodlands of *Betula pendula*, *Corylus avellana* and *Populus tremula*, spread in oceanic to subcontinental temperate meso- to lower orotemperate humid to hyperhumid, from the Pyrenees to Scandinavia and Russia (Eurosiberian Region).

Actaeo spicatae-Coryletum avellanae Carreras & Ninot in Carrillo & Ninot in Arxius Secc. Ci. Inst. Estud. Catalans 99(2): 127. 1992 (76.12.1)

[*Scillo-Fagetum actaeo-coryletosum* Carreras & Ninot in Collect. Bot. (Barcelona) 16(2): 408, tb. 1. 1986 (art. 13), *Actaeo spicatae-Coryletum avellanae* Carreras & Ninot in Carreras 1985 nom. inval. (art. 1)]

Distribution: Inner Pyrenean upper supratemperate hyperhumid mesophytic.

Fragario vescae-Populetum tremulae O. Bolòs in Doc. Phytosoc. 4: 73, tb. 2. 1979 (76.12.3)

Distribution: Eastern Pyrenean (Montsenian-Gironian) supratemperate humid mesic.

Hepatico nobilis-Coryletum avellanae Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 256. 1952 (76.12.4)

Distribution: Broad Pyrenean meso-supratemperate humid mesophytic.

Pulmonario affinis-Betuletum pendulae Vigo ass. nova hoc loco (76.12.5)

[*Veronico urticifoliae-Betuletum pendulae* Vigo in Collect. Bot. (Barcelona) 15: 460, tb. 1. 1984 p.p. excl. holotypus (tb. 1, inv. 1), *Veronico urticifoliae-Betuletum pendulae pinetosum sylvestris* Vigo in Carreras, Carrillo, X. Font, Ninot, I. Soriano & Vigo 1995 (art. 5)]

Typus associatio: Table 14, rel. 2 [Huesca: Benasque, Ball de Cregüèña. 42°39'N-0°35'E. 1520 m, SE, 30%, 100 m²].

Characteristic species (territorials): *Betula pendula*, *Betula x aschersoniana*, *Populus tremula*, *Salix caprea*, *Pulmonaria affinis*.

Diagnosis: Pyrenean secondary meso-microforests of *Betula pendula*, *Betula pendula* var. *meridionalis*, *Populus tremula* and *Salix caprea*, substituting the meso-macroforests meso-supratemperate humid and hyperhumid of *Abies alba* (*Goodyero-Abietetum*, *Pulmonario affinis-Abietetum*), *Fagus sylvatica* (*Scillo-Fagetum*, *Roso pendulinae-Fagetum*, *Luzulo niveae-Fagetum*, etc.) and *Pinus sylvestris* (var. *pyrenaica* et var. *catalaunica*) (*Pinetum uncinato-pyrenaicae*, *Veronico-Pinetum catalaunicae*, etc.) after their destruction.

Betulion carpatico-pubescentis Rivas-Martínez & Costa all. nova hoc loco (76.13)

Typus alliancia: *Betuletum pubescenti-carpaticae* Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 485. 1998 [Lérida: Valle de Arán, Arties, at the bottom of Serra del Montardo, old avalanches cone rocky block chaos close to a fir wood of *Rhododendro-Abietetum albae*. 42°39'N-0°51'30''E.]. Characteristic species ass., all. ord.: 3 *Betula carpatica*, 2 *Betula pubescens*, 2 *Salix caprea*, 2 *Rubus idaeus*, 1 *Ribes petraeum*, + *Ribes alpinum*, + *Sambucus racemosa*. Characteristic species class: 2 *Melica nutans*, 1 *Lonicera xylostium*, 1 *Rosa glauca*, 1 *Viola reichenbachiana*, + *Agropyron caninus*, + *Epipactis atrorubens*. Companion species: 3 *Hylocomium splendens*, 3 *Valeriana montana*, 2 *Abies alba* (2 m), 2 *Anthoxanthum odoratum*, 2 *Epilobium angustifolium*, 2 *Fragaria vesca*, 2 *Rhacomitrium canescens*, 2 *Rhododendron ferrugineum*, 2 *Vaccinium myrtillus*, 1 *Athyrium filix-femina*, 1 *Calamagrostis arundinacea*, 1 *Dryopteris oreades*, 1 *Solidago virgaurea* subsp. *minuta*, + *Gymnocarpium dryopteris*, + *Juniperus nana*, + *Dryopteris x mantoniae*, + *Pinus uncinata* (1 m), + *Polystichum lonchitis*, + *Pyrola chlorantha*.

Characteristic species: *Betula carpatica*, *Betula carpatica* x *Betula pubescens*, *Betula pubescens*.

Table 14

76.12.5 *Pulmonario affinis*-*Betuletum pendulae**(Corylo-Populion tremulae, Betulo-Populetaia tremulae, Quercro-Fagetea)*

Altitude (1=10m)	144	152	143	160	124	148	166	<u>148</u>
Number of species	18	18	19	24	23	23	25	22
Ordinal number	1	2*	3	4	5	6	7	8
Characteristic species (territorials):								
<i>Betula pendula</i>	3	3	4	2	2	3	4	V
<i>Corylus avellana</i>	2	3	1	2	3	+	+	V
<i>Pulmonaria affinis</i>	2	2	1	1	+	1	2	V
<i>Fragaria vesca</i>	1	3	1	1	2	1	2	V
<i>Salix caprea</i>	1	2	2	+	.	1	1	V
<i>Populus tremula</i>	3	2	+	3	.	1	.	IV
<i>Sorbus aucuparia</i>	.	.	2	.	1	3	1	III
<i>Sorbus intermedia</i>	.	.	+	2	.	.	.	II
<i>Betula x aschersoniana</i>	.	.	.	.	.	1	1	II
Characteristic species (class):								
<i>Poa nemoralis</i>	1	3	+	+	1	.	1	IV
<i>Fraxinus excelsior</i>	2	.	+	+	.	2	.	III
<i>Quercus petraea</i>	+	+	1	.	2	.	.	III
<i>Abies alba</i> (S2)	+	1	2	.	.	.	+	III
<i>Anemone hepatica</i>	.	1	.	+	.	+	1	III
<i>Hieracium lachenalii</i>	2	.	.	.	+	.	1	II
<i>Stellaria holostea</i>	.	2	.	+	.	+	.	II
<i>Festuca heterophylla</i>	.	.	.	.	2	1	2	II
Companion species:								
<i>Rubus idaeus</i>	2	2	1	.	.	1	2	IV
<i>Solidago virgaurea</i>	1	.	1	.	2	.	.	II
<i>Sambucus racemosa</i>	.	.	.	.	.	2	1	II

Other species. Characteristic species: *Brachypodium sylvaticum* 2 in 1 and 2. *Agropyrum caninum* 2 in 1, 1 in 3. *Chamaespartium sagittatum* 1 in 1 and 5. *Quercus petraea* x *Quercus pubescens* + in 2 and 5. *Viola reichenbachiana* 1 in 2, 2 in 7. *Lonicera xylosteum* + in 4, 1 in 5. *Lapsana communis* 1 in 5, 2 in 6. *Veronica officinalis* 1 in 5 and 7. *Prenanthes purpurea* 1 in 6, + in 7. *Fagus sylvatica* (E₂) + in 6, 2 in 7. *Buxus sempervirens* 1, *Scrophularia alpestris* + in 2. *Calamagrostis arundinacea* +, *Epipactis atrorubens* +, *Pyrola secunda* + in 3. *Cicerbita muralis* 2, *Lathyrus occidentalis* 1, *Ame-lanchier ovalis* +, *Aquilegia vulgaris* +, *Digitalis lutea* +, *Polygonatum verticillatum* +, *Ribes alpinum* +, *Viburnum lantana* +, *Vincetoxicum hirsutiflorum* + in 4. *Betonica officinalis* 2, *Acer campestre* 1, *Lathyrus linifolius* 1 in 5. *Geranium sylvaticum* 2, *Rubus scaber* 2, *Sanicula europaea* 1, *Vicia sepium* 1 in 6. *Melica uniflora* 2, *Carex digitata* 1, *Galium rotundifolium* 1, *Daphne laureola* + in 7. Companion species: *Arabis turrata* 1 in 1, + in 4. *Pinus sylvestris* var. *pyrenaica* 2 in 1, + in 5. *Pinus uncinata* + in 2, 1 in 7. *Geranium robertianum* + in 4, 2 in 6. *Stachys alpina* 1 in 1. *Picris hieracioides* + in 2. *Festuca scoparia* +, *Polystichum lonchitis* +, *Valeriana montana* + in 4. *Juniperus communis* 2, *Pteridium aquilinum* 2, *Melampyrum pratense* 1 in 5. *Geum urbanum* 2, *Ranunculus aconitifolius* 1 in 6. *Deschampsia flexuosa* 2, *Anthoxanthum odoratum* 1 in 7.

Localities: 1. Huesca: Benasque, Plan de Rosec, gully of snow avalanches. W, 25%. 100 m². 2. Holotypus ass. Huesca: Benasque, Ball de Cregüeña. SE, 30%, 100 m². 42°39'N-0°35'E. 3. Huesca: Benasque, Plan de Senarta. E, 20%, 150 m². 4. Huesca: Benasque, Ball de Ballibierna. SW, 35%, 200 m². 5. Lérida: Valle de Arán, Gausac, Socascarro forest. NE, 30%, 100 m². 6. Lérida: Valle de Arán, Aubèrt, Baricauva forest. N, 20%, 100 m². 7. Huesca: Benasque, Ball de Lliterola. E, 25%, 100 m². 8. Synthesized table.

Diagnosis: Alpine-Pyrenean orotemperate microforests of *Betula pubescens* and *Betula carpatica* with an understory of *Rhododendrum ferrugineum* and megaforbs, substituting the chionophilous micro-mesoforests of *Abies alba* (*Rhododendro-Abietetum*) and *Pinus uncinata* (*Rhododendro-Pinetum uncinatae*), or representing also permanent communities of channels, debris cones of avalanches, slopes and shelf feet covered by great frost splitted blocks, etc.

Betuletum pubescenti-carpaticae Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 485. 1998 (76.13.1)

Distribution: Pyrenean orotemperate hyperhumid in long snowed stony soils.

Lastreo limbospermae-Betuletum pubescentis Rivas-Martínez in Publ. Inst. Biol. Aplicada 45: 101. 1968 nom. mut. (76.13.2)

[*Thelypterido-Betuletum pubescentis* Rivas-Martínez in Publ. Inst. Biol. Aplicada 45: 101. 1968, holotypus: Rivas-Martínez in Publ. Inst. Biol. Aplicada 44: 23, tb. 4, rel. 26. 1968 (*Rhododendro-Pinetum uncinatae betulo-blechnetosum* variante de *Betula carpatica* sub *Thelypterido limbospermae-Betuletum (carpaticae)* Rivas-Martínez, l.c. pg. 21)]

Distribution: Pyrenean orotemperate hyperhumid in long snowed wet soils.

Betulion fontqueri-celtibericae Rivas-Martínez & Costa all. nova hoc loco (76.14)

Typus alliancia: *Luzulo cantabricae-Betuletum celtibericae* Rivas-Martínez in Anales Inst. Bot. Cavanilles 22: 380. 1965 [*Luzulo henriquesii-Betuletum celtibericae* Rivas-Martínez 1965 nom. mut. propos.].

Characteristic species: *Betula celtiberica*, *Betula fontqueri* subsp. *fontqueri*, *Betula fontqueri* subsp. *parvibracteata*.

Diagnosis: Iberian orophilous micro-mesoforests of *Betula celtiberica*, *Betula fontqueri* subsp. *fontqueri* or *Corylus avellana*, growing on acid or neutral soils, representing the climactical potential natural vegetation in the orotemperate hyperhumid and ultrahyperhumid belt, permanent communities on some hydromorphic soils, avalanche channels, etc., as well as secondary forests substituting beech and oak woodlands and seldom very wet *Pinus sylvestris* var. *iberica* forests (*Ilici-Fagion*, *Quercion pyrenaicae*, *Avenello-Pinion ibericae*) in temperate humid or hyperhumid bioclimates in the Cantabrian, Iberian and Central ranges and spread to Serra do Gerês. In mediterranean and submediterranean environments these birch forests take refuge in very humid shady slopes and in acid gleyic or histic soils. They are substituted in the Pyrenees by its Eurosiberian geovicariants *Corylo-Populion tremulae* and *Betulion carpatico-pubescentis*.

[RIVAS-MARTÍNEZ & COSTA]

Holco mollis-Betuletum celtibericae Amigo & M.I. Romero ass. nova hoc loco (76.14.1) (*)

[*Holco mollis-Betuletum celtibericae* Amigo & M.I. Romero, XIV Jornadas de Fitosociología. Libro de resúmenes: 31. 1994 (art. 2b), *Blechno-Quercetum roboris* var. de *Betula celtiberica* sensu Amigo & M.I. Romero in *Studia Bot.* 17: 47, tb. 1. 1999, *Vaccinio myrtilli-Quercetum roboris* var. de *Betula celtiberica* sensu Amigo & M.I. Romero in *Studia Bot.* 17: 47, tb. 1. 1999]

Typus associatio: Amigo & M.I. Romero in *Studia Bot.* 17: 41, tb. 1, (holotypus hoc loco rel. 1). 1999. [Lugo: O Saviñao; Vilarreme. 29TPH11. 580 m, 200 m²]. Characteristic species: 5 *Betula celtiberica*, 2 *Hedera helix*, 2 *Quercus robur* (E₂), 1 *Castanea sativa*, 1 *Lonicera periclymenum*, 1 *Teucrium scorodonia*, + *Holcus mollis*. Companion species: 5 *Rubus* sp., 1 *Pteridium aquilinum*, + *Cirsium filipendulum*.

Characteristic species (territorials): *Betula celtiberica*, *Frangula alnus*, *Salix caprea*, *Sorbus aucuparia*.

Diagnosis: Cantabrian-Atlantic meso-supratemperate humid-hyperhumid forests of *Betula celtiberica*, substituting the climatophilous oak forests of the *Quercenion robori-pyrenaicae*.

[AMIGO & M.I. ROMERO] (*)

Laserpitio eliasii-Coryletum avellanae Puente, M.J. López, Penas & F. Salegui ass. nova hoc loco (76.14.2) (*)

Typus associatio: Table 15, rel. 4 [León: Robledo de Caldas. 30TTN6257. 1280 m, N, 20%, 200 m²].

Characteristic species (territorials): *Corylus avellana*, *Crepis lampanoides*, *Genista occidentalis*, *Helleborus occidentalis*, *Laserpitium nestleri* subsp. *eliasii*, *Mercurialis perennis*.

Diagnosis: Preforests of the basophilous and xerophilous beech forest *Epipactido helleborines-Fagetum sylvaticae laserpitietosum eliasii* F.J. Pérez & T.E. Díaz 1987, developed on base rich soils (coming from limestone) on steep, Northern exposed slopes of supratemperate humid Orocantabric territories. By decreasing depth and development of soil, they are in zonation with thickets of *Pruno spinosae-Berberidetum cantabricae*, and the furze formations of *Lithodoro diffusae-Genistetum occidentalis*.

In these microforests of *Corylus avellana* and *Crataegus monogyna*, they are sometimes accompanied by *Sorbus aria*, *Viburnum lantana* and *Lonicera xylosteum* in the tree-shrub layer; in the herbaceous layer *Hepatica nobilis*, *Mercurialis perennis*, *Melica uniflora*, *Milium effusum*, *Bromus ramosus*, *Sanicula europaea* and *Laserpitium nestleri* subsp. *eliasii*, are common or even dominant. The presence of species belonging to *Berberidion vulgaris* is very important, and they behave as differential against other associations. Floristically, this association can be differentiated from *Hepatico-Coryletum* because it lacks *Pulmonaria affinis*, *Betula pendula*, *Buxus sempervirens* and *Daphne mezereum*, among others. It can be differentiated from *Polysticho-Coryletum* because it lacks *Campanula trachelium*,

Table 15

76.14.2 *Laserpitio eliasii-Coryletum avellanae**(Betulion fontqueri-celtibericae, Betulo-Populetaalia tremulae, Quercro-Fagetea)*

Altitude (1=10m)	120	125	130	128	123	125	137	<u>127</u>
Number of species	36	37	41	36	30	36	27	35
Ordinal number	1	2	3	4*	5	6	7	8

Characteristic species:

<i>Corylus avellana</i>	4	4	4	4	4	4	4	V
<i>Hepatica nobilis</i>	2	2	2	2	1	1	1	V
<i>Crataegus monogyna</i>	2	2	2	1	1	1	1	V
<i>Mercurialis perennis</i>	2	2	1	1	1	2	1	V
<i>Melica uniflora</i>	2	1	1	1	1	1	1	V
<i>Stellaria holostea</i>	1	1	1	1	1	1	1	V
<i>Laserpitium eliasii</i>	1	1	1	1	1	+	+	V
<i>Crepis lampsanoides</i>	+	+	1	+	1	1	+	V
<i>Milium effusum</i>	2	1	2	1	2	1	.	V
<i>Primula columnae</i>	1	+	+	+	+	1	.	V
<i>Sanicula europaea</i>	+	+	1	+	+	+	.	V
<i>Helleborus occidentalis</i>	1	1	+	+	.	1	1	V
<i>Rosa canina</i>	+	+	+	+	.	+	1	V
<i>Viola reichenbachiana</i>	+	+	+	+	.	+	+	V
<i>Polystichum aculeatum</i>	.	1	1	+	1	2	+	V
<i>Ranunculus nemorosus</i>	+	+	1	1	.	+	.	IV
<i>Daphne laureola</i>	.	+	+	+	1	2	.	IV
<i>Lilium martagon</i>	.	1	1	+	.	1	1	IV
<i>Melampyrum pratense</i>	1	1	1	1	.	.	.	III
<i>Amelanchier ovalis</i>	1	1	+	+	.	.	.	III
<i>Poa nemoralis</i>	1	1	.	.	.	1	1	III
<i>Pimpinella major</i>	1	1	.	.	.	+	1	III
<i>Viburnum lantana</i>	1	.	+	+	.	1	.	III
<i>Sorbus aria</i>	1	.	1	+	.	.	+	III
<i>Dryopteris filix-mas</i>	.	+	1	1	1	.	.	III
<i>Ribes alpinum</i>	.	+	1	+	.	1	.	III

Companion species:

<i>Bromus ramosus</i>	1	1	1	1	1	1	.	V
<i>Genista occidentalis</i>	1	+	+	+	+	+	+	V
<i>Lithodora diffusa</i>	+	+	+	+	+	+	+	V
<i>Polypodium vulgare</i>	.	+	1	+	+	2	+	V

Other species. Characteristic species: *Tanacetum corymbosum* + in 1, 3 and 7. *Anemone nemorosa* + in 1, 1 in 5, + in 7. *Paris quadrifolia* + in 2, 1 in 3, + in 4. *Lonicera xylosteum* + in 2, 3 and 6. *Berberis cantabrica* + in 3 and 4, 1 in 5. *Rhamnus alpina* + in 3, 4 and 6. *Euphorbia amygdaloides* 2 in 5, 1 in 6 and 7. *Pyrus communis* + in 1 and 2. *Helleborus foetidus* + in 1 and 6. *Hieracium murorum* + in 2 and 6. *Galium odoratum* + in 2 and 7. *Poa chaixii* 1 in 3 and 4. *Euphorbia hyberna* + in 3 and 4. *Polygonatum odoratum* + in 3 and 4. *Moehringia trinervia* 1 in 5, + in 6. *Sorbus aucuparia* +,

Symphytum tuberosum + in 1. *Epipactis helleborine* +, *Polygonatum verticillatum* + in 3. *Hyacinthoides non-scripta* 1, *Rosa micrantha* + in 5. Companion species: *Brachypodium rupestre* + in 1, 2 and 6, 1 in 5. *Prunella grandiflora* + in 1, 3, 4 and 6. *Geum urbanum* + in 1, 1 in 5, + in 7. *Cystopteris fragilis* + in 2, 3 and 6. *Fragaria vesca* 1 in 3, + in 4 and 6. *Conopodium majus* 1 in 1, + in 2. *Astrantia major* + in 1 and 2. *Campanula glomerata* + in 1. *Geum sylvaticum* 2, *Campanula hispanica* 1, *Galium mollugo* +, *Pentaglottis sempervirens* + in 5. *Aquilegia vulgaris* 1, *Sanguisorba minor* +, *Vicia sepium* + in 7.

Localities: 1. León: Solle. 30TUN1760. N, 20%, 200 m². 2. León: Solle. 30TUN1760. N, 30%, 200 m². 3. León: Robledo de Caldas. 30TTN6257. N, 20%, 200 m². 4. Holotypus ass. León: Robledo de Caldas. 30TTN6257. N, 20%, 200 m². 5. León: Villafeliz de Babia. 30TTN5558. N, 25%, 100 m². 6. León: Villafeliz de Babia. 30TTN5558. N, 30%, 200 m². 7. León: Valdeteja. 30TUN0256. N, 10%, 100 m². 8. Synthesized table.

Hedera helix and *Quercus ilex* and it is different from *Astrantia majoris-Coryletum* because it lacks *Hypericum hirsutum*, *Satureja vulgaris*, *Salix alba*, *Campanula trachelium*, *Berberis hispanica* and *Acer campestre*. It can be differentiated from other formations, in which the hazel is dominant, *Luzulo henriquesii-Aceretum pseudoplatani* and *Omphalodo nitidae-Coryletum avellanae*, because it lacks *Acer pseudoplatanus*, *Ilex aquifolium*, *Quercus petraea*, *Fraxinus excelsior*, *Fagus sylvatica*, *Omphalodes nitida*, *Saxifraga spathularis* and *Luzula sylvatica* subsp. *henriquesii*, among others. It is also different from all of them because it has the following species *Laserpitium nestleri* subsp. *eliasii*, *Lithodora diffusa*, *Genista occidentalis*, *Berberis vulgaris* subsp. *cantabrica* and *Rhamnus alpina*, among others.

[PUENTE, M.J. LÓPEZ, PENAS & F. SALEGUI] (*)

Linario triornithophorae-Coryletum avellanae R. Alonso, Puente, Penas & F. Salegui ass. nova hoc loco (76.14.3) (*)

Typus associatio: Table 16, rel. 2 [León: Boca de Huérgano. 30TUN4259.1130 m, NW, 25%, 100 m²].

Characteristic species (territorials): *Betula celtiberica*, *Corylus avellana*, *Genista polygaliphylla*, *Linaria triornithophora*, *Vaccinium myrtillus*.

Diagnosis: Fast-growing deciduous microforests formed by *Corylus avellana*, *Sorbus aucuparia*, *Sorbus aria*, *Quercus petraea* (little trees) and *Frangula alnus* that live in deep, fresh and acid soils in the supratemperate humid-hyperhumid belt of the Altocarrionese Subsector. They constitute the secondary microforests that replace the climactic Orocantabric sessile oak mesoforests of the *Linario triornithophorae-Quercetum petraeae*. They differ from the Ubinnean and Campurrian-Carrionese association *Laserpitio eliasii-Coryletum avellanae* by the presence of *Linaria triornithophora* and *Vaccinium myrtillus*, and also by the absence of the basophilic taxa *Amelanchier ovalis*, *Rhamnus alpina*, *Laserpitium nestleri* subsp. *eliasii*, *Daphne laureola* var. *cantabrica*, etc. They differ from the Northern Galician-Asturian and Lacian-Ancarensean association *Omphalodo nitidae-Coryletum avellanae* by the presence of *Linaria triornithophora* and *Helleborus viridis* subsp.

occidentalis and by the absence of *Omphalodes nitida*, *Acer pseudoplatanus*, *Saxifraga spathularis* and *Phyllitis scolopendrium*.

[R. ALONSO, PUENTE, PENAS & F. SALEGUI] (*)

Table 16

76.14.3 *Linario triornithophorae-Coryletum avellanae*
(*Betulion fontqueri-celtibericae*, *Betulo-Populetales*, *Quercus-Fagetea*)

Altitude (1=10m)	110	113	130	<u>118</u>
Number of species	21	28	35	<u>28</u>
Ordinal number	1	2*	3	4

Characteristic species:

<i>Corylus avellana</i>	4	5	5	3
<i>Sorbus aucuparia</i>	+	+	1	3
<i>Quercus petraea</i> (E ₂)	+	+	+	3
<i>Stellaria holostea</i>	1	1	+	3
<i>Linaria triornithophora</i>	+	+	+	3
<i>Vaccinium myrtillus</i>	2	1	.	2
<i>Melampyrum pratense</i>	1	+	.	2
<i>Sorbus aria</i>	+	+	.	2
<i>Teucrium scorodonia</i>	1	.	1	2
<i>Crepis lampanoides</i>	.	1	1	2
<i>Poa nemoralis</i>	.	1	1	2
<i>Dryopteris filix-mas</i>	.	+	+	2

Companion species:

<i>Erica arborea</i>	1	1	+	3
<i>Ribes petraeum</i>	+	+	+	3

Other species. Characteristic species: *Anemone nemorosa* 1, *Oxalis acetosella* 1, *Physospermum cornubiense* 1, *Lonicera periclymenum* +, *Quercus x rosacea* + in 1. *Hepatica nobilis* 1, *Mercurialis perennis* 1, *Betula celtiberica* +, *Fagus sylvatica* +, *Helleborus occidentalis* +, *Primula columnae* + in 2. *Melica uniflora* 2, *Avenella subcantabrica* 1, *Euphorbia amygdaloides* 1, *Fraxinus excelsior* +, *Holcus mollis* +, *Prunus padus* +, *Sorbus intermedia* +, *Veronica chamaedrys* + in 3. Companion species: *Frangula alnus* 1 in 1, + in 2. *Genista polygaliphylla* 1 in 1, + in 2. *Solidago virgaurea* + in 1, 1 in 3. *Dryopteris oreades* +, *Orobanche variegata* + in 1. *Arabis alpina* 1, *Fragaria vesca* 1, *Crataegus monogyna* +, *Dianthus hyssopifolius* +, *Digitalis parviflora* +, *Saxifraga continentalis* +, *Viburnum lantana* + in 2. *Dactylis glomerata* 1, *Geranium robertianum* 1, *Rosa canina* 1, *Rubus idaeus* 1, *Anthoxanthum odoratum* +, *Centaurea nemoralis* +, *Clinopodium vulgare* +, *Festuca microphylla* +, *Galium aparine* +, *Knautia arvernensis* +, *Lamium maculatum* +, *Lapsana communis* +, *Potentilla micrantha* +, *Rosa corymbifera* +, *Silene vulgaris* + in 3.

Localities: 1. León: Boca de Huérgano. 30TUN4259. N, 15%, 100 m². 2. Holotypus ass. León: Boca de Huérgano. 30TUN4259. NW, 25%, 100 m². 3. León: Barniedo de la Reina, Valle de Valponguero. 30TUN4861. N, 5%, 100 m². 4. Synthesized table.

Luzulo henriquesii-Betuletum celtibericae Rivas-Martínez 1965 nom. mut. (76.14.4)

[*Luzulo cantabricae-Betuletum celtibericae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 380. 1965 (art. 45)]

Distribution: Orocantabric uppersupra to lower orotemperate hyperhumid primary and secondary *Betula celtiberica* mesophytic forest with long snow cover.

Melico uniflorae-Betuletum celtibericae Rivas-Martínez & Mayor ex G. Moreno & G. López in *Anales Inst. Bot. Cavanilles* 34(2): 442, tb. 1. 1978 (74.14.6)

Distribution: Oroiberian and Carpetan supratemperate humid-hyperhumid mesophytic, but when submediterranean, then on hydric soils.

Omphalodo nitidae-Coryletum avellanae Amigo, G. Azcárate & M.I. Romero in *Bot. Helvetica* 105, tb. 2. 1994 (76.14.7)

Distribution: West Orocantabric (Ancarensean) upper supratemperate hyperhumid on rich soils.

Salici atrocinereae-Betuletum celtibericae Loidi, Berastegi, Darquistade & García-Mijangos in *Lazaroa* 18: 170, tb. 1. 1997 (76.14.8)

Distribution: Cantabrian-Atlantic and Orocantabric meso-supratemperate humid on hydric soils.

Salici capreae-Betuletum fontqueri Molero & Rivas-Martínez ass. nova hoc loco (76.14.9) (*)

Typus associatio: Table 17, rel. 1 [Granada: Sierra Nevada, Dílar, Loma de las Corzas, 1680 m, 100 m²].

Characteristic species (territorials): *Betula fontqueri* subsp. *fontqueri*, *Salix caprea*.

Diagnosis: Community of birchs (*Betula fontqueri* subsp. *fontqueri*) and goat willows (*Salix caprea*, *Salix x quercifolia*), found in a disjunct way in ravines and shady instable slopes in the upper supramediterranean and lower oromediterranean humid belt of Sierra Nevada, substituting the oak, maple and ash forests (*Aceri granatensis-Fraxinetum angustifoliae*).

[MOLERO & RIVAS-MARTÍNEZ] (*)

Saxifrago spathularis-Betuletum celtibericae Rivas-Martínez 1981 (76.14.10)

Distribution: Bercian-Sanabriensean and Estrelensean supratemperate and lower orotemperate hyperhumid.

[RIVAS-MARTÍNEZ & COSTA]

Table 17

76.14.9 *Salici capreae-Betuletum fontqueri**(Betulion fontqueri-celtibericae, Betulo-Populetalia tremulae, Quercio-Fagetea)*

Altitude (1=10m)	168	163	180	170	176	171
Number of species	24	22	26	20	27	24
Ordinal number	1*	2	3	4	5	6

Characteristic species:

<i>Betula fontqueri</i>	3	3	4	4	4	V
<i>Helleborus foetidus</i>	+	+	1	+	+	V
<i>Salix caprea</i>	2	1	+	.	.	III
<i>Sorbus aria</i>	.	1	1	.	.	II
<i>Acer granatense</i>	.	.	.	2	2	II
<i>Quercus pyrenaica</i>	.	.	.	+	3	II
<i>Salix x quercifolia</i>	.	.	.	.	+	I

Companion species:

<i>Lonicera arborea</i>	1	2	2	1	2	V
<i>Festuca elegans</i>	1	+	2	1	2	V
<i>Rosa corymbifera</i>	+	1	2	1	1	V
<i>Cotoneaster granatensis</i>	+	1	2	1	.	IV
<i>Berberis hispanica</i>	1	2	1	.	+	IV
<i>Crataegus monogyna</i>	1	2	.	2	+	IV
<i>Juniperus hemisphaerica</i>	1	.	2	3	1	IV
<i>Rosa pouzinii</i>	.	2	1	+	1	IV
<i>Ononis aragonensis</i>	.	2	1	+	+	IV
<i>Doronicum plantagineum</i>	1	+	.	+	.	III
<i>Adenocarpus decorticans</i>	+	2	.	.	+	III
<i>Smyrniium perfoliatum</i>	+	1	.	.	2	III
<i>Campanula rapunculus</i>	+	.	+	+	.	III

Other species. Companion species: *Trifolium ochroleucon* + in 1 and 2. *Cerastium boissieri* + in 1 and 3. *Cytisus scoparius* + in 1 and 5. *Quercus rotundifolia* 1 in 2, + in 4. *Myrrhoides nodosa* + in 2 and 5. *Dactylis juncinella* 1 in 3 and 5. *Silene divaricata* + in 3 and 4. *Aquilegia nevadensis* +, *Carex camposii* +, *Malus sylvestris* + in 3 and 5. *Festuca iberica* + in 4, 1 in 5. *Lonicera xylosteum* 2, *Prunus ramburii* + in 1. *Rubus ulmifolius* 1, *Pteridium aquilinum* + in 2. *Polygonatum odoratum* 2, *Polygala boissieri* 1, *Anthericum baeticum* +, *Asphodelus fistulosus* +, *Paeonia coriacea* + in 3. *Anthoxanthum odoratum* + in 4. *Festuca nevadensis* 1, *Aconitum neapolitanum* +, *Alliaria petiolata* +, *Thalictrum foetidum* + in 5.

Localities: 1. Holotypus ass. Granada: Sierra Nevada, Dílar, Loma de las Corzas. 100 m². 2. to 5. Granada: Dúrcal, Sierra Nevada, Barranco de los Alisos. 400 m². 6. Synthesized table.

CALLITRICO BRUTIAE-RANUNCULETUM PELTATI ass. nova hoc loco (3.3.3)*(Ranunculion aquatilis, Potametalia, Potametea)*

Typus associatio: Table 18, rel. 1 [Ávila: San Bartolomé de Bejar, Sierra de Bejar, La Covatilla. 30TTK7271. 1850 m, 1 m²].

Characteristic species (territorials): *Callitriche brutia*, *Ranunculus peltatus*.

Diagnosis: Aquatic batrachid community growing on oligotrophic neutro-acidophilous deep standing cold water characterized by *Ranunculus peltatus*, spread in temperate and mediterranean siliceous zones of Iberian Peninsula, geovicariant of the Atlantic Central-European *Ranunculetum peltati* Sauer 1947.

[PIZARRO & RIVAS-MARTÍNEZ]

Table 18

3.3.3 *Callitriche brutiae-Ranunculetum peltati*

(Ranunculion aquatilis, Potametalia, Potametea)

Altitude (1=10m)	185	93	89	160	90	98	136	116	180	<u>127</u>
Number of species	3	3	3	3	4	6	5	5	6	4
Ordinal number	1*	2	3	4	5	6	7	8	9	10
Characteristic species:										
<i>Ranunculus peltatus</i>	4	5	5	5	5	5	3	5	4	V
<i>Callitriche brutia</i>	2	3	2	3	3	2	3	2	2	V
<i>Fontinalis antipyretica</i>	1	.	.	.	.	.	.	.	3	II
<i>Myriophyllum alterniflorum</i>	.	1	.	.	.	+	.	.	.	II
<i>Ranunculus saniculifolius</i>	.	.	2	.	.	.	.	.	.	I
Companion species:										
<i>Ranunculus flammula</i>	.	.	.	+	.	+	.	1	.	II
<i>Montia amporitana</i>	.	.	.	.	.	+	+	.	1	II
<i>Glyceria declinata</i>	.	.	.	.	1	1	.	.	.	II

Other species. Companion species: *Alisma lanceolatum* 1 in 5. *Potamogeton polygonifolius* +, *Ranunculus nodiflorus* + in 7. *Peplis portula* 1, *Ranunculus longipes* + in 8. *Epilobium obscurum* 1, *Myosotis stolonifera* + in 9.

Localities: 1. Holotypus ass. Ávila: Sierra de Béjar, San Bartolomé de Béjar, La Covatilla. 30TTK7271. 1 m². 2. Madrid: El Escorial, Zarzalejo, Pradejón CREEK. 30TVK0286. 1 m², water 18 cm, pH=7, T=18°C. 3. Ávila: Constanzana, 2 km away from Cabizuela. Stagnant water in cereal field. 30TUL4432. 0,3 m², water 10 cm, T: 20°C. 4. Madrid: Santa María de la Alameda, El Escorial, Tobar creek. 30TVK0095. 0,5 m², water 6 cm, pH 6,5, T: 18°C. 5. Madrid: El Escorial, Peralejo, Fuente Vieja creek. 30TVK0588. 0,5 m², water 30 cm, pH 7,3, T: 14°C. 6. Madrid: El Escorial, Zarzalejo, Castrejón lacunae. 30TVK0388. 0,3 m², water 20 cm, pH 7, T: 20°C. 7. Ávila: Navalperal de Pinares, Los Manchos, Puerto de la Lancha, peat bog. 30TUK8098. 0,5 m², water 10 cm, pH 7, T: 15°C. 8. Madrid: Beceril de la Sierra, Alto del Hilo, Angostura creek. 30TVL1608. 0,3 m², water 10 cm, pH 7,2, T: 15°C. 9. Ávila: Puerto Castilla, Circo del Barco. 30TTK7857. 4 m². 10. Synthesized table.

CALLITRICHIO BRUTIAE-RANUNCULETUM PSEUDOFUITANTIS ass. nova hoc loco (3.4.1)
(*Ranunculion fluitantis, Potametalia, Potametea*)

Typus associatio: Table 19, rel. 1 [Ávila: San Martín del Pimpollar, Venta Rasquilla, Alberche river, 30TUK2871. 1280 m, 0.5 m², water 20 cm, pH 7, T 20°].

Characteristic species: *Callitriche brutia* (terr.), *Callitriche stagnalis* (terr.), *Ranunculus pseudofluitans*.

Diagnosis: Aquatic batrachid oligotrophic neutral to acidophilous community of moving or running water characterized by *Ranunculus pseudofluitans*, spread from meso- to supra-mediterranean and meso-supratemperate in Western Mediterranean and Cantabrian-Atlantic Iberian Peninsula.

[PIZARRO & RIVAS-MARTÍNEZ]

Table 19
3.4.1 *Callitriche brutiae-Ranunculetum pseudofluitans*
(*Ranunculion fluitantis, Potametalia, Potametea*)

Altitude (1=10m)	128	116	87	114	91	49	123	106	118	142	<u>107</u>
Number of species	3	3	3	4	4	4	4	5	5	7	4
Ordinal number	1*	2	3	4	5	6	7	8	9	10	11
Characteristic species:											
<i>Ranunculus pseudofluitans</i>	4	5	4	3	5	5	3	5	5	5	V
<i>Callitriche brutia</i>	3	1	2	4	2	3	4	2	1	2	V
<i>Callitriche stagnalis</i>	+	.	.	+	.	.	.	3	.	.	II
<i>Ranunculus peltatus</i>	.	.	.	.	1	+	.	.	.	.	II
<i>Myriophyllum alterniflorum</i>	.	.	.	.	.	.	2	.	.	.	I
Companion species:											
<i>Oenanthe crocata</i>	.	.	.	+	.	.	+	.	1	.	II
<i>Glyceria declinata</i>	.	.	.	.	+	.	.	2	1	.	II
<i>Lemna minor</i>	.	+	.	.	.	.	.	.	.	+	II
<i>Veronica anagallis-aquatica</i>	.	.	.	.	.	+	.	.	.	1	II

Other species. Companion species: *Veronica beccabunga* + in 3. *Potamogeton polygonifolius* + in 8. *Juncus bulbosus* 1 in 9. *Apium nodiflorum* +, *Peplis portula* +, *Rorippa nasturtium-aquaticum* + in 10.

Localities: 1. Holotypus ass. Ávila: Sierra de Gredos, San Martín del Pimpollar, Venta de Rasquilla, Alberche river. 30TUK2871. 0.5 m², water 20 cm, pH 7, T: 20°C. 2. Madrid: Santa María de la Alameda, Aceña river. 30TUK9594. 1 m², pH: 7, T: 20°C. 3. Ávila: Hoyo de Pinares, Posadas, Sotillo creek. 30TUK8486. 0.5 m², water 20 cm, pH 6.8, T: 20°C. 4. Ávila: Puerto Castilla, Aravalle. 30TTK7764. 5. Ávila: Albornos, Arevalillo river. 30TVK0588. 0.5 m², water 30 cm, pH 7, T: 20°C. 6. Cáceres: Jaraicejo, Miravete pass, De la Vid creek. 30STJ6296. 0.5 m², water 35 cm, pH 7, T: 20°C. 7. Ávila: Solana de Ávila, Garganta de la Solana. 30TTK7465. 8. Ávila: Tormellas, Garganta de los Caballeros. 30TTK8665. 9. Ávila: Puerto Castilla, Aravalle. 30TTK7662. 10. Ávila: Navalperal de Pinares, Casa Espino Polo, Pradomolino creek. 30TUK8097. 0.3 m², water 15 cm, pH 7, T: 15°C. 11. Synthesized table.

Callitricho stagnalis-Ranunculetum saniculifolii Galán in A.V. Pérez, Galán, P. Navas, D. Navas, Y. Gil & Cabezudo in Acta Bot. Malacitana 24: 160, tb. 11, rel. 1-18. 1999 (3.3.4)

[*Ranunculetum saniculifolii* Pizarro & Melendo in Itinera Geobot. 14: 18. 2001 (3.3.8) (art. 2b)]
 (*Ranunculion aquatilis*, *Potametalia*, *Potametea*)

Typus associatio: Acta Bot. Malacitana 24: 162, tb. 11, rel. 16. 1999 [Cádiz: Alcalá de los Gazules, Altos de Majada Escobar; running waters].

Characteristic species: *Ranunculus saniculifolius*.

Diagnosis: Thermo-mesomediterranean Western Mediterranean aquatic batrachid community, growing on meso-eutrophic neutral standing or slowly moving shallow waters, characterized by *Ranunculus saniculifolius*.

[PIZARRO, MELENDO & RIVAS-MARTÍNEZ]

Table 20
3.3.4 *Callitricho stagnalis-Ranunculetum saniculifolii*
 (*Ranunculion aquatilis*, *Potametalia*, *Potametea*)

Altitude (1=10m)	17	75	33	40	42	19	67	44	42
Number of species	4	6	4	4	5	6	6	10	6
Ordinal number	1	2	3	4	5	6	7	8	9
Characteristic species:									
<i>Ranunculus saniculifolius</i>	5	5	4	5	5	4	5	5	V
<i>Callitriche brutia</i>	.	.	4	2	1	3	1	3	IV
<i>Callitriche lusitanica</i>	1	3	2	.	.	.	.	1	III
<i>Callitriche stagnalis</i>	2	.	.	.	3	.	3	.	II
<i>Ranunculus penicillatus</i>	.	+	.	.	.	.	.	+	II
<i>Myriophyllum alterniflorum</i>	.	.	.	+	.	.	.	+	II
Companion species:									
<i>Lemna minor</i>	.	.	.	+	+	+	+	1	III
<i>Glyceria declinata</i>	.	+	1	.	+	.	.	1	III
<i>Peplis portula</i>	+	.	.	.	.	1	.	1	II

Other species. Companion species: *Lemna gibba* 1 in 2. *Juncus bufonius* +, *Juncus capitatus* + in 6. *Eleocharis palustris* +, *Montia amporitana* + in 7. *Azolla caroliniana* + in 8.

Localities: 1. Sevilla: La Luisiana, 0,3 m², 15 cm deep, pH 7,2, T: 19°C. 30STG7855. 2. Salamanca: Valdefuentes de Sangusín, La Vega, Sangusín river, Béjar, 0,5 m², 20 cm deep, pH 7, T: 19°C. 30TTK5980. 3. Cáceres: Villamesías, Búrdalo river, 0,5 m². 30STJ54. 4. Cáceres: Serradilla, Dehesas de Zahurdilla, 0,3 m². 30SQE41. 5. Toledo: Torrico, La Canaleja, Huerta creek. 30SUK0909. 6. Badajoz: Between Badajoz and Mérida, N-V, km 378, Guadajira creek, 0,5 m², 18 cm deep, pH 7,5, T: 18°C. 30SQD00. 7. Portugal, Beira Alta: Guarda, Pinzio, Cabras creek, 0,5 m², 15 cm deep, pH 6,5, T: 16°C. 29TPE6696. 8. Cáceres: Venta Magasca, c. Trujillo, Magasca river, 0,5 m², 20 cm deep, pH 7, T: 16°C. 30STJ5167. 9. Synthesized table.

CALLITRICHIO LUSITANICAE-RANUNCULETUM PENICILLATI ass. nova hoc loco (3.4.2)

[*Callitriche lusitanicae-Ranunculetum penicillati* Pizarro in Lazaroa 15: 92. 1995 (art. 3b)]

(*Ranunculion fluitantis, Potametalia, Potametea*)

Typus associatio: Table 21, rel. 1 [Avila: Hoyo de Pinares, Sotillo river, 30TUK8486. 850 m, 1 m², water 15 cm, pH 7, T 19°C].

Characteristic species: *Callitriche lusitanica, Ranunculus penicillatus*.

Diagnosis: Thermo-mesomediterranean Western Mediterranean even spread into meso-temperate Cantabrian-Atlantic aquatic batrachid community, growing on meso-eutrophic neutral and acidophilous running or slowly moving shallow water, characterized by *Callitriche lusitanica* and *Ranunculus penicillatus*.

[PIZARRO]

Table 21
3.4.2 *Callitriche lusitanicae-Ranunculetum penicillati*
 (*Ranunculion fluitantis, Potametalia, Potametea*)

Altitude (1=10m)	85	65	76	55	65	41	74	67	49	87	66
Number of species	2	3	3	4	4	4	4	5	5	6	4
Ordinal number	1*	2	3	4	5	6	7	8	9	10	11
Characteristic species:											
<i>Callitriche lusitanica</i>	5	1	3	1	2	3	5	5	2	1	V
<i>Ranunculus penicillatus</i>	4	5	5	5	5	5	3	4	3	5	V
<i>Callitriche stagnalis</i>	.	.	.	+	1	.	.	1	1	1	III
<i>Callitriche brutia</i>	.	+	.	.	.	+	.	1	.	.	II
<i>Myriophyllum alterniflorum</i>	.	.	.	.	.	2	.	.	.	.	I
<i>Potamogeton berchtoldii</i>	.	.	.	.	.	.	.	.	.	2	I
<i>Ranunculus pseudofluitans</i>	.	.	.	.	.	.	.	.	.	+	I
Companion species:											
<i>Lemna minor</i>	.	.	.	+	.	.	.	1	2	1	III
<i>Lemna gibba</i>	.	.	1	.	.	.	+	.	.	.	II

Other species. Companion species: *Peplis portula* + in 5. *Alisma plantago-aquatica* + in 7. *Vernonia anagallis-aquatica* + in 9.

Localities: 1. Holotypus ass. Ávila: Hoyo de Pinares, Sotillo river. 30TUK8486. 1 m², water 15 cm, pH 7, T: 19°C. 2. Madrid: Villanueva del Pardillo, Aulencia river. 30TVK18. 0,5 m², water 20 cm, pH 7,2, T: 14°C. 3. Salamanca: Valdefuentes de Sangusín, La Vega, Sangusín river, c. Béjar. 30TTK5980. 0,5 m², water 20 cm, pH 7, T: 16°C. 4. Madrid: Navalagamella, Cerro Alarcón, Perales river. 30TVK0776. 0,3 m², water 40 cm, pH 7,3, T: 14°C. 5. Ávila: Sotillo de la Adrada, Tiétar river. 30TUK66. 0,3 m², water 30 cm, pH 7,1, T: 21°C. 6. Cáceres: Trujillo, Venta de Magasca, Magasca river. 30STJ5167. 0,5 m², water 35 cm, pH 7,1, T: 17°. 7. Salamanca: Fuentes de Oñoro, Berrocal creek. 0,5 m², water 18 cm, pH 6,8, T: 16°C. 8. Beira Alta: Guarda, Pinzio, Cabras creek. 29TPE6696. 0,5 m², water 15 cm, pH 6,7, T: 15°C. 9. Madrid: Navalagamella, los Molinillos, Yunta creek. 30TVK0270. 0,5 m², water 30 cm, pH 7,1, T: 22°C. 10. Madrid: Fresnedillas, Moraleja creek. 30TVK0184. 0,3 m², water 5 cm, pH 7, T: 16°C. 11. Synthesized table.

CALLUNO-PINETUM IBERICAE (Vigo 1968) nom. nov. hoc loco (74.4.3)

[*Deschampsio-Pinetum valentinum* Vigo in Inst. Estud. Catalans (Arx. Secc. Ciencies) 37: 146, tb. 10. 1968 p.p. (art. 34, 39), *Luzulo-Quercetum pyrenaicae deschampsio-pinetosum ibericae* Rivas-Martínez & G. López in G. López in Anales Inst. Bot. Cavanilles 33: 59, tb. 17. 1976]
(*Avenello ibericae-Pinion ibericae*, *Junipero-Pinetalia*, *Junipero-Pinetea*)

Typus associatio: Vigo in Inst. Estud. Catalans (Arx. Secc. Ciencies) 37: 146, tb. 10, rel. 1, lectotypus hoc loco. 1968 [Castellón: Vistabella del Maestrat, Los Espales. 1400 m, N, 35°]. Characteristic species: 5 *Pinus sylvestris* var. *iberica* (sub. *Pinus sylvestris*), 5 *Vaccinium myrtillus*, 2 *Avenella iberica* (sub. *Deschampsia flexuosa*), 1 *Juniperus communis*, + *Festuca durandoi*. Shadow forested species: 2 *Hylocomium triquetrum*, 1 *Lathyrus linifolius*, + *Amelanchier ovalis*, + *Cephalanthera rubra*, + *Crataegus monogyna*, + *Dicranum scoparium*, + *Geum sylvaticum*, + *Hepatica nobilis*, + *Hieracium murorum*, + *Solidago virgaurea*, + *Viola reichenbachiana*. Companion species: 2 *Avenula sulcata*, 2 *Calluna vulgaris*, 2 *Nardus stricta*, 1 *Cruciata glabra*, + *Aira caryophyllea*, + *Anthoxanthum odoratum*, + *Betonica officinalis*, + *Carlina vulgaris*, + *Jasione montana*, + *Lotus corniculatus*, + *Luzula campestris*.

Characteristic species (territorials): *Avenella iberica*, *Calluna vulgaris*, *Nardus stricta*, *Juniperus communis* var. *intermedia*, *Pinus sylvestris* var. *iberica*, *Vaccinium myrtillus*.

Diagnosis: Oroiberian upper supra and lower orotemperate submediterranean Maestrazgo and Universales Mountains mostly primary *Pinus sylvestris* var. *iberica* micro and mesoforests, growing on siliceous rocks in strongly acid ranker, cambisol or planosols, often with circumscribe stagic properties.

[RIVAS-MARTÍNEZ & J.A. MOLINA]

CAMPANULO HERMINII-FESTUCETUM RIVULARIS ass. nova hoc loco (60.4.5)

[*Aulacomnio-Festucetum rivularis* Rivas-Martínez in Anales Inst. Bot. Cavanilles 21(1): 6. 1964 (art. 3b)]
(*Campanulo-Nardion*, *Nardetalia*, *Nardetea*)

Typus associatio: Table 22, rel. 3 [Madrid: Sierra de Guadarrama, Pinilla del Valle, El Nevero, Hoyos de Pinilla creek. 30TVL2736. 1950 m, 6 m²].

Characteristic species (territorial): *Festuca rivularis*.

Diagnosis: Mat-grass swards characterised by the geniculated fescue *Festuca rivularis*, growing on peaty soils bordering springs and rivulets subjected to long periods of snow cover and to temporary inundations by thaw, running and oxygenated water. These chionophilous and rheophilous mat-grasslands are known from the high mountains of the Iberian Central System (Estrelensean, Bejaran-Gredensean and Guadarramean Sectors), where they appear in the (upper supra) oro-cryotemperate submediterranean belts, but they also exist with some differences in the Bercian-Sanabriensean Sector and in the siliceous massifs of the Orocantabric Subprovince.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

Table 22
60.4.5 *Campanulo herminii-Festucetum rivularis*
(Campanulo-Nardion, Nardetalia, Nardetea strictae)

Altitude (1=10m)	162	207	195	215	210	226	196	206	212	202	<u>203</u>
Number of species	5	8	7	8	11	7	8	10	9	11	8
Ordinal number	1	2	3*	4	5	6	7	8	9	10	11
Characteristic species:											
<i>Festuca rivularis</i>	5	4	3	3	3	3	3	3	4	4	V
<i>Nardus stricta</i>	1	1	3	3	3	3	2	3	1	1	V
<i>Campanula herminii</i>	.	.	2	1	1	2	.	2	1	2	IV
<i>Festuca iberica</i>	+	.	+	.	.	.	.	.	.	1	II
<i>Deschampsia gredensis</i>	.	.	.	.	.	2	.	1	.	.	II
Companion species:											
<i>Anthoxanthum odoratum</i>	1	.	.	.	1	.	.	.	2	1	III
<i>Stellaria alsine</i>	.	1	.	.	1	.	1	+	.	.	III
<i>Aulacomnium palustre</i>	.	2	.	.	.	2	.	.	2	2	III
<i>Agrostis castellana</i>	1	.	1	.	+	.	.	.	.	.	II
<i>Veronica langei</i>	.	.	.	.	1	.	+	+	.	.	II

Other species. Characteristic species: *Potentilla erecta* + in 2. *Jasione gredensis* 1, *Pedicularis sylvatica* + in 4. *Juncus squarrosus* 1 in 5. *Narcissus nivalis* 1, *Jasione carpetana* + in 6. *Carex ovalis* 1, *Plantago penyalarensis* + in 7. *Poa legionensis* + in 8. *Ranunculus cacuminalis* 1 in 10. Companion species: *Bryophyta* 3 in 4, 1 in 7, + in 8. *Carex iberica* 1 in 2, 2 in 3. *Viola juressi* 1 in 2, 2 in 9. *Sagina nevadensis* + in 3 and 10. *Leontodon bourgaeanus* 2 in 9, 1 in 10. *Galium rivulare* 1 in 9 and 10. *Philonotis fontana* 1 in 2. *Epilobium palustre* +, *Lotus glareosus* + in 4. *Carex reuteriana* +, *Euphrasia hirtella* +, *Juncus effusus* + in 5. *Poa nemoralis* + in 7. *Sedum melanantherum* 2, *Chenopodium bonus-henricus* + in 8. *Saxifraga alpigena* + in 9. *Agrostis capillaris* 1 in 10.

Localities: 1. Madrid: Sierra de Guadarrama, Rascafría, Puerto de Cotos, Guarramillas creek. 30TVL2019. 4 m². 2. Madrid: Sierra de Guadarrama, Rascafría, Laguna de Peñalara. 30TVL1921. 5 m². 3. Holotypus ass. Madrid: Sierra de Guadarrama, Pinilla del Valle, El Nevero, Hoyos de Pinilla creek. 30TVL2736. 6 m². 4. Cáceres: Sierra de Gredos, Sierra Llana, Villanueva de la Vera, Puerto de Peones. 30TTK933587. 6 m². 5. Ávila: Sierra de Gredos, Navalperal de Tormes, Morezón. 30TUK0859. 4 m². 6. Ávila: Sierra de Gredos, Zapardiel de la Ribera, Cinco Lagunas. 30TUK0460. 10 m². 7. Salamanca: Sierra de Béjar, Candelario. 30TTK683684. 4m². 8. Salamanca: Sierra de Béjar, Candelario, El Quemal. 30TTK684680. 6 m². 9. Madrid: Sierra de Guadarrama, Rascafría, Circo de Peñalara. 30TVL1921. 4 m². 10. Madrid: Sierra de Guadarrama, Rascafría, Laguna de Peñalara. 30TVL1921. 5 m². 11. Synthesized Table.

CARDAMINO HIRSUTAE-GERANIETEA PURPUREI (Rivas-Martínez, Fernández-González & Loidi 1999) classis nova, stat. nov. hoc loco (41)

[*Geranio purpurei-Cardaminenea hirsutae* Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobotanica* 13:384. 1999 (nomencl. syn.), *Geranio purpurei-Cardaminetea hirsutae* Rivas-Martínez, Fernández-González & Loidi 2001 classis nova in *Itinera Geobot.* 14: 95. 2001 (art. 3b, 3k)]

Typus classis: *Geranio-Cardaminetalia hirsutae* Brullo in Brullo & Marcenò in *Coll. Phytosociol.* 12: 73. 1985.

Characteristic species: *Anthriscus caucalis*, *Cardamine hirsuta*, *Centranthus calcitrapae*, *Geranium dissectum*, *Geranium purpureum*, *Geranium rotundifolium*, *Ranunculus parviflorus*, *Torilis heterophylla*, *Torilis leptophylla*, *Torilis neglecta*, *Torilis nodosa*, *Veronica cymbalaria*.

Diagnosis: Therophytic summer ephemeral shaded subnitrophilous thermo to supramediterranean oceanic and infra to mesotemperate submediterranean oceanic upper semiarid to humid communities, growing at the edges of woodlands, thickets and shaded walls, in Holarctic South Europe and North Africa.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ & LOIDI]

CARICETUM CAMPOSI-PANICULATAE ass. nova hoc loco (12.4.2)

(*Magnocaricion elatae*, *Magnocaricetalia*, *Phragmito-Magnocaricetea*)

Typus associatio: Table 23, rel. 3 [Granada: Sierra Nevada, Nigüelas, Fuente de Mailope. 2000 m, 10 m²].

Characteristic species (territorials): *Carex camposii*, *Carex paniculata*.

Table 23

12.4.2 Caricetum camposii-paniculatae

(*Magnocaricion*, *Magnocaricetalia*, *Phragmito-Magnocaricetea*)

Altitude (1=10m)	209	173	200	<u>194</u>
Number of species	8	9	10	9
Ordinal number	1	2	3*	4
Characteristic species:				
<i>Carex paniculata</i>	5	4	5	3
<i>Carex camposii</i>	1	1	2	3
<i>Veronica beccabunga</i>	.	+	+	2
Companion species:				
<i>Holcus lanatus</i>	2	1	1	3
<i>Mentha longifolia</i>	+	1	1	3
<i>Festuca iberica</i>	1	1	+	3
<i>Juncus inflexus</i>	.	2	+	2
<i>Ranunculus granatensis</i>	.	+	1	2

Other species. Companion species: *Juncus effusus* 1, *Stellaria alsine* 1, *Epilobium parviflorum* + in 1. *Juncus articulatus* 1 in 2. *Myosotis teresiana* 1 in 3. to

Localities: 1. Granada: Sierra Nevada, Puerto de la Ragua. 10 m². 2. Granada: Sierra Nevada, Dúrcal, Barranco de la Paranza. 8 m². 3. Holotypus ass. Granada: Sierra Nevada, Nigüelas, Fuente de Mailope, 10 m². 4. Synthesized table.

Diagnosis: Association characterized by the Eurosiberian and east Oroiberian element *Carex paniculata* subsp. *paniculata*, accompanied by the Nevadensian endemic *Carex camposii*. In Sierra Nevada (Nevadensian Sector) it is developed on hygroturbose soils always flooded in the supra and lower oromediterranean subhumid bioclimatic belts. Some-

times, it can be in contact with the shepherded rushy meadows belonging to the Nevadensian association *Junco effusi-Caricetum camposii* (*Juncion acutiflori*).

[MOLERO, J. LÓPEZ & RIVAS-MARTÍNEZ]

CARICETUM ECHINATO-NIGRAE (Rivas-Martínez 1964) nom. nov. hoc loco (14.2.2)

[*Caricetum carpetanae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 21(1): 91, tb. 12. 1964 (art. 43), *Caricetum nigrae* Rivas-Martínez 1964 corr., non *Caricetum fuscae* Br.-Bl., Cévennes Mér. Ét. Phytogeogr.: 31. 1915 (*Caricetum nigrae* Br.-Bl. 1915 nom. mut.)]

(*Caricion nigrae*, *Caricetalia nigrae*, *Scheuchzerio-Caricetea nigrae*)

Typus associatio: Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 21(1): 91, tb. 12, rel. 2 (lectotypus hoc loco) [Spain, Sierra de Guadarrama, Madrid: Southern slope of Peñalara, 2200 m, SE, 4 m²]. Characteristic species: 3 *Carex nigra* (sub. *Carex fusca* subsp. *carpetana*), 2 *Carex echinata*, 2 *Viola palustris* subsp. *juresii* (sub. *Viola palustris*), 1 *Agrostis canina* var. *stolonifera*. Companion species: 2 *Aulacomnium palustre*, 2 *Selinum pyrenaicum*, 2 *Sphagnum inundatum*, 1 *Sagina nevadensis* (sub. *Sagina saginoides* var. *glandulosa*), + *Drosera rotundifolia*, + *Festuca rivularis* (sub. *Festuca rubra* var. *rivularis*), + *Juncus squarrosus* (sub. *Juncus squarrosus* subsp. *ellmanii*), + *Nardus stricta*.

Characteristic species (territorials): *Carex echinata*, *Carex nigra*, *Drosera rotundifolia*, *Viola palustris* subsp. *juresii*.

Taxonomic correction: *Carex fusca* subsp. *carpetana* (C. Vicioso) Rivas Mart. nom. illeg. (*Carex nigra* subsp. *iberica* Rivas Mart.) should be *Carex nigra* (L.) Reichard

Distribution: Carpetan, Bercian-Sanabriensean and Orocantabric oligotrophic fen community.

[RIVAS-MARTÍNEZ]

CARICI ASTURICAE-CALLUNETUM VULGARIS ass. nova hoc loco (61.4.2)

(*Daboecion cantabricae*, *Ulicetalia minoris*, *Calluno-Ulicetea*)

Typus associatio: Table 24, rel. 2 [Asturias: Caso, Pico Torres. 30TUN07. 1800 m, 100 m²].

Characteristic species (territorials): *Calluna vulgaris*, *Carex asturica*, *Carex pilulifera*, *Thymelaea dendrobryum*, *Hypericum burseri*, *Vaccinium myrtillus*.

Diagnosis: Close thicket with preponderant nanophanerophytes and some herbaceous plants colonizing deep soils developed from siliceous rocks (slates, sandstones or quartzites). These endemic Orocantabric communities are differentiated by the Orocantabric-Iberian endemics *Carex asturica* and *Thymelaea dendrobryum* and have their optimum in the lower orotemperate horizon and in the upper supratermperate. They are in contact with the *Nardus* pastures of the *Campanulo herminii-Nardion strictae* and the broom communities of the *Carici asturicae-Genistetum obtusirameae* and *Cytiso oromediterranei-Genistetum obtusirameae*.

[BUENO & F. PRIETO]

Table 24
61.4.2 *Carici asturicae-Callunetum vulgaris*
 (*Daboecion cantabrigae, Ulicetalia minoris, Calluno-Ulicetea*)

Altitude (1=10 m.)	175	180	164	187	166	195	178	165	162	159	165	172	180	166	189	174
Number of species	18	28	17	27	20	22	15	24	27	26	16	31	16	22	19	21
Ordinal number	1	2*	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Characteristic species:																
<i>Calluna vulgaris</i>	5	4	4	4	5	4	5	5	4	4	5	4	4	5	4	V
<i>Vaccinium myrtillus</i>	2	2	3	1	2	.	2	3	2	3	1	2	2	2	1	V
<i>Avenula lodunensis</i>	.	1	1	1	1	1	1	1	.	1	.	1	1	1	1	V
<i>Carex asturica</i>	.	+	.	.	+	.	+	.	1	.	1	+	1	1	1	IV
<i>Thymelaea dendrobryum</i>	1	1	.	.	.	.	.	+	+	1	2	1	1	1	+	IV
<i>Hypericum burseri</i>	1	1	.	1	.	.	+	1	+	1	.	1	+	+	+	IV
<i>Carex pilulifera</i>	+	.	+	1	+	1	+	1	1	1	.	.	.	+	.	IV
<i>Pterospartum cantabrigicum</i>	.	.	.	.	.	.	.	.	.	.	2	+	3	+	+	III
<i>Genista pilosa</i>	.	1	.	+	.	.	1	.	+	.	.	.	.	.	2	II
<i>Daboecia cantabrigica</i>	.	.	.	.	.	.	.	.	.	.	+	+	1	.	.	II
<i>Euphorbia polygalifolia</i>	.	.	.	2	.	1	1	.	.	.	.	.	.	.	.	II
Companion species:																
<i>Nardus stricta</i>	1	1	3	2	2	2	1	2	1	2	.	2	1	2	2	V
<i>Avenella flexuosa</i>	1	+	2	.	1	.	1	1	.	1	1	1	1	1	1	V
<i>Potentilla erecta</i>	+	1	1	.	1	+	.	1	1	1	.	1	+	+	.	IV
<i>Hieracium pilosella</i>	1	1	.	.	.	1	.	+	1	+	.	+	+	+	1	IV
<i>Festuca rubra</i>	.	1	1	1	.	1	1	.	1	1	.	1	.	1	.	IV
<i>Agrostis capillaris</i>	1	+	1	.	.	1	1	1	2	.	+	1	.	.	.	III
<i>Jasione carpetana</i>	+	.	.	+	+	1	+	.	.	+	+	.	.	+	+	III
<i>Gentiana lutea</i>	.	1	+	+	.	+	.	+	.	+	.	+	+	+	.	III
<i>Meum athamanticum</i>	.	+	.	.	.	1	.	+	+	+	.	+	.	+	.	III
<i>Genista obtusiramea</i>	.	.	.	.	+	+	+	.	+	.	.	1	.	.	+	III
<i>Solidago virgaurea</i>	1	.	.	+	+	+	.	+	.	.	.	.	.	+	.	II
<i>Veronica officinalis</i>	.	3	.	1	.	1	.	.	1	.	.	+	.	.	1	II
<i>Juniperus alpina</i>	.	+	.	.	+	+	.	+	.	1	.	.	.	.	.	II
<i>Galium saxatile</i>	.	.	1	.	+	.	.	+	+	.	.	+	1	.	.	II
<i>Erica arborea</i>	.	.	.	.	1	.	.	+	.	+	+	.	.	+	+	II

Other species. Characteristic species: *Pseudarrhenatherum longifolium* + in 1. *Erica vagans* 1, *Erica cinerea* +, *Serratula tinctoria* +, *Ulex cantabrigicus* + in 9. *Erica aragonensis* + in 14. Companion species: *Galium verum* 1 in 1, + in 2, 4, 10 and 11. *Anthoxanthum odoratum* + in 2, 4, 8 and 12, 1 in 6. *Cytisus oromediterraneus* + in 5, 8, 11 and 14. *Agrostis durieui* + in 11, and 15. *Homogyne cantabrigica* 1 in 1 and 3, + in 2 and 10. *Luzula nutans* + in 1 and 8, 1 in 3 and 14. *Cruciata glabra* 1 in 1, + in 6, 10 and 12. *Plantago alpina* + in 1, 4, 9 and 12. *Stachys officinalis* + in 2, 9 and 10, 1 in 12. *Rumex angiocarpus* + in 9 and 15. *Leontodon cantabrigicus* + in 4, 5, 8 and 11. *Thesium pyrenaicum* + in 4, 5, 12 and 14. *Succisa pratensis* + in 2, 5 and 12. *Cytisus cantabrigicus* + in 2 and 13, 1 in 12. *Thymus britannicus* + in 6, 9 and 12. *Teesdaliopsis conferta* + in 6 and 11. *Rosa pendulina* 1 in 2, + in 12.

Lotus corniculatus + in 2 and 15. *Festuca eskia* + in 4, 1 in 6. *Erica tetralix* 2 in 10. *Conopodium pyrenaicum* +, *Silene nutans* + in 1. *Astrantia major* +, *Crocus nudiflorus* +, *Geranium sylvaticum* +, *Stellaria holostea* + in 2. *Blechnum spicant* +, *Daphne laureola* +, *Euphorbia hyberna* +, *Polygala serpyllifolia* + in 3. *Carex caryophyllea* 1, *Achillea millefolium* +, *Alchemilla saxatilis* +, *Campanula scheuchzeri* +, *Linaria supina* +, *Omalotheca sylvatica* +, *Silene ciliata* +, *Trifolium alpinum* + in 4. *Anemone nemorosa* 1, *Diphasiastrum alpinum* + in 5. *Merendera montana* + in 6. *Luzula multiflora* + in 7. *Pinus sylvestris* var. *Iberica* +, *Silene nutans* + in 8. *Danthonia decumbens* 1, *Plantago media* +, *Polygala vulgaris* + in 9. *Daphne laureola* +, *Euphorbia hyberna* +, *Parnassia palustris* +, *Prunella vulgaris* + in 10. *Digitalis purpurea* + in 11. *Crocus nudiflorus* +, *Hypochoeris radicata* + in 12. *Polygala serpyllifolia* + in 13. *Cytisus scoparius* + in 15.

Localities: 1. Asturias: Caso/León: Puebla de Lillo, Peña de Viento-Pico Páramo. 30TUN17. 100 m². 2. Holotypus ass. Asturias: Caso, Pico Torres. 30TUN07. 100 m². 3. Asturias: Lena, Cueto Negro. 30TTN76. 100 m². 4. Palencia: Brañosera, El Golobar-Valdecebollas. 30TUN85. 200 m². 5. León: Boca de Huérgano, Puerto de San Glorio. 30TUN56. 100 m². 6. León: Boca de Huérgano/Cantabria: Camaleño, Puertos de Riofrío, Peña Prieta-Cubil del Can. 30TUN56. 200 m². 7. Cantabria: Camaleño, Alto de Riofrío. 30TUN66. 100 m². 8. León: Maraña, Puerto de las Señales-Pico del Lago del Pinar. 30TUN16. 200 m². 9. Asturias: Aller, Pico de Palmfan-Peña Redonda. 30TTN97. 200 m². 10. Asturias: Aller/León: Valdehugueros: Pico de la Loma-Pico Toneo. 30TUN06. 200 m². 11. Asturias: Caso/León: Puebla de Lillo, Peña del Viento-Pico Páramo. 30TUN17. 100 m². 12. Asturias: Caso, Pico Torres. 30TUN07. 100 m². 13. Asturias: Lena/León: Villamanán, Alto de la Carbazosa. 30TTN76. 100 m². 14. León: Puebla de Lillo, Circo de Cebolledo. 30TUN76. 200 m². 15. León: San Emiliano, Alto de la Farrapona-Peña Redonda. 29TQH36. 200 m². 16. Synthesized table.

CARICI ASTURICAE-GENISTETUM OBTUSIRAMEAE ass. nova hoc loco (65.3.2)

(*Geniston polygaliphyllae*, *Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Typus associatio: Table 25, rel. 2 [Asturias: Cangas de Narcea/León: Villablino, Cueto de Arbás. 29TQH06 y 29TQH16. 1720 m, 100 m²].

Characteristic species (territorials): *Carex asturica*, *Genista obtusiramea*, *Juniperus alpina*.

Diagnosis: Thicket of broom-like nano and microphanerophytes, with an abundant substratum of chamaephytes, hemicryptophytes and geophytes, colonizing deep soils developed from siliceous substrata. This association is characterized by the presence of the Orocantabric endemics *Genista obtusiramea* and *Carex asturica* as well as other plants of orotemperate belt. It has its optimum in the mid-western siliceous Orocantabric territories, particularly in the most oceanic and rainy areas of the northern slopes of the Cantabrian Range. It is a vicariant of the broom communities of the *Cytiso oromediterranei-Genistetum obtusirameae*, from more continental and less rainy areas, from which it is differentiated by the absence of *Cytisus oromediterraneus*. It appears in contact with the *Nardus* pastures of the alliance *Campanulo herminii-Nardion strictae* and heathlands of the *Carici asturicae-Callunetum vulgaris* and *Pterosparto cantabrici-Ericetum aragonensis*.

[BUENO & F. PRIETO]

Table 25

65.3.2 *Carici asturicae-Genistetum obtusirameae**(Genistion polygaliphyllae, Cytisetalia scopario-striati, Cytisetea scopario-striati)*

Altitude (1=10 m.)	182	172	189	178	184	179	196	165	197	180	182	183
Number species	22	22	15	12	20	15	16	21	11	18	17	17
Ordinal number	1	2*	3	4	5	6	7	8	9	10	11	12
Characteristic species:												
<i>Genista obtusiramea</i>	5	5	4	4	4	5	4	5	4	4	4	V
<i>Vaccinium myrtillus</i>	2	2	1	1	3	.	2	+	3	1	2	V
<i>Carex asturica</i>	1	1	.	1	2	+	.	.	2	1	1	IV
<i>Erica arborea</i>	+	+	+	+	.	.	.	.	.	1	2	IV
<i>Juniperus alpina</i>	.	+	.	.	+	.	+	+	1	+	.	III
<i>Cytisus scoparius</i>	.	.	.	.	.	.	.	.	.	+	+	II
Companion species:												
<i>Avenella flexuosa</i>	1	1	2	2	1	1	2	1	2	+	1	V
<i>Avenula lodunensis</i>	1	.	2	1	1	1	.	1	1	1	1	V
<i>Calluna vulgaris</i>	3	1	1	3	+	2	+	.	.	1	.	IV
<i>Solidago virgaurea</i>	.	+	1	+	+	.	+	+	.	1	+	IV
<i>Nardus stricta</i>	1	2	1	1	1	1	.	.	.	.	1	IV
<i>Hypericum burseri</i>	1	+	1	+	.	+	.	1	.	.	+	IV
<i>Pterospartum cantabricum</i>	.	.	1	+	.	.	1	+	.	+	+	IV
<i>Gentiana lutea</i>	.	+	1	.	.	.	1	+	1	.	1	III
<i>Galium saxatile</i>	1	1	1	.	.	+	.	1	.	.	.	III
<i>Agrostis capillaris</i>	+	2	.	.	1	2	.	3	.	.	.	III
<i>Festuca rubra</i>	.	1	1	.	1	1	.	1	.	.	.	III
<i>Phalacrocarpon oppositifolium</i>	.	+	.	.	.	.	.	+	+	+	+	III
<i>Daboecia cantabrica</i>	1	.	.	1	+	.	.	.	.	+	.	III
<i>Jasione carpetana</i>	.	+	.	.	+	1	+	.	.	.	.	III
<i>Silene nutans</i>	.	+	.	.	.	+	1	.	.	.	+	III

Other species. Companion species: *Rumex angiocarpus* + in 1, 2 and 10. *Anthoxanthum odoratum* + in 5 and 11, 1 in 6. *Festuca multispiculata* + in 7, 1 in 9 and 10. *Hypochoeris radicata* + in 1 and 2. *Hieracium pilosella* + in 1, 1 in 5. *Conopodium pyrenaicum* + in 1 and 7. *Potentilla erecta* 1 in 1, + in 8. *Veronica officinalis* + in 1, 1 in 8. *Luzula caespitosa* 1 in 3, + in 7. *Lotus corniculatus* + in 3 and 9. *Euphorbia polygalifolia* 1 in 5 and 6. *Agrostis durieui* + in 5 and 6. *Dianthus langeanus* + in 7, 1 in 10. *Sorbus aucuparia* + in 7 and 11. *Luzula lactea* 1 in 9, + in 11. *Thymelaea dendrobryum* 2, *Plantago alpina* 1, *Lithodora diffusa* +, *Meum athamanticum* + in 1. *Digitalis purpurea* +, *Merendera montana* +, *Paronychia polygonifolia* + in 2. *Arenaria montana* +, *Carex pilulifera* +, *Genista pilosa* + in 5. *Hieracium umbellatum* + in 7. *Achillea millefolium* +, *Carduus carpetanus* +, *Ceratocarpus claviculata* +, *Chenopodium bonus-henricus* +, *Plantago media* +, *Trifolium repens* + in 8. *Asphodelus cerasiferus* +, *Sedum pyrenaicum* +, *Teesdaliopsis conferta* + in 10.

Localities: 1. Asturias: Caso, Pico Torres. 30TUN07. 100 m². 2. Holotypus ass. León: Villablino, Cueto de Arbás. 29TQH16. 100 m². 3. Asturias: Cangas de Narcea/León: Villablino, Cueto de Arbás. 29TQH06 y 29TQH16. 100 m². 4. Asturias: Lena/León: Villamanán, Alto de la Carbazosa. 30TTN76. 100 m². 5. Cantabria: Hermandad del Campóo de Suso, Alto Campóo, Braña Vieja-Pico Tres Mares. 30TUN86. 100 m². 6. Cantabria: Camaleño, Alto de Riofrío. 30TUN66. 100 m². 7. León: Páramo del Sil, El Miro. 29TQH05. 50 m². 8. León: Candín, Alto del Cuiña. 29TPH74. 200 m². 9. León: Candín: Puerto de Ancares. 29TPH74. 200 m². 10. León: Villablino/Astruias: Somiedo, Las Camposas. 29TQH16 y 20TQH17. 100 m². 11. León: Páramo del Sil, El Miro. 29TQH05. 200 m². 12. Synthesized table.

CARICI ECHINATAE-TRICHOPHORETUM CAESPITOSI ass. nova hoc loco (14.2.5)

[ass. à *Scirpus caespitosus* Turmel in Mém. Museum Natl. Hist. Nat. Paris, Sér. B, Bot. 5: 126, tb. 42. 1955 non Thimm 1953, *Primulo integrifoliae-Trichophoretum caespitosi* Gruber 1978 nom. inval. (art. 1)]

(*Caricion nigrae*, *Caricetalia nigrae*, *Scheuchzerio-Caricetea nigrae*)

Typus associatio: Table 26, rel. 2 [Huesca: Benasque, Pleta de Cregüña. 42° 39'N-0° 36'E. 2030 m, NW, 4 m²].

Table 26

14.2.5 Carici echinatae-Trichophoretum caespitosi
(*Caricion nigrae*, *Caricetalia nigrae*, *Scheuchzerio-Caricetea nigrae*)

Altitude (I=10m)	201	203	194	194	202	203	201	200
Number of species	6	8	7	7	7	8	7	7
Ordinal number	1	2*	3	4	5	6	7	8
Characteristic species:								
<i>Trichophorum caespitosum</i>	5	5	5	5	4	5	5	V
<i>Carex echinata</i>	1	+	1	1	1	1	2	V
<i>Orchis maculata</i>	+	1	+	+	.	+	+	V
<i>Pinguicula vulgaris</i>	2	2	+	.	.	1	1	IV
<i>Pedicularis mixta</i>	+	+	.	.	.	+	1	III
<i>Eriophorum angustifolium</i>	1	.	.	.	2	.	.	II
<i>Viola palustris</i>	.	.	1	+	.	.	.	II
<i>Carex nigra</i>	.	.	.	.	+	2	.	II
<i>Parnassia palustris</i>	.	.	.	.	.	1	1	II
Companion species:								
<i>Potentilla erecta</i>	.	1	2	2	1	2	+	V

Other species. Companion species: *Carex panicea* 2 in 3 and 5. *Sphagnum inundatum* 2 in 4 and 5. *Succisa pratensis* + in 4 and 7. *Bartsia alpina* 1 in 2.

Localities: 1. Huesca: Benasque, Valle de Cregüña. SE, 2 m². 2. Holotypus ass. Huesca: Benasque, Pleta de Cregüña. 42° 39'N-0° 36'E. NW, 4 m². 3. Huesca: Benasque, Aiguallut. N, 10 m². 4. Huesca: Benasque, Plan d'Aiguallut. NE, 4 m². 5. Huesca: Benasque, Pleta de la Renclusa. NE, 10 m². 6. Huesca: Benasque, Solana de Cregüña. SW, 6 m². 7. Huesca: Benasque, Ball de Llozas. E, 10 m². 8. Synthesized table.

Characteristic species: *Trichophorum caespitosum* subsp. *caespitosum*, *Carex echinata*.

Diagnosis: Pyrenean orotemperate and lower cryorotemperate oligo-mesotrophic mineral peaty soil community, dominated by *Trichophorum caespitosum* subsp. *caespitosum*, usually growing on catena between the more humid and boggy Alpine-Pyrenean *Caricetum fuscae* Br.-Bl. 1915 and the drier Pyrenean *Selino pyrenaei-Nardetum* Br.-Bl. 1948.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

CARICI PENDULAE-FRAXINETUM EXCELSIORIS ass. nova hoc loco (71.1.4)

[*Carici pendulae-Fraxinetum excelsioris* Biurrun in Guineana 5: 25, tb. 3. 1999 (art. 3b)]
(*Alnion incanae*, *Populetaia albae*, *Salici purpureae-Populetea nigrae*)

Typus associatio: Table 27, rel. 3 [Burgos: Mena Valley, from Arceniega to Angulo mountain pass, Ciella, Molino stream. 30TVN7187, 300 m, 150 m²].

Characteristic species (territorials): *Acer campestre*, *Carex pendula*, *Carex remota*, *Festuca gigantea*, *Fraxinus excelsior*, *Saxifraga hirsuta*.

Diagnosis: Edaphohygrophilous ash forests with *Acer campestre* that grow in the humid-hyperhumid, lower supratemperate and mesotemperate belt of the Cantabrian-Basque Sector. They occupy the external band in the riparian geoseries of this sector, behind alder forests of *Hyperico androsaemi-Alnetum glutinosae* association. In streams and little rivers with low flow from humid areas of Navarran-Alavan district they grow on the bank (rel. 1-3), as they do in streams from supratemperate belt, where *Fagus sylvatica* participates in the community. They are usually in contact with climatophilous *Pulmonario-Quercion roboris* and *Aceri-Quercion fagineae* oak forests in the mesotemperate belt and beech forests in the supratemperate. We include the new association in *Alnion incanae* alliance due to its edaphohygrophilous behaviour and to the presence of character species of alliance and *Populetaia*: *Carex pendula*, *Silene dioica*, *Primula elatior*, *Carex remota*, *Elymus caninus*, *Festuca gigantea*. Ash forests from the same alliance (*Festuco giganteae-Fraxinetum excelsioris*) have been described in the Orocantabric Subprovince, in which *Acer campestre*, *Quercus robur*, *Saxifraga hirsuta*, *Carex pendula*, *Elymus caninus*, *Bromus ramosus*, *Viburnum lantana* and other basophilous species are absent. Just as *Quercus petraea*, *Saxifraga spathularis* and other acidophilous species are also absent in *Carici pendulae-Fraxinetum*.

[BIURRUN & GARCÍA-MIJANGOS]

CATAPODIO MARINI-FRANKENIETUM PULVERULENTAE (Rivas-Martínez, Costa & Loidi 1992) nom. nov. hoc loco (22.2.3)

[*Parapholido incurvae-Desmazierietum marinae* Rivas-Martínez, Costa & Loidi in Itinera Geobot. 6: 156, tb. 24. 1992 non *Parapholido incurvae-Catapodietum marini* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.M. Costa in Itinera Geobot. 3: 98, tb. 17. 1990 (art. 31, 39, 45), *Arthrocnemetum glauci catapodietosum marini* (Rivas-Martínez, Costa & Loidi 1992) O. Bolòs in Arxius Secc. Ci. Inst. Estud. Catalans 114: 49. 1996 (corresp. name)]
(*Frankenion pulverulentae*, *Frankenietalia pulverulentae*, *Saginetea maritimae*)

Table 27

71.1.4 *Carici pendulae-Fraxinetum excelsioris**(Alnion incanae, Populetales albae, Salici purpureae-Populetea nigrae)*

Altitude (1=10m)	70	58	30	61	<u>55</u>
Number of species	42	50	54	60	<u>51</u>
Ordinal number	1	2	3*	4	5
Characteristic species:					
<i>Fraxinus excelsior</i>	3	3	4	3	4
<i>Brachypodium sylvaticum</i>	1	3	2	2	4
<i>Elymus caninus</i>	2	.	1	+	3
<i>Salix atrocinerea</i>	.	1	+	.	2
<i>Primula elatior</i>	.	+	1	.	2
<i>Festuca gigantea</i>	.	+	+	.	2
<i>Fraxinus oxycarpa</i>	.	1	.	2	2
<i>Alnus glutinosa</i>	.	+	.	1	2
<i>Arum italicum</i>	.	+	.	1	2
<i>Symphytum tuberosum</i>	.	.	1	2	2
Quercu-Fagetea and Rhamno-Prunetea species:					
<i>Acer campestre</i>	5	3	2	1	4
<i>Crataegus monogyna</i>	1	1	+	1	4
<i>Prunus spinosa</i>	1	1	+	+	4
<i>Ligustrum vulgare</i>	+	2	1	1	4
<i>Viburnum lantana</i>	+	1	+	1	4
<i>Viola reichenbachiana</i>	+	+	1	1	4
<i>Lonicera xylosteum</i>	1	1	+	.	3
<i>Euonymus europaeus</i>	1	1	.	1	3
<i>Poa nemoralis</i>	1	1	.	+	3
<i>Mercurialis perennis</i>	1	.	2	2	3
<i>Tamus communis</i>	+	.	1	1	3
<i>Hepatica nobilis</i>	+	.	1	+	3
<i>Vicia sepium</i>	+	.	1	+	3
<i>Stellaria holostea</i>	+	.	+	+	3
<i>Hedera helix</i>	.	2	1	3	3
<i>Cornus sanguinea</i>	.	2	1	2	3
<i>Corylus avellana</i>	.	1	3	4	3
<i>Euphorbia amygdaloides</i>	.	1	1	1	3
<i>Rubus ulmifolius</i>	.	1	+	1	3
<i>Lamium galeobdolon s.l.</i>	.	+	1	1	3
<i>Lonicera periclymenum</i>	.	+	+	1	3
Companion species:					
<i>Geum urbanum</i>	1	1	1	1	4
<i>Heracleum sphondylium</i>	1	+	.	+	3

Other species. Characteristic species: *Fraxinus angustifolia* +, *Salix lambertiana* +, *Solanum dulcamara* + in 2. *Carex pendula* 1, *Hypericum androsaemum* +, *Vitis vinifera* + in 3. *Rubus caesius* +, *Bryonia dioica* + in 4. **Querco-Fagetea and Rhamno-Prunetea species:** *Clematis vitalba* + in 1 and 2. *Viola alba* 1 in 1, + in 3. *Ornithogalum pyrenaicum* + in 1 and 3. *Rhamnus cathartica* 3 in 2, + in 4. *Rosa canina* 2 in 2, + in 4. *Conopodium majus* 1 in 2 and 4. *Melica uniflora* 1 in 2, + in 4. *Sambucus nigra* 1 in 2, + in 4. *Polystichum setiferum* + in 2 and 4. *Quercus robur* + in 2 and 4. *Carex sylvatica* 1 in 3, + in 4. *Crepis lampanoides* 1 in 3, + in 4. *Saxifraga hirsuta* 1 in 3, + in 4. *Euphorbia dulcis* + in 3, 1 in 4. *Helleborus occidentalis* + in 3, 1 in 4. *Ajuga reptans* + in 3 and 4. *Acer monspessulanum* +, *Primula veris* s.l. +, *Pulmonaria longifolia* +, *Quercus faginea* +, *Ribes alpinum* +, *Rosa gr. canina* +, *Rubus* sp. + in 1. *Acer pseudoplatanus* +, *Orobanche hederæ* + in 2. *Bromus scariosus* 1, *Tilia platyphyllos* 1, *Quercus x coutinhoi* pl. + in 3. *Daphne laureola* +, *Prunus avium* +, *Scilla liliohyacinthus* + in 4. **Companion species:** *Alliaria petiolata* 1 in 1, + in 2. *Brachypodium rupestre* 1 in 1, + in 2. *Lapsana communis* 1 in 1, + in 2. *Urtica dioica* + in and 2. *Poa trivialis* s.l.+ in 1 and 3. *Galium aparine* 1 in 1, + in 4. *Scrophularia balbisii* + in 2 and 3. *Stachys sylvatica* + in 2 and 4. *Geranium robertianum* 1 in 3, + in 4. *Agrostis stolonifera* 1, *Conium maculatum* +, *Cruciata laevipes* +, *Satureja vulgaris* s.l. +, *Silene latifolia* +, *Torilis arvensis* +, *Viscum album* + in 1. *Anthriscus sylvestris* +, *Hypericum perforatum* +, *Juglans regia* +, *Lythrum salicaria* +, *Prunus domestica* + in 2. *Ranunculus despectus* 1, *Cardamine pratensis* +, *Carex divulsa* +, *Equisetum telmateia* +, *Heracleum montanum* +, *Pimpinella major* +, *Prunella vulgaris* +, *Pteridium aquilinum* +, *Ruscus aculeatus* +, *Smilax aspera* + in 3. *Filipendula ulmaria* +, *Fragaria vesca* +, *Glechoma hederacea* +, *Lamium maculatum* +, *Lilium martagon* +, *Narcissus pseudonarcissus* +, *Silene vulgaris* +, *Sisymbrium chrysanthum* +, *Stachys alpina* +, *Valeriana pyrenaica* + in 4.

Localities: 1. Burgos: From Peña Angulo to Baro, Losa stream. 30TVN8260. 150 m². 2. Alava: Gopegi, Subialde stream. 30TWN2256. 150 m². 3. Holotypus ass. Burgos, Mena Valley, from Arce-niega to Angulo mountain pass, near Ciella, Molino stream. 30TVN7187. 150 m². 4. Alava: Zuia, Murgia, Bayas river in Arenaza. 30TWN1356. 300 m². 5. Synthesized table.

Typus associatio: Rivas-Martínez, Costa & Loidi in Itinera Geobot. 6: 156, tb. 24, rel. 5. 1992 (lectotypus) [Balearic Islands, Ibiza, Playa del Mitjorn, 1 m²]. Characteristic species: 3 *Catapodium marimum* (sub *Desmazeria marina*), 3 *Frankenia pulverulenta*, 1 *Parapholis incurva*. Companion species: 2 *Mesembryanthemum crystallinum*, 2 *Suaeda spicata* (sub *Suaeda maritima*), 1 *Plantago coronopus*, + *Triplachne nitens*.

Characteristic species (territorials): *Catapodium marimum*, *Frankenia pulverulenta*, *Parapholis incurva*, *Sagina maritima*, *Triplachne nitens*.

Diagnosis: Therophytic ephemeral salt-and sand-loving coastal community from Balearic Islands.

[RIVAS-MARTÍNEZ, COSTA & LOIDI]

CATAPODIO SPICATI-SAGINETUM MARITIMAE (O. Bolòs & Vigo 1984) ass. nova hoc loco, stat. nov. (22.2.2)

[*Sagino maritimae-Tortelletum flavovirentis cerastietosum gussonei* O. Bolòs & Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 73: 200. 1984 (basion.) (art. 27d, 46H)]

(*Frankenion pulverulentae*, *Frankenietalia pulverulentae*, *Saginetum maritimae*)

Typus associatio: O. Bolòs & Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 73. 200. 1984, holotypus [Illes Medes: Meda Gran, Western boarding stand. 20 m, 90%]. Characteristic species: 5 *Sagina maritima*, 1 *Catapodium rigidum* subsp. *spicatum*, + *Cerastium diffusum* subsp. *gussonei*, + *Frankenia pulverulenta*, + *Spergularia salina*. Companion species: + *Dactylis glomerata* var. *hispanica*, + *Poa annua*, + *Polycarpon tetraphyllum*.

Characteristic species (territorials): *Catapodium rigidum* subsp. *spicatum*, *Frankenia pulverulenta*, *Sagina maritima*.

Diagnosis: Aerohaline community of ephemeral therophytes developed on incipient soils of the littoral rocks with salt spray. Known from the Medas Islands.

[RIVAS-MARTÍNEZ]

CHAMAECYTISO CANARIAE-ADENOCARPETUM VILLOSI (Sunding 1972) nom. nov. hoc loco (82.2.1)

[*Adenocarpus foliolosi*-*Cytisetum proliferi* Esteve in Bol. Real Soc. Esp. Hist. Nat., Secc. Biol. 6: 90. 1969 (art. 37), *Adenocarpus villosi*-*Cytisetum proliferi* Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 129, tb. 31. 1972 (art. 31, 39)]

(*Telino canariensis*-*Adenocarpion foliolosi*, *Andryalo-Ericetalia*, *Pruno-Lauretea novocanariensis*)

Typus associatio: Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 129, tb. 31, rel. 13, lectotypus hoc loco. 1972.

Characteristic species (territorials): *Adenocarpus foliolosus* var. *villosus*, *Telina microphylla*, *Chamaecytisus proliferus* var. *canariae*.

Diagnosis: Broom formations characteristic of the mesomediterranean subhumid belt from Gran Canaria (Canary Islands), representing the substitution stage or the border of pinewoods on deep soils (*Micromeris pineolentis*-*Pinetum canariensis*) or the laurel forests (*Lauro-Perseetum indiciae*) from little warmer places.

[RIVAS-MARTÍNEZ & WILDPRET]

CIRSIO GREGARII-DACTYLETUM JUNCINELLAE ass. nova hoc loco (49.1.4)

[*Cirsio gregarii*-*Dactyletum juncinellae* Molero in J.M. Losa, Molero, Casares & Pérez-Raya. Paisaje vegetal de Sierra Nevada. La cuenca alta del río Genil: 95, tb. 12. 1986 (art. 5)]

(*Thymenion serpylloides*, *Nevadension purpureae*, *Festucetalia indigestae*, *Festucetea indigestae*)

Typus associatio: Granada: Sierra Nevada, Güejar-Sierra, Northern slope of Veleta. 37° 04' N-3° 22' W. N, 2760 m, 20 m², [rel. S. Rivas-Martínez 08. 1990]. Characteristic species: 3 *Dactylis juncinella*, 1 *Cirsium gregarium*, 1 *Eryngium glaciale*, 1 *Festuca indigesta*, 1 *Herniaria boissieri*, + *Thymus serpylloides*. Companion species: 2 *Avenella iberica*, 1 *Agrostis nevadensis*, 1 *Lotus glareosus*, 1 *Reseda complicata*, + *Carduus carlinoides* subsp. *hispanicus*, + *Hieracium castellanum*, + *Urtica dioica*.

Characteristic species: *Dactylis juncinella*.

Diagnosis: Grassland characterized by the Nevadensian endemic *Dactylis juncinella* growing on slightly developed siliceous soils, having a long snow covering in the oromediterranean and lower cryoromediterranean humid bioclimatic belts of Sierra Nevada.

[MOLERO & J. LÓPEZ]

CIRSIO GREGARII-DESCHAMPSIETUM HISPANICAE ass. nova hoc loco (59.8.3)

(*Deschampsia mediae*, *Holoschoenetalia vulgaris*, *Molinio-Arrhenatheretea*)

Typus associatio: Table 28, rel. 3 [Jaén: Siles, Cortijo de la Balasna. 30S WH 3940. 1300 m, 20 m²].

Table 28

59.8.3 *Cirsio gregarii-Deschampsietum hispanicae*

(*Deschampsia mediae*, *Holoschoenetalia*, *Molinio-Arrhenatheretea*)

Altitude (1=10m)	128	121	130	140	130	158	190	144
Number of species	28	22	20	13	16	13	20	16
Ordinal number	1	2	3*	4	5	6	7	8
Characteristic species:								
<i>Deschampsia hispanica</i>	2	3	3	4	4	5	3	V
<i>Carex flacca</i>	2	2	1	2	.	.	+	IV
<i>Trifolium pratense</i>	1	1	.	+	2	.	1	IV
<i>Potentilla reptans</i>	.	+	+	1	1	+	.	IV
<i>Holcus lanatus</i>	.	+	.	+	1	+	1	IV
<i>Cirsium gregarium</i>	.	+	2	.	+	.	+	III
<i>Juncus striatus</i>	.	.	2	1	.	+	+	III
<i>Agrimonia eupatoria</i>	+	+	.	.	+	.	.	III
<i>Lolium perenne</i>	+	+	.	.	.	+	.	III
<i>Oenanthe peucedanifolia</i>	1	.	+	.	+	.	.	III
<i>Trifolium fragiferum</i>	+	.	.	2	.	1	.	III
<i>Phleum pratense</i>	2	.	.	.	1	+	.	III
<i>Phleum bertolonii</i>	.	2	+	.	.	.	1	III
<i>Agrostis stolonifera</i>	.	1	1	.	.	.	+	III
<i>Briza media</i>	.	.	1	.	1	.	2	III
Companion species:								
<i>Lotus corniculatus</i>	1	2	1	2	+	1	+	V
<i>Gaudinia fragilis</i>	1	1	+	1	.	.	.	III
<i>Plantago media</i>	+	.	.	.	+	.	1	III
<i>Allium vineale</i>	1	+	+	.	+	.	.	III
<i>Eryngium dilatatum</i>	.	1	+	1	.	.	.	III

Other species. Characteristic species: *Jasonia tuberosa* + in 1, 1 in 2. *Dactylorhiza elata* + in 1 and 3. *Sanguisorba lateriflora* + in 2 and 4. *Prunella hyssopifolia* 1 in 3, + in 4. *Juncus inflexus* + in 5 and 7. Companion species: *Agrostis castellana* 2 in 1, + in 2. *Verbena officinalis* 1 in 1, + in 5. *Orchis coriophora* 1 in 1, + in 7. *Brachypodium sylvaticum* 1 in 2 + in 5. *Mentha pulegium* + in 2 and 6. *Filipendula vulgaris* + in 3 and 5. *Festuca fenas* 1 in 3 and 7. *Linum maritimum* 2, *Muscari comosum*

2, *Phalaris coerulescens* 2, *Gladiolus vulgare* 1, *Prunella laciniata* 1, *Carex distans* +, *Cichorium intybus* +, *Galium verum* +, *Ranunculus paludosus* +, *Rubus ulmifolius* + in 1. *Catananche caerulea* +, *Dactylis hispanica* +, *Prunella vulgaris* + in 2. *Centaurea debeauxii* subsp. *nevadensis* +, *Dipsacus fullonum* +, *Scirpoides holoschoenus* + in 3. *Hypochoeris radicata* + in 4. *Narcissus hedraeanthus* 2, *Convolvulus arvensis* 1, *Bellis perennis* +, *Ranunculus repens* + in 6. *Brachypodium phoenicoides* 2, *Avena mirandana* +, *Juncus subnodulosus* +, *Medicago lupulina* +, *Platanthera chlorantha* +, *Primula vulgaris* + in 7.

Localities: 1. Jaén: Siles, Arroyo de Cárdenas. 30S WH 3942. 40 m². 2. Jaén: Siles, La Fresnedilla. 30S WH 3744. 30 m². 3. Holotypus ass. Jaén: Siles, Cortijo de la Balasna. 30S WH 3940. 20 m². 4. Jaén: Pontones, Don Domingo. 30S WH 3009. 20 m². 5. Jaén: Orcera, Laguna de Orcera. 30S WH 3442. 20 m². 6. Jaén: Santiago de la Espada, Hoya Maranza. 30 S WH 3419. 20 m². 7. Albacete: Paterna del Madera, Rio de los Viñazos. 30 S WH 5671. 100 m². 8. Synthesized table.

Characteristic species (territorials): *Carex flacca*, *Cirsium gregarium*, *Deschampsia hispanica*, *Juncus striatus*.

Diagnosis: Wet grassland dominated by *Deschampsia hispanica*, *Carex flacca* and *Lotus corniculatus* with other grassland species such as *Holcus lanatus*, *Gaudinia fragilis*, *Cirsium gregarium*, *Jasonia tuberosa*, *Sanguisorba lateriflora*, *Juncus striatus*, *Prunella hyssoifolia*, *Oenanthe peucedanifolia*, *Dactylorhiza elata*, *Juncus inflexus*, growing in the community. It appears in temporary hydromorphic sandy soils. Due to the different bloom periods of the species, it is possible to distinguish in the community two aspects, one in the springtime rich in geophytes (*Narcissus hedraeanthus*, *Bellis perennis*, *Orchis coriophora*, *Platanthera chlorantha*, etc.), and another in the summer characterized by grasses. The association is endemic of the Subbetic Sector (Betic Province) supramediterranean-oromediterranean subhumid-humid bioclimatic belts.

[RÍOS & ALCARAZ]

COREMATO ALBI-JUNIPERETUM MACROCARPAE ass. nova hoc loco (75.9.4)

(*Juniperion turbinatae*, *Pistacio-Rhamnietalia alaterni*, *Quercetea ilicis*)

Typus associatio: Table 29, rel. 1 [Alicante: Benidorm, Serra Gelada. 30S YH5570. SE, 30 m, 25 m²].

Characteristic species: *Juniperus macrocarpa*, *Corema album*, *Ephedra fragilis*, *Osyris lanceolata* (= *O. quadripartita*).

Diagnosis: Psammophilous bushes dominated by *Juniperus macrocarpa*, *Osyris lanceolata* and *Ephedra fragilis*, in which other xerophytic shrubs such as *Chamaerops humilis*, *Corema album*, *Asparagus horridus*, *Rubia peregrina* subsp. *longifolia*, *Rhamnus lycioides* subsp. *lycioides* or *Pistacia lentiscus* are also present. The new association grows on Pleistocene climbing-dunes of Serra Gelada (Sierra Helada), in the northeastern coast of Alicante Province. This small territory is included in the thermomediterranean semiarid bioclimatic belt of the Alicantine Subsector (Murcian-Almeriense Province). It is perhaps one of the last examples of the natural potential vegetation which grew in the past on the sand-dune systems of Southeastern Iberian Peninsula.

Table 29

75.9.4 *Coremato albi-Juniperetum macrocarpae**(Juniperion turbinatae, Pistacio-Rhamnietalia alaterni, Quercetea ilicis)*

Altitude (1=10m)	3	4	5	4	4	<u>4</u>
Number of species	9	12	10	9	8	10
Ordinal number	1*	2	3	4	5	6

Characteristic species:

<i>Juniperus macrocarpa</i>	3	3	3	3	1	V
<i>Osyris lanceolata</i>	2	1	1	1	3	V
<i>Pistacia lentiscus</i>	1	1	+	+	1	V
<i>Ephedra fragilis</i>	1	1	1	+	+	V
<i>Corema album</i>	1	+	+	+	+	V
<i>Chamaerops humilis</i>	1	+	+	.	+	IV
<i>Rhamnus lycioides</i>	1	+	+	.	+	IV
<i>Asparagus horridus</i>	+	+	.	+	+	IV
<i>Rubia longifolia</i>	.	+	+	.	.	II
<i>Asparagus acutifolius</i>	+	.	.	.	.	I

Companion species:

<i>Sedum sediforme</i>	.	+	+	.	.	II
<i>Teucrium dunense</i>	.	+	.	+	.	II

Other species. Companion species: *Launaea fragilis* + in 2. *Thymelaea valentina* + in 3. *Dianthus valentinus* +, *Rosmarinus officinalis* + in 4.

Localities: 1. Holotypus ass. Alicante: Benidorm, Serra Gelada (Sierra Helada). 30S YH5570. SE, 25 m². 2. Ibídem. 25 m². 3. Ibídem. 20 m². 4. Ibídem. 25 m². 5. Ibídem. 20 m². 6. Synthesized table.

[M.B. CRESPO, DE LA TORRE, ALCARAZ, COSTA & SOLANAS]

CORYNEPHORO MACRANTHERI-ARENARIETUM ALGARBIENSIS P. Silva & Teles ass. nova hoc loco (50.6.1)

[*Anachorto-Arenarietum algarbiensis* P. Silva in P. Silva & Teles 1972 nom. inval. (art. 1)]

(*Hymenocarpus hamosi-Malcolmion trilobae, Malcolmietalia, Tuberarietea guttatae*)

Typus associatio: P. Silva in P. Silva & Teles (1972: 7, 8) [Lu, Extremadura: Between Coina and Brejos de Azeitão. 29SMC96. 4 m².] Characteristic species: 2.2 *Tolpis barbata*, 1.2 *Anachortus macrantherus*, 1.2 *Tuberaria guttata*, 1.1 *Arenaria algarbiensis*, 1.1 *Silene scabriflora*, + *Agrostis elegans*, + *Aira multiculmis*, + *Andryala integrifolia*, + *Briza maxima*, + *Campanula lusitanica*, + *Erodium bipinnatum*, + *Filago gallica*, + *Hypochoeris glabra*, + *Jasione montana*, + *Leucojum trichopyllum*, + *Micropyrum tenellum*, + *Ononis subspicata*, + *Ornithopus pinnatus*, + *Rumex bucephalophorus*, + *Vulpia hybrida*. Companion species: 1.2 *Corynephorus canescens* var. *maritimus*, + *Allium* sp., + *Anemone palmata*, + *Anthyllis lotooides*, + *Anisantha rigida*, + *Linaria spartea*, + *Narcissus bulbocodium*, + *Polycarpon tetraphyllum*, + *Romulea bulbocodium*, + *Sesamoides canescens*, + *Vulpia membranacea*.

Characteristic species (territorials): *Arenaria algarbiensis*, *Agrostis elegans*, *Corynephorus macrantherus*.

Diagnosis: Sabulicolous thermomediterranean subhumid community, formed by ephemeral therophytes of spring development, living in open spaces of the coastal paleodunes of the Sadensean district, mainly where the edaphoxerophilous-psammophilous potential vegetation belongs to the microforests of *Juniperus navicularis* (*Daphno gnidii-Juniperetum navicularis*) and its substituting thicket of *Thymo capitellati-Stauracanthetum genis-toidis*.

[RIVAS-MARTÍNEZ & IZCO]

COTONEASTRO PYRENAICI-JUNIPERETUM NANAE (Turmel 1955) nom. nov. hoc loco (77.3.1)

[ass. à *Arctostaphylos uva-ursi* et *Juniperus nana* Turmel in Mém. Museum Natl. Hist. Nat. Paris, Sér. B, Bot. 5: 167, tb. 67. 1955 non *Junipero nanae-Arctostaphyletum uvae-ursi* Br.-Bl., Sissingh & Vlieger, Prodr. Pflanzengesellschaften, fasc. 6: 97. 1939 (art. 31, 39)]
(*Juniperus nanae*, *Vaccinio microphylli-Juniperetalia nanae*, *Vaccinio-Piceetea*)

Typus: Turmel in Mém. Museum Natl. Hist. Nat. Paris, Sér. B, Bot. 5: 167, tb. 67, rel. 8 (lectotypus hoc loco). 1955 [France, Pyrénées Atlantiques: Massif d'Ossau, Vallon du Peyrelu, lower rocky places. 1650 m, NE, 30%]. Characteristic species: 5 *Arctostaphylos uva-ursi*, 1 *Cotoneaster integerrimus* var. *pyrenaicus* (sub *Cotoneaster vulgaris*), 1 *Juniperus alpina*, + *Iberis sempervirens*, + *Rosa pendulina*. Companion species: + *Cruciata glabra*, + *Festuca eskia*, + *Gentiana acaulis* (sub *Gentiana kochiana*), + *Hepatica nobilis*, + *Rhamnus pumilus*, + *Saxifraga granulata*, + *Thalictrum minus* var. *pyrenaicum* (Jord.) O. Bolòs & Vigo (sub *Thalictrum minus*), + *Valerianella locusta*.

Characteristic species (territorials): *Cotoneaster integerrimus* var. *pyrenaicus*, *Iberis sempervirens*, *Juniperus communis* subsp. *nana*, *Rosa pendulina*.

Distribution: Pyrenean orotemperate dwarfed shrub permanent community or seral of *Pinus uncinata* forest, developed mostly on sunny or xeric biotopes without long snow cover.

[RIVAS-MARTÍNEZ & J.A. MOLINA]

CRATONEURO FILICINI-ANAGALLIDETUM TENELLAE ass. nova hoc loco (11.2.3)

[*Cratoneuro filicini-Anagallidetum tenellae* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]
(*Palustriellion commutatae*, *Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Typus associatio: Table 30, rel. 4 [Alicante: Bocairente, Nacimiento del Vinalopó. 30SYH0688. 780 m, 1 m²].

Characteristic species (territorials): *Anagallis tenella*, *Cratoneuron filicinum*, *Pellia endiviifolia*.

Diagnosis: Mixed bryophytic and cormophytic hygrophilous community dominated by *Cratoneuron filicinum*, *Anagallis tenella* and *Pellia endiviifolia*. The association grows on places permanently moisted by fresh running waters. The presence of *Potentilla erecta*, *Calliergonella cuspidata* and *Parnassia palustris* (releves 7-9) points out the presence of

more oligotrophic waters. The association seems to be widespread in the southern half of Spain, in a wide bioclimatic range from the thermomediterranean to the supramediterranean dry to subhumid bioclimatic belts.

Table 30

11.2.3 *Cratoneuro filicini-Anagallidetum tenellae**(Palustriellion commutatae, Montio-Cardaminetalia, Montio-Cardaminetea)*

Altitude (1=10m)	120	113	113	78	68	60	115	115	115	<u>100</u>
Number of species	3	13	4	7	6	5	9	9	8	<u>7</u>
Ordinal number	1	2	3	4*	5	6	7	8	9	10
Characteristic species:										
<i>Anagallis tenella</i>	2	4	2	5	2	5	4	2	4	V
<i>Cratoneuron filicinum</i>	5	2	.	3	4	+	2	+	3	V
<i>Pellia endiviifolia</i>	.	+	4	3	.	+	3	.	2	IV
<i>Bryum pseudotriquetrum</i>	.	.	.	.	.	.	+	+	.	II
<i>Didymodon tophaceus</i>	.	.	.	1	.	.	.	.	.	I
<i>Cratoneuron commutatum</i>	.	.	.	.	.	.	.	1	.	I
Companion species:										
<i>Samolus valerandi</i>	+	+	1	+	+	+	1	.	+	V
<i>Hypericum caprifolium</i>	.	+	1	.	.	.	+	.	+	III
<i>Eucladium verticillatum</i>	.	.	.	2	.	+	+	.	2	III
<i>Potentilla erecta</i>	.	.	.	.	.	.	+	+	+	II

Other species. Companion species: *Carex flacca* 1 in 2, + in 5. *Lotus corniculatus* 1 in 2, + in 5. *Prunella vulgaris* + in 2 and 7. *Blackstonia perfoliata* + in 4 and 5. *Carex mairii* 1, *Carex distans* +, *Linum catharticum* +, *Plantago media* + in 2. *Calliargonella cuspidata* 1, *Brachythecium rutabulum* +, *Mentha aquatica* +, *Teucrium scordioides* + in 8. *Parnassia palustris* + in 9.

Localities: 1. Albacete: Paterna del Madera, Catalmerejos 30S WH 6177, 0,5 m². 2. Murcia: Moratalla, Campo de San Juan. 30S WH 7927, 2 m². 3. Murcia: Moratalla, Campo de Béjar. 30S WH 8626, 0,5 m². 4. Holotypus ass. Alicante: Bocairente, Nacimiento del Vinalopó. 30S YH 0688. 1 m². 5. Murcia: Moratalla, El Arrayán. 30S WH 9736. 0,5 m². 6. Murcia: Moratalla, Puerta de Moratalla. 30S WH 9030. 0,5 m². 7. Jaén: Siles, La Fresnedilla. 30 S WH 3744. 0,5 m². 8. Albacete: Riópar, Arroyo del Padroncillo, 30 S WH 4860. 0,5 m². 9. Jaén: Siles, Cortijo de la Balasna. 30 S WH 3940. 0,5 m². 10. Synthesized table.

[RÍOS & ALCARAZ]

CREPIDO PUSILLAE-FILAGINETUM PETRO-IANII ass. nova hoc loco (38.4.2)

(Polycarpion tetraphylli, Polygono arenastri-Poetalia annuae, Polygono-Poetea annuae)

Typus associatio: Table 31, rel. 1 [Mallorca. Marina de Lluçmajor, Son Granada. 90 m, 0.1 m²].

Characteristic species: *Crepis pusilla*, *Filago petro-ianii*.

Diagnosis: Therophytic ephemeral (winter-spring) community of the thermomediterranean semiarid (dry) southern areas of Majorca (Balearic Subprovince). It is found in rarely used footpaths and in open and trampled places with thin, clayey soils, installed in the clearings of *Cneoro tricocci-Ceratonietum siliquae* communities.

[LLORENS & GIL]

Table 31

38.4.2 *Crepido pusillae-Filaginetum petro-ianii*

(*Polycarpion tetraphylli*, *Polygono-Poetalia annuae*, *Polygono-Poetea annuae*)

Altitude (1=10 m)	9	10	9	11	11	12	9	9	9	9	11	<u>10</u>
Number of species	9	11	14	10	9	12	9	15	11	10	12	<u>11</u>
Ordinal number	1*	2	3	4	5	6	7	8	9	10	11	12

Characteristic species:

<i>Filago petro-ianii</i>	1	1	.	2	2	.	2	1	1	2	2	V
<i>Sagina apetala</i>	+	.	1	1	2	+	+	+	.	.	1	IV
<i>Gymnostyles stolonifera</i>	+	.	+	+	.	+	+	2	2	.	.	IV
<i>Crepis pusilla</i>	2	2	3	.	.	1	.	2	3	.	.	III
<i>Trifolium suffocatum</i>	+	1	.	.	1	2	.	.	.	.	.	II

Companion species:

<i>Plantago coronopus</i>	+	1	+	.	.	+	+	1	1	1	1	V
<i>Galium murale</i>	+	+	1	.	1	.	+	1	1	1	.	IV
<i>Euphorbia exigua</i>	+	+	.	.	1	1	.	1	+	1	+	IV
<i>Crassula tillaea</i>	.	1	.	2	+	1	1	.	.	1	.	III
<i>Valantia muralis</i>	.	+	+	+	.	.	+	.	.	.	+	III
<i>Bellis annua</i>	.	1	+	.	+	1	+	.	.	.	.	III
<i>Astericus aquaticus</i>	+	.	+	.	.	+	.	.	.	.	1	II
<i>Valerianella microcarpa</i>	.	+	+	+	.	.	.	.	.	+	.	II
<i>Erodium cicutarium</i>	.	.	+	+	.	.	.	+	.	.	+	II
<i>Desmazeria rigida</i>	.	.	+	.	.	+	.	1	.	.	1	II
<i>Filago pyramidata</i>	.	.	.	.	.	.	.	+	1	+	+	II
<i>Bellium bellidioides</i>	.	.	.	.	.	.	.	+	+	1	2	II

Other species. Companion species: *Campanula erinus* + in 3, 4 and 6. *Sedum rubens* + in 4 and 5, 1 in 10. *Sedum caespitosum* + in 2 and 6. *Ophioglossum lusitanicum* + in 3, 1 in 4. *Anagallis arvensis* + in 3 and 5. *Lophochloa cristata* + in 8 and 9. *Plantago afra* + in 8 and 9. *Merendera filifolia* +, *Tuberaria guttata* + in 8. *Aira cupaniana* + in 9. *Neostema apula* + in 10. *Linum strictum* +, *Poa bulbosa* + in 11.

Localities: 1. Holotypus ass. Mallorca. Marina de Lluçmajor: Son Granada. 0.1 m². 2. Mallorca Marina de Lluçmajor: Son Granada. 0.1 m². 3. Mallorca: Marina de Lluçmajor: Sa Torre. 0.1 m². 4. Mallorca Marina de Lluçmajor: Capocorp. 0.15 m². 5. Mallorca. Puntiró. 0.1 m². 6. Mallorca: Marina de Lluçmajor: Betlem. 0.1 m². 7. Mallorca. Cala Pi. 0.12 m². 8. Mallorca. Marina de Lluçmajor (UTM 7868). 0.15 m². 9. Mallorca. Marina de Lluçmajor (UTM 7868). 0.1 m². 10. Mallorca. Marina de Lluçmajor (Son Granada). 0.15 m². 11. Mallorca. Marina de Lluçmajor (Pas de Sa Senyora - UTM 8059). 0.1 m². 12. Synthesized table.

CTENOPSIETUM DELICATULAE ass. nova hoc loco (50.3.5)*(Molineriellion laevis, Tuberarietalia guttatae, Tuberarietea guttatae)*Typus associatio: Table 32, rel. 2 [Avila: Encinares. 30TTK8977. 1030 m, 10 m²].Characteristic species: *Ctenopsis delicatula*.

Diagnosis: Annual ephemeral grasslands characterised by the Mediterranean West Iberian endemic *Ctenopsis delicatula*, growing on shallow siliceous soils undergoing short spring episodes of hydromorphy. They bloom in late spring-early summer and are distributed in the meso and supramediterranean belts of the inner sectors of the Mediterranean West Iberian Biogeographic Province.

[SARDINERO, FERNÁNDEZ-GONZÁLEZ & SÁNCHEZ-MATA]

Table 32
50.3.5 *Ctenopsietum delicatulae*

(Molineriellion laevis, Tuberarietalia guttatae, Tuberarietea guttatae)

Altitude (1=10m)	102	103	100	139	110	100	<u>109</u>
Number of species	15	19	21	23	33	30	24
Ordinal number	1	2*	3	4	5	6	7

Characteristic species:

<i>Ctenopsis delicatula</i>	1	2	2	1	2	2	V
<i>Tuberaria guttata</i>	2	1	1	1	.	1	V
<i>Hypochoeris glabra</i>	2	1	+	+	1	.	V
<i>Evax lasiocarpa</i>	1	1	1	.	+	1	V
<i>Logfia minima</i>	+	1	1	.	1	1	V
<i>Vulpia bromoides</i>	.	2	1	1	2	2	V
<i>Chamaemelum nobile</i>	.	1	1	+	1	2	V
<i>Trifolium glomeratum</i>	.	+	2	+	+	1	V
<i>Trifolium arvense</i>	.	+	1	+	2	1	V
<i>Ornithopus compressus</i>	1	+	.	1	2	.	IV
<i>Silene scabriflora</i>	+	+	.	1	.	+	IV
<i>Leontodon longirostris</i>	1	.	.	+	2	1	IV
<i>Molineriella laevis</i>	.	2	2	.	2	1	IV
<i>Silene portensis</i>	1	.	.	+	.	+	III
<i>Trifolium strictum</i>	.	1	.	1	2	.	III
<i>Moenchia erecta</i>	.	+	.	+	1	.	III
<i>Arnoseris minima</i>	.	+	.	.	+	+	III
<i>Jasione echinata</i>	.	.	1	1	.	1	III
<i>Anthyllis lotoides</i>	.	.	+	+	.	1	III
<i>Ornithopus perpusillus</i>	.	.	1	.	1	+	III
<i>Anthoxanthum aristatum</i>	.	.	.	1	2	2	III

Companion species:

<i>Agrostis castellana</i>	.	1	1	1	+	1	V
<i>Crepis capillaris</i>	.	1	1	.	1	+	IV
<i>Rumex pyrenaicus</i>	.	+	.	1	+	+	IV

Other species: Characteristic species: *Vulpia myuros* 1 in 1 and 5. *Linaria spartea* + in 1 and 6. *Trifolium campestre* + in 2, 1 in 5. *Helianthemum aegyptiacum* + in 3, 1 in 4. *Trisetum ovatum* 1 in 3 and 6. *Aira caryophylla* + in 4, 1 in 5. *Petrorhagia nanteuillii* 1 in 4 and 6. *Logfia gallica* 1 in 5, + in 6. *Agrostis truncatula* 2, *Eryngium tenue* +, *Teesdalia coronopifolia* + in 1. *Herniaria glabra* 1, *Trifolium angustifolium* 1 in 3. *Trifolium dubium* 2, *Anthemis arvensis* 1, *Trifolium striatum* 1, *Vulpia ciliata* 1, *Lathyrus angulatus* +, *Scleranthus polycarpus* +, *Taeniatherum caput-medusae* +, *Ventenata dubia* + in 5. *Sesamoides purpurascens* 1, *Lupinus hispanicus* +, *Tolpis umbellata* + in 6. Companion species: *Poa bulbosa* 1 in 4, 5 and 6. *Spergularia purpurea* + in 1 and 5. *Bromus tectorum* 1 in 3, + in 6. *Convolvulus arvensis* + in 4, 1 in 6.

Localities: 1. Madrid: Buitrago, Riosequillo dam. 30TVL4536. 7 m². 2. Holotypus ass. Ávila: Encinares. 30TTK8977. 10 m². 3. Ávila: El Barco de Ávila. 30TTK8671. 10 m². 4. Ávila: La Lastra del Cano. 30TTK9570. 10 m². 5. Madrid: El Cuadrón, Rasa de Pajarilla. 30TVL4233. 10 m². 6. Ávila: El Losar. 30TTK8476. 10 m². 7. Synthesized table.

CUTANDIETALIA MARITIMAE ordo novus hoc loco (50d)

Typus ordo: *Linarion pedunculatae* Díez Garretas, Asensi & Esteve ex Díez Garretas in Doc. Phytosoc. 8: 74. 1984. [Typus alianciae: *Herniario algarvicae-Linarietum ficalhoanae* Díez Garretas in Doc. Phytosoc. 8: 75, tb. 5, holotypus rel. 1. 1984 (art. 18)]

Characteristic species: *Catapodium hemipoa*, *Cutandia maritima*, *Polycarpon diphyl- lum*, *Pseudorlaya pumila*, *Silene niceensis*, *Silene ramosissima*, *Malcolmia ramosissima*.

Diagnosis: Mediterranean and South Cantabro-Atlantic ephemeral terophitic community of coastal dunes splashed by marine salty spray, half way in the process of being fixed by the perennial vegetation of *Ammophiletea*. This new order includes the alliances 50.8. *Linarion pedunculatae* (South and West of the Iberian Peninsula and Tingitania), 50.7. *Alkanno-Maresion nanae* (East Iberian Peninsula and rest of the Mediterranean costs), and 50.9. *Ononidion tournefortii* (Canarian and Saharan oceanic mediterranean).

[RIVAS-MARTÍNEZ, DÍEZ GARRETAS & ASENSI]

CYNOMORIO COCCINEI-LYCIETUM INTRICATI (Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990) nom. nov. hoc loco (37.2.3)

[*Salsola vermiculatae-Lycietum intricati* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 3: 100, tb. 18. 1990 non Llorens & Guijarro 1982 (art. 31, 39)]

(*Salsola oppositifoliae-Suaedion verae*, *Salsola vermiculatae-Peganetalia harmalae*, *Pegano-Salsoletea*)

Typus associatio: Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 3: 100, tb. 18, rel. 2. Holotypus ass. 1990. [Lu, Algarve: Praía da Rocha. 29SNB40. 30 m, 10 m²]. Characteristic species: 3 *Lycium intricatum*, 1 *Salsola vermiculata*, (+) *Cynomorium coccineum*. Companion species: 2 *Suaeda vera*, 1 *Oxalis pes-caprae*, + *Hordeum leporinum*.

Characteristic species (territorials): *Cynomorium coccineum*, *Lycium intricatum*, *Salsola vermiculata*, *Suaeda vera*.

Diagnosis: Algarvian thermomediterranean halonitrophilous coastal scrubby community, related with the Murcian-Almeriense *Withanio frutescentis-Lycietum intricati* Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez 1991 (37.2.9), from which it could be considered a geographical subassociation.

[RIVAS-MARTÍNEZ, LOUSÃ, T.E. DÍAZ, FERNÁNDEZ-GONZÁLEZ & J.C. COSTA]

CYTISION OROMEDITERRANEO-SCOPARII all. nova hoc loco (65.6)

[*Sarothamnion scoparii* auct. hisp. non Tüxen in Preising, Mitt. Florist.-Soziol. Arbeitsgem. 1: 82. 1949 (art. 8)]

(*Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Typus alliancia: *Senecioni adonidifolii-Cytisetum oromediterranei* (Rivas-Martínez 1968) nom. nov. et corr. hoc loco [*Cytisetum purgantis pyrenaicum* Rivas-Martínez in Publ. Inst. Biol. Aplicada 44: 39, tb. 7. 1968 (art. 34, 39, 43), *Senecioni adonidifolii-Cytisetum purgantis* (Rivas-Martínez 1968) Gruber 1978 nom. inval. (art. 1)].

Characteristic species (territorials): *Cytisus oromediterraneus*, *Cytisus scoparius*, *Festuca lambinonii*, *Pteridium aquilinum*.

Diagnosis: Cevenno-Pyrenean meso-supratemperate humid silicicolous shrubby brooms forest matle community, dominated by *Cytisus oromediterraneus* or *Cytisus scoparius*; it could be considered as geovicarious of West Pyrenean and Orocantabric *Genistion polygaliphyllae* or Subatlantic *Sarothamnion scoparii* Tüxen in Preising 1949.

Remarks: *Plantagini holostei-Cytisetum purgantis* Arnaud, Gamisans & Gruber in Anales Jard. Bot. Madrid 40(1): 198. 1983, from Massif Central of France, belongs to this alliance. The name of this association should be corrected into *Plantagini holostei-Cytisetum oromediterranei*, because *Cytisus purgans* auct. is in accord with *Cytisus oromediterraneus* Rivas Mart., T.E. Díaz, Fern. Prieto, Loidi & Penas.

Prunello hastifoliae-Cytisetum scoparii Susplugas 1942 nom. mut. (65.6.1)

[ass à *Sarothamus scoparius* et *Prunella hastifolia* Susplugas, Sol Vég. Haut Vallespir (Pyr. Or.): 93, tb. 5. 1942 (art. 45)]

Distribution: Eastern Pyrenean meso-lower supratemperate humid.

Senecioni adonidifolii-Cytisetum oromediterranei (Rivas-Martínez 1968) nom. nov. hoc loco (65.6.2)

[*Cytisetum purgantis pyrenaicum* Rivas-Martínez in Publ. Inst. Biol. Aplicada 44: 39, tb. 7. 1968 (art. 34, 39, 43), *Senecioni adonidifolii-Cytisetum purgantis* (Rivas-Martínez 1968) Gruber 1978 nom. inval. (art. 1)]

Typus associatio: Rivas-Martínez in Publ. Inst. Biol. Aplicada 44: 39, tb. 7, rel. 10. 1968 (lectotypus). [Gerona: Collada de Tossas, vertiente meridional, coluvión de ranker y tierra parda sobre pizarras silúricas, 42° 20'N-2° 0,5'E. 1680 m, S, 20%, 40 m²]. **Characteristic species:** 3 *Cytisus oromediterraneus* (sub *Cytisus purgans*), 3 *Deschampsia flexuosa*, 3 *Juniperus communis* var. *intermedia* (sub *Juniperus communis* subsp. *hemisphaerica*).

Companion species: 2 *Agrostis capillaris*, 1 *Helleborus foetidus*, *Cuscuta epithimum*, + *Festuca eskia*, + *Festuca gautieri*, + *Fragaria vesca*, + *Hieracium pilosella*, + *Pinus sylvestris*, + *Potentilla micrantha*, + *Rubus idaeus*, + *Senecio adonidifolius*, + *Thymus gr. serpyllum*.

Characteristic species (territorials): *Cytisus oromediterraneus*, *Cytisus scoparius*, *Senecio adonidifolius*.

Distribution: Eastern Pyrenean upper supratemperate humid-hyperhumid seldom submediterranean.

Stellario gramineae-Pteridietum aquilini O. Bolòs in Veg. Montseny: 114. 1983 (65.6.3)

Distribution: Montsignatic meso-supratemperate humid-subhumid occasionally submediterranean.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

Table 33

65.3.6 *Cytisus oromediterranei-Genistetum obtusirameae*

(*Genistion polygaliphyllae*, *Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Altitude (1=10m)	181	189	178	160	198	190	166	165	168	176	170	<u>176</u>
Number of species	6	8	10	10	11	14	15	15	15	15	17	<u>12</u>
Ordinal number	1	2	3	4	5	6	7	8	9*	10	11	12
Characteristic species:												
<i>Genista obtusiramea</i>	3	2	2	3	1	2	4	+	3	3	+	V
<i>Erica arborea</i>	1	1	1	2	1	2	1	+	1	1	2	V
<i>Cytisus oromediterraneus</i>	4	2	3	.	5	1	1	4	2	.	4	V
<i>Gentiana lutea</i>	.	.	.	1	.	.	.	.	1	+	+	II
<i>Orobancha rapum-genistae</i>	.	.	.	.	+	.	.	.	.	+	+	II
<i>Carex asturica</i>	.	.	.	.	.	+	.	.	.	2	.	I
Companion species:												
<i>Avenula sulcata</i>	1	1	1	1	1	1	1	1	+	1	1	V
<i>Avenella iberica</i>	2	1	1	1	1	1	.	.	1	1	1	V
<i>Agrostis durieui</i>	1	.	.	1	.	+	1	.	+	1	.	III
<i>Galium saxatile</i>	.	.	1	.	.	1	1	1	1	1	.	III
<i>Calluna vulgaris</i>	.	.	.	.	+	+	+	+	+	+	.	III
<i>Thymus britannicus</i>	.	.	1	.	.	.	+	1	1	.	1	III
<i>Juniperus alpina</i>	.	.	.	+	1	+	.	1	+	.	.	III
<i>Jasione montana</i>	.	.	+	.	.	+	.	.	.	+	1	II
<i>Vaccinium myrtillus</i>	.	.	.	1	.	.	.	.	1	+	1	II
<i>Hypericum burseri</i>	.	.	.	.	.	+	+	.	1	1	.	II

Other species. Characteristic species: *Pteridium aquilinum* + in 11. Companion species: *Festuca eskia* 1 in 3 and 5. *Hieracium pilosella* 1 in 4 and 7. *Agrostis capillaris* 3 in 4, 1 in 8. *Silene nutans* + in 7, 1 in 11. *Daphne cantabrica* + in 8 and 9. *Sedum hirsutum* 1, *Rumex suffruticosus* +,

Trisetum hispidum + in 2. *Rumex angiocarpus* 1 in 3. *Jasione brevisepala* 1, *Teesdaliopsis conferta* + in 5. *Hypochoeris radicata* +, *Sedum brevifolium* + in 6. *Anthoxanthum odoratum* +, *Fragaria vesca* +, *Polygala vulgaris* +, *Viola riviniana* + in 7. *Festuca microphylla* 1, *Armeria deveauxii* +, *Bromus erectus* +, *Helleborus occidentalis* +, *Sanguisorba minor* + in 8. *Rhamnus alpina* + in 9. *Luzula lactea* +, *Rosa pimpinellifolia* + in 10. *Conopodium majus* 1, *Teucrium scorodonia* 1, *Arenaria montana* +, *Digitalis purpurea* +, *Melampyrum pratense* + in 11.

Localities: 1. León: Boca de Huérgano, Barniedo de La Reina, Peñas Zahurdias. 30TUN5361. W, 20%, 60 m². 2. León: Boca de Huérgano, Llánaves de La Reina, Macizo de Coriscao, El Cascajal. 30TUN5571. SE, 20%, 30 m². 3. León: Boca de Huérgano, Valverde de La Sierra, Espigüete, Collado de Mazobres. 30TUN5257. W, 3%, 60 m². 4. León: Boca de Huérgano, Barniedo de La Reina, Valle de Valponguero. 30TUN5262. NE, 10%, 50 m². 5. León: Boca de Huérgano, Llánaves de La Reina, Sierra de Orpiñas. 30TUN5566. S, 20%, 20 m². 6. León: Boca de Huérgano, Llánaves de La Reina, Macizo de Coriscao, El Cascajal. 30TUN5571. S, 30%, 30 m². 7. León: Boca de Huérgano, Llánaves de La Reina, from Vega de Tarna to Collada de Robadorio. 30TUN5767. NW, 5%, 50 m². 8. León: Boca de Huérgano, Valverde de La Sierra, Base de Espigüete, Los Coladillos. 30TUN5156. SW, 5%, 30 m². 9. Holotypus ass. León: Boca de Huérgano, Llánaves de La Reina, from Vega de Tarna to Collada de Robadorio. 30TUN5767. N, 10%, 50 m². 10. León: Boca de Huérgano, Llánaves de La Reina, macizo de Coriscao, Collado de La Guarda. 30TUN5670. E, 30%, 50 m². 11. León: Boca de Huérgano, Llánaves de La Reina, Sierra de Orpiñas, El Horno. 30TUN5666. SW, 30%, 50 m². 12. Synthesized table.

CYTISO OROMEDITERRANEI-GENISTETUM OBTUSIRAMEAE ass. nova hoc loco (65.3.6)

(*Genistion polygaliphyllae*, *Cytisetalia scopario-striati*, *Cytisetea scopario-striati*)

Typus associatio: Table 33, rel. 9 [León: Boca de Huérgano, Llánaves de la Reina, from Vega de Tarna to Collada de Robadoiro. 30TUN5767. 1680 m, N, 10%, 50 m²].

Characteristic species (territorials): *Avenella iberica*, *Cytisus oromediterraneus*, *Genista obtusiramea*, *Juniperus communis* subsp. *nana*.

Diagnosis: Altocarrionese and Ubinnean, orotemperate and high supratemperate hyperhumid broom communities (piornales), with continental character, at the upper altitudinal limit of the *Genistion polygaliphyllae*. They form the broom mantle of the upper horizon of the sessile oak forests (*Linario triornithophorae-Quercetum petraeae*), of the acidophilous beech forests (*Blechno spicant-Fagetum sylvaticae*), and of the climatophilous or permanent subalpine (orotemperate) birch woods (*Luzulo-Betuletum celtibericae*). Floristically, it differs from its vicarious associations *Cytiso cantabrici-Genistetum obtusirameae*, *Genistetum obtusirameo-polygaliphyllae* and *Cytisetum scopario-oromediterranei* by the coexistence of *Genista obtusiramea*, *Cytisus oromediterraneus*, *Juniperus alpina*, *Avenella iberica* and other subalpine elements, and also by the absence or rarity of *Cytisus scoparius*, *Cytisus cantabricus* and *Genista polygaliphylla*. It also differs from orotemperate hyperhumid *Carici asturicae-Genistetum obtusirameae* by the absence of *Phalacrocarpon oppositifolium*, *Pterospartum cantabricum* and *Vaccinium myrtillus*.

[R. ALONSO, PUENTE, PENAS & F. SALEGUI]

CYTISO VILLOSI-TELINETALIA MONSPESSULANAE ordo novus hoc loco (65b)
(*Cytisetea scopario-striati*)

Typus ordo: *Telinion monspessulano-linifoliae* all. nova hoc loco.

Characteristic species: *Cytisus villosus*, *Teline linifolia*, *Teline monspessulana*.

Diagnosis: West Mediterranean: Tirrenian, Maghrebian, Aljibic and Catalanian-Provençal, broomy forest mantle communities, growing on siliceous humic soils without gleyic or stagnic properties, in thermo-mesomediterranean subhumid-humid as seral of *Quercus ilex*, *Quercus suber* or *Quercus canariensis* forests (*Quercetalia ilicis*).

Telinion monspessulano-linifoliae all. nova hoc loco (65.7)

Typus alliancia: *Cytiso baetici-Telinium monspessulanae* ass. nova hoc loco.

Characteristic species: *Cytisus arboreus*, *Cytisus baeticus*, *Cytisus catalaunicus*, *Cytisus malacitanus*, *Cytisus striatus* subsp. *megalanthus*, *Cytisus striatus* subsp. *welwitschii*.

Diagnosis: The only alliance known, see order.

Cytiso baetici-Telinium monspessulanae ass. nova hoc loco (65.7.1)

Typus associatio: Cádiz: Parque Natural de los Alcornocales, Puerto de Galis. 36° 34' N-5° 33' W. SE, 400m, 20m². Characteristic species: 3 *Teline monspessulana*, 2 *Cytisus baeticus*, 2 *Teline linifolia*, 1 *Adenocarpus telonensis*, 1 *Erica arborea*, 1 *Pteridium aquilinum*. Companion species: 1 *Crataegus brevispina*, + *Digitalis purpurea* subsp. *bocquetii*, + *Rubus ulmifolius*, + *Teucrium scorodonia* subsp. *baeticum*, + *Ulex borgiae*.

Characteristic species (territorials): *Cytisus baeticus*, *Teline linifolia*, *Teline monspessulana*.

Diagnosis: Thermo-mesomediterranean humid-hyperhumid communities, characteristic of the biogeographic Aljibic Sector (Gaditan-Algarvian Subprovince, Coastal Lusitan-Andalusian Province), formed by broom like microphyllous microphanerophytes, growing on deep siliceous soils with mull humus without gleic character. They constitute the *Genistea* border, or second dynamic stage of substitution, of the ombrophilous forests of the cork oak series (*Teucrio baetici-Quercetum suberis*) or african gall-oaks (*Rusco hypophylli-Quercetum canariensis*). The association is well characterized in the territory by *Cytisus baeticus*, *Cytisus striatus* subsp. *welwitschii*, *Teline linifolia* and *Teline monspessulana*.

Cytiso villosi-Ericetum arboreae Zéller 1959 nom. mut. (65.7.2)

[*Cytiso triflora-Ericetum arboreae* Zéller in Pirineos 47-50: 59, tb. 9. 1959 (art. 45)]

Distribution: Vallesan-Empordanese (Ruscinic and North Catalanidic) mesomediterranean subhumid-humid.

[RIVAS-MARTÍNEZ, GALÁN & CANTÓ]

DACTYLIDO HISPANICAE-STIPETUM JUNCEAE ass. nova hoc loco (56.5.2)*(Stipion parviflorae, Lygeo-Stipetalia, Lygeo-Stipetea)*

Typus associatio: Table 34, rel. 7 [León: Villafer, Dehesa de Belvís. 30TTM875605. 760 m, 15 m²].

Characteristic species: *Stipa juncea*.

Table 34
56.5.2 *Dactylido hispanicae-Stipetum junceae*
(Stipion parviflorae, Lygeo-Stipetalia, Lygeo-Stipetea)

Altitude (l=10m)	87	78	79	76	85	80	76	90	82	<u>81</u>
Number of species	4	5	5	5	5	6	9	9	15	7
Ordinal number	1	2	3	4	5	6	7*	8	9	10
Characteristic species:										
<i>Stipa juncea</i>	4	3	3	3	2	3	4	3	4	V
<i>Dactylis hispanica</i>	1	2	2	1	1	1	2	1	2	V
Companion species:										
<i>Thymus zygis</i>	1	2	.	2	1	1	3	1	3	V
<i>Plantago radicata</i>	1	1	.	1	1	.	.	1	1	IV
<i>Agrostis castellana</i>	.	1	2	1	.	.	.	.	.	II
<i>Hypericum perforatum</i>	.	.	.	.	.	.	2	.	2	II
<i>Crepis taraxacifolia</i>	.	.	.	.	.	.	1	.	1	II
<i>Thapsia villosa</i>	.	.	.	.	.	.	.	1	1	II
<i>Andryala integrifolia</i>	.	.	.	.	.	1	.	.	+	II

Other species: Characteristic species: *Asphodelus cerasiferus* 1 in 9. Companion species: *Centaureum erythraea* 1, *Vulpia bromoides* 1 in 3. *Corynephorus canescens* 1 in 5. *Thymus mastichina* 2, *Helichrysum serotinum* 1 in 6. *Conopodium capillifolium* 2, *Phlomis herba-venti* 2, *Carlina hispanica* 1, *Tolpis barbata* 1 in 7. *Bromus erectus* 2, *Hieracium pilosella* 1, *Koeleria caudata* 1, *Melica magnolii* 1 in 8. *Poa trivialis* 3, *Helianthemum apeninnum* 2, *Eryngium campestre* 1, *Hypochaeris radicata* 1, *Halimium viscosum* +, *Orchis morio* + in 9.

Localities: 1. León, Nava de los Caballeros. 30TUN02. 20 m². 2. León, Valderas, Monte del Duque, 30TTM96. 20 m². 3. León, Valderas, Monte del Duque. 30TTM96. 30 m². 4. León, Jabares de los Oteros. 30TTM99. 20 m². 5. León, Ardoncino. 30TTN80. 30 m². 6. León, Villacalbiel. 30TTM859939. 15 m². 7. Holotypus ass. León, Villafer, Dehesa de Belvís. 30TTM875605. 15 m². 8. León, Villacontilde. 30TUM01. 30 m². 9. León, Calzada del Coto, Maudes. 30TUM269917. 30 m². 10. Synthesized table.

Diagnosis: Communities formed by *Stipa juncea* ("lastonares") growing on miocenic marles in dry or, exceptionally, subhumid territories of the lower supramediterranean belt in the Castilian Duriensean Sector, series of the evergreen-oak or *Quercus rotundifolia*: *Junipero thuriferae-Quercus rotundifoliae* S. This is the most north-western association of the *Stipion parviflorae* grouping at its optimum thermo and mesomediterranean, semiarid and dry associations. The scarcity of characteristic taxa of the higher sintaxa makes the finicole

character of this community evident. It differs from the *Brachypodio-Stipetum ibericae*, *Plantagini-Stipetum parviflorae* and *Salvio verbenacae-Plantaginetum albicantis*, by the absence of a great number of thermophilous taxa with meridional distribution such as *Stipa pennata* subsp. *mediterranea*, *Arenaria conimbricensis*, *Convolvulus cantabrica*, *Helianthemum italicum*, *Thymus vulgaris*, *Stipa parviflora*, *Plantago albicans*, *Asphodelus fistulosus*, *Convolvulus althaeoides*, and by the presence of *Stipa juncea* (*Stipa celakovskyi*) and *Asphodelus cerasiferus*, as well as other companion species such as *Thymus zygis* or *Plantago radicata*, abundant in this association.

[PENAS, M.E. GARCÍA, DE PAZ, L. HERRERO, R. ALONSO & F. SALEGUI]

DAPHNO GNIDI-QUERCETUM COCCIFERAE ass. nova hoc loco (75.7.5)

[*Rhamno-Cocciferetum matritense* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 335, tb. 5. 1960 (art. 3b, 34)]

(*Rhamno lycioidis-Quercion cocciferae*, *Pistacio-Rhamnetalia alaterni*, *Quercetea ilicis*)

Typus associatio: Table 35, rel. 1 [Madrid: San Agustín de Guadalix, cretacic limestones. 850 m, E, 100 m²].

Characteristic species: *Colutea hispanica*, *Daphne gnidium*, *Ephedra nebrodensis*, *Jasminum fruticans*, *Juniperus oxycedrus* subsp. *lagunae*, *Quercus coccifera*.

Diagnosis: Kermes oak (*Quercus coccifera*) calcicolous or gypsiculous garrigues distributed in the mesomediterranean belt of the Manchean Sector, where they constitute the first seral stage of the stone oak microforests *Asparago acutifolii-Quercetum rotundifoliae*, as well as of some mesomediterranean representations of the *Quercus faginea* forests (*Cephalanthero-Quercetum fagineae*). Although they had been traditionally assigned to the aragonese association *Rhamno lycioidis-Quercetum cocciferae*, they can be separated by the higher frequency of species as *Asparagus acutifolius*, *Daphne gnidium*, *Colutea hispanica* and *Jasminum fruticans*, meanwhile the latter association has as differential elements *Juniperus phoenicea*, *Pinus halepensis*, etc.

[RIVAS-MARTÍNEZ, CANTÓ, FERNÁNDEZ-GONZÁLEZ & SÁNCHEZ-MATA]

DESCHAMPSIO REFRACTAE-MOLINIETUM CAERULEAE (Rivas Goday & Borja 1961) nom. nov. hoc loco (59.1.2)

[*Deschampsio-Molinietum gudaricum* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 243, tb. 60. 1961 (art. 34, 39)]

(*Molinion caeruleae*, *Molinietales caeruleae*, *Molinio-Arrhenatheretea*)

Typus: Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 243-247, tb. 60, lectotypus hoc loco: rel. 5. 1961.

Characteristic species (territorials): *Deschampsia refracta*, *Molinia caerulea*.

Distribution: Oroiberian Maestracensean supratemperate submediterranean subhumid and humid.

[RIVAS-MARTÍNEZ]

Table 35

75.7.5 *Daphno gnidii-Quercetum cocciferae**(Rhamno-Quercion cocciferae, Pistacio-Rhamnetalia, Quercetea ilicis)*

Altitude (1=10m)	85	77	65	70	68	70	68	67	67	71
Number of species	14	21	19	13	19	15	11	12	14	15
Ordinal number	1*	2	3	4	5	6	7	8	9	10
Characteristic species:										
<i>Quercus coccifera</i>	5	5	4	4	4	4	3	4	4	V
<i>Rubia peregrina</i>	1	+	.	1	+	2	2	1	1	V
<i>Asparagus acutifolius</i>	+	1	+	+	.	.	1	1	+	V
<i>Daphne gnidium</i>	+	+	+	+	.	1	.	1	1	IV
<i>Rhamnus lycioides</i>	1	2	1	.	+	.	2	1	1	IV
<i>Jasminum fruticans</i>	1	2	1	.	+	.	1	2	2	IV
<i>Rhamnus alaternus</i>	2	2	.	.	.	.	1	1	+	III
<i>Colutea hispanica</i>	.	1	.	+	+	.	1	.	+	III
<i>Ephedra nebrodensis</i>	.	.	1	.	+	1	.	1	2	III
<i>Teucrium pinnatifidum</i>	.	+	+	1	+	.	.	.	.	III
<i>Bupleurum rigidum</i>	.	+	+	.	2	1	.	.	.	III
<i>Juniperus lagunae</i>	2	+	+	.	.	.	.	.	.	II
<i>Quercus rotundifolia</i>	.	.	+	.	+	1	.	.	.	II
<i>Lonicera etrusca</i>	+	+	.	.	.	.	.	.	.	II
<i>Pistacia terebinthus</i>	.	2	.	1	.	.	.	.	.	II
<i>Lonicera implexa</i>	.	.	.	.	.	.	.	+	1	II
Companion species:										
<i>Thymus vulgaris</i>	.	+	+	.	1	.	1	.	.	III
<i>Aristolochia pistolochia</i>	.	+	.	+	+	1	.	.	.	III
<i>Carex halleriana</i>	1	.	.	+	1	.	.	.	.	II
<i>Helianthemum rotundifolium</i>	.	+	+	.	2	.	.	.	.	II
<i>Quercus faginea</i>	.	.	1	1	.	1	.	.	.	II
<i>Lithodora fruticosa</i>	.	.	1	.	1	+	.	.	.	II
<i>Bupleurum fruticosum</i>	.	.	+	.	1	.	1	.	.	II
<i>Salvia lavandulifolia</i>	.	.	+	.	+	.	.	.	1	II

Other species. Characteristic species: *Silene mellifera* + in 2. *Aristolochia paucinervis* + in 6. *Ephedra fragilis* 1 in 9. Companion species: *Dactylis hispanica* 1 in 2 and 5. *Rosmarinus officinalis* 1 in 3, + in 4. *Asphodelus cerasiferus* + in 4 and 6. *Linum narbonense* 1 in 7 and 9. *Rosa agrestis* 2 in 8, 1 in 9. *Stachys dubia* 1, *Retama sphaerocarpa* +, *Stipa bromoides* +, *Teucrium capitatum* + in 1. *Brachypodium retusum* 1, *Arrhenatherum album* +, *Avenula bromoides* + in 2. *Crataegus monogyna* +, *Geranium purpureum* + in 3. *Ononis fruticosa* 1, *Aphyllanthes monspeliensis* +, *Stipa parviflora* + in 5. *Fritillaria lusitanica* +, *Leuzea conifera* +, *Ranunculus gramineus* +, *Serratula pinnatifida* + in 6. *Cistus albidus* 2 in 7. *Bryonia dioica* 1, *Euphorbia nicaeensis* + in 8.

Localities: 1. Holotypus ass.: Madrid: San Agustín de Guadalix, cretacic limestones. E, 100 m². 2. Madrid: San Agustín de Guadalix, cretacic limestones. NE, 150 m². 3. Madrid: Perales de Tajuña. N, 70 m². 4. Madrid: Perales de Tajuña. NW, 60 m². 5. Madrid: Perales de Tajuña. NW, 80 m². 6. Toledo: Villatobas. S, 30%, 60 m². 7. Toledo: Yepes. W, 50%, 50 m². 8. Toledo: Cabañas de Yepes. N, 40 m². 9. Toledo: Dosbarrios. N, 50 m². 10. Synthesized table.

DIANTHO LANGEANI-FESTUCETUM RIVAS-MARTINEZII ass. nova hoc loco (49.5.4)

(*Hieracio castellani-Plantaginion radicatae*, *Jasiono sessiliflorae-Koelerietalia crassipedis*, *Festucetea indigestae*).

Typus associatio: Table 36, rel. 2 [León: Murias de Paredes, Montrondo, Los Solanos creek. 29TQH2747. 1350 m, S, 5%, 20 m²].

Characteristic species: *Dianthus langeanus*, *Festuca rivas-martinezii* (terr.).

Diagnosis: Sparse grasslands subjected to frequent cryoturbation processes, dominated by grass-like hemicryptophytes and pulviniform chamaephytes, colonizing lithosols on slates, sandstones and quartzites. This association is well distinguished by the endemic *Dianthus langeanus* and *Festuca rivas-martinezii* and seems to be at its optimum in the supratemperate humid belt of the Lácian-Ancarensean Sector, in the Orocantabric and Galician-Asturian supratemperate *Quercus pyrenaica* forests (melojares) *Linario triornithophorae-Quercus pyrenaicae* sigmetum. Frequently, this vegetation type comes into contact with the *Agrostio durieui-Sedetum pyrenaici* crassifolious grasslands. It is geovicarious of the supramediterranean Bercian-Sanabriensean association *Diantho merinoi-Plantaginetum radicatae*, from which it differs by the presence of *Dianthus langeanus*, and the absence of the Bercian-Sanabriensean endemic *Dianthus merinoi*. *Dianthus langeanus* is also a good differential element from the Ubinnean and Campurrian-Carrionese association *Sclerantho perennis-Plantaginetum radicatae*.

[PENAS, PUENTE, R. ALONSO, A. FERNÁNDEZ, LENCE, DEL RÍO, J. ALONSO & F. SALEGUI]

Table 36

49.5.4 *Diantho langeani-Festucetum rivas-martinezii*

(*Hieracio-Plantaginion radicatae*, *Jasiono-Koelerietalia*, *Festucetea indigestae*)

Altitude (1=10m)	145	135	120	115	122	122	<u>126</u>
Number of species	10	12	13	14	17	22	<u>15</u>
Ordinal number	1	2*	3	4	5	6	7
Characteristic species:							
<i>Dianthus langeanus</i>	2	2	3	3	2	2	V
<i>Festuca rivas-martinezii</i>	3	3	+	2	1	3	V
<i>Plantago radicata</i>	3	2	2	1	3	2	V
<i>Sedum brevifolium</i>	1	2	1	1	+	+	V
<i>Agrostis durieui</i>	+	1	+	+	.	+	V
<i>Koeleria crassipes</i>	1	1	+	.	2	.	IV
<i>Armeria caballeroi</i>	1	.	.	1	.	+	III
<i>Dianthus legionensis</i>	.	+	.	.	.	1	II
<i>Silene legionensis</i>	.	.	+	.	.	+	II
<i>Hieracium castellanum</i>	.	.	1	.	.	+	II
<i>Centaurea langeana</i>	.	.	.	.	+	+	II
Companion species:							
<i>Avenula sulcata</i>	+	.	.	+	.	1	III
<i>Rumex angiocarpus</i>	.	+	.	.	+	+	III
<i>Sanguisorba minor</i>	.	.	.	+	+	+	III

Other species. Characteristic species: *Thymus zygis* + in 3. *Sedum album* 1 in 5. Companion species: *Logfia minima* + in 2 and 6. *Micropyrum tenellum* 1 in 3, + in 4. *Allium sphaerocephalon* + in 4 and 5. *Anarrhinum bellidifolium* + in 4 and 5. *Hypochoeris radicata* + in 5 and 6. *Silene nutans* + in 5 and 6. *Calluna vulgaris* +, *Genista carpetana* + in 1. *Scleranthus polycarpus* 1, *Conopodium majus* +, *Solidago virgaurea* + in 2. *Agrostis capillaris* +, *Spergula morisonii* +, *Vulpia bromoides* + in 3. *Ranunculus olysiponensis* +, *Sedum hirsutum* +, *Sedum tenuifolium* + in 4. *Bromus hordeaceus* +, *Crucianella angustifolia* +, *Galium gr mollugo* +, *Lotus corniculatus* + in 5. *Anthoxanthum odoratum* +, *Hieracium pilosella* +, *Petrorhagia prolifera* +, *Rumex acetosa* +, *Veronica arvensis* +, *Vulpia muralis* + in 6.

Localities: 1. León: Murias de Paredes, Pto. de la Magdalena. 29TQH2749. NW, 2%, 6 m². 2. Holotypus ass. León: Murias de Paredes, Montrondo, Los Solanos creek. 29TQH2747. S, 5%, 20 m². 3. León: Riello, Ariego de Arriba, Las Pachonas. 30TTN5541. S, 5%, 4 m². 4. León: Riello, Omañón, Arroyo de Sabugo. 29TQH3744. SE, 20%, 20 m². 5. León: Murias de Paredes, Rodicol, Barranco de Ferbienza. 29TQH3548. SW, 30%, 10 m². 6. León: Murias de Paredes, Rodicol, Barranco de Rodicol. 29TQH3548. SW, 20%, 3 m². 7. Synthesized table.

DIANTHO LUSITANI-ANTIRRHINETUM RUPESTRIS ass. nova hoc loco (32.3.6)

[*Diantho lusitani-Antirrhinetum rupestris* Molero, Marín & M. López in J.M. Losa, Molero, Casares & Pérez-Raya. Paisaje vegetal de Sierra Nevada. La cuenca alta del Río Genil: 182, tb. 49. 1986 (art. 5)]

(*Rumici indurati-Dianthion lusitani*, *Phagnalo saxatilis-Rumicetalia indurati*, *Phagnalo-Rumicetea indurati*)

Typus associatio: Granada: Güéjar-Sierra, Río Genil, Minas de la Estrella. 37° 09' N-3° 26' W. N, 1800m, 25 m². Characteristic species: 2 *Antirrhinum rupestris*, 1 *Dianthus lusitanus*, 1 *Phagnalon saxatile*, 1 *Sedum hirsutum*, + *Asplenium foreziense*, + *Crambe filiformis*, + *Melica minuta*, + *Umbilicus rupestris*. Companion species: 1 *Silene vulgaris*, + *Crepis albida*, + *Lactuca tenerrima*, + *Sanguisorba verrucosa*.

Characteristic species: *Antirrhinum rupestris*.

Diagnosis: Chasmocomophytic association well characterized by the endemic *Antirrhinum rupestris*, living in silicic schistose rocks on the supramediterranean subhumid belt of Sierra Nevada, mainly in the environment of the vegetation series of the Nevadensian Pyrenean oak (*Adenocarpus decorticans-Quercus pyrenaicae* sigmetum).

[MOLERO, MARÍN & M. LÓPEZ]

ELAPHOGLOSSO SEMICYLINDRICI-POLYPODIETUM AZORICAE ass. nova hoc loco (30.3.2)

(*Hymenophyllum tunbrigense*, *Anomodonto-Polypodieta*, *Anomodonto-Polypodieta*)

Typus associatio: Table 37, rel. 2. [Açores, Illa do Pico: Misterios da Prainha. 38° 22' N-28° 12' W. N, 540 m, 1 m², in *Dryopterido azoricae-Lauretum azoricae*].

Characteristic species: *Elaphoglossum semicylindricum*, *Hymenophyllum tunbrigense*, *Polypodium azoricum*.

Diagnosis: Epiphytic bryo-pteridophytic community developed on the branches and stems of evergreen trees from the primary forests of the Azores Islands (*Lauro azoricae-Juniperetea brevifoliae*) in the thermo and mesotemperate hyperhumid bioclimatic belts in temperate hyperoceanic bioclimate.

[RIVAS-MARTÍNEZ, LOUSÁ, F. PRIETO, J.C. COSTA, DÍAS & AGUIAR]

Table 37

30.3.2 *Elaphoglossum semicylindrici*-*Polypodium azoricae*
(*Hymenophyllum tunbrigense*, *Anomodonto-Polypodieta*, *Anomodonto-Polypodieta*)

Altitude (1=10m)	54	54	78	78	62	56	<u>64</u>
Number of species	5	5	4	5	5	6	5
Ordinal number	1	2*	3	4	5	6	7
Characteristic species:							
<i>Hymenophyllum tunbrigense</i>	5	4	3	2	4	3	V
<i>Elaphoglossum semicylindricum</i>	2	3	2	3	2	2	V
<i>Polypodium azoricum</i>	1	2	.	.	1	2	IV
<i>Anomodon viticulosus</i>	.	.	.	1	.	.	I
<i>Plagiochila spinulosa</i>	.	.	.	.	.	1	I
Companion species:							
<i>Isoetecium myosuroides</i>	1	2	2	.	.	2	IV
<i>Thuidium tamariscinum</i>	.	1	1	2	2	.	IV
<i>Lobaria canariensis</i>	.	.	.	.	+	1	II
<i>Neckera complanata</i>	1	.	.	.	.	.	I
<i>Luzula purpureo-splendens</i>	.	.	.	+	.	.	I

Localities: 1, 2. Açores, Illa do Pico: Misterios da Prainha. 38° 22'N-28° 12'W. N, 1 m² in *Dryopterido azoricae-Lauretum azoricae*. Holotypus ass. rel. 2. 3, 4. Açores, Illa do Pico: Misterios do Prainha. 38° 21'N-28° 10'N. S, 0,5 m² in *Cerastio-Juniperetum brevifoliae*. 5. Açores, Illa Terceira: Domo de Terra Brava. 38° 45'N-27° 17'W. SW, 1 m² in *Dryopterido azoricae-Lauretum azoricae*. 6. Açores, Illa Terceira: Sanguinhal. 38° 44'N-27° 14'W. N, 1 m² in *Dryopterido azoricae-Lauretum azoricae*. 7. Synthesized table.

ELEOCHARITO MULTICAULIS-RHYNCHOSPORETUM ALBAE C. Valle & F. Navarro ass. nova hoc loco (14.1.3)

[*Eleocharito multicaulis-Rhynchosporium* Tüxen in Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32: 165, tb. 50. 1958 (art. 3f, 7), *Eleocharito multicaulis-Rhynchosporium albae* Tüxen ex C. Valle & F. Navarro in Lazaroa 5: 168, tb. 1. 1984 (art. 5)]
(*Rhynchosporion albae*, *Scheuchzerietalia palustris*, *Scheuchzerio-Caricetea nigrae*)

Typus associatio: C. Valle & F. Navarro in Lazaroa 5: 168, tb. 1, holotypus hoc loco: rel. 2. 1984. [Zamora: Between Villardeciervos and Ferreras de Arriba. In 10 m²]. Characteristic species: 3 *Carex echinata*, 1 *Drosera rotundifolia*, + *Lycopodiella inundata*, 2

Rhynchospora alba. Companion species: 1 *Anagallis tenella*, 2 *Carex panicea*, 2 *Eleocharis multicaulis*, 1 *Juncus bulbosus*, 1 *Juncus acutiflorus*, 2 *Molinia caerulea*, 1 *Veronica scutellata*.

Characteristic species (territorials): *Lycopodiella inundata*, *Rhynchospora alba*.

Diagnosis: Supramediterranean Carpetan-Leonese local community pioneer in permanent humid oligo-dystrophic peat moss soils, often beside *Genisto anglicae-Ericetum tetralicis* peat heath.

[RIVAS-MARTÍNEZ]

ELYTRIGIO CAMPESTRIS-BRACHYPODIETUM PHOENICOIDIS ass. nova hoc loco (51.3.2)

[*Agropyro-Brachypodietum phoenicoidis* Rivas-Martínez & Izco ex G. López in *Anales Inst. Bot. Cavanilles* 34(2): 660. 1978 (art. 2b)]

(*Brachypodium phoenicoidis*, *Brachypodietalia phoenicoidis*, *Festuco-Brometea*)

Typus associatio: Cuenca: Zafra de Záncara, at the bottom of the gypseous hills near of Záncara River. 39° 52'N-2° 35'W. 850 m, SW, 20 m². Characteristic species: 3 *Brachypodium phoenicoides*, 2 *Elytrigia intermedia*, 1 *Elytrigia campestris*, 1 *Medicago sativa*, + *Gladiolus illyricus*, + *Gypsophila bermejoi*. Companion species: 1 *Centaurea aspera*, 1 *Dactylis hispanica*, 1 *Koeleria castellana*; + *Elytrigia curvifolia*, + *Plantago albicans*, + *Plantago maritima*, + *Reseda stricta*, + *Stipa juncea*, + *Thapsia villosa*.

Characteristic species (territorials): *Brachypodium phoenicoides*, *Elytrigia campestris*, *Elytrigia curvifolia*, *Elytrigia intermedia*.

Diagnosis: Meso-lower supramediterranean dry semicontinental anthropogenic perennial tall grass pastures, mostly seral of deciduous *Fraxino-Ulmenion minoris* riparian forests, spread in Mediterranean Central Iberian and bordering territories, growing on basophilous clayey and rather gypseous deep soils with gleyic properties.

[RIVAS-MARTÍNEZ & IZCO]

EPILOBIO BRACHYCARPI-CHENOPODIETUM OPULIFOLII ass. nova hoc loco (39.8.8)

(*Chenopodienion muralis*, *Chenopodium muralis*, *Chenopodietalia muralis*, *Stellarietea mediae*)

Typus associatio: Table 38, rel. 2. [Madrid: Alpedrete, Los Negrales. 40° 38'N-4° 02'W. 860 m, SE, 40 m²].

Characteristic species (territorials): *Chenopodium opulifolium*, *Chenopodium botrys*, *Epilobium brachycarpum* (= *Epilobium paniculatum*).

Diagnosis: Meso-supramediterranean dry semicontinental ruderal annual summer blooming anthropophyte community developed on urban waste and altered siliceous sandy soils, spread in Mediterranean West and Central Iberian biogeographic provinces.

[RIVAS-MARTÍNEZ, C. NAVARRO & CANTÓ]

Table 38

39.8.8 *Epilobio brachycarpi-Chenopodietum opulifolii**(Chenopodion muralis, Chenopodietalia muralis, Stellarietea mediae)*

Altitude (1=10m)	87	86	87	86	88	85	90	87
Number of species	12	14	13	17	17	18	18	16
Ordinal number	1	2*	3	4	5	6	7	8
Characteristic species:								
<i>Chenopodium opulifolium</i>	2	3	2	3	3	3	3	V
<i>Epilobium brachycarpum</i>	2	2	1	1	1	2	2	V
<i>Conyza canadensis</i>	2	1	1	1	1	1	1	V
<i>Chenopodium album</i>	1	3	2	2	2	2	2	V
<i>Chondrilla juncea</i>	1	2	1	1	1	1	1	V
<i>Hirschfeldia incana</i>	1	1	+	1	1	+	1	V
<i>Heliotropium europaeum</i>	.	2	1	1	2	1	1	V
<i>Xanthium spinosum</i>	+	1	.	+	+	+	.	IV
<i>Amaranthus albus</i>	1	.	1	1	.	1	+	IV
<i>Chenopodium vulvaria</i>	.	.	1	+	+	.	1	IV
<i>Chenopodium botrys</i>	.	.	.	1	1	1	+	IV
<i>Conyza bonariensis</i>	.	.	.	+	1	.	1	III
Companion species:								
<i>Lactuca virosa</i>	1	+	1	1	.	1	+	V
<i>Polygonum arenastrum</i>	1	.	+	1	1	+	1	V
<i>Cynodon dactylon</i>	.	+	+	+	1	.	1	IV

Other species. Characteristic species: *Imula graveolens* 1 in 2, + in 4. *Anthemis mixta* + in 2 and 6. *Sonchus oleraceus* 1 in 3 and 7. *Chenopodium murale* 1 in 4 and 7. *Tribulus terrestris* + in 5, 1 in 6. *Verbena officinalis* + in 6 and 7. *Anacyclus clavatus* + in 2. *Portulaca oleracea* 1, *Solanum nigrum* + in 5. Companion species: *Scolymus hispanicus* + in 1, 2 and 6. *Centaurea solstitialis* + in 1. *Xanthium italicum* + in 5. *Rumex crispus* 1, *Convolvulus arvensis* + in 6. *Verbascum pulverulentum* + in 7.

Localities: 1. Madrid: Collado-Villalba, Polígono Industrial. 40° 38' N-4° 01' W, E, 5%, 40 m². 2. Holotypus ass. Madrid: Alpedrete, Los Negrals. 40° 38' N-4° 02' W, 2%, SE, 40 m². 3. Madrid: Collado-Villalba, Polígono Industrial. 40° 38' N-4° 01' W, S, 5%, 20 m². 4. Madrid: Collado-Villalba, El Gorrónal. 40° 38' N-4° 01' W, 5%, NE, 20 m². 5. Madrid: Alpedrete. 40° 39' N-4° 02' W, 5%, E, 40 m². 6. Madrid: Galapagar. 40° 37' N-4° 01' W, S, 5%, 20 m². 7. Madrid: Guadarrama. 40° 40' N-4° 04' W, S, 5%, 20 m². 8. Synthesized table.

ERYNGIO-ULICENION ERINACEI (Rothmaler 1943) suball. nova, stat. nov. hoc loco (64.2a)
[*Eryngio-Ulicion erinacei* Rothmaler 1943 (art. 27)]

Typus suballiancia: *Ulicetum erinacei* Rothmaler in Repert. Spec. Nov. Regni Veg. Beih. 128: 66, tb. 1. 1943.

Characteristic species: *Ulex erinaceus*.

Diagnosis: Described and including only the endemic association *Ulicetum erinacei* both syntaxa are confined in Sagres District (Algarvian Sector), on calcareous soils mixed with windy sand deposits. Originally published by Rothmaler (1943: 66, tb.1) with a lot of hete-

rogeous releves including *Rosmarinetea* and *Cisto-Lavanduletea* dwarf scrubs as well as *Pistacio-Rhamnetalia* shrub species.

[RIVAS-MARTÍNEZ]

EUPHORBIEIUM ACUMINATO-MERINOI ass. nova hoc loco (50.13.10)

(*Brachypodium distachyi*, *Brachypodietalia distachyi*, *Tuberarietea guttatae*)

Typus associatio: Table 39, rel. 3 [Vinhais: Ousilhao. 780 m, 40%, 25 m²].

Characteristic species (territorials): *Brachypodium distachyon*, *Euphorbia exigua* var. *merinoi*, *Euphorbia falcata* var. *acuminata*.

Table 39

50.13.10 *Euphorbietum acuminato-merinoi*

(*Brachypodium distachyi*, *Brachypodietalia distachyi*, *Tuberarietea guttatae*)

Altitude (1=10m)	64	85	78	80	55	25	60	55	63
Number of species	18	21	22	19	17	16	21	18	19
Ordinal number	1	2	3*	4	5	6	7	8	9

Characteristic species:

<i>Trifolium arvense</i>	2	1	2	1	2	1	1	1	V
<i>Tuberaria guttata</i>	1	2	2	2	2	1	2	2	V
<i>Leontodon longirostris</i>	1	1	2	2	1	4	2	2	V
<i>Euphorbia acuminata</i>	1	+	+	+	1	+	+	+	V
<i>Euphorbia merinoi</i>	+	1	+	+	1	+	+	+	V
<i>Logfia minima</i>	1	1	1	1	1	.	+	1	V
<i>Asterolinon linum-stellatum</i>	+	+	+	+	.	1	+	+	V
<i>Brachypodium distachyon</i>	.	1	+	2	.	2	1	2	IV
<i>Trifolium campestre</i>	.	1	+	+	1	.	+	+	IV
<i>Rumex gallicus</i>	2	.	+	1	1	.	2	.	IV
<i>Petrorhagia nanteuilii</i>	.	+	+	+	1	.	+	.	IV
<i>Galium parisiense</i>	.	1	+	+	+	.	+	1	IV
<i>Crucianella angustifolia</i>	.	1	1	+	.	.	.	.	III
<i>Trifolium bocconeii</i>	.	1	+	.	.	.	1	.	III

Companion species:

<i>Linaria amethystea</i>	+	+	+	+	.	.	+	.	IV
<i>Bromus tectorum</i>	1	.	+	.	.	2	.	.	III
<i>Plantago radicata</i>	1	.	.	+	2	.	.	.	III
<i>Vulpia ciliata</i>	1	.	+	+	.	.	.	.	III

Other species. Characteristic species: *Trifolium glomeratum* 1 in 1, + in 7. *Lathyrus angulatus* + in 2 and 5. *Hymenocarpus lotooides* 1 in 2 and 6. *Hypochoeris glabra* 1 in 2 and 6. *Linum trigynum* 2 in 2, + in 8. *Trisetaria ovata* + in 3 and 4. *Anthoxanthum aristatum* + in 3 and 7. *Centaurium erythraea* 1 in 5, + in 8. *Arenaria leptoclados* 1 in 7, + in 8. *Aira cupaniana* + in 7, 1 in 8. *Trifolium cherleri* + in 1. *Aira caryophyllea* 1, *Jasione montana* 1 in 3. *Trifolium angustifolium* + in 4. *Trisetaria scabriuscula* 2, *Silene scabriflora* + in 5. *Coronilla dura* 2, *Ornithopus compressus* 2, *Arabidopsis thaliana* + in 6. *Cerastium brachypetalum* +, *Ctenopsis delicatula* +, *Velezia rigida* +, *Vulpia muralis* + in 7. *Campanula erinus* +, *Jonopsidium abulense* +, *Vulpia myuros* + in 8. Companion species:

Poa bulbosa 1 in 1, + in 6. *Alyssum lusitanicum* 2, *Trifolium gemellum* 1, *Herniaria scabrida* + in 1. *Sanguisorba verrucosa* +, *Sherardia arvensis* +, *Trifolium striatum* + in 2. *Arenaria querooides* +, *Armeria eriophylla* + in 4. *Agrostis castellana* 2, *Dianthus marizii* 1 in 5. *Erodium cicutarium* 1, *Parentucellia latifolia* 1 in 6. *Herniaria lusitanica* + in 8.

Localities: 1. Lu, Bragança: Baçal. 29TPG83. 40%, 6 m². 2. Lu, Bragança: Grandais. 29TPG83. 40%, 16 m². 3. Holotypus ass. Lu, Vinhais: Ousilhão. 29TPG72. 40%, 25 m². 4. Lu, Vinhais: Vila Boa de Ousilhão. 29TPG72. 40%, 25 m². 5. Lu, Vinhais: Vila Verde, in front of Truticultura do Tuela. 29TPG73. 30%, 25 m². 6. Lu, Macedo de Cavaleiros: Lagoa. 29TPF88. 100%, 2 m². 7. Lu, Macedo de Cavaleiros: Limãos. 29TPF89. 60%, 4 m². 8. Lu, Macedo de Cavaleiros: Morais. 29TPF89. 60%, 4 m². 9. Synthesized table.

Diagnosis: Rather homogeneous annual community, endemic of the ultramafic outcrops of NE Portugal (Bercian-Sanabriensean and Lusitan Duriensean Sectors), subserial of holly-oak edaphoxerophilous perennial forests of the *Genisto hystricis-Quercetum rotundifoliae*. It can be found in undisturbed shallow serpentine soils, normally in clearings of *Cistus ladanifer* shrub communities, in the mesomediterranean belt and in the lower horizon of the supramediterranean belt. This association, among other species, is characterised by the presence of *Brachypodium distachyon*, *Euphorbia falcata* var. *acuminata* and *Euphorbia exigua* var. *merinoi*, *Leontodon longirostris*, *Rumex bucephalophorus* subsp. *gallicus*, *Trifolium arvense* and *Tuberaria guttata*. The floristic composition and ecology is intermediate between the alliances *Tuberarion guttatae* and *Brachypodium distachyi*.

[AGUIAR & PENAS]

EUPHORBIO HYBERNAE-FRAXINETUM EXCELSIORIS ass. nova hoc loco (71.1.5)

[*Pruno padi-Fraxinetum excelsioris* L. Herrero, M.E. García & Penas in L. Herrero 1989 nom. inval. (art. 1) non Oberdorfer in Beitr. Naturk. Forsch. Südwestdeutschl. 12(1): 23. 1953]
(*Alnion incanae*, *Populetales albae*, *Salici purpureae-Populetea nigrae*)

Typus associatio: Table 40, rel. 3 [Palencia: Ruesga. 30TUN7547. 950 m, 200 m²].

Characteristic species (territorials): *Carum carvi*, *Euphorbia hyberna*, *Fraxinus excelsior*, *Prunus padus*, *Ribes petraeum*.

Diagnosis: Mesophytic semicontinental upper supratemperate forests with Southern Orcantabric distribution, developed on deep soils with dominance in the tree stratum of *Fraxinus excelsior*, *Prunus padus*, *Fagus sylvatica*, *Ulmus minor* and *Populus nigra*, and with a floristic entourage in which *Euphorbia hyberna*, *Helleborus viridis* subsp. *occidentalis* and *Allium ursinum*, among others are common. This forest type, nowadays very reduced because of the agricultural and cattle farming, can be differentiated from the nearest northern associations, such as *Mercuriali perennis-Fraxinetum excelsioris* and *Polysticho setiferi-Fraxinetum excelsioris* by the presence of taxa such as *Prunus padus* and *Ulmus minor* among the tree species and *Carum carvi*, *Geranium sylvaticum* and *Narcissus pseudonarcissus* subsp. *leonensis*, among the herbaceous, as well as the absence in our relevés of other species such as *Quercus robur*, *Tilia platyphyllos*, *Primula vulgaris* or *Carex caudata*.

[L. HERRERO, M.E. GARCÍA, T.E. DÍAZ, PENAS & F. SALEGUI]

Table 40

71.1.5 *Euphorbio hybernae-Fraxinetum excelsioris*
 (*Alnion incanae*, *Populetales albae*, *Salici-Populetea*)

Altitude (1=10m)	110	110	95	132	140	<u>117</u>
Number of species	53	47	47	35	33	43
Ordinal number	1	2	3*	4	5	6
Characteristic species:						
<i>Fraxinus excelsior</i>	2	3	4	3	2	V
<i>Prunus padus</i>	2	3	+	1	1	V
<i>Ulmus minor</i>	2	2	1	1	1	V
<i>Crataegus monogyna</i>	2	2	1	1	2	V
<i>Corylus avellana</i>	1	1	2	2	2	V
<i>Euphorbia hyberna</i>	1	1	1	1	1	V
<i>Stellaria holostea</i>	1	1	1	1	1	V
<i>Aquilegia vulgaris</i>	1	+	1	1	.	IV
<i>Symphytum tuberosum</i>	2	2	1	.	1	IV
<i>Fagus sylvatica</i>	1	1	.	1	1	IV
<i>Ribes petraeum</i>	1	1	.	1	1	IV
<i>Helleborus occidentalis</i>	1	.	1	1	1	IV
<i>Viola reichenbachiana</i>	1	.	+	1	1	IV
<i>Viburnum lantana</i>	.	1	2	1	1	IV
<i>Lathraea clandestina</i>	2	2	2	.	.	III
<i>Anemone ranunculoides</i>	2	2	1	.	.	III
<i>Primula veris</i>	+	1	1	.	.	III
<i>Lilium martagon</i>	1	2	.	+	.	III
<i>Primula elatior</i>	1	.	1	.	+	III
<i>Populus nigra</i>	.	+	1	1	.	III
<i>Sorbus aria</i>	.	+	.	+	2	III
Companion species:						
<i>Chaerophyllum hirsutum</i>	2	1	+	+	1	V
<i>Carum carvi</i>	1	1	1	1	+	V
<i>Cardamine raphanifolia</i>	1	1	+	+	+	V
<i>Filipendula ulmaria</i>	1	2	1	1	.	IV
<i>Heracleum sphondylium</i>	1	1	1	+	.	IV
<i>Geranium sylvaticum</i>	1	1	1	.	1	IV
<i>Valeriana pyrenaica</i>	1	1	1	.	+	IV
<i>Laserpitium nestleri</i>	1	1	.	1	+	IV
<i>Salix cantabrica</i>	+	1	.	1	+	IV

Other species. Characteristic species: *Lonicera periclymenum* 1 in 1 and 3. *Ranunculus ficaria* 1 in 2 and 3. *Euphorbia dulcis* + in 2, 1 in 3. *Brachypodium sylvaticum* 1 in 3 and 4. *Vicia orobus* 1 in 3, + in 4. *Sorbus aucuparia* 1 in 4 and 5. *Stachys sylvatica* 1 in 4 and 5. *Frangula alnus* + in 4, 1 in 5. *Mercurialis perennis* 1, *Sambucus nigra* 1, *Scilla lilio-hyacinthus* + in 1. *Euphorbia amygdaloides* 1, *Ligustrum vulgare* 1, *Rhamnus cathartica* 1, *Rosa corymbifera* +, *Rubus ulmifolius* +, *Salix triandra* + in 3. *Geranium sanguineum* 1 in 4. *Fragaria vesca* 1, *Rosa canina* 1, *Teucrium scorodonia* 1, *Betula alba* +, *Ilex aquifolium* + in 5. Companion species: *Aconitum vulgare* 1 in 1, 2 and 3. *Geum rivale* 1

in 1, 2 and 3. *Aconitum ranunculifolium* 1 in 1 and 2, + in 3. *Alliaria petiolata* 1 in 1 and 2, + in 3. *Myosotis alpestris* 1 in 1 and 2, + in 3. *Sisymbrella aspera* 1 in 1, + in 2 and 3. *Crepis lampanoides* 1 in 1, 2 and 4. *Allium ursinum* 2 in 1, 3 in 2, + in 5. *Polygonum bistorta* 1 in 1, + in 3 and 4. *Equisetum arvense* 1 in 1 and 3, + in 5. *Centaurea lingulata* 1 in 1 and 2. *Cruciata glabra* 1 in 1 and 2. *Lamium maculatum* 1 in 1 and 2. *Narcissus leonensis* 1 in 1 and 2. *Trollius europaeus* 1 in 1, + in 3. *Veronica chamaedrys* 1 in 2 and 3. *Daphne laureola* + in 4, 1 in 5. *Allium scorzonerifolium* 1, *Arabis alpina* 1, *Crepis pyrenaica* 1, *Elymus repens* 1, *Orchis pallens* 1, *Silene dioica* 1, *Vicia sepium* 1 in 1. *Glechoma hederacea* 1, *Asphodelus albus* +, *Hylotelephium telephium* +, *Orchis ustulata* + in 2. *Lonicera xylosteum* 1, *Poa nemoralis* 1, *Dactylis glomerata* + in 3. *Mentha longifolia* +, *Ranunculus acris* +, *Scrophularia alpestris* + in 4.

Localities: 1. Palencia: Molino Los Llazos. 30TUN7860. 200 m². 2. Palencia: Las Riberas. 30TUN7960. 200 m². 3. Holotypus ass. Palencia: Ruesga. 30TUN7547. 200 m². 4. Palencia: El Coñel. 30TUN7957. W, 2%, 200 m². 5. Palencia: El Manzanar. 30TUN8661. W, 2%, 200 m². 6. Synthesized table.

EUPHORBIO PITHYUSAE-ANTHEMIDETUM MARITIMAE ass. nova hoc loco (19.2.1)

(*Launaeion cervicornis*, *Crithmo-Limonietalia*, *Crithmo-Limonietea*)

Typus associatio: Table 41, rel. 3 [Menorca. Ets Alocs. 30 m, NE 20m²].

Table 41

19.2.1 *Euphorbio pithyusae-Anthemidetum maritimae* (*Launaeion cervicornis*, *Crithmo-Limonietalia*, *Crithmo-Limonietea*)

Altitude (1=10 m)	-	3	3	1	2
Number of species	14	6	10	9	10
Ordinal number	1	2	3*	4	5
Characteristic species:					
<i>Anthemis maritima</i>	3	3	3	3	4
<i>Euphorbia pithyusa</i>	+	.	1	2	3
<i>Limonium minutum</i>	+	.	.	+	2
<i>Launaea cervicornis</i>	+	.	.	.	1
Companion species:					
<i>Reichardia picroides</i>	+	+	+	+	4
<i>Artemisia gallica</i>	2	+	1	.	3
<i>Sonchus tenerrimus</i>	+	+	.	1	3
<i>Dactylis hispanica</i>	.	+	2	2	3
<i>Anagallis arvensis</i>	+	.	+	+	3
<i>Desmazeria loliacea</i>	+	.	+	+	3
<i>Lotus edulis</i>	+	+	.	.	2
<i>Melilotus indicus</i>	4	.	+	.	2
<i>Mesembryanthemum nodiflorum</i>	+	.	.	1	2

Other species: Companion species: *Hyoseris radiata* +, *Micromeria rodriguezii* + in 1. *Limonium companyonis* +, *Limonium virgatum* + in 3.

Localities: 1. Menorca. North coast. (Boldòs, O., Moliner, R. & Montserrat, P. in Acta Bot. Barcinon. 5: 109. 1970). N. 2. Menorca. Pregonda. NW, 15 m². 3. Holotypus ass. Menorca. Ets Alocs. NE, 20 m². 4. Mallorca. Lluçmajor: Cap Enderrocat. NW, 15 m². 5. Synthesized table.

Characteristic species (territorials): *Anthemis maritima*, *Euphorbia pithyusa*.

Diagnosis: Nanophanerophytic-chamaephytic community found on coastal plains and slopes. This community has thermophilous, umbrophilous and relative nitrophilous character, also determined by the influence of strong marine wind and the presence of marine birds or human activity. It is found prevalently on the northern coast of Minorca, although occasionally in the south of Minorca and Majorca.

[LLORENS, LLOP & GIL]

FESTUCION FRIGIDAE all. nova hoc loco (14.6)

Typus alliancia: *Leontodonto microcephali-Ranunculetum uniflori* Esteve & P. Prieto in P. Prieto in Collec. Monogr. Univ. Granada 11: 83, tb. 1971. (Lectotypus hoc loco, l.c., reg. núm. 290. Granada, Sierra Nevada, cuenca del Monachil, alt. 2950 m, 100 m². Characteristic species: 3 *Leontodon microcephalus* Boiss., 2 *Ranunculus angustifolius* var. *uniflorus* Boiss. (syn. *Ranunculus alismoides* Bory), 2 *Festuca frigida* (Hack.) K. Richt. (sub *Festuca halleri* All.), 1 *Carex nigra* (L.) Reichard (sub *Carex fusca* var. *intricata* (Tineo) C. Vicioso), 1 *Carex nevadensis* Boiss. & Reut., 1 *Viola palustris* L. Companion species: 1 *Cerastium trigynum* Vill., + *Poa laxa* Haenke in Jirasek & al.).

Characteristic species: *Agrostis canina* subsp. *granatensis*, *Festuca frigida*, *Gentiana pneumonanthe* subsp. *depressa*, *Leontodon microcephalus*, *Pinguicula nevadensis*, *Ranunculus angustifolius* subsp. *alismoides*, *Veronica turbicola*.

Diagnosis: Oro and cryoromediterranean Nevadensian oligo-mesotrophic peat endemic communities.

Remarks: The alliance *Caricion intricatae* had been proposed by Quézel (1953:67) to include the oligo-mesotrophic peat communities distributed throughout the high mountains territories at High Atlas, Sierra Nevada and Corsica. In addition to the Sierra Nevada published association by Quézel (1953: 64, tb. 19): ass. à *Festuca rivularis* et *Veronica repens* var. *nevadensis* (*Veronico turbicolae-Festucetum rivularis* Quézel 1953 corr. hoc loco) this author frames in the new alliance the association proposed for the high mountains of Corsica: *Caricetum intricatae* Litardière & Malcuit 1926. The protologue of *Caricion intricatae* Quézel 1953 (op. cit.: 67) do not designate the alliance holotype and the author includes the Corsica association that has the same name of the newly proposed alliance; in consequence *Caricetum intricate* Litardière & Malcuit 1926 is the obliged lectotype of the alliance *Caricion intricate* (art. 20). Moreover *Caricion intricate* Quézel 1953 is the correct and priority name that must be used as opposed to validly published by Gamisams (1977:36) for Corsica: *Bellido bernardii-Bellion nivalis* which has as first designated association *Caricetum intricatae* Litardière & Malcuit 1926.

Table 42

14.6.1 *Leontodonto microcephali-Ranunculetum alismoidis*
(*Festucion frigidae*, *Caricetalia nigrae*, *Scheuchzerio-Caricetea nigrae*)

Altitude (1=10 m)	280	280	295	272	290	294	261	285	285	285	285	272	272	272	283
Number of species	8	5	5	10	8	6	10	9	7	12	8	8	12	10	8
Ordinal number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Characteristic species:															
<i>Carex nigra</i>	4	4	5	5	4	1	4	3	2	2	2	4	3	3	V
<i>Festuca frigida</i>	3	3	2	3	3	5	+	1	1	1	2	3	1	2	V
<i>Ranunculus alismoides</i>	2	1	1	1	.	.	1	+	1	2	2	+	1	+	V
<i>Leontodon microcephalus</i>	.	.	.	+	1	2	1	2	3	2	2	2	3	2	V
<i>Carex nevadensis</i>	.	.	.	.	.	.	2	3	3	3	4	2	1	3	V
<i>Viola palustris</i>	.	1	.	2	1	.	.	2	.	+	.	2	.	.	IV
<i>Carex furva</i>	1	+	2	.	.	.	.	.	.	+	.	.	.	.	III
<i>Veronica turbicola</i>	1	.	.	1	2	+	.	.	.	.	.	.	.	.	III
<i>Agrostis granatensis</i>	.	.	1	1	.	.	.	.	.	.	.	.	+	.	III
<i>Pinguicula nevadensis</i>	.	.	.	.	1	.	.	.	.	.	.	.	+	.	III
<i>Carex echinata</i>	.	.	.	.	.	.	2	.	.	+	.	.	.	.	II
<i>Gentiana depressa</i>	.	.	.	.	.	.	.	.	.	+	.	.	.	.	I
Companion species:															
<i>Euphrasia wilkommii</i>	+	.	.	+	1	.	1	2	.	+	2	.	2	1	IV
<i>Sagina nevadensis</i>	2	.	.	1	1	.	.	1	.	.	.	1	1	.	III
<i>Nardus stricta</i>	.	.	.	.	.	.	2	.	1	2	1	.	1	2	III
<i>Agrostis nevadensis</i>	.	.	.	.	.	.	.	+	1	+	+	2	.	+	III
<i>Sedum melanatherum</i>	1	.	.	.	.	1	.	.	.	.	.	.	+	+	III
<i>Gentiana boryi</i>	.	.	.	.	.	.	1	.	.	.	.	.	+	1	II
<i>Phleum abbreviatum</i>	.	.	.	1	.	.	.	.	.	.	.	.	.	.	II
<i>Cerastium cerastioides</i>	.	.	.	.	.	1	.	.	.	.	.	.	.	.	I
<i>Trifolium nevadense</i>	.	.	.	.	.	.	2	.	.	.	.	.	.	.	I
<i>Campanula herminii</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	I
<i>Festuca iberica</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	I

Localities: 1, 2. Granada: Sierra Nevada, Borreguiles. 10 m². 3. Granada: Sierra Nevada, Laguna de las Yeguas. 16 m². 4, 12, 13, 14. Granada: Sierra Nevada, Lavadero de la Reina. 12 m². 5. Granada: Sierra Nevada, Laguna Hondera. 6 m². 6. Granada: Sierra Nevada, Lagunillos de la Virgen. 10 m². 7. Granada: Sierra Nevada, Valle del Dílar. 10 m². 8, 9, 10, 11. Granada: Sierra Nevada, Borreguiles. 6 m². 17. Synthesized table.

Veronico turbicolae-Festucetum rivularis Quézel 1953 nom. mut. (14.6.3 = 14.2.9)

[Ass. à *Festuca rivularis* et *Veronica repens* var. *nevadensis* Quézel in Mem. Soc. Brot. 9: 64, tb. 19. 1953 (art. 43)]

Distribution: Oromediterranean and lower cryoromediterranean belts of Nevadensian Sector. *Veronico turbicolae-Festucetum rivularis* is an association related to peaty soils developed close to smallest watercourses and staying a long time period under the snow packs

in the Sierra Nevada high mountain areas. These communities are in contact with those of the *Montio-Cardaminetea* class, with the sedge peat communities always flooded (*Leontodonto microcephali-Ranunculetum alismoidis*), and with the more hygrophilous communities of the alliance *Plantaginion nivalis* that may could include this association because of its intermediate ecologic features.

Borreguiles de San Juan. 2 m². 6. Synthesized table.

Leontodonto microcephali-Ranunculetum alismoidis Esteve & P. Prieto in P. Prieto 1971 nom. mut. (14.6.1 = 14.2.10)

[*Leontodonto microcephali-Ranunculetum uniflori* Esteve & P. Prieto in P. Prieto in Collec. Monogr. Univ. Granada 11: 83, tb. 1971 (art. 45)]

Distribution: Oro and cryoromediterranean belt of Nevadensian Sector. This association constitutes the more characteristic and widely distributed of all the sedge peat communities always flooded that can be recognized in Sierra Nevada high mountains areas ('borreguiles'). The more frequent characteristic taxa showing also a high biomass are: *Carex nigra*, *Ranunculus alismoides* and *Leontodon microcephalus*.

Table 43

14.6.2 *Pinguicula nevadensis-Eleocharitetum quinqueflorae*
(*Festucion frigidiae*, *Caricetalia nigrae*, *Scheuchzerio-Caricetea nigrae*)

Altitude (1=10m)	290	290	267	256	255	272
Number of species	4	4	6	7	8	6
Ordinal number	1	2	3*	4	5	6
Characteristic species:						
<i>Eleocharis quinqueflora</i>	4	5	4	4	4	V
<i>Pinguicula nevadensis</i>	+	+	1	+	+	V
<i>Carex nigra</i>	+	1	+	2	2	V
<i>Juncus alpestris</i>	1	2	1	1	.	IV
<i>Carex nevadensis</i>	.	.	1	+	.	II
<i>Leontodon microcephalus</i>	.	.	.	+	+	II
<i>Triglochin palustre</i>	.	.	2	.	.	I
<i>Carex echinata</i>	.	.	.	.	1	I
<i>Agrostis granatensis</i>	.	.	.	.	+	I
<i>Parnassia palustris</i>	.	.	.	.	+	I

Other species. Companion species: *Festuca iberica* + in 4. *Nardus stricta* + in 5.

Localities: 1. Granada: Sierra Nevada, Laguna Hondera, Siete Lagunas. 4 m². 2. Granada: Sierra Nevada, Cañada de Siete Lagunas. 2 m². 3. Holotypus ass. Granada: Sierra Nevada, Lavadero de la Reina. 4 m². 4. Granada: Sierra Nevada, Borreguiles de San Juan. 4 m². 5. Granada: Sierra Nevada,

Pinguicula nevadensis-Eleocharitetum quinqueflorae ass. nova hoc loco (14.6.2 = 14.2.11)

Typus associatio: Table 43, rel. 3 [Granada: Sierra Nevada, Lavadero de la Reina. 2670 m, 4 m²].

Characteristic species (territorials): *Eleocharis quinqueflora*, *Pinguicula nevadensis*, *Triglochin palustre*.

Diagnosis: Community poor in species, pioneer of the muddy peat bogs with flowing waters, characteristic of the oro and crioromediterranean belts from Sierra Nevada (Nevadensian Sector). It is well characterized by the small northern Holarctic *Eleocharis quinqueflora* and by the Nevadensian turfey endemic *Pinguicula nevadensis*.

[RIVAS-MARTÍNEZ, DÍEZ GARRETAS, ASENSI, MOLERO & F. VALLE]

FESTUCO HYSTRICIS-ONONIDETEA STRIATAE classis nova hoc loco (52)

[*Festuco hystricis-Ononidetea striatae* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas in *Itinera Geobot.* 5: 506. 1991 (art. 17), *Festucetea hystricis* Mayor in Mayor, M.A. Fernández, Nava, J.R. Alonso, Lastra & Homet in *Bol. Ci. Naturaleza I.D.E.A.* 30: 93. 1982 (art. 8)]

Typus classis: *Festuco hystricis-Poetalia ligulatae* Rivas Goday & Rivas-Martínez, Estudio y clasificación de los pastizales españoles: 142. 1963. [Holotypus: *Festuco-Poion ligulatae* Rivas Goday & Rivas-Martínez (l.c.) 1963, holotypus: *Poo ligulatae-Festucetum hystricis* (Font Quer 1954) Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 115. 1961=*Festucetum hystricis* Font Quer in *Vegetatio* 5-6: 135. 1954].

Characteristic species: *Achillea odorata*, *Acinos alpinus* subsp. *meridionalis*, *Aethionema marginatum*, *Allium senescens* subsp. *montanum*, *Alyssum serpyllifolium* subsp. *serpyllifolium*, *Anthericum liliago*, *Anthyllis montana*, *Anthyllis vulneraria* subsp. *vulnerarioides*, *Arenaria grandiflora*, *Artemisia alba*, *Aster linosyris*, *Bupleurum ranunculoides*, *Carduncellus monspelliensium*, *Carex humilis*, *Carex liparocarpos*, *Chamaespartium delphinense*, *Coronilla minima* subsp. *minima*, *Draba aizoides* subsp. *estevei*, *Festuca gautieri*, *Festuca gracilior*, *Fumana procumbens* subsp. *procumbens*, *Globularia borjae*, *Inula montana*, *Koeleria vallesiana* subsp. *humilis*, *Lotus corniculatus* subsp. *delortii*, *Medicago suffruticosa*, *Ononis cristata*, *Orchis mascula* subsp. *mascula*, *Paronychia kapela* subsp. *serpyllifolia*, *Plantago monosperma*, *Poa badensis* subsp. *multiflora*, *Potentilla cinerea*, *Potentilla neumanniana* var. *hirsuta*, *Potentilla x zapateri*, *Ranunculus gramineus* var. *gramineus*, *Satureja montana* subsp. *montana*, *Serratula nudicaulis*, *Seseli montanum* subsp. *montanum*, *Tragopogon lamottei*, *Valeriana tuberosa*.

Diagnosis: Basophilous, orophilous and quionophobic dry pastures and cushion-like thickets, mainly formed by caespitose hemicryptophytes and chamaephytes, sometimes pulviniform, living on shallow soils, many of them suffering frequent cryoturbation processes during the cold period. With a southwestern European distribution, its present optimum is both Southern Eurosiberian (submediterranean) supra-orotemperate as well as supra-oromediterranean subhumid-humid. It is also present in a poor and reduced way in the Betic and Mauritanian Provinces. The communities of this class with periglacial western oromediterranean origin, generally belong to substitution stages of climatophilous or

edaphoxerophilous mediterranean, submediterranean or paleo-mediterranean vegetation series, whose mature stages belong to the classes and orders *Junipero-Pinetea*, *Quercetalia ilicis* and *Quercetalia pubescentis*.

[RIVAS-MARTÍNEZ, T.E. DÍAZ, F. PRIETO, LOIDI & PENAS]

FESTUCO PRUINOSAE-BRACHYPODIETUM RUPESTRIS ass. nova hoc loco (20.6.8)

(*Crithmo-Armerion maritimae*, *Crithmo-Armerietalia*, *Juncetea maritimi*)

Typus associatio: Table 44, rel. 6 [Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 10 m²].

Characteristic species (territorials): *Brachypodium rupestre*, *Rumex bififormis*, *Festuca pruinosa*, *Daucus gummifer*.

Diagnosis: Grass communities of deep soils located in the protected zones of the Cantabrian littoral cliffs. It is characterized by *Brachypodium rupestre* and *Festuca pruinosa*, as well as the presence of other species which are not exclusive of the coastal environments. They contact with other associations occupying biotopes more exposed to the marine exhalation, such as: *Dauco gummifero-Festucetum pruinosa* and *Leucanthemo crassifolii-Festucetum pruinosa*.

[ARBESÚ, BUENO & F. PRIETO]

Table 44

20.6.8 Festuco pruinosa-Brachypodietum rupestre

(*Crithmo-Armerion maritimae*, *Crithmo-Armerietalia*, *Juncetea maritimi*)

Altitude (1=10 m)	1	1	2	2	1	1	1	$\frac{I}{18}$
Number of species	25	22	19	14	21	17	12	18
Ordinal number	1	2	3	4	5	6*	7	8
Characteristic species:								
<i>Brachypodium rupestre</i>	1	2	3	3	3	4	4	V
<i>Festuca pruinosa</i>	2	3	1	1	3	4	2	V
<i>Rumex bififormis</i>	2	2	1	1	1	1	1	V
<i>Silene uniflora</i>	1	2	1	2	1	2	1	V
<i>Anthyllis iberica</i>	2	2	+	.	1	1	2	V
<i>Daucus gummifer</i>	1	+	.	1	1	1	.	IV
<i>Armeria depilata</i>	+	1	.	+	.	.	.	III
<i>Dactylis maritima</i>	.	.	.	.	1	1	1	III
<i>Angelica pachycarpa</i>	2	.	+	.	.	.	.	II
<i>Plantago maritima</i>	.	1	.	.	+	.	.	II
Companion species:								
<i>Senecio macrochaetus</i>	2	2	2	1	1	1	2	V
<i>Picris hieracioides</i>	1	2	+	.	1	1	+	V
<i>Agrostis stolonifera</i>	1	1	.	.	2	2	2	IV
<i>Lotus corniculatus</i>	1	1	.	.	2	1	1	IV
<i>Potentilla montana</i>	+	1	.	.	+	+	.	IV

Other species. Companion species: *Rubus* sp. + in 1, 3 and 4, 1 in 7. *Holcus lanatus* 1 in 1 and 2, + in 3. *Parietaria judaica* 1 in 1 and 6, 2 in 2. *Plantago lanceolata* 1 in 1, 2 and 6. *Koeleria albescens* 1 in 1, + in 5, 2 in 7. *Hedera helix* 1 in 3, 2 in 4, 1 in 5. *Centaurea* gr. *nigra* + in 5, 1 in 6 and 7. *Lithodora prostrata* + in 1, 2 and 4. *Iris foetidissima* 2 in 1 and 2. *Geranium robertianum* 1 in 1 and 2. *Asplenium onopteris* +, *Sonchus oleraceus* + in 1 and 2. *Primula vulgaris* 1 in 2 and 3. *Heracleum sphondylium* 2 in 3, + in 4. *Galium mollugo* 1 in 3, 1 in 4. *Asphodelus* sp 1 in 3, + in 4. *Cirsium filipendulum* 1 in 3, + in 4. *Omphalodes nitida* 1 in 3, + in 4. *Teucrium scorodonia* + in 3, 1 in 4. *Potentilla reptans* + in 5, 1 in 6. *Lavatera arborea* + in 1. *Aquilegia vulgaris* + in 3. *Carex glauca* +, *Centaureium scilloides* +, *Prunella vulgaris* + in 5. *Convolvulus arvensis* 1 in 6. *Sonchus asper* + in 6.

Localities: 1. Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 30 m². 2. Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 100 m². 3. Asturias: Tapia de Casariego, Figueiria. 29TPJ2669. 100%, 50 m². 4. Asturias: Tapia de Casariego, Figueiria. 29TPJ2669. 100%, 100 m². 5. Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 20 m². 6. Holotypus ass. Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 10 m². 7. Asturias: Castropol, Penarronda. 29TPJ2462. 100%, 50 m². 8. Synthesized table.

FRANKENIO CAPITATAE-SUAEDETUM VERAЕ ass. nova hoc loco (23.4.7)

(*Suaedion verae*, *Sarcocornietalia fruticosae*, *Sarcocornietea fruticosae*)

Typus associatio: Canary Islands, Lanzarote: Jameos del Agua, alt. 2 m., 10 m². Characteristic species: 5 *Suaeda vera*, + *Frankenia capitata*, + *Zygophyllum fontanesii* (terr.). Companion species: + *Lycium intricatum*.

Characteristic species (territorials): *Suaeda vera*, *Zygophyllum fontanesii*.

Diagnosis: Halophilous, slightly nitrophilous association, distributed at least in the central eastern part of the Canary Islands. It is characterized by the thick-leaved nanophanerophyte widemediterranean *Suaeda vera*, as well as by the casual Canarian or Canarian-Saharan elements living with it such as *Zygophyllum fontanesii* or *Frankenia capitata*. It grows on incipient saline soils with the influence of salt water, mainly coming from the sea.

[REYES, RIVAS-MARTÍNEZ & WILDPRET]

GALIO IDUBEDAE-NARDETUM STRICTAE (Rivas Goday & Borja 1961) nom. nov. hoc loco (60.4.16 = 60.1.5)

[*Nardetum gudaricum* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 219, tb. 50. 1961 (art. 34, 39)]

Campanulo herminii-Nardion strictae, *Nardetalia strictae*, *Nardetea strictae*)

Typus: Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 219-221, tb. 50, inv. 1. 1961, lectotypus.

Characteristic species (territorial): *Galium idubedae*.

Remarks: *Galio idubedae-Nardetum strictae* (Rivas Goday & Borja 1961) nom. nov. (60.1.5) in *Itinera Geobot.* 14: 132. 2001, placed in *Carici macrostyli-Nardion strictae* (*Nardion strictae*) should be removed into *Campanulo herminii-Nardion strictae* (60.4.16).

Distribution: Oroiberian Maestracensean supra-orotemperate submediterranean humid.

[RIVAS-MARTÍNEZ]

GALIO VERI-ARRHENATHERETUM BULBOSI (Rivas Goday & Borja 1961) nom. nov. hoc loco (59.4.3)

[*Galio veri-Arrhenatheretum gudaricum* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 260, tb. 63. 1961 (art. 34, 39)]

(*Arrhenatherion, Arrhenatheretalia, Molinio-Arrhenatheretea*)

Typus: Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 260, tb. 63, rel. 4. 1961, lectotypus.

Distribution: Oroiberian Maestracensean supratemperate submediterranean humid.

[RIVAS-MARTÍNEZ]

GENISTA FALCATAE-QUERCETUM PYRENAICAE Penas & T.E. Díaz ass. nova hoc loco (76.7.7)

[*Genista falcatae-Quercetum pyrenaicae* Rivas-Martínez in Penas & T.E. Díaz in *Acta Bot. Malacitana* 10: 157, tb. 2. 1985 (art. 5)]

(*Quercenion pyrenaicae, Quercion pyrenaicae, Quercetalia roboris, Quercetalia Fagetea*)

Typus associatio: Penas & T.E. Díaz in *Acta Bot. Malacitana* 10:157, tb.2, holotypus hoc loco, rel. 2. 1985 [León: Santa Colomba de Somoza. 42° 27'N-6° 18'W. 29TQH30. N, 1200 m, 100 m²]. Characteristic species: 5 *Quercus pyrenaica*, 2 *Genista falcata*, 1 *Festuca braun-blanquetii* (sub. *Festuca heterophylla*), 1 *Melampyrum pratense*, + *Clinopodium vulgare*, + *Doronicum plantagineum*, + *Prunella hastifolia* (sub. *Prunella grandiflora*), + *Viola riviniana*. Companion species: 1 *Avenula sulcata*, 1 *Cruciata glabra*, 1 *Erica arborea*, 1 *Festuca elegans*, 1 *Genista florida* subsp. *polygaliphylla*, + *Achillea millefolium*, + *Agrostis capillaris*, + *Arrhenatherum elatius*, + *Conopodium majus*, + *Cytisus scoparius*, + *Galium divaricatum*, + *Halimium umbellatum*, + *Lotus corniculatus*, + *Luzula campestris*, + *Jasione montana*, + *Sedum forsteranum*, + *Silene italica*, + *Teesdalia nudicaulis*, + *Thymus praecox*, + *Vicia sativa*.

Characteristic species (territorials): *Aquilegia dichroa*, *Genista falcata*, *Genista florida* subsp. *polygaliphylla*, *Omphalodes nitida*, *Quercus pyrenaica*.

Diagnosis: Supramediterranean and upper meso-supratemperate submediterranean, sub-humid to lower hyperhumid, euoceanic, Bercian-Sanabriensean and North Salmanticensean climactical *Quercus pyrenaica* micro-mesoforest community, growing on dystic and humic cambisols seldom on dystic planosols. For this mediterranean and temperate Western West Iberian association head of the serie are diagnostics the broom mantle of *Genistion polygaliphyllae* with *Genista hystrix*, *Cytisus multiflorus* or *Echinospartum ibericum*, the perennial grasslands of *Festucion merinoi*, the seral podzolic heath of *Ericenion aragonensis*, as well as a lot of western iberian nemoral species in the understory such: *Aquilegia dichroa*, *Genista falcata*, *Narcissus triandrus* subsp. *triandrus*, *Omphalodes nitida*, etc. It could be easily differentiated of the more western and oceanic association *Holco mollis-Quercetum pyrenaicae* by its broom mantle dominated by *Cytisus striatus* subsp. *striatus* or *Ulex europaeus* subsp. *europaeus*.

[RIVAS-MARTÍNEZ]

GENISTO SCORPII-CISTETUM LAURIFOLII ass. nova hoc loco (62.2.3)*(Cistion laurifolii, Lavanduletalia stoechadis, Cisto-Lavanduletea)*

Typus associatio: Table 45, rel. 2 [León: San Miguel de Escalada. 30TUN01. 800 m, 40 m²].

Characteristic species (territorials): *Cistus laurifolius*, *Genista scorpius*, *Lavandula pedunculata*, *Lotus corniculatus* subsp. *carpetanus*.

Diagnosis: Supramediterranean subhumid furce-cistus formations in the Castilian Durien-sean Sector and in other semicontinental Mediterranean Central Iberian territories. They are the substituting thicket, on thin soils, of the evergreen oak forests *Junipero thuriferae-Quercetum rotundifoliae* and of the *Quercus faginea* forests *Cephalanthero-Quercetum fagineae*. The superficial soil washing makes it possible the presence of very acidophilous taxa, such as *Cistus laurifolius*, *Halimium umbellatum* subsp. *viscosum* or *Lavandula pedunculata*, together with others which prefer base rich substrata, such as *Genista scorpius* or *Dorycnium pentaphyllum* which get their nutrients deeper in the soil. It can be differentiated from other aulagar-jarales of *Cistion laurifolii*, such as *Lavandulo-Genistetum hystricis*, by the absence in our association of species such as *Genista hystrix*, *Cistus salviifolius*, *Cistus ladanifer*, *Erica cinerea*, *Polygala microphylla*, *Genista cinerascens* or *Cytisus multiflorus*, and by the presence of *Cistus laurifolius* and *Genista scorpius*, absent in *Lavandulo pedunculatae-Genistetum hystricis*.

[PENAS, DE PAZ, M.E. GARCÍA, M.J. LÓPEZ, R. ALONSO, DEL RÍO & F. SALEGUI]

Table 45**62.2.3 *Genisto scorpii-Cistetum laurifolii****(Cistion laurifolii, Lavanduletalia stoechadis, Cisto-Lavanduletea)*

Altitude (1=10m)	90	80	92	79	89	86	<u>86</u>
Number of species	12	11	9	9	13	16	<u>12</u>
Ordinal number	1	2*	3	4	5	6	7
Characteristic species:							
<i>Cistus laurifolius</i>	3	3	4	2	3	5	V
<i>Genista scorpius</i>	1	2	1	2	2	1	V
<i>Lavandula pedunculata</i>	2	2	1	1	1	.	V
<i>Halimium viscosum</i>	2	1	2	1	.	+	V
<i>Thymus mastichina</i>	+	1	+	.	+	.	IV
<i>Lotus carpetanus</i>	1	.	+	.	.	.	II
Companion species:							
<i>Dorycnium pentaphyllum</i>	1	1	+	.	2	1	V
<i>Quercus faginea</i>	+	+	.	+	+	.	IV
<i>Thymus zygis</i>	1	.	1	.	.	1	III
<i>Helichrysum stoechas</i>	1	1	.	+	.	.	III
<i>Arenaria montana</i>	.	1	+	1	.	.	III
<i>Daphne gnidium</i>	.	.	.	.	1	+	II
<i>Quercus rotundifolia</i>	+	+	.	.	.	.	II
<i>Thesium humifusum</i>	+	.	.	+	.	.	II

Other species. Companion species: *Leucanthemum pallens* 1 in 2. *Galium aparine* + in 4. *Crataegus monogyna* 3, *Rosa pouzini* 3, *Brachypodium sylvaticum* 1, *Hypericum perforatum* 1, *Juniperus communis* 1, *Thapsia villosa* + in 5. *Plantago radicata* 2, *Hieracium pilosella* 1, *Linum milletii* subsp. *appressum* 1, *Potentilla reptans* 1, *Teucrium chamaedrys* 1, *Thymelaea pubescens* 1, *Dianthus hispanicus* +, *Ranunculus paludosus* +, *Rhamnus saxatilis* +, *Rosa canina* + in 6.

Localities: 1. León: Villacontilde. 30TUN01. 50 m². 2. Holotypus ass. León: San Miguel de Escalada. 30TUN01. 40 m². 3. León: Santovenia del Monte. 30TTN92. 30 m². 4. León: Cerezales del Condado. 30TUN03. 25 m². 5. León: Casasola de Rueda, Valle de Valmacín. 30TUN122194. NE, 5% , 60 m². 6. León: Villasabariego, El Chopo. 30TUN028131. N, 15%, 25 m². 7. Synthesized table.

GEO RIVALES-CIRSIETUM ROSULATI ass. nova hoc loco (59.7.9)

(*Molinio-Holoschoenion vulgaris*, *Holoschoenetalia vulgaris*, *Molinio-Arrhenatheretea*)

Typus associatio: Table 46, rel. 1 [Jaén: Segura de la Sierra, Rocanales creek. 30S WH3233. 1250 m, 50 m²].

Table 46

59.7.9 *Geo rivales-Cirsietum rosulati*

(*Molinio-Holoschoenion*, *Holoschoenetalia*, *Molinio-Arrhenatheretea*)

Altitude (1=10m)	125	120	128	130	120	<u>124</u>
Number of species	18	22	15	15	17	<u>17</u>
Ordinal number	1*	2	3	4	5	6
Characteristic species:						
<i>Cirsium rosulatum</i>	5	5	4	5	5	V
<i>Hypericum caprifolium</i>	+	+	1	1	2	V
<i>Thalictrum speciosissimum</i>	+	+	+	1	+	V
<i>Peucedanum hispanicum</i>	+	+	+	1	.	IV
<i>Ranunculus granatensis</i>	1	+	1	.	+	IV
<i>Succisella andreae-molinae</i>	+	+	+	.	+	IV
<i>Sonchus aquatilis</i>	1	+	.	+	+	IV
<i>Dactylorhiza elata</i>	+	.	+	+	1	IV
<i>Molinia arundinacea</i>	+	.	+	+	1	IV
<i>Aquilegia hispanica</i>	+	.	+	+	+	IV
<i>Geum rivale</i>	1	1	1	.	.	III
<i>Lysimachia ephemera</i>	+	.	1	.	+	III
<i>Mentha longifolia</i>	+	.	+	.	+	III
<i>Mentha aquatica</i>	+	.	.	+	+	III
Companion species:						
<i>Filipendula vulgaris</i>	+	.	+	.	+	III
<i>Sanguisorba officinalis</i>	+	+	.	.	.	II
<i>Equisetum palustre</i>	+	+	.	.	.	II
<i>Potentilla erecta</i>	+	.	.	+	.	II

Other species. Characteristic species: *Senecio laderoi* + in 2 and 4. *Agrostis stolonifera* +, *Briza media* +, *Epilobium parviflorum* +, *Juncus subnodulosus* + in 2. Companion species: *Cirsium ferox* +, *Equisetum telmateia* + in 4 and 5. *Allium vineale* +, *Anagallis tenella* +, *Cirsium pyrenaicum* +, *Fragaria vesca* +, *Iris pseudacorus* +, *Teucrium scordoides* +, *Tussilago farfara* + in 2. *Knautia arvensis* 1, *Lotus corniculatus* + in 3. *Cystopteris fragilis* +, *Trachelium caeruleum* + in 4. *Parnassia palustris* +, *Schoenus nigricans* + in 5

Localities: 1. Holotypus ass. Jaén: Segura de la Sierra, Rocanales creek. 30S WH3233, 50 m². 2. Jaén: Segura de la Sierra, río Madera. 30S WH 3435, 30 m². 3. Jaén: Siles, Cortijo de la Balasna. 30S WH 3940. 10 m². 4. Jaén: Siles, Arroyo de Cárdenas. 30S WH 3942. 50 m². 5. Jaén: Siles, La Fresnedilla. 30S WH 3744. 50 m². 6. Synthesized table.

Characteristic species (territorials): *Cirsium rosulatum*, *Ranunculus granatensis*, *Succisella andreae-molinae*, *Geum rivale*, *Sanguisorba officinalis*, *Aquilegia hispanica*.

Diagnosis: Tall forbs community characterized by two Subbetic endemic species: *Cirsium rosulatum* and *Succisella andreae-molinae*, and the more general species *Ranunculus granatensis*, *Geum rivale*, *Aquilegia hispanica* and *Sanguisorba officinalis*. It appears in stream edges, in temporary damp soils with oligotrophic waters. The association is endemic of the Subbetic Sector of the Betic Province, where it represents a vicariant of the close tall forb Nevadensian community *Aquilegio-Ranunculetum granatensis*, from which the mentioned subbetic endemic species are lacking.

[RÍOS & ALCARAZ]

Table 47
12.2.7 *Glycerio declinatae-Alopecuretum aequalis*
(Glycerio-Sparganion, Phragmitetalia, Phragmito-Magnocaricetea)

Altitude (1=10m)	180	174	180	207	212	210	210	210	<u>198</u>
Number of species	3	4	4	4	6	6	6	6	5
Ordinal number	1*	2	3	4	5	6	7	8	9
Characteristic species:									
<i>Alopecurus aequalis</i>	4	5	4	4	4	2	3	3	V
<i>Glyceria declinata</i>	2	2	1	1	2	1	1	+	V
Companion species:									
<i>Lythrum portula</i>	.	.	.	1	2	2	2	1	IV
<i>Callitriche brutia</i>	.	.	.	1	2	1	1	1	IV
<i>Drepanocladus exannulatus</i>	.	.	.	.	.	2	3	2	III
<i>Spergularia capillacea</i>	+	.	+	.	.	.	.	.	II
<i>Carex nigra</i>	.	.	.	.	+	+	.	.	II
<i>Juncus articulatus</i>	.	.	.	.	+	.	1	.	II

Other species. Companion species: *Ranunculus peltatus* +, *Veronica scutellata* + in 2. *Corrigiola litoralis* + in 3. *Fontinalis antipyretica* + in 8.

Localities: 1. Holotypus ass. Madrid: Miraflores de la Sierra, East of La Morcuera Pass. 30TVL3020. 8 m². 2. Madrid: Rascafría, La Morcuera pass, peat bog by the refuge. 30TVL2921. 5 m². 3. Madrid: Miraflores de la Sierra, mountain pass eastern from La Morcuera. 30TVL3020. 8 m². 4. Madrid:

Rascafría, Laguna de Peñalara. 30TVL1921. 4 m². 5. Madrid: Rascafría, Peñalara, Zabala refuge. 30TVL1921. 1 m². 6. Madrid: Rascafría, Peñalara, Zabala refuge. 30TVL1921. 1 m². 7. Madrid: Rascafría, Peñalara, Zabala refuge. 30TVL1921. 6 m². 8. Madrid: Rascafría, Peñalara, Zabala refuge. 30TVL1921. 2 m². 9. Synthesized table.

GLYCERIO DECLINATAE-ALOPECURETUM AEQUALIS ass. nova hoc loco (12.2.7)

(*Glycerienion fluitantis*, *Glycerio-Sparganion*, *Nasturtio-Glycerietalia*, *Phragmito-Magnocaricetea*)

Typus associatio: Table 47, rel. 1 [Madrid: Miraflores de la Sierra, East of La Morcuera Pass. 30TVL3020. 1800 m, 8 m²].

Characteristic species (territorials): *Alopecurus aequalis*, *Glyceria declinata*.

Diagnosis: Helophytic grass communities dominated by *Glyceria declinata* and *Alopecurus aequalis*, growing on lakes and ponds of glacial origin that remain inundated in spring by shallow (10-30 cm) cold water, but dessicate during summer. They are known from the upper supramediterranean and oro-cryorosubmediterranean belts of the main ranges of the Iberian Central System (Béjar, Gredos and Guadarrama Mountains; Bejaran-Gredensean and Guadarramean Sectors), but probably they can be found in other high siliceous massifs of western Iberia. In deeper water they are replaced by the amphibious vegetation of *Sparganio angustifolii-Isoetum lereschi*; after summer dessication, their places can be occupied by the annual pioneer communities of *Juncus perpusillus* (*Juncetum perpusilli*).

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

GNAPHALIO ULIGINOSI-SPERGULARIETUM CAPILLACEAE ass. nova hoc loco (9.5.5)

(*Nanocyperion*, *Nanocyperetalia*, *Isoeto-Nanojuncetea*)

Typus associatio: Table 48, rel. 1 [Palencia: Las Llanas. 30TUN7855. 1090 m, 10 m²].

Characteristic species (territorials): *Sisymbrella aspera*, *Spergularia capillacea*.

Diagnosis: Altocarrionese association, mainly with therophytes and geophytes flowering in summer-autumn, and colonizing dried eutrophicated soils at the end of dams in the territory. The amphibian therophytes: *Spergularia capillacea*, *Gnaphalium uliginosum*, *Sisymbrella aspera* and *Lythrum portula* are territorial dominant and characteristic. The absence of characteristics with a Mediterranean character such as: *Mentha cervina*, *Marsilea strigosa* and *Eryngium gallioides* is also significant.

[L. HERRERO, M.E. GARCÍA, T.E. DÍAZ, PENAS & F. SALEGUI]

HALOPHILETUM DECIPIENTIS ass. nova hoc loco (4.1.2)

(*Syringodio-Thalassion*, *Thalassio-Syringodietalia*, *Halodulo wrightii-Thalassietea testudinum*)

Typus associatio: Canary, Tenerife Island: El Palm-Mar at 21 m deep, sandy soil, 0,4 m². Characteristic species: 3 *Halophila decipiens*. Companion species: 1 *Caulerpa racemosa*.

Characteristic species: *Halophila decipiens*.

Diagnosis: Benthic infralittoral thalo-cormophytic sandy substrata community, dominated by the pantropical perennial rhizomatous *Halophila decipiens*, sometimes growing with the also vascular hydrophytic *Cymodocea nodosa* and the thalophytic algae *Caulerpa racemosa* or *Dictyota dichotoma*. The community has been reported from the coast of Tenerife and Gran Canaria Islands down 30 m deep.

[WILDPRET & M.C. GIL]

Table 48

9.5.5 *Gnaphalio uliginosi-Spergularietum capillaceae*
(*Nanocyperion*, *Nanocyperetalia*, *Isoeto-Nanojuncetea*)

Altitude (1=10m)	109	120	111	<u>113</u>
Number of species	10	11	14	<u>12</u>
Ordinal number	1*	2	3	4

Characteristic species:

<i>Spergularia capillacea</i>	4	4	4	3
<i>Lythrum portula</i>	2	1	1	3
<i>Sisymbrella aspera</i>	1	1	1	3
<i>Gnaphalium uliginosum</i>	1	1	1	3
<i>Mentha pulegium</i>	1	1	1	3
<i>Veronica scutellata</i>	1	+	+	3
<i>Ranunculus nodiflorus</i>	1	.	1	2

Companion species:

<i>Alopecurus geniculatus</i>	2	.	2	2
<i>Potentilla reptans</i>	.	+	1	2
<i>Poa supina</i>	.	+	2	2
<i>Equisetum arvense</i>	.	+	1	2

Other species. Characteristic species: *Polygonum maritimum* + in 1. Companion species: *Lysimachia vulgaris* + in 1. *Hernaria glabra* 1, *Eleocharis palustris* + in 2. *Polygonum aviculare* 2, *Anthemis nobilis* 1, *Ranunculus sardous* + in 3.

Localities: 1. Holotypus ass. Palencia: Las Llanas. 30TUN7855. 10 m². 2. Palencia: Pantano de Camporredondo. 30TUN5750. 8 m². 3. Palencia: Estalaya. 30TUN7954. 15 m². 4. Synthesized table.

HELIANTHEMO ALMERIENSIS-SIDERITIDENION PUSILLAE (Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989) suball. nova, stat. nov. hoc loco (64.11b)

[*Helianthemo almeriensis-Sideritidion pusillae* Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez in Itinera Geobot. 2: 82. 1989 (art. 27a, 46H)]

Typus alliancia: *Helianthemo almeriensis-Sideritidetum pusillae* Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez in Itinera Geobot. 2: 82, tb. 10. 1989.

Characteristic species: *Helianthemum almeriense*, *Sideritis ibanyezii*, *Sideritis marmi-*

norensis, *Sideritis osteoxyla*, *Sideritis pusilla* subsp. *alamillensis*, *Sideritis pusilla* subsp. *pusilla*, *Teucrium carolipau* subsp. *fontqueri*, *Teucrium charidemi*, *Teucrium eriocephalum* subsp. *almeriense*.

Diagnosis: Thermomediterranean semiarid-arid calcicolous dwarf scrubs in the Almeriense Sector (64.11.2, 64.11.8, 64.11.9, 64.11.12), geovicariant of those in Alicante-Murcian Sector included in the *Thymo moroderi-Sideritidenion leucanthae* suball. nova (64.11a: 64.11.4, 64.11.5, 64.11.6, 64.11.7, 64.11.10), both included in the alliance *Thymo-Siderition leucanthae* O. Bolòs 1957.

[RIVAS-MARTÍNEZ]

HELICHRYSION OBCONICO-DEVIUM all. nova hoc loco (19.6)

(*Crithmo-Limonietalia*, *Crithmo-Limonietaea*)

Typus alliancia: *Crithmo maritimi-Helichrysetum obconicae* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in Silva Lusit. 7(2): 284. 2000. (19.6.1).

Characteristic species: *Argyranthemum pinnatifidum* subsp. *succulentum*, *Helichrysum devium*, *Helichrysum obconicum*, *Limonium pyramidatum*.

Diagnosis: Madeiran inframediterranean dry and subhumid hyperoceanic coastal chasomophyte communities developed on cliffs and lithosols splashed by marine salt spray.

Crithmo maritimi-Helichrysetum obconicae Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in Silva Lusit. 7(2): 284, tb. 23. 2000 (19.6.1)

Distribution: Madeiran exposed coasts.

[RIVAS-MARTÍNEZ, CAPELO, J.C. COSTA, LOUSÃ, FONTINHA, JARDIM & SEQUEIRA]

HETEROPOGONO CONTORTI-HYPARRHENIETUM SINAICAE ass. nova hoc loco (56.7.8)

(*Hyparrhenion hirtae*, *Hyparrhenietalia hirtae*, *Lygeo-Stipetea*)

Typus associatio: Table 49, rel. 6 [Valencia: El Garbí (Estivella), YJ2597, red sandstone, 600 m, S, 25 m²].

Characteristic species (territorials): *Andropogon distachyos*, *Centaurea saguntina*, *Heteropogon contortus*.

Diagnosis: Perennial subnitrophilous grassland dominated by *Andropogoneae* such as *Hyparrhenia sinaica*, *Andropogon distachyos* and *Heteropogon contortus*. Other taxa such as *Avenula bromoides*, *Centaurea saguntina* or *Galium maritimum* are fine territorial differential taxa. It grows on calcareous or silicic rocky slopes, in the coastal areas of the Valencian-Tarraconense and Setabense Sectors (Catalan-Valencian Subprovince), mostly in the thermomediterranean dry bioclimatic belt, though it also reaches the warm areas of the mesomediterranean dry belt.

[M.B. CRESPO]

Table 49

56.7.8 *Heteropogono contorti-Hyparrhenietum sinaicae*
(*Hyparrhenion hirtae*, *Hyparrhenietalia hirtae*, *Lygeo-Stipetea*)

Altitude (l=10m)	30	23	20	15	50	60	60	10	34
Number of species	15	17	17	21	14	17	19	15	17
Ordinal number	1	2	3	4	5	6*	7	8	9
Characteristic species:									
<i>Hyparrhenia sinaica</i>	2	3	3	4	3	3	3	3	V
<i>Piptatherum coerulescens</i>	1	2	+	1	1	+	1	1	V
<i>Heteropogon contortus</i>	1	2	+	1	+	1	+	1	V
<i>Brachypodium retusum</i>	1	1	1	1	1	1	2	1	V
<i>Psoralea bituminosa</i>	+	+	+	1	+	.	+	+	V
<i>Centaurea saguntina</i>	+	.	.	1	+	1	+	+	IV
<i>Andropogon distachyos</i>	1	.	.	+	1	1	.	+	IV
<i>Avenula bromoides</i>	.	+	.	+	.	+	.	+	III
<i>Stipa parviflora</i>	+	+	+	.	.	.	.	.	III
<i>Lapiedra martinezii</i>	+	.	.	.	.	+	.	+	III
<i>Galium maritimum</i>	.	.	.	.	.	+	+	+	III
Companion species:									
<i>Phagnalon saxatile</i>	1	.	+	+	+	.	1	1	IV
<i>Convolvulus althaeoides</i>	+	+	.	1	.	1	+	.	IV
<i>Chamaerops humilis</i>	.	+	.	+	+	+	.	.	IV
<i>Ballota hirsuta</i>	.	1	+	+	.	.	.	+	III
<i>Lavatera maritima</i>	.	+	+	+	.	.	.	+	III
<i>Lobularia maritima</i>	.	.	1	+	.	+	1	.	III
<i>Dipcadi serotinum</i>	.	.	.	+	.	+	+	+	III
<i>Sonchus tenerrimus</i>	+	+	.	+	.	.	.	.	III
<i>Pallenis spinosa</i>	+	.	+	+	.	.	.	.	III
<i>Cheilanthes maderensis</i>	.	.	.	.	+	+	+	.	III

Other species. Characteristic species: *Dactylis hispanica* + in 5 and 7. Companion species: *Ulex parviflorus* 1 in 1, + in 2. *Euphorbia serrata* + in 1 and 6. *Silene secundiflora* + in 2 and 7. *Silene nocturna* + in 3 and 4. *Centaurea aspera* + in 3 and 6. *Plantago albicans* + in 3 and 6. *Piptatherum miliaceum* + in 4 and 5. *Teucrium pseudochamaepitys* + in 5 and 7. *Convolvulus siculus* +, *Misopates pusillus* + in 2. *Asperula scabra* +, *Dianthus valentinus* +, *Tripodion tetraphyllum* + in 3. *Phagnalon rupestre* +, *Salvia verbenaca* + in 4. *Erodium cicutarium* + in 5. *Centaurea melitensis* +, *Convolvulus arvensis* +, *Sedum sediforme* + in 7. *Ononis pubescens* + in 8.

Localities: 1. Valencia: Montaña Negra (Puçol), YJ3091, marl-argilites. E, 80%, 10 m². 2. Valencia: Cerro Bords (Nàquera), YJ2589, limestones. SW, 90%, 20 m². 3. Valencia: Cerca de la Ermita de Sant Miquel (Llíria), YJ0688, limestones. S, 90%, 10 m². 4. Valencia: Castillo de Sagunto, YJ3395, limestones. S, 100%, 20 m². 5. Valencia: Castillo de Serra, YJ2195, both argilites and red sandstones. S, 80%, 10 m². 6. Holotýpus ass. Valencia: El Garbí (Estivella), YJ2597, red sandstones. S, 70%, 25 m². 7. Castellón: Gátova, YK1205, argilites. S, 90%, 25 m². 8. Castellón: Almenara, cerro del Castillo, YK3804. S, 90%, 25 m². 9. Synthesized table.

HOLCETUM GAYANI ass. nova hoc loco (50.3.4)*(Molineriellion laevis, Tuberarietalia guttatae, Tuberarietea guttatae)*

Typus associatio: Table 50, rel. 3 [Avila: El Hornillo, at the bottom of Peña del Mediodía. 30TUK1760. 1770 m, 0.5 m²].

Characteristic species: *Holcus gayanus*.

Diagnosis: Therophytic ephemeral grasslands dominated by the endemic *Holcus gayanus* and other grasses as *Anthoxanthum aristatum*. They grow on shallow lithosols developed on siliceous rocks (granites and gneiss) subjected to short episodes of hydromorphy during the spring. They bloom in late spring-early summer, in the vicinity of annual communities belonging to *Trisetum-Agrostietum truncatulae* and *Sedum pedicellato-andegavensis*, and are mainly distributed in the supramediterranean belt of the Carpetan-Leonese mountains.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

Table 50
50.3.4 *Holcetum gayani*

(Molineriellion laevis, Tuberarietalia guttatae, Tuberarietea guttatae)

Altitude (1=10m)	176	170	177	180	135	135	210	203	140	128	<u>165</u>
Number of species	8	9	7	7	7	9	12	9	12	15	<u>10</u>
Ordinal number	1	2	3*	4	5	6	7	8	9	10	11
Characteristic species:											
<i>Holcus gayanus</i>	3	3	3	3	3	3	3	3	3	3	V
<i>Teesdalia nudicaulis</i>	1	+	1	2	.	.	1	1	1	2	V
<i>Micropyrum tenellum</i>	1	1	1	3	+	1	.	.	1	.	IV
<i>Logfia minima</i>	.	1	1	1	.	1	+	+	+	.	IV
<i>Trisetum ovatum</i>	.	.	+	+	+	+	.	.	+	.	III
<i>Anthoxanthum aristatum</i>	2	1	.	.	.	.	.	.	2	4	III
<i>Spergula morisonii</i>	1	.	+	+	.	.	.	.	.	.	II
<i>Molineriella laevis</i>	.	.	.	.	.	.	.	+	1	1	II
<i>Periballia involucreta</i>	.	.	.	.	2	1	.	.	.	.	II
<i>Sedum arenarium</i>	.	.	.	.	.	.	1	1	.	.	II
<i>Moenchia erecta</i>	.	.	.	.	.	.	.	.	1	1	II
<i>Sedum pedicellatum</i>	.	.	.	.	.	.	.	.	1	1	II
<i>Arnoseris minima</i>	.	.	.	.	.	.	.	.	1	+	II
<i>Ornithopus perpusillus</i>	.	.	.	.	.	.	.	.	+	1	II
Companion species:											
<i>Agrostis truncatula</i>	1	1	1	1	2	2	2	2	.	.	V
<i>Rumex pyrenaicus</i>	1	+	.	.	1	1	1	+	.	1	IV

Other species. Characteristic species: *Campanula lusitanica* 1 in 7. *Jasione echinata* 1, *Leontodon longirostris* 1, *Hypochoeris glabra* +, *Logfia gallica* + in 10. Companion species: *Briófitos* 2 in 1, 1 in 2. *Poa bulbosa* 1 in 2 and 9. *Corynephorus canescens* + in 5, 1 in 6. *Sedum brevifolium* 1 in 7, + in 8. *Allium gredense* + in 7 and 8. *Arenaria querioides* + in 6. *Conopodium ramosum* 2, *Juncus capitatus* +, *Nardus stricta* + in 7. *Crepis capillaris* +, *Vulpia bromoides* + in 10.

Localities: 1. Ávila: Solana de Ávila, Laguna del Duque. 30TTK704648. 1 m². 2. Ávila: Solana de Ávila, Laguna del Duque. 30TTK707648. 1 m². 3. Holotypus ass. Ávila: El Hornillo, at the bottom of Peña del Mediodía. 30TUK1760. 0.5 m². 4. Ávila: El Hornillo, at the bottom of Peña del Mediodía. 30TUK1760. 0.5 m². 5. Ávila: El Hornillo, Peña del Mediodía, Garganta del Arroyo de Aguas Frías. 30TUK1859. 0.5 m². 6. Ávila: El Hornillo, Peña del Mediodía, Aguas Frías creek. 30TUK1859. 0.5 m². 7. Ávila: Sierra de Gredos, San Juan de Gredos, between Gargantón and Portilla del Rey. 30TUK0858. 4 m². 8. Ávila: Sierra de Gredos, Navalperal de Tormes, South exposures in Circo Pozas. 30TUK0859. 1 m². 9. Madrid: Between La Morcuera pass and Rascafría. 30TVL2925.W, 1 m². 10. Madrid: Between Miraflores and La Morcuera pass. 30TVL3419. SW, 7 m². 11. Synthesized table.

HUGUENINIETUM SUFFRUTICOSAE ass. nova hoc loco (42.1.9)

(*Adenostylenion pyrenaicae*, *Adenostylienion alliariae*, *Adenostyletalia*, *Mulgedio-Aconitetea*)

Typus associatio: Table 51, rel. 1 [Huesca: Benasque, Plan del Hospital, Valleta Blanca. 42° 41'N-0° 37'E. 1780 m, N, 30%, 10 m²].

Characteristic species: *Hugueninia tanacetifolia* subsp. *suffruticosa*.

Diagnosis: Semi-shaded uppersupra-orotemperate humid-Pyrenean uncommon soft megaforb community, characterized by *Hugueninia suffruticosa*, growing on calcareous winter snowy gullies and edges on mesic or humid filtrable soils rich in organic matter. Similar geovicariant community can be found also in Orocantabrian (León, Babia, Puente de las Palomas).

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

Table 51

42.1.9 *Hugueninietum suffruticosae*

(*Adenostylienion alliariae*, *Adenostyletalia*, *Mulgedio-Aconitetea*)

Altitude (I=10m)	178	177	137	188	<u>181</u>
Number of species	11	13	13	15	<u>13</u>
Ordinal number	1*	2	4	3	5
Characteristic species:					
<i>Hugueninia suffruticosa</i>	4	3	3	4	4
<i>Adenostyles pyrenaica</i>	2	3	1	2	4
<i>Meconopsis cambrica</i>	1	2	2	.	2
<i>Scrophularia alpestris</i>	1	+	.	.	2
<i>Aconitum vulgare</i>	+	+	.	.	2
<i>Angelica sylvestris</i>	.	+	1	.	2
<i>Geranium sylvaticum</i>	.	.	2	2	2
Companion species:					
<i>Arabis alpina</i>	3	1	.	1	3
<i>Dactylis glomerata</i>	.	+	2	+	3
<i>Alchemilla xanthochlora</i>	1	.	2	.	2
<i>Polystichum lonchitis</i>	1	.	.	2	2
<i>Urtica dioica</i>	.	1	1	.	2

Other species. Characteristic species: *Heracleum pyrenaicum* 1, *Impatiens balfourii* 1, *Valeriana pyrenaica* 1 in 3. *Myrrhis odorata* 2 in 4. Companion species: *Epilobium lanceolatum* 1, *Phleum alpinum* 1, *Poa brevifolia* 1 in 1. *Poa nemoralis* +, *Sisymbrium chrysanthum* +, *Urtica dioica* + in 2. *Knautia arvernensis* 2, *Filipendula ulmaria* + in 3. *Valeriana montana* 2, *Anemone hepatica* 1, *Cystopteris pseudoregia* 1, *Rubus idaeus* 1, *Dryopteris filix-mas* +, *Polystichum aculeatum* +, *Polystichum x illyricum* +, *Ranunculus acer* + in 4

Localities: 1. Holotypus ass. Huesca: Benasque, Plan del Hospital, Valleta Blanca. 42° 41'N-0° 37'E. N, 30%, 10 m². 2. Huesca: Benasque, Plan del Hospital, Valleta Blanca. N, 20%, 20 m². 3. Lérida: Tavascán, Ribera de Tavascán. NE, 20%, 20 m². 4. Huesca: Benasque, Pleta de Paderna. N, 40%, 20 m². 5. Synthesized table.

IBERIDO SAXATILIS-ERINACEETUM ANTHYLLIDIS G. Navarro ass. nova hoc loco (52.7.18 = 64.5.12)

[*Iberido ibericae-Erinaceetum anthyllidis* G. Navarro in Opusc. Bot. Pharm- Complut. 5: 36, tb. 16. 1989 (art. 2c)]

(*Sideritido fontquerianae-Arenarion microphyllae*, *Festuco hystricis-Poetalia ligulatae*, *Festuco-Ononidetea*)

Typus associatio: G. Navarro in Opusc. Bot. Pharm. Complut. 5: 38, tb. 16, rel. 3. Holotypus hoc loco. [Soria: Beratón, calcareous tableland south of the village. W, 5%, 100 m²]. Characteristic species: 3 *Erinacea anthyllis*, 3 *Festuca hystrix*, 2 *Anthyllis montana*, 2 *Carex humilis*, 2 *Coronilla minima*, 1 *Arenaria microphylla*, 1 *Carduncellus monspelliensis*, 1 *Erysimum gorbearum*, 1 *Festuca gautieri*, 1 *Fumana procumbens*, 1 *Iberis saxatilis*, 1 *Koeleria vallesiana* var. *abbreviata*, 1 *Linum milletii* subsp. *appressum*, 1 *Ononis striata*, + *Arenaria grandiflora*. Companion species: 2 *Teucrium expansum*, 2 *Thymus vulgaris*, 1 *Avenula bromoides*, 1 *Rhamnus saxatilis*, 1 *Sideritis linearifolia*, 1 *Thymus grex praecox*, + *Anthyllis vulneraria*, + *Cerastium arvense*, + *Genista scorpius*, + *Globularia vulgaris*, + *Juniperus hemisphaerica*, + *Juniperus sabina*, + *Thesium divaricatum*.

Characteristic species (territorials): *Erinacea anthyllis*, *Iberis saxatilis*, *Arenaria erinacea* subsp. *microphylla*, *Festuca gautieri*.

Diagnosis: Sorian Oroiberian upper supratemperate humid basophilous grassland with ephemeral snow cover and usual cryoturbation phenomena rich in dwarf cushion scrub and decumbent hemicryptophytes.

[RIVAS-MARTÍNEZ]

INULETUM REVOLUTAE O. Bolòs ass. nova hoc loco (34.12.5 = 34.6.5)

[*Inuletum revolutae* O. Bolòs in Phytocoenologia 2(1-2): 145, tb. 2. 1975 (art. 3b)]

(*Bromo-Piptatherion miliacei*, *Agropyretalia repentis*, *Artemisietea vulgaris*)

Typus associatio: O. Bolòs in Phytocoenologia 2 (1-2): 145, tb. 2, rel. 1. Holotypus hoc loco, 1975 (sub *Inuletum revolutae* prov.). [Algarve: Barrocal da Gralheira]. Characteristic species: 5 *Inula revoluta*, + *Convolvulus althaeoides*, + *Piptatherion miliaceum*. Companion species: 4 *Oxalis pes-caprae*, 1 *Avena barbata*, + *Bromus madritensis*, + *Convolvulus arvensis*, + *Pistacia lentiscus*, + *Trifolium angustifolium*.

Characteristic species: *Inula viscosa* subsp. *revoluta*.

Diagnosis: Perennial subnitrophilous community from South Portugal and surrounding areas, occupying permanently abandoned cultivation fields, slopes, suburban areas, etc. It comes after the pioneer therophytic seasonal vegetation of the *Chenopodietalia muralis* or *Thero-Brometalia*, and even forms mosaics with those. The association is well characterized by the South Alentejan and Algarvian endemic *Inula viscosa* subsp. *revoluta*, and can be considered as geovicarious of the wide Mediterranean *Inulo viscosae-Piptatheretum miliacei*.

[RIVAS-MARTÍNEZ]

JASIONO BREVISEPALAE-FESTUCETUM CURVIFOLIAE ass. nova hoc loco (49.3.2)

[*Jasiono brevisepalae-Festucetum aragonensis* M.E. García, L. Herrero, T.E. Díaz & Penas in M.E. García 1990 nom. inval. (art. 1)]

(*Teesdaliopsio-Luzulion caespitosae*, *Festucetalia indigestae*, *Festucetea indigestae*)

Typus associatio: Table 52, rel. 5 [Palencia: Camporredondo de Alba, El Viejo. 30TUN6147. 1790 m, N, 5%, 12 m²].

Table 52

49.3.2 *Jasiono brevisepalae-Festucetum curvifoliae*

(*Teesdaliopsio-Luzulion caespitosae*, *Festucetalia indigestae*, *Festucetea indigestae*)

Altitude (1=10m)	178	180	178	175	179	172	170	<u>176</u>
Number of species	10	11	11	12	12	12	14	<u>12</u>
Ordinal number	1	2	3	4	5*	6	7	8

Characteristic species:

<i>Festuca curvifolia</i>	3	2	2	2	2	2	3	V
<i>Luzula caespitosa</i>	2	2	3	3	3	3	2	V
<i>Jasione brevisepala</i>	1	1	1	1	1	1	1	V
<i>Sempervivum cantabricum</i>	+	1	+	+	+	+	1	V
<i>Dianthus langeanus</i>	1	+	.	+	1	+	+	V
<i>Hieracium loscosianum</i>	+	.	.	1	+	1	.	III
<i>Minuartia recurva</i>	.	1	1	.	.	1	1	III
<i>Silene elegans</i>	.	.	1	.	1	1	1	III
<i>Leucanthemopsis virescens</i>	.	.	+	.	+	.	.	II

Companion species:

<i>Agrostis durieui</i>	1	1	1	1	1	1	1	V
<i>Avenella iberica</i>	1	1	1	1	1	1	1	V
<i>Sedum brevifolium</i>	+	+	.	+	+	+	+	V
<i>Solidago virgaurea</i>	.	+	.	+	.	+	+	III
<i>Leontodon autumnalis</i>	+	1	.	.	1	.	.	III
<i>Antennaria dioica</i>	.	.	+	1	.	.	1	III

Other species. Companion species: *Avenula sulcata* + in 4 and 7. *Rumex acetosella* + in 3. *Sedum pyrenaicum* + in 7.

Localities: 1. Palencia: Camporredondo de Alba, El Viejo. 30TUN6147. N, 5%, 10 m². 2. Palencia: Camporredondo de Alba, Cueto Palomo. 30TUN6147. N, 5%, 20 m². 3. Palencia: Camporredondo de Alba, Cueto Palomo. 30TUN6147. N, 2%, 10 m². 4. Palencia: Velilla de Tarilonte, Castros Negros. 30TUN6446. NW, 2%, 20 m². 5. Holotypus ass. Palencia: Camporredondo de Alba, El Viejo. 30TUN6147. N, 5%, 12 m². 6. Palencia: Valcovero, El Reguilón. 30TUN5946. N, 2%, 15 m². 7. Palencia: Valcovero, El Reguilón. 30TUN5946. N, 5%, 18 m². 8. Synthesized table.

Characteristic species (territorials): *Festuca curvifolia*, *Hieracium loscosianum*, *Jasionne crispa* subsp. *brevisepala*, *Luzula caespitosa*.

Diagnosis: Psicroxerophilous acidophilous and submediterranean orotemperate hyperhumid grasslands, growing in lithosols and podzolized "brown soils" (cambisols) in the Orocantabric continental territories of the meridional slopes of the Cantabrian Range. They seem to be at its optimum in the quartzite crests above 1700 m, and alternate or replace the climatophilous dwarf juniper vegetation of *Vaccinio myrtilli-Juniperetum nanae jasionetosum brevisepalae*. The Guadarramean and Sorian Oroiberian endemic *Festuca curvifolia* seems to be the most characteristic element of this association, together with *Minuartia recurva*, *Hieracium loscosianum* and *Leucanthemopsis pallida* subsp. *virescens*. The absence of *Festuca eskia*, *Festuca gredensis* and *Teesdaliopsis conferta* is also significant, and lets us differentiate it from the more oceanic Orocantabric orotemperate association *Teesdaliopsis confertae-Festucetum eskiae*, and from the more western Bercian-Sanabriensean *Teesdaliopsis confertae-Festucetum summilusitanae*.

[M.E. GARCÍA, L. HERRERO, T.E. DÍAZ, PENAS & F. SALEGUI]

JUNIPERO LAGUNAE-QUERCETUM SUBERIS ass. nova hoc loco (75.2.4)

(*Quercenion broteroi*, *Quercion broteroi*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Portugal: Bragança, Torre de Moncorvo. 480 m, SW, 20%, 18 m, 50 cm, 400 m². Characteristic species: 5 *Quercus suber*, 2 *Juniperus oxycedrus* subsp. *lagunae*, 2 *Osyris alba*, 1 *Arbutus unedo*, 1 *Daphne gnidium*, 1 *Quercus broteroi* (S2), 1 *Asplenium onopteris*, + *Rubia peregrina*. Companion species: 2 *Luzula forsteri*, 2 *Teucrium scorodonia*, 2 *Tamus communis*, 2 *Asphodelus aestivus*, 2 *Cytisus multiflorus*, 2 *Geranium purpureum*, 1 *Cytisus scoparius* subsp. *bourgaei*, + *Lavandula sampaioana*, + *Cistus populifolius*, 1 *Ranunculus ollissiponensis*, 1 *Umbilicus rupestris*, 1 *Aristolochia paucinervis*, + *Cistus psilosepalus*, + *Genista falcata*, + *Sedum hirsutum*, + *Geranium lucidum*, + *Anthriscus caucalis*.

Characteristic species (territorials): *Arbutus unedo*, *Cytisus multiflorus*, *Genista falcata*, *Juniperus oxycedrus* subsp. *lagunae*, *Osyris alba*, *Retama sphaerocarpa*, *Quercus suber*, *Ranunculus carpetanus*.

Diagnosis: Cork-oak (*Quercus suber*) and Laguna Juniper (*Juniperus oxycedrus* subsp. *lagunae*) climatophilous and edaphoxerophilous micro and mesoforests growing on meta-

morphic or plutonic siliceous almost shallow soils in mesomediterranean dry and lower subhumid bioclimatic belt in Lusitan Duriensean Sector. The marginal and substitution broom community belongs to *Cytiso multiflori-Retametum sphaerocarphae*.

[RIVAS-MARTÍNEZ, AGUIAR, CANTÓ & LADERO]

JUNIPERO SABINAE-PINETUM MAURETANICAE ass. nova hoc loco (74.1.3)

[*Daphno hispanicae-Pinetum sylvestris pinetosum clusiana* Rivas Goday in Collect. Bot. (Barcelona) 7(2): 1002, tb. 1. 1968 (p.p., excl. rel. 4 & 5)]

(*Junipero sabiniae-Pinon ibericae*, *Junipero sabiniae-Pinetalia sylvestris*, *Junipero sabiniae-Pinetea sylvestris*)

Typus associatio: Rivas Goday in Collect. Bot. (Barcelona) 7(2): 1002, tb. 1, rel. 6. 1968. Holotypus hoc loco. [Jaén: Sierra de Cazorla, Cabañas summit. 37° 47'N-2° 57'W. NO, 2000 m, 15%, 500 m²]. Characteristic species: 4 *Pinus nigra* subsp. *mauretanica*, 3 *Juniperus sabinia*, 1 *Juniperus communis* subsp. *hemisphaerica*, 1 *Lonicera splendida*, 1 *Ononis aragonensis*, 1 *Rosa sicula*, + *Aquilegia pyrenaica* subsp. *cazorlensis*, + *Cotoneaster granatensis*, + *Daphne oleoides* subsp. *hispanica*, + *Epipactis atrorubens*, + *Erysimum cazorlense*, + *Galium debeauxi*, + *Geum heterocarpum*, + *Orchis cazorlensis*, + *Poa flaccidula*, + *Polygala boissieri*, + *Prunus prostrata*, + *Satureja acinos* subsp. *meridionalis*. Companion species: 2 *Berberis hispanica*, 2 *Erinacea anthyllis*, 1 *Amelanchier ovalis*, + *Anthyllis vulneraria* subsp. *microcephala*, + *Bupleurum ranunculoides* subsp. *gramineum*, + *Campanula rotundifolia*, + *Cerastium gibraltarium*, + *Erigeron acer*, + *Festuca hystrix*, + *Helleborus foetidus*, + *Hepatica nobilis*, + *Jonopsidium prolongoi*, + *Poa ligulata*, + *Polystichum lonchitis*, + *Primula veris*, + *Senecio adonidifolius*, + *Seseli granatense*, + *Silene mellifera*, + *Viola suavis*.

Characteristic species (territorials): *Aquilegia cazorlensis*, *Galium debeauxi*, *Genista pseudopilosa*, *Orchis cazorlensis*, *Pinus nigra* subsp. *mauretanica*.

Diagnosis: Upper supra-oromediterranean, subhumid and lower humid climactical meso-forests communities spread in all high mountains of Subbetic Sector, with a canopy dominated by *Pinus nigra* subsp. *mauretanica* and a dense understory of scrubs as *Juniperus sabinia*, *Juniperus communis* subsp. *hemisphaerica*, *Ononis aragonensis*, *Daphne oleoides* subsp. *hispanica*, *Rosa sicula*, etc. as well as a lot of other perennial semi-shaded plants, growing on humic nutrient-rich soils.

[RIVAS-MARTÍNEZ, GÓMEZ-MERCADO & F. VALLE]

LAGURO OVATI-SILENETUM BALEARICAE ass. nova hoc loco (50.7.4)

(*Alkanno-Maresion nanae*, *Cutandietalia maritimae*, *Tuberarietea guttatae*)

Typus associatio: Table 53, rel. 7 [Mallorca. Campos (Platja de Ses Covetes). 1,5 m²].

Characteristic species: *Silene sericea* var. *balearica*.

Diagnosis: Therophytic ephemeral sandy community found in open areas of meridional coastal sand dunes in Majorca Island.

[LLORENS & GIL]

Table 53

50.7.4 *Laguro ovati-Silenetum balearicae**(Alkanno-Maresion nanae, Cutandietalia maritimae, Tuberarietea guttatae)*

Altitude (1=10 m)	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	<u>0-1</u>
Number of species	15	13	10	9	6	8	10	9	13	7	9	10	<u>10</u>
Ordinal number	1	2	3	4	5	6	7*	8	9	10	11	12	
Characteristic species:													
<i>Lagurus ovatus</i>	+	1	2	+	.	+	2	2	1	+	1	V	
<i>Vulpia membranacea</i>	+	+	+	1	.	.	+	+	2	+	2	V	
<i>Silene balearica</i>	2	.	1	2	3	2	2	1	.	2	1	V	
<i>Pseudorlaya pumila</i>	+	+	2	1	1	.	1	.	.	.	+	IV	
<i>Maresia nana</i>	+	+	1	.	1	+	+	+	.	.	.	IV	
<i>Cutandia maritima</i>	1	.	.	.	1	+	1	.	+	.	+	III	
<i>Rumex bucephalophorus</i>	.	1	+	.	.	.	+	.	+	+	.	III	
<i>Medicago littoralis</i>	+	1	.	.	.	+	.	.	.	.	.	II	
<i>Polycarpon alsinifolium</i>	.	+	.	.	.	.	.	.	+	.	+	II	
Companion species:													
<i>Arenaria leptoclados</i>	+	+	.	.	.	.	.	+	+	1	+	III	
<i>Lotus cytisoides</i>	+	+	.	.	+	+	.	+	.	.	+	III	
<i>Reichardia tingitana</i>	+	.	.	+	.	+	+	+	1	.	.	III	
<i>Valantia muralis</i>	+	1	+	.	.	.	+	.	+	.	.	III	
<i>Cerastium semidecandrum</i>	+	+	.	.	.	.	.	.	1	1	.	II	
<i>Teucrium dunense</i>	+	.	.	+	.	+	.	.	+	.	.	II	
<i>Minuartia mediterranea</i>	+	.	.	+	.	.	.	.	+	.	+	II	
<i>Pancratium maritimum</i>	.	+	+	+	.	.	+	.	.	.	.	II	
<i>Allium roseum</i>	.	.	+	+	.	.	.	+	+	.	.	II	

Other species. Companion species: *Polypogon subspathaceus* + in 2, 9 and 10. *Crucianella maritima* + in 1 and 8. *Aetheorhiza bulbosa* 1 in 3 and 5.

Localities: 1. Mallorca. Campos. Platja de Sa Ràpita. 2 m². 2. Mallorca. Campos. Platja de Ses Covetes. 1 m². 3. Mallorca. Campos. Platja de Sa Ràpita. 1 m². 4. Mallorca. Campos. Platja de Sa Ràpita. 1,5 m². 5. Mallorca. Campos. Platja de Ses Covetes. 2 m². 6. Mallorca. Campos. Platja des Trenc. 1 m². 7. Holotypus ass. Mallorca. Campos. Platja de Ses Covetes. 1,5 m². 8. Mallorca. Campos. Platja des Trenc. 1,5 m². 9. Mallorca. Ses Salines. Platja des Carbó. 2 m². 10. Mallorca. Campos. Platja des Trenc. 2 m². 11. Mallorca. Campos. Platja des Trenc. 1 m². 12. Synthesized table.

LAURO AZORICAE-JUNIPERETEA BREVIFOLIAE classis nova hoc loco (73)

Typus classis: *Ericetalia azoricae* Lüpnitz in Bot. Jahrb. 95(2): 155. 1975.

Characteristic species: *Carex peregrina*, *Dryopteris crispifolia*, *Erica azorica*, *Euphorbia stygiana*, *Hedera azorica*, *Ilex azorica*, *Lysimachia azorica*, *Myrsine retusa*, *Platanthera micrantha*, *Smilax divaricata*.

Diagnosis: Azorean evergreen broad-leaved micro-mesoforests (“laurisilva”) and related matle or seral thickets, thermo- to supratemperate humid to ultrahyperhumid hyperoceanic, rather submediterranean, growing on shallow or deep andosols.

Ericetalia azoricae Lüpnitz in Bot. Jahrb. 95(2): 155. 1975 (73a)

Typus ordo: *Culcito macrocarpae-Juniperion brevifoliae* Sjögren ex Lüpnitz in Bot. Jahrb. 95(2): 155. 1975.

Characteristic species: see classis.

Diagnosis: We recognize three alliances: *Pittosporo-Myricion* (infra-thermotemperate humid submediterranean microforests with strong anthropogenic influence), *Culcito-Juniperion brevifoliae* (from thermotemperate to supratemperate ultrahyperhumid; *Culcito-Juniperion* = microforest on lithosols, *Pteridio-Ericenion azoricae* = seral thicket and mantle) and *Dryopterido-Laurion azoricae* (meso-supratemperate mesic or hydric natural potential micro-mesoforest vegetation on developed andosols).

Culcito macrocarpae-Juniperion brevifoliae Sjögren ex Lüpnitz in Bot. Jahrb. 95(2): 155. 1975 (73.1)

Typus alliancia: *Daphno-Ericetum azoricae* Lüpnitz in Bot. Jahrb. 95(2): 156, tb. 2. 1975 (holotypus, art. 17).

Characteristic species: *Corema azorica*, *Daphne azorica*, *Juniperus brevifolia*, *Vaccinium cylindraceum*, *Viburnum subcordatum*.

Diagnosis: Infra- to supratemperate humid to ultrahyperhumid edaphoxerophilous microforests on lithosols, mantle and seral heaths of *Erica azorica*.

Culcito macrocarpae-Juniperion brevifoliae (73.1a) (art. 28)

Typus suballiancia: *Daphno-Ericetum azoricae* Lüpnitz in Bot. Jahrb. 95(2): 156, tb. 2. 1975.

Characteristic species: [see alliancia 73.1.].

Diagnosis: Infra- to supratemperate edaphoxerophilous microforests on lithosols or shallow soils.

Cerastio vulgare-Juniperetum brevifoliae Lüpnitz 1976 corr. hoc loco (73.1.1)

[*Cerastio vagantis-Juniperetum brevifoliae* Lüpnitz in Beitr. Biol. Pflanzen 51: 290, tb. 27. 1976 (art. 43)]

Distribution: Infra- to lower mesotemperate humid-hyperhumid microforests on lithosols.

Daphno azoricae-Ericetum azoricae Lüpnitz in Bot. Jahrb. 95(2): 156, tb. 2. 1975 (73.1.2)

Distribution: Meso-supratemperate hyper-ultrahyperhumid microforest organized by *Juniperus brevifolia*, *Viburnum subcordatum*, *Ilex azorica*, *Daphne laureola* subsp. *azorica* and *Myrsine retusa*, growing on lava fields.

Pteridio pubescentis-Ericenion azoricae suball. nova hoc loco (73.1b)

Typus suballiancia: *Pteridio pubescentis-Ericetum azoricae* ass. nova hoc loco.

Characteristic species (territorial): *Pteridium aquilinum* var. *pubescens*.

Diagnosis: Mantle of *Juniperus* or *Laurus* forests and seral thickets dominated by *Erica azorica*, as well as permanent coastal aerohaline heaths organized by *Corema azorica*.

Pteridio pubescentis-Ericetum azoricae ass. nova hoc loco (73.1.4)

[*Pteridio aquilini-Ericetum azoricae* ass. nova (Addenda) in Itinera Geobot. 14: 164. 2001]

Typus associatio: Table 54, rel. 3 [Açores, Ilha do Pico: Misterios da Prainha, Chã Verde. 38° 22'N-28° 12'W. 540 m, N, 40 m²].

Characteristic species (territorials): *Erica azorica*, *Pteridium aquilinum* var. *pubescens*.

Diagnosis: Seral thicket and heath mantle community of temperate Azorean laurisilva, organized by *Erica azorica*, *Pteridium aquilinum* var. *pubescens*, *Hypericum foliosum* and *Vaccinium cylindraceum*.

Table 54

73.1.4 *Pteridio pubescentis-Ericetum azoricae*

(*Culcito-Juniperion brevifoliae*, *Ericetalia azoricae*, *Lauro-Juniperetea*)

Altitude (1=10m)	55	58	54	$\overline{55}$
Number of species	11	12	14	$\overline{12}$
Ordinal number	1	2	3*	4
Characteristic species:				
<i>Erica azorica</i>	5	5	4	3
<i>Pteridium pubescens</i>	2	3	2	3
<i>Hypericum foliosum</i>	2	1	1	3
<i>Vaccinium cylindraceum</i>	1	2	+	3
<i>Luzula purpureo-splendens</i>	+	2	2	3
<i>Myrsine retusa</i>	+	1	.	2
Companion species:				
<i>Sibthorpia europaea</i>	1	1	+	3
<i>Potentilla anglica</i>	1	.	1	2
<i>Blechnum spicant</i>	3	2	.	2
<i>Avenella foliosa</i>	1	+	.	2

Other species. Characteristic species *Lysimachia azorica* 2, *Platanthera micrantha* + in 2. *Hedera azorica* 2, *Rubia azorica* 2, *Myrica faya* 1, *Pittosporum undulatum* 1, *Juniperus brevifolia* + in 3. Companion species: *Teucrium scorodonia* 2 in 1. *Culcita macrocarpa* 2 in 2. *Rubus inermis* 2, *Hedychium gardnerianum* + in 3.

Localities: 1, 2. Açores, Ilha Terceira: Sanguinhal. 38° 44'N-27° 14'W. N, 50 m². 3. Holotypus ass. Açores, Ilha do Pico: Misterios da Prainha, Chã Verde. 38° 22'N-28° 12'W. N, 40 m². 4. Syntesized table.

Festuco petraeae-Corematetum azoricae ass. nova hoc loco (73.1.3)

Typus associatio: Table 55, rel. 3 [Açores: Ilha do Pico, Faro de Manhenha. 38° 23'N-28° 15'W. SE, 10 m, 20 m²].

Characteristic species: *Corema azorica*.

Diagnosis: Submediterranean coastal heaths characterized by *Corema azorica* growing on lithosols exposed to marine wind.

Table 55

73.1.3 *Festuco petraeae-Corematetum azoricae*
(*Culcito-Juniperion brevifoliae*, *Ericetalia azoricae*, *Lauro-Juniperetea*)

Altitude (1=10m)	1	0.5	1	<u>1</u>
Number of species	6	6	4	5
Ordinal number	1	2	3*	4
Characteristic species:				
<i>Corema azorica</i>	3	3	3	3
<i>Erica azorica</i>	3	2	3	3
<i>Juniperus brevifolia</i>	.	+	+	2
<i>Myrica faya</i>	+	.	.	1
Companion species:				
<i>Festuca petraea</i>	1	2	+	3
<i>Daucus azoricus</i>	+	+	.	2
<i>Ornithopus pinnatus</i>	+	.	.	1
<i>Crithmum maritimum</i>	.	1	.	1

Localities: 1. Açores: Ilha do Pico, Cachorro. 38° 22'N-28° 23'W. N, 50 m². 2, 3. Ilha do Pico, Faro de Manhenha. 38°d 23'N-28° 15'W. SE, 20 m². Holotypus ass.: rel. 3 4. Syntesized table.

Myrico fayae-Pittosporion undulati Lüpnitz in Beitr. Biol Pflanzen 51: 263. 1976 (73.2)

Typus alliancia: *Hedychio-Pittosporium undulati* Lüpnitz in Beitr. Biol Pflanzen 51: 266, tb. 22. 1976.

Characteristic species: *Hedychium gardneranum*, *Myrica faya* (terr.), *Picconia azorica*, *Pittosporum undulatum*.

Diagnosis: Thermotemperate submediterranean humid microforests strongly disturbed by human activities and often replaced by synanthropic trees and other perennial exotic plants.

***Carici hochstetterianae-Picconietum azoricae* ass. nova hoc loco (73.2.1)**

Typus associatio: Table 56, rel. 1 [Açores, Ilha do Faial: Varadouro. 38° 34'N-28° 43'W. 20 m, SW, 200 m²].

Characteristic species (territorials): *Carex hochstetteriana*, *Myrica faya*, *Picconia azorica*.

Diagnosis: Thermosubmediterranean humid Azorean potential natural forest vegetation, characterized by *Picconia azorica*, *Myrica faya* and *Carex hochstetteriana*, largely destroyed by farming; particularly on rich soils, but naturally conserved on coastal lava fields and spontaneously regenerated on abandoned vineyards.

Table 56

73.2.1 *Carici hochstetterianae-Picconietum azoricae*
(*Pittosporo-Myricion faya*, *Ericetalia azoricae*, *Lauro-Juniperetea*)

Altitude (1=10 m)	2	2	5	2	3	<u>3</u>
Number of species	12	15	10	11	10	<u>11</u>
Ordinal number	1*	2	3	4	5	6
Characteristic species:						
<i>Picconia azorica</i>	4	2	2	2	3	V
<i>Myrica faya</i>	1	2	3	4	2	V
<i>Pittosporum undulatum</i>	+	2	2	1	2	V
<i>Carex hochstetteriana</i>	+	1	1	1	2	V
<i>Erica azorica</i>	2	3	.	1	.	III
<i>Euphorbia azorica</i>	.	1	+	.	.	II
<i>Juniperus brevifolia</i>	.	2	.	1	.	II
<i>Hedera azorica</i>	.	.	.	+	2	II
<i>Myrsine retusa</i>	.	2	.	.	.	I
<i>Smilax divaricata</i>	.	2	.	.	.	I
Companion species:						
<i>Pteridium pubescens</i>	2	.	2	3	4	IV
<i>Parietaria debilis</i>	2	.	.	1	+	III
<i>Umbilicus gaditanus</i>	+	+	.	.	.	II
<i>Zantedeschia aethiopica</i>	2	.	2	.	.	II
<i>Arisarum vulgare</i>	2	.	1	.	.	II
<i>Ficus carica</i>	.	+	1	.	.	II
<i>Rubus ulmifolius</i>	.	.	2	.	+	II
<i>Solanum sublobatum</i>	.	.	.	+	1	II

Other species. Companion species: *Brachypodium gaditanum* 2, *Cyrtomium falcatum* + in 1. *Daucus azoricus* 1, *Festuca petraea* 1, *Sonchus azoricus* 1 in 2. *Gaudinia coarctata* + in 2. *Polypodium azoricum* + in 4. *Senecio mikanoides* 1 in 5.

Localities: 1. Holotypus ass. Açores, Ilha do Faial: Varadouro. 38° 34' N-28° 43' W. SW, 8 m., 40 cm., 200 m², lava field. 2. Açores, Ilha do Pico: Cachorro. 38° 32' N-28° 25' W. N, 4 m., 25 cm., 200 m², coastal basaltic lithosols. 3. Açores, Ilha do Pico: Caes do Pico. 38° 30' N-28° 16' W. NE, 10 m.,

40 cm., 200 m², old vineyard lava field. 4, 5. Açores, Ilha do Pico: Faro de Manhenga. 38° 23' N-28° 15' W. SW, 10 m., 30 cm., 200 m², old vineyard lava field. 6. Syntesized table.

Hedychio gardnerani-Pittosporum undulati Lüpnitz in Beitr. Biol. Pflanzen 51: 266, tb. 22. 1976 [Lectotypus hoc loco: l.c. tb. 22, rel. 8] (73.2.2)

[*Myrico-Pittosporum undulati* Lüpnitz in Beitr. Biol. Pflanzen 51: 271, tb. 23. 1976. (Lectotypus hoc loco: l.c., tb. 23, rel. 9) (syntax. syn.)]

Distribution: Secondary anthropogenic microforest, that replaces, due to human activities, the warmest Azorean temperate laurisilva, and is often dominated by synanthropic plants as the Australian fragrant small tree *Pittosporum undulatum*, and the himalayan herbaceous phanerophyte *Hedychium gardneranum*.

Dryopterido azoricae-Laurion azoricae all. nova hoc loco (73.3)

[*Laurion macaronesticum* sensu Lüpnitz in Beitr. Biol. Pflanzen 51: 248. 1976 non Rübel 1930]

Typus alliancia: *Dryopterido azoricae-Lauretum azoricae* ass. nova hoc loco.

Characteristic species: *Carex vulcani*, *Dryopteris azorica*, *Frangula azorica*, *Laurus azorica*, *Prunus azorica*, *Sanicula azorica*.

Diagnosis: Meso-supratemperate hyperhumid and ultrahyperhumid hyperoceanic Azorean mesic or hydric potential natural micro-mesoforests vegetation growing on developed andosols.

Dryopterido azoricae-Lauretum azoricae ass. nova hoc loco (73.3.1)

[*Lauretum azoricae* sensu Lüpnitz in Beitr. Biol. Pflanzen 51: 251, tb. 30. 1976 non Oberdorfer in Beitr. Naturk. Forsch. Südwestdeutschl. 24(1). 70, tb. 4. 1965, *Lauro-Perseetum indicae* sensu Lüpnitz in Beitr. Biol. Pflanzen 51: 257, tb. 21. 1976 non Oberdorfer in Beitr. Naturk. Forsch. Südwestdeutschl. 24(1). 70, tb. 4. 1965]

Typus associatio: Table 57, rel. 2 [Açores, Ilha do Pico: Misterios da Painha, Chã Verde. 38°22'N-28°12'W. N, 250 m, 9 m, 35 cm diameter, 500 m²].

Characteristic species (territorials): *Dryopteris azorica*, *Frangula azorica*, *Laurus azorica*, *Lysimachia azorica*.

Diagnosis: Meso-supratemperate hyperhumid Azorean mesic climactical temperate laurisilva growing on andosols.

Woodwardio radicans-Prunetum azoricae ass. nova hoc loco (73.3.2)

Typus associatio: Açores, Ilha do Terceira: Ribera Malha Verde, deep creek, 550 m. 38°43'N-27°16'W. 70 %, 10 m, 25 cm, 200 m². Characteristic species: 3 *Prunus azorica*, 3 *Woodwardia radicans*, 3 *Dryopteris azorica*, 2 *Laurus azorica*, 1 *Ilex azorica*, 1 *Frangula azorica*, + *Vaccinium cylindraceum*, + *Luzula purpureo-splendens*, + *Lysimachia azorica*, + *Sanicula azorica*, + *Hedera azorica*, + *Carex vulcani*. Companion species: 3 *Selaginella krausiana*, 2 *Marchantia* sp., 2 *Rubus hochstetterorum*, 1 *Culcita macrocarpa*, 1 *Blechnum*

spicant, 1 *Diplazium caudatum*, + *Hedychium gardnerianum*, + *Vandenboschia speciosa*, + *Cardamine caldeirarum*.

Table 57

73.3.1 *Dryopterido azoricae-Lauretum azoricae*

(*Dryopterido-Laurion azoricae*, *Ericetalia azoricae*, *Lauro-Juniperetea brevifoliae*)

Altitude (1=10m)	56	54	56	55
Number of species	29	25	16	23
Ordinal number	1	2*	3	4

Characteristic species:

<i>Laurus azorica</i>	3	4	3	3
<i>Dryopteris azorica</i>	3	3	2	3
<i>Frangula azorica</i>	2	2	2	3
<i>Ilex azorica</i>	2	2	1	3
<i>Vaccinium cylindraceum</i>	1	2	2	3
<i>Lysimachia azorica</i>	1	+	1	3
<i>Myrsine retusa</i>	+	2	1	3
<i>Hedera azorica</i>	3	2	.	2
<i>Carex vulcani</i>	1	1	.	2
<i>Carex peregrina</i>	1	+	.	2
<i>Myrica faya</i>	1	+	.	2
<i>Platanthera micrantha</i>	+	+	.	2
<i>Dryopteris crispifolia</i>	+	.	+	2
<i>Juniperus brevifolia</i>	.	+	1	2

Companion species:

<i>Blechnum spicant</i>	2	1	1	3
<i>Diplazium caudatum</i>	2	3	.	2
<i>Rubia agostinhoi</i>	2	2	.	2
<i>Selaginella krausiana</i>	1	3	.	2
<i>Athyrium filix-femina</i>	1	2	.	2
<i>Dryopteris affinis</i>	1	1	.	2
<i>Dryopteris aemula</i>	3	.	2	2
<i>Sibthorpia europaea</i>	1	.	3	2
<i>Pteridium pubescens</i>	+	.	1	2
<i>Culcita macrocarpa</i>	.	2	2	2

Other species. Characteristic species: *Sanicula azorica* 1, *Erica azorica* +, *Smilax divaricata* + in 1. *Luzula purpureo-splendens* 2, *Pittosporum undulatum* 1, *Hypericum foliosum* + in 2. Companion species: *Rubus inermis* 1, *Polypodium azoricum* +, *Rubus ulmifolius* +, *Umbilicus gaditanus* + in 1. *Pteris incompleta* 2, *Trichomanes speciosum* 1 in 2. *Hymenophyllum tunbrigense* 1, *Sphagnum* sp. 1, *Elaphoglossum semicylindricum* + in 3.

Localities: 1. Açores, Illa do Pico: Santa Luzia. 38°30'N-28°25'W. NO, 20%, 12 m, 50 cm, 400 m², deep andosol. 2. Holotypus ass. Açores, Illa do Pico: Misterios da Prainha, Chã Verde. 38°22'N-28°12'W. N, 9 m, 35 cm, 500 m², shallow andosol. 3. Açores, Illa do Terceira: Sanguinhal. 38° 44'N-27° 14'W. N, 30%, 35 cm, 400 m², shallow andosol. 4. Synthesized table.

Characteristic species (territorials): *Prunus azorica*, *Sanicula azorica*, *Woodwardia radicans*.

Diagnosis: Meso-supratemperate hydric climactical microforest vegetation growing on andosols with fluvicor gleyic properties, characterized by *Prunus azorica* and *Sanicula azorica*.

[RIVAS-MARTÍNEZ, LOUSÁ, F. PRIETO, J.C. COSTA, DÍAS & AGUIAR]

LAVANDULION LANATAE (Martínez-Parras, Peinado & Alcaraz 1984) all. nova hoc loco, stat. nov. (64.15)

[*Lavandulenion lanatae* Martínez-Parras, Peinado & Alcaraz in Lazaroa 5: 124. 1984 (art. 27a, 46H)]

(*Convolvuletalia boissieri*, *Rosmarinetea officinalis*)

Typus aliancia: *Centaureo bombycinae-Lavanduletum lanatae* (Rivas Goday & Esteve 1972) Martínez-Parras, Peinado & Alcaraz in Lazaroa 5: 126. 1984 (art. 34). [Nomencl. syn.: *Convolvulo-Lavanduletum dolomiticola* Rivas Goday & Esteve in Anales Real Acad. Farm. 38(3): 446. 1972 Typus ass. (lectotypus): Rivas Goday & Esteve, l.c. tb. 11, rel. 1].

Characteristic species: *Anthyllis plumosa*, *Anthyllis polycephala*, *Anthyllis tejedensis*, *Anthyllis vulneraria* subsp. *argyrophylla*, *Anthyllis vulneraria* subsp. *arundana*, *Arenaria delaguardiae*, *Centaurea bombycina*, *Centaurea gadorensis*, *Centaurea granatensis*, *Fumana procumbens* subsp. *baetica*, *Helianthemum estevei*, *Helianthemum viscarioides*, *Helianthemum viscidulum*, *Lavandula lanata*, *Phlomis crinita* subsp. *composita*, *Rothmaleria granatensis*, *Sideritis occidentalis*, *Sideritis reverchonii*, *Thymelaea angustifolia*.

Diagnosis: Dolomitic communities of South Betic distribution dominated by chamaephytes, thermo- to supramediterranean dry- subhumid bioclimatic belts.

Arenario delaguardiae-Centaureetum bombycinae Mota, F. Valle & Cabello in Vegetatio 109: 35, tb. 4. 1993 (64.15.1)

Distribution: Meso-supramediterranean subhumid Almjarensean in doloclasts.

Convolvulo lanuginosi-Lavanduletum lanatae Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 55, tb. 13. 1969 (64.15.2)

Distribution: Supramediterranean dry to subhumid Gadorensean in dolomitic limestone.

Galio baetici-Thymetum granatensis Mota & F. Valle in Act. Simp. Intern. Bot. P. Font Quer (Lleida, 1988) 2: 285, tb. 3. 1992 (64.15.3)

Distribution: Meso-supramediterranean subhumid Rondean in doloclasts.

Helianthemo visciduli-Anthyllidetum argyrophyllae Rivas Goday & Esteve in Anales Real Acad. Farm. 38(3): 453, tb. 12. 1972 (64.15.4)

[*Centaureo bombycinae-Lavanduletum lanatae* (Rivas Goday & Esteve 1972) Martínez-Parras, Peinado & Alcaraz in Lazaroa 5: 126. 1984 (art. 34)]

Distribution: Thermo-mesomediterranean dry to subhumid Almjarensean in doloclasts.

Thymo gracilis-Lavanduletum lanatae Pérez-Raya & Molero in Mem. Soc. Brot. 28: 147, tb. 4. 1988 (64.15.6)

Distribution: Thermo-mesomediterranean dry Alpujarrean and Granatensean in dolostone.

Ulici baetici-Lavanduletum lanatae Martínez-Parras, Peinado & Cruz in Studia Bot. 6: 43, tb. 2. 1987 (64.15.7)

Distribution: Meso-supramediterranean subhumid-humid Rondean in dolomitic limestone.

Cisto clusii-Ulicetum rivasgodayani Nieto & Cabezudo in Nieto, Cabezudo & Trigo in Acta Bot. Malacitana Bot. Malacitana 14: 163, tb. 1. 1989 (64.15.8 = 64.2.3)

Distribution: Thermomediterranean dry Almjarensan in doloclasts.

[RIVAS-MARTÍNEZ, MOLERO & PÉREZ-RAYA]

LAVANDULO STOECHADIS-CISTETUM MONSPELIENSIS (Lapraz 1974) ass. nova hoc loco, stat. nov. (62.1.6)

[*Cistetum catalaunicum cistetosum monspeliensis* Lapraz in Collect. Bot. (Barcelona) 9: 90, tb. 1974 (basion.) (art. 27d, 46H), *Sarothamnetum cistetosum monspeliensis* (Lapraz 1974) Franquesa 1995 (art. 5, 18), *Lupino angustifolii-Lavanduletum stoechadis* Franquesa 1995 (art. 37)]
(*Cistion ladaniferi*, *Lavanduletalia stoechadis*, *Cisto-Lavanduletea*)

Typus associatio: G. Lapraz in Collect. Bot. (Barcelona) 9: 90, tb., rel. 78. 1974 (lectotypus hoc loco). Barcelona: Mont Negre, entre Vilardel y Gualba de Baix, Serrat Aulet, granit, 160 m, S, 25 %, 80 m². Characteristic species: 5 *Cistus monspeliensis*, 1 *Lavandula stoechas*, + *Calluna vulgaris* f. *mediterranea*, + *Cistus salvifolius*, + *Cytinus hypocistis*. Companion species: 2 *Pinus pinea*, 1 *Ulex parviflorus*, + *Arbutus unedo*, + *Dorycnium suffruticosum*, + *Quercus ilex*, + *Thapsia villosa*.

Characteristic species (territorials): *Calicotome spinosa*, *Centaurea pectinata*, *Cistus monspeliensis*, *Lavandula stoechas* subsp. *stoechas*, *Ulex parviflorus*.

Diagnosis: Mesomediterranean dry Vallesan-Empordanese secondary open scrub silicolous community growing on poor sandy soils.

[RIVAS-MARTÍNEZ]

LAVATERION MARITIMAE all. nova hoc loco (28.5)

(*Parietarietalia*, *Parietarietea*)

Typus alliancia: *Erodietum gausseianum* Rivas-Martínez & Cantó ass. nova hoc loco.

Characteristic species: *Erodium gausseianum*, *Lavatera maritima*, *Piptatherum coeruleum*.

Diagnosis: Rupestrian ornithocoprophilous thermophilous and edaphic indifferent communities, as well littoral as inland, where the short shrub and pulvini chamaephytes are frequent. Well characterized by *Lavatera maritima* and *Piptatherum coerulescens*, as well as a great number of local endemics such as: *Antirrhinum charidemi*, *Erodium crispum*, *Erodium gaussonianum*, *Rosmarinus tomentosus*, etc. They colonize steps, shelves, rocks and crevices visited by birds and rich in other organic debris, in the West Mediterranean basin with thermomediterranean or lower mesomediterranean dry and semiarid bioclimatic belts. All these communities have a strong influence of *Pegano-Salsotea* species.

Antirrhinetum charidemi F. Casas in Trab. Dep. Bot. Univ. Granada 1: 36, tb. 12. 1972 (28.5.1)

Distribution: Thermomediterranean arid Charideman Almeriense in volcanic rocks.

Balloto hirsutae-Lavateretum maritimae Cantó, Laorga & Belmonte in Opusc. Bot. Pharm. Complut. 3: 51, tb. 23. 1986 (28.5.2)

Distribution: Thermomediterranean semiarid and dry Murcian-Almeriense and Balearic-Catalan-Provençal in calcareous rocks.

Erodietum gaussoniani ass. nova hoc loco (28.5.3)

Typus associatio: Table 58, rel. 1. [Huesca: Riglos, Mallo del Cuchillo, Cueva del Palomar. 750 m, SE, 30 m²].

Characteristic species: *Erodium gaussonianum*.

Diagnosis: Association only known from cliffs, crevices, shelves and the base of the outcrops of the conglomerate massifs from the Mallos de Riglos and Agüero. It is well characterized by the Somontane Aragonese Sector endemic *Erodium gaussonianum* accompanied by *Lavatera maritima*. The nitrophilous character of the community is conditioned not only by the birds but also by goats in the more accessible zones and by the quick decomposition of organic materials.

Lavatero maritimae-Erodietum crispum Franquesa ass. nova hoc loco (28.5.4)

[Com. *Lavatera maritima-Erodium petraeum* subsp. *crispum* Franquesa in Arxius Secc. Ci. Inst. Estud. Catalans 109: 134, tb. 36. 1995, sub "prox. *Diantho-Lavateretum maritimae* (Maeier & Br.-Bl. 1934) Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 25. 1952"]

Typus associatio: In Arxius Secc. Ci. Inst. Estud. Catalans 109: 134, tb. 36, rel. 4. 1995. Holotypus ass. hoc loco. [Girona: Cap Norfeu, replà culminal del primer barranc, substrato calcáreo, 120 m, N, 10 m²]. Characteristic species: 1 *Erodium crispum*, + *Brassica robertiana*, + *Lavatera maritima*, + *Parietaria judaica*. Companion species: + *Asperula cynanchica*, + *Brachypodium retusum*, + *Dactylis hispanica*, + *Festuca* gr. *ovina* (cf. *Festuca ruscinonensis*), + *Galium lucidum*, + *Ononis minutissima*, + *Sedum sediforme*, + *Teucrium polium*, + *Thymus vulgaris*, + *Valantia muralis*.

Characteristic species (territorials): *Erodium crispum*, *Lavatera maritima*, *Piptatherum coerulescens*.

Diagnosis: Rupestrian basophilous association well characterized by the endemic from the Ruscinic district (Vallesan-Empordanese Sector) *Erodium crispum* (*Erodium foetidum* subsp. *crispum*) and by the rupestrian ornithocrophilous west mediterranean thermophilous element *Lavatera maritima*. It develops on cliffs and limestone rocks visited by birds and salt spray in the coasts from Empordá to Rosselló.

Table 58

28.5.3 *Erodietum gausseianum**(Lavaterion maritimae, Parietarietalia, Parietarietea)*

Altitude (1=10m)	75	71	73	76	74
Number of species	6	6	8	8	7
Ordinal number	1*	2	3	4	5
Characteristic species:					
<i>Erodium gausseianum</i>	2	2	2	1	4
<i>Lavatera maritima</i>	1	+	+	2	4
<i>Asplenium ceterach</i>	1	+	+	+	4
Companion species:					
<i>Piptatherum miliaceum</i>	1	1	+	1	4
<i>Sedum dasyphyllum</i>	+	1	1	.	3
<i>Rhamnus alaternus</i>	+	.	.	1	2
<i>Silene mellifera</i>	.	1	+	.	2
<i>Euphorbia characias</i>	.	.	+	+	2
<i>Ballota hirsuta</i>	.	.	+	+	2
<i>Rhamnus lycioides</i>	.	.	.	+	1

Localities: 1. Holotypus ass. Huesca: Riglos, Mallo del Cuchillo, Cueva del Palomar. SE, 30 m². 2. Huesca: Riglos, Mallo Pisón, bottom of via Murciana. S, 20 m². 3. Huesca: Riglos, Macizo del Pisón, bottom of Chimenea de los Cachorros. SE, 30 m². 4. Huesca: Riglos, Mallo Melchor Frechín, bottom of La Visera. S, 20 m². 5. Synthesized table.

Rosmarinetum tomentosi F. Casas & M. López in F. Casas in Trab. Dep. Bot. Univ. Granada 1: 1972 (28.5.5)

Distribution: Thermomediterranean semiarid Alpujarrean and Almeriense dolomitic community, related with *Lavandulion lanatae* (64.15).

[RIVAS-MARTÍNEZ & CANTÓ]

LILIO PYRENAICI-MOLOPOSPERMETUM PELOPONESIACI ass. nova hoc loco (42.3.2)

(Calamagrostion arundinaceae, Calamagrostietalia villosae, Mulgedio-Aconitetea)

Typus associatio: Table 59, rel. 3 [Huesca: Benasque, Tuca del Ésera, Cueva de la Llastra. 42° 40'N-0° 36'E. 1750 m, NW, 30%, 20 m²].

Characteristic species: *Lilium pyrenaicum*, *Molopospermum peloponesiacum*.

Diagnosis: Orotemperate humid and hyperhumid silicolous sunny exposed megaforbic community, characterized by the Alpine-Pyrenean tall umbelliferous *Molopospermum peloponesiacum* and the Pyrenean wide endemic *Lilium pyrenaicum*.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

Table 59

42.3.2 *Lilium pyrenaici-Molopospermum peloponesiaci*

(*Calamagrostion arundinaceae*, *Calamagrostietalia villosae*, *Mulgedio-Aconitetea*)

Altitude (1=10 m)	185	175	175	173	165	175
Number of species	14	14	17	19	20	17
Ordinal number	1	2	3*	4	5	6
Characteristic species:						
<i>Molopospermum peloponesiacum</i>	5	4	3	3	4	V
<i>Calamagrostis arundinacea</i>	2	.	1	2	2	IV
<i>Gentiana lutea</i>	1	2	.	.	+	III
<i>Lilium pyrenaicum</i>	+	.	1	.	1	III
<i>Cicerbita plumieri</i>	.	1	.	3	1	III
Companion species:						
<i>Rosa pendulina</i>	1	1	1	1	2	V
<i>Dryopteris filix-mas</i>	1	1	1	1	.	IV
<i>Dryopteris oreades</i>	+	1	3	.	.	III
<i>Solidago virgaurea</i>	2	2	.	1	.	III
<i>Vaccinium myrtillus</i>	2	2	.	.	+	III
<i>Prenanthes purpurea</i>	2	.	.	2	2	III
<i>Rubus idaeus</i>	2	.	2	3	.	III

Other species. Characteristic species: *Aconitum vulgare* 2, *Veratrum album* 1 in 2. *Aconitum anthora* +, *Aconitum lamarckii* + in 3. *Valeriana montana* 2 in 4. *Angelica razulii* 2, *Geranium sylvaticum* 2 in 5. Companion species: *Vincetoxicum intermedium* + in 2, 2 in 3. *Knautia arvensis* + in 2, 1 in 5. *Euphorbia hyberna* 1 in 3, 2 in 5. *Gentiana burseri* 1 in 3, + in 5. *Rhododendron ferrugineum* 2, *Laserpitium latifolium* +, *Senecio pyrenaicus* + in 1. *Lilium martagon* 1, *Trifolium medium* 1 in 2. *Rumex scutatus* 2, *Galeopsis angustifolia* 1, *Asplenium trichomanes* +, *Rhamnus alpina* +, *Sambucus racemosa* + in 3. *Angelica sylvestris* 2, *Deschampsia flexuosa* 2, *Arrhenatherum elatius* 1, *Dactylis glomerata* 1, *Hypericum tetrapterum* 1, *Phleum alpinum* 1, *Phyteuma pyrenaicum* 1, *Silene nutans* 1, *Silene vulgaris* 1, *Trifolium pratense* 1 in 4. *Stachys alopecuroides* 1, *Campanula precatatoria* +, *Crepis lamsanoides* +, *Hieracium prenanthoides* +, *Laserpitium latifolium* +, *Ranunculus aconitifolius* +, *Silene vulgaris* + in 5.

Localities: 1. Huesca: Cerler, Pico de Cerler. N, 20%, 20m². 2. Huesca: Benasque, Ball de Mulleres. NW, 20%, 40 m². 3. Holotypus ass. Huesca: Benasque, Tuca del Ésera, Cueva de la Llastra. 42° 40'N-0° 36'E. NO, 30%, 20 m². 4. Huesca: Benasque, Ball de Cregüña. SW, 20%, 20 m². 5. Huesca: Benasque, La Abetosa above Paso Nuevo dam. W, 20%, 20m². (reg. 1996: 38). 6. Synthesized table.

LIMONIO OVALIFOLII-FRANKENION LAEVIS all. nova hoc loco (20.5)*(Glauco-Puccinellietalia, Juncetea maritimi)*

Typus alliancia: *Limonio ovalifolii-Frankenietum laevis* Herrera in Guineana 1: 231, tb. 41. 1995.

Characteristic species: *Limonium ovalifolium*, *Frankenia laevis*.

Diagnosis: Halophilous Cantabrian-Atlantic communities, with preponderant rosulate and prostrate chamaephytes, that colonize the upper tideland sandy marshes reached by the sea water only during the highest tides.

Crithmo maritimi-Frankenietum laevis ass. nova hoc loco (20.5.2)

Typus associatio: Table 60, rel. 5 [Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 50 m, 2 m²].

Table 60**20.5.2 *Crithmo maritimi-Frankenietum laevis****(Limonio ovalifolii-Frankenion laevis, Glauco-Puccinellietalia, Juncetea maritimi)*

Altitude (1=10 m)	4	4	4	5	5	5	5	4	4	4	4	4	4	5	5	4	5	4	4	<u>4</u>
Number of species	5	5	5	4	6	7	12	5	6	4	5	5	8	6	7	7	4	5	5	6
Ordinal number	1	2	3	4	5*	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Characteristic species:

<i>Frankenia laevis</i>	5	4	5	4	4	4	3	2	1	4	4	4	2	3	3	3	2	4	3	V
<i>Armeria depilata</i>	+	2	1	+	1	1	1	2	3	.	+	+	+	1	3	1	1	+	1	V
<i>Limonium binervosum</i>	+	2	1	.	1	+	1	3	2	2	1	+	1	2	1	2	.	+	2	V
<i>Inula crithmoides</i>	+	3	4	2	1	2	1	1	3	+	2	3	3	+	+	3	.	.	.	V
<i>Crithmum maritimum</i>	+	.	.	1	+	.	2	1	1	+	+	+	+	1	2	.	1	3	1	V
<i>Festuca pruinosa</i>	.	1	1	.	+	+	+	.	.	.	.	.	.	2	.	1	+	2	.	III
<i>Plantago maritima</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	+	+	1	.	.	+	II
<i>Silene uniflora</i>	.	.	.	.	.	+	1	.	.	.	.	.	.	.	.	.	.	.	.	I

Other species. Companion species: *Plantago coronopus* + in 6 and 9. *Lithodora diffusa* 1, *Allium sp.* +, *Beta maritima* +, *Euphorbia portlandica* +, *Sonchus oleraceus* + in 7. *Agrostis stolonifera* + in 13. *Atriplex prostrata* +, *Cynodon dactylon* + in 16.

Localities: 1. Asturias: Llanes, Garaña. 30TUP4014. 6 m². 2. Asturias: Llanes, Garaña. 30TUP4014. 30 m². 3. Asturias: Llanes, Garaña. 30TUP4014. 8 m². 4. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 2 m². 5. Holotypus ass. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 2 m². 6. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 2 m². 7. Asturias: Gozón, San Juan de Nieva. 30TTP3162. 10 m². 8. Asturias: Llanes, Garaña. 30TUP4014. 5 m². 9. Asturias: Llanes, Garaña. 30TUP4014. 5 m². 10. Asturias: Llanes, Garaña. 30TUP4014. 3 m². 11. Asturias: Llanes, Garaña. 30TUP4014. 10 m². 12. Asturias: Llanes, Garaña. 30TUP4014. 4 m². 13. Asturias: Llanes, Garaña. 30TUP4014. 8 m². 14. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 10 m². 15. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 10 m². 16. Asturias: Ribadesella, Cuerres. 30TUP3913. 50 m². 17. Asturias: Llanes, Cabo S. Antonio. 30TUP4414. 1 m². 18. Asturias: Ribadesella, Cuerres. 30TUP3913. 6 m². 19. Asturias: Ribadesella, Cuerres. 30TUP3913. 40 m². 20. Synthesized table.

Characteristic species (territorials): *Frankenia laevis*, *Limonium binervosum*, *Inula crithmoides*, *Crithmum maritimum*.

Diagnosis: Rich in aerohaline chamaephytes community that colonizes sandy deposits of the karstic littoral platform humidified by sea water coming from the swell. They are present in the central area of the Cantabrian Asturian coast (Ovetense District), mainly around the typical "bufones" (snorty holes) of these areas. It can be differentiated from other associations of the same alliance, besides the biotopes occupied, by the abundance of *Frankenia laevis*, *Crithmum maritimum* and *Inula crithmoides*. It often contacts with other aerohaline associations such as: *Leucanthemo crassifolii-Festucetum pruinosae* and *Plantagini maritimae-Schoenetum nigricantis*, as well as the halochasmophytic communities of the *Crithmo maritimi-Limonietum binervosi*.

Limonio binervosi-Armerietum depilatae T.E. Díaz & F. Prieto ass. nova hoc loco (20.5.5) (*)

(*Limonio ovalifolii-Frankenion laevis*, *Glauco-Puccinellietalia*, *Juncetea maritimi*)

Typus associatio: Table 61, rel. 1 [Asturias: Ría de Villaviciosa. 30TUP0721. 5 m²].

Characteristic species: *Limonium binervosum*, *Armeria depilata*

Diagnosis: This association includes small hemicryptophyte communities developed on supratidal areas growing on well-drained sandy soils and distributed throughout the Cantabrian-Basque territories reaching the central and eastern areas of the Galician-Asturian Sector. These fragile communities could be affected by the sea water influence only during the high tide time, usually at the ecotonic sites placed between the salt-marsh and dune or beach areas.

[T.E. DÍAZ & F. PRIETO] (*)

Limonio dodartii-Frankenietum laevis Izco & J.M. Sánchez 1997 corr. T.E. Díaz, Nava & A.R. García hoc loco (20.5.3)

[*Limonio binervosi-Frankenietum laevis* Izco & J.M. Sánchez in *Thalassas* 12: 70. 1997 (art. 43), *Armerio depilatae-Frankenietum laevis* Bueno & F. Prieto in *Bueno, Fl. Veg. Estuarios Asturianos*: 187, tb. 5. 1997 (syntax. syn.)]

Distribution: Galician marshes reached by sea water during the highest tides.

Limonio ovalifolii-Frankenietum laevis Herrera in *Guineana* 1: 231, tb. 41. 1995 (20.5.4)

Distribution: Cantabrian-Basque uncommon community growing on littoral sandy upper marshes biotopes.

[ARBESÚ, BUENO & F. PRIETO]

Table 61

20.5.5 *Limonio binervosi-Armerietum depilatae**(Limonio ovalifolii-Frankenion laevis, Glauco-Puccinellietalia, Juncetea maritimi)*

Altitude (1=10m)	0-1	1	1	0.5	1	0.5	0.2	0.2	0.6
Number of species	10	7	9	12	12	7	10	11	12
Ordinal number	1*	2	3	4	5	6	7	8	9
Characteristic species:									
<i>Limonium binervosum</i>	2	2	3	2	3	3	1	2	V
<i>Frankenia laevis</i>	3	2	3	2	1	2	2	3	V
<i>Armeria depilata</i>	3	1	2	+	1	2	+	2	V
<i>Plantago maritima</i>	1	1	2	2	2	+	2	+	V
<i>Puccinellia maritima</i>	1	+	1	.	+	1	.	.	IV
<i>Halimione portulacoides</i>	1	+	.	1	1	+	.	.	IV
<i>Festuca rubra</i> s.l.	1	.	+	2	1	.	1	2	IV
<i>Sarcocornia perennis</i>	+	.	.	+	1	+	.	.	III
<i>Spergularia media</i>	.	.	+	+	+	.	.	.	II
<i>Juncus maritimus</i>	.	.	.	.	.	.	+	+	II
<i>Triglochin maritima</i>	.	.	.	+	+	.	.	.	II
<i>Suaeda vera</i>	.	.	+	+	.	.	.	.	II
<i>Inula crithmoides</i>	.	.	.	+	.	.	+	.	II
<i>Glaux maritima</i>	.	.	.	.	.	.	.	+	I
Companion species:									
<i>Elymus pycnanthus</i>	1	1	+	+	1	.	1	2	V
<i>apholis strigosa</i>	+	.	.	.	+	.	+	.	II
<i>Stenotaphrum secundatum</i>	.	.	.	.	.	.	1	+	II
<i>Silene uniflora</i>	.	.	.	.	.	.	.	+	I
<i>Agrostis pseudopungens</i>	.	.	.	.	.	.	.	+	I
<i>Paspalum vaginatum</i>	.	.	.	.	.	.	.	+	I

Localities: 1. Holotypus ass. Asturias: Ría de Villaviciosa. 30TUP0721, 5 m². 2. Asturias: Ría de Villaviciosa. 30TUP0721, 10 m². 3. Asturias: Ría de Villaviciosa. 30TUP0621, 10 m². 4. Asturias: Ría de Villaviciosa. 30TUP0621, 5 m². 5. Asturias: Ría de Villaviciosa. 30TUP0621, 10 m². 6. Asturias: Ría de Villaviciosa. 30TUP0721, 5 m². 7. Asturias: Barayo beach (Navia-Valdés). 29TPJ9225, 2 m². 8. Asturias: Barayo beach (Navia-Valdés). 29TPJ9225, 2 m². 9. Synthesized table.

LIMONIO RUIZII-SARCOCORNIETUM ALPINI ass. nova hoc loco (23.3.1)

(Suaedion braun-blanquetii, Sarcocornietalia fruticosae, Sarcocornietea fruticosae)

Typus associatio: Zaragoza: Tauste, Barranco de Valdespartera. 30TXM502483. 320 m, 20 m². Characteristic species: 4 *Sarcocornia alpini*, 1 *Limonium ruizii*.

Characteristic species (territorials): *Limonium ruizii*, *Sarcocornia alpini*.

Diagnosis: Temporarily flooded halo-gypsiculous communities where the decumbent pachycaulous chamaephyte with adventitious roots *Sarcocornia alpini* is dominant, and often accompanied by the local endemic *Limonium ruizii*, as well as other thick-leaved or

stemmed chamaephytes: *Suaeda braun-blanquetii* and *Arthrocnemum macrostachyum*. Its known distribution is restricted to the Districts of Cinco Villas and Belchite from Bardenan-Monegrensean Sector, where these halophilous communities of *Sarcocornia* and *Arthrocnemum* are threatened of extinction by the works for irrigation systems in these semiarid territories.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

LINARIO FILICAULIS-RANUNCULETUM CABRERENSIS ass. nova hoc loco (33.4.4)
 (*Linaria filicaulis*, *Thlaspietalia rotundifolii*, *Thlaspietea rotundifolii*)

Typus associatio: Table 62, rel. 3 [León: Boca de Huérgano, Llánaves de la Reina, Tres Provincias Peak. 30TUN5765. 2350 m, S, 30%, 20 m²].

Table 62
33.4.4 *Linario filicaulis-Ranunculetum cabrerensis*
 (*Linaria filicaulis*, *Thlaspietalia rotundifolii*, *Thlaspietea rotundifolii*)

Altitude (1=10m)	193	191	235	238	215	240	194	223	207	215
Number of species	4	5	6	6	6	8	9	9	12	7
Ordinal number	1	2	3*	4	5	6	7	8	9	10
Characteristic species:										
<i>Ranunculus cabrerensis</i>	2	1	2	3	2	+	+	2	1	V
<i>Linaria filicaulis</i>	1	1	2	1	1	2	2	+	2	V
<i>Senecio pyrenaicus</i>	.	.	.	+	+	.	1	+	+	III
<i>Rumex suffruticosus</i>	3	2	.	.	+	.	1	.	.	III
<i>Cryptogramma crispa</i>	.	.	1	.	3	.	.	2	+	III
<i>Poa censis</i>	.	.	.	.	.	2	.	1	+	II
<i>Galeopsis ladamum</i>	.	.	.	.	.	.	+	.	.	I
<i>Rumex scutatus</i>	.	.	.	.	.	.	.	.	2	I
Companion species:										
<i>Avenella iberica</i>	+	1	1	+	.	.	1	.	+	IV
<i>Festuca eskia</i>	.	.	+	+	+	.	1	1	1	IV

Other species. Companion species: *Armeria cantabrica* + in 6, 1 in 9. *Heracleum pyrenaicum* 1 in 7, 3 in 9. *Carex asturica* + in 2. *Juncus trifidus* + in 3. *Teesdaliopsis conferta* + in 4. *Jasione brevise-pala* +, *Linaria saxatilis* +, *Mimuartia recurva* +, *Sedum candollei* + in 6. *Sedum brevifolium* + in 7. *Alchemilla saxatilis* +, *Campanula hispanica* +, *Omalotheca supina* + in 8. *Hypericum burseri* 1, *Meum athamanticum* + in 9.

Localities: 1. León: Boca de Huérgano, Barniedo de La Reina, bottom of Pico Murcia. 30TUN5361. N, 50%, 40 m². 2. León: Boca de Huérgano, Barniedo de La Reina, bottom of Pico Murcia. 30TUN5361. NW, 10%, 15 m². 3. Holotypus ass. León: Boca de Huérgano, Llánaves de la Reina, Tres Provincias Peak. 30TUN5765. S, 30%, 20 m². 4. León: Boca de Huérgano, Llánaves de la Reina, near Pico Tres Provincias. 30TUN5865. SW, 25%, 100 m². 5. León: Boca de Huérgano, Barniedo de La Reina, between Pico Murcia and Peñas Matas. 30TUN5361. NW, 50%, 10 m². 6. León: Boca de Huérgano, Portilla de la Reina, proximidades de Las Lomas. 30TUN5764. N, 50%, 20 m². 7. León: Boca de Huérgano, Barniedo de La Reina, Peñas Zahurdías. 30TUN5361. NW, 30%, 25 m². 8. León: Boca de Huérgano, Portilla de La Reina, near Las Lomas. 30TTUN5664. N, 50%, 100 m². 9. León: Boca de Huérgano, Barniedo de La Reina, Peñas Zahurdías. 30TUN5361. NW, 50%, 100 m². 10. Synthesized table.

Characteristic species: *Linaria filicaulis* (terr.), *Ranunculus cabrerensis*.

Diagnosis: Chionophilous community of scarce coverage characterized by the endemic *Ranunculus parnassifolius* subsp. *cabrerensis*, peculiar to the siliceous screes with medium-sized stones (generally of slate), living in the oro-cryorotemperate hyperhumid bioclimatic belt of the Altocarrionese Subsector (Orocantabric Subprovince). It belongs to the siliceous oro-cryorotemperate Altocarrionese cliffs microgeosigmetum where it is in contact with the associations *Murbeckiello boryi-Saxifragetum willkommianae* and *Linario filicaulis-Sperguletum viscosae* that occupy the more wind exposed areas with less snow cover. In the screes of big-sized stones and exposed to prolonged snow cover it can be near the *Cryptogrammo crispae-Dryopteridetum oreadis* and at lower altitude it can also be in contact with the *Trisetum hispidi-Rumicetum suffruticosi* and therefore with the psicroxerophilous pastures of *Teesdaliopsis confertae-Festucetum eskiae*. In the cryorotemperate areas it can be in contact with the *Junco trifidi-Oreochloetum blankae*. It differs from the oromediterranean Bercian-Sanabriensean and orotemperate Lacian-Ancarensean vicarious association *Cryptogrammo crispae-Ranunculetum cabrerensis*, by the existence of *Linaria filicaulis* and *Poa cenisia*, and also by the absence of *Linaria alpina* and *Silene foetida* subsp. *gayana*.

[R. ALONSO, PUENTE, PENAS & F. SALEGUI]

LINARIO POLYGALIFOLIAE-VULPION ALOPECURORIS Br.-Bl., Rozeira & P. Silva in Br.-Bl., G. Braun-Blanquet, Rozeira & P. Silva in Agron. Lusit. 33(1-4): 218. 1972 (39.11)

[*Vulpion alopecuroris* Rivas-Martínez & Izco in Anales Inst. Bot. Cavanilles 34(1): 375. 1977 (art. 8), *Linario viscosae-Vulpion alopecuroris* Rivas-Martínez & Izco ex Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 78. 1980 (syntax. syn.)]
(*Thero-Brometalia, Stellarietea mediae*)

Lectotypus hoc loco: *Scrophulario frutescentis-Vulpietum alopecuroris* Br.-Bl., J. & G., Rozeira & P. Silva in Agron. Lusit. 33: 228, tb. 5, rel. 6. 1972 (art. 20).

Characteristic species: *Linaria incarnata*, *Linaria polygalifolia*, *Linaria viscosa*, *Vulpia alopecuros*.

Diagnosis: Thermomediterranean and thermotemperate submediterranean semiarid to subhumid ephemeral spring blooming subnitrophilous communities, growing on coastal dunes and paleodunes with high anthropogenic influence in Galician-Asturian and West Mediterranean sandy coasts.

Chamaemelo mixti-Vulpietum alopecuroris Rivas-Martínez, Costa, Castroviejo & E. Valdés ex J.C. Costa, Lousã, Capelo, Espírito-Santo, Izco & Arsenio in Finisterra 35: 69. 2000 (39.11.1)

[*Chamaemelo mixti-Vulpietum alopecuroris* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 80, tb. 42. 1980 (art. 3b)]

Distribution: Thermomediterranean dry and subhumid ephemeral grassland-like community of Coastal Lusitan-Andalusian dunes and paleodunes.

Linario viscosae-Carduetum meonanthi Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 78, tb. 41. 1980 (39.11.2)

Distribution: Gaditan-Coastal Onubensean turned over littoral dunes and paleodunes.

Malcolmio littoreae-Vulpietum alopecuroris Díez Garretas, Hernández & Asensi in *Acta Bot. Malacitana* 1: 73, tb. 4. 1975 (39.11.3)

Distribution: Thermomediterranean dry and semiarid Gaditan and Malacitan littoral dunes, close and geovicariant of *Chamaemelo-Vulpietum alopecuroris*.

Scrophulario frutescentis-Vulpietum alopecuroris Br.-Bl., Rozeira & P. Silva in Br.-Bl., G. Braun-Blanquet, Rozeira & P. Silva in *Agron. Lusit.* 33(1-4): 228, tb. 5. 1972 (39.11.4)

Distribution: Thermotemperate submediterranean and thermomediterranean subhumid Galician-Portuguese and Dividing Portuguese coastal dunes and paleodunes.

Triplachno nitentis-Vulpietum alopecuroris Peinado, Alcaraz & Martínez-Parras in *Flora et Vegetatio Mundi* 10: 315. 1992 (39.11.5)

Distribution: Thermomediterranean arid and semiarid Almeriensean.

[RIVAS-MARTÍNEZ & IZCO]

Loniceri periclymeni-Quercetum pyrenaicae ass. nova hoc loco (76.7.15)

(*Quercenion robori-pyrenaicae*, *Quercion pyrenaicae*, *Quercetalia roboris*, *Quercu-Fagetea*)

Typus associatio: Asturias: From San Antolín de Ibias to Sena, near Castaosa. 43°02'N-6°53'W. 570 m, E, 30%, 90 cm, 1000 m². Dystric cambisol on gneissic bed rock. Characteristic species: 3 *Quercus pyrenaica*, 2 *Quercus robur* subsp. *robur*, 2 *Avenella flexuosa* subsp. *flexuosa*, 2 *Hedera hibernica*, 2 *Lonicera periclymenum*, 1 *Holcus mollis*, 1 *Saxifraga spathularis*, + *Lathyrus linifolius*, + *Melampyrum pratense*, + *Physospermum aquilegifolium*, + *Teucrium scrodonia*, + *Stellaria holostea*, + *Viola riviniana*. Companion species: 3 *Erica arborea*, 2 *Arbutus unedo*, 2 *Arenaria montana*, 2 *Hylocomium splendens*, 2 *Pleurozium schreberi*, 2 *Polypodium vulgare*, 2 *Pteridium aquilinum*, 2 *Rhytidiadelphus triquetrus*, 2 *Vaccinium myrtillus*, 1 *Asplenium adiantum-nigrum*, 1 *Daboecia cantabrica*, 1 *Polypodium x mantoniae*, 1 *Ruscus aculeatus*, + *Lithodora prostrata*, + *Ulex gallii* subsp. *breoganii*.

Characteristic species (territorials): *Arenaria montana*, *Avenella flexuosa*, *Cytisus striatus*, *Daboecia cantabrica*, *Lonicera periclymenum*, *Luzula lactea*, *Quercus pyrenaica*, *Quercus robur*, *Saxifraga spathularis*, *Ulex gallii* subsp. *breoganii*, *Vaccinium myrtillus*.

Diagnosis: Meso-lower supratemperate upper subumid-humid submediterranean, euoceanic *Quercus robur* and *Quercus pyrenaica* climactical mesoforests community, spread and characteristic of all Suarna and Ibias dry but foggy inner valleys, that represent a more

continental transitional zone between Orocantabric, Lacian-Ancarensean and Galician-Asturian biogeographic sectors. They grow on dystic and humic cambisols and in warmer and south expositions have *Artutus unedo* and *Erica arborea* in the mantle, as well as a broom mantle of *Ulici-Cytision striati*; it could be differentiated from the Galician *Rusco-Quercetum roboris* by: *Asplenium adiantum-nigrum*, *Avenella flexuosa* subsp. *flexuosa*, *Melampyrum pratense*, *Saxifraga spathularis* and *Vaccinium myrtillus*; from the Orocantabric *Linario-Quercetum pyrenaicae* by: *Arbutus unedo*, *Cytisus striatus*, *Galium scabrum*, *Lithodora prostrata*, *Quercus robur*, *Ulex gallii* subsp. *breoganii*, *Ulex europaeus*, etc., and from the closest Asturian-Galician pedunculate oak association *Blechno-Quercetum roboris* by: *Arbutus unedo*, *Galium scabrum*, *Luzula lactea* and *Quercus pyrenaica* particularly on close forests.

[RIVAS-MARTÍNEZ]

LUZULO BAETICAE-QUERCETUM PYRENAICAE ass. nova hoc loco (76.7.9)

[*Cytiso triflori-Quercetum pyrenaicae* sensu A.V. Pérez, Galán, Deil & Cabezudo in Acta Bot. Malacitana 21: 252, tb. 3. 1996 non Barbéro, Quézel & Rivas-Martínez in Phytocoenologia 9(3): 391, tb. 31. 1981]

(*Quercenion pyrenaicae*, *Quercion pyrenaicae*, *Quercetalia roboris*, *Querco-Fagetea*)

Typus associatio: *Cytiso triflori-Quercetum pyrenaicae* sensu A.V. Pérez, Galán, Deil & Cabezudo in Acta Bot. Malacitana 21: 252, tb. 3, rel. 3. 1996.

Characteristic species: Differential species as opposed to the rest of Iberian associations of *Quercion pyrenaicae*: *Avenula sulcata* subsp. *albinervis*, *Cistus populifolius* subsp. *major*, *Luzula forsteri* subsp. *baetica*, *Quercus canariensis*, *Quercus fruticosa*, *Senecio lopezii*, *Teucrium scorodonia* subsp. *baeticum*, *Ulex borgiae*.

Diagnosis: Silicicolous meso and microwoodlands, sometimes infiltrated by *Quercus canariensis* or *Quercus suber*, growing in mesomediterranean humid and hyperhumid summit areas of the high mountains of Málaga and Cádiz, particularly in Sierra del Aljibe (Aljibic Sector). The difference with the vicarious association of the Rif Mountains (Rifean Sector) is shown by the absence of the characteristic species of *Querco-Cedretalia* and *Balanseo-Quercion rotundifoliae*, which do not exist in the Iberian Peninsula: *Balansea glaberrima*, *Geranium malviflorum*, *Origanum elongatum*, *Vicia cedretorum*, *Viola munbyana*, etc.

[RIVAS-MARTÍNEZ]

LUZULO HENRIQUESII-QUERCENION PETRAEAE suball. nova hoc loco (76.8b)

(*Ilici-Fagion*, *Quercetalia roboris*, *Querco-Fagetea*)

Typus suballiance: *Luzulo henriquesii-Quercetum petraeae* (F. Prieto & Vázquez 1987) T.E. Díaz & F. Prieto in Itinera Geobot. 8: 293. 1994 (syn. *Linario triornithophorae-Quercetum petraeae luzuletosum henriquesii* F. Prieto & Vázquez in Lazaroa 7: 367, tb. 1. 1987 (holotypus rel. 10).

Characteristic species: *Quercus petraea*, *Quercus orocantabrica*, *Quercus petraea* x *Quercus pyrenaica* (= *Quercus* x *trabutii*), *Quercus orocantabrica* x *Quercus petraea* (= *Quercus* x *puntei*), *Quercus pyrenaica* x *Quercus orocantabrica* (= *Quercus* x *penasii*).

Diagnosis: White oak forests (*Quercus petraea*) sometimes mixed with other climato-philous broadleaved trees or their hybrids (*Quercus pyrenaica*, *Quercus orocantabrica*, *Fagus sylvatica*, *Quercus petraea* x *Quercus pyrenaica*=*Quercus* x *trabutii*, *Quercus petraea* x *Quercus orocantabrica*, *Quercus petraea* x *Quercus robur*=*Quercus* x *rosacea*) developed on siliceous soils of the humid and hyperhumid euoceanic upper supratemperate belt of the Cantabrian Range, León Mountains, Iberian Range, Universals Mountains (Sierra Valdemeca) and middle-east Central Range, where they represent the potential vegetation. In the deeper soils and shadier or less xerophilous stations they are usually substituted by the beech forests of the *Ilici-Fagenion* in those territories where *Fagus sylvatica* is present. In the lower orotemperate belt of the siliceous Cantabrian Range (Orocantabric Subprovince) these mesoforests of white oak are substituted by the microforests of *Quercus orocantabrica*. By fire and anthropozoic action they are substituted by secondary forests of birch and trembling aspens (*Betulion fontqueri-celtibericae*, *Betulo-Populetalia tremulae*).

Asperulo odoratae-Quercetum petraeae (Rivas-Martínez & G. Navarro in G. Navarro 1989) ass. nova, stat. nov. hoc loco (76.8.5) (*)

[*Linario triornithophorae-Quercetum petraeae asperuletosum odoratae* Rivas-Martínez & G. Navarro in G. Navarro in Opusc. Bot. Pharm. Complut. 5: 22, tb. 8. 1989 (basion.) (art. 27d, 46H)]

Typus associatio: *Linario triornithophorae-Quercetum petraeae asperuletosum odoratae* Rivas-Martínez & G. Navarro in G. Navarro in Opusc. Bot. Pharm. Complut. 5: 22, tb. 8, rel. 4. 1989. Holotypus. [Zaragoza: macizo del Moncayo, monte de La Mata, alt.: 1010 m, NE, 200 m²]. Characteristic species: 4 *Quercus petraea*, 2 *Hepatica nobilis*, 2 *Lonicera periclymenum*, 2 *Melica uniflora*, 2 *Poa nemoralis*, 2 *Stellaria holostea*, 2 *Teucrium scorodonia*, 1 *Asperula odorata*, 9 *Hedera helix*, 1 *Hieracium murorum*, 1 *Lathyrus montanus*, 1 *Luzula forsteri*, 1 *Melampyrum pratense*, 1 *Primula canescens*, 1 *Quercus* x *trabutii*, 1 *Viola reichenbachiana*, + *Cephalanthera rubra*, + *Epipactis helleborine*, + *Monotropa hypopitys*, + *Sorbus torminalis*, + *Veronica officinalis*. Companion species: 1 *Arenaria montana*, 1 *Fragaria vesca*, 1 *Polypodium vulgare*, 1 *Rubia peregrina*, 1 *Veronica chamaedrys*, 1 *Viola hirta*, + *Anthoxanthum odoratum*, + *Arctostaphylos crassifolia*, + *Erica arborea*, + *Galium rivulare*, + *Lathyrus niger*, + *Ribes alpinum*, + *Ruscus aculeatus*, + *Sedum forsterianum*, + *Vicia sepium*.

Characteristic species (territorials): *Arenaria montana*, *Asperula odorata*, *Erica vagans*, *Genista florida* subsp. *polygaliphylla*, *Lathyrus linifolius*, *Melampyrum pratense*, *Quercus petraea*, *Quercus pyrenaica*, *Quercus* x *trabutii*, *Viola reichenbachiana*.

Diagnosis: Silicicolous supratemperate submediterranean humid-hyperhumid mesoforests, with oroiberian at least Moncayensean, distribution, where *Quercus petraea* is preponderant and the hybrids with *Quercus pyrenaica* (*Quercus* x *trabutii*) relatively common. They have as border the broom formations of the *Genistion polygaliphyllae* and as substi-

tution heaths on the distric cambisols or ferric podisols the *Calluno-Genistetum occidentalis ericetosum aragonensis* Rivas-Martínez & G. Navarro in G. Navarro in Opusc. Bot. Pharm. Complut. 5: 32, tb. 14. 1987. These climatophilous oak forests are replaced in the deeper soils from the shady slopes by the beech forests (*Galio rotundifolii-Fagetum*), and in the most xerophilous or sunny environments by the oak formations with *Quercus pyrenaica* (*Festuco braun-blanquetii-Quercetum pyrenaicae*).

[RIVAS-MARTÍNEZ & CANTÓ] (*)

Avenello ibericae-Quercetum orocantabricae Rivas-Martínez, Amigo, Bueno, T.E. Díaz, F. Prieto, Izco, Penas & Puente ass. nova hoc loco (76.8.9) (*)

Typus associatio: Table 63, rel. 10 [Asturias: Ibias, Monte Valdebois. 29TPH86. 1260 m, SE, 200 m²].

Table 63

76.8.9 *Avenello ibericae-Quercetum orocantabricae*

(*Luzulo-Querconion petraeae*, *Ilici-Fagion*, *Quercetalia roboris*, *Quercu-Fagetum*)

Altitude (=10 m.)	122	128	120	130	118	120	156	115	117	126	<u>127</u>
Number of species	16	26	26	24	26	23	15	21	17	26	<u>22</u>
Ordinal number	1	2	3	4	5	6	7	8	9	10*	11
Characteristic species											
<i>Quercus orocantabrica</i>	4	4	4	4	4	4	4	5	4	4	V
<i>Vaccinium myrtillus</i>	1	1	+	2	1	2	1	1	2	3	V
<i>Avenella iberica</i>	2	2	1	2	1	2	2	1	.	3	V
<i>Melampyrum pratense</i>	+	+	+	.	+	+	+	.	.	+	IV
<i>Lonicera periclymenum</i>	.	+	+	+	+	+	+	.	1	.	IV
<i>Teucrium scorodonia</i>	.	+	.	+	+	+	+	.	1	+	IV
<i>Arenaria montana</i>	1	.	.	.	+	.	1	+	+	+	III
<i>Stellaria holostea</i>	.	+	+	1	+	+	+	.	.	.	III
<i>Ilex aquifolium</i>	.	+	+	+	.	+	.	1	.	.	IV
<i>Crepis lamsanoides</i>	.	+	+	+	+	+	.	.	.	.	III
<i>Sorbus aucuparia</i>	.	+	+	+	.	+	.	.	+	.	III
<i>Corylus avellana</i>	.	.	+	+	.	.	+	+	+	.	III
<i>Allium victorialis</i>	.	.	.	+	.	.	.	1	+	1	III
<i>Anemone nemorosa</i>	.	+	+	.	.	.	.	+	.	1	III
<i>Frangula alnus</i>	.	.	+	.	.	+	.	1	1	.	III
<i>Betula celtiberica</i>	.	.	.	.	.	.	+	+	1	+	III
Companion species											
<i>Erica arborea</i>	2	1	2	2	2	1	3	3	3	.	V
<i>ongiespicula</i>	1	1	1	1	1	1	1	+	1	1	V
<i>Ulex cantabricus</i>	1	+	2	+	+	+	.	1	1	1	V
<i>Asphodelus albus</i>	.	+	+	+	+	+	2	1	1	+	V
<i>Pseudarrhenatherum longifolium</i>	1	+	.	+	+	1	.	1	+	+	IV
<i>Pteridium aquilinum</i>	+	2	3	3	.	3	.	.	1	2	IV
<i>Daboecia cantabrica</i>	1	.	+	.	+	+	+	1	.	+	III
<i>Arrhenatherum bulbosum</i>	+	1	1	1	1	1	.	.	.	.	III

Other species.Characteristic species: *Physospermum cornubiense* + in 2, 3 and 5. *Holcus mollis* 1 in 2 and 5. *Luzula henriquesii* + in 4, 1 in 10. *Sorbus intermedia* + in 6 and 8. *Linaria triornithophora* + in 3. *Euphorbia amygdaloides* + in 4. *Brachypodium sylvaticum* 1, *Polygonatum verticillatum* + in 10. Companion species. *Anthoxanthum odoratum* + in 2, 3, 4 and 5, 1 in 6. *Rubus gr. corylifolii* + in 2, 3, 5 and 6. *Sedum anglicum* + in 2, 3, 5 and 6. *Solidago virgaurea* + in 2, 4, 5 and 7. *Coyncia setigera* + in 1, 3 and 5. *Erica aragonensis* 2 in 1 and 8, + in 10. *Cytisus scoparius* 1 in 2 and 5, + in 4. *Galium saxatile* + in 2 and 10. *Lithodora diffusa* + in 3 and 5. *Rumex acetosa* + in 4 and 10. *Digitalis purpurea* + in 5 and 10. *Genista polygaliphylla* + in 8 and 9. *Luzula lactea* 1, *Jasione montana* + in 1. *Hieracium gr. murotum* + in 3. *Pterospartum cantabricum* +, *Simethis planifolia* + in 8. *Agrostis curtisii* +, *Agrostis tenuis* +, *Avenula sulcata* +, *Silene nutans* + in 10.

Localities: 1. Asturias: Cangas del Narcea, Monte Muniellos, Western slope of Pico Bliella, near Arroyo de la Reguerona. 29TPH86. 200 m². 2. Asturias: Ibias, Monte Valdebois., 29TPH86. 200 m². 3. Asturias: Ibias, Monte Valdebois., 29TPH86. 200 m². 4. Asturias: Ibias, Monte Valdebois., 29TPH86. 300 m². 5. Asturias: Ibias, Monte Valdebois., 29TPH86. 200 m². 6. Asturias: Ibias, Monte Valdebois., 29TPH86. 200 m². 7. Asturias: Cangas del Narcea, Monte Muniellos, slope of Pico de la Candanosa. 29TPH86. 200 m². 8. Asturias: Cangas del Narcea, Monte Muniellos, La Crestona, slope of Pico Lambón., 29TPH86. 200 m². 9. Asturias: Cangas del Narcea, Monte Muniellos, slope of Pico Acidiello. 29TPH86. 200 m². 10. Holotypus ass. Asturias: Ibias, Monte Valdebois. 29TPH86. 200 m². 11. Synthesized table.

Characteristic species: *Quercus orocantabrica*.

Diagnosis: Upper supra- to lower orotemperate hyperhumid and seldom ultrahyperhumid, euoceanic orocantabric oak (*Quercus orocantabrica*) climactical micro-mesoforest, growing on very acid dystic cambisols or cambic podzols originated from siliceous bed-rock, spread in all Orocantabric and seldom in Bercian-Sanabriensean, as one of the forest community that represents the timber-line in high Cantabrian Mountains. Well characterized by the endemic oak *Quercus orocantabrica* and by the hybrids with *Quercus petraea* and *Quercus pyrenaica*, as well as by other acidophilic species like: *Vaccinium myrtillus*, *Avenella iberica*, *Melampyrum pratense*, etc.

[RIVAS-MARTÍNEZ, AMIGO, BUENO, T.E. DÍAZ, F. PRIETO, IZCO, PENAS & PUENTE] (*)

Linario triornithophorae-Quercetum petraeae (Rivas-Martínez, Izco & Costa ex F. Navarro 1974) F. Prieto & Vázquez in Lazaroa 7: 367, tb. 1. 1987 (76.8.6)

Distribution: Orocantabric supratemperate humid, mostly in dry and sunny stations.

Luzulo henriquesii-Quercetum petraeae (F. Prieto & Vázquez 1987) T.E. Díaz & F. Prieto in Itinera Geobot. 293. 1994 (76.8.7)

Distribution: Orocantabric supratemperate hyperhumid, mostly in shaded slopes.

Pulmonario longifoliae-Quercetum petraeae (Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Loidi, Biurrun & Berastegi in Lazaroa 17: 138. 1996 (76.8.8)

Distribution: Cantabrian-Basque supratemperate hyperhumid.

[RIVAS-MARTÍNEZ & IZCO]

MEDICAGINI LITTORALIS-STIPETUM CAPENSIS ass. nova hoc loco (39.13.9)

(Taeniathero-Aegilopion geniculatae, Thero-Brometalia, Stellarietea mediae)

Typus associatio: Table 64, rel. 6 [Valencia: Burjassot, YJ2176. 50 m, N, 20 m²].Characteristic species (territorials): *Aegilops geniculata*, *Medicago littoralis*, *Rostraria cristata*, *Stipa capensis*.

Diagnosis: Therophytic subnitrophilous grassland dominated by *Stipa capensis*, *Bromus rubens* and *Aegilops geniculata*, in which other thermophilous plants such as *Rostraria cristata*, *Lamarckia aurea* and *Medicago littoralis* are also remarkable. It blooms in the very early spring and grows in waste, barren places of coastal areas in Valencian-Tarracensean and Setabensean Sectors (Catalan-Valencian Subprovince), mostly in thermomediterranean dry-subhumid bioclimatic belts.

[M.B. CRESPO]

Table 64**39.13.9 Medicagini littoralis-Stipetum capensis**

(Taeniathero-Aegilopion geniculatae, Thero-Brometalia, Stellarietea mediae)

Altitude (1=10m)	10	20	20	8	1	5	10	1	7	3	8
Number of species	22	27	25	21	20	31	29	16	23	20	23
Ordinal number	1	2	3	4	5	6*	7	8	9	10	11
Characteristic species:											
<i>Stipa capensis</i>	1	3	3	2	1	3	3	1	3	2	V
<i>Bromus rubens</i>	4	3	3	4	3	3	3	2	5	4	V
<i>Rostraria cristata</i>	1	2	+	+	1	1	1	+	1	+	V
<i>Medicago littoralis</i>	+	1	1	1	+	+	1	.	1	2	V
<i>Aegilops geniculata</i>	2	1	.	1	+	+	.	2	1	+	IV
<i>Hedypnois cretica</i>	+	+	1	1	+	+	+	.	.	+	IV
<i>Plantago lagopus</i>	+	+	1	.	1	1	+	1	+	.	IV
<i>Lamarckia aurea</i>	.	1	+	.	+	+	1	+	+	+	IV
<i>Filago pyramidata</i>	+	+	.	1	.	+	+	.	1	.	IV
<i>Lolium rigidum</i>	.	+	+	.	+	+	1	.	+	.	IV
<i>Avena barbata</i>	.	.	+	.	1	+	+	1	.	+	IV
<i>Herniaria cinerea</i>	+	+	.	+	.	+	+	.	.	.	III
<i>Anagallis arvensis</i>	.	+	+	.	+	.	+	.	+	.	III
<i>Paronychia capitata</i>	.	+	+	.	.	+	+	.	+	.	III
<i>Papaver rhoeas</i>	.	+	1	.	.	+	+	.	.	+	III
<i>Sonchus tenerrimus</i>	.	+	.	.	+	+	.	+	+	.	III
<i>Bromus madritensis</i>	.	.	1	.	.	1	.	1	+	+	III
Companion species:											
<i>Medicago minima</i>	+	.	+	1	.	1	+	.	.	+	IV
<i>Linum strictum</i>	+	.	+	.	.	+	+	.	+	+	IV
<i>Leontodon longirostris</i>	+	.	.	.	.	+	+	+	.	+	III
<i>Limonium echiioides</i>	+	.	.	+	.	.	.	+	.	+	III
<i>Convolvulus arvensis</i>	.	.	.	+	+	.	.	+	.	+	III

Other species. Characteristic species: *Desmazeria rigida* + in 1, 2 and 4, 1 in 7. *Silene nocturna* + in 1 and 9, 1 in 3 and 5. *Aegilops triuncialis* 1 in 1, + in 3, 7 and 9. *Reichardia intermedia* + in 1, 4, 7 and 9. *Misopates orontium* + in 2, 3, 6 and 7. *Euphorbia pinea* + in 2, 4, 5 and 8. *Lobularia maritima* 1 in 2, + in 4, 7 and 8. *Calendula arvensis* + in 3, 4 and 10, 1 in 9. *Reseda phyteuma* + in 3, 5, 7 and 9. *Hordeum leporinum* + in 5, 6, 7 and 10. *Centaurea melitensis* + in 1, 6 and 9. *Asphodelus fistulosus* + in 2, 3 and 9. *Urospermum picroides* + in 2 and 7, 1 in 10. *Astragalus sesameus* + in 1 and 3. *Vulpia ciliata* + in 1 and 6. *Sherardia arvensis* + in 3 and 6. *Salvia verbenaca* + in 3 and 7. *Schismus barbatus* + in 2. *Lagurus ovatus* + in 5. *Trigonella monspeliaca* + in 6. **Companion species:** *Silene sclerocarpa* + in 1, 7 and 10. *Eryngium campestre* + in 2, 3 and 6. *Piptatherum miliaceum* + in 4, 6 and 8. *Phagnalon rupestre* + in 1 and 7. *Stipa parviflora* 1 in 2, + in 7. *Plantago albicans* + in 4 and 6. *Medicago sativa* + in 6 and 8. *Arenaria leptoclados* +, *Ononis sicula* +, *Polycarpon tetraphyllum* + in 2. *Delphinium gracile* +, *Hyparrhenia hirta* +, *Scabiosa stellata* + in 4. *Dactylis hispanica* +, *Scabiosa atropurpurea* + in 5. *Linaria simplex* +, *Marrubium alysson* + in 6. *Ononis pubescens* +, *Silene decipiens* + in 9. *Melilotus parviflorus* + in 10.

Localities: 1. Valencia: Bétera, YJ1988. 29S QE 41. W, 10 m². 2. Valencia: Llíria, Collado de los Perros, YJ0590. S, 30 m². 3. Valencia: Bétera, Pla de la Torre, YJ1393. S, 20 m². 4. Valencia: Mas-samagrell, El Bogalar, YJ2785. 40 m². 5. Valencia: Valencia, El Saler, YJ3159. 30 m². 6. Holoty-pus ass. Valencia: Burjassot, YJ2176. 50 m, N, 20 m². 7. Valencia: Sagunto, YJ3395. SE, 30 m². 8. Valencia: Puçol, motorway A-7 borders, YJ3289. 25 m². 9. Castellón: Almenara, YK3804. 40 m². 10. Castellón: Oropesa del Mar, BE5542. E, 50 m². 11. Synthesized table.

MNIO HORN-VANDENBOSCHIETUM SPECIOSAE ass. nova hoc loco (30.3.4)

(*Hymenophyllum tunbrigensis*, *Anomodonto-Polypodietaia*, *Anomodonto-Poly-podietea*)

Typus associatio: Table 65, rel. 2.[Asturias: Llanes, Valle del río de Nueva.30TUP385095 NE, 290 m, 1 m², in *Hyperico androsaemi-Alnetum fagetosum sylvaticae*].

Characteristic species: *Vandenboschia speciosa*, *Mnium hornum*, *Diplophyllum albi-cans*, *Pseudotaxiphyllum elegans*, *Jubula hutchinsiae*, *Lejeunea lamacerina*, *Lejeunea ulicina*.

Diagnosis: Bryo-pteridophytic community that inhabits cavities and small caves on silicic large rock, walls and earthy slopes over a thin layer of soil (exocomophytics) developed in a really wet environment, under the canopy of riverside forests in Southern Cantabrian-Atlantic territories (*Alnion incanae: Hyperico androsaemi-Alnetum glutinosae*, *Valeriano pyrenaicae-Alnetum glutinosae*, etc.) in thermo and mesotemperate humid and hyperhumid euoceanic bioclimatic belts. Topographically it gets in contact with *Dryopterido aemulae-Hymenophylletum tunbrigensis* from which it differs by its floristic composition and its particular habitat: cavities and small caves with thick humic layer.

[T.E. DÍAZ, M.C. FERNÁNDEZ & COLLADO]

Table 65
30.3.4 *Mnium horni*-*Vandenboschietum speciosae*

(*Hymenophyllum tunbrigense*, *Anomodonto-Polypodietaia*, *Anomodonto-Polypodietea*)

Altitude (1=10m)	14	29	30	31	31	31	30	32	32	18	18	19	19	19	25
Number of species	6	7	7	9	10	10	5	5	15	11	7	7	7	11	8
Ordinal number	1	2*	3	4	5	6	7	8	9	10	11	12	13	14	15

Characteristic species (territorials):

<i>Vandenboschia speciosa</i>	4	4	3	3	4	5	4	4	4	4	4	4	3	4	V
<i>Mnium hornum</i>	2	1	1	1	1	+	2	.	1	+	+	2	1	2	V
<i>Diplophyllum albicans</i>	+	1	1	1	2	2	+	+	1	+	.	.	.	.	IV
<i>Pseudotaxiphyllum elegans</i>	.	1	2	1	+	.	+	.	1	+	+	.	.	+	III
<i>Saccogyna viticulosa</i>	1	1	.	.	4	.	.	.	1	+	.	2	3	.	III
<i>Jubula hutchinsiae</i>	.	.	.	+	.	.	.	.	.	.	2	1	2	+	II
<i>Lejeunea lamacerina</i>	.	.	.	.	.	3	.	+	.	2	.	.	.	+	II
<i>Isothecium myosuroides</i>	2	.	.	.	.	.	.	.	.	1	.	.	.	1	II
<i>Plagiochila exigua</i>	.	.	.	.	.	.	.	+	.	+	.	.	.	.	I
<i>Leucobryum juniperoideum</i>	.	+	.	.	+	.	.	.	+	.	.	.	.	.	I
<i>Hymenophyllum tunbrigense</i>	.	.	.	.	+	.	.	.	+	.	.	.	.	.	I
<i>Lejeunea ulicina</i>	1	.	.	.	.	2	.	.	.	.	.	.	.	.	I

Companion species:

<i>Pellia epiphylla</i>	.	.	1	1	+	+	2	.	.	.	.	2	.	.	II
<i>Fissidens serrulatus</i>	.	.	.	.	.	.	.	.	2	.	2	3	3	.	II
<i>Oxalis acetosella</i>	.	.	+	1	.	.	.	.	1	+	.	.	.	.	II
<i>Heterocladium heteropterum</i>	.	.	.	.	3	.	.	.	+	.	1	.	.	.	I
<i>Saxifraga hirsuta</i>	.	.	1	2	.	.	.	.	+	.	.	.	.	.	I
<i>Hedera helix</i>	.	.	.	+	.	.	.	.	+	+	.	.	.	.	I
<i>Eurhynchium stokesii</i>	.	.	.	.	.	.	.	.	+	.	.	.	.	+	I
<i>Conocephalum conicum</i>	.	.	.	.	.	.	.	.	.	.	.	+	.	2	I
<i>Dumortiera hirsuta</i>	.	.	.	.	.	.	.	.	.	.	1	.	3	.	I
<i>Hylacomium armoricum</i>	.	.	.	.	+	.	.	+	.	.	.	.	.	.	I

Other species. Characteristic species: *Bazzania trilobata* + in 2. *Calypogeia muelleriana* + in 6. Companion species: *Dryopteris aemula* + in 4. *Fissidens polyphyllus* 1, *Heterocladium fallax* 1, *Blechnum spicant* + in 6. *Fissidens taxifolius* + in 8. *Woodwardia radicans* 1, *Plagiochila porelloides* + in 9. *Plagiothecium nemorale* + in 10. *Mnium marginatum* + in 13. *Hookeria lucens* 3, *Chiloscyphus fragans* 1, *Eurhynchium striatum* 1 in 14.

Localities: 1. Asturias, Llanes: Valle río de Nueva. 30TUP405095. NW, 1 m² in *Hyperico androsaemi-Alnetum osmundetosum regalis*. 2. Holotypus ass. Asturias, Llanes: Valle río de Nueva. 30TUP385095. NE, 1 m² in *Hyperico androsaemi-Alnetum fagetosum sylvaticae*. 3, 4. Asturias, Llanes: Valle río de Nueva. 30TUP385090. NE-W, 0,9 m² in *Hyperico androsaemi-Alnetum fagetosum sylvaticae*. 5, 6, 7. Asturias, Llanes: Valle río de Nueva. 30TUP380090. N-NE, 0,5 m² in *Hyperico androsaemi-Alnetum fagetosum sylvaticae*. 8, 9. Asturias, Llanes: Valle río de Nueva. 30TUP375090. SW-W, 0,5 m² in *Hyperico androsaemi-Alnetum fagetosum sylvaticae*. 10, 11, 12, 13, 14. Asturias, Llanes: Valle río de Nueva. 30TUP405095. N, 0,5 m² in *Hyperico androsaemi-Alnetum osmundetosum regalis*. 15. Synthesized table.

MYRIOPHYLLO ALTERNIFLORI-POTAMETUM NATANTIS ass. nova hoc loco (3.2.1)
 (*Nymphaeion albae*, *Potametalia*, *Potametea*)

Typus associatio: Table 66, rel. 5 [Ávila: Navalsauz, Puente Nuevo, Alberche river. 30TUK2772. 1240 m, 2 m²].

Characteristic species (territorials): *Myriophyllum alterniflorum*, *Potamogeton natans*, *Ranunculus pseudofluitans*.

Diagnosis: Aquatic carpets of nymphaeids (*Potamogeton natans*) and myriophyllids, often accompanied by batrachids or small elodeids, growing in slow running or standing, moderately deep and mesotrophic water bodies (50-200 cm maximum depth) associated to river courses or ponds subjected to strong fluctuations of the water level but that rarely undergo a complete dessication. The association is known from the rivers of the north and south slopes of the Iberian Central System, but it has probably a wider meso-supramediterranean, Mediterranean West Iberian distribution.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA, PIZARRO & SARDINERO]

Table 66
3.2.1 *Myriophyllo alterniflori-Potametum natantis*
 (*Nymphaeion albae*, *Potametalia*, *Potametea*)

Altitude (1=10m)	124	122	122	124	124	122	122	108	<u>12</u>
Number of species	3	3	3	4	4	4	4	7	4
Ordinal number	1	2	3	4	5*	6	7	8	9
Characteristic species:									
<i>Potamogeton natans</i>	3	5	5	5	5	4	4	4	V
<i>Myriophyllum alterniflorum</i>	2	2	3	2	3	3	1	2	V
<i>Ranunculus pseudofluitans</i>	.	+	1	+	+	1	1	.	IV
<i>Potamogeton berchtoldii</i>	.	.	.	1	2	2	.	.	III
Companion species:									
<i>Alopecurus aequalis</i>	3	.	.	.	.	.	1	.	II

Other species. Companion species: *Lemna minor* 1, *Utricularia minor* 1, *Callitriche brutia* +, *Rorippa nasturtium-aquaticum* +, *Sparganium microcarpum* + in 8.

Localities: 1. Ávila: San Martín del Pimpollar, Alberche river from Venta del Obispo to Piquillo river. 30TUK2873. 4 m². 2. Ávila: San Martín del Pimpollar, Alberche river from Venta del Obispo to Piquillo river. 30TUK2872. 2 m². 3. Ávila: San Martín del Pimpollar, Alberche river from Venta del Obispo to Piquillo river. 30TUK2872. 2 m². 4. Ávila: Navalsauz, río Alberche, Puente Nuevo. 30TUK2774. 2 m². 5. Holotypus ass. Ávila: Navalsauz, Alberche river, Puente Nuevo. 30TUK2772. 2 m². 6. Ávila: Navalsauz, Puente Nuevo, Alberche river. 30TUK2772. 2 m². 7. Ávila: San Martín del Pimpollar, Alberche river from Venta del Obispo to Piquillo river. 30TUK2873. 4 m². 8. Ávila: Umbrías, Aravalle, Retuerta dam. 30TTK8067. Deep = 200 cm, 10 m². 9. Synthesized table.

ONOPORDENEA ACANTHII subclassis nova hoc loco (34B)

[*Onopordenea acanthii* Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi in Itinera Geobot. 5: 374. 1991 (art. 8, 17), *Onopordetea* Br.-Bl., Pflanzensoziologie: 131. 1964 (corresp. name)]
(*Artemisietea vulgaris*)

Typus subclassis: *Onopordetalia acanthii* Br.-Bl. & Tüxen ex Klika & Hadač 1944.

Noticeable characteristic species: *Artemisia absinthium*, *Carduus nutans*, *Carduus pycnocephalus*, *Carduus tenuiflorus*, *Centaurea calcitrapa*, *Centaurea solstitialis*, *Chondrilla juncea*, *Echium vulgare*, *Eryngium campestre*, *Hyoscyamus niger*, *Lactuca virosa*, *Onopordum acanthium*, *Picnomon acarna*, *Reseda luteola*, *Verbascum pulverulentum*, *Verbascum thapsus*, *Verbascum virgatum*.

Diagnosis: Nitrophilous and subnitrophilous vegetation from turned over soils or animal resting places, where the great thistles are preponderant, as well as other annual, biennial or rosulate perennial plants. It flowers in late spring or summer and has a Mediterranean and Eurosiberian optimum, appearing in a depauperate form, sometimes as a neophytic, in other Holarctic or tropical regions with a somewhat warm and dry summer (Saharian-Arabian, Punan, etc.). To the moment, two orders are recognized in the subclassis: *Onopordetalia acanthii*, nomenclatural type of the subclassis, with an Eurosiberian areal and preference for the continental or submediterranean climates, relatively poor in characteristic species and floristically and successional rather related to the nitrophilous perennial vegetation of the *Arction* (*Artemisietalia vulgaris*), and the order *Carthametalia lanati*, with Mediterranean optimum, rich in characteristic species and from our point of view, sinecological type and dispersal center of the subclassis.

[RIVAS-MARTÍNEZ, BÁSCONES, T.E. DÍAZ, FERNÁNDEZ-GONZÁLEZ & LOIDI]

ONOPORDETUM ACANTHO-CASTELLANI ass. nova hoc loco (34.10.10)

(*Onopordion castellani*, *Carthametalia lanati*, *Onopordenea acanthii*, *Artemisietea vulgaris*)

Typus associatio: Table 67, rel. 10 [Valladolid: Villardefrades. 30TUM12. 20 m²].

Characteristic species (territorials): *Onopordum acanthium*, *Onopordum nervosum* subsp. *castellanum*, *Onopordum* x *glomeratum* (*O. acanthium* x *O. nervosum* subsp. *castellanum*).

Diagnosis: Castilian meso-supramediterranean dry clayey calcareous subnitrophilous frequent community well developed on marly soils in disturbed areas by human impacts, such as spoil banks, field crop environs, orchards, off-road places, and cooler sites near the villages. This community can be differentiated of Aragonese and Sorian-Oroiberian association *Onopordetum castellani* by *Carduus granatensis*, *Echium salmanticum* and *Verbascum pulverulentum* and, in opposite sense by *Carduus assoi*, *Carduus nigrescens* and *Onopordum corymbosum*.

[RIVAS-MARTÍNEZ & SÁNCHEZ-MATA]

Table 67

34.10.10 *Onopordetum acantho-castellani**(Onopordion castellani, Carthametalia lanati, Onopordenea acanthii, Artemisietea vulgaris)*

Altitude (1=10m)	69	78	77	77	108	84	90	73	83	78	71	91	73	76	81
Number of species	12	13	13	14	15	15	16	16	16	16	16	17	17	17	16
Ordinal number	1	2	3	4	5	6	7	8	9	10*	11	12	12	14	15
Characteristic species:															
<i>Onopordum castellanum</i>	3	2	3	3	3	3	3	3	3	4	4	2	3	3	V
<i>Cichorium intybus</i>	2	1	+	2	2	2	2	1	1	1	1	2	+	2	V
<i>Onopordum acanthium</i>	1	1	1	+	.	+	2	1	+	+	1	+	1	+	V
<i>Scolymus hispanicus</i>	1	2	1	.	2	.	2	1	2	+	+	2	2	1	V
<i>Carthamus lanatus</i>	1	3	1	1	2	.	2	2	+	+	.	+	1	1	V
<i>Carduus tenuiflorus</i>	1	1	1	1	.	+	.	1	+	+	+	.	+	1	IV
<i>Lactuca serriola</i>	+	.	.	1	1	+	.	.	.	2	1	+	+	1	IV
<i>Verbascum pulverulentum</i>	+	.	+	+	.	+	1	1	+	.	.	1	.	+	IV
<i>Chondrilla juncea</i>	.	1	.	.	.	+	1	1	1	.	+	.	.	.	III
<i>Eryngium campestre</i>	.	.	.	.	2	.	1	.	.	.	.	1	1	.	II
<i>Echium asperrimum</i>	.	.	.	+	.	.	.	1	1	.	+	.	+	+	II
<i>Verbascum montanum</i>	1	.	1	.	.	.	.	.	.	.	+	.	.	+	II
<i>Melilotus altissimus</i>	+	.	.	.	.	.	.	.	.	.	+	.	+	+	II
<i>Picnomon acarna</i>	.	+	2	.	1	.	.	.	.	1	.	.	.	.	II
<i>Carduus granatensis</i>	.	.	.	1	.	2	1	.	.	.	.	.	.	.	II
<i>Echium vulgare</i>	.	.	.	+	.	.	.	1	2	.	.	.	.	.	I
<i>Echium salmanticum</i>	.	.	.	1	.	1	.	.	.	.	.	.	.	.	I
Companion species:															
<i>Hordeum leporinum</i>	1	2	2	1	2	1	1	2	+	+	1	2	1	1	V
<i>Avena sterilis</i>	.	2	+	.	.	1	1	1	1	1	+	1	1	1	V
<i>Hirschfeldia incana</i>	1	2	.	.	1	.	1	2	2	1	+	+	.	+	IV
<i>Bromus diandrus</i>	1	1	1	.	.	+	.	.	.	1	.	.	.	.	III
<i>Cirsium arvense</i>	.	.	.	1	2	.	.	1	.	+	1	2	.	1	III
<i>Cirsium pyrenaicum</i>	.	.	+	1	+	+	1	.	.	.	.	2	.	.	III
<i>Phlomis herba-venti</i>	.	.	.	.	2	1	.	1	1	.	.	1	.	.	II
<i>Anacyclus clavatus</i>	.	.	1	.	.	.	1	.	.	.	.	1	2	+	II

Other species. Characteristic species: *Carduus bourgaeanus* 2 in 3, 1 in 14. *Foeniculum piperitum* 2 in 8, 1 in 13. *Onopordum x glomeratum* + in 10 and 11. *Onopordum x costae* + in 13. *Onopordum illyricum* 2 in 2. *Carlina hispanica* 1, *Centaurea calcitrapa* 1 in 7. *Silybum marianum* + in 11. *Lactuca virosa* 1 in 12. *Verbascum virgatum* 1 in 14. **Companion species:** *Daucus carota* 2 in 5, + in 12. *Mantisalca salmantica* 1 in 13, + in 15. *Medicago sativa* 1 in 13. *Dipsacus sylvestris* 1 in 5. *Anchusa italica* 1 in 9. *Euphorbia serrata* + in 11.

Localities: 1. Zamora: Cerecinos de Campos. 30TTM44. 20 m². 2. Valladolid: Medina del Campo. 30TUL37. 20 m². 3. Palencia: Palencia. 30TUM75. 40 m². 4. Palencia: Torremormojón. 30TUM55. 20 m². 5. Segovia: Ayllón. 30TVL68. 40 m². 6. Valladolid: Villanubla. 30TUM42. 20 m². 7. Valladolid: Cogeces del Monte. 30TUL89. 70 m². 8. Valladolid: Valladolid. 30TUM51. 20 m². 9. Ávila: Arévalo. 30TUL54. 20 m². 10. Holotypus ass. Valladolid: Villardefrades. 30TUM12. 20 m². 11. Valladolid: Tordesillas. 30TUL39. 20 m². 12. Soria: Aldea de S. Esteban. 30TVM70. 40 m². 13. Valladolid: Simanca. 30TUM40. 40 m². 14. Valladolid: Mota del Marqués. 30TUM11. 40 m². 15. Synthesized table.

ORLAYO GRANDIFLORAE-AEGILOPETUM GENICULATAE Romo ass. nova hoc loco (39.13.11)

[*Aegilopo-Orlayetum grandiflorae* Romo in Arxius Secc. Ci. Inst. Estud. Catalans 90: 408, tb. 16. 1989 (art. 5)]

(*Taeniatthero-Aegilopion geniculatae*, *Thero-Brometalia*, *Stellarietea mediae*)

Typus associatio: *Aegilopo-Orlayetum grandiflorae* Romo in Arxius Secc. Ci. Inst. Estud. Catalans 90: 408, tb. 16, rel. 2. 1989. Lleida: Puente de Montañana. CG0969. 535 m, 50 m². (Holotypus hoc loco, l.c. rel. 2). Characteristic species: 4 *Aegilops geniculata*, 1 *Orlaya grandiflora*, + *Bromus hordeaceus*, + *Medicago orbicularis*, + *Petrorhagia prolifera*. Companion species: + *Alyssum alyssoides*, + *Hypericum perforatum*, + *Phleum phleoides*, + *Phlomis herba-venti*, + *Sanguisorba muricata*.

Characteristic species (territorials): *Aegilops geniculata*, *Orlaya grandiflora*.

Diagnosis: Prepyrenean annual ephemeral early summer blooming calcicolous grassland-like community spread in upper mesotemperate and lower supratemperate submediterranean subhumid altered zones.

[RIVAS-MARTÍNEZ & LZCO]

PAEONIO BROTEROI-ABIETION PINSAPO (Rivas-Martínez 1987) all. nova, stat. nov. hoc loco (76.11)

[*Paeonio-Abietenion pinsapo* Rivas-Martínez, Mem. Mapa Series Veg. España: 160. 1987 (art. 27a), *Paeonio-Abietion pinsapo* Rivas-Martínez in Ecol. Medit. 8: 284. 1982 (art. 8)]

(*Quercetalia humilis*, *Quercu-Fagetea*)

Typus alliancia: *Paeonio broteroi-Abietetum pinsapo* Asensi & Rivas-Martínez in Anales Inst. Bot. Cavanilles 33: 243, 1976 (art. 27a). Typus associatio (holotypus): Asensi & Rivas-Martínez, l.c., tb. 1, rel. 1.

Characteristic species: *Abies pinsapo*, *Bunium macuca*, *Ononis reuteri*.

Diagnosis: Supra-mesomediterranean humid to hyperhumid pinsapo fir forests (*Abies pinsapo*), growing in soils developed on calcitic dolomite, or ultramafic igneous rocks in Rondean Biogeographic Sector (Betic Province). Bioclimatic diagnosis: Ic 15-17, I0 9.0-18.0, It 100-230, Tps 500-600.

Bunio macucae-Abietetum pinsapo (Asensi & Rivas-Martínez 1976) Rivas-Martínez, Mem. Mapa Series Veg. España: 160. 1987 (76.11.1)

Diagnosis: Ultramafic Bermejan Rondean pinsapo fir (*Abies pinsapo*) forest community.

Paeonio broteroi-Abietetum pinsapo Asensi & Rivas-Martínez in Anales Inst. Bot. Cavanilles 33: 243, tb. 1. 1976 (76.11.2)

Diagnosis: Dolomite and calcitic dolomite Rondean pinsapo fir (*Abies pinsapo*) forest community.

[RIVAS-MARTÍNEZ & ASENSI]

PARAFESTUCETALIA ALBIDAE ordo novus hoc loco (57b)

[*Festucetalia jubatae* Rivas-Martínez in Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in *Silva Lusit.* 7(2): 275. 2000 (art. 3b)]
 (*Stipo giganteae-Agrostietea castellanæ*)

Typus ordo: *Deschampsio maderensis-Parafestucion albidæ* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in *Silva Lusit.* 7(2): 275. 2000.

Characteristic species: *Agrostis obtusissima*, *Anthyllis lemmaniana*, *Armeria maderensis*, *Crepis vesicaria* subsp. *andryaloides*, *Parafestuca albida*.

Diagnosis: Madeiran silicolous perennial grasslands growing on shallow soils and rupes-trian biotopes in meso-supratemperate hyperhumid and ultrahyperhumid summit areas of Madeira Isle in contact with the climactical zone of *Erica arborea* microforest (*Polysticho falcinelli-Ericetum arboreæ*).

[RIVAS-MARTÍNEZ, CAPELO, J.C. COSTA, LOUSÃ, FONTINHA, JARDIM & SEQUEIRA]

PARIETARION LUSITANICO-MAURITANICAE all. nova hoc loco (41.3)

Typus aliancia: *Torilido nodosae-Parietarium mauritanicæ* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 34(2): 564, tb. 4, rel. 1 (holotypus). 1978.

Characteristic species: *Ceratocarpus heterocarpa*, *Galium minutulum*, *Mercurialis elliptica*, *Parietaria lusitanica*, *Parietaria mauritanica*, *Stachys circinata*, *Succowia balearica*, *Theligionum cynocrambe*, *Urtica dubia*.

Diagnosis: Annual spring ephemeral internal and external wood, shrub fringes and walls slightly nitrified semi-shaded communities spread in thermo- and lower mesomediterranean semiarid to subhumid in West Mediterranean.

Anogrammo leptophyllæ-Parietarium lusitanicæ Rivas-Martínez & Ladero in *Rivas-Martínez in Anales Inst. Bot. Cavanilles* 34(2): 562, tb. 3. 1978 (41.3.1)

Distribution: Lusitan-Extremadurean lower mesomediterranean dry to subhumid growing on wooded and shaded granit caos.

Castellio tuberculosæ-Geranium rotundifolii Alcaraz, Garre, Martínez-Parras & Peinado in *Collect. Bot. (Barcelona)* 16(2): 417, tb. 2. 1986 (41.3.2)

Distribution: Almeriensean coastal semi-shaded community under shrubs of *Rhamno-Juniperetum turbinatæ*.

Fumario macrosepalæ-Parietarium mauritanicæ J.M. Losa & Pérez-Raya in *J.M. Losa in Lazaroa* 10: 24, tb. 1. 1988 (41.3.3)

Distribution: Lower mesomediterranean Granatensean *Celtis australis* riparian and gorges forests.

Geranio purpurei-Galietum minutuli Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 74, tb. 39. 1980 (41.3.4)

Distribution: Gaditan-Coastal Onubensean shaded community growing on tangel humus of *Osyrio-Juniperetum turbinatae* littoral dune bush.

Geranio rotundifolii-Silenetum latifoliae O. Bolòs, Folch & Vigo in O. Bolòs in *Folia Bot. Misc.* 6: 126, tb. 6. 1989 (41.3.5)

Distribution: Known from Columbretes Isles on shady rocks.

Geranio rotundifolii-Theligonetum cynocrambes Rivas-Martínez & Malato-Beliz in Rivas-Martínez 1978 corr. hoc loco (41.3.6)

[*Geranio pusilli-Theligonetum cynocrambes* Rivas-Martínez & Malato-Beliz in Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 34(2): 568, tb. 5, holotypus rel. 5. 1978 (art. 43)]

Distribution: Thermomediterranean calcicole growing in the shade of *Rhamno oleoidis-Quercetum rotundifoliae* trees.

Mercuriali ambiguae-Succowietum balearicae O. Bolòs, Folch & Vigo in O. Bolòs in *Folia Bot. Misc.* 6: 125, tb. 5. 1989 (41.3.7)

Distribution: Known from Columbretes Isles in the shade of walls.

Mercuriali ellipticae-Theligonetum cynocrambes Peinado, Martínez-Parras & Bartolomé in *Studia Bot.* 5: 64, tb. 5. 1986 (41.3.8)

Distribution: Thermomediterranean calcicolous Rondean in the shade of walls.

Parietario mauritanicae-Ceratocapnetum heterocarpae Martínez-Parras in *Anales Jard. Bot. Madrid* 39(1): 187, tb. 1. 1982 (41.3.10)

Distribution: Betic and Almeriensean thermomediterranean dry and semiarid, characterized by *Ceratocapnos heterocarpa*, growing in the shade of the trees and shrubs of *Quercetea ilicis* communities.

Soncho diana-Parietarietum lusitanicae Esteve, Veget. Fl. prov. Murcia: 85. 1973 (41.3.11)

[*Parietario lusitanicae-Geranietum purpurei* Alcaraz, Garre, Martínez-Parras & Peinado in *Collect. Bot. (Barcelona)* 16(2): 416, tb. 1. 1986, accepted in *Itinera Geobot.* 14: 97. 2001 (41.3.9) (syntax. syn.)]

Distribution: Thermo-lower mesomediterranean semiarid Murcian-Almeriensean growing in the shade of shrubs of *Pistacio-Rhamnetalia alaterni* communities.

Theligono cynocrambes-Veronicetum cymbalariae O. Bolòs, Molinier & P. Montserrat in *Acta Geobot. Barcinon.* 5: 97. 1970 (41.3.12)

Distribution: Minorcan in the shade of walls.

Torilido nodosae-Parietarium mauritanicae Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 34(2): 564, tb. 4. 1978 (41.3.13)

Distribution: Lusitan-Extremadurean lower mesomediterranean dry and subhumid growing in the shade of trees and shrubs of *Quercion broteroi* and *Asparago-Rhamnion* communities.

[RIVAS-MARTÍNEZ & CANTÓ]

PETROCOPTIDO PYRENAICAE-SARCOCAPNETEA ENNEAPHYLLAE classis nova hoc loco (29)

Typus classis (holotypus): *Petrocoptidetalia pyrenaicae* ordo novus hoc loco.

Characteristic species: *Asplenium csikii*, *Sarcocapnos enneaphylla*.

Diagnosis: Overhanging rock crevice chasmophytic ombrophobic communities which grow on limestone or dolomite rich rocks in Mediterranean and Temperate mountain cliffs and canyons of Spanish Iberian Peninsula and North African Mauritania.

Sarcocapnetalia enneaphyllae F. Casas in *Trab. Dep. Bot. Univ. Granada* 1: 22. 1972 (29a)

Typus ordo (lectotypus: art. 20): *Sarcocapnion enneaphyllae* F. Casas in *Trab. Dep. Bot. Univ. Granada* 1: 30. 1972.

Characteristic species: *Asplenium celtibericum* subsp. *celtibericum*.

Diagnosis: Overhanging rock crevice chasmophyte ombrophobic communities of Spanish Mediterranean Iberian Peninsula and North African Mauritania in thermo to supramediterranean pluviseasonal and xeric bioclimates and occasionally temperate submediterranean.

Sarcocapnion enneaphyllae F. Casas in *Trab. Dep. Bot. Univ. Granada* 1: 30. 1972 (29.1)

Typus aliancia (lectotypus hoc loco): *Antirrhinetum pertegasii* O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 38(1): 9. 1967, excl. typus: *Sarcocapnetum enneaphyllae* Rivas Goday 1941 (art. 2b, 7) ap. F. Casas in *Trab. Dep. Bot. Univ. Granada* 1: 30. 1972.

Characteristic species: *Antirrhinum pertegasii* (29.1.2), *Antirrhinum pulverulentum* (29.1.3), *Antirrhinum microphyllum* (29.1.1), *Chaenorhinum origanifolium* subsp. *semiglabrum* (29.1.7), *Chaenorhinum segoviense* (29.1.6), *Moehringia castellana* (29.1.8).

Diagnosis: Meso-supramediterranean Catalan-Valencian and Mediterranean Central Iberian calcareous and dolomitic limestones overhanged and walls rather nitrified communities.

Antirrhinetum microphylli F. Casas in Cuad. Ci. Biol. (Granada) 3: 92, tb. 3. 1974 (29.1.1)

Distribution: Alcarrean upper mesomediterranean dry on calcareous and dolomitic overhangs, characterized by *Antirrhinum microphyllum*.

Antirrhinetum pertegasii O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 9, tb. 2. 1967 (29.1.2)

Distribution: Tarraconensean supramediterranean subhumid on calcareous overhangs, characterized by *Antirrhinum pertegasii*.

Antirrhinetum pulverulenti F. Casas in Cuad. Ci. Biol. (Granada) 3: 91, tb. 2. 1974 (29.1.3)

Distribution: Celtiberian-Alcarrean and East Maestracensean supramediterranean dry and subhumid on calcareous overhangs, characterized by *Antirrhinum pulverulentum*.

Asplenio pachyrachidis-Sarcocapnetum enneaphyllae F.J. Pérez, T.E. Díaz & P. Fernández in Monogr. Inst. Piren. Ecol. (Jaca) 5: 571, tb. 1. 1990 (29.1.4)

Distribution: Castilian Cantabrian supramediterranean subhumid on calcareous overhangs, differentiated by *Chaenorhinum organifolium* subsp. *organifolium*.

Chaenorhino crassifolii-Sarcocapnetum enneaphyllae Rivas-Martínez & G. López in G. López in Anales Inst. Bot. Cavanilles 34(2): 611, tb. 5. 1978 (29.1.5)

Distribution: Alcarrean and Manchean meso-supramediterranean dry and subhumid on calcareous nitrified overhangs, characterized by *Chaenorhinum organifolium* subsp. *crassifolium*.

Chaenorhino segoviensis-Sarcocapnetum enneaphyllae Loidi & Galán in Studia Bot. 7: 163, tb. 3. 1989 (29.1.6)

Distribution: Celtiberian-Alcarrean upper meso-supramediterranean dry on calcareous nitrified overhang walls, characterized by *Chaenorhinum segoviense* subsp. *segoviense*.

Chaenorhino semiglabri-Asplenietum celtiberici G. Navarro in Opusc. Bot. Pharm. Complut. 5: 46, tb. 20. 1989 (29.1.7)

Distribution: Sorian Oroiberian supratemperate submediterranean humid on calcareous overhangs, characterized by *Chaenorhinum segoviense* subsp. *semiglabrum*.

Moehringietum castellanae ass. nova hoc loco (29.1.8)

Typus associatio: Table 68, rel. 1 [Guadalajara: Alpedrete de la Sierra, Pontón de la Oliva, Quebrantahuesos area, overhang limestone wall. 40° 51' N-3° 27' W. 850 m, NW, 20 m²].

Characteristic species: *Moehringia castellana*.

Diagnosis: Celtiberian-Alcarrean lower and East Maestracensean, supramediterranean dry and subhumid on calcareous north exposed overhangs (Serranía de Cuenca, Duratón river gorges and Patones-Pontón de la Oliva cliffs), characterized by *Moehringia castellana*.

Table 68

29.1.8 *Moehringietum castellanae*

(*Sarcocapnion enneaphyllae*, *Sarcocapnetalia*, *Petrocoptido-Sarcocapnetea*)

Altitude (1=10m)	85	86	86	85	85	85
Number of species	5	7	6	6	7	6
Ordinal number	1*	2	3	4	5	6
Characteristic species:						
<i>Moehringia castellana</i>	2	2	2	3	2	V
<i>Sarcocapnos enneaphylla</i>	1	3	2	1	2	V
<i>Chaenorhinum segoviense</i>	.	.	.	+	.	I
<i>Asplenium csikii</i>	.	.	.	.	+	I
Companion species:						
<i>Rhamnus pumilus</i>	+	+	+	1	1	V
<i>Chiliadenus saxatilis</i>	+	+	1	.	.	III
<i>Parietaria judaica</i>	+	+	.	.	+	III
<i>Sedum dasyphyllum</i>	.	.	+	+	+	III

Other species. Companion species: *Ficus carica* +, *Umbilicus rupestris* + in 2. *Sedum album* + in 3. *Seseli montanum* + in 4. *Lactuca perennis* + in 5.

Localities: 1. Holotypus ass. Guadalajara: Alpedrete de la Sierra, Pontón de la Oliva, Quebrantahuesos area, overhang limestone wall. 40° 51'N-3° 27'W. NW, 20 m². 2. Guadalajara: Pontón de la Oliva, Maracaibo area. W, 10 m². 3. Guadalajara: Pontón de la Oliva, Púrpura area. NW, 20 m². 4. Guadalajara: Pontón de la Oliva, Poyero area. W, 10 m². 5. Guadalajara: Pontón de la Oliva, Maracaibo area, overhang limestone wall. W, 20 m². 6. Synthesized table.

Sarcocapnion pulcherrimae F. Casas 1972 corr. Rivas-Martínez, Cantó & Izco hoc loco (29.2)

[*Sarcocapnion crassifoliae* F. Casas in Trab. Dep. Bot. Univ. Granada 1: 26. 1972 (art. 43)]

Typus alliancia: *Sarcocapnetum crassifoliae* Cuatrecasas ex Esteve & F. Casas in Cuad. Ci. Biol. 1: 68. 1971.

Characteristic species: *Antirrhinum mollissimum* (29.2.9), *Chaenorhinum tenellum* (29.2.6), *Gypsophila montserratii* (29.2.1), *Moehringia giennensis* (29.2.3), *Moehringia tejedensis* (29.3.2), *Rupicapnos decipiens* (29.2.4), *Sarcocapnos baetica* (29.2.8), *Sarcocapnos crassifolia* subsp. *speciosa*, *Sarcocapnos integrifolia* (29.2.5), *Sarcocapnos pulcherrima* (29.2), *Sarcocapnos saetabensis* (29.2.6).

Diagnosis: Thermo to supramediterranean on overhanging dolomite, limestone and calcium carbonate rocks, cliffs and canyons of Betic Ranges: Betic and Setabensean biogeographic territories.

Gypsophiletum montserratii F. Casas in Publ. Inst. Biol. Aplicada 52: 123. 1972 (29.2.1)

Distribution: Subbetic Alcaracensean supramediterranean subhumid on calcareous overhangs, characterized by *Gypsophila montserratii*.

Hieracio texedensis-Moehringietum tejedensis Mota, Gómez-Mercado & F. Valle in Vegetatio 94: 105, tb. 3. 1991 (29.2.2)

Distribution: Malacitan-Textedan upper supramediterranean humid growing on shadow dolomitic overhanged walls, characterized by *Hieracium texedense* and *Moehringia texedensis*.

Moehringietum giennensis F. Casas 1972 corr. Mota, Gómez-Mercado & F. Valle in Vegetatio 94: 108. 1991 (29.2.3)

[*Moehringietum intricatae* F. Casas in Trab. Dep. Bot. Univ. Granada 1: 27, tb. 2. 1972]

Distribution: Subbetic supramediterranean subhumid on dry overhanged calcareous walls, characterized by *Moehringia intricata* subsp. *giennensis*.

Rupicapnetum decipientis A.V. Pérez, Cabezudo & Nieto in Acta Bot. Malacitana 20: 311, tb. 1. 1995 (29.2.4)

Distribution: Rondean, Hispalensean and Malacitan thermomediterranean dry to subhumid on calcareous shadow overhanged walls, characterized by *Rupicapnos decipientis*.

Sarcocapnetum integrifoliae F. Casas & Molero Brion. in F. Casas in Trab. Dep. Bot. Univ. Granada 1: 26, tb. 1. 1972 (29.2.5)

Distribution: Maginan and Sagran Subbetic mesomediterranean dry on overhanged dolomitic limestones, characterized by *Sarcocapnos integrifolia*.

Sarcocapno saetabensis-Chaenorhinetum tenelli ass. nova hoc loco (29.2.6) (*)

[ass. *Chaenorhinum tenellum* et *Sarcocapnos enneaphylla* Rivas Goday, Esteve, Rigual & Borja in Anales Inst.Bot.Cavanilles 12:490. 1954 (art.3b), ass. *Sarcocapnos crassifolia* et *Chaenorhinum tenellum* (Rivas Goday & Borja 1954) igual & Esteve in Rigual, Esteve & Rivas Goday 1963 (art. 7)]

Typus associatio:Valencia: Ayora, pr.Cueva Horadada,30SXJ8121, 1000 m, 1-VI-1996, 10 m², cob. 50%, North orientated lime overhang "balma". Characteristic species: 3 *Chaenorhinum tenellum*, 2 *Sarcocapnos saetabensis*, 1 *Chaenorhinum crassifolium*, + *Crepis albidia* (subsp. *longicaulis*), 1 *Hieracium loscosianum*, + *Chiliadenus saxatilis* (= *Jasonia saxatilis*), + *Hypericum ericoides*, + *Sanguisorba rupicola*, + *Melica minuta*, + *Centaurea spachii*.

Characteristic species: *Chaenorhinum tenellum*, *Sarcocapnos saetabensis*.

Diagnosis: Rupicolous plant community growing on ceilings of calcareous caves and caverns ("balmas"). *Chaenorhinum tenellum* and *Sarcocapnos saetabensis* (two remarkable endemics of Eastern Spain) are dominant and other Iberolevantine plants such as *Chaenorhinum organifolium* subsp. *crassifolium*, *Hieracium loscosianum*, *Jasonia saxatilis* and *Hypericum ericoides* are also important. This association is endemic to Setabensean Sector (Catalan-Valencian Subprovince), basically in mesomediterranean subhumid bioclimatic belt.

[M.B. CRESPO] (*)

Sarcocapnetum pulcherrimae Cuatrecasas ex Esteve & F. Casas 1971 corr. hoc loco (29.2.7)

[*Sarcocapnetum crassifoliae* Cuatrecasas ex Esteve & F. Casas in Cuad. Ci. Biol. (Granada) 1: 68. 1971 (art. 43)]

Distribution: Almijarensian, Granatensean and Maginan Subbetic meso-supramediterranean dry and subhumid calcareous and dolomitic-limestones overhangs, characterized by *Sarcocapnos pulcherrima*.

Sarcocapno baeticae-Centaureetum clementei Asensi & Esteve in Trab. Dep. Bot. Univ. Granada 4: 32, tb. 1977 (29.2.8)

Distribution: Rondean mesomediterranean dry and subhumid calcareous and dolomitic overhangs from Junquera to Grazalema mountains, characterized by *Centaurea clementei*.

Sarcocapno enneaphyllae-Antirrhinetum mollissimi F. Casas in Publ. Inst. Biol. Aplicada 50: 49, tb. 1. 1971 (29.2.9 = 29.1.9)

Distribution: Almeriensian and Gadorensian thermo-mesomediterranean semiarid and dry on urban walls and overhanged calcareous rocks, characterized by *Antirrhinum mollissimum*.

Petrocoptidetalia pyrenaicae ordo novus hoc loco (29b)

Typus ordo: *Valeriano longiflorae-Petrocoptidion* F. Casas in Trab. Dep. Bot. Univ. Granada 1: 28. 1972.

Characteristic species: *Petrocoptis* sps., *Asplenium celtibericum* subsp. *molinae*.

Diagnosis: Pyrenean and Orocantabric overhanging rock crevice chasmophyte ombrophobic communities mostly on temperate and submediterranean North Spain canyons and mountains from meso to orotemperate.

Valeriano longiflorae-Petrocoptidion F. Casas in Trab. Dep. Bot. Univ. Granada 1: 28. 1972 (29.3)

Typus aliancia: *Petrocoptidetum crassifoliae* O. Bolòs & P. Montserrat ex F. Casas in *Ars Pharm.* 11: 274. 1970 (art. 43) [*Petrocoptidetum hispanicae* O. Bolòs & P. Montserrat ex F. Casas 1970 corr. Rivas-Martínez, Cantó & Izco hoc loco].

Characteristic species: *Androsace cylindrica* (29.3.11), *Androsace willkommii* (29.3.9), *Antirrhinum molle*, *Antirrhinum sempervirens*, *Asplenium seelosi* subsp. *catalaunicum* (29.3.2), *Petrocoptis crassifolia* (29.3.3), *Petrocoptis pardoii* subsp. *guarensis* (29.3.14), *Petrocoptis pyrenaica* subsp. *hispanica* (29.3.5), *Petrocoptis montserratii* (29.3.6), *Petrocoptis pardoii* subsp. *montsicciana* (29.3.10), *Petrocoptis pardoii* subsp. *pardoii* (29.3.8), *Petrocoptis pseudoviscosa* (29.3.4), *Petrocoptis pyrenaica* (29.3.7), *Valeriana longiflora*.

Diagnosis: Meso to orotemperate frequently submediterranean on Prepyrenean canyons, exceptionally on Maestratian Catalanidic South of Ebro.

In some overhangs and caves of Prepyrenean gorges of the Cinca river there are other associations characterized by their endemics of the genus *Petrocoptis* A. Braun ex Endl., as *Asplenio csikii-Petrocoptidetum crassifoliae* [char.: *Petrocoptis crassifolia* Rouy, Devotas Pass, Cinca river and Cañón de Añisclo], *Asplenio csikii-Petrocoptidetum pseudoviscosae* [char.: *Petrocoptis pseudoviscosa* Fern. Casas, Congostos de Ventamillo and de Campo in the Ésera river], *Valeriano-Petrocoptidetum guarensis* [char.: *Petrocoptis guarensis* Fern. Casas, Barranco de Mascún and other limestone gorges of the basin of the Alcanadre river in Guara range], *Petrocoptido montsiccianae-Antirrhinetum mollis* [char.: *Petrocoptis montsicciana* O. Bolòs & Rivas Mart., in the Prepyrenean gorges of the rivers Noguera Pallaresa and Segre: Congostos of Terradets, Collegats and Oliana].

Antirrhino sempervirentis-Potentilletum alchimilloidis Rivas Goday in Rivas Goday, Esteve, Rigual & Borja in *Anales Inst. Bot. Cavanilles* 12(1): 487, tb. 4. 1954 (29.3.1)

Distribution: Pyrenean supra-orotemperate subhumid to humid growing on calcareous and calc-schist walls, characterized by *Antirrhinum sempervirens*. It could be also classified in *Saxifragion mediae* alliance.

Asplenietum catalaunici F. Casas 1970 corr. O. Bolòs & Vigo, *Flora dels Països Catalans* 1: 65. 1984 (29.3.2)

[*Asplenietum celtiberici* F. Casas in *Ars. Pharm.* 11: 275, tb. 8. 1970 (art. 43)]

Distribution: Eastern Pyrenean High Berguedan supra-oromediterranean humid calcareous overhangs from Cadí-Moixeró Natural Park to Montgrony mountains, characterized by *Asplenium seelosi* subsp. *catalaunicum*.

Asplenio csikii-Petrocoptidetum crassifoliae ass. nova hoc loco (29.3.3) (*)

[*Petrocoptidetum crassifoliae* F. Casas in *Cuad. Ci. Biol. (Granada)* 3: 92. 1974 (art. 31) non F. Casas in *Ars. Pharm.* 11: 274. 1970 (art. 43), *Petrocoptidetum crassifoliae* O. Bolòs & P. Montserrat ex F. Casas 1970 *crassifolietosum* G. Montserrat in *Lucas Mallada* 1: 108. 1989 (corresp. name)]

Typus associatio: Table 69, rel. 1 [Huesca: Lafortunada, Paso de las Devotas, overhang limestone wall. 42° 35'N-0° 10'E. 750 m, W, 20 m²].

Characteristic species: *Petrocoptis crassifolia*.

Diagnosis: Association well characterized by the endemic *Petrocoptis crassifolia*, that in the meso-supratemperate submediterranean belt grows in overhanged calcareous walls of the high Cinca river canyons in the Huesca Prepyrenees: the Devotas Canyon, Escuaín canyon and Añisclo Valley.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO] (*)

Table 69

29.3.3 *Asplenio csikii-Petrocoptidetum crassifoliae*

(*Valeriano-Petrocoptidion, Petrocoptidetalia, Petrocoptido-Sarcocapneta*)

Altitude (1=10m)	75	73	73	<u>73</u>
Number of species	3	3	3	3
Ordinal number	1*	2	3	4
Characteristic species:				
<i>Petrocoptis crassifolia</i>	2	3	2	3
<i>Asplenium csikii</i>	1	1	+	3
<i>Sarcocapnos enneaphylla</i>	.	1	.	1
Companion species:				
<i>Saxifraga longifolia</i>	+	.	.	1
<i>Adiantum capillus-veneris</i>	.	.	+	1

Localities: 1. Holotypus ass. Huesca: Lafortunada, Paso de las Devotas, overhang limestone wall. 42° 35'N-0° 10'E. W, 20 m². 2. Huesca: Lafortunada, Paso de las Devotas, overhang limestone wall. E, 10 m². 3. Huesca: Lafortunada, Paso de las Devotas, moist overhang limestone wall. E, 10 m². 4. Synthesized table.

Asplenio csikii-Petrocoptidetum pseudoviscosae ass. nova hoc loco (29.3.4) (*)

[*Petrocoptidetum crassifoliae pseudoviscetosum* G. Montserrat in Lucas Mallada 1: 103. 1989 (corresp. name)]

Typus associatio: Table 70, rel. 2 [Huesca: Castejón de Sos, Congosto del Ventamillo, overhang limestone wall. 42° 31'N-0° 28'E. 850 m, W, 10 m²].

Characteristic species: *Petrocoptis pseudoviscosa*.

Diagnosis: Association well characterized by the local endemic *Petrocoptis pseudoviscosa* which grows on supratemperate submediterranean limestone and dolomitic limestone overhanged canyons of Ésera river between Campo and Castejón de Sos in Ribagorizan Prepyrenean.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO] (*)

Table 70

29.3.4 *Asplenio csikii*-*Petrocoptidetum pseudoviscolae*
(*Valeriano-Petrocoptidion*, *Petrocoptidetalia*, *Petrocoptido-Sarcocapneta*)

Altitude (1=10m)	83	85	75	75	<u>80</u>
Number of species	4	3	4	5	4
Ordinal number	1	2*	3	4	5
Characteristic species:					
<i>Petrocoptis pseudoviscolae</i>	2	2	1	2	4
<i>Asplenium csikii</i>	+	1	+	1	4
<i>Sarcocapnos enneaphylla</i>	.	.	+	.	1
Companion species:					
<i>Saxifraga longifolia</i>	+	.	.	+	2
<i>Hieracium phlomoides</i>	.	+	.	+	2
<i>Lonicera pyrenaica</i>	+	.	.	.	1
<i>Asplenium petrarchae</i>	.	.	+	.	1
<i>Asplenium ruta-muraria</i>	.	.	.	+	1

Localities: 1. Huesca: Castejón de Sos, Congosto del Ventamillo, overhang limestone wall. W, 20 m². 2. Holotypus ass. Huesca: Castejón de Sos, Congosto del Ventamillo, overhang limestone wall. W, 10 m². 42° 31'N-0° 28'E. 3. Huesca: Campo, Ésera canyon, overhang limestone wall. SE, 10 m². 4. Huesca: Campo, Peña Madrid overhang wall. E, 20 m². 5. Synthesized table.

Petrocoptidetum hispanicae O. Bolòs & P. Montserrat ex F. Casas in Ars. Pharm. 11: 273. 1970 corr. hoc loco (29.3.5)

[*Petrocoptidetum crassifoliae* O. Bolòs & P. Montserrat ex F. Casas in Ars. Pharm. 11: 273. 1970 (art. 43); excl. réls.: Devotas, Ventamillo and Añisclo]

Distribution: West Pyrenean meso-supratemperate subhumid overhanged calcareous walls on river canyons western to Subordan River.

Petrocoptidetum montserratii ass. nova hoc loco (29.3.6)

Typus associatio: Huesca: Riglos, Mallo Cored, cave and overhanget wall at the bottom of Western face. 42° 20'N-0° 44'W. SW, 820 m, 20 m². Characteristic species: 3 *Petrocoptis montserratii*. Companion species: + *Adiantum capillus-veneris*, + *Asplenium ceterach*, + *Parietaria judaica*.

Characteristic species: *Petrocoptis montserratii*.

Diagnosis: Rupicolous ombrophobous chasmophytic community that grows on shady overhangs and caves of conglomerate rocks in the Mallos de Riglos and Agüero (Huesca). It is also known from other prepyrenaic mountains in Huesca Province such as the Canciás and Santa Orosia.

Petrocoptidetum pyrenaicae F. Casas in *Ars. Pharm.* 11: 274. 1970 (29.3.7)

[*Saxifraga longifoliae*-*Petrocoptidetum pyrenaicae* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in *Itinera Geobot.* 5: 381, tb. 67. 1991 (syntax. syn.)]

Distribution: West Pyrenean supra-orotemperate humid-hyperhumid on overhanged calcareous walls.

Petrocoptidetum pardoii F. Casas in *Cuad. Ci. Biol. (Granada)* 3: 91, tb. 1. 1974 (29.3.8)

Distribution: Supratemperate submediterranean on Maestratian Catalanid Ranges: canyons of Morella-Bergantes river (Santuario de la Virgen de la Balma) on overhanged calcareous walls, characterized by the local endemic *Petrocoptis pardoii* subsp. *pardoii*.

Petrocoptido hispanicae-*Androsacetum willkommii* F. Casas 1970 corr. Benito in Villar & Benito in *Mem. Mapa Veg. actual. Parque Nal. Ordesa y Monte Perdido*: 139. 2001 (29.3.9)

[*Petrocoptido hispanicae*-*Androsacetum cylindricae* F. Casas in *Ars. Pharm.* 11: 273, tb. 2. 1970 (art. 43)]

Distribution: Prepyrenean Jacetanian (Peña Oroel upper supra-lower orotemperate humid, on north face overhangs).

Petrocoptido montsiccianae-*Antirrhinetum mollis* O. Bolòs 1954 corr. hoc loco (29.3.10)

[*Petrocoptido pardoii*-*Antirrhinetum mollis* O. Bolòs in *Collect. Bot. (Barcelona)* 4(2): 253, tb. 1. 1954 (art. 43)]

Distribution: Meso-supramediterranean and submediterranean on Montsiccianian canyons of Noguera Pallaresa and Segre: Congosts of Terradets, Collegats and Oliana, characterized by the endemic *Petrocoptis pardoii* subsp. *montsicciana*.

Pinguiculo longifoliae-*Androsacetum cylindricae* F. Casas in *Ars. Pharm.* 11: 278. 1970 (29.3.11)

Distribution: Central Pyrenean orotemperate humid on overhanged calcareous wet walls from Ordesa National Park to Cotiella Peak.

Saxifraga longifoliae-*Valerianetum longiflorae* Rivas Goday in Rivas Goday, Esteve, Rigual & Borja in *Anales Inst. Bot. Cavanilles* 12(1): 487, tb. 3. 1954 (29.3.12)

Distribution: Prepyrenean Guarensian supratemperate subhumid submediterranean, described of Arguis Mountains (Guara Mountains), characterized by *Valeriana longiflora* subsp. *longiflora*. It seems intermediate with *Saxifraga longifoliae*-*Ramondetum myconi*.

Scrophulario pyrenaicae-*Antirrhinetum sempervirentis* Quézel in *Collect. Bot. (Barcelona)* 5(1): 185, tb. 5. 1956 (29.3.13)

[*Scrophularietum pyrenaicae* F. Casas in *Trab. Dep. Bot. Univ. Granada* Dep. Bot. Univ. Granada 1: 32. 1970]

Distribution: Central Pyrenean supra-orotemperate humid on overhanged calcareous cliff and crevices visited by birds from Ordesa National Park to Cotiella Peak.

Valeriano longiflorae-Petrocoptidetum guarensis F. Casas 1970 corr. hoc loco (29.3.14)

[*Valeriano longiflorae-Petrocoptidetum montsiccianae* F. Casas in Ars. Pharm. 11: 274, tb. 3. 1970 (art. 43)]

Distribution: Meso-supramediterranean and submediterranean in Jacetanian-Guarensian canyons like Mascún canyon of the basin of Alcanadre river in Sierra de Guara range, characterized by the endemic *Petrocoptis pardoii* subsp. *guarensis*.

Valeriano longiflorae-Petrocoptidetum hispanicae O. Bolòs & P. Montserrat ex F. Casas in Ars. Pharm. 11: 274. 1970 (29.3.15)

Distribution: Prepyrenean Jacetanian supratemperate submediterranean subhumid (San Juan de la Peña), characterized by *Petrocoptis pyrenaica* subsp. *hispanica*.

Petrocoptidion glaucifoliae (P. Fernández, Penas & T.E. Díaz 1983) all. nova, stat. nov. hoc loco (29.4)

[*Petrocoptidenion glaucifoliae* P. Fernández, Penas & T.E. Díaz in Anales Jardín Bot. Madrid 40 (1): 220. 1983 (art. 27a), *Petrocoptidion cantabricum* F. Casas in Trab. Dep. Bot. Univ. Granada 1: 31. 1972 (art. 2b, 8), holotypus: *Petrocoptidetum cantabricum* Rothmaler in Bot. Jahrb. 72: 119. 1941 (art. 2b, 7), *Rupicampanulion* Rothmaler in Vegetatio 5-6: 599. 1954 (art. 2b), *Petrocoptidenion grandifloro-viscosae* P. Fernández, Penas & T.E. Díaz in Anales Jard. Bot. Madrid 40(1): 226. 1983 (corresp. name)]

Typus alliancia: *Petrocoptidetum glaucifoliae* Rivas-Martínez in P. Fernández, Penas & T.E. Díaz in Anales Jard. Bot. Madrid 40(1): 220. 1983.

Characteristic species: *Petrocoptis pyrenaica* subsp. *glaucifolia* (29.4), *Petrocoptis grandiflora* (29.4), *Petrocoptis pyrenaica* subsp. *wiedmannii* (29.4), *Petrocoptis pyrenaica* subsp. *viscosa* (29.4).

Diagnosis: Supra-oromediterranean and meso-supramediterranean overhanging dolomite and limestone communities in Orocantabric and Bercian mountain.

Petrocoptidetum glaucifoliae Rivas-Martínez in P. Fernández, Penas & T.E. Díaz in Anales Jard. Bot. Madrid 40(1): 226, tb. 4. 1983 (29.4.1)

Distribution: Ubinnean-Picoeuropean supra to upperorotemperate humid and hyperhumid overhanging limestone community, characterized by *Petrocoptis pyrenaica* subsp. *glaucifolia*.

Petrocoptidetum grandiflorae J.M. Losa, Mayor, Andrés & F. Navarro in Anales Inst. Bot. Cavanilles 32(1): 215, tb. 2. 1975 (29.4.2)

Distribution: Bercian meso-supramediterranean subhumid growing on dolomitic-limestone overhanged walls, confined to calcareous and dolostone mountains cut by Sil River near Carucedo, characterized by *Petrocoptis grandiflora*.

Petrocoptidetum viscosae J.M. Losa, Mayor, Andrés & F. Navarro in *Anales Inst. Bot. Cavanilles* 32(1): 215, tb. 1. 1975 (29.4.3)

Distribution: Bercian mesomediterranean subhumid growing on dolomitic-limestone walls, overhanged only on primary stations, confined to Priaranza del Bierzo and Cornatel Castle dolostone zone, characterized by *Petrocoptis pyrenaica* subsp. *viscosa*.

Petrocoptidetum wiedmannii Ladero, T.E. Díaz, Penas, Rivas-Martínez & C. Valle in *Itinera Geobot.* 1: 70. 1987 (29.4.4)

Distribution: Ubinnean-Picoeuropean and Ovetensean meso-lowersupratemperate humid, growing on calcareous overhang walls, characterized by *Petrocoptis pyrenaica* subsp. *wiedmannii*.

[RIVAS-MARTÍNEZ, CANTÓ & IZCO]

PINETUM UNCINATO-PYRENAICAE ass. nova hoc loco (74.3.2)

(*Junipero intermediae*-*Pinion catalaunicae*, *Junipero sabinae*-*Pinetalia sylvestris*, *Junipero sabinae*-*Pinetea sylvestris*)

Typus associatio: Table 71, rel. 12 [Huesca: Benasque, El Paso Nuevo. 42°38'15''N-0°33'30''E. 1370 m, N, 25%, 200 m²].

Characteristic species (territorials): *Pinus sylvestris* var. *pyrenaica*, *Pinus uncinata*, *Pinus sylvestris* var. *pyrenaica* x *Pinus uncinata* (*Pinus* x *rhaetica* nothovar. *bolosii*), *Juniperus communis* var. *intermedia* (prox. *Juniperus communis* subsp. *hemisphaerica*), *Buxus sempervirens*.

Diagnosis: Central Pyrenean supratemperate humid and hyperhumid (on steep sunny slopes) semicontinental natural potential coniferous mesoforest community, growing on rich and poor substratum but with an acidic upper organic horizon. In this natural pineland forest community the commonest tree is *Pinus sylvestris* var. *pyrenaica*, but also is abundant *Pinus uncinata* as well the natural hybrid between both (*Pinus* x *rhaetica* nothovar. *bolosii*). In the understory as scrubs are common *Juniperus communis* var. *intermedia* (often close to *Juniperus communis* subsp. *hemisphaerica*) and particularly *Buxus sempervirens*, but are scarce *Juniperus communis* subsp. *nana* and *Juniperus sabina* (except as relict in exposed sunny biotopes); it is also conspicuous the grass chamaephyte layer of *Festuca gautieri* and *Avenella flexuosa*.

[RIVAS-MARTÍNEZ, COSTA, J.A. MOLINA & P. SORIANO]

Table 71

74.3.2 *Pinetum uncinato-pyrenaicae**(Junipero-Pinion catalaunicae, Junipero-Pinetalia, Junipero-Pinetea)*

Altitude (1=10m)	155	133	138	134	160	160	162	165	160	130	144	137	130	161	140
Number of species	14	14	15	16	16	16	18	18	21	20	21	25	27	28	19
Ordinal number	1	2	3	4	5	6	7	8	9	10	11	12*	13	14	15

Characteristic species (territorials):

<i>Pinus pyrenaica</i>	2	2	5	5	4	2	4	4	4	3	2	4	3	4	V
<i>Pinus uncinata</i>	3	1	.	.	2	3	+	1	3	.	+	1	+	2	IV
<i>Pinus x bolosii</i>	+	3	1	1	.	.	1	+	.	2	3	2	3	.	IV
<i>Juniperus intermedia</i>	4	2	+	1	+	+	2	2	2	2	2	2	2	1	V
<i>Buxus sempervirens</i>	2	2	3	2	1	3	3	.	.	4	4	3	3	2	V
<i>Festuca gautieri</i>	1	1	3	1	.	2	1	3	.	2	3	1	.	1	IV
<i>Vicia pyrenaica</i>	.	.	.	.	+	.	.	1	+	.	1	.	1	2	III
<i>Avenella flexuosa</i>	.	.	.	.	1	.	2	.	.	.	.	3	3	2	III
<i>Arctostaphylos uva-ursi</i>	.	3	.	.	3	.	.	.	1	.	.	.	1	.	II
<i>Ononis aragonensis</i>	.	1	.	1	.	.	.	.	.	.	.	.	.	.	II
<i>Juniperus nana</i>	.	.	.	.	.	.	+	.	1	.	.	.	.	.	II
<i>Juniperus sabina</i>	.	.	.	.	.	.	.	4	2	.	.	.	.	.	II

Querco-Fagetea species:

<i>Anemone hepatica</i>	.	1	3	2	1	2	.	+	.	3	2	2	3	1	IV
<i>Amelanchier ovalis</i>	.	2	1	2	+	.	1	.	.	1	+	.	1	.	IV
<i>Sorbus aucuparia</i>	.	.	+	.	.	+	+	+	.	.	1	.	1	+	III
<i>Viburnum lantana</i>	.	.	1	+	.	.	.	+	.	.	1	.	+	.	III
<i>Abies alba</i>	.	.	1	.	.	+	.	.	.	.	+	1	1	.	III
<i>Hieracium murorum</i>	+	.	.	.	+	.	.	.	.	.	+	.	1	.	II
<i>Betula pendula</i>	.	.	.	.	+	1	2	2	.	.	.	.	.	.	II
<i>Vaccinium myrtillus</i>	.	.	.	.	.	1	.	.	.	.	.	3	1	2	II
<i>Oxalis acetosella</i>	.	.	.	.	.	+	.	.	.	.	.	+	+	+	II
<i>Viola reichenbachiana</i>	.	.	.	.	.	.	.	.	.	1	1	2	2	.	II
<i>Quercus x calvescens</i> (S2)	.	.	.	.	.	.	+	.	.	+	.	+	+	.	II
<i>Digitalis lutea</i>	.	.	.	.	.	.	+	+	1	.	.	.	.	.	II
<i>Fraxinus excelsior</i> (S2)	.	.	.	.	.	.	.	.	.	1	.	.	+	+	II

Companion species:

<i>Fragaria vesca</i>	+	.	+	.	1	1	+	.	1	+	+	1	3	1	IV
<i>Rhytidiadelphus triquetrus</i>	1	2	2	2	.	1	.	.	.	2	.	3	4	1	IV
<i>Hylocomium splendens</i>	3	.	2	1	.	.	.	.	.	1	.	3	.	.	III
<i>Cruciata glabra</i>	1	.	1	.	+	1	.	.	+	.	.	.	.	.	II
<i>Calluna vulgaris</i>	.	.	.	.	.	.	1	.	.	.	.	1	+	+	II
<i>Rhododendron ferrugineum</i>	.	.	.	.	.	+	.	.	.	.	.	+	.	+	II

Other species. Querco-Fagetea species: *Ilex aquifolium* + in 7, 12 and 13. *Veronica officinalis* + in 7, 1 in 12, 3 in 14. *Sorbus aria* 1 in 3, + in 9. *Coronilla emerus* 2 in 3, + in 11. *Festuca heterophylla* 2 in 4 and 10. *Primula columnae* 2 in 4, 1 in 10. *Epipactis helleborine* 1 in 4, + in 13. *Vicia cracca* 1 in 5 and 8. *Lilium martagon* 1 in 10 and 12. *Ribes alpinum* + in 12 and 13. *Populus tremula* 2,

Quercus petraea + in 5. *Neottia nidus-avis* +, *Saxifraga umbrosa* + in 6. *Lonicera alpigena* 1, *Rhamnus alpina* + in 9. *Corylus avellana* + in 10. *Daphne laureola* 1 in 11. *Melampyrum pratense* 2 in 12. *Laserpitium latifolium* +, *Salix caprea* + in 13. *Festuca heterophylla* 2, *Luzula pilosa* +, *Ranunculus tuberosus* +, *Sanicula europaea* +, *Sorbus intermedia* + in 14. Companion species: *Teucrium chamaedrys* + in 8, 1 in 9 and 10. *Phyteuma orbiculare* + in 8, 2 in 9. *Thymus palearensis* + in 8, 1 in 9. *Rosa pendulina* 1 in 9, 2 in 11. *Dicranum scoparium* 1, *Sesleria caerulea* + in 1. *Juniperus phoenicea* 1 in 2. *Carex humilis* 1 in 5. *Festuca costei* 1, *Iberis sempervirens* 1 in 7. *Festuca cinerea* 1, *Lathyrus latifolius* + in 8. *Laserpitium siter* 2, *Dianthus monspessulanus* 1, *Satureja montana* 1, *Silene nutans* + in 9. *Hippocrepis comosa* 1, *Silene nutans* 1, *Helianthemum nummularium* + in 11. *Pleurozium schreberi* 3, *Polypodium vulgare* 1 in 12. *Trifolium repens* 2, *Galium pumilum* 1, *Lotus alpinus* 1, *Melampyrum sylvaticum* 1, *Plantago media* 1, *Trifolium montanum* 1 in 14.

Localities: 1. Huesca: Barbaruens, Cotiella. NE, 30%, 100 m². 2. Huesca: Benasque, Montaña de la Rueda. S, 40%, 50 m². 3. Huesca: Benasque, El Tosquero. N, 40%, 100 m². 4. Huesca: Benasque, Fuen de Ferri. NW, 20%, 200 m². 5. Huesca: Benasque, Ball de Ballibierna. S, 30%, 100 m². 6. Huesca: Barbaruens, Cotiella. NE, 20%, 150 m². 7. Huesca: Benasque, Plan de Bañs. E, 40%, 50 m². 8. Huesca: Benasque, Ball de Ballibierna. S, 40%, 50 m². 9. Huesca: Benasque, Ball de Ballibierna. S, 40%, 100 m². 10. Huesca: Benasque, Bajo embalse de Paso Nuevo. NW, 20%, 100 m². 11. Huesca: Benasque, bottom of Ball de Cregüeña. E, 30%, 100 m². 12. Holotypus ass. Huesca: Benasque, El Paso Nuevo. 42°38'15''N-0°33'30''E. N, 25%, 200 m². 13. Huesca: Benasque, Fuen de Piedra Bebedera. NW, 25%, 200 m². 14. Huesca: Plan, Pinar de la Somierre. S, 35%, 200 m². 15. Synthesized table.

POLYCARPAEO NIVEAE-TRAGANETEA MOQUINI Santos classis nova hoc loco (81)

[*Zygophyllo fontanesii-Polycarpaetea niveae* Santos, Proc. II Congr. Int. Pro Fl. Macaronesica (Funchal): 206. 1983 (art. 5), *Ammophiletea* auct. canar. non Br.-Bl. & Tüxen ex Westhoff, Dijk & Passchier 1946]

Typus classis: *Zygophyllo-Polycarpaetalia niveae* Santos ex Géhu, Biondi, Géhu-Franck, Hendoux & Mossa in Bull. Soc. Bot. Centre-Ouest 27: 182. 1996.

Characteristic species: *Polycarpaea nivea*, *Zygophyllum fontanesii*.

Diagnosis: Canarian and West Oceanic Sahara inframediterranean arid hyperoceanic and euoceanic shrubby and dwarf-scrub desertic sand dunes communities, growing on deep sandy regosols.

Zygophyllo fontanesii-Polycarpaetalia niveae Santos ex Géhu, Biondi, Géhu-Franck, Hendoux & Mossa in Bull. Soc. Bot. Centre-Ouest 27: 182. 1996 (81a)

[*Zygophyllo fontanesii-Polycarpaetalia niveae* Santos, Proc. II Congr. Int. Pro Fl. Macaronesica (Funchal): 206. 1983 (art. 5), *Ononidetalia ramosissimae* Galán, I. Sánchez & Vicente in Phytocoenologia 27(3): 330. 1997 (syntax. syn.)]

Typus ordo: *Ononido ramosissimae-Polycarpaetion niveae* Biondi, Allegrezza, Taffetani & Wildpret in Fitosociol. 27: 110. 1994.

Characteristic species: (see class).

Diagnosis: Only one order; see class diagnosis.

Traganion moquini Sunding in Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 38. 1972 (81.1)

[*Zygophyllion fontanesii* Esteve in Collect. Bot. (Barcelona) 7: 308. 1968 (art. 3b), *Zygophyllion fontanesii* Esteve ex Santos, Proc. II Congr. Int. Pro Fl. Macaronesica (Funchal): 206. 1983 (syntax. syn.), *Ononido ramosissimae-Polycarphaeion niveae* Biondi, Allegrezza, Taffetani & Wildpret in Fitosociol. 27: 110. 1994 (syntax. syn.)]

Typus alliancia: *Traganetum moquini* Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 40, tb. 4. 1972. [lectotypus: l.c. rel. 5].

Characteristic species: *Androcymbium psamophilum*, *Lotus lancerottensis*, *Traganum moquini*.

Diagnosis: Tall and dwarf-scrub stable desertic communities of coastal and inland sand dunes, spread in Canarian and West Oceanic Sahara on hyperocenaic and euoceanic inframediterranean arid territories.

Frankenio-Zygophylletum gaetuli Del Arco & Wildpret, Homenaje al Prof. Dr. Telesforo Bravo (Secr. Publ. Univ. La Laguna) 1: 97. 1991 (81.1.1)

Distribution: Dwarf-scrub inframediterranean desertic sand dune community of Majorcan Sector (Fuerteventura Isle).

Polycarphaeion niveae-Lotetum lancerottensis Esteve in Collect. Bot. (Barcelona) 7: 308, tb. 1. 1968 (81.1.2)

Distribution: Dwarf-scrub arid and hyperarid stable community Lanzarotean and Majorcan.

Suaedo-Limonietum callibotryi Pérez de Paz & Acebes in Acebes & Pérez de Paz in Vieraea 14(1-2): 153. 1985 (81.1.3)

Distribution: Salvajes Isles.

Traganetum moquini Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 40, tb. 4. 1972 (81.1.4)

Distribution: Tall scrub permanent stable sand dune community, Lanzarotean, Majorcan, Grancanarian, Teneriffean and Gomeran.

Polycarphaeion niveae-Euphorbion paraliae all. nova hoc loco (81.2)

Typus alliancia: *Euphorbio paraliae-Cyperetum kallii* Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 38, tb. 3. 1972 [lectotypus: l.c. rel. 14].

Characteristic species: *Calystegia soldanella* (terr.), *Euphorbia paralias* (terr.), *Polygonum balansae* var. *tectifolium*, *Polygonum maritimum* (terr.), *Senecio leucanthemifolius* var. *falcifolius*.

Diagnosis: Dwarf-scrub and perennial-grass unstable communities on mobile littoral sand dunes with marine salt-spray.

Euphorbio paraliae-Cyperetum kalii Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 38, tb. 3. 1972 (81.2.1)

Distribution: Lanzarotean, Majorean, Grancanarian and Teneriffean coasts.

[RIVAS-MARTÍNEZ & WILDPRET]

POLYSTICHO FALCINELLI-ERICION ARBOREAE all. nova hoc loco (82.7)

(*Pruno hixae-Lauretalia novocanariensis*, *Pruno-Lauretea novocanariensis*)

Typus alliancia: *Polysticho falcinelli-Ericetum arboreae* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in Silva Lusit. 7 (2): 267, tb. 7, rel. 3. 2000.

Characteristic species: *Erica arborea* (tree up 12 m), *Polystichum falcinellum*, *Vaccinium padifolium*.

Diagnosis: Madeiran supratemperate upper hyperhumid to ultrahyperhumid natural potential vegetation microforest of *Erica arborea* (prob. subsp. *canariensis*) on acidic shallow and deep andosols.

Polysticho falcinelli-Ericetum arboreae Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in Silva Lusit. 7(2): 267, tb. 7. 2000 (82.7.1)

Distribution: Summit zones of Madeira Isle up 1300 m.

[RIVAS-MARTÍNEZ, CAPELO, J.C. COSTA, LOUSÃ, FONTINHA, JARDIM & SEQUEIRA]

POTENTILLO ANSERINAE-AGROSTIETUM STOLONIFERAE ass. nova hoc loco (59.13.1)

(*Agrostion stoloniferae*, *Plantaginetalia majoris*, *Molinio-Arrhenatheretea*)

Typus associatio: Table 72, rel. 4 [León: Crémenes, Las Salas. 30TUN2955. 1000 m, 6 m²].

Characteristic species (territorials): *Agrostis stolonifera*, *Potentilla anserina*, *Senecio aquaticus*.

Diagnosis: Hygronitrophilous meadows growing in sandy-stony soils on the banks of the rivers prone to flooding, influenced by anthropozoogen actions. They seem to have their best development in the supratemperate humid-hyperhumid belt of the Ubinnean Subsector (Orocantabric Subprovince). They belong to the edaphohygrophilous series of the shrubby willow formations of the *Salicetum cantabricae* and the ash woods of the *Euphorbio hybernae-Fraxinetum excelsioris*, where they sometimes grow under the protection of the river trees in contact with megaforbic communities of *Chaerophyllo-Valerianetum pyrenaicae* and *Filipendulion ulmariae*, both occupying the nearest areas to the water channel.

[R. ALONSO, LENCE, PUENTE, PENAS & F. SALEGUI]

Table 72

59.13.1 *Potentillo anserinae-Agrostietum stoloniferae**(Agrostion stoloniferae, Plantaginetalia majoris, Molinio-Arrhenatheretea)*

Altitude (1=10m)	114	114	114	100	100	<u>108</u>
Number of species	12	14	14	18	26	<u>17</u>
Ordinal number	1	2	3	4*	5	6
Characteristic species:						
<i>Potentilla anserina</i>	5	3	2	1	2	V
<i>Agrostis stolonifera</i>	1	1	+	3	2	V
<i>Ranunculus repens</i>	1	1	1	2	2	V
<i>Senecio aquaticus</i>	+	+	1	.	.	III
<i>Juncus inflexus</i>	1	3	.	1	.	III
<i>Mentha longifolia</i>	.	+	+	1	.	III
<i>Dactylis glomerata</i>	.	+	+	.	+	III
<i>Trifolium repens</i>	.	.	+	2	2	III
<i>Agrostis capillaris</i>	1	1	.	.	.	II
<i>Mentha arvensis</i>	.	+	1	.	.	II
<i>Cynosurus cristatus</i>	.	+	.	.	+	II
<i>Juncus acutiflorus</i>	.	+	.	.	+	II
<i>Holcus lanatus</i>	.	.	.	1	+	II
<i>Filipendula ulmaria</i>	.	.	.	+	1	II
<i>Lysimachia vulgaris</i>	.	.	.	+	+	II
Companion species:						
<i>Equisetum arvense</i>	.	.	.	1	2	II
<i>Vicia cracca</i>	.	.	.	1	1	II
<i>Chaerophyllum aureum</i>	.	.	.	+	1	II

Other species. Characteristic species: *Alopecurus geniculatus* 2, *Lolium perenne* + in 1. *Carex hirta* + in 2. *Potentilla reptans* 2 in 4. *Briza media* 1, *Festuca arundinacea* 1, *Plantago lanceolata* 1, *Trifolium pratense* 1, *Carex leporina* + in 5. Companion species: *Equisetum palustre* 1, *Agrostis x murbeckii* +, *Elymus caninus* +, *Glyceria declinata* + in 1. *Myosotis arvensis* +, *Phleum bertolonii* + in 2. *Odontites serotina* 3, *Carex rostrata* 2, *Galium palustre* 1, *Juncus subglomeratus* 1, *Epilobium montanum* +, *Juncus conglomeratus* + in 3. *Aconitum napellus* +, *Angelica sylvestris* +, *Epilobium hirsutum* +, *Heracleum elegans* +, *Lythrum salicaria* + in 4. *Centaurea jacea* 1, *Cirsium pyrenaicum* 1, *Geum rivale* 1, *Lotus pedunculatus* 1, *Veronica chamaedrys* 1, *Bromus erectus* +, *Phalaris arundinacea* +, *Pimpinella major* + in 5.

Localities: 1. León: Acebedo. 30TUN2768. 10 m². 2. León: Acebedo. 30TUN2768. 30 m². 3. León: Acebedo. 30TUN2768. 10 m². 4. Holotypus ass. León: Crémenes, Las Salas. 30TUN2955. 6 m². 5. León: Crémenes, Las Salas. 30TUN2955. 5 m². 6. Synthesized table.

PRUNO MAHALEBO-CORNETUM SANGUINEAE ass. nova hoc loco (66.1.3)

(*Berberidenion vulgaris*, *Berberidion vulgaris*, *Prunetalia spinosae*, *Rhamno-Prunetea*)

Typus associatio: Table 73, rel. 1 [Huesca: Between Sahún and Villanova, Estrecho de Sahún. 42° 34'N-0° 27'E. 1070 m, SE, 5%, 50 m²].

Characteristic species (territorials): *Betula pendula*, *Cornus sanguinea*, *Corylus avellana*, *Prunus mahaleb*.

Diagnosis: Pyrenean supratemperate humid matle community of *Brachypodio sylvatici-Fraxinetum excelsioris* mesic to slightly hydric climactical deciduous forest.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

Table 73

66.1.3 *Pruno mahalebo-Cornetum sanguineae*

(*Berberidion vulgaris*, *Prunetalia spinosae*, *Rhamno-Prunetea*)

Altitude (1=10m)	107	90	115	114	<u>106</u>
Number of species	13	18	20	18	17
Ordinal number	1*	2	3	4	5
Characteristic species:					
<i>Cornus sanguinea</i>	4	3	4	2	4
<i>Ligustrum vulgare</i>	3	2	2	1	4
<i>Clematis vitalba</i>	2	1	2	3	4
<i>Lonicera xylosteum</i>	+	2	2	+	3
<i>Crataegus monogyna</i>	1	1	2	.	3
<i>Prunus mahaleb</i>	1	1	.	2	3
<i>Prunus spinosa</i>	2	.	.	+	2
<i>Viburnum lantana</i>	.	3	1	.	2
<i>Buxus sempervirens</i>	.	1	.	2	2
<i>Rosa canina</i>	.	.	+	1	2
Companion species:					
<i>Corylus avellana</i>	1	1	3	3	4
<i>Betula pendula</i>	1	+	+	.	2
<i>Fraxinus excelsior</i>	2	.	1	+	3
<i>Agrimonia eupatoria</i>	1	.	.	1	2

Other species: Characteristic species: *Rubus caesius* 2, *Rubus ulmifolius* 2 in 1. *Malus sylvestris* 2, *Rosa glauca* 1 in 2. *Rhamnus cathartica* 2, *Rosa corymbifera* 1, *Amelanchier ovalis* + in 3. Companion species: *Campanula persicifolia* + in 2, 1 in 3. *Quercus pubescens* + in 2, 1 in 4. *Brachypodium sylvaticum* 3, *Lonicera etrusca* 2, *Salix lambertiana* 1, *Juniperus communis* + in 2. *Anthriscus sylvestris* 1, *Campanula rapunculus* 1, *Geum urbanum* 1, *Quercus pubescens* x *Quercus petraea* 1, *Rubus idaeus* 1 in 3. *Brachypodium rupestre* 2, *Alliaria petiolata* 1, *Hypericum x desetangsii* 1, *Tamus communis* 1, *Origanum vulgare* +, *Solanum dulcamara* + in 4.

Localities: 1. Holotypus ass. Huesca: Between Sahún and Villanova, Estrecho de Sahún. 42° 34'N-0° 27'E. SE, 5%, 50 m². 2. Huesca: Castejón de Sos: bigger bed of Ésera river. 40 m². 3. Huesca: Benasque: Eriste. W, 40 m². 4. Huesca: Chia. E, 20 m². 5. Synthesized table.

PTERIDIO AQUILINI-CYTISETUM OROMEDITERRANEI ass. nova hoc loco (65.1.6)*(Geniston floridae, Cytisetalia scopario-striati, Cytisetea scopario-striati)*

Typus associatio: Table 74, rel. 7 [Madrid: Rascafría, near Puerto de Cotos. 30TVL2019. 1720 m, S, 80 m²].

Characteristic species (territorials): *Avenella iberica*, *Cytisus oromediterraneus*, *Genista cinerascens*, *Pinus sylvestris* var. *iberica*, *Pteridium aquilinum*.

Diagnosis: Nanophanerophytic communities formed by *Cytisus oromediterraneus*, usually accompanied by *Genista cinerascens*, together with other *Genisteae*. They represent the first substitution stage of the *Pteridio-Pinetum ibericae* woods and the Pyrenean oak forests of the *Luzulo-Quercetum pyrenaicae galletosum rotundifolii*. They are biogeographically distributed in the Guadarramean Sector, of the Carpetan-Leonese Subprovince, in the supramediterranean and suprasubmediterranean bioclimatic belts, in subhumid and humid ombroclimates. They appear between (1250) 1400 and 1700 (1830) m.

[GAVILÁN, CANTÓ, FERNÁNDEZ-GONZÁLEZ, RIVAS-MARTÍNEZ & SÁNCHEZ-MATA]

Table 74**65.1.6 Pteridio aquilini-Cytisetum oromediterranei***(Geniston floridae, Cytisetalia scopario-striati, Cytisetea scopario-striati)*

Altitude (1=10m)	154	140	129	168	165	160	172	177	152	166	154	<u>158</u>
Number of species	8	9	11	14	12	9	14	16	9	18	18	<u>13</u>
Ordinal number	1	2	3	4	5	6	7*	8	9	10	11	12
Characteristic species:												
<i>Cytisus oromediterraneus</i>	5	1	1	4	5	3	3	3	4	4	4	V
<i>Genista cinerascens</i>	2	4	3	3	+	3	3	2	3	1	3	V
<i>Pteridium aquilinum</i>	3	1	.	+	2	+	2	+	2	2	2	V
<i>Pinus iberica</i> (terr.)	.	.	+	.	.	.	1	3	1	1	+	III
<i>Cytisus scoparius</i>	1	3	3	.	.	.	.	.	.	.	+	II
<i>Orobanche rapum-genistae</i>	.	.	.	.	.	+	.	.	.	1	1	II
Companion species:												
<i>Avenella iberica</i>	1	.	.	2	2	2	2	2	.	2	1	IV
<i>Avenula sulcata</i>	2	.	.	.	2	1	.	1	.	2	1	III
<i>Lactuca viminea</i>	.	.	.	1	+	.	+	+	+	+	.	III
<i>Arrhenatherum carpetanum</i>	.	.	.	+	.	.	1	1	+	1	1	III
<i>Stipa gigantea</i>	1	1	.	.	+	2	.	.	.	+	.	III
<i>Agrostis truncatula</i>	1	.	.	.	+	+	.	.	.	1	1	III
<i>Luzula lactea</i>	.	.	.	1	+	.	+	1	.	2	.	III
<i>Koeleria crassipes</i>	.	.	.	+	.	+	.	+	1	1	.	III
<i>Linaria nivea</i>	.	.	.	.	+	.	1	+	+	1	.	III
<i>Juniperus hemisphaerica</i>	.	1	.	.	.	.	1	+	.	.	2	III

Other species. Companion species: *Thymus zygis* 1 in 2, + in 3 and 9. *Lavandula pedunculata* 1 in 3 and 4, 2 in 11. *Agrostis castellana* 1 in 4 and 11, 2 in 10. *Thymus bracteatus* + in 5, 2 in 9, 1 in 11. *Festuca curvifolia* + in 5 and 11, 1 in 9. *Leucantheropsis alpina* 1 in 2, + in 11. *Jasione echinata*

+ in 3 and 8. *Armeria lacaitae* + in 3, 1 in 11. *Arenaria montana* 1 in 4 and 7. *Quercus pyrenaica* + in 8, 1 in 11. *Carduus carpetanus* 1 in 2. *Corynephorus canescens* 1, *Lotus carpetanus* 1, *Plantago radicata* + in 3. *Arenaria quereioides* +, *Linaria sparteae* +, *Ononis australis* + in 4. *Digitalis carpetana* +, *Sorbus aucuparia* +, *Spergula morisonii* + in 7. *Hieracium castellanum* +, *Rumex angiocarpus* + in 8. *Thymus mastichina* 1, *Crataegus monogyna* +, *Rosa corymbifera* + in 10. *Rosa canina* + in 11.

Localities: 1. Ávila: El Espinar, Cabeza Renales. 30TUL9005. NW, 90 m². 2. Ávila: Peguerinos. 30TUK9799. N, 80 m². 3. Ávila: Las Navas del Marqués. 30TUK8895. N, 80 m². 4. Madrid: Puerto de Navafría, Southern slope. 30TVL3136. S, 60m². 5. Madrid: Morcuera-Rascafría, km 12. 30TVL2922. E, 60 m². 6. Madrid: Morcuera-Rascafría, km 14. 30TVL2924. S, 80 m². 7. Holotypus ass. Madrid: Rascafría, near Puerto de Cotos. 30TVL2019. S, 80 m². 8. Madrid: Puerto de Navafría, Southern slope. 30TVL3137. S, 200 m². 9. Madrid: Sierra de Guadarrama, Mondalindo Northern slope. 30TVL4027. W, 100 m². 10. Madrid: Morcuera-La Najarra. 30TVL3021. S, 40 m². 11. Madrid: Miraflores-Morcuera, km 7. 30TVL3221. NW, 50 m². 12. Synthesized table.

PTERIDIO AQUILINI-PINETUM IBERICAE ass. nova hoc loco (74.4.5)

(*Avenello ibericae-Pinion ibericae*, *Junipero-Pinetalia*, *Junipero-Pinetea*)

Typus associatio: Table 75, rel. 4 [Madrid: Cercedilla, Fuenfría Pass. 30TVL1016. W, 20%, 1690 m, 200 m²].

Characteristic species (territorials): *Pinus sylvestris* var. *iberica*, *Avenella iberica*, *Conopodium pyrenaicum*, *Festuca braun-blanquetii*, *Galium rotundifolium*, *Juniperus communis* subsp. *hemisphaerica*, *Pteridium aquilinum*.

Diagnosis: Guadarramean supratemperate submediterranean and supramediterranean subumid and humid semicontinental natural potential vegetation mesoforests community dominated by *Pinus sylvestris* var. *iberica*, sometimes extent by human technics and grazed activities. In orotemperate submediterranean belt of Guadarrama Mountains is replaced by the also climactical microforest *Avenello ibericae-Pinetum ibericae*.

Avenello ibericae-Pinetum ibericae Rivas-Martínez & J.A. Molina in Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 397. 1999 (74.4.1)

(*Avenello ibericae-Pinion ibericae*, *Junipero-Pinetalia*, *Junipero-Pinetea*)

Typus associatio: Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 21(1): 180, tb. 22, rel. 19. 1964 ex Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 397. 1999 (Holotypus sub *Junipero-Sarothamnetum purgantis pinetosum sylvestris*) [Segovia: Sierra de Guadarrama Siete Picos, Northern slope, 1950 m, NE, 25%, 100 m²]. **Characteristic species:** 5 *Pinus sylvestris* (var. *iberica*), 3 *Avenella iberica*, 3 *Juniperus alpina*, 2 *Cytisus oromediterraneus*. **Companion species:** 2 *Digitalis purpurea*, 2 *Nardus stricta*, 2 *Senecio pyrenaicus* subsp. *carpetanus*, 1 *Cerastium ramosissimum*, 1 *Erica arborea*, 1 *Hieracium argyrocomum*, 1 *Lactuca chondrilliflora*, 1 *Luzula lactea*, 1 *Polytrichum juniperinum*, + *Agrostis capillaris*, + *Agrostis truncatula*, + *Armeria caespitosa*, + *Gagea guadarramica*, + *Rumex angiocarpus*.

Characteristic species (territorials): *Avenella iberica*, *Jasione laevis* subsp. *carpetana*, *Juniperus alpina*, *Pinus sylvestris* var. *iberica*.

Table 75

74.4.5 *Pteridio aquilini-Pinetum ibericae**(Avenello ibericae-Pinion ibericae, Junipero-Pinetalia, Junipero-Pinetea)*

Altitude (1=10m)	179	174	160	169	165	175	152	145	153	152	153	160	<u>161</u>
Number of species	18	19	22	22	24	26	26	26	27	28	29	31	25
Ordinal number	1	2	3	4*	5	6	7	8	9	10	11	12	13
Characteristic species:													
<i>Pinus sylvestris</i> var. <i>iberica</i>	5	5	5	5	5	5	5	5	5	5	5	5	V
<i>Festuca braun-blanquetii</i>	+	1	3	1	1	2	2	1	2	1	1	2	V
<i>Cytisus oromediterraneus</i>	+	1	1	+	1	+	+	2	1	+	2	2	V
<i>Juniperus hemisphaerica</i>	2	2	+	3	1	1	2	1	+	+	1	.	V
<i>Avenella iberica</i>	2	3	.	2	2	2	2	3	2	1	2	3	V
<i>Conopodium pyrenaicum</i>	.	+	.	1	1	.	2	1	2	+	1	+	IV
Differential species to Avenello-Pinetum:													
<i>Pteridium aquilinum</i>	4	3	5	3	3	4	4	2	4	3	3	3	V
<i>Galium rotundifolium</i>	2	3	3	3	2	3	3	2	1	.	2	3	V
<i>Holcus mollis</i>	.	1	3	.	1	2	.	.	2	2	2	2	IV
<i>Rosa canina</i>	.	.	.	.	.	.	+	+	+	+	+	1	III
<i>Genista florida</i>	.	.	.	.	.	.	.	1	1	1	.	1	II
Querco-Fagetea species:													
<i>Viola riviniana</i>	.	+	2	1	.	2	1	.	.	.	1	2	III
<i>Veronica officinalis</i>	.	.	.	+	.	1	1	.	1	.	.	+	III
<i>Luzula forsteri</i>	.	.	.	.	.	.	1	1	.	.	1	1	II
Companion species:													
<i>Arenaria montana</i>	2	2	3	2	2	2	2	2	3	2	1	2	V
<i>Luzula lactea</i>	2	2	.	1	3	.	1	2	2	1	.	.	IV
<i>Agrostis castellana</i>	+	.	.	.	+	.	1	1	.	2	1	+	III
<i>Cruciata glabra</i>	.	+	.	1	.	2	1	.	.	1	2	2	III
<i>Acinos meridionalis</i>	.	.	2	.	1	.	+	2	+	2	2	.	III
<i>Lactuca chondrilliflora</i>	.	.	.	+	.	.	+	1	1	1	1	+	III
<i>Clinopodium vulgare</i>	.	.	.	.	1	1	+	1	1	1	1	.	III
<i>Rumex pyrenaicus</i>	1	1	1	1	.	+	.	.	.	.	1	.	III
<i>Linaria nivea</i>	+	1	1	1	.	1	.	.	.	.	.	+	III
<i>Dicranum scoparium</i>	1	1	.	1	.	1	1	1	.	.	.	.	III
<i>Leontodon bourgaeanus</i>	.	+	.	1	+	.	.	.	.	.	1	1	III
<i>Galium verum</i>	.	.	2	.	.	.	1	.	+	+	.	1	III
<i>Ranunculus alpinus</i>	.	.	.	.	1	.	.	+	+	.	1	1	III
<i>Arrhenatherum carpetanum</i>	1	2	.	+	.	2	.	.	.	.	.	.	II
<i>Erica arborea</i>	1	.	.	.	2	+	.	.	.	.	+	.	II
<i>Avenula sulcata</i>	.	.	+	.	1	.	.	2	.	.	2	.	II
<i>Carduus carpetanus</i>	.	.	1	.	.	.	.	+	.	+	+	.	II
<i>Viola odorata</i>	.	.	.	.	1	.	.	2	2	2	.	.	II
<i>Carex divulsa</i>	.	.	.	.	.	.	+	+	+	.	.	+	II

Other species. Characteristic species: *Juniperus alpina* 1 in 1 and 3. *Pinus sylvestris* var. *iberica* (S2) 3 in 3. *Viscum austriacum* + in 5. Differential species: *Arctostaphylos crassifolia* + in 5. *Rubus castellarnaudi* + in 12. Quercu-Fagetea species: *Sanicula europea* + in 7. Companion species: *Hypochoeris radicata* 1 in 3, 1 in 5, + in 9. *Cistus laurifolius* 2 in 3, 1 in 11, + in 12. *Urtica dioica* + in 4, 6 and 12. *Cynosurus echinatus* 2 in 10, 1 in 11, 1 in 12. *Silene nutans* 1 in 10, + in 11 and 12. *Genista cinerascens* + in 1, 1 in 10. *Festuca iberica* 1 in 2 and 4. *Poa nemoralis* 1 in 3 and 6. *Cynosurus elegans* + in 8 and 9. *Hieracium castellanum* 1 in 10 and 11. *Cytisus scoparius* 1 in 11 and 12. *Cerastium ramosissimum* + in 1. *Galium aparinella* 1, *Geranium purpureum* 1 in 3. *Teucrium scorodonia* + in 4. *Jasione carpetana* +, *Leucanthemopsis alpina* + in 5. *Galium aparine* 1, *Galium pinetorum* 1, *Mycelis muralis* 1, *Anthoxanthum odoratum* +, *Digitalis carpetana* +, *Lapsana communis* + in 6. *Homalothecium sericeum* 2, *Geranium robertianum* 1, *Epilobium lanceolatum* + in 7. *Conopodium subcarneum* 1, *Thymus bracteatus* + in 8. *Achillea millefolium* +, *Campanula rapunculoides* +, *Herniaria scabrida* +, *Rosa corymbifera* + in 9. *Adenocarpus hispanicus* 1, *Quercus rotundifolia* 1, *Rosa micrantha* 1, *Lavandula pedunculata* + in 10. *Potentilla micrantha* 1, *Geum sylvaticum* +, *Rubus ulmifolius* + in 12.

Localities: 1. Madrid: Rascafría, Valle de Valdemartín-Cabezas de Hierro. 30TVL1913. S, 400 m². 2. Madrid: Cercedilla, Collado Ventoso. 30TVL1115. S, 400 m². 3. Madrid: Navacerrada, Valle de la Barranca. 30TVL1513. S, 400 m². 4. Holotypus ass. Madrid: Cercedilla, Fuenfría Pass. 30TVL1016. W, 20%, 200 m². 5. Ávila: Peguerinos, Collado del Hornillo. 30TVL0004. N, 200 m². 6. Segovia: Aldealengua de Pedraza, Puerto de Navafría. 30TVL3138NE. 400 m². 7. Madrid: Guadarrama, Puerto de los Leones. 30TVL0503. NE, 400 m². 8. Madrid: Guadarrama, Puerto de los Leones. 30TVL0405. E, 200 m². 9. Madrid: Guadarrama, Cabeza Lijar. 30TVL0305. E, 400 m². 10. Madrid: S. Lorenzo del Escorial, Abantos. 30TVL0296. S, 200 m². 11. Madrid, Cercedilla, Valle de Cercedilla from El Ventorrillo. 30TVL1312. W, 400 m². 12. Madrid, Cercedilla, El Ventorrillo. 30TVL1412. W, 400 m². 13. Synthesized table.

Diagnosis: Orotemperate submediterranean humid and hyperhumid *Pinus sylvestris* var. *iberica* microforests (mesoforests only in lower altitudes on deep soils), growing between 1700-2100 m in siliceous medium acid tangel cambisols or rankers, covered by winter snow for at least five months, in the high mountains of Sierra de Guadarrama (Iberian Central Range). At lower altitudes 1500-1850 m in expositions and soils where *Quercus pyrenaica*, *Quercus petraea* or *Betula celtiberica* deciduous forest can't grow, the *Avenello-Pinetum ibericae* forests are replaced by the also primary or locally old secondary Guadarramean Iberic Scots pine mesoforest association *Pteridio-Pinetum ibericae* rich in *Quercu-Fagetea* and *Cytisetea scopario-striati* species.

[RIVAS-MARTÍNEZ & J.A. MOLINA]

PTEROSPARTO CANTABRICI-ERICETUM ARAGONENSIS M. Losa & P. Montserrat in Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32(2): 214. 1958 (61.4.10)

[*Erica aragonensis*-*Pterospartum cantabricum* ass. M. Losa & P. Montserrat in Tüxen & Oberdorfer 1958 (art. 10), *Daboecio cantabricae-Ericetum aragonensis* Rivas-Martínez in F. Prieto & Loidi in Lazaroa 5: 81. 1984 (syntax. syn.)]

(*Daboecion cantabricae*, *Ulicetalia minoris*, *Calluno-Ulicetea*)

Typus associatio: Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübél 32(2): 214., tb. 67, rel.: single. 1958.

Characteristic species (territorials): *Daboecia cantabrica*, *Erica aragonensis*, *Pterospartum cantabricum*.

Diagnosis: Orocantabric supratemperate and scarcely reaching lower orotemperate hyperhumid secondary siliceous and acidic heath community, that produces "raw humus" or 0 horizon generative agent of atlantic podzols.

[RIVAS-MARTÍNEZ]

Table 76
74.4.1 Avenello ibericae-Pinetum ibericae

(*Avenello ibericae*-*Pinion ibericae*, *Junipero Pinetalia*, *Junipero-Pinetea*)

Altitude (1=10m)	192	181	184	185	171	175	188	181	177	183	188	187	183
Number of species	14	14	14	14	16	17	18	18	19	19	20	22	17
Ordinal number	1	2	3	4	5	6	7	8	9	10	11	12	13
Characteristic species:													
<i>Pinus sylvestris</i> var. <i>iberica</i>	5	5	5	5	5	5	5	5	5	5	5	5	V
<i>Avenella iberica</i>	5	4	3	5	4	5	3	5	4	4	4	3	V
<i>Juniperus alpina</i>	2	3	3	1	.	+	3	2	1	+	1	1	V
<i>Juniperus hemisphaerica</i>	.	1	+	3	1	2	2	1	2	2	2	2	V
<i>Cytisus oromediterraneus</i>	1	.	.	1	1	1	+	+	+	+	1	.	IV
<i>Conopodium pyrenaicum</i>	.	1	+	+	.	.	+	+	.	+	2	1	IV
<i>Festuca braun-blauquetii</i>	.	.	.	1	2	2	.	1	.	2	1	2	III
Companion species:													
<i>Arenaria montana</i>	1	1	1	1	2	2	2	2	2	2	1	2	V
<i>Rumex pyrenaicum</i>	2	2	2	+	1	2	2	1	2	2	2	1	V
<i>Dicranum scoparium</i>	2	2	1	2	2	3	.	2	2	1	2	2	V
<i>Jasione carpetana</i>	2	3	3	.	2	1	.	2	2	1	3	2	V
<i>Cerastium ramosissimum</i>	1	+	1	+	.	1	+	.	1	+	1	.	IV
<i>Linaria nivea</i>	.	.	.	.	+	2	+	+	+	1	1	+	IV
<i>Nardus stricta</i>	1	.	+	.	1	.	.	1	1	+	+	.	III
<i>Festuca iberica</i>	2	.	.	.	1	1	1	1	1	.	.	1	III
<i>Arrhenatherum carpetanum</i>	.	+	+	.	.	.	1	1	1	.	1	1	III
<i>Agrostis castellana</i>	1	.	.	1	.	1	.	+	1	.	.	.	III
<i>Campanula herminii</i>	.	+	1	.	.	.	.	.	1	.	.	.	II
<i>Veronica officinalis</i>	.	+	.	.	.	.	.	.	1	.	.	+	II
<i>Galium rotundifolium</i>	.	.	+	.	.	.	.	+	.	+	.	.	II
<i>Stellaria media</i>	.	.	.	+	.	+	.	.	.	.	+	.	II
<i>Teesdalia coronopifolia</i>	.	.	.	.	+	+	+	.	.	.	.	.	II
<i>Luzula lactea</i>	.	.	.	.	3	.	2	.	.	.	.	+	II
<i>Leontodon bourgaeanus</i>	.	.	.	.	.	.	1	.	.	1	.	+	II

Other species. Companion species: *Leucanthemopsis alpina* + in 1 and 7. *Carex ovalis* + in 2 and 9. *Omalotheca carpetana* 1 in 10, + in 12. *Viola riviniana* + in 10, 1 in 12. *Hieracium castellanum* + in 1. *Senecio adonidifolius* + in 4. *Koeleria crassipes* +, *Sorbus aucuparia* + in 5. *Linaria elegans* + in 6. *Acinos meridionalis* 1, *Carduus carpetanus* + in 7. *Sedum brevifolium* + in 8. *Hypochoeris radicata* + in 9. *Digitalis carpetana* + in 10. *Ranunculus alpinus* 2, *Avenula sulcata* 1, *Narcissus rupicola* 1, *Adenocarpus hispanicus* + in 11. *Cerastium arvense* 2, *Cruciata glabra* 2, *Vicia pyrenaica* 2, *Carex pairaei* + in 12.

Localities: 1. Madrid: Cercedilla, Siete Picos (1°). 30TVL1215. NW, 400 m². 2. Madrid: Rascafría, Cabezas de Hierro. 30TVL2118. N, 400 m². 3. Madrid: Rascafría, Cabezas de Hierro. N, 400 m². 4. Segovia: La Granja, Peña del Águila. 30TVL1717. N, 200 m². 5. Segovia: El Espinar, Peña Águila-Río Moros. 30TVL0714. N, 200 m². 6. Segovia: El Espinar, Collado de Marichiva, Río Moros. 30TVL0815. N, 200 m². 7. Madrid: Cercedilla, Collado Ventoso. 30TVL1116. S, 400 m². 8. Madrid: Manzanares El Real, Valdemartín. 30TVL1914. N, 200 m². 9. Madrid: Rascafría, Cabezas de Hierro. 30TVL2119. N, 400 m². 10. Segovia: Aldealengua de Pedraza, Puerto de Navafría. 30TVL3137. N, 400 m². 11. Segovia: La Granja, Los Cogorros. 30TVL1417. NE, 200 m². 12. Segovia: Aldealengua de Pedraza, Puerto de Navafría. 30TVL3137. NE, 400 m². 13. Synthesized table.

PULMONARIO AFFINIS-ABIETETUM ALBAE ass. nova hoc loco (76.3.2)

(*Saxifraga umbrosae*-*Abietenion*, *Galio rotundifolii*-*Abietenion*, *Fagetalia sylvaticae*, *Quercu-Fagetea*)

Typus associatio: Table 77, rel. 2 [Huesca: Benasque, at the bottom of Ball Cregüeña. 42°39'N-0°35'E. 1620 m., W, 20%, 500 m²].

Characteristic species (territorials): *Abies alba*, *Buxus sempervirens*, *Carex digitata*, *Pinus sylvestris* var. *pyrenaica*, *Pulmonaria affinis*.

Diagnosis: Central Pyrenean upper supratemperate humid and hyperhumid mostly semi-continental and shadowless *Abies alba* fir macroforest community, growing on deep A umbric horizon mesic soils with a long winter snow cover; differentiated of the moister, longer snowed and foggiest North Pyrenean *Goodyero-Abietetum albae* by the more "southern" species like: *Buxus sempervirens*, *Pulmonaria affinis*, *Luzula nivea*, *Pinus sylvestris* var. *pyrenaica*, etc.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

PULMONARIO LONGIFOLIAE-QUERCION ROBORIS all. nova hoc loco (76.4)

[*Fraxino-Carpinion* sous-alliance à *Hypericum androsaemum* Vanden Berghen in Bull. Soc. Roy. Bot. Belgique 102: 115. 1968 (art. 29), *Polysticho-Corylenion* (Vanden Berghen 1968) O. Bolòs in Pirineos 108: 65. 1973 (art. 29), *Carpinion* sensu auct. iber. non Issler 1931, *Pulmonario-Carpinion* Oberdorfer, Süddeutsch. Pflanzenges.: 418. 1957 excl. holotypus: *Stellarario-Carpinetum* Oberdorfer, Süddeutsch. Pflanzenges.: 418. 1957]
(*Fagetalia sylvaticae*, *Quercu-Fagetea*)

Typus alliancia: *Crataego laevigatae-Quercetum roboris* Rivas-Martínez & Loidi in Lazaroa 10: 81. 1988

Characteristic and differential species against *Carpinion betuli* Issler 1931: *Crataegus laevigata*, *Hyacinthoides non-scripta*, *Hypericum androsaemum*, *Hypericum x inodorum*, *Pulmonaria longifolia*, *Saxifraga hirsuta*.

Table 77

76.3.2 *Pulmonario affinis-Abietetum albae**(Saxifraga umbrosae-Abietenion, Galio rotundifolii-Abietenion, Fagetalia sylvatica, Querco-Fagetea)*

Altitude (1=10m)	140	162	145	142	143	<u>146</u>
Number of species	25	28	26	26	29	<u>27</u>
Ordinal number	1	2*	3	4	5	6
Characteristic species (territorials):						
<i>Abies alba</i>	5	5	5	5	5	V
<i>Buxus sempervirens</i>	3	3	3	4	3	V
<i>Carex digitata</i>	2	1	2	2	2	V
<i>Pulmonaria affinis</i>	1	1	1	+	+	V
<i>Luzula nivea</i>	1	.	1	+	2	IV
<i>Lonicera xylosteum</i>	1	.	1	+	+	IV
<i>Pinus pyrenaica</i>	.	1	+	1	1	IV
<i>Sorbus intermedia</i>	.	1	+	+	+	IV
<i>Lonicera nigra</i>	+	1	.	.	.	II
Characteristic species (order and class):						
<i>Prenanthes purpurea</i>	2	2	1	1	1	V
<i>Corylus avellana</i>	+	+	2	2	+	V
<i>Hepatica nobilis</i>	+	2	2	1	1	V
<i>Viola reichenbachiana</i>	+	1	1	1	1	V
<i>Sorbus aucuparia</i>	2	2	+	.	.	III
<i>Oxalis acetosella</i>	2	.	.	1	1	III
<i>Ilex aquifolium</i>	+	.	+	+	.	III
<i>Daphne laureola</i>	.	2	+	.	+	III
<i>Rubus hirtus</i>	2	.	1	1	.	III
<i>Melica uniflora</i>	1	+	1	.	.	III
<i>Phyteuma pyrenaicum</i>	1	2	.	.	.	II
Companion species:						
<i>Hylocomium splendens</i>	3	1	3	1	2	V
<i>Vaccinium myrtillus</i>	1	1	1	+	2	V
<i>Dechampsia flexuosa</i>	2	2	.	.	1	III
<i>Rhytidiadelphus triquetrus</i>	1	.	2	.	2	III

Other species. Characteristic species: *Polystichum aculeatum* + in 1 and 5. *Asperula odorata* 1 in 2, + in 3. *Lilium martagon* 1 in 2 and 4. *Hieracium murorum* 1 in 2, + in 4. *Betula pendula* + in 2 and 5. *Poa nemoralis* 1 in 3 and 4. *Fragaria vesca* 1 in 3 and 5. *Polystichum aculeatum* + in 4 and 5. *Rubus idaeus* + in 4 and 5. *Lathyrus niger* +, *Quercus petraea* +, *Veronica officinalis* + in 1. *Cicerbita muralis* 1, *Geranium sylvaticum* 1, *Populus tremula* 1, *Cardamine impatiens* + in 2. *Cephalanthera rubra* +, *Epipactis helleborine* +, *Moehringia trinervia* + in 4. *Lathyrus latifolius* 1, *Luzula sylvatica* 1, *Aquilegia vulgaris* +, *Polystichum aculeatum* + in 5. Companion species: *Calamagrostis arundinacea* 1 in 2, + in 5. *Adenostyles pyrenaica* + in 2 and 5. *Conopodium majus* 1, *Pyrola secunda* +, *Rosa pendulina* +, *Viburnum lantana* + in 3. *Dicranum scoparium* 1 in 4. *Athyrium filix-femina* + in 5.

Localities: 1. Huesca: Benasque, L'Abetosa de Canal Seca. W, 30%, 500 m². 2. Holotypus ass. Huesca: Benasque, at the bottom of Ball Cregüefia. 42°39'N-0°35'E. W, 20%, 500 m². 3. Huesca: Benasque, Plan de Rosec. NW, 20%, 500 m². 4. Huesca: Benasque, Plan de Senarta. W, 25%, 1000 m². 5. Huesca: Benasque, Plan de Rosec. NW, 20%. 500 m². 6. Synthesized table.

Diagnosis: Cantabrian-Atlantic, Orocantabrian and Pyrenean spread in Castilian Cantabrian and Sorian Oroiberian thermo- to supratemperate humid to hyperhumid often submediterranean, deciduous mesic forests, dominated by *Quercus robur* (and hybrids with: *Q. pubescens*, *Q. petraeae*, *Q. faginea*, *Q. pyrenaica*), *Fraxinus excelsior*, *Acer campestre*, etc., growing on deep rich soils with gleyic properties.

Brachypodio sylvatici-Fraxinetum excelsioris Vigo in Collect. Bot. (Barcelona) 7(2): 1176. 1968 (76.4.1)

Distribution: Pyrenean mostly south valleys, meso-supratemperate often submediterranean.

Crataego laevigatae-Quercetum roboris Rivas-Martínez & Loidi in Lazaroa 10: 81, tb. 1. 1988 (76.4.2)

Distribution: Cantabrian-Basque, mostly Navarran-Alavese submediterranean upper meso-lower supratemperate subhumid-humid.

Doronico pardalianchis-Fraxinetum excelsioris O. Bolòs, J.M. Montserrat & Romo in Collect. Bot. (Barcelona) 22: 56, tb. 1. 1993 (76.4.3)

Distribution: Vallesan-Empordanese mesotemperate humid submediterranean.

Isopyro thalictroidis-Quercetum roboris Tüxen & Diemont 1936 (76.4.4)

Distribution: North Pyrenean and Gironese meso-lower supratemperate humid-hyperhumid.

Polysticho setiferi-Coryletum avellanae O. Bolòs in Collect. Bot. (Barcelona) 5(1): 244, tb. 30. 1956 (76.4.6)

Distribution: Montsignatic and Vallesan permanent and secondary microforest, where *Quercus canariensis*, *Quercus pubescens* and *Acer campestre*, show an structure closer to primary forest (tb. 30, rel. 3, 5 and 9).

Polysticho setiferi-Fraxinetum excelsioris (Tüxen & Oberdorfer 1958) Rivas-Martínez ex C. Navarro in Lazaroa 4: 121. 1983 (76.4.7)

[*Corylo-Fraxinetum cantabricum* Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32: 284, tb. 87. 1958 (art. 34)]

Distribution: Cantabrian-Basque and Ovetensean thermo-mesotemperate humid.

[RIVAS-MARTÍNEZ & IZCO]

RANUNCULION OMIOPHYLLO-HEDERACEI all. nova hoc loco (11.5)

(*Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Typus alliancia: *Montio amporitanae-Ranunculetum hederacei* ass. nova hoc loco (11.5.1).

Characteristic species: *Ranunculus hederaceus*, *Ranunculus omiophyllus*.

Diagnosis: Communities dominated by the rooted stoloniferous helophytic ranunculids *Ranunculus hederaceus* or *Ranunculus omiophyllus*, often accompanied by *Callitriche* spp. and several dwarf helophytes, growing rooted but with floating leaves on shallow (5-15 cm maximum depth), standing or slow running small ponds connected to springs or rivulets of cold, fresh, oligo- or mesotrophic water. The level of inundation may be permanent or fluctuating and summer desiccation may become complete. They are distributed in the Western Mediterranean and Atlantic-Central European Subregions, in the meso-supratemperate and meso-supra(oro)mediterranean belts. Although the ecology of these communities is somewhat intermediate between the alliances of *Montio-Cardaminetalia* and *Ranunculion aquatilis* (*Callitriche-Batrachion*), the floristic elements belonging to the first order are usually predominant in their composition.

Montio amporitanae-Ranunculetum hederacei ass. nova hoc loco (11.5.1)

Typus associatio: Table 78, rel. 9 [Avila: Puerto Castilla, Tornavacas Pass. 30TTK7362. 1300 m, 1 m²].

Characteristic species (territorials): *Montia amporitana*, *Myosotis stolonifera*, *Ranunculus hederaceus*.

Diagnosis: Association dominated by *Ranunculus hederaceus*, growing on shallow, small ponds connected to springs or rivulets of cold, fresh, oligo- or mesotrophic water. They are known from the Mediterranean West Iberian Province, in the meso-supra(oro)mediterranean belts.

Table 78

11.5.1 *Montio amporitanae-Ranunculetum hederacei*

(*Ranunculion omiophyllo-hederacei*, *Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Altitude (1=10m)	130	160	161	116	89	160	103	117	130	117	159	<u>131</u>
Number of species	4	4	4	5	5	5	6	6	6	7	8	5
Ordinal number	1	2	3	4	5	6	7	8	9*	10	11	12
Characteristic species:												
<i>Ranunculus hederaceus</i>	3	4	5	4	5	5	2	5	3	3	3	V
<i>Montia amporitana</i>	1	2	.	1	1	1	4	2	2	2	2	V
<i>Myosotis stolonifera</i>	+	.	+	.	.	.	+	.	1	1	1	IV
<i>Stellaria alsine</i>	1	.	.	+	.	.	1	.	+	.	+	III
<i>Veronica langei</i>	.	.	+	.	.	.	.	1	.	.	1	II
<i>Epilobium obscurum</i>	.	.	.	.	.	.	.	+	.	1	.	II
Companion species:												
<i>Glyceria declinata</i>	.	1	.	+	2	.	2	.	1	1	1	IV
<i>Callitriche stagnalis</i>	.	+	.	.	.	1	+	.	1	1	.	III
<i>Lemna minor</i>	.	.	.	.	1	.	.	.	.	1	.	II

Other species. Companion species: *Callitriche brutia* 1 in 3. *Rorippa nasturtium-aquaticum* + in 4. *Peplis portula* 1 in 5. *Antinoria natans* +, *Ranunculus flammula* + in 6. *Apium nodiflorum* 1, *Agrostis stolonifera* + in 8. *Carum verticillatum* 1, *Cardamine pratensis* + in 11.

Localities: 1. Ávila: La Lastra del Cano. 30TTK9470. 2. Madrid: Santa María de la Alameda, Tobar creek. 30TVK0095. 0,3 m², 5 cm deep, pH 6,5, T: 18°C, 11.VI. 1988. 3. Ávila: Santiago del Collado, Puerto de la Peña Negra, Peña Negra creek. 30TUK0477. 0,3 m², 10 cm deep, pH 7, T: 12°C. 4. Madrid: Becerril de la Sierra, Alto del Hilo, Angostura creek. 30TVL1608. 0,3 m², 7 cm deep, pH 7,2, T: 15°C. 5. Madrid: El Escorial, la Granjilla, spring. 30TVK0592. 0,3 m², 5 cm deep, pH 7, T: 15°C. 6. Madrid: Santa María de la Alameda, Tobar creek. 30TVK0095. 0,3 m², 5 cm deep, pH 6,5, T: 18°C. 7. Ávila: Navatejares. 30TTK8568. 8. Salamanca: Navacarros. 30TTK7075. 9. Holotypus ass. Ávila: Puerto Castilla, Tornavacas Pass. 30TTK7362. 1 m². 10. Ávila: Becedas. 30TTK7675. 11. Ávila: Santiago del Collado, Puerto de la Peña Negra, spring. 30TUK0477. 0,3 m², 5 cm deep, pH 7, T: 15°C. 12. Synthesized table.

***Myosotido stoloniferae-Ranunculetum omiophylli* ass. nova hoc loco (11.5.2)**

Typus associatio: Table 79, rel. 1 [Salamanca: Cereceda de la Sierra, Yeltes river, Cerezo creek. 29TQE461949. 1200 m, water 5-10 cm, 2 m²].

Characteristic species (territorials): *Myosotis stolonifera*, *Ranunculus omiophyllus*.

Diagnosis: Association dominated by *Ranunculus omiophyllus*, growing on shallow, small ponds connected to springs or rivulets of cold, fresh, more permanent and oligotrophic water than the preceding association, and also more oceanic requirements. They have also a more western and northern Iberian distribution.

Table 79

11.5.2 *Myosotido stoloniferae-Ranunculetum omiophylli*

(*Ranunculion omiophyllo-hederacei*, *Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Altitude (1=10m)	120	96	112	96	<u>106</u>
Number of species	5	5	7	8	6
Ordinal number	1*	2	3	4	5
Characteristic species:					
<i>Ranunculus omiophyllus</i>	4	3	4	3	4
<i>Myosotis stolonifera</i>	+	1	2	3	4
<i>Montia amporitana</i>	1	.	1	+	3
<i>Stellaria alsine</i>	.	.	.	+	1
Companion species:					
<i>Glyceria declinata</i>	1	1	1	1	4
<i>Callitriche stagnalis</i>	+	.	.	2	2
<i>Potamogeton polygonifolius</i>	.	3	.	1	2

Other species. Companion species: *Apium nodiflorum* 3 in 2. *Agrostis stolonifera* 1, *Holcus reuteri* 1, *Juncus bufonius* 1 in 3. *Hypericum elodes* + in 4.

Localities: 1. Holotypus ass. Salamanca: Cereceda de la Sierra, Yeltes river, Cerezo creek. 29TQE461949. Water 5-10 cm, 2 m². 2. Cáceres: Piornal, Garganta del Obispo. 30TTK5844. 1 m². 3. Salamanca: Cereceda de la Sierra, Cerezo creek, Yeltes river. 29TQE461949. Stagnat water, 20 cm, 0,5 m². 4. Salamanca: Candelario. 30TTK6772. 1 m². 5. Synthesized table.

Ranunculetum omiophylli Br.-Bl. & Tüxen ex Pizarro 1995 (11.5.3)

Distribution: Meso-supratemperate oceanic humid-hyperhumid Cantabrian-Atlantic and British Isles.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, PIZARRO, SÁNCHEZ-MATA & SARDINERO]

RANUNCULO ADUNCI-GERANIETUM SYLVATICI ass. nova hoc loco (43.5.6)

[*Ranunculo adunci-Geranietum sylvatici* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]
(*Origanion virentis*, *Origanetalia vulgaris*, *Trifolio-Geranietea*)

Typus associatio: Table 80, rel. 3 [Jaén: Siles, Las Acebas. 30SWH3740. 1500 m, 10 m²].

Table 80

43.5.6 *Ranunculo adunci-Geranietum sylvatici*

(*Origanion virentis*, *Origanetalia vulgaris*, *Trifolio-Geranietea*)

Altitude (1=10m)	132	132	150	120	132	132	132	<u>133</u>
Number of species	17	17	15	11	12	14	16	<u>15</u>
Ordinal number	1	2	3*	4	5	6	7	8
Characteristic species:								
<i>Ranunculus aduncus</i>	+	+	1	2	2	2	2	V
<i>Geranium sylvaticum</i>	2	3	3	3	3	+	4	V
<i>Laserpitium nestleri</i>	+	1	+	.	.	.	.	III
<i>Agrimonia eupatoria</i>	+	.	.	.	.	.	+	II
<i>Pimpinella gracilis</i>	.	.	.	+	.	.	+	II
<i>Origanum virens</i>	.	.	.	.	.	.	+	I
<i>Clinopodium arundanum</i>	.	.	.	.	.	.	+	I
Querco-Fagetea species:								
<i>Primula vulgaris</i>	2	1	2	3	2	2	1	V
<i>Brachypodium sylvaticum</i>	1	1	+	1	1	1	1	V
<i>Viola riviniana</i>	1	+	+	+	.	1	1	V
<i>Helleborus foetidus</i>	+	+	+	+	.	.	.	IV
<i>Hepatica nobilis</i>	.	.	3	1	.	1	.	III
<i>Geum sylvaticum</i>	.	.	1	.	.	2	+	II
Companion species:								
<i>Rubus ulmifolius</i>	1	+	+	+	.	.	.	IV
<i>Fragaria vesca</i>	1	1	.	.	+	.	.	III
<i>Plantago media</i>	.	.	.	+	.	1	+	III
<i>Geum rivale</i>	.	.	.	.	1	1	+	III

Other species. Querco-Fagetea species: *Viburnum lantana* + in 1 and 2. *Luzula forsteri* + in 5. *Daphne latifolia* + in 7. Companion species: *Ligustrum vulgare* 1 in 1 and 2. *Lonicera hispanica* + in 1 and 2. *Pteridium aquilinum* + in 2 and 5. *Holcus lanatus* + in 2, 1 in 7. *Taraxacum ochrocarpum* + in 5, 1 in 6. *Carex flacca* + in 5 and 6. *Neotinea maculata* + in 5 and 6. *Adiantum capillus-veneris* 1, *Acer granatense* +, *Celtis australis* +, *Hedera helix* + in 1. *Arrhenatherum album* 2, *Clematis vitalba* +, *Juglans regia* + in 2. *Corylus avellana* +, *Lathyrus pratensis* +, *Paeonia broteroi* +, *Paeonia microparpa* +, *Rubia tinctorum* + in 3. *Prunella vulgaris* + in 4. *Scirpoides holoschoenus* + in 5. *Ranunculus ficaria* +, *Thalictrum speciosissimum* + in 6. *Equisetum telmateia* 1, *Tussilago farfara* + in 7.

Localities: 1. Jaén: Santiago de la Espada, Zumeta river. 30S WH3815. NE, 5 m². 2. Jaén: Santiago de la Espada, Zumeta river. 30S WH 3815. E, 5 m². 3. Holotypus ass. Jaén: Siles, Las Acebeas. 30S WH 3740. E, 10 m². 4. Albacete: Riópar, Truchas lake. 30S WH 4957. E, 10 m². 5. Jaén: Cazorla, Source of Guadalquivir. 30S WG 0289. SE, 20 m². 6. Jaén: Cazorla, Source of Guadalquivir. 30S WG 0289. SE, 50 m². 7. Jaén: Segura de la Sierra. Source of Madera river. 30 S WH 3837. NO, 20 m². 8. Synthesized table.

Characteristic species: *Ranunculus aduncus*, *Geranium sylvaticum*, *Laserpitium nestleri* and *Origanum virens*.

Diagnosis: Herb-rich community growing on the fringe of hazel and holly forests (*Geo-Coryletum avellanae*) and blooming in late spring. It is well characterized by *Ranunculus aduncus*, *Geranium sylvaticum* and *Laserpitium nestleri*. The association is endemic of the Subbetic Sector of the Betic Province, in the supramediterranean humid bioclimatic belt. The destruction of the *Geo-Coryletum avellanae* forests cause the substitution of this associations by a poorer one dominated by *Brachypodium sylvaticum* (*Elymo-Brachypodietum sylvatici*).

[RÍOS & ALCARAZ]

RESEDETUM SUFFRUTICOSAE ass. nova hoco loco (34.10.13)

(*Onopordion castellani*, *Carthametalia lanati*, *Onopordenea acanthii*, *Artemisiaetea vulgaris*)

Typus associatio: Table 81, rel. 5 [Madrid: Villaconejos. 30TVK53. 20 m²].

Characteristic species: *Reseda suffruticosa*.

Diagnosis: Manchean-Sagrean and very local Guadician-Bacensean mesomediterranean dry gypseous subnitrophilous community well developed on gypseous-marly soils in disturbed areas by human impacts, such as spoil banks, field crop environs, orchards, off-road places, etc. This peculiar community is well characterized by the tall biannual herb *Reseda suffruticosa* that usually grows associated with several thistle plants.

[RIVAS-MARTÍNEZ & SÁNCHEZ-MATA]

Table 81

34.10.13 *Resedetum suffruticosae**(Onopordion castellani, Carthametalia lanati, Onopordenea acanthii, Artemisietea vulgaris)*

Altitude (1=10m)	69	58	69	61	63	<u>64</u>
Number of species	10	10	20	20	20	16
Ordinal number	1	2	3	4	5*	6

Characteristic species:

<i>Reseda suffruticosa</i>	3	2	3	3	3	V
<i>Carthamus lanatus</i>	+	1	.	1	1	IV
<i>Onopordum castellanum</i>	1	.	1	1	2	IV
<i>Carduus pycnocephalus</i>	.	+	+	.	+	III
<i>Carduus bourgaeanus</i>	.	1	.	+	1	III
<i>Lactuca serriola</i>	1	.	+	.	.	II
<i>Chondrilla juncea</i>	.	.	.	+	.	I

Companion species:

<i>Reseda stricta</i>	+	1	+	+	+	V
<i>Eruca vesicaria</i>	1	1	1	.	2	IV
<i>Iondraba auriculata</i>	1	.	+	1	+	IV
<i>Papaver rhoeas</i>	1	.	1	.	+	III
<i>Sisymbrium orientale</i>	+	.	.	1	1	III
<i>Roemeria hybrida</i>	.	1	.	.	+	II
<i>Avena sterilis</i>	.	.	1	.	1	II

Other species. Companion species: *Lepidium subulatum* + in 2. *Bromus rubens* 1, *Hordeum leporinum* + in 4. *Diplotaxis virgata* 1 in 5.

Localities: 1. Madrid: Villarejo de Salvanés. 30TVK71. 10 m². 2. Madrid: Aranjuez. 30TVK40. 10 m². 3. Madrid: Villarejo de Salvanés. 30TVK71. 20 m². 4. Madrid: Morata de Tajuña. 30TVK65. 20 m². 5. Holotypus ass. Madrid: Villaconejos. 30TVK53. 20 m². 6. Synthesized table.

RETAMION MONOSPERMAE all. nova hoc loco (65.8)

(Cytisetalia scopario-striati, Cytisetea scopario-striati)

Typus alliancia: *Pycnocomono rutaefolii-Retametum monospermae* J.L. Pérez in Lazaroa 4: 144, tb. 1. 1983 (art. 5). Holotypus hoc loco, l.c., tb. 1 rel. 7. Huelva: Isla Cristina. Char. ass. and all.: *Retama monosperma*.

Characteristic species: *Adenocarpus aureus* subsp. *gibbsianus*, *Cytisus grandiflorus* subsp. *cabezudo*, *Retama monosperma*.

Diagnosis: Seral shrubby brooms microphanerophyte communities dominated by *Retama monosperma*, growing on littoral deep sandy soils and paleodunes regosols in thermomediterranean dry and subhumid in Coastal Lusitan-Andalusian and related Tingitan Maghrebian stations (*Centaureo sphaerocephalae-Retametum monospermae* Tregubov 1963).

[RIVAS-MARTÍNEZ & CANTÓ]

RHAMNO CATHARTICAE-RIBESSETUM ALPINI ass. nova hoc loco (66.1.4)

[*Rhamno catharticae-Ribesetum alpini* L. Herrero, M.E. García & Penas in L. Herrero 1989 nom. inval. (art. 1)]

(*Berberidion vulgaris*, *Berberidion vulgaris*, *Prunetalia spinosae*, *Rhamno-Prunetea*)

Typus associatio: Table 82, rel. 1 [Palencia: El Carbonal. 30TUN7854. 1110 m, SE, 50 m²].

Characteristic species (territorials): *Rhamnus cathartica*, *Ribes alpinum*, *Ribes uva-crispa*, *Viburnum lantana*.

Diagnosis: Spiny community constituting the border of the South Orocantabric meso-phytic forests (*Euphorbio hybernae-Fraxinetum excelsioris*) on deep soils and with a floristic combination characterized by the dominance of *Ribes alpinum*, *Ribes uva-crispa* and *Rhamnus cathartica*, accompanied by other shrubs of high mediterranean character, such as *Rosa corymbifera*, *Rosa micrantha* or *Rosa deseglisei* among others. Because of the agricultural and cattle use of the territory, these communities are very reduced to natural hedges at the border of meadows and horticultural properties.

[L. HERRERO, M.E. GARCÍA, T.E. DÍAZ, PENAS & F. SALEGUI]

Table 82

66.1.4 *Rhamno catharticae-Ribesetum alpini*

(*Berberidion vulgaris*, *Prunetalia spinosae*, *Rhamno-Prunetea*)

Altitude (1=10 m)	111	109	115	117	105	III
Number of species	13	16	14	16	15	15
Ordinal number	1*	2	3	4	5	6
Characteristic species:						
<i>Ribes alpinum</i>	2	1	1	1	1	V
<i>Rhamnus cathartica</i>	2	1	1	2	1	V
<i>Ribes uva-crispa</i>	2	2	2	3	2	V
<i>Crataegus monogyna</i>	3	2	2	2	2	V
<i>Prunus spinosa</i>	2	1	3	2	2	V
<i>Rosa corymbifera</i>	1	2	1	1	1	V
<i>Rosa canina</i>	2	1	2	1	2	V
<i>Rubus ulmifolius</i>	3	3	2	2	.	IV
<i>Viburnum lantana</i>	3	3	2	2	.	IV
<i>Lonicera periclymenum</i>	2	.	1	1	1	IV
Companion species:						
<i>Chaerophyllum hirsutum</i>	.	+	1	+	.	III

Other species: Characteristic species: *Bryonia dioica* 1 in 2 and 5. *Rosa deseglisei* 1 in 2 and 5. *Rosa deseglisei* and *Sambucus nigra* 1 in 2, + in 5. *Rosa micrantha* 1 in 4 and 5. *Clematis vitalba* 2, *Lathyrus latifolius* + in 3. *Euonymus europaeus* 1 in 4. Companion species: *Brachypodium sylvaticum* 2 in 1, 1 in 4. *Equisetum fluviatile* 1, *Galium verum* 1 in 1. *Achillea millefolium* 1, *Stachys sylvatica* 1, *Astragalus glycyphyllos* + in 2. *Heracleum sphondylium* 1 in 3. *Cucubalus baccifer* 1, *Silene vulgaris* + in 5. *Fraxinus excelsior* +, *Salix purpurea* + in 4.

Localities: 1. Holotypus ass. Palencia: El Carbonal. 30TUN7854. SE, 50 m². 2. Palencia: Las Llanas. 30TUN7855. 60 m². 3. Palencia: Santibañez de Resoba. 30TUN5862. SE, 5%, 80m². 4. Palencia: Ventanilla. 30TUN7246. 1170 m, 100 m². 5. León: Portilla de la Reina. 30TUN5067. 1050 m, 80 m². 6. Synthesized table.

RHAMNO LYCIOIDIS-PINETUM HALEPENSIS (J. Torres, A. García, Salazar, Cano & F. Valle 1999) nom. nov. hoc loco (75.14.3)

[*Junipero phoeniceae-Pinetum halepensis* J. Torres, A. García, Salazar, Cano & F. Valle in Ecol. Medit. 25(2): 140, tb. 1. 1999 (arts. 31, 39), non *Pino halepensis-Juniperetum phoeniceae* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo in Acta Bot. Malacitana 23: 154, tb. 1. 1998 (art.37(?)) (syntax. syn.) of *Rhamno myrtifolii-Juniperetum phoeniceae* Molero & Pérez-Raya in Lazaroa 7: 306, tb. 1. 1987, com. *Ephedra fragilis-Pinus halepensis* sensu J. Torres & al. in Ecol. Medit. 25(2): 143, tb. 2. 1999]

(*Pino acutisquamae-Juniperion phoeniceae*, *Pistacio-Rhamnetalia*, *Quercetea ilicis*)

Typus associatio: J. Torres, García-Fuentes, Salazar & Cano in Eco. Medit. 25 (2): 141, tb. 1, rel. 13. 1999 [Granada: Sierra de Castril. 1270 m, S, 25%, 5 m, 100 m²]. Characteristic species: 3 *Pinus halepensis*, 1 *Juniperus oxycedrus*, 1 *Juniperus phoenicea*, + *Rhamnus lycioides*. Companion species: 2 *Rosmarinus officinalis*, 1 *Echinopartum boissieri*, 1 *Fumana paradoxa*, 1 *Helianthemum croceum*, 1 *Leucanthemopsis spathulifolia*, 1 *Stipa tenacissima*, 1 *Thymus orospedanus*, + *Scorzonera albicans*, + *Silene legionensis*.

Characteristic species (territorials): *Juniperus phoenicea*, *Pinus halepensis*, *Rhamnus lycioides*.

Diagnosis: Mesomediterranean and lower supramediterranean dry and subhumid semi-continental Guadician-Bacensean and related Subbetic territories, shrubs with an open canopy of *Pinus halepensis* permanent community, growing on initial or eroded calco-dolomitic or clayey soils rich on magnesite or vertic properties, characterized by natural grown of the indigenous *Pinus halepensis* and other xeric *Pistacio-Rhamnetalia* species like: *Ephedra fragilis* (thermic stations), *Juniperus phoenicea*, *Juniperus oxycedrus* subsp. *oxycedrus*, *Rhamnus lycioides*, *Rhamnus myrtifolius*, etc., as well as differentiated by a lot of endemic or dolomiticolous species like: *Echinopartum boissieri*, *Thymus orospedanus*, *Genista cinerea* subsp. *speciosa*, *Fumana paradoxa*, *Scorzonera albicans*, etc.

[RIVAS-MARTÍNEZ]

RHAMNO OLEOIDIS-QUERCETUM ROTUNDIFOLIAE ass. nova hoc loco (75.3.7)

[*Smilaco mauritanicae-Quercetum rotundifoliae* sensu Rivas-Martínez 1987 non Barbéro, Quézel & Rivas-Martínez in Phytocoenologia 9(3): 321. 1981 ex Rivas-Martínez, Mem. Mapa Series Veg. España: 153. 1987]

(*Quercu rotundifoliae-Oleion sylvestris*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Málaga: Gaucín, La Almuna. 36°31'N-5°23'W. 450 m, SW, 15%, 18 m, 100 cm, 400 m². Calcareous marly deep soil. Characteristic species: 4 *Quercus rotundifolia*, 3 *Aristolochia baetica*, 3 *Rubia peregrina* subsp. *longifolia*, 2 *Pistacia lentiscus*, 2 *Olea europaea* subsp. *sylvestris*, 2 *Rhamnus alaternus*, 2 *Crataegus brevispina*, 1 *Calicotome villosa*, 1 *Cerantonia siliqua*, 1 *Daphne gnidium*, 1 *Asparagus acutifolius*, 1 *Rhamnus oleoides*, 1 *Smilax aspera* var. *altissima*, 1 *Phlomis purpurea*, 1 *Asparagus aphyllus*, + *Chamaerops humilis*, + *Rosa sempervirens*, + *Clematis flammula*. Companion species: 2 *Pipthaterum milliaceus*, 1 *Ulex scaber*, 1 *Cistus albidus*, 1 *Geranium parpureum*, + *Thym-*

bra capitata, + *Retama sphaerocarpa*, + *Rubus ulmifolius*, + *Vinca difformis*, + *Ptilostemon hispanicus*.

Characteristic species (territorials): *Aristolochia baetica*, *Chamaerops humilis*, *Calicotome villosa*, *Crataegus brevispina*, *Phlomis purpurea*, *Olea europaea* subsp. *sylvestris*, *Quercus rotundifolia*, *Rhamnus oleoides*.

Diagnosis: Thermomediterranean dry to humid *Quercus rotundifolia* and *Olea sylvestris* mesoforests, growing on calcareous rich soils often on marl, dolomitic limestone or dolostone in Betic and Coastal Lusitan-Andalusian territories. Their mantle and preforest vegetation belong to *Asparago albi-Rhamnetum oleoidis*. The geovicarian association in Maghreb-Mauritania is *Smilaco-Quercetum rotundifoliae* Barbero, Quézel & Rivas-Martínez in *Phytocoenologia* 9(3): 321, tb. 4. 1981. In the Iberian Peninsula association: *Cistus villosus*, *Crataegus azarella*, *Phillyrea latifolia*, *Pistacia atlantica*, *Viburnum tinus*, etc., are absent meanwhile in North African association: *Crataegus brevispina*, *Phlomis purpurea* subsp. *purpurea*, *Rhamnus oleoides* subsp. *oleoides*, *Ulex scaber*, etc., don't grow.

[RIVAS-MARTÍNEZ]

ROSMARINETEA OFFICINALIS classis nova hoc loco (64)

[*Ononido-Rosmarinetea* Br.-Bl. in Br.-Bl., Emberger & Molinier, Instr. Carte Group. Vég.: 23. 1947 (art. 2b, 8), *Ononido-Rosmarinetea* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 170. 1952 (art. 35), *Rosmarinetea officinalis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas in *Itinera Geobot.* 5: 512. 1991 (art. 17), *Serratulo nudicaulis-Jurineenea humilis* Peinado, Alcaraz & Martínez-Parras in *Flora et Vegetatio Mundi* 10: 199. 1992 (art. 3f, 8)]

Typus classis: *Rosmarinetalia officinalis* Br.-Bl. ex Molinier in *Ann. Mus. Hist. Nat. Marseille* 27(1): 143. 1934.

Characteristic species: *Anthyllis cytisoides*, *Anthyllis vulneraria* subsp. *gandogeri*, *Aphyllanthes monspeliensis*, *Argyrolobium zanonii*, *Asperula cynanchica* subsp. *brachysiphon*, *Astragalus chlorocyaneus*, *Astragalus granatensis*, *Astragalus macrorrhizus*, *Atractylis humilis*, *Bupleurum frutescens*, *Cheirolophus intybaceus*, *Cistus albidus*, *Convolvulus lanuginosus* subsp. *lanuginosus*, *Coris monspeliensis*, *Coronilla minima* subsp. *lotoides*, *Digitalis obscura* subsp. *obscura*, *Dorycnium pentaphyllum* var. *pentaphyllum*, *Fumana ericoides* subsp. *ericoides*, *Fumana hispidula*, *Fumana thymifolia*, *Globularia alypum*, *Helianthemum syriacum*, *Helianthemum violaceum*, *Hippocrepis squamata*, *Ononis tridentata* subsp. *angustifolia*, *Picris hispanica*, *Rosmarinus officinalis*, *Sideritis incana* var. *incana*, *Staezelina dubia*, *Thesium humifusum* subsp. *divaricatum*, *Thymelaea hirsuta*, *Thymus vulgaris* subsp. *vulgaris*.

Diagnosis: Basophilous communities of open shrubs (rosemary, furze, thyme formations, xeroacantheta, etc.), widely distributed in the Western Mediterranean Subregion, where chamaephytes and short nanophanerophytes are usually preponderant. They grow on eroded, decapitate or scarcely developed carbonate soils, often stony in the surface. They are present from the thermomediterranean to the lower oromediterranean belt, from arid to subhumid, and can penetrate a little into the meso and supratemperate belts dry to humid of

the adjacent Eurosiberian territories. Except for some rocky or summit stations, where they can be permanent communities, these open shrubs represent advanced serial stages in relation with the forests or shrub communities, heads of climatophilous or edaphoxerophilous series.

[RIVAS-MARTÍNEZ, T.E. DÍAZ, F. PRIETO, LOIDI & PENAS]

ROSO PENDULINAE-FAGETUM SYLVATICAE ass. nova hoc loco (76.1.6)

(*Scillo lilio-hyacinthi-Fagenion*, *Fagion sylvaticae*, *Fagetalia sylvaticae*, *Querc-Fagetea*)

Typus associatio: Table 83, rel. 7 [Huesca: Benasque, Turonet d'Alba. 42°40'N-0°35'30'E. 1720 m, W, 25%, 400 m²].

Characteristic species(territorials):*Abies alba*, *Fagus sylvatica*, *Pinus uncinata*, *Prenanthes purpurea*, *Pulmonaria affinis*, *Rhododendron ferrugineum*, *Rosa pendulina*, *Vaccinium myrtillus*.

Diagnosis: Pyrenean lower orotemperate humid and hyperhumid beech forests with frequent *Abies alba* and *Pinus uncinata* trees dispersed in the canopy, growing mostly on euoceanic Central Pyrenean biogeographic sector, on deep rich soils with long snow cover and acid H and A horizons with moder humus. As differential species to *Fagion* and *Luzulo-Fagion* forests could be mentioned: *Lonicera alpigena*, *Lonicera nigra*, *Pinus uncinata*, *Ranunculus platanifolius*, *Rosa pendulina*, *Rhododendron ferrugineum* and *Rubus saxatilis*.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

RUBETUM CAESIO-CANESCENTIS ass. nova hoc loco (66.2.11 = 66.2.4)

[*Rubetum caesio-canescens* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]

(*Rosenion carioti-pouzinii*, *Pruno-Rubion ulmifolii*, *Prunetalia spinosae*, *Rhamno-Prunetea*)

Typus associatio: Table 84, rel. 5 [Jaén: Orcera, Madera river. 30S WH3537. 1400 m, 50 m²].

Characteristic species: *Rubus canescens*, *Rubus caesius*, *Rubus x divergens*, *Rubus ulmifolius* x *Rubus canescens*.

Diagnosis: Secondary low shrub-mantle of *Rubus canescens*, *Rubus ulmifolius*, *Rubus caesius* and some hybrids among those species: *Rubus x divergens* (= *Rubus canescens* x *Rubus caesius*), *Rubus x assurgens* (= *Rubus ulmifolius* x *Rubus caesius*) and *Rubus ulmifolius* x *Rubus canescens*. The apomictic populations included in the sect. *Corylifolii*, (predominance of *Rubus caesius* characters) and in the *Rubus* ser. *Discolores* (predominance of *Rubus ulmifolius* characters) are also frequent. *Rubus canescens* and related taxa are the main floristic differential from the richer in nutrients *Rubo-Rosetum corymbiferae* also present in the area. *Crataegus laciniata* and *Berberis hispanica* can be used as territorial characteristic species. This new association grows in siliceous and humid arenosols in the Sub-

betic Sector of the Betic Province, in the supramediterranean humid bioclimatic belt (*Salici purpureo-albae* sigmetum and *Berberido hispanicae-Quercu pyrenaicae* sigmetum).

[RÍOS & ALCARAZ]

Table 83
76.1.6 *Roso pendulinae-Fagetum sylvaticae*
(Scillo-Fagenion, Fagion sylvaticae, Fagetalia sylvaticae, Quercu-Fagetea)

Altitude (1=10 m)	160	172	160	161	165	173	172	168	173	174	159	161	167
Number of species	28	29	29	29	29	35	35	35	36	37	37	37	34
Ordinal number	1	2	3	4	5	6	7*	8	9	10	11	12	13
Characteristic species:													
<i>Fagus sylvatica</i>	4	5	5	5	5	5	5	5	4	5	5	5	V
<i>Pulmonaria affinis</i>	+	+	+	+	+	+	1	+	1	1	1	1	V
<i>Viola reichenbachiana</i>	1	2	+	1	2	2	1	1	.	2	1	2	V
<i>Abies alba</i>	+	+	1	+	1	.	+	1	2	+	+	1	V
<i>Prenanthes purpurea</i>	1	.	1	+	1	2	1	2	2	2	2	2	V
<i>Hepatica nobilis</i>	1	2	2	1	2	.	1	.	.	1	2	1	V
<i>Asperula odorata</i>	1	.	1	.	1	1	2	2	1	2	+	+	V
<i>Phyteuma pyrenaicum</i>	+	2	.	.	.	2	+	1	1	1	2	+	IV
<i>Lathyrus occidentalis</i>	1	1	1	.	2	.	.	1	.	1	3	1	IV
<i>Scilla lilio-hyacinthus</i>	+	2	1	.	.	2	+	1	.	1	.	.	IV
<i>Luzula nivea</i>	.	+	.	3	2	2	.	+	.	.	2	2	IV
<i>Polygonatum verticillatum</i>	2	1	.	.	1	.	.	.	.	1	1	+	III
<i>Ranunculus tuberosus</i>	+	.	.	.	.	1	+	+	1	.	1	.	III
<i>Melica uniflora</i>	.	.	2	.	.	1	1	1	1	1	.	.	III
<i>Dryopteris filix-mas</i>	+	.	2	.	.	+	.	.	.	1	1	.	III
<i>Geranium sylvaticum</i>	.	1	+	1	.	.	+	.	.	.	.	+	III
<i>Stellaria holostea</i>	.	.	1	.	1	1	2	.	.	.	+	.	III
<i>Festuca heterophylla</i>	.	.	.	1	.	2	2	.	1	1	.	.	III
<i>Acer platanooides</i>	.	.	.	+	+	+	.	.	.	.	+	+	III
<i>Poa nemoralis</i>	.	.	.	1	.	.	.	1	+	1	.	1	III
<i>Anemone nemorosa</i>	.	.	.	.	2	+	.	.	+	1	3	.	III
Differential species:													
<i>Rosa pendulina</i>	+	1	2	1	2	+	3	2	2	3	2	1	V
<i>Pinus uncinata</i>	+	1	+	1	1	+	2	.	1	+	2	1	V
<i>Ranunculus platanifolius</i>	1	.	1	.	.	1	1	2	2	1	.	1	IV
<i>Rhododendron ferrugineum</i>	.	.	+	+	+	.	+	1	+	1	.	1	III
Companion species:													
<i>Sorbus aucuparia</i>	2	+	+	1	+	+	1	1	1	+	1	+	V
<i>Deschampsia flexuosa</i>	1	2	2	3	1	2	+	1	2	1	+	1	V
<i>Vaccinium myrtillus</i>	1	.	+	2	3	+	+	1	2	2	1	3	V
<i>Solidago virgaurea</i>	+	.	+	.	+	.	+	.	1	+	.	1	III
<i>Adenostyles pyrenaica</i>	+	.	1	.	.	.	+	1	+	2	.	.	III
<i>Cicerbita plumieri</i>	.	.	1	.	.	+	1	1	2	.	.	+	III

Other species: Characteristic species: *Corylus avellana* 2 in 1, + in 5, 11 and 12. *Crepis lampsnoides* 2 in 6, + in 7, 1 in 9 and 10. *Polystichum aculeatum* + in 1, 1 in 3, 2 in 7. *Betula pendula* 1 in 1, + in 7, 2 in 11. *Daphne mezereum* 1 in 2, + in 5, 2 in 7. *Ribes alpinum* + in 4, 1 in 7 and 12. *Helleborus occidentalis* + in 4, 11 and 12. *Abies alba* (S3) + in 1, 1 in 11. *Paris quadrifolia* + in 1, 1 in 11. *Mycelis muralis* + in 2 and 6. *Melica nutans* + in 5, 2 in 11. *Lilium martagon* + in 5, 1 in 11. *Carex digitata* + in 6, 2 in 8. *Sambucus racemosa* 1 in 8 and 9. *Stellaria nemorum* + in 8 and 9. *Oxalis acetosella* + in 8, 1 in 10. *Aquilegia vulgaris* 1, *Epipactis helleborine* + in 2. *Cardamine heptaphylla* 2, *Epipactis atrorubens* + in 3. *Veronica officinalis* + in 5. *Lathyrus linifolius* 2, *Hieracium lachenalii* 1, *Stachys sylvatica* 1 in 6. *Epilobium montanum* +, *Lamium galeobdolon* +, *Scrophularia alpestris* + in 8. *Salix caprea* + in 9. *Saxifraga umbrosa* 3, *Hieracium murorum* +, *Neottia nidus-avis* + in 11. Differential species: *Lonicera alpigena* + in 5, 1 in 8, 10 and 11. *Rubus saxatilis* 1 in 5 and 12, + in 11. *Lonicera nigra* 1 in 8 and 10, + in 9. Companion species: *Thalictrum aquilegifolium* 2 in 2, + in 3 and 6, 1 in 8 and 10. *Polystichum lonchitis* + in 1, 2 and 3, 1 in 7. *Sorbus mougeotii* + in 2 and 12, 2 in 5, 1 in 11. *Fragaria vesca* 1 in 4 and 12, + in 8 and 9. *Athyrium filix-femina* + in 6, 2 in 8, 9 and 10. *Calamagrostis arundinacea* + in 8, 9, 10 and 12. *Valeriana montana* 3 in 2, 1 in 3 and 7. *Lathyrus latifolius* 2 in 4, 1 in 7 and 12. *Dryopteris expansa* 1 in 8 and 9, + in 10. *Hylocomium splendens* 2 in 4, 1 in 12. *Melampyrum pratense* 2 in 4, 1 in 12. *Pyrola minor* 2 in 4, 1 in 12. *Aquilegia pyrenaica* 1 in 6, + in 7. *Myrrhis odorata* + in 8, 1 in 9. *Astrantia major* + in 8 and 9. *Chaerophyllum hirsutum* +, *Pimpinella major* + in 1. *Convallaria majalis* 1, *Laserpitium latifolium* 1, *Luzula nutans* 1, *Polystichum aculeatum* x *Polystichum lonchitis* 1, *Pulsatilla font-queri* 1, *Coincya montana* + in 2. *Epilobium lanceolatum* 1, *Sedum rupestre* 1, *Veronica chamaedrys* + in 4. *Digitalis purpurea* +, *Festuca paniculata* +, *Meconopsis cambrica* +, *Scrophularia pyrenaica* + in 6. *Dryopteris oreades* 1, *Polystichum lonchitis* x *Polystichum aculeatum* +, *Veronica teucrium* + in 7. *Epilobium angustifolium* +, *Peucedanum ostruthium* +, *Veronica urticifolia* + in 9. *Pinus* x *rhaetica* nothovar. *bolosii* +, *Ribes rubrum* + in 11.

Localities: 1. Huesca: Benasque, Ball d'Estós, Fuen de Coronas. N, 100 m². 2. Huesca: Benasque, Fuens d'Alba. W, 35%, 500 m². 3. Huesca: Benasque, Fuens d'Alba. 400 m². 25%. 4. Huesca: Benasque, Ball d'Estós. 200 m. 35%. 5. Huesca: Benasque, Batielles. N, 25%, 400 m². 6. Lérida: Vielha, Vall del Hospital de Vielha. S, 20%, 200 m². 7. Holotypus ass. Huesca: Benasque, Turonet d'Alba. 42°40'N-0°35'30"E. W, 25%, 400 m². 8-10. Lérida: Vielha, Val de Molieres. N, 500 m². 11. Huesca: Benasque, Fuente Coronas. NE, 35%, 500 m². 12. Huesca: Benasque, Ball d'Estós. 20%, 400 m². 13. Synthesized table.

SALICENION CANTABRICAЕ suball. nova hoc loco (71.5b)

Typus suballiancia: Holotypus: *Salicetum cantabricaе* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas, La vegetación de la alta montaña cántabrica: los Picos de Europa: 171, tb. 50. 1984.

Characteristic species: *Salix cantabrica*, *Salix* x *expectata*, *Salix* x *pormensis*, *Salix* x *rijosa*.

Diagnosis: Supra- and lower orotemperate Orocantabric riparian shrubby willow communities growing on the lowest zone of river and stream beds flooded most of the year round. Well characterized by the endemic *Salix cantabrica* and its hybrids with the other associated *Salix* species. It could be considered as geovicariant of Alpine-Pyrenean *Salicion eleagni* (*Salicenion eleagni*) also river shrubby willow communities.

[RIVAS-MARTÍNEZ & T.E. DÍAZ]

Table 84

66.2.11 *Rubetum caesio-canescens**(Pruno-Rubion ulmifolii, Prunetalia spinosae, Rhamno-Prunetea)*

Altitude (1=10m)	130	135	125	138	140	122	132
Number of species	18	24	31	14	20	14	20
Ordinal number	1	2	3	4	5*	6	7
Characteristic species:							
<i>Rubus canescens</i>	3	2	3	4	3	4	V
<i>Rosa nitidula</i>	2	+	+	+	+	.	V
<i>Rubus ulmifolius</i>	2	1	2	.	+	3	V
<i>Rubus sect. Corylifolii</i>	3	4	+	.	3	.	IV
<i>Crataegus monogyna</i>	.	+	+	+	+	.	IV
<i>Prunus insititia</i>	2	1	.	.	1	.	III
<i>R. ulmifolius</i> x <i>R. canescens</i>	+	+	.	.	+	.	III
<i>Rosa canina</i>	.	.	+	+	1	.	III
<i>Crataegus laciniata</i>	.	.	+	+	+	.	III
<i>Viburnum lantana</i>	+	+	.	.	.	.	II
<i>Rosa corymbifera</i>	.	.	.	.	+	+	II
Querco-Fagetea species:							
<i>Geum sylvaticum</i>	+	1	1	1	.	1	V
<i>Quercus faginea</i>	.	+	+	+	1	.	IV
<i>Viola riviniana</i>	+	+	+	.	.	.	III
Companion species:							
<i>Pteridium aquilinum</i>	+	2	+	+	+	+	V
<i>Quercus rotundifolia</i>	+	+	.	.	.	+	III
<i>Filipendula vulgaris</i>	.	1	.	1	.	1	III
<i>Clinopodium arundanum</i>	.	.	+	+	.	+	III

Other species. Characteristic species: *Berberis hispanica* 1 in 1. *Lonicera hispanica* 1 in 2. *Rubus ser. Discolores* 1 in 3. *Rubus* x *assurgens* + in 3. *Rubus* x *divergens* 1, *Rubus caesius* + in 5. *Clematis vitalba* +, *Rosa micrantha* +, *Sorbus domestica* + in 6. Querco-Fagetea species: *Helleborus foetidus* + in 1 and 2. *Luzula forsteri* 1 in 2, + in 3. *Quercus pyrenaica* 1 in 2, + in 3. *Brachypodium sylvaticum* 3 in 3, 1 in 4. *Sorbus terminalis* 1 in 5. Companion species: *Potentilla erecta* + in 1 and 2. *Knautia subscaposa* 1 in 1, + in 3. *Agrostis castellana* 1 in 3, + in 4. *Carlina corymbosa* + in 3 and 5. *Ranunculus granatensis* 2, *Euphorbia nicaeensis* +, *Taraxacum ochrocarpum* + in 1. *Geum sylvaticum* 3, *Sedum forsterianum* 1, *Cytisus reverchonii* +, *Dactylis hispanica* +, *Narcissus triandrus* + in 2. *Avenula mirandana* 1, *Primula vulgaris* 1, *Thymus mastichina* 1, *Trifolium pratense* 1, *Andryala integrifolia* +, *Cistus laurifolius* +, *Holcus lanatus* +, *Polygonatum odoratum* +, *Prunella laciniata* +, *Rubia peregrina* +, *Thapsia villosa* + in 3. *Eryngium campestre* +, *Silene vulgaris* + in 4. *Achillea ageratium* 1, *Hypericum perforatum* +, *Pyrus bourgaeana* +, *Scirpoides holoschoenus* + in 5. *Catananche caerulea* 1, *Carex flacca* +, *Sanguisorba minor* + in 6.

Localities: 1. Jaén: Orcera, Campground Madera river. 30SWH3436. 50 m². 2. Jaén: Segura de la Sierra, Source of Madera river. 30SWH 3837. 60 m². 3. Jaén: Siles, La Fresnedilla. 30SWH 3744. 30 m². 4. Jaén: Siles, Los Arroyos. 30S WH 3540. 50 m². 5. Holotypus ass. Jaén: Orcera, Madera river. 30S WH 3537. 50 m². 6. Jaén: Siles, Umbría del Yelmo. 30S WH 3034. 70 m². 7. Synthesized table.

SALICI PURPUREAE-POPULETEA NIGRAE (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) classis nova, stat. nov. hoc loco (71)

[*Salici purpureae-Populeneae nigrae* Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in *Itinera Geobot.* 5: 260. 1991 (art.27a), *Salici-Populeneae nigrae* Rivas-Martínez & Cantó ex Rivas-Martínez, *Mem. Series Veg. España:* 162. 1987 (art. 5), *Populetea albae* Br.-Bl., *Commun. Stat. Inst. Geobot. Médit. Montpellier:* 159. 1962 (art. 2b), *Salicetea purpureae* Moor in *Mitt. Schweiz. Anst. Forstl. Versuchswesen* 34: 221. 1958 (art. 29b), *Alno-Populetea* Fukarek & Fabijanic in Tüxen (ed.), *Pflanzensoziologische Systematik:* 112. 1958 (art. 2b)]

Typus classis: *Populetales albae* Br.-Bl. ex Tchou in *Vegetatio* 1: 11. 1948.

Characteristic species: *Alnus glutinosa*, *Cucubalus baccifer*, *Elymus caninus*, *Populus nigra*, *Salix fragilis*, *Saponaria officinalis*, *Solanum dulcamara*.

Diagnosis: Riparian edaphohydrophilous forests and willow communities of Eurosiberian and Mediterranean Regions.

Populetales albae Br.-Bl. ex Tchou in *Vegetatio* 1: 11. 1948 (71a)

Typus ordo: *Populion albae* Br.-Bl. ex Tchou in *Vegetatio* 1: 11. 1948.

Characteristic species: *Carex pendula*, *Humulus lupulus*, *Osmunda regalis*, *Populus alba*, *Ranunculus ficaria*, *Rubus caesius*, *Salix atrocinerea*, *Symphytum tuberosum*.

Diagnosis: Riparian edaphohydrophilous forests of Mediterranean and Eurosiberian distribution.

Populion albae Br.-Bl. ex Tchou in *Vegetatio* 1: 11. 1948 (71.2)

Typus alliancia: *Populetum albae* Br.-Bl. ex Tchou in *Vegetatio* 1: 93, tb. 9. 1948.

Characteristic species: *Dorycnium rectum*, *Fraxinus angustifolia*, *Glycyrrhiza glabra*, *Iris foetidissima*, *Vinca difformis*, *Vitis vinifera* subsp. *sylvestris*.

Diagnosis: Mediterranean riparian deciduous forests. *Populion albae* Rivas-Martínez 1975 (71.2a): flooded only in the rainy periods, situated on the low zone of the river beds, adjacent to the pioneer wooded or shrubby willow communities of the lowest zone usually flooded of the river or stream beds: *Salicetalia purpureae*; *Fraxino angustifoliae-Ulmenion minoris* Rivas-Martínez 1975 (71.2b): riparian forests of the wet but not flooded upper river bottom zone.

Carici pendulae-Salicetum catalaunicae A. & O. Bolòs, *Veg. Com. Barc.:* 139, tb. 1950 (71.2.1)

Distribution: Vallesan-Empordanese, *Salix atrocinerea* (incl. subsp. *catalaunica*) with *Ulmus minor* and *Alnus glutinosa* scattered trees often flooded riparian forests.

Crataego brevispinae-Populetum albae Galán in A.V. Pérez, Galán, Deil & Cabezudo in *Acta Bot. Malacitana* 21: 259, tb. 6. 1996 (71.2.2)

Distribution: Thermomediterranean Aljibic and Hispalensean *Populus alba* riparian forest with a long dry season, growing on stream beds fluvisols rich in vertic soil materials.

Humulo lupuli-Alnetum glutinosae Biurrun, García-Mijangos & Loidi in *Bot. Helvetica* 104: 31. 1994 (71.2.3)

Distribution: Castilian Cantabrian alder riparian forest association.

Nerio oleandri-Populetum albae A. García & Cano in A. García, J. Torres, Gomes, Leite, Salazar, Melendo, J. Nieto & Cano in *Itinera Geobot.* 11: 300, tb. 1. 1998 (71.2.4)

Distribution: Thermo-lower mesomediterranean often flooded riparian deciduous forests spread on Guadalquivir river and Betic drainage-bassin rivers.

Populetum albae Br.-Bl. ex Tchou in *Vegetatio* 1: 2. 1948 (71.2.5)

Distribution: Mesomediterranean euoceanic flooded riparian forests from Empordá (North Catalonia) to Provença.

Rubio tinctorum-Populetum albae Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 207, tb. 43. 1958 (71.2.6)

Distribution: Mesomediterranean semicontinental often flooded riparian forests growing on Mediterranean Central Iberian Province.

Salici atrocineriae-Populetum albae Rivas Goday, *Veg. Fl. Guadiana*: 545, tb. 81. 1964 (71.2.7)

Distribution: Mesomediterranean often flooded riparian forests growing on Mediterranean West Iberian Province.

Salici neotrichae-Populetum nigrae T.E. Díaz & Penas ass. nova hoc loco (71.2.8)

[*Populo nigrae-Salicetum neotrichae* Rivas-Martínez & Cantó in T.E. Díaz & Penas in *Publ. Univ. La Laguna, Ser. Informes* 22: 143, tb. 3. 1987 (art. 2b), *Populo nigrae-Salicetum neotrichae salicetosum salviifoliae* T.E. Díaz & Penas in *Publ. Univ. La Laguna, Ser. Informes* 22: 143, tb. 3. 1987 (art. 4a)]

Typus associatio: T.E. Díaz & Penas in *Publ. Univ. La Laguna, Ser. Informes* 22: 143, tb. 3, rel 6. 1987, sub *Populo nigrae-Salicetum neotrichae salicetosum salviifoliae* Holotypus, Zamora: Orbigo river, Santa Colomba, 740 m, 90 m². Characteristic species: 4 *Salix neotricha*, 2 *Fraxinus angustifolia*, 2 *Populus alba*, 2 *Populus nigra*, 2 *Salix salviifolia*, 2 *Salix triandra* subsp. *discolor*, 1 *Brachypodium sylvaticum*, 1 *Cucubalus baccifer*, 1 *Humulus lupulus*, 1 *Ranunculus ficaria*, 1 *Salix eleagnos* subsp. *angustifolia*, 1 *Salix x matritensis*, 1 *Salix purpurea* subsp. *lambertiana*, 1 *Salix x pseudoeleagnos*, + *Salix atrocineria*, +

Salix fragilis. Companion species: 1 *Conium maculatum*, 1 *Lythrum salicaria*, + *Rosa canina*.

Characteristic species (territorials): *Populus nigra*, *Populus alba*, *Salix salviifolia*, *Salix neotricha*.

Diagnosis: Supramediterranean often flooded riparian forests spread in semicontinental Iberian Peninsula, in Mediterranean West Iberian Province as well as Castilian and Oroiberian Subprovinces.

Vinco-Populetum albae O. Bolòs, El Paisaje Vegetal Barcelonés: 48, tb. 9. 1962 (71.2.9)

Distribution: Thermo-mesomediterranean euoceanic often flooden riparian forests spread in Catalan-Valencian Subprovince south of Ter river.

[RIVAS-MARTÍNEZ & CANTÓ]

SALICION PYRENAICAE Vigo all. nova hoc loco (45.2)

[*Laserpitio-Ranunculon thorae* Vigo in Folia Bot. Misc. 1: 8. 1979 (art. 8), *Laserpitio-Ranunculon thorae* Vigo ex Molero Brion. & Vigo in Acta Bot. Malacitana Inst. Bot. Barcelona 6: 64. 1981 (art. 8, 3f), *Laserpitio nestleri-Ranunculenion thorae* Vigo ex I. Soriano in Acta Bot. Barcinon. 47: 115. 2001 (art. 8)]
 (*Seslerietalia caeruleae*, *Kobresio myosuroidis-Seslerietea caeruleae*)

Typus alliancia: *Dryado octopetalae-Salicetum pyrenaicae* Chouard in Bull. Soc. Bot. France 90: 27. 1943 (sub ass. à *Dryas octopetala* L. et *Salix pyrenaica* Gouan).

Characteristic species: *Salix pyrenaica*.

Diagnosis: Oro-cryorotemperate and north exposed winter snowy upper supratemperate Pyrenean rich in dwarf chamaephyte communities growing on shallow or deep alpin rendzinic calcareous soils but without gleyic or histic properties.

Remarks: The content, area and subordinate syntaxa of the alliance *Laserpitio-Ranunculon thorae* invalidly proposed (art. 8, 3f) by Vigo (1979), and accepted by us (45.2) in Itinera Geobot. 14: 101. 2001, is the same that the new alliance *Salicion pyrenaicae*, but this new name is clearly more accurate and informative.

Agrostio schleicheri-Festucetum scopariae Loidi 1983 corr. Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 (45.2.1)
 [*Agrostio schleicheri-Festucetum gautieri* Loidi 1983 (art. 43)]

Distribution: Basque territories: Aitzgorri and Aralar mountains.

Anthyllido vulnerarioidis-Festucetum nigrescentis Ninot (1988) 1996 (45.2.2)
 [*Saponario-Festucetum gautieri lotetosum alpini* Ninot 1988 (basion.)]

Distribution: Lower orotemperate humid and hyperhumid Central Pyrenean mesic community growing on deep alpin rendzinic soils with long snow cover.

Aquilegio pyrenaicae-Seslerietum caeruleae Herrera, Loidi & F. Prieto 1991 (45.2.3)

Distribution: Cantabrian-Basque mountains.

Geo pyrenaici-Caricetum sempervirentis Chouard in Bull. Soc. Bot. France 90: 25. 1943 (45.2.4)

[ass. à *Carex sempervirens* et *Geum pyrenaicum* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 10, 29b), *Semperviretum pyrenaicum* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 43)]

Distribution: Upper orotemperate hyperhumid Central Pyrenean community growing on deep alpin rendzinic soils with long snow cover.

Dryado octopetalae-Salicetum pyrenaicae Chouard in Bull. Soc. Bot. France 90: 27. 1943 (45.2.5)

[ass. à *Dryas octopetala-Salix pyrenaica* Chouard in Bull. Soc. Bot. France 90: 27. 1943 (art. 10), *Veronico gouanii-Salicetum pyrenaicae* Nègre 1970 (syntax. syn.)]

Distribution: Upper orotemperate and lower cryorotemperate hyperhumid Western and Central Pyrenean growing on shallow alpin rendzinic soils with short snow cover.

Ranunculo thorae-Seslerietum caeruleae Vigo ass. nova hoc loco (45.2.7)

[*Ranunculo thorae-Seslerietum caeruleae* Vigo in Folia Bot. Misc. 1: 8. 1979 (art. 5)]

Typus associatio: Vigo in Folia Bot. Misc. 1: 9, tb., rel. 1, holotypus hoc loco [Girona: Ribes de Freser, Bruguera, Sant Amanç. Repeu pedregos d'una cinglera; alt. 1700 m, exp. N, incl. 45°, cob. 90%, area 25 m²]. Characteristic species: 5 *Sesleria caerulea*, 3 *Pulsatilla alpina* (corr. subsp. *font-queri*), 3 *Ranunculus thora*, 2 *Carex ornithopoda*, 1 *Laserpitium nestleri*, + *Alchemilla plicatula* (corr. *Alchemilla alpigena*), + *Carex montana*. Companion species: 4 *Festuca gautieri*, 2 *Galium verum*, 2 *Hieracium cordifolium* subsp. *neocerinthe*, 2 *Valeriana montana*, 1 *Aquilegia vulgaris*, 1 *Gentiana lutea*, + *Campanula speciosa*, + *Carduus carlinifolius*, + *Euphorbia angulata*, + *Lilium martagon*, + *Lonicera pyrenaica*, + *Pinus uncinata* (seedling), + *Ranunculus nemorosus*, + *Rhytidiadelphus triquetrus*, + *The-sium alpinum*.

Characteristic species (territorials): *Laserpitium nestleri*, *Pedicularis foliosa*, *Pulsatilla alpina* subsp. *font-queri*, *Ranunculus thora*, *Sesleria caerulea*.

Diagnosis: Upper supra and orotemperate snowy north exposed rendzinic walled grasslands rich in geophytes growing on Eastern calcareous Pyrenees.

Alchemillo alpiganae-Dryadetum octopetalae I. Soriano 1998 corr. hoc loco (45.2.8)

[*Alchemillo plicatulae-Dryadetum octopetalae* I. Soriano J. Bot. Soc. Bot. Fr. 5: 24, tb. 1. 1998 (art. 43)]

Diagnosis: Upper orotemperate and lower cryorotemperate Eastern Pyrenean growing on shallow alpin rendzinic soils without a long snow cover period.

[RIVAS-MARTÍNEZ]

SAMBUCO RACEMOSAE-PRUNETUM PADI ass. nova hoc loco (66.5.1)*(Sambuco-Salicion capreae, Sambucetalia racemosae, Rhamno-Prunetea)*

Typus associatio: Table 85, rel. 2 [Huesca: Benasque, Ball d'Alba. 42° 41'N-2° 35'E. 1710 m, NW, 20%, 60 m²].

Characteristic species (territorials): *Lonicera alpigena*, *Prunus padus*, *Ribes rubrum*, *Sambucus racemosa*.

Diagnosis: Upper supra and lower orotemperate humid and hyperhumid Pyrenean scrubby fast grow community dominated by *Prunus padus*, *Salix caprea* and *Sambucus racemosa*, growing on rich and wet soils in gullies and mountain cones as mantle of *Abies alba* or *Pinus uncinata* forests communities.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

Table 85**66.5.1 *Sambuco racemosae-Prunetum padi****(Sambuco-Salicion capreae, Sambucetalia racemosae, Rhamno-Prunetea)*

Altitude (1=10 m)	165	171	170	175	<u>170</u>
Number of species	16	10	18	14	<u>14</u>
Ordinal number	1	2*	3	4	5
Characteristic species:					
<i>Prunus padus</i>	2	3	3	4	4
<i>Sambucus racemosa</i>	1	2	2	2	4
<i>Rubus idaeus</i>	+	1	2	+	4
<i>Salix caprea</i>	.	1	1	+	3
<i>Ribes rubrum</i>	3	1	.	2	2
<i>Rhamnus alpina</i>	2	.	3	.	2
<i>Ribes alpinum</i>	.	.	1	.	1
Companion species:					
<i>Lonicera alpigena</i>	1	1	.	3	3
<i>Molopospermum peloponesiacum</i>	1	.	1	1	3
<i>Dryopteris filix-mas</i>	.	2	1	1	3
<i>Aconitum vulparia</i>	1	.	1	.	2
<i>Sorbus aucuparia</i>	.	1	.	+	2
<i>Corylus avellana</i>	.	.	1	+	2

Other species: Companion species: *Rosa pendulina* 1 in 1, + in 4. *Trisetum flavescens* 1 in 2, 2 in 4. *Chaerophyllum villarsii* 1 in 2 and 4. *Lilium martagon* 2 in 3 and 4. *Daphne mezereum* +, *Gentiana lutea* +, *Knautia arvernensis* +, *Phyteuma pyrenaicum* +, *Ranunculus platanifolius* +, *Trollius europaeus* +, *Veratrum album* + in 1. *Athyrium filix-femina* 2, *Peucedanum ostruthium* 2, *Ulmus glabra* (S2) 2, *Betula pubescens* 1 (S2), *Helleborus foetidus* 1, *Scrophularia alpestris* 1, *Sorbus aucuparia* 1 in 3.

Localities: 1. Huesca: Benasque, Cono de avalanchas del Perdiguero. 50 m². 2. Holotypus ass. Huesca: Benasque, Ball d'Alba. 42° 41'N-0° 35'E. NW, 20%, 60 m². 3. Huesca: Benasque, Cono de avalanchas de la Tuca de Salvaguardia. W, 100 m². 4. Lérida: Valle de Arán, Val de Molieres, Plan dera Rasa. 42° 37' 30"N-0° 45'E. S, 10%, 100 m². 5. Synthesized table.

SATUREJO SALZMANNII-DROSOPHYLLETUM LUSITANICI (Galán & Vicente 1996) ass. nova, stat. nov. hoc loco (61.5.4)

[*Stauracantho boivinii-Drosophylletum saturejetosum salzmannii* Galán & Vicente in Bot. Helvetica 106:51, tb.1, rel.39 to 43, in mistake rel.22. 1996 (art. 5). New typus hoc loco, l.c., rel. 40.] (*Stauracanthion boivinii*, *Ulicetalia minoris*, *Calluno-Ulicetea*)

Typus associatio: Holotypus hoc loco, Galán & Vicente in Bot. Helv. 106: 50, tb. 1, rel. 40. 1996.

Characteristic species (territorials): *Drosophyllum lusitanicum*, *Satureja salzmannii*.

Diagnosis: Association characterized by *Drosophyllum lusitanicum* and *Satureja salzmannii* growing on sandstone dystric-podzol leptosols in thermomediterranean humid bioclimatic belt of Aljibic biogeographic Sector (Coastal Lusitan-Andalusian Province); it is geovicariant of *Stauracantho boivinii-Drosophylletum lusitanici* Quézel, Barbero, Benabid, Loisel & Rivas-Martínez in Ecol. Medit. 14: 85, tb. 12. 1988, but it can be easily separated by *Satureja salzmannii* and the absence of *Genista tridens* or *Pterospartum lasianthum* and the dryer demands of *Cisto-Lavanduletea* species: *Cistus crispus*, *Cistus monspeliensis*, *Lavandula stoechas* subsp. *atlantica*, and *Halimium halimifolium*.

[RIVAS-MARTÍNEZ]

SAXIFRAGETUM BOURGEANAE ass. nova hoc loco (27.14.5)

(*Campanulion mollis*, *Asplenietalia petrarchae*, *Asplenietea trichomanis*)

Typus associatio: Málaga: Cortes de la Frontera, Sierra de Líbar. NE, 850 m, 10 m². Characteristic species: 3 *Saxifraga bourgeana*, 3 *Saxifraga granatensis*, 2 *Ceterach officinarum*, 1 *Sedum dasyphyllum*, + *Asplenium trichomanes* subsp. *quadrivalens*, + *Silene andryalifolia*. Companion species: 1 *Campanula specularioides*, 2 *Geranium purpureum*, 1 *Sedum album*, 1 *Umbilicus rupestris*, + *Arenaria arundana*, + *Biscutella frutescens*, + *Geranium lucidum*, + *Geranium rotundifolium*, + *Hedera helix*, + *Mucizonia hispida*.

Characteristic species: *Saxifraga bourgeana*, *Saxifraga granatensis*.

Diagnosis: Chasmophytic calcareous and calcodolomitic community, growing in meso- and supramediterranean shady walls in the Rondean biogeographic Sector mountains.

[DÍEZ GARRETAS, ASENSI & MARTÍN]

SAXIFRAGETUM RETUSAE Gruber ass. nova hoc loco (27.6.8)

[*Saxifragetum retusae* Gruber 1978 nom. inval. (art. 1)]

(*Androsacion vandellii*, *Androsacetalia vandellii*, *Asplenietea trichomanis*)

Typus associatio: Andorra: Pic Siscarou. 42°31'N-1°33'E. N, 2600 m, 80%, 100 m². Characteristic species: 2 *Saxifraga retusa*, 1 *Saxifraga bryoides*, + *Asplenium septentrionale*, + *Cardamine resedifolia*, + *Draba dubia* subsp. *laevipes*. Companion species: + *Festuca airoides*, + *Minuartia recurva*, + *Saxifraga geranioides* [relevé: M. Gruber 1978, tb.1, rel. 1].

Characteristic species (territorial): *Saxifraga retusa*.

Diagnosis: Cryorotemperate hyperhumid Eastern Pyrenean chasmophyte calcifugous community, characterized by the alpine-pyrenean endemics *Saxifraga retusa* and *Saxifraga bryoides*, as well as the pyrenean endemic *Saxifraga pentadactylis* subsp. *pentadactylis*, growing on siliceous north exposed snow free walls.

[RIVAS-MARTÍNEZ]

SCROPHULARIO AURICULATAE-EPILOBIETUM HIRSUTI ass. nova hoc loco (40.5.6)

[*Scrophulario auriculatae-Epilobietum hirsuti* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]

(*Calystegion sepium*, *Calystegietalesia sepium*, *Galio-Urticetea*)

Typus associatio: Table 86, rel. 2 [Jaén: Santiago de la Espada, Huelga-Utrera. 30S WH3623. 1050 m, 40 m²].

Table 86

40.5.6 *Scrophulario auriculatae-Epilobietum hirsuti*
(*Calystegion sepium*, *Calystegietalesia sepium*, *Galio-Urticetea*)

Altitude (1=10m)	100	105	130	78	98	132	97	85	95	120	<u>102</u>
Number of species	9	6	10	9	8	13	11	7	13	12	<u>10</u>
Ordinal number	1	2*	3	4	5	6	7	8	9	10	8
Characteristic species:											
<i>Epilobium hirsutum</i>	3	5	5	4	5	2	5	2	4	5	V
<i>Scrophularia auriculata</i>	.	+	.	.	.	2	1	3	+	+	IV
<i>Eupatorium cannabinum</i>	2	1	+	.	.	.	.	.	.	.	III
<i>Urtica dioica</i>	1	.	1	.	.	.	.	.	.	1	III
<i>Scrophularia scorodonia</i>	.	+	.	.	+	.	.	.	.	.	III
<i>Solanum dulcamara</i>	.	.	+	.	+	.	.	.	.	.	II
<i>Lycopus europaeus</i>	.	.	.	1	.	.	+	.	.	.	II
<i>Hypericum caprifolium</i>	.	.	.	.	.	1	.	.	+	.	II
<i>Calystegia sepium</i>	.	.	.	.	+	.	.	.	.	.	I
Companion species:											
<i>Mentha longifolia</i>	+	+	+	.	.	2	.	.	2	2	V
<i>Sonchus aquatilis</i>	+	.	.	+	.	.	+	.	+	.	III
<i>Peucedanum hispanicum</i>	.	.	+	1	+	.	.	.	+	.	III
<i>Nasturtium officinale</i>	.	.	+	.	+	.	+	.	.	+	III
<i>Ranunculus granatensis</i>	1	.	+	.	.	.	.	.	.	1	III
<i>Pulicaria dysenterica</i>	.	.	.	+	+	.	.	.	2	.	III
<i>Ranunculus repens</i>	.	.	.	2	.	.	.	1	+	.	III
<i>Veronica beccabunga</i>	.	.	.	.	.	+	+	.	.	+	III

Other species. Companion species: *Hypericum undulatum* + in 1 and 3. *Equisetum ramosissimum* + in 4 and 7. *Lythrum salicaria* + in 5, 1 in 8. *Dorycnium rectum* + in 5 and 8. *Agrostis stolonifera* + in 7 and 9. *Calepina irregularis* 2, *Geranium robertianum* + in 1. *Lactuca virosa* + in 3. *Althaea officinalis* +, *Carex hispida* + in 4. *Cirsium ferox* +, *Epilobium parviflorum* +, *Equisetum palustre* +, *Hype-*

ricum tomentosum +, *Juncus inflexus* +, *Lysimachia ephemerum* +, *Lysimachia vulgaris* +, *Veronica anagalloides* + in 6. *Equisetum arvense* +, *Juncus subnodulosus* +, *Scirpoides holoschoenus* + in 7. *Euphorbia hirsuta* 2, *Agrimonia eupatoria* 1 in 8. *Cyperus longus* +, *Lythrum junceum* +, *Mentha aquatica* +, *Verbena officinalis* + in 9. *Dipsacus fullonum* +, *Plantago major* +, *Polygonum lapathifolium* +, *Potentilla reptans* +, *Rumex crispus* + in 10.

Localities: 1. Jaén: Santiago de la Espada, La Toba 30S WH3825, 100 m². 2. Holotypus ass. Jaén: Santiago de la Espada, Huelga-Utrera. 30S WH 3623. 40 m². 3. Jaén: Pontones, Puente río Segura. 30S WH 3020. 30 m². 4. Albacete: Villaverde del Guadalimar, Fábrica de resinas. 30S WH 4157. 20 m². 5. Jaén: Molínicos, Mesones. 30S WH 5660. 20 m². 6. Albacete: Paterna del Madera, río Endriñales. 30S WH 5557. 20 m². 7. Albacete: Paterna del Madera. 30 S WH 5768. 20 m². 8. Albacete: Bogarra, El Batanero, 30 S WH 5970. 20 m². 9. Jaén: Santiago de la Espada, Puente de Vites. 30 S WH 4623. 20 m². 10. Jaén: Santiago de la Espada, Puente río Zumeta. 30 S WH 3815. 100 m². 11. Synthesized table.

Characteristic species (territorials): *Epilobium hirsutum*, *Scrophularia auriculata*, *Scrophularia scorodonia*, *Solanum dulcamara*, *Eupatorium cannabinum*, *Calepina irregularis*.

Diagnosis: Herbaceous forb community with *Epilobium hirsutum*, *Eupatorium cannabinum*, *Scrophularia auriculata*, *Scrophularia scorodonia* and *Solanum dulcamara*. It appears in river bank sediments rich in organic remains. It is well characterized by *Scrophularia auriculata* (= *S. lyrata*), species absent in the related associations. This community seems to be widespread in the West Iberian territories.

[RÍOS & ALCARAZ]

Table 87

11.4.2 *Sedum campanulati*

(*Myosotidion stoloniferae*, *Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Altitude (1=10m)	165	175	198	180	<u>180</u>
Number of species	6	6	9	7	7
Ordinal number	1	2	3*	4	5
Characteristic species:					
<i>Sedum campanulatum</i>	3	3	5	2	4
<i>Veronica langei</i>	1	+	1	.	3
<i>Montia amporitana</i>	.	+	.	+	2
<i>Epilobium anagallidifolium</i>	.	1	1	.	2
<i>Epilobium obscurum</i>	.	.	.	1	1
Companion species:					
<i>Nardus stricta</i>	.	+	1	1	3
<i>Juncus bulbosus</i>	+	.	+	.	2
<i>Radiola linoides</i>	1	.	.	+	2
<i>Philonotis fontana</i>	.	.	3	3	2
<i>Viola palustris</i>	.	.	1	2	2

Other species. *Molineriella laevis* 1, *Leontodon carpetanus* + in 1. *Thymus pulegioides* 2 in 2. *Festuca rothmaleri* 1, *Carex iberica* + in 3.

Localities: 1. Ávila: Sierra del Barco, Puerto Castilla, Garganta de la Vega. 30TTK7859. W, 1 m². 2. Ávila: Guisando, Los Galayos, La Apretura. NW, 2 m². 3. Holotypus ass. Ávila: Solana de Béjar, Sierra de Béjar, Malillo creek 30TTK6964. E, 1 m². 4. Ávila: Hoyos del Espino, Sierra de Gredos, La Plataforma. 30TUK1060. N, 1 m². 5. Synthesized table.

SEDETUM CAMPANULATI ass. nova hoc loco (11.4.2)

(*Myosotidion stoloniferae*, *Montio-Cardaminetalia*, *Montio-Cardaminetea*)

Typus associatio: Table 87, rel. 3 [Ávila: Solana de Béjar, Sierra de Béjar, Malillo creek. 30TTK6964. 1980 m, W, 1 m²].

Characteristic species: *Sedum campanulatum* (*Sedum lagascae* auct. non Pau).

Diagnosis: Association well characterized by the short-lived *Sedum campanulatum*, local endemic of the Bejaran-Gredensean Sector (Gredos, Tormantos and Béjar Mountains), that colonizes small temporary springs and rivulets among siliceous outcrops, flowing during thaw, in the supramediterranean and the lower orosubmediterranean belts (1300-2000 m).

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

SEDETUM LAGASCAE ass. nova hoc loco (9.4.9)

(*Cicendion*, *Isoetetalia*, *Isoeto-Nanojuncetea*)

Typus associatio: Table 88, rel. 4 [Ávila: San Martín de la Vega del Alberche, Barba-búo creek. 30TUK1679. 1540 m, 1 m²].

Characteristic species: *Sedum lagascae* (*Sedum maireanum*).

Diagnosis: Association dominated by the succulent-leaved therophyte *Sedum lagascae* and several dwarf annual rushes (*Juncus bufonius*, *J. tenageia*, *J. capitatus*), growing on shallow mineral soils developed on siliceous rocks and submitted to short spring episodes of hydromorphy. They bloom in late spring-early summer and are mainly distributed in the meso and supramediterranean belts (up to 1800 m) of the Mediterranean West Iberian Province.

Remarks: Brullo & Minissale in *Itinera Geobot.* 11: 282. 1998 proposed the new association *Junco bufonii-Sedum lagascae* based in the rel. 10, tb. 9 published by Sánchez-Mata (1989: 76) as “Comunidad de *Juncus bufonius* y *Sedum lagascae*”. As the Italian authors do not give any comment in the text out of the number of the table, it seems possible to consider the association name as invalidly published (art. 2b), if contrarily we accept it as valid name the citation should be *Junco bufonii-Sedum lagascae* Sánchez-Mata ex Brullo & Minissale 1998.

[RIVAS-MARTÍNEZ, FERNÁNDEZ-GONZÁLEZ, SÁNCHEZ-MATA & SARDINERO]

Table 88
9.4.9 *Sedum lagascae*
(Cicendion, Isoetetalia, Isoeto-Nanojuncetea)

Altitude (1=10m)	156	118	130	154	180	110	112	124	126	136	<u>135</u>
Number of species	5	7	8	6	12	7	8	9	13	10	8
Ordinal number	1	2	3	4*	5	6	7	8	9	10	11
Characteristic species:											
<i>Sedum lagascae</i>	3	3	2	3	3	4	3	3	4	3	V
<i>Juncus bufonius</i>	2	1	1	3	1	3	3	2	1	3	V
<i>Juncus capitatus</i>	.	2	.	2	.	.	1	.	1	1	III
<i>Juncus tenageia</i>	.	.	.	1	1	.	.	+	3	+	III
<i>Mentha pulegium</i>	.	.	.	.	+	+	.	.	1	.	II
<i>Radiola linoides</i>	.	.	3	.	.	.	.	+	.	.	II
<i>Ranunculus nodiflorus</i>	.	.	.	.	.	1	+	.	.	.	II
<i>Lythrum longidentatum</i>	.	.	.	.	.	.	1	1	.	.	II
<i>Scirpus setaceus</i>	.	.	.	.	.	.	.	.	2	2	II
Companion species:											
<i>Vulpia bromoides</i>	.	+	.	.	.	1	+	1	.	.	III
<i>Trifolium strictum</i>	.	1	.	.	.	2	.	.	1	1	III
<i>Trifolium patens</i>	1	.	+	+	.	.	.	.	.	.	II
<i>Molineriella laevis</i>	.	1	.	.	.	1	.	+	.	.	II

Other species. Characteristic species: *Juncus hybridus* 1 in 10. Companion species: *Aphanes microcarpa* + in 1, 1 in 5. *Anthoxanthum aristatum* 2 in 3, + in 8. *Sagina procumbens* 1 in 3, + in 9. *Ctenopsis delicatula* + in 7 and 9. *Euphrasia hirtella* 1 in 9 and 10. *Stellaria alsine* 1 in 9 and 10. *Trifolium dubium* 1 in 1. *Herniaria glabra* + in 2. *Trifolium arvense* 1, *Juncus articulatus* + in 3. *Aira caryophyllea* 1 in 4. *Campanula lusitanica* 1, *Moenchia erecta* 1, *Ranunculus paludosus* 1, *Trisetum ovatum* 1, *Bromus hordeaceus* +, *Myosotis persoonii* +, *Teesdalia coronopifolia* + in 5. *Vicia tetrasperma* + in 7. *Chamaemelum nobile* + in 8. *Prunella vulgaris* 1, *Ranunculus flammula* + in 9. *Cerastium vulgare* + in 10.

Localities: 1. Ávila: San Martín de la Vega del Alberche, Barbabúo creek. 30TUK1679. 1 m². 2. Madrid: El Paular. 30TVL2527. 10 m². 3. Ávila: El Hornillo, Peña del Mediodía, Garganta del Arroyo de Aguas Frías. 30TUK1759. 1 m². 4. Holotypus ass. Ávila: San Martín de la Vega del Alberche, Barbabúo creek. 30TUK1679. 1 m². 5. Ávila: La Serrota, Cepeda la Mora, near of Risco del Cueto, Fuente Peguerinos. 30TUK2381. 1 m². 6. Madrid: Gargantilla de Lozoya-Pinilla de Buitrago. 30TVL4036. 20 m². 7. Madrid: Navarredonda-Pinilla de Buitrago. 30TVL4037. 5 m². 8. Ávila: Navalperal de Tormes. 30TUK0569. 10 m². 9. Ávila: San Martín del Pimpollar, Venta Rasquilla, Alberche river. 30TUK2871. 1 m². 10. Ávila: San Martín del Pimpollar. 30TUK2570. 1 m². 11. Synthesized table.

SELAGINELLO DENTICULATAE-SAXIFRAGETUM GEMMULOSAE F.J. Pérez, T.E. Díaz, P. Fernández & Salvo ass. nova hoc loco (30.5.3)

[Comunidad de *Selaginella denticulata* y *Saxifraga gemmulo* F.J. Pérez, T.E. Díaz, P. Fernández & Salvo in Acta Bot. Malacitana 14: 177, tb. 5. 1989 (art. 2d)]

(*Selaginello denticulatae-Anogrammion leptophyllae*, *Anomodonto-Polypodieta*, *Anomodonto-Polypodieta*)

Typus associatio: F.J. Pérez, T.E. Díaz, P. Fernández & Salvo in Acta Bot. Malacitana 14: 177, tb. 5 rel. 3. 1989.

Characteristic species: *Saxifraga gemmulosa*.

Diagnosis: Bryo-pteridophytic association with short thick leaved and pulviniform chamaephytes, characterized by the Bermejan serpentine endemic *Saxifraga gemmulosa* Boiss., typical of shady slopes and fissures of the thermo and mesomediterranean subhumid-humid belt of the Bermejan Subsector (Rondean Sector).

[RIVAS-MARTÍNEZ & IZCO]

SENECIONI LADEROI-JUNCETUM INFLEXI ass. nova hoc loco (59.15.13)

[*Senecioni laderoi-Juncetum inflexi* M.E. García, L. Herrero, C. Pérez & Penas in M.E. García 1990 nom. inval. (art. 1)]

(*Mentho-Juncion inflexi*, *Plantaginetalia majoris*, *Molinio-Arrhenatheretea*)

Typus associatio: Table 89, rel. 4 [León: Villamanín. 30TTN85. 1140 m, NW, 5%, 20 m²].

Table 89

59.15.13 *Senecioni laderoi-Juncetum inflexi*

(*Mentho-Juncion inflexi*, *Plantaginetalia majoris*, *Molinio-Arrhenatheretea*)

Altitude (1=10m)	111	144	133	114	113	114	114	116	<u>124</u>
Number of species	14	14	14	16	17	18	19	21	<u>17</u>
Ordinal number	1	2	3	4*	5	6	7	8	9
Characteristic species:									
<i>Senecio laderoi</i>	2	1	1	2	1	2	2	2	V
<i>Juncus inflexus</i>	1	1	2	2	3	1	2	3	V
<i>Mentha longifolia</i>	1	3	3	1	2	3	3	3	V
<i>Trifolium pratense</i>	1	1	1	+	1	.	1	2	V
<i>Briza media</i>	1	1	+	.	.	1	1	1	IV
<i>Prunella vulgaris</i>	.	1	.	1	1	1	1	+	IV
<i>Juncus acutiflorus</i>	.	1	1	.	1	1	1	1	IV
<i>Holcus lanatus</i>	1	.	.	1	1	1	.	1	III
<i>Cirsium pyrenaicum</i>	1	.	3	.	2	2	.	.	III
<i>Ranunculus repens</i>	.	2	2	.	.	2	.	2	III
<i>Plantago lanceolata</i>	1	+	.	1	.	.	1	.	III
<i>Poa trivialis</i>	.	1	.	+	.	1	1	.	III
<i>Lathyrus pratensis</i>	.	1	.	.	1	.	1	.	II
<i>Achillea millefolium</i>	.	.	.	.	1	.	+	1	II
Companion species:									
<i>Scrophularia alpestris</i>	.	1	.	2	.	1	2	1	III
<i>Carex binervis</i>	.	2	1	.	.	2	2	.	III
<i>Rumex conglomeratus</i>	1	.	.	.	1	.	.	+	II
<i>Dipsacus fullonum</i>	1	.	.	.	.	+	.	1	II

Other species. Characteristic species: *Crepis capillaris* 1 in 1 and 8. *Lotus villosus* + in 3, 3 in 4. *Potentilla reptans* + in 4 and 6. *Agrostis capillaris* 2 in 5 and 8. *Dactylis glomerata* 1 in 7 and 8. *Festuca paniculata* + in 2. *Cynosurus cristatus* 1, *Senecio barbareaifolius* 1, *Plantago major* + in 3. *Lychnis flos-cuculi* 1, *Arrhenatherum bulbosum* +, *Mentha x rotundifolia* + in 4. *Elymus caninus* 1, *Phleum bertolonii* 1 in 5. *Centaurea nigra* + in 6. *Trifolium repens* 2, *Bellis perennis* 1 in 7. *Anthoxanthum odoratum* 1, *Apium nodiflorum* 1, *Succisa pratensis* + in 8. Companion species: *Verbena officinalis* + in 4, 1 in 6. *Epilobium parviflorum* 1 in 1 and 4. *Galium verum* + in 5, 1 in 7. *Epilobium hirsutum* 1 in 5 and 8. *Dactylorhiza maculata* 1 in 6 and 7. *Scrophularia auriculata* 2, *Agrimonia eupatoria* 1 in 1. *Veronica beccabunga* + in 3. *Chaerophyllum hirsutum* 1 in 5. *Ononis spinosa* + in 6. *Iris germanica* + in 7. *Equisetum arvense* + in 8.

Localities: 1. Palencia, Rebanal de las Llantas. 30TUN75. E, 2%, 15 m². 2. León, Cubillas de Arbás, Collada de Alonga. 30TTN65. E, 10%, 10 m². 3. Palencia, Ruesga, Brañosera. 30TUN74. N, 5%, 10 m². 4. Holotypus ass. León, Villamanín. 30TTN85. NW, 5%, 20 m². 5. Palencia, Traspeña de la Peña. 30TUN64. 25 m². 6. León, Cármenes, Valverdín. 30TTN95. S, 10%, 20 m². 7. León, Cubillas de Arbás, Collada de Alonga. 30TTN65. NE, 15%, 20 m². 8. León, Sena de Luna. 30TTN55. N, 5%, 10 m². 9. Synthesized table.

Characteristic species (territorials): *Carex binervis*, *Juncus acutiflorus*, *Juncus inflexus*, *Mentha longifolia*, *Senecio laderoi*.

Diagnosis: Hygronitrophilous rush meadows growing on the banks of spring water courses in deep, damp and base-rich soils on the supratemperate belt of the Orocantabric Subprovince, mainly in the Ubinnean-Picoeuropean and Campurrian-Carrionese Sectors. This association is vicarious of the more acidophilous *Mentha suaveolentis*-*Juncetum inflexi*, from which it differs by the presence of *Senecio laderoi* and *Cirsium pyrenaicum*.

[M.E. GARCÍA, L. HERRERO, C. PÉREZ, PENAS & F. SALEGUI]

SENECIONI LOPEZII-QUERCETUM LUSITANICAE ass. nova hoc loco (75.11.3)

[*Phillyreo angustifoliae-Quercetum fruticosae* sensu auct iber. non Barbéro, Quézel & Rivas-Martínez in *Phytocoenologia* 9(3): 370, tb. 23. 1981]

(*Quercion lusitanicae*, *Pistacio-Rhamnetalia alaterni*, *Querco-Fagetea*)

Typus associatio: Cádiz: Sierra de Aljibe, upper Rocinejo River. 36°29'N-5°35'W. 780 m, NW, 10%, 40 m². Characteristic species: 5 *Quercus lusitanica*, 2 *Senecio lopezii*, 1 *Phillyrea angustifolia*, 1 *Serratula baetica* subsp. *alcalae*, + *Bupleurum foliosum*, + *Daphne gnidium*, + *Quercus suber* (S2), + *Rubia agostinhoi*. Companion species: 2 *Avenula lodunensis* subsp. *albinervis*, 2 *Caluna vulgaris*, 1 *Stauracanthus boivinii*, + *Agrostis curtisii*, + *Brachypodium gaditanum*, + *Halimium lasianthum*, + *Lavandula luisieri*, + *Satureja salzmannii*, + *Ulex borgiae*.

Characteristic species (territorials): *Avenula sulcata* subsp. *albinervis*, *Bupleurum foliosum*, *Quercus lusitanica*, *Senecio lopezii*, *Serratula alcalae*, *Ulex borgiae*.

Diagnosis: Upper thermo-mesomediterranean humid-hyperhumid scrub and dwarf-scrub Aljibic endemic seral community, growing on poor silicic cambic and podzolic soils as a seral community of cork-oak forest (*Teucrio baetici-Quercetum suberis*). It could be con-

sidered as geovicariant of the Maghrebian-Tingitanian association *Phillyreo angustifoliae-Quercetum (fruticosae) lusitanicae* Barbero, Quézel & Rivas-Martínez in Phytocoenologia 9(3): 370, tb. 23. 1981; both association can be easily differentiated by: *Senecio lopezii*, *Lavandula luisieri*, *Satureja salzmannii*, *Serratula alcalae* and *Ulex borgiae* present in the Aljibic association, as well by *Calicotome villosa*, *Erica arborea*, *Halimium halimifolium*, *Quercus coccifera* and *Teucrium fruticans* very common in Morocco association but almost absent in the spanish geovicariant.

[RIVAS-MARTÍNEZ]

SIDERITIDO ILICIFOLIAE-THYMENION LOSCOSII suball. nova hoc loco (64.5c)

[*Rosmarino-Cistenion clusii* Mateo in Publ. Ministerio Agricultura, Ser. Monogr. 31: 216. 1983 (art. 5)]

(*Sideritido incanae-Salvion lavandulifoliae*, *Rosmarinetalia officinalis*, *Rosmarinetea officinalis*)

Typus suballiancia: *Sideritido ilicifoliae-Thymetum loscosii* O. Bolòs & Molero Brion. in Molero Brion. in Butll. Inst. Catalana Hist. Nat., Sec. Bot. 51: 158, tb. 9. 1984.

Characteristic species: *Centaurea linifolia* subsp. *linifolia*, *Euphorbia minuta* subsp. *minuta*, *Sideritis fruticulosa*, *Sideritis ilicifolia*, *Sideritis spinulosa*, *Teucrium gnaphalodes* subsp. *ilerdense*, *Thymus loscosii*.

Diagnosis: Mesomediterranean and lower supramediterranean semiarid and dry semicontinental thyme and rosemary communities growing on clayey or calcareous eroded soils, generally with stones in surface (cobble and pebble sizes), spread in Low Aragonese Subprovince and adjacent Oroiberian territories.

Aphyllantho-Bupleuretum fruticescentis Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 190, tb. 39. 1958 (64.5.21)

Distribution: Meso-lower supramediterranean dry Low Aragonese and adjacent territories.

Cytiso fontanesii-Cistetum clusii Br.-Bl. & O. Bolòs 1958 corr. O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 124. 1967 (64.5.22)

[*Cytiso-Cistetum libanotidis* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 165, tb. 35. 1958 (art. 43)]

Distribution: Lower mesomediterranean semiarid eastern Monegensean Sector.

Rosmarino officinalis-Linetum suffruticosi Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 142, tb. 30. 1958 (64.5.23)

Distribution: Mesomediterranean semiarid and dry Low Aragonese and adjacent territories.

Salvio lavandulifoliae-Ononidetum fruticosae Fernández-González, Loidi & A.

Molina in *Anales Jard. Bot. Madrid* 42(2): 452, tb. 1. 1986 (64.5.24)

Distribution: Mesomediterranean dry Riojan Sector.

Sideritido ilicifoliae-Thymetum loscosii O. Bolòs & Molero Brion. in Molero Brion. in *Butll. Inst. Catalana Hist. Nat., Sec. Bot.* 51: 158, tb. 9. 1984 (64.5.25)

Distribution: Lower mesomediterranean dry and semiarid Monegrentsean Sector.

Sideritido spinulosae-Lavanduletum latifoliae A. Molina, Loidi & Fernández-González in *Bot. Complut.* 18: 31, tb. 5. 1993 (64.5.26)

Distribution: Meso-lower supramediterranean dry Sorian Oroiberian and Bardenan-Monegrentsean Sectors.

[RIVAS-MARTÍNEZ, CANTÓ, FERNÁNDEZ-GONZÁLEZ & SÁNCHEZ-MATA]

SILYBETUM HISPANICI ass. nova hoc loco (34.11.7)

(*Urtico piluliferae-Silybion mariani*, *Carthametalia lanati*, *Onopordenea acanthii*, *Artemisietea vulgaris*)

Typus associatio: Table 90, rel. 1 [Ciudad Real: Pedro Muñoz, Laguna del Retamar. Disturbed places close to salt-marsh areas. 660 m, 10 m²].

Characteristic species: *Silybum eburneum* var. *hispanicum*, *Silybum x gonzaloi*.

Diagnosis: Community of annual or biennial great thistles, well characterized by the Iberian endemic *Silybum eburneum* var. *hispanicum*, geovicariant of the Mauritanous verticicolous also endemic *Silybum eburneum* var. *eburneum*, often accompanied by other great thistles such as *Carthamus lanatus*, *Onopordum nervosum* subsp. *castellanum* and *Silybum marianum*, with which can hybridize (*Silybum x gonzaloi*). These new Manchean-Murcian-Aragonian (Monegros) association grows on clayey or clayey-gypsiculous turned over soils with temporal hydromorphy and frequent vertic character.

[RIVAS-MARTÍNEZ, CANTÓ, M.B. CRESPO & SÁNCHEZ-MATA]

SISYMBRIETUM ERYSIMOIDIS (Ladero, O. Socorro, Molero, M. López, Zafra, Marín, Hurtado & Pérez-Raya 1981) ass. nova, stat. nov. hoc loco (39.8.9)

[Basion.: *Sisymbrio irionis-Malvetum parviflorae sisymbrietosum erysimoidis* Ladero, O. Socorro, Molero, M. López, Zafra, Marín, Hurtado & Pérez-Raya in *Anales Jard. Bot. Madrid* 37(2): 739, tb. 2. 1981]

(*Chenopodienion muralis*, *Chenopodion muralis*, *Chenopodietalia muralis*, *Stellarietea mediae*)

Typus associatio: Ladero, O. Socorro, Molero, M. López, Zafra, Marín, Hurtado & Pérez-Raya in *Anales Jard. Bot. Madrid* 37(2): 739, tb. 2, rel. 4 (holotypus). 1981.

Characteristic species: *Sisymbrium erysimoides*.

Diagnosis: Thermo-lower mesomediterranean dry and semiarid, annual ephemeral

ruderal, rural and urban early spring blooming and slightly shaded community, growing on Murcian-Almeriense and Betic Provinces, and spread to Setabense and Manchegan biogeographic sector territories.

[RIVAS-MARTÍNEZ & LADERO]

Table 90

34.11.7 *Silybetum hispanicum*

(*Urtica piluliferae-Silybion mariani*, *Carthametalia lanati*, *Onopordeneae acanthii*, *Artemisietea vulgaris*)

Altitude (1=10m)	66	69	68	70	66	66	68
Number of species	10	12	18	16	17	20	15
Ordinal number	1*	2	3	4	5	6	7
Characteristic species:							
<i>Silybum hispanicum</i>	3	3	4	4	2	2	V
<i>Carthamus lanatus</i>	2	1	+	+	+	+	V
<i>Lactuca serriola</i>	1	2	2	2	1	2	V
<i>Hirschfeldia incana</i>	1	+	+	.	1	1	V
<i>Picnoman acarna</i>	2	.	.	+	1	2	IV
<i>Carduus pycnocephalus</i>	.	2	2	.	1	1	IV
<i>Silybum marianum</i>	+	.	.	.	3	3	III
<i>Centaurea calcitrapa</i>	.	1	2	.	+	+	III
<i>Onopordum castellanum</i>	.	+	.	+	+	.	III
<i>Cichorium intybus</i>	.	.	+	+	.	+	III
<i>Cirsium vulgare</i>	.	+	.	1	.	.	II
<i>Marrubium vulgare</i>	.	+	.	1	.	.	II
<i>Scolymus hispanicus</i>	.	.	2	+	.	.	II
Companion species:							
<i>Anacyclus clavatus</i>	1	2	1	1	.	+	V
<i>Beta maritima</i>	.	+	+	.	1	1	IV
<i>Bromus diandrus</i>	.	.	1	1	1	1	IV
<i>Hordeum leporinum</i>	.	+	.	.	1	1	III

Other species. Characteristic species: *Carduus tenuiflorus* +, *Carlina hispanica* +, *Silybum x gonzaloi* + in 1. *Onopordum castellanum* x *Onopordum acanthium* 1, *Onopordum acanthium* + in 3. *Chondrilla juncea* 1 in 4. Companion species: *Mantisalca salmantica* 2 in 3, + in 4. *Sonchus oleraceus* 1 in 5 and 6. *Avena barbata* + in 5, 1 in 6. *Papaver rhoeas* + in 5, 1 in 6. *Descurainia sophia* + in 5 and 6. *Phragmites communis* + in 5 and 6. *Sonchus x toletanus* + in 5 and 6. *Hordeum leporinum* x *Hordeum marinum* 2, *Aeluropus litoralis* + in 1. *Medicago sativa* +, *Peganum harmala* + in 3. *Bromus hordeaceus* 2, *Verbena officinalis* 1, *Gypsophila x castellana* +, *Sonchus crassifolius* + in 4. *Althaea hirsuta* + in 5. *Hordeum marinum* +, *Podospermum laciniatum* in 6.

Localities: 1. Holotypus ass. Ciudad Real: Pedro Muñoz, Laguna del Retamar. Disturbed places close to salt-marsh areas, 10 m². 2. Cuenca: Las Mesas, 'Laguna de Lara', 10 m². 3. Toledo: Between Villacañas and Lillo, Hermitage of 'Nuestra Señora de la Esperanza', 10 m². 4. Toledo: Miguel Esteban, 'Laguna de Paloma', Hermitage of 'Nuestra Señora de Palomares', 10 m². 5, 6. Ciudad Real: Pedro Muñoz, Laguna del Retamar. Disturbed places close to drainage channels grooved on old salt-marsh areas, 10 m². 7. Syntesized table.

SOLENOPSIS BALEARICAE-NAUFRAGETUM BALEARICAE (Duvigneaud 1970) ass. nova, stat. nov. hoc loco (30.4.4)

[*Sibthorpio africanae-Arenarietum balearicae adiantetosum capilli-veneris* Duvigneaud in Bull. Soc. Roy. Bot. Belgique 76: 66. 1970 (basion.) (art. 27d, 46H)]

(*Arenarion balearicae, Anomodonto-Polypodietaalia, Anomodonto-Polypodietea*)

Typus associatio: in Bull. Soc. Roy. Bot. Belgique 76: 66. 1970

Characteristic species: *Naufraga balearica*.

Diagnosis: Not arrived on time to be translated.

[LLORENS & GIL]

SOUTHBYO TOPHACEAE-PINGUICULETUM DERTOSENSIS ass. nova hoc loco (26.2.5)

(*Pinguiculion longifoliae, Adiantetalia capilli-veneris, Adiantetea*)

Typus associatio: Granada: Sierra Tejada, Salto del Caballo. 30SVF0984. 1700 m, NW, 10 m². Characteristic species: 2 *Pinguicula dertosensis*, 1 *Eucladium verticillatum*, 1 *Southbya tophacea*, + *Pellia fabbroniana*. Companion species: 1 *Nostoc* sp.

Characteristic species: *Pinguicula dertosensis*.

Diagnosis: Bryo-cormophyte community characterized by the allopolyploid endemic species *Pinguicula dertosensis*, locally growing on humid calcareous rocky banks and water-logged pastures in meso and supramediterranean belts of Malacitan-Almijarensian Sector (Sierra Tejada), Cazorlan territories (Cazorla Mountains) and Valencian-Tarraconensian Sector (Beceite Mountains).

[ASENSI & DÍEZ GARRETAS]

SPERGULARIO RUPICOLAE-SEDETUM ANGLICI ass. nova hoc loco (55.1.4)

(*Sedion anglici, Sedo-Scleranthetalia, Sedo-Scleranthetea*)

Typus associatio: Table 91, rel. 4 [Asturias: Gozón, Cabo Peñas. 30TTP3770. 100 m, 10%, 1 m²].

Characteristic species (territorials): *Spergularia rupicola*, *Sedum anglicum*.

Diagnosis: Coastal sparse grassland community of perennial grasses and small succulent chamaephytes, colonizing lithosols on slates, sandstones and quartzites. This association is characterized and well distinguished by *Sedum anglicum* and the halophilous species *Spergularia rupicola* and *Festuca pruinosa*. Its optimum occurs on the siliceous coastal capes of the thermotemperate humid belt in the Galician-Asturian Sector, although it also grows close to the heath communities of *Angelico pachycarpae-Ulicetum maritimi* and to the arohaline grasslands of *Crithmo-Armerion*.

[ARBESÚ, BUENO & F. PRIETO]

Table 91
55.1.4 *Spergulario rupicolae-Sedetum anglici*
 (*Sedion anglici*, *Sedo-Scleranthetalia*, *Sedo-Sclerantheteta*)

Altitude (1=10m)	8	10	10	10	10	10	10	10	10	10	6	6	2	8	8	2	2	10	7
Number of species	10	10	7	7	9	6	7	5	8	9	6	7	9	8	8	4	5	5	8
Ordinal number	1	2	3	4*	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Characteristic species:

<i>Sedum anglicum</i>	2	3	1	3	3	3	3	3	2	3	2	1	2	3	3	4	3	3	V
<i>Spergularia rupicola</i> (terr.)	2	1	3	2	3	3	2	.	.	2	3	3	2	1	2	+	1	1	V
<i>Festuca pruinosa</i> (terr.)	.	2	2	1	+	1	1	2	1	1	.	.	+	.	.	.	.	+	IV
<i>Allium ericetorum</i>	+	1	+	+	.	.	.	.	+	+	1	+	.	1	.	.	.	.	III
<i>Koeleria albescens</i>	.	.	.	.	1	.	.	.	.	.	.	.	+	+	1	2	1	.	II
<i>Jasione gallaecica</i>	.	.	.	.	.	.	+	+	1	+	.	.	.	+	.	.	.	.	II
<i>Sedum hirsutum</i>	.	.	.	.	.	.	.	.	+	1	.	.	.	.	.	.	.	.	I

Companion species:

<i>Hypochoeris radicata</i>	+	+	1	1	+	1	1	+	1	1	.	.	.	3	1	.	.	.	IV
<i>Dactylis maritima</i>	1	+	.	.	.	.	.	.	+	.	+	.	+	+	1	+	.	.	III
<i>Rumex biformis</i>	.	+	+	+	+	+	+	.	.	+	.	.	.	.	.	.	.	.	III
<i>Plantago coronopus</i>	+	+	.	.	1	.	.	.	.	.	1	1	.	.	.	.	.	1	II
<i>Scilla verna</i>	.	1	.	1	.	.	.	.	.	+	.	.	.	.	+	+	.	.	II
<i>Armeria depilata</i>	.	.	+	.	+	.	.	.	.	.	.	.	.	+	.	+	.	+	II

Other species. Companion species: *Lotus corniculatus* + in 1, 14 and 17. *Trifolium occidentale* 1 in 5, 2 in 12 and 13. *Desmazeria marina* 3 in 11, 12 and 13. *Sagina maritima* 1 in 1, + in 2. *Agrostis setacea* 2 in 8, 1 in 9. *Leucanthemum pluriflorum* +, *Poa annua* 1 in 1. *Lithodora prostrata* + in 6. *Ulex europaeus* f. *maritimus* + in 7. *Cirsium filipendulum* + in 9. *Anthyllis iberica* +, *Leontodon taraxacoides* ssp. *hispidus* + in 12. *Picris hieracioides* + in 18.

Localities: 1. Asturias: Cudillero, Cabo Vidio. 29TQJ3032. 15%, 4 m². 2. Asturias: Gozón, Cabo Peñas. 30TTP3770. 15%, 1 m². 3. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 4. Holotypus ass. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 5. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 6. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 7. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 2 m². 8. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 9. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 1 m². 10. Asturias: Gozón, Cabo Peñas. 30TTP3770. 10%, 10 m². 11. Asturias: Valdés, Cabo Busto. 29TQJ2704. 15%, 1 m². 12. Asturias: Valdés, Cabo Busto. 29TQJ2704. 15%, 2 m². 13. Asturias: Cudillero, Cala El Riego. 29TQJ2718. 15%, 3 m². 14. Asturias: Cudillero, Cabo Vidio. 29TQJ3032. 15%, 2 m². 15. Asturias: Cudillero, Cabo Vidio. 29TQJ3032. 20%, 2 m². 16. Asturias: Castropol, Penarronda. 29TPJ2462. 15%, 1 m². 17. Asturias: Castropol, Penarronda. 29TPJ2462. 15%, 1 m². 18. Asturias: Castrillón, Punta Vidrias. 29TQJ3040. 15%, 5 m². 19. Synthesized table.

SPOROBOLION ARENARII (Géhu ex Géhu & Biondi 1994) all. nova, stat. nov. hoc loco (16.3)

[*Sporobolion arenarii* Géhu ex Géhu & Biondi in Braun-Blanquetia 13: 14. 1994 (art. 27a, 46H)]
(*Ammophiletalia*, *Ammophiletea*)

Typus aliancia: *Eryngio maritimi-Sporoboletum arenarii* (Arènes ex Géhu & Biondi 1994) nom. nov. hoc loco.

Characteristic species: *Sporobolus arenarius*.

Diagnosis: Thermomediterranean semiarid and dry West Mediterranean pioneer perennial rizomatous grass communities, growing on first line of salt flat coastal dunes mostly of medium and coarse sand particles, characterized by *Sporobolus arenarius*.

Eryngio maritimi-Sporoboletum arenarii (Arènes ex Géhu & Biondi 1994) nom. nov. hoc loco (16.3.1)

[Group. à *Sporobolus arenarius* Arènes in Bull. Soc. Bot. France 71: 93. 1924 (art. 3c), *Sporoboletum arenarii* Arènes ex Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 43. 1952 (pro syn.) non Rothmaler 1943 (art. 31), *Sporoboletum arenarii* Arènes ex Géhu & Biondi in Braun-Blanquetia 13: 12. 1994 non Rothmaler in Feddes Repert. Spec. Nov. Regni Veg. Beih. 128: 43. 1943 (art. 31) (nomencl. syn.), *Sporobolo arenarii-Centaureetum maritimae* Rivas Goday & Rigual 1959 (art. 37)]

Typus associatio: Géhu & Biondi in Braun-Blanquetia 13: 13, tb. 3, lectotypus hoc loco, rel. 7. 1994 [Corse: Etang d'Arasu, 10 m²]. Characteristic species: 4 *Sporobolus arenarius*, + *Eryngium maritimum*. Companion species: + *Salsola kali*.

Characteristic species (territorial): *Sporobolus arenarius*.

Diagnosis: Thermomediterranean dry pioneer community dominated by *Sporobolus arenarius* growing on coastal salt flat dunes of medium and coarse sand particles, spread in Tyrrhenian and West European Mediterranean drainage-bassin.

Sporoboletum arenarii Rothmaler in Feddes Repert. Spec. Nov. Regni Veg. Beih. 128: 43. 1943 (16.3.2) (lectotypus hoc loco, l.c. rel. 291)

Distribution: Lusitanian-Andalusian coast.

[RIVAS-MARTÍNEZ & CANTÓ]

STIPETUM CAZORLENSIS (J. Torres & Cano in J. Torres, A. García, Salazar & Cano 2001) ass. nova, stat. nov. hoc loco (56.5.5)

[*Helictotricho filifolii-Festucetum scariosae stipetosum cazorlensis* J. Torres & Cano in J. Torres, A. García, Salazar & Cano in Phytocoenologia 31(1): 136, tb. 2. 2001 (basion.) (art. 27d, 46H)]
(*Stipion parviflorae*, *Lygeo-Stipetalia*, *Lygeo-Stipetea*)

Typus associatio: *Helictotricho filifolii-Festucetum scariosae stipetosum cazorlensis* J. Torres & Cano in J. Torres, A. García, Salazar & Cano in Phytocoenologia 31(1): 136, tb. 2, rel. 3. 2001 Holotypus, Jaén: Arroyo de los Fresnos, near Cortijo Palomares (Campillo

de Arenas) 30SVG3967, alt.: 1110 m, 30 m²). Characteristic species: 4 *Stipa cazorlensis*, 1 *Arrhenatherum album*, 1 *Avenula gervaisii*, 1 *Dactylis hispanica*. Companion species: 1 *Aegilops triuncialis*, 1 *Avena barbata*, 1 *Medicago sativa*, 1 *Plantago lanceolata*, + *Convolvulus arvensis*, + *Leontodon longirostris*, + *Silene vulgaris*, + *Trifolium stellatum*.

Characteristic species: *Stipa bufensis*, *Stipa cazorlensis*.

Diagnosis: Meso-supramediterranean dry and lower subhumid somewhat open slightly subnitrophilous pioneer perennial grassland community, characterized by *Stipa cazorlensis*, *Stipa bufensis* and *Stipa iberica* subsp. *austroiberica*, growing on carbonated soils in Subbetic and Guadician-Bacensean Sectors.

[RIVAS-MARTÍNEZ]

SUAEDETUM SPICATO-SPLENDENTIS ass. nova hoc loco (25.1.6)

(*Thero-Suaedion*, *Thero-Suaedetalia*, *Thero-Salicornietea*)

Typus associatio: Table 92, rel. 6 [Ciudad Real: Alcázar de San Juan, La Laguna. 30VJ791605. 680 m, 1 m²]

Characteristic species (territorials): *Suaeda spicata*, *Suaeda splendens*.

Table 92

25.1.6 *Suaedetum spicato-splendens*

(*Thero-Suaedion*, *Thero-Suaedetalia*, *Thero-Salicornietea*)

Altitude (1=10m)	72	66	67	67	72	68	66	68	72	70	<u>69</u>
Number of species	4	5	5	5	6	6	6	6	6	9	6
Ordinal number	1	2	3	4	5	6*	7	8	9	10	11

Characteristic species:

<i>Suaeda spicata</i>	5	3	5	5	4	4	1	4	4	4	V
<i>Suaeda splendens</i>	+	3	.	.	.	1	4	2	+	1	IV
<i>Salicornia patula</i>	.	.	1	+	+	+	.	+	.	.	III
<i>Cressa cretica</i>	.	+	.	.	+	.	.	.	.	.	I
<i>Beta maritima</i>	.	+	.	.	.	.	.	.	.	.	I

Companion species:

<i>Frankenia pulverulenta</i>	1	.	+	2	.	2	+	+	+	.	IV
<i>Sphenopus divaricatus</i>	.	.	+	+	+	.	+	.	+	+	IV
<i>Hordeum marinum</i>	.	.	1	.	+	+	.	.	+	1	III
<i>Parapholis incurva</i>	.	.	.	.	.	+	.	+	.	1	II

Other species. Companion species: *Polypogon maritimus* + in 1 and 5. *Atriplex prostrata* 2 in 2 and 10. *Bassia hyssopifolia* 1 in 7 and 10. *Puccinellia caespitosa* + in 8 and 9. *Lolium rigidum* + in 4. *Aeluropus littoralis* + in 7. *Elymus curvifolius* +, *Spergularia marina* + in 10.

Localities: 1. Toledo: La Puebla de Almoradiel. Hermitage of 'Nuestra Señora de Palomares', 'Lagunas de Paloma'. 30SVJ848766. 4 m². 2. Ciudad Real: Pedro Muñoz. 'Laguna del Pueblo'.

30SWJ047634. 4 m². 3. Ciudad Real: Alcázar de S. Juan. 'Laguna de las Yegüas'. 30SVJ757627. 4 m². 4. Ciudad Real: Alcázar de S. Juan. 'Laguna de las Yegüas'. 30SVJ757626. 2 m². 5. Toledo: La Puebla de Almoradiel. Hermitage of 'Nuestra Señora de Palomares', 'Lagunas de Paloma'. 30SVJ849765. 2 m². 6. Holotypus ass. Ciudad Real: Alcázar de S. Juan. 'La Laguna'. 30SVJ791605. 1 m². 7. Ciudad Real: Pedro Muñoz. Hermitage of 'S. Cristóbal', 'Laguna de Navala-fuente', nitrophilous plant community stayed in old-crops areas. 30SWJ063638. 4 m². 8. Toledo: Villafranca de los Caballeros. 'Lagunilla de la Sal'. 30SVJ714657. 2 m². 9. Toledo: La Puebla de Almoradiel. Hermitage of 'Nuestra Señora de Palomares', 'Lagunas de Paloma'. 30SVJ849766. 4 m². 10. Toledo: Lillo, Hermitage of 'Nuestra Señora de la Esperanza', salt-marsh area with old crops now abandoned. 30SVJ714906. 4 m². 11. Synthesized table.

Diagnosis: Mesomediterranean and lower supramediterranean dry semicontinental pioneer temporary inundated halo-nitrophilous salt-pans community of therophytic succulent plants, spread in Mediterranean Central Iberian Province mostly on continental drainage-bassin of Manchean Sector pools, characterized by *Suaeda spicata* and *Suaeda splendens*.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

SUAEDO BRAUN-BLANQUETII-TAMARICETUM CANARIENSIS ass. nova hoc loco (70.3.6)

[*Agrostio-Tamaricetum canariensis inuletosum crithmoidis* Fernández-González, A. Molina & Loidi in Acta Bot. Malacitana 15: 314, tb. 2. 1990 (corresp. name)]

(*Tamaricion boveano-canariensis*, *Tamaricetalia*, *Nerio-Tamaricetea*)

Typus alliancia: Table 93, rel. 4 [Zaragoza: Tauste. Salt-marsh areas at Baranco de Valdespartera, between Tauste and Castejón de Valdejasa. 30TXM508480. 280 m, 100 m²].

Table 93

70.3.6 Suaedo braun-blanquetii-Tamaricetum canariensis
(*Tamaricion boveano-canariensis*, *Tamaricetalia*, *Nerio-Tamaricetea*)

Altitude (1=10m)	39	26	26	28	26	25	29
Number of species	5	6	6	7	9	-	7
Ordinal number	1	2	3	4*	5	6	7
Characteristic species:							
<i>Tamarix canariensis</i>	5	5	3	5	5	V	V
Companion species:							
<i>Suaeda braun-blanquetii</i>	3	1	+	2	3	V	V
<i>Inula crithmoides</i>	+	+	.	2	+	III	III
<i>Phragmites communis</i>	+	+	+	.	+	III	IV
<i>Juncus maritimus</i>	.	3	3	2	.	I	III
<i>Elytrigia curvifolia</i>	.	+	+	.	2	.	III
<i>Atriplex halimus</i>	2	.	.	.	1	IV	II
<i>Limonium ruizii</i>	.	.	+	+	.	.	II
<i>Arthrocnemum macrostachyum</i>	.	.	.	+	.	II	I
<i>Sarcocornia alpini</i>	.	.	.	1	.	.	I
<i>Puccinellia caespitosa</i>	.	.	.	.	+	II	I

Other species. Companion species: *Allium roseum* +, *Dorycnium pentaphyllum* + in 5.

Localities: 1. Huesca: Senés de Alcubierre. Balsa Buena, salt-marsh areas, 30TYM085424, 100 m². 2, 3. Huesca: Sariñena. Salt-marsh areas between Sariñena and Pallaruelo de Monegros, 30TYM336244, 80 m². 4. Holotypus ass. Zaragoza: Tauste. Salt-marsh areas at Barranco de Valdespartera between Tauste and Castejón de Valdejasa, 30TXM508480, 100 m². 5. Huesca: Sariñena. Salt-marsh areas at Barranco de S. Juan near S. Juan de Flumen, 30TYM310280, 100 m². 6. Fernández-González, Molina & Loidi in Acta Bot. Malacitana 15: 314, tb. 2, 13 rel. 1990 (sub *Agrostio stoloniferae-Tamaricetum canariensis tamaricetosum canariensis et inuletosum crithmoidis*). 7. Synthesized table.

Characteristic species (territorials): *Arthrocnemum macrostachyum*, *Elytrigia curvifolia*, *Inula crithmoides*, *Limonium ruizii*, *Sarcocornia alpini*, *Suaeda braun-blanquetii*, *Tamarix canariensis*.

Diagnosis: Middle basin of the Ebro river halo-hydromorphic microforests in which *Tamarix canariensis* is dominant. These salt marsh *Tamarix* communities, from pond borders, endorreic depressions, intermittent water courses, etc., represent the head of the series or potential natural vegetation on saline hydromorphic soils, in the mesomediterranean xeric or pluviseasonal dry belts of the Bardenan-Monegreensean Sector, although its presence could also be interpreted in the Manchean Sector. A great number of halophilous plants grow in its under-storey or among the *Tamarix* and belong to the classis *Sarcocornietea fruticosae* such as: *Arthrocnemum macrostachyum*, *Inula crithmoides*, *Limonium ruizii*, *Sarcocornia alpini*, *Suaeda braun-blanquetii*, etc. These habitats, that are given priority by the European Union Directives, are greatly threatened because of the drainage and the agricultural development of irrigated land.

[RIVAS-MARTÍNEZ, CANTÓ & SÁNCHEZ-MATA]

TEUCRIO EXPANSI-GYPSOPHILETUM HISPANICAE ass. nova hoc loco (64.9.16)

[Com. *Teucrio expansi-Gypsophiletum hispanicae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 128, tb. 22. 1961 (art. 3c)]

(*Gypsophilenion hispanicae*, *Lepidion subulati*, *Gypsophiletalia*, *Rosmarinetea officinalis*)

Typus associatio: Holotypus in Anales Inst. Bot. Cavanilles 19: 128, tb. 22, rel. 3 1961 [Teruel: Bottom of Camarena mountains, Miocene gypsum, 100 m²]. Characteristic species (*Gypsophiletalia*): 2 *Gypsophila hispanica*, 2 *Teucrium expansum* (terr.), 2 *Lepidium subulatum*, 1 *Herniaria fruticosa*, 1 *Ononis tridentata*, + *Jurinea pinnata*, + *Launaea fragilis*. Characteristic species (Rosmarinetea): 1 *Bupleurum frutescens*, + *Salvia lavandulifolia*, + *Sideritis spinulosa*, + *Teucrium capitatum*, + *Teucrium gnaphalodes*, + *Thymus zygis*. Companion species: + *Avenula bromoides*, + *Brachypodium retusum*, + *Convolvulus lineatus*, + *Helianthemum salicifolium*, + *Koeleria vallesiana*, + *Plantago albicans*, + *Stipa lagascae*, + *Wangenheimia lima*.

Characteristic species (territorials): *Gypsophila hispanica*, *Jurinea pinnata*, *Teucrium expansum*.

Diagnosis: Thyme formations with the aragonese gypsicolous endemic *Gypsophila hispanica* typical of gypseous soils from the Miocene in the meso-supramediterranean dry and

semiarid belts of the Maestracensean Sector, subserial of the sabine microforests of the *Juniperetum phoeniceo-thuriferae*. The existence of the betic-manchean subelement *Jurinea pinnata* is a characteristic and differential trait of the association, as well as the gypsum-calcicolous iberic-aragonese chamaephytes: *Teucrium expansum* and *Sideritis spinulosa*.

[RIVAS-MARTÍNEZ & FERNÁNDEZ-GONZÁLEZ]

TEUCRIO LEONIS-ÉRINACEETUM ANTHYLLIDIS ass. nova hoc loco (64.4.3)

[*Salvio pseudovellereae-Teucrietum leonis* P. Sánchez & Alcaraz in *Anales Biol. Univ. Murcia* 18: 129, tb. 6. 1992 (art. 5, 10)]

(*Lavandulo-Echinospartion boissieri*, *Rosmarinetalia officinalis*, *Rosmarinetea officinalis*)

Typus associatio: *Anales Biol. Univ. Murcia* 18, tb. 6, rel. 5. 1992. Albacete: Calar de Socovos, Socovos, 1300 m, 150 m². Characteristic species: 1 *Teucrium leonis*, 2 *Thymus vulgaris*, + *Salvia vellea*, 1 *Armeria bourgaei* subsp. *willkommiana*, + *Centaurea grana-tensis*, 1 *Knautia subscaposa*, 1 *Teucrium webbianum*, 2 *Helianthemum cinereum* subsp. *rotundifolium*, 2 *Erinacea anthyllis*, 2 *Lavandula latifolia*, 1 *Biscutella valentina*, + *Paronychia suffruticosa*, 1 *Centaurea boissierii* subsp. *boissierii*, 1 *Cistus clusii*, 1 *Dianthus subacaulis* subsp. *brachyanthus*, 3 *Rosmarinus officinalis*, + *Chaenorhinum macropodium* subsp. *degeni*, + *Paronychia aretioides*, 1 *Thymelaea pubescens*, 1 *Sideritis incana* subsp. *incana*, 1 *Argyrolobium zanonii*, 1 *Helianthemum apeninum*, + *Teucrium simulatum*, + *Bupleurum frutescens*, + *Fumana scoparia*, + *Galium boissieranum*, + *Hippocrepis bourgaei*, + *Jurinea humilis*, + *Phlomis x composita*, 1 *Phlomis crinita*, 1 *Satureja obovata* subsp. *obovata*, 1 *Thymus funkii* subsp. *burilloi*. Companion species: 1 *Aphyllanthes monspeliensis*, 1 *Medicago suffruticosa* subsp. *leiocarpa*, 1 *Avenula bromoides*, + *Daphne gnidium*, + *Orobanche latisquama*, + *Sedum sediforme* subsp. *sediforme*.

Characteristic species (territorials): *Erinacea anthyllis*, *Teucrium leonis*, *Thymus vulgaris* subsp. *vulgaris*.

Diagnosis: Supramediterranean subhumid calcicolous shrubland characteristic of the Subbetic-Murcian Subsector (Subbetic Sector, Betic Province), rich in pulvinate plants. The influence of the close Manchean Sector is very strong, as shows the abundance of *Thymus vulgaris* subsp. *vulgaris*, but due to the high number of Betic plants, this association is included into the *Lavandulo-Echinospartion boissieri* alliance.

[P. SÁNCHEZ & ALCARAZ]

THYMO GRACILIS-CISTETUM LADANIFERI ass. nova hoc loco (62.3.11)

[*Teucro compacti-Cistetum ladaniferi* Peinado, Alcaraz & Martínez-Parras in *Flora et Vegetatio Mundi* 10:252. 1992 (art.3f), quoad typus: in Martínez-Parras, Peinado & Alcaraz in *Lazaroa* 8: 265, tb. 5, rel.1-4 (holotypus: rel. 2) (sub *Lavandulo-Genistetum equisetiformis genistosum equisetiformis* Rivas Goday & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 25: 127, tb. 27. 1968)]

(*Ulici argentei-Cistion ladaniferi*, *Lavanduletalia stoechadis*, *Cisto-Lavanduletea*)

Typus associatio: Flora et Vegetatio Mundi 10: 253, tb. 48, rel. 1. 1992. Murcia: Cabezo de la Jara, Puerto Lumbreras. 940 m, SW, 100 m². Characteristic species: 4 *Cistus ladanifer*, 1 *Teucrium compactum*, 1 *Lavandula stoechas*, 1 *Thymus zygis* subsp. *gracilis*, 2 *Paronychia suffruticosa*, + *Eryngium campestre*, + *Carlina corymbosa*, 2 *Dorycnium pentaphyllum*, 2 *Brachypodium retusum*, + *Dactylis hispanica*, + *Sedum sediforme*, + *Carex halleriana*, + *Rosmarinus officinalis*.

Characteristic species (territorials): *Cistus ladanifer*, *Festuca scariosa*, *Teucrium compactum*, *Thymus zygis* subsp. *gracilis*.

Diagnosis: Cistus-brushwood with southeast distribution, developed on siliceous soils in the dry mesomediterranean belt (Almeriensian, Nevadensian and Alpujarrean-Gadorensian Sectors).

[ASENSI & DÍEZ GARRETAS]

TOFIELDIO CALYCVLATAE-CARICETUM PULICARIS ass. nova hoc loco (14.4.6)

[*Carici pulicaris-Eriophoretum latifolii* sensu Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in Itinera Geobot. 5: 414, tb. 81. 1991 non *Carici-Eriophoretum latifolii* O. Bolòs & Vives in O. Bolòs 1956]

(*Caricion davallianae*, *Caricetalia davallianae*, *Scheuchzerio-Caricetea nigrae*)

Typus associatio: Table 94, rel. 5 [Huesca: Benasque, Ball d'Estos, Batisielles. 42° 39'N-0° 10'E. 1900 m, NW, 4 m²].

Characteristic species (territorials): *Carex pulicaris*, *Tofieldia calyculata*, *Carex flava* subsp. *alpina*, *Primula farinosa*.

Diagnosis: Orotemperate humid-hyperhumid Pyrenean small sedges community, growing on peaty flushed even water overflowing boggy soils, characterized by *Carex pulicaris*, *Carex flava* subsp. *alpina*, *Primula farinosa*, *Tofieldia calyculata*, etc.

[RIVAS-MARTÍNEZ, COSTA & P. SORIANO]

TRIFOLIO RESUPINATI-HOLOSCHOENETUM Rivas Goday 1964 (59.7.27)

[*Melico magnolii-Holoschoenetum* Rivas Goday, Veg. Fl. Guadiana: 263, tbs. 23, 24. 1964 (syntax. syn.)]

(*Brizo-Holoschoenenion*, *Molinio-Holoschoenion vulgaris*, *Holoschoenetalia vulgaris*, *Molinio-Arrhenatheretea*)

Lectotypus hoc loco: Fl. Veg. Guadiana: 263, tb. 2, rel. 1. 1964.

Remarks: This oligo-mesotrophic base poor soil association dominated by *Holoschoenus vulgaris* (*Scirpoides holoschoenus*) is elected (hoc loco) as lectotypus of the suballiance *Brizo-Holoschoenenion* (Rivas Goday 1964) Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 100. 1980.

[RIVAS-MARTÍNEZ]

Table 94

14.4.6 *Tofieldio calyculatae-Caricetum pulicaris**(Caricion davallianae, Caricetalia davallianae, Scheuchzerio-Caricetea nigrae)*

Altitude (1=10m)	170	172	175	156	190	193	164	162	178	<u>173</u>
Number of species	7	8	9	9	10	10	12	12	14	<u>10</u>
Ordinal number	1	2	3	4	5*	6	7	8	9	10
Characteristic species:										
<i>Carex pulicaris</i>	3	3	4	3	5	4	3	4	3	V
<i>Carex alpina</i>	3	2	2	3	2	2	2	2	2	V
<i>Tofieldia calyculata</i>	1	1	.	1	2	+	1	2	1	V
<i>Primula farinosa</i>	+	1	+	.	.	.	2	+	2	IV
<i>Eriophorum latifolium</i>	1	.	.	1	.	+	+	2	1	IV
<i>Parnassia palustris</i>	.	1	+	.	+	+	2	+	.	IV
<i>Pinguicula grandiflora</i>	.	+	.	.	2	2	1	1	1	IV
<i>Eleocharis quinqueflora</i>	2	.	2	.	.	+	1	.	.	III
<i>Juncus alpinus</i>	.	1	1	1	.	2	.	.	.	III
<i>Carex nigra</i>	2	.	2	.	.	.	.	.	1	II
<i>Pedicularis mixta</i>	.	.	.	.	1	.	.	1	2	II
<i>Orchis palustris</i>	.	.	.	.	+	.	.	.	1	II
<i>Leontodon duboisii</i>	.	.	.	.	.	1	.	.	1	II
Companion species:										
<i>Carex panicea</i>	.	+	1	2	1	1	2	1	2	V
<i>Caltha palustris</i>	.	.	.	+	1	.	.	+	.	II

Other species. Characteristic species: *Triglochin palustre* 1 in 3. *Carex demissa* 1 in 5. *Swertia perennis* 2 in 8. *Carex lepidocarpa* 1 in 9. Companion species: *Molinia caerulea* 1 in 4 and 7. *Succisa pratensis* + in 4, 1 in 9. *Bartsia alpina* + in 7, 1 in 8. *Potentilla erecta* 1 in 7. *Polygonum viviparum* 1 in 9.

Localities: 1. Huesca: Benasque, Aigüespases. E, 10 m². 2. Huesca: Benasque, Plan del Hospital. E, 4 m². 3. Huesca: Benasque, Pleta de Aigüespases. SE, 8 m². 4. Huesca: Benasque, Baños de Benasque. NW, 6 m². 5. Holotypus ass. Huesca: Benasque, Ball d'Estos, Batisielles. 42°39'N-0°10'W. NE, 4 m². 6. Huesca: Benasque, Ibonet de Batisielles. E, 10 m². 7. Lérida: Vielha, Val de Molieres. E, 8 m². 8. Lérida: Vielha, Val de Molieres. NE, 6 m². 9. Huesca: Benasque, Plan del Hospital. W, 4 m². 10. Synthesized table.

TRISETO VELUTINI-BRACHYPODION BOISSIERI all. nova hoc loco (56.6)*(Lygeo-Stipetalia, Lygeo-Stipetea)*

Typus alliancia: *Brachypodio boissieri-Trisetetum velutini* Martínez-Parras, Peinado & Alcaraz in Lazaroa 7: 5, tb. 1, holotypus: rel. 3. 1987.

Characteristic species: *Brachypodium boissieri*, *Helictotrichon sarracenorum*, *Stipa dasyvaginata*, *Trisetum velutinum*.

Diagnosis: Thermo- to supramediterranean dry to subhumid Malacitan-Almijarensian and Bermejensean short perennial grassland community dominated by *Brachypodium boissieri*, growing on magnesite or dolomite rich shallow soils originated by alteration of dolostone, doloclast or rich serpentine rocks.

Brachypodio boissieri-Trisetetum velutini Martínez-Parras, Peinado & Alcaraz in Lazaroa 7: 5, tb. 1. 1987 (56.6.1)

Distribution: Thermo-mesomediterranean dry and subhumid with Malacitan, Western Almijarensian and Bermejensean distribution.

Helictotricho sarracenorum-Brachypodietum boissieri Pérez-Raya & Molero in Mem. Soc. Brot. 28: 137. 1988 (56.6.2)

Distribution: Meso-supramediterranean dry and subhumid Granatensean community, growing mostly on rich dolomite sandy rocks.

[RIVAS-MARTÍNEZ, MOLERO & PÉREZ-RAYA]

ULICI ERIOCLADI-ERICETUM ANDEVALENSIS (A.V. Pérez, Nieto & Cabezudo 1993) Cabezudo & A.V. Pérez 1999 (61.2.21)

[*Junco rugosi-Ericetum andevalensis ulicetosum eriocladi* A.V. Pérez, Nieto & Cabezudo in Acta Bot. Malacitana 18: 247. 1993 (basion.) (holotypus: in Cabezudo, Nieto & A.V. Pérez in Acta Bot. Malacitana 14: 295, tb. 1, rel. 5. 1989)]

(*Ericenion umbellatae*, *Ericion umbellatae*, *Ulicetalia minoris*, *Calluno-Ulicetia*)

Typus associatio: Holotypus: in Cabezudo, Nieto & A.V. Pérez, Acta Bot. Malacitana 14: 295, tb. 1, rel. 5. 1989 (sub *Junco rugosi-Ericetum andevalensis*).

Characteristic species: *Erica andevalensis*.

Diagnosis: *Ulici eriocladi-Ericetum andevalensis* is found in the Marianic-Monchiquensean Sector of Mediterranean West Iberian Province. It usually occupies the areas between the Tinto and Odiel rivers, inside the thermomediterranean subhumid bioclimatic belt, in the *Teucrio baetici-Quercus suberis* sigmetum (tb. 95).

Erica andevalensis is a local endemic species capable of colonizing a complex sulfidic mining area (copper, gold and silver) of the Andévalo Region in the Iberian Pyritic Belt (Huelva). Although this plant can grow as a monospecific population, normally it is found in heathlands together with other plants such as *Erica australis*, *Cistus ladanifer* and *Cistus populifolius*.

Different authors have studied *Erica andevalensis* from different points of view (López-Archilla & al. 1994, Aparicio A. 1995, Asensi & al. 1999). López-Archilla & al. (1994) commented *Erica andevalensis* ecological concepts and reported that this species is restricted to mineralized sites and along the Tinto River, a very acidic habitat (mean pH 2.3) with high concentration of ferric iron. Asensi & al. (1999) reported tolerance values of *Erica andevalensis*.

valensis to several heavy metals such as copper, zinc and iron, considering these species to be a good geobotanical indicator for copper mineralization although not a hiperaccumulator of this cation.

Our data show that *Ulici-Ericetum andevalensis* grows on fluvial terraces, mineral damp with ferric precipitates of intense red color. The pH of the soils in which this community grows ranges from 2.8 (Tinto River source) to 4 (Nerva cemetery). The conductivity range is between 0.06 and 3.01. From the texture point of view the soils range from sandy clayey to clayey. Soil and plant samples were analyzed for metal content after acid digestion by Inductive Coupled Plasma (ICP) spectroscopy. The content for the main components in soils expressed in percentage: 38-96% for Fe₂O₃, 18-30% for Al₂O₃, 1-4% for SiO₂, 1-8% for MgO, 1-2% for CaO and 1-3% for TiO₂; and for the trace elements in gr/Kg: Zn: 70-200, Pb: 20-2400, Cu: 40-1400 and Co: 4-28. The following minerals can be considered common in these soils: goethita, hematite, albite, quartz, gypsum, moscovite and jarosite. The heavy metal content in gr/kg for different *Erica andevalensis* samples was: Al: 1983; Mg: 400-2855; Fe: 888-2020; Mn: 500-725; Zn: 18-43; Pb: 24-46; Cu: 30-94; Co: 4-9 and Ti: 20-62.

[FUENTE, AMILS & RIVAS-MARTÍNEZ]

Table 95
61.2.21 *Ulici eriocladi-Ericetum andevalensis*
(Ericion umbellatae, Ulicetalia, Calluno-Ulicetea)

Altitude (1=10m)	35	35	37	37	30	35	17	37	30	17	37	32
Number of species	3	3	4	5	5	5	6	7	7	9	9	6
Ordinal number	1	2	3	4	5	6	7	8	9	10	11	12
Characteristic species:												
<i>Erica andevalensis</i>	3	3	2	4	2	3	2	3	3	4	4	V
<i>Erica australis</i>	2	2	3	2	3	3	3	3	2	1	+	V
<i>Cistus populifolius</i>	.	.	.	.	.	.	+	1	+	.	+	II
<i>Erica umbellata</i>	.	1	1	.	.	.	.	.	.	.	.	II
<i>Halimium ocymoides</i>	.	.	.	.	.	.	.	1	+	.	.	II
<i>Erica lusitanica</i>	.	.	.	.	.	.	.	.	.	.	1	I
<i>Calluna vulgaris</i>	.	.	.	.	.	.	.	.	+	.	.	I
Companion species:												
<i>Cistus ladaniifer</i>	+	.	.	1	+	1	+	1	+	.	.	III
<i>Cistus salvifolius</i>	.	.	.	+	.	+	+	1	.	.	+	III
<i>Nerium oleander</i>	.	.	.	+	.	.	.	.	.	+	1	II
<i>Agrostis stolonifera</i>	.	.	.	.	.	.	2	.	2	1	.	II
<i>Pinus acutisquama</i>	.	.	+	.	+	+	.	.	.	.	.	II
<i>Daphne gnidium</i>	.	.	.	.	.	.	.	.	.	+	+	II

Other species. *Chamaerops humilis* + in 5. *Rubus ulmifolius* 1, *Phagnalon rupestre* + in 10. *Cistus monspeliensis* + in 8. *Juncus rugosus* 1, *Ceratonia siliqua* + in 10. *Scirpoides holoschoenus* +, *Ulex eriocladius* + in 11.

Localities: 1. Huelva: Nerva. Cemetery. 29SQB1575. W, 80%, 100 m². 2. Huelva: Nerva. Tinto river. 29SQB1675. N, 80%, 100 m². 3. Huelva: Peña de Hierro. 29SQB1577. 6 NE, 60%, 100 m², 12 NW, 80%, 50 m². 4. Huelva: Source of Tinto river. 29SQB1577. NE, 100%, 100 m². 5. Huelva: Las Zarrandas. 29SQB1572. S, 100%, 100 m². 6. Huelva: Embalse de Tumbanala. 29S1579. S, 100%, 50 m². 7. Huelva: Alosno, Ribera de la Dehesa, Odiel. 29SPB65. 8. Huelva: Peña de Hierro. 29SQB1577. 6 NE, 60%, 100 m², 12 NW, 80%, 50 m². 9. Huelva: Tharsis, Ribera de la Dehesa. 29SPB66. SW, 100%, 100 m². 10. Huelva: Tinto river, Minas de las Marismillas. 29S1574. NE, 100%, 100 m². 11. Huelva: Source of Tinto river. 29SQB1577. 7 NE, 100%, 100 m². 12. Synthesized table.

VACCINIO MICROPHYLLI-CALLUNETUM VULGARIS ass. nova hoc loco (77.3.5)

(*Juniperion nanae*, *Vaccinio microphylli-Juniperetalia nanae*, *Vaccinio-Piceetea*)

Typus associatio: Table 96, rel. 13 [Cantabria: Hermandad del Campó de Suso, Sierra de la Peña Labra. 30TUN95. 1880 m, 100 m²].

Table 96

77.3.5 *Vaccinio microphylli-Callunetum vulgaris*

(*Juniperion nanae*, *Vaccinio microphylli-Juniperetalia nanae*, *Vaccinio-Piceetea*)

Altitude (1 = 10 m.)	201	191	184	196	182	190	212	175	186	178	179	193	188	176	<u>188</u>	
Number of species	17	16	18	13	15	22	19	13	10	18	21	17	19	23	<u>16</u>	
Ordinal number	1	2	3	4	5	6	7	8	9	10	11	12	13*	14	15	
Characterist species:																
<i>Calluna vulgaris</i> (terr.)	3	4	4	4	4	4	3	4	4	4	3	1	4	4	V	
<i>Vaccinium microphyllum</i>	3	1	1	1	3	2	2	2	1	2	1	4	2	1	V	
<i>Vaccinium myrtillus</i> (terr.)	2	1	2	2	1	2	1	2	2	3	2	3	2	2	V	
<i>Erica tetralix</i> (terr.)	.	.	1	+	2	+	3	1	1	+	+	+	1	2	V	
<i>Luzula nutans</i> (terr.)	1	.	+	.	.	.	+	1	1	1	+	+	1	1	IV	
<i>Festuca eskia</i> (terr.)	+	.	.	.	+	.	.	.	.	+	.	1	1	.	II
<i>Phyteuma hemisphaericum</i> (terr.)	1	+	.	.	.	1	+	.	.	.	.	.	1	.	II
<i>Juncus trifidus</i> (terr.)	.	1	.	1	.	.	.	.	.	1	.	.	.	.	I
<i>Homogyne cantabrica</i>	.	.	.	.	.	.	.	.	+	2	2	.	.	.	I
Companion species																
<i>Avenella flexuosa</i>	2	1	1	2	1	1	2	1	1	1	1	1	2	1	V	
<i>Jasione carpetana</i>	+	1	1	1	.	+	+	.	.	+	+	+	+	.	IV	
<i>Nardus stricta</i>	.	.	1	.	2	1	2	1	.	1	2	+	.	.	IV	
<i>Hypericum burseri</i>	+	.	1	1	+	1	.	+	.	1	+	.	1	1	III	
<i>Meum athamanticum</i>	+	.	+	+	+	+	.	.	.	1	.	+	+	1	III	
<i>Leontodon cantabricus</i>	+	+	.	.	.	.	.	+	.	.	+	+	.	+	III
<i>Galium saxatile</i>	+	.	+	.	.	.	.	+	.	+	1	.	.	1	II
<i>Festuca rubra</i>	.	.	1	1	1	1	1	.	.	1	2	.	.	.	II	
<i>Luzula caespitosa</i>	.	.	+	1	.	+	.	.	.	.	.	.	.	+	II
<i>Silene ciliata</i>	.	+	+	.	.	1	.	.	.	.	.	.	+	.	II
<i>Melampyrum pratense</i>	.	+	.	.	.	.	.	.	.	+	.	.	.	+	II
<i>Carex pilulifera</i>	.	.	+	.	.	.	.	.	.	.	+	+	+	.	II
<i>Avenula lodunensis</i>	.	.	.	.	+	.	.	.	.	+	+	.	.	+	II

Other species. Characteristic species: *Huperzia selago* 1 in 5, + in 9. Companion species: *Anthoxanthum odoratum* + in 1 and 14, 1 in 7. *Lotus corniculatus* 1 in 1, + in 14. *Saxifraga spathularis* 1 in 1 and 8, + in 10. *Gentiana lutea* + in 1, 8 and 14. *Teesdaliopsis conferta* + in 1 and 12, 1 in 7. *Thymelaea dendrobryum* + in 8. *Phalacrocarpon oppositifolium* + in 14, 1 in 12. *Veratrum album* + in 5, and 14. *Alchemilla saxatilis* + in 1 and 7. *Festuca indigesta* 1 in 2 and 6. *Carex asturica* + in 2 and 12. *Agrostis durieui* + in 3 and 6. *Potentilla erecta* + in 5 and 8. *Solidago virgaurea* + in 6 and 11. *Rumex angiocarpus* + in 6 and 13. *Plantago alpina* + in 7. *Agrostis capillaris* + in 7, 1 in 11. *Hieracium pilosella* + in 7 and 11. *Trifolium alpinum* 1 in 13, + in 14. *Scilla verna* + in 13 and 14. *Antennaria dioica* 1, *Campanula herminii* +, *Pedicularis sylvatica* + in 2. *Euphorbia polygalifolia* +, *Luzula multiflora* + in 3. *Rumex suffruticosus* + in 4. *Cytisus oromediterraneus* +, *Minuartia juresii* +, *Sedum brevifolium* + in 6. *Cruciata glabra* +, *Luzula hispanica* +, *Selinum pyrenaicum* + in 7. *Polygala serpyllifolia* +, *Thesium pyrenaicum* + in 11. *Androsace cantabrica* +, *Conopodium pyrenaicum* +, *Mucizonia sedoides* +, *Polygonum bistorta* +, *Thymus britannicus* + in 13. *Erica aragonensis* +, *Luzula henriquesii* +, *Sorbus aucuparia* + in 14.

Localities: 1. León: Villablino/Asturias: Somiedo, Las Camposas. 29TQH16 y 29TQH17. 100 m². 2. León: Candín, Ancares pass. 29TPH74. 200 m². 3. Cantabria: Camaleño, Alto de Riofrío. 30TUN66. 100 m². 4. León: Boca de Huérgano/Cantabria: Camaleño, Puertos de Riofrío, Peña Prieta-Cubil del Can. 30TUN56. 200 m². 5. Palencia: Cervera de Pisuerga, Pozo del Curavacas. 30TUN66. 100 m². 6. Cantabria: Hermandad del Campó de Suso, Alto Campó, Braña Vieja-Tres Mares peak. 30TUN86. 100 m². 7. Palencia: Brañosa, El Golobar-Valdecebollas. 30TUN85. 100 m². 8. Asturias: Lena, Cueto Negro. 30TTN76. 100 m². 9. Asturias: Aller/León: Valdelugeros, Circo de Cebolledo. 30TUN06. 100 m². 10. León: Maraña: Señales pass-Lago del Pinar peak. 30TUN16. 100 m². 11. Asturias: Caso, Torres peak. 30TUN07. 100 m². 12. León: Candín, Ancares pass. 29TPH74. 100 m². 13. Holotypus ass. Cantabria: Hermandad del Campó de Suso, Peña Labra. 30TUN95. 100 m². 15. León: Candín, Cuiña peak. 29TPH74. 100 m². 16. Synthesized table.

Characteristic species (territorials): *Calluna vulgaris*, *Vaccinium myrtillus*, *Vaccinium uliginosum* subsp. *microphyllum*, (= *Vaccinium uliginosum* subsp. *gaultherioides*), *Erica tetralix*.

Diagnosis: Dense short thicket with mainly chamaephytes and grassy hemicryptophytes developed in deep soils with great humiferous horizon on slate, sandstone or quartzites. This chionophilous community has its optimum in the orotemperate Orocantabric belt and is usually in contact with *Nardus* pastures of the alliance *Campanulo herminii-Nardion*. This association was provisionally proposed as *Erico tetralicis-Vaccinietum uliginosi* by Rivas Goday & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 16: 572. 1959, from the Laguna de Arvas at 1700 m. In the sunniest and less snowy biotopes these heathlands are substituted by the creeping dwarf juniper association *Junipero nanae-Vaccinietum microphylli*.

[BUENO & F. PRIETO]

VACCINIO MYRTILLI-PINETUM IBERICAE ass. nova hoc loco (74.4.6)

(*Avenello-Pinion ibericae*, *Junipero sabinae-Pinetalia sylvestris*, *Junipero sabinae-Pinetea sylvestris*)

Typus associatio: Table 97, rel. 1 [Soria: Sierra de Urbión, Laguna Negra. 30TWM15. 1950 m, SE, 15%, 200 m²].

Characteristic species (territorials): *Avenella iberica*, *Calluna vulgaris*, *Juniperus nana*, *Pinus sylvestris* var. *iberica*, *Vaccinium myrtillus*.

Diagnosis: Orotemperate humid-hyperhumid Sorian Oroiberian and Ubinnean (upper zone of Pinar de Lillo) natural potential vegetation *Pinus sylvestris* var. *iberica* micro-mesoforests, growing on shallow acid tangel cambisols of acidic bedrocks, with a deep winter snow cover, between 1700-2100m in Sorian Oroiberian mountains and 1500-1800m in Orocantabric (Pinar de Lillo). The mantle and seral shrubby vegetation belongs to *Vaccinio myrtilli-Juniperetum nanae*; and in Sorian Oroiberian at lower altitudes in the vegetation belt of *Galio rotundifolii-Fagetum*, the natural and seminatural *Pinus iberica* forests on shallow soils belongs to meso-macroforest *Galio rotundifolii-Pinetum ibericae*.

[RIVAS-MARTÍNEZ & J.A. MOLINA]

Table 97

74.4.6 *Vaccinio myrtilli-Pinetum ibericae*

(*Avenello-Pinion ibericae*, *Junipero sabiniae-Pinetalia sylvestris*, *Junipero-Pinetea sylvestris*)

Altitude (1=10m)	195	184	<u>190</u>
Number of species	14	20	17
Ordinal number	1*	2	3

Characteristic species:

<i>Pinus sylvestris</i> var. <i>iberica</i>	5	5	2
<i>Avenella iberica</i>	2	3	2
<i>Festuca braun-blanquetii</i>	3	2	2
<i>Vaccinium myrtillus</i>	2	2	2
<i>Calluna vulgaris</i> (terr.)	1	3	2
<i>Juniperus nana</i>	1	+	2
<i>Juniperus hemisphaerica</i>	+	.	1

Companion species:

<i>Galium saxatile</i>	1	3	2
<i>Arenaria montana</i>	1	2	2
<i>Rumex angiocarpus</i>	1	1	2
<i>Erica arborea</i>	+	2	2
<i>Nardus stricta</i>	+	2	2
<i>Carex asturica</i>	+	+	2

Other species. Companion species: *Festuca curvifolia* 1 in 1. *Jasione carpetana* 2, *Arrhenatherum bulbosum* 1, *Veronica officinalis* 1, *Digitalis purpurea* +, *Gagea nevadensis* +, *Hieracium auricula* +, *Rubus idaeus* +, *Sorbus aucuparia* + in 2.

Localities: 1. Holotypus ass. Soria, Urbión Mountain, Laguna Negra. 30TWM15. SE, 15%, 14 m, 200 m². 2. Burgos, Neila Mountain, Parque de las Lagunas, Laguna Larga. 30TVM95. NE, 25%, 12-20 m, 400 m². 3. Synthesized table.

VIBURNO LANTANAE-ULMETUM MINORIS ass. nova hoc loco (71.2.18)

[*Viburno lantanae-Ulmetum minoris* Biurrun & García-Mijangos in Biurrun in *Guineana* 5: 36, tb. 8. 1999 (art. 3b)]

(*Fraxino angustifoliae-Ulmenion minoris*, *Populion albae*, *Populetales albae*, *Salici purpureae-Populetea nigrae*)

Typus associatio: Table 98, rel. 3 [Navarre: Lumbier, near San Vicente, Irati river. 30TXN3825. 430 m, 150 m²].

Characteristic species (territorials): *Acer campestre*, *Bryonia dioica*, *Euonymus europaeus*, *Fraxinus angustifolia*, *Ulmus minor*, *Viburnum lantana*.

Table 98

71.2.18 *Viburno lantanae-Ulmetum minoris*

(*Fraxino-Ulmenion minoris*, *Populion albae*, *Populetales albae*, *Salici-Populetea nigrae*)

Altitude (1=10m)	41	43	43	43	44	46	38	42	46	52	58	57	60	<u>47</u>
Number of species	51	42	48	33	44	45	28	26	42	34	45	52	48	<u>41</u>
Ordinal number	1	2	3*	4	5	6	7	8	9	10	11	12	13	14

Characteristic species:

<i>Fraxinus angustifolia</i>	3	5	4	4	2	2	3	4	4	3	5	3	3	V
<i>Brachypodium sylvaticum</i>	1	1	1	1	1	1	1	1	2	2	1	2	2	V
<i>Ulmus minor</i>	2	3	3	3	4	3	5	1	4	3	1	.	.	V
<i>Rubus caesius</i>	.	2	+	1	+	+	.	.	+	.	1	.	1	IV
<i>Populus nigra</i>	3	+	1	.	.	+	3	.	.	.	+	.	.	III
<i>Humulus lupulus</i>	+	1	+	.	.	.	.	1	.	.	+	+	.	III
<i>Vitis sylvestris</i>	+	.	+	.	+	+	.	1	+	.	.	.	.	III
<i>Bryonia dioica</i>	.	+	1	1	1	+	.	.	.	.	.	.	+	III
<i>Elymus caninus</i>	.	+	.	.	.	1	.	.	.	.	1	1	2	III
<i>Arum italicum</i>	.	.	+	+	1	+	.	.	1	.	+	.	.	III
<i>Fraxinus oxycarpa</i>	+	+	.	.	.	.	.	.	.	3	1	.	.	II
<i>Salix atrocinerea</i>	.	.	.	.	.	.	.	.	.	+	+	2	4	II

Quercu-Fagetea and Rhamno-Prunetea species:

<i>Hedera helix</i>	1	1	4	+	+	2	4	2	3	2	+	1	1	V
<i>Crataegus monogyna</i>	1	1	1	1	+	1	1	+	1	+	1	1	.	V
<i>Clematis vitalba</i>	1	1	+	1	2	+	1	1	1	+	.	1	+	V
<i>Cornus sanguinea</i>	1	1	1	+	1	.	2	+	1	1	3	2	1	V
<i>Ligustrum vulgare</i>	2	1	1	.	1	+	1	1	1	2	+	1	1	V
<i>Buxus sempervirens</i>	2	+	+	+	1	+	1	+	+	.	.	1	+	V
<i>Rubus ulmifolius</i>	1	+	+	.	1	1	2	2	1	1	.	.	1	V
<i>Prunus spinosa</i>	.	+	1	.	+	+	1	.	1	+	1	+	+	V
<i>Viburnum lantana</i>	+	+	1	.	1	.	.	.	+	+	+	+	+	IV
<i>Rosa canina</i>	+	.	1	1	.	.	1	1	+	+	+	.	.	IV
<i>Euphorbia amygdaloides</i>	1	1	+	+	.	.	1	.	.	.	.	1	+	IV
<i>Tamus communis</i>	.	+	2	+	2	+	.	.	1	.	.	1	.	IV
<i>Sambucus nigra</i>	.	.	+	1	.	.	.	+	+	+	.	+	+	IV

<i>Mycelis muralis</i>	+	+	+	+	+	+	.	.	.	.	.	.	.	III
<i>Helleborus foetidus</i>	1	+	+	.	1	+	.	.	+	.	.	.	.	III
<i>Lonicera xylosteum</i>	.	.	1	.	+	+	.	.	+	+	.	+	.	III	
<i>Corylus avellana</i>	.	.	+	+	.	.	.	.	+	.	+	1	2	III
<i>Euonymus europaeus</i>	.	.	+	.	.	+	.	.	+	.	+	2	1	1	III

Companion species:

<i>Alliaria petiolata</i>	.	.	+	2	+	+	+	.	1	1	1	1	1	1	V
<i>Heracleum sphondylium</i>	+	+	+	+	+	+	.	.	+	+	.	.	.	.	IV
<i>Galium aparine</i>	.	+	+	+	+	.	.	.	.	+	.	.	+	1	IV
<i>Urtica dioica</i>	.	.	+	1	.	+	.	.	.	+	+	+	+	1	IV
<i>Geranium robertianum</i>	.	.	+	.	+	+	.	.	1	1	1	.	.	1	IV
<i>Geum urbanum</i>	.	.	+	.	.	1	.	.	1	1	1	1	1	1	IV

Other species. Characteristic species: *Rumex sanguineus* + in 4, 6 and 9. *Iris foetidissima* + in 11 and 13, 1 in 12. *Alnus glutinosa* + in 6, 1 in 8. *Salix neotricha* + in 8, 1 in 12. *Salix lambertiana* + in 8 and 13. *Solanum dulcamara* + in 9 and 13. *Salix angustifolia* + in 1. *Populus alba* + in 6. *Cucubalus baccifer* + in 7. *Festuca gigantea* + in 9. *Fraxinus excelsior* 1 in 11. *Primula elatior* + in 13. **Querco-Fagetea and Rhamno-Prunetea species:** *Viola reichenbachiana* + in 1, 4 and 10, 1 in 2 and 12. *Rhamnus cathartica* 1 in 3 and 9, + in 5, 11 and 13. *Viola* gr. *alba* + in 1 and 3, 1 in 5 and 9. *Tilia platyphyllos* + in 2, 4 in 12, 2 in 13. *Rosa agrestis* + in 3, 5 and 7. *Rosa corymbifera* + in 3, 6 and 9. *Lonicera periclymenum* + in 3, 7 and 9. *Rosa micrantha* + in 5, 6 and 9. *Prunus avium* 1 in 5, 2 in 6, + in 10. *Quercus faginea* 2 in 6, + in 12 and 13. *Poa nemoralis* 1 in 10, 11 and 13. *Veronica chamaedrys* 1 in 10, + in 12 and 13. *Ajuga reptans* + in 11, 12 and 13. *Lonicera etrusca* + in 1 and 5. *Rosa nitidula* + in 1 and 5. *Hippocrepis emerus* + in 1 and 6. *Epipactis helleborine* 1 in 2, + in 12. *Orobancha hederacae* + in 3 and 6. *Ulmus glabra* + in 4, 3 in 8. *Rubus* sp. + in 11, 1 in 12. *Acer pseudoplatanus* + in 12, 2 in 13. *Acer monspessulanum* + in 12 and 13. *Primula columnae* + in 12 and 13. *Pyrus communis* + in 1. *Rosa* sp. +, *Viola* sp. + in 2. *Cephalanthera damasonium* +, *Quercus faginea* pl. + in 5. *Viola hirta* + in 6. *Berberis seroi* +, *Viburnum opulus* + in 7. *Clematis recta* +, *Prunus mahaleb* + in 8. *Rosa arvensis* + in 9. *Polystichum setiferum* 1, *Dryopteris filix-mas* + in 10. *Melica uniflora* + in 12. **Companion species:** *Rubia peregrina* 1 in 1, + in 2, 3, 5, 6 and 8. *Dactylis glomerata* + in 1, 2, 4, 5, 6 and 11. *Melissa officinalis* 1 in 2 and 9, + in 3, 4 and 6. *Poa trivialis* s.l. 1 in 2, 12 and 13, + in 3 and 6. *Prunus domestica* 2 in 4, 5 and 10, + in 6 and 9. *Lapsana communis* + in 9, 10 and 12, 1 in 11 and 13. *Ranunculus despectus* + in 1, 2, 11 and 13. *Anthriscus sylvestris* + in 2, 6 and 13, 1 in 11. *Ranunculus repens* + in 2, 10, 12 and 13. *Arctium minus* + in 3, 4, 6 and 11. *Cruciata laevipes* + in 4, 5, 11 and 12. *Ruscus aculeatus* 1 in 1, + in 2 and 5. *Carex flacca* + in 1, 5 and 11. *Prunella vulgaris* + in 1, 11 and 13. *Thalictrum minus* + in 2, 5 and 12. *Chaerophyllum temulentum* + in 3 and 5, 1 in 4. *Heracleum montanum* 1 in 11, 12 and 13. *Filipendula ulmaria* + in 11 and 12, 1 in 13. *Satureja vulgaris* + in 1 and 2. *Brachypodium phoenicoides* 2 in 1, + in 7. *Osyris alba* 1 in 1 and 7. *Helictotrichon cantabricum* + in 1, 1 in 8. *Equisetum ramosissimum* + in 1 and 8. *Poa pratensis* + in 1 and 12. *Torilis arvensis* + in 2 and 7. *Angelica sylvestris* + in 3 and 4. *Juglans regia* + in 4 and 6. *Satureja ascendens* + in 9 and 12. *Rumex conglomeratus* + in 11 and 13. *Arrhenatherum elatius* +, *Astragalus glycyphyllos* +, *Briza media* +, *Campanula trachelium* +, *Crepis taraxacifolia* +, *Festuca rubra* +, *Foeniculum vulgare* +, *Galium lucidum* +, *Genista tinctoria* +, *Hieracium pilosella* s.l. +, *Rhamnus alaternus* + in 1. *Sambucus ebulus* + in 2. *Orobancha* sp. + in 3. *Populus pyramidalis* + in 4. *Carex cuprina* +, *Sorbus domestica* + in 5. *Asparagus acutifolius* +, *Juglans regia* pl. +, *Rhamnus alaternus* pl. +, *Viburnum tinus* + in 7. *Lathyrus latifolius* +, *Pistacia terebinthus* + in 8. *Chaerophyllum aureum* +, *Populus x canadensis* + in 9. *Sisymbrium chrysanthum* 1, *Hypericum hirsutum* + in 10. *Festuca* sp. 1, *Aconi-*

tum neapolitanum +, *Holcus lanatus* +, *Thalictrum pubescens* + in 11. *Pteridium aquilinum* 1, *Filipendula vulgaris* +, *Knautia arvernensis* +, *Lamium maculatum* +, *Rumex obtusifolius* +, *Stachys officinalis* + in 12. *Lysimachia vulgaris* +, *Mentha longifolia* + in 13.

Localities: 1. Navarre: Liédena, Foz de Lumbier, Irati river in its way out of the gorge. 30TXN3920. 150 m². 2. Navarre: Lumbier, Foz de Lumbier, Irati river in the entry to the gorge. 30TXN3822. 100 m². 3. Holotypus ass. Navarre: Lumbier, Irati river near San Vicente, 30TXN3825. 150 m². 4. Navarre: Urraul Bajo, Irati river between Ripodas and Artieda, near the dam. 30TXN3729. 150 m². 5. Navarre: Longuida, Irati river between Artajo and Aos. 30TXN3432. 100 m². 6. Navarre: Longuida, Aos, Irati river. 30TXN3234. 150 m². 7. Navarre: Gallipienzo, Aragón river, Soto del Molino. 30TXN3210. 100 m². 8. Navarre: Lumbier, Foz de Lumbier, Irati river. 30TXN3921. 80 m². 9. Longuida, Aos, terrace of Irati river. 30TXN3135. 150 m². 10. Alava: Apodaka, Zaya stream, limestones. 30TWN2252. 150 m². 11. Alava: Osma, Tumecillo stream. 30TVN9447. 150 m². 12. Burgos: Pedrosa de Tobalina, Losa stream. 30TVN7245. 200 m². 13. Burgos: Losa valley, Losa stream in the entry to the gorge, between Quintanilla la Ojada and Quintana Entrepeñas. 30TVN7450. 150 m². 14. Synthesized table.

Diagnosis: Edaphohydrophilous elm and ash forests from the lower supramediterranean and upper mesomediterranean subhumid belt of the Castilian Cantabrian Sector, also found in some subhumid areas of the Navarran-Alavan District (Pamplona basin). They occupy the external band in the riparian geoseries of the Castilian Cantabrian Sector, behind the *Salicetum neotrichae salicetosum lambertianae* Biurrun 1999 and the *Humulo lupuli-Alnetum glutinosae* alder forests. In streams, where water flow is low, they grow on the bank: *Salix atrocinerea* variant (rel. 10-13). They also contact the climactic vegetation, generally *Quercus faginea* forests (*Spiraeo obovatae-Quercetum fagineae*); elm and ash forests of the Navarran-Alavan District contact *Quercus pubescens* forests (*Roso arvensis-Quercetum humilis*).

Differential species against geovicarious elm forests in the Iberian Peninsula: *Buxus sempervirens*, *Lonicera xylosteum*, *Viburnum lantana*, *Rhamnus cathartica*, *Ulmus glabra* and *Anthriscus sylvestris*. Differential species against *Aro cylindracei-Ulmetum minoris* (Leonese and Castilian Duriensean Sectors): *Acer campestre*, *Tamus communis*. In the opposite way, occidental species (*Salix salviifolia*) and species behaving as montane in the territory (*Arum maculatum*, *Helleborus occidentalis*) lack in the new association. Differential species against *Aro italici-Ulmetum minoris* (Celtiberian-Alcarrean Sector): *Acer campestre*, *Prunus spinosa*, *Clematis vitalba*, *Euonymus europaeus*, *Salix neotricha*, *Humulus lupulus*, *Bryonia dioica*. In the opposite way, *Myrrhoides nodosa* and *Smyrniium perfoliatum* play as differential species of the association from Celtiberian-Alcarrean Sector. Differential species against *Hedero-Ulmetum minoris* (Bardenan-Monegrensean and Valencian-Tarraconensean Sectors): *Humulus lupulus*, *Bryonia dioica*. In the opposite way: *Celtis australis*. Differential species against *Lithospermo purpurocaerulei-Ulmetum minoris* (Vallesan-Empordanese Sector): *Euonymus europaeus*. In the opposite way: *Sanicula europaea* and *Melica uniflora*, behaving as montane species in the territory, and *Lithospermo purpurocaeruleum*, *Rosa sempervirens*, *Quercus ilex*, *Carex sylvatica* subsp. *pau*, *Celtis australis*, *Smilax aspera*.

[BIURRUN & GARCÍA-MIJANGOS]

VIBURNO TINI-QUERCETUM ROBORIS (Br.-Bl., P. Silva & Rozeira 1956) ass. nova, stat. nov. hoc loco (76.7.19)

[*Rusco-Quercetum roboris viburnetosum tini* Br.-Bl., P. Silva & Rozeira in Agron. Lusit. 18(3): 182, tb. 1. 1956 (basion.) (art. 27d, 46H)]

(*Quercenion robori-pyrenaicae*, *Quercion pyrenaicae*, *Quercetalia roboris*, *Querceto-Fagetea*)

Table 99

76.7.19 *Viburno tini-Quercetum roboris*

(*Quercenion robori-pyrenaicae*, *Quercion pyrenaicae*, *Quercetalia roboris*, *Querceto-Fagetea*)

Altitude (1=10m)	41	44	49	47	49	30	27	38	<u>41</u>
Number of species	34	32	39	25	33	22	42	39	33
Ordinal number	1	2	3	4	5	6	7	8	9
Characteristic species:									
<i>Quercus robur</i>	3	4	4	3	4	4	3	4	V
<i>Hedera hibernica</i>	2	1	2	2	2	2	1	1	V
<i>Ruscus aculeatus</i>	+	2	1	2	2	2	1	2	V
<i>Viburnum tinus</i> (terr.)	+	1	2	+	2	1	2	.	V
<i>Teucrium scorodonia</i>	2	+	1	+	.	+	1	1	V
<i>Rubia longifolia</i> (terr.)	1	+	1	+	.	1	+	1	V
<i>Lonicera periclymenum</i>	1	.	2	1	+	+	1	+	V
<i>Arbutus unedo</i> (terr.)	.	+	1	2	+	1	1	+	V
<i>Tamus communis</i>	+	1	+	+	.	+	+	.	IV
<i>Smilax altissima</i> (terr.)	+	+	.	+	.	+	1	1	IV
<i>Ilex aquifolium</i>	.	2	2	2	1	1	+	+	IV
<i>Viola riviniana</i>	.	+	1	+	+	.	+	1	IV
<i>Luzula baetica</i> (terr.)	+	1	1	+	.	.	+	.	III
<i>Vinca difformis</i>	2	1	2	.	.	+	.	1	III
<i>Holcus mollis</i>	.	1	+	.	+	+	.	1	III
<i>Asparagus aphyllus</i> (terr.)	.	+	+	.	.	+	+	.	III
<i>Phillyrea latifolia</i> (terr.)	.	.	.	+	3	+	1	.	III
Companion species:									
<i>Polypodium australe</i>	1	+	1	+	+	.	+	+	V
<i>Pteridium aquilinum</i>	1	+	1	.	1	1	1	2	V
<i>Rubus ulmifolius</i>	1	1	1	.	1	+	1	1	V
<i>Arenaria montana</i>	+	+	1	.	.	+	+	1	IV
<i>Digitalis purpurea</i>	+	+	.	+	+	.	+	+	IV
<i>Crategus monogyna</i>	1	.	+	.	.	1	1	1	III
<i>Dactylis lusitanica</i>	+	.	.	.	+	+	+	1	III
<i>Arum italicum</i>	1	+	.	.	.	+	.	+	III
<i>Asplenium onopteris</i>	.	.	.	1	+	1	1	+	III
<i>Laurus nobilis</i>	.	1	.	+	1	.	.	2	III

Other species. Characteristic species: *Castanea sativa* 1 in 1 and 5, 2 in 3. *Geum sylvaticum* + in 1 and 3, 1 in 2. *Rosa sempervirens* (terr.) 1 in 1 and 7, + in 8. *Polygonatum odoratum* 1 in 2 and 4, 2

in 3. *Arisarum vulgare* (terr.) + in 2, 3 and 8. *Brachypodium sylvaticum* 1 in 3, 5 and 8. *Physospermum cornubiense* + in 4, 7 and 8. *Prunus lusitanica* (terr.) 1 in 5, 6 and 7. *Olea sylvestris* (terr.) 1 in 5 and 7, + in 6. *Rhamnus alaternus* (terr.) + in 5 and 7, 1 in 6. *Quercus robur* (E2) 1 in 5 and 8, + in 7. *Phillyrea angustifolia* (terr.) + in 5 and 8, 2 in 7. *Acer pseudoplatanus* 3 in 1, 1 in 2. *Euphorbia amygdaloides* + in 1 and 8. *Helleborus foetidus* + in 2 and 3. *Epipactis tremolsii* + in 3 and 8. *Primula vulgaris* + in 3 and 8. *Blechnum spicant* 1 in 6 and 7. *Quercus x coutinhoi* 1 in 1. *Quercus x henriquesii* 1, *Hypericum androsaemum* +, *Mercurialis perennis* + in 3. *Hyacinthoides hispanica* + in 4. *Osmunda regalis* 1 in 5. *Polystichum setiferum* 1, *Coryllus avelana* + in 7. *Athyrium filix-femina* 1 in 8. Companion species: *Cytisus striatus* + in 1, 3, 5 and 7. *Aristolochia paucinervis* + in 1, 5 and 8, 1 in 3. *Sedum fosteranum* + in 2, 6 and 8, 1 in 3. *Agrostis castellana* + in 3 and 7, 1 in 6 and 8. *Erica scoparia* + in 5 and 8, 1 in 6 and 7. *Ulex minor* + in 5, 6 and 7, 1 in 8. *Pittosporum undulatum* 2 in 1 and 3, 1 in 2. *Bryonia dioica* + in 1, 2 and 3. *Calamintha baetica* 1 in 1, + in 3 and 8. *Calluna vulgaris* + in 2 and 6, 1 in 3. *Daphne gnidium* 1 in 6, 7 and 8. *Heracleum sphondylium* 1 in 1, + in 2. *Silene latifolia* + in 1 and 3. *Ulmus minor* + in 1 and 5. *Carex halleriana* + in 2 and 3. *Carex depressa* + in 4 and 7. *Pyrus communis* + in 4 and 7. *Scilla monophyllos* + in 4 and 7. *Linaria triornitophora* + in 5 and 6. *Carex distachya* + in 5 and 8. *Erica arborea* 1 in 6, + in 7. *Tradescantia fluminensis* 2, *Urtica membranacea* + in 1. *Quercus x airenensis* 1, *Ulex latebracteatus* + in 3. *Asphodelus albus* +, *Deschampsia flexuosa* +, *Simethis mattiazzii* + in 4. *Erica cinerea* + in 5. *Erica umbellata* + in 6. *Myrtus communis* 2, *Lithodora prostrata* + in 7. *Clinopodium arundanum* + in 8.

Localities: 1. Lu, Estremadura: Between Pena and S. Pedro. 29SMC69. N, 400 m². 2. Lu, Estremadura: Between Pena and Cruz Alta. 29SMC69. NE, 300 m². 3. Lu, Estremadura: Between Pena and Cruz Alta. 29SMC69. S, 300 m². 4. Lu, Beira Litoral: Serra do Buçaco. 29SNE56. (Br.-Bl., P. Silva & Rozeira, 1956). NW, 500 m². 5. Lu, Beira Litoral: Fraga da Pena (Serra do Açor). 29TPE05. NE, 300 m². 6. Lu, Beira Litoral: Avô. 29TNE96. NW, 200 m². 7. Lu, Beira Litoral: Avô. 29TNE96. NW, 3000 m². 8. Lu, Beira Alta: Castro Daire, Paiva river. 29TNF83. NW, 400 m². 9. Synthesized table.

Typus associatio: Br.-Bl., P. Silva & Rozeira in Agron. Lusit. 18(3): 182, tb. 1, rel. 7. 1956 (Pinto da Silva) Holotypus, Portugal: Avô, reste de forêt, sur la rive de l'Alva. 29TNE96. 250 m, N, 400 (500) m². Characteristic species (territorials): 3 *Quercus robur*, 2 *Genista falcata*, 1 *Dryopteris borrieri*, 1 *Teucrium scorodonia*, 1 *Viburnum tinus*, + *Acer monspessulanum*, + *Alnus glutinosa*, + *Aquilegia dichroa*, + *Blechnum spicant*, + *Castanea sativa*, + *Corylus avellana*, + *Lonicera periclymenum*, + *Luzula henriquesii*, + *Omphalodes nitida*, + *Phillyrea media*, + *Polystichum setiferum*, + *Prunus avium*, + *Prunus lusitanica*, + *Pyrus communis*, + *Quercus pyrenaica*, + *Rubia peregrina*. Companion species: 4 *Muscis* sp. pl., 1 *Asplenium onopteris*, 1 *Crataegus monogyna*, 1 *Hedera canariensis*, 1 *Pteridium aquilinum*, 1 *Ruscus aculeatus*, + *Agrostis castellana*, + *Ajuga reptans*, + *Carex depressa*, + *Cirsium grumosum*, + *Daphne gnidium*, + *Digitalis purpurea*, + *Erica lusitanica*, + *Fragula alnus*, + *Luzula forsteri*, + *Pinus pinaster*, + *Polypodium serratum*, + *Rosa canina*, + *Rumex papillaris*, + *Salix alba*, + *Salix atrocinerea*, + *Sarothamnus grandiflorus*, + *Ulex minor*, + *Vitis vinifera*.

Characteristic species (territorials): *Quercus robur*, *Arbutus unedo*, *Arisarum vulgare*, *Asparagus aphyllus*, *Olea sylvestris*, *Phillyrea angustifolia*, *Phillyrea latifolia*, *Prunus lusitanica*, *Rhamnus alaternus*, *Rosa sempervirens*, *Rubia longifolia*, *Smilax mauritanica*, *Viburnum tinus*.

Diagnosis: Thermotemperate submediterranean humid hyperoceanic, pedunculate oak (*Quercus robur* subsp. *robur*) and Brotero pedunculate oak (*Quercus robur* subsp. *broteroana*), climactical meso-macroforest, growing on deep mesic humic cambisols or chromic luvisols lacking a calcic horizon, spread in Galician-Portuguese mostly Minnensian. Well characterized by *Quercus robur* subsp. *robur* and particularly by the western meridional chartaceous-leaved *Quercus robur* subsp. *broteroana*, as well as by a lot of *Quercetea ilicis* species mostly thermic: *Arbutus unedo*, *Asparagus aphyllus*, *Luzula forsteri* subsp. *baetica*, *Smilax aspera* var. *altissima*, *Rubia peregrina* subsp. *longifolia*, *Viburnum tinus*, etc.

[J.C. COSTA, CAPELO, HONRADO, AGUIAR & LOUSÁ]

VINCO DIFFORMIS-CERATONIETUM SILIQUAE (Martín, Díez Garretas & Asensi 1992) ass. nova, stat. nov. hoc loco (75.3.14)

[*Clematido cirrhosae-Ceratonietum siliquae phlomidetosum purpureae* Martín, Díez Garretas & Asensi in *Studia Bot.* 10: 54, tb. 1. 1992 (basion.) (art. 27d, 46H)]

(*Quercus rotundifoliae-Oleion sylvestris*, *Quercetalia ilicis*, *Quercetea ilicis*)

Typus associatio: Martín, Díez Garretas & Asensi in *Studia Bot.* 10: 54, tb. 1, rel. 1. 1992. Holotypus [Cádiz, Sierra de Ubrique, 620 m, SW, 100 m²]. Characteristic species: 3 *Ceratonia siliqua*, 3 *Pistacia lentiscus*, 2 *Chamaerops humilis*, 2 *Olea sylvestris*, 2 *Pistacia terebinthus*, 2 *Vinca difformis* (terr.), 2 *Rhamnus oleoides*, 1 *Arisarum simorrhinum*, 1 *Clematis cirrhosa*, 1 *Rubia peregrina* subsp. *longifolia*, + *Jasminum fruticans*, + *Phlomis purpurea*. Companion species: 1 *Crataegus monogyna*, + *Polypodium cambricum*, + *Urginea maritima*.

Characteristic species (territorials): *Arbutus unedo*, *Ceratonia siliqua*, *Phlomis purpurea* subsp. *purpurea*, *Rhamnus oleoides* subsp. *oleoides*, *Ulex scaber*, *Vinca difformis*.

Diagnosis: Thermomediterranean subhumid to hyperhumid euoceanic *Ceratonia siliqua* and *Olea europaea* subsp. *sylvestris* permanent climactical microforest community, growing on chromic or calcic luvisols, often introduced on calcitic dolomite or limestone in steep slopes, mountain walls, ridges, chaos of big boulders, etc., in Rondean and Jerezan Hispalensean territories. Characterized by thermomediterranean species like: *Aristolochia baetica*, *Asparagus albus*, *Chamaerops humilis*, *Clematis cirrhosa*, *Osyris lanceolata*, etc. It could be easily differentiated from the Maghrebian Riffean geovicariant association *Clematido cirrhosae-Ceratonietum siliquae* Barbero, Quézel & Rivas-Martínez 1981 by: *Arbutus unedo*, *Phlomis purpurea* subsp. *purpurea*, *Rhamnus oleoides* subsp. *oleoides*, *Ulex scaber*, *Vinca difformis*, etc.

[RIVAS-MARTÍNEZ]

3. *Nomina correcta*

The authors of the “Syntaxonomical Checklist of Vascular Plant Communities of Spain and Portugal to association level”: Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas together with Izco, are responsible for the *nomina correcta* where no names are given in the correction.

According to the International Code of Botanical Nomenclature (art. 11), the correct name for any taxon below the rank of genus is the combination of the last epithet in sequence in any particular combination (‘final epithet’) of the earliest legitimate name of the taxon in the same rank, with the correct name of the genus or species to which it is assigned. We shall therefore apply the earliest correct names used against the latest legitimate or illegitimate names for the syntaxa.

Article 40. Retention and correction of syntaxon names. a. The original form of a name (see Def. V) should be retained unless a correction must be made according to Arts. 41 to 45 or a correction of printing errors. Note: This provision does not withdraw the permission to add specific epithets according to Recommendation 10C. b. When a name is corrected, the type and the autor citation always remain unaltered (see Art. 48). In disputes about priority the date of the corrected name is that of the original name except when the correction according to Art. 43 or 45 would form a later homonym of a validly published syntaxon name.

Article 43. Corrections of names due to taxonomic errors: The name of a syntaxon must be corrected when it can be shown that it is based in a misidentification of the name-giving taxon (taxa). A misidentification in the sense of this article also occurs when the author of the name of a syntaxon used an incorrect taxon name because this name was employed in his identification literature in an incorrect sense (i.e. not in accordance with the nomenclatural type of the taxon name). A correction occasioned by taxonomic error also occurs in the case when the name of an aggregate species is replaced by the name of a narrowly defined species. The author citation of the corrected name corresponds to Art. 48.

On or after 1.1.2002 the new correction must be indicated by means of the words ‘corr. hoc loco’ appended to the author citation and accompanied by an unambiguous reference to the valid publication of the original name.

Such a correction is forbidden when it would form a later homonym of an earlier validly published name. For such a syntaxon the next older name in the same rank that is in accordance with the rules must be adopted to replace the name to be corrected. If no such name is available a new name (*nomen novum*, see Art. 39) must be formed according to the Rules.

Agropyro pectinati-Lygeetum sparti Br.-Bl. & O. Bolòs 1958 corr. hoc loco (56.2.1)
[*Eremopyro cristati-Lygeetum* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 125, tb. 28. 1958 (art. 43)]

Taxonomic correction: *Eremopyron cristatum* (L.) Willk. (\equiv *Agropyron cristatum* (L.) Gaertn. subsp. *cristatum*) should be *Agropyron cristatum* subsp. *pectinatum* (M. Bieb.) Tzvelev

Alchemillo alpigenae-Dryadetum octopetalae I. Soriano 1998 corr. hoc loco (45.2.8)

[*Alchemillo plicatulae-Dryadetum octopetalae* I. Soriano in *J. Bot. Soc. Bot. Fr.* 5: 24, tb. 1. 1998 (art. 43)]

Taxonomic correction: *Alchemilla plicatula* sensu Walters in *Fl. Europ.* 2: 52. 1968 non Gand. should be *Alchemilla alpigena* Buser ex Hegi

Allio schoenoprasi-Ranunculetum demissi F. Casas & Morales in Esteve & F. Casas 1971 corr. hoc loco (60.3.1)

[*Allio-Ranunculetum nevadensis* F. Casas & Morales in Esteve & F. Casas in *Cuad. Ci. Biol.* 1: 65. 1971 (art. 43)]

Taxonomic correction: *Ranunculus demissus* 'nevadensis' should be *Ranunculus demissus* DC.

Allio schoenoprasi-Ranunculetum heterocarpi F. Casas 1970 corr. hoc loco (33.1.1)

[*Allio schoenoprasi-Ranunculetum parnassifolii* F. Casas in *Ars. Pharm.* 11: 281, tb. 10. 1970 (art. 43)]

Taxonomic correction: *Ranunculus parnassifolius* L. should be *Ranunculus parnassifolius* subsp. *heterocarpus* Küpfer

Antennario dioicae-Festucetum curvifoliae Rivas-Martínez 1987 corr. hoc loco (49.2.2)

[*Antennario dioicae-Festucetum aragonensis* Rivas-Martínez, *Mem. Mapa Series Veg. España*: 162. 1987 (art. 43)]

Taxonomic correction: *Festuca indigesta* var. *aragonensis* Willk. should be *Festuca curvifolia* Lag. ex Lange

Arenario frigidae-Festucetum indigestae Rivas-Martínez 1965 corr. hoc loco (49.1.3)

[*Arenario imbricatae-Festucetum indigestae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 374. 1965 (art. 43)]

Taxonomic correction: *Arenaria aggregata* subsp. *imbricata* (Lag. & Rodr.) Font Quer should be *Arenaria armerina* subsp. *frigida* (Boiss.) Rivas Mart. & Sánchez Mata

Arenario querioidis-Festucetum gredensis Rivas-Martínez, Sánchez-Mata & Fuente in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 corr. Rivas-Martínez & Sánchez-Mata hoc loco (49.5.1)

[*Arenario querioidis-Festucetum summilusitanae* Rivas-Martínez, Sánchez-Mata & Fuente in Rivas-Martínez, Fernández-González & Sánchez-Mata in Opusc. Bot. Pharm. Complut. 2: 57. 1986 (art. 43)]

Taxonomic correction: *Festuca summilusitana* Franco & Rocha Afonso should be *Festuca gredensis* Fuente & Ortúñez

Aro cylindracei-Ulmetum minoris T.E. Díaz, Andrés, Llamas, L. Herrero & D. Fernández 1987 corr. hoc loco (71.2.11)

[*Aro maculati-Ulmetum minoris* T.E. Díaz, Andrés, Llamas, L. Herrero & D. Fernández in Publ. Univ. La Laguna, Ser. Informes 22: 178, tb. 1. 1987 (art. 43)]

Taxonomic correction: *Arum maculatum* L. should be *Arum cylindraceum* Gasparr.

Artemisio gargantae-Puccinellietum pungentis Barrera & Cirujano 1986 corr. hoc loco (20.3.1)

[*Artemisio gallicae-Puccinellietum pungentis* Barrera & Cirujano in Trab. Dept. Bot. Univ. Complut. Madrid 13: 112, tb. 1. 1986 (art. 43)]

Taxonomic correction: *Artemisia gallica* Willd. subsp. *gallica* should be *Artemisia gallica* subsp. *gargantae* (Vallès-Xirau & Seoane-Camba) Rivas Mart. & Cantó

Asphodelo aestivi-Armerietum gaditanae Allier & Bresset 1977 corr. hoc loco (57.1.1)

[*Asphodelo cerasiferi-Armerietum gaditanae* Allier & Bresset in Monografías ICONA 18: 59. 1977 (art. 43)]

Taxonomic correction: *Asphodelus cerasiferus* J. Gay should be *Asphodelus aestivus* Brot.

Asplenio corunnensis-Saxifragetum gemmulosae Rivas-Martínez, Izco & Costa ex Asensi & Esteve 1977 corr. hoc loco (27.18.3)

[*Asplenio cuneifolii-Saxifragetum gemmulosae* Rivas-Martínez, Izco & Costa in Trab. Dep. Bot. Fisiol. Veg. Madrid 6: 27. 1973 (art. 3b), *Asplenio-Saxifragetum gemmulosae* Rivas-Martínez, Izco & Costa ex Asensi & Esteve in Trab. Dep. Bot. Univ. Granada 4(1): 30, tb. 1. 1977 (art. 43)]

Taxonomic correction: *Asplenium cuneifolium* Viv. should be *Asplenium adiantum-nigrum* subsp. *corunnense* (Christ) Rivas-Mart.

Astragalo andresmolinae-Bupleuretum spinosi A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo 1998 corr. hoc loco (64.8.3)

[*Astragalo nevadensis-Bupleuretum spinosi* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo in Acta Bot. Malacitana 23: 156. 1998 (art. 43)]

Taxonomic correction: *Astragalus sempervirens* subsp. *nevadensis* (Boiss.) P. Monts. should be *Astragalus sempervirens* subsp. *andresmolinae* Díez Garretas & A. Asensi

- Atriplici-Cakiletum integrifoliae* R. Alvarez 1972 corr. hoc loco (17.1.3)
 [*Atriplici-Cakiletum maritimae* R. Alvarez in Trab. Compostelanos Biol. 2: 35. 1972 (art. 43) (syntax. syn.)]
 Taxonomic correction: *Cakile maritima* Scop. should be *Cakile maritima* subsp. *integrifolia* (Hornem.) Hyl. ex Greuter, Burdet & G. Long
- Atriplici salinae-Suaedetum spicatae* O. Bolòs & Vigo 1984 corr. hoc loco (25.1.2)
 [*Atriplici hastatae-Suaedetum maritimae* O. Bolòs & Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 73: 193. 1984 (art. 43)]
 Taxonomic correction: *Suaeda maritima* (L.) Dumort. should be *Suaeda spicata* (Willd.) Moq., and *Atriplex hastata* auct. non. L. et *Atriplex prostrata* Boucher ex DC. should be *Atriplex prostrata* var. *salina* (Wallr.) O. Bolòs & Vigo, respectively.
- Avenulo pauneroi-Helictotrichetum cazorlensis* Gómez-Mercado & F. Valle 1991 corr. hoc loco (56.4.1)
 [*Avenulo bromoidis-Helictotrichetum cazorlensis* Gómez-Mercado & F. Valle in Rivasgodaya 6: 138, tb. 2. 1991 (art. 43)]
 Taxonomic correction: *Avenula bromoides* (Gouan) H. Scholz should be *Avenula bromoides* subsp. *pauneroi* Romero Zarco
- Berberido seroi-Juniperetum sabiniae* Rivas Goday & Borja 1961 nom. corr. et nom. inv. hoc loco (74.7.2)
 [*Sabino-Berberidetum hispanicae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 76, tb. 8. 1961 (art. 43, 42)]
 Taxonomic correction: *Berberis hispanica* Boiss. & Reut. should be *Berberis hispanica* subsp. *seroi* (O. Bolòs & Vigo) Rivas Mart., Loidi & Arnaiz
- Callitricho-Ranunculetum baudotii* O. Bolòs, Molinier & P. Montserrat 1970 corr. hoc loco (3.3.7)
 [*Callitricho-Ranunculetum aquatilis* O. Bolòs, Molinier & P. Montserrat in Acta Bot. Barcinon. 5: 81. 1970 (art. 43)]
 Taxonomic correction: *Ranunculus aquatilis* L. should be *Ranunculus baudotii* Godr.
- Campanulo afrae-Galietum verticillati* Esteve 1968 corr. hoc loco (50.13.5)
 [*Campanulo kremeri-Galietum verticillati* Esteve in Ars. Pharm. 8 (11-12): 451. 1968 (art. 43)]
 Taxonomic correction: *Campanula kremeri* Boiss. & Reut. should be *Campanula dichotoma* subsp. *afra* (Cav.) Maire
- Caricetum tartesiana*e Díez Garretas, Cuenca & Asensi 1988 corr. hoc loco (12.5.1)
 [*Caricetum mauritanicae* Díez Garretas, Cuenca & Asensi in Lazaroa 9: 329, tb. 6. 1988 (art. 43)]
 Taxonomic correction: *Carex acuta* subsp. *mauritanica* (Boiss. & Reut.) A. Asensi & Díez Garretas should be *Carex reuteriana* subsp. *tartesiana* (Luceño & Aedo) Rivas Mart.

Carici nigrae-Sphagnetum recurvi Rivas Goday & Rivas-Martínez ex F. Prieto, M.C. Fernández & Collado 1987 corr. hoc loco (14.2.6)

[*Carici carpetanae-Sphagnetum recurvi* Rivas Goday & Rivas-Martínez ex F. Prieto, M.C. Fernández & Collado in *Lazaroa* 7: 459, tb. 7. 1987 (art. 43)]

Taxonomic correction: *Carex fusca* var. *carpetana* C. Vicioso nom. illeg. (*Carex nigra* subsp. *iberica* Rivas Mart.) should be *Carex nigra* (L.) Reichard subsp. *nigra*

Carlino hispanicae-Carthametum lanati Ladero, F. Navarro & C. Valle 1983 corr. hoc loco (34.10.3)

[*Carlino corymbosae-Carthametum lanati* Ladero, F. Navarro & C. Valle in *Studia Bot.* 2: 48, tb. 15. 1983 (art. 43)]

Taxonomic correction: *Carlina corymbosa* L. should be *Carlina corymbosa* subsp. *hispanica* (Lam.) O. Bolòs & Vigo

Centaureo ornatae-Stipetum clausae Rivas-Martínez & Fernández-González 1991 corr. hoc loco (57.3.2)

[*Centaureo ornatae-Stipetum lagascae* Rivas-Martínez & Fernández-González in *Lazaroa* 12: 385. 1991 (art. 43)]

Taxonomic correction: *Stipa lagascae* Roem. & Schult. should be *Stipa clausa* Trab. in Batt. & Trab.

Centrantho rubri-Hypericetum majoris Rivas-Martínez 1969 corr. hoc loco (28.1.5)

[*Centrantho-Hypericetum hircini* Rivas-Martínez in *Publ. Inst. Biol. Aplicada* 46: 12, tb. 2. 1969 (art. 43)]

Taxonomic correction: *Hypericum hircinum* L. should be *Hypericum hircinum* subsp. *majus* (Aiton) N. Robson

Cerastio taurici-Myosotidetum gracillimae Roselló 1994 corr. hoc loco (41.2.3)

[*Cerastio taurici-Myosotidetum ramosissimae* Roselló, *Cat. Fl. Veg. Alto Mijares*: 405, tb. 49. 1994 (art. 43)]

Taxonomic correction: *Myosotis ramosissima* Rochel should be *Myosotis ramosissima* subsp. *gracillima* (Loscos & J. Pardo) Rivas Mart.

Cerastio vulgare-Juniperetum brevifoliae Lüpnitz 1976 corr. hoc loco (73.1.1)

[*Cerastio vagantis-Juniperetum brevifoliae* Lüpnitz in *Beitr. Biol. Pflanzen* 51: 290, tb. 27. 1976 (art. 43)]

Taxonomic correction: *Cerastium vagans* sensu Lüpnitz non Lowe should be *Cerastium fontanum* subsp. *vulgare* (Hartm.) Greuter & Burdet

Chaenorhino minoris-Euphorbietum longistylae Rivas Goday & Borja 1961 corr. hoc loco (39.1.4)

[*Linario minoris-Euphorbietum graecae* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 270, tb. 65. 1961 (art.43)]

Taxonomic correction: *Linaria minor* (L.) Desf. and *Euphorbia graeca* auct., non Boiss. & Sprun. should be *Chaenorhinum minus* (L.) Lange and *Euphorbia arvalis* subsp. *longistyla* (Litard. & Maire) Molero, Rovira & Vicens, respectively.

Chenopodio muralis-Parietarietum judaicae Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 corr. Rivas-Martínez & Sánchez-Mata hoc loco (39.8.6)

[*Chenopodio muralis-Parietarietum officinalis* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata, Flora Veg. Macizo Oriental Sierra Gredos: 243, tb. 82. 1989 (art. 43)]

Taxonomic correction: *Parietaria officinalis* L. should be *Parietaria judaica* L.

Cirsio ferocis-Epilobietum hirsuti O. Bolòs 1996 corr. hoc loco (40.5.3)

[*Cirsio monspessulani-Epilobietum hirsuti* O. Bolòs in Mem. Real Acad. Ci. Barcelona 55(4): 52. 1996 (art. 43)]

Taxonomic correction: *Cirsium monspessulanum* (L.) Hill subsp. *monspessulanum* should be *Cirsium monspessulanum* subsp. *ferox* (Coss.) Talavera

Cirsio paniculati-Juncetum inflexi Vigo 1968 corr. hoc loco (59.15.1)

[*Cirsio coriacei-Juncetum inflexi* Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 37: 196, tb. 33. 1968 (art. 43)]

Taxonomic correction: *Cirsium coriaceum* Pau should be *Cirsium pyrenaicum* var. *paniculatum* (Vahl) Talavera & Valdés

Coincyo setigeræ-Sisymbrietum chrysanthi Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 Rivas-Martínez & Sánchez-Mata corr. Rivas-Martínez & Sánchez-Mata hoc loco (39.14.4)

[*Coincyo setigeræ-Sisymbrietum austriaci* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata, Flora Veg. Macizo Oriental Sierra Gredos: 253, tb. 89. 1989 (art. 43)]

Taxonomic correction: *Sisymbrium austriacum* Jacq. should be *Sisymbrium austriacum* subsp. *chrysanthum* (Jord.) Rouy & Foucaud

Crataego granatensis-Loniceretum arboreae O. Bolòs 1954 corr. hoc loco [O. Bolòs] (66.3.2)

[*Crataego monogynae-Loniceretum arboreae* O. Bolòs in Collect. Bot. (Barcelona) 4(2): 282, tb. 12. 1954 (art. 43)]

Correct used taxon name: *Crataegus monogyna* Jacq. should be *Crataegus granatensis* Boiss.

Cressetum villosae Rothmaler 1943 corr. hoc loco (25.1.3)

[*Cressetum creticae* Rothmaler in Feddes Repert. Spec. Nov. Regni Veg. 128: 47. 1943 (art. 43)]

Correct used taxon name: *Cressa cretica* L. should be *Cressa cretica* var. *villosa* (Hoffmanns. & Link) Choisy

Cynoglossopicti-Cirsietum chodati Bellot 1968 corr. hoc loco (34.8.5)

[ass. à *Cirsium eriophorum-Cynoglossum pictum* Bellot in Anales Inst. Bot. Cavanilles 24: 84. 1968 (art. 14, 43)]

Taxonomic correction: *Cirsium eriophorum* (L.) Scop. should be *Cirsium eriophorum* subsp. *chodati* (Barb.-Gamp.) Rivas Mart., T.E. Díaz, Fern. Prieto, Loidi & Penas

Cytisetum scopario-oromediterranei Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 corr. hoc loco (65.3.3)

[*Cytisetum scopario-purgantis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas in Veg. Alta Mont. Cantábrica: 115, tb. 19. 1984 (art. 43)]

Taxonomic correction: *Cytisus purgans* (L.) Boiss. should be *Cytisus oromediterraneus* Rivas Mart., T.E. Díaz, Fern. Prieto, Loidi & Penas

Daphno hispanicae-Pinetum nevadensis Rivas-Martínez 1965 corr. hoc loco (74.1.1)

[*Daphno oleoidis-Pinetum sylvestris* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 378. 1965 (art. 43)]

Taxonomic correction: *Daphne oleoides* var. *jasminea* Meisn. should be *Daphne oleoides* subsp. *hispanica* (Pau) Rivas Mart.

Daucus commutati-Limonietum biflori Gil & Llorens 1995 corr. hoc loco (19.1.9)

[*Daucus gingidii-Limonietum biflori* Gil & Llorens in *Lazaroa* 15: 171, tb. 5. 1995 (art. 43)]

Taxonomic correction: *Daucus gingidium* L. should be *Daucus gingidium* subsp. *commutatus* (Paol.) O. Bolòs & Vigo

Daucus commutati-Limonietum marisoli Gil & Llorens 1995 corr. hoc loco (19.1.10)

[*Daucus gingidii-Limonietum marisoli* Gil & Llorens in *Lazaroa* 15: 169, tb. 3. 1995 (art. 43)]

Taxonomic correction: *Daucus gingidium* L. should be *Daucus gingidium* subsp. *commutatus* (Paol.) O. Bolòs & Vigo

Drosero longifoliae-Caricetum limosae Rivas-Martínez in Loidi, Biurrun & Herrera 1997 corr. hoc loco (14.1.2)

[*Drosero intermediae-Caricetum limosae* Rivas-Martínez in Loidi, Biurrun & Herrera in *Itinera Geobot.* 9: 512, tb. 82B. 1997 (art. 43)]

Taxonomic correction: *Drosera intermedia* Hayne should be *Drosera longifolia* L.

Echinopartetum iberici Rivas-Martínez 1974 corr. Rivas-Martínez & Sánchez-Mata hoc loco (65.3.8)

[*Echinopartetum lusitanici* Rivas-Martínez in *Anales Real Acad. Farm.* 40(1): 69. 1974 (art. 43)]

Taxonomic correction: *Echinopartum lusitanicum* sensu Rothm. [non *Genista lusitanica* L., Sp. Pl. 711. 1753 ≡ *Stauracanthus lusitanicus* (L.) Cubas] should be *Echinopartum ibericum* Rivas Mart., Sánchez Mata & Sancho

Eucladio-Pinguiculetum mundi T.E. Díaz, Guerra & Nieto 1982 corr. Asensi & Díez Garretas hoc loco (26.2.2)

[*Eucladio-Pinguiculetum vallisneriifoliae* T.E. Díaz, Guerra & Nieto in *Anales Jard. Bot. Madrid* 38(2): 498, tb. 1. 1982 (art. 43)]

Taxonomic correction: *Pinguicula vallisneriifolia* Webb should be *Pinguicula mundi* Blanca, Jamilena, Ruiz Rejón & R. Zamora

Fedio cornucopiae-Sinapietum mairei Peinado, Martínez-Parras & Bartolomé 1986 corr. hoc loco (39.15.3)

[*Fedio cornucopiae-Sinapietum albae* Peinado, Martínez-Parras & Bartolomé in *Studia Bot.* 5: 57. 1986 (art. 43)]

Taxonomic correction: *Sinapis alba* L. should be *Sinapis alba* subsp. *mairei* (H. Lindb.) Maire

Festucetum moleroio-pseudoeskliae Quézel 1953 corr. hoc loco (49.1.2)
[*Festucetum baetico-pseudoeskliae* Quézel in Mem. Soc. Brot. 9: 46, tb. 14. 1953 (art. 43)]

Taxonomic correction: *Festuca paniculata* subsp. *baetica* (Hack.) Markgr.-Dann. should be *Festuca paniculata* subsp. *moleroi* (Cebolla & Rivas Ponce) Rivas Mart., A. Asensi, Molero & F. Valle

Festucion merinoi Rivas-Martínez & Sánchez-Mata in Rivas-Martínez, Sánchez-Mata & Fernández-González 1986 corr. Rivas-Martínez & Sánchez-Mata hoc loco (57.2)
[*Festucion elegantis* Rivas-Martínez & Sánchez-Mata in Rivas-Martínez, Sánchez-Mata & Fernández-González in Opusc. Bot. Pharm. Complut. 2: 59. 1986 (art. 43)]

Taxonomic correction: *Festuca elegans* Boiss. should be *Festuca elegans* subsp. *merinoi* (Pau) Fuente & Ortúñez

Festuco andres-molinae-Brachypodietum phoenicoidis Rivas Goday & Borja 1961 corr. hoc loco (51.3.4)
[*Festuco trichophyllae-Brachypodietum phoenicoidis* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 215, tb. 48. 1961 (art. 43)]

Taxonomic correction: *Festuca rubra* var. *trichophylla* Gaudin should be *Festuca marginata* subsp. *andres-molinae* Fuente & Ortúñez

Festuco andres-molinae-Saturejetum montanae G. Montserrat 2000 corr. hoc loco (51.4.4)
[*Festuco indigestae-Saturejetum montanae* G. Montserrat in Actas Congr. Bot. F. Loscos (Teruel): 743, tb. 2. 2000 (art. 43)]

Taxonomic correction: *Festuca indigesta* Boiss. should be *Festuca marginata* subsp. *andres-molinae* Fuente & Ortúñez

Festuco braun-blanquetii-Quercetum pyrenaicae Br.-Bl. 1967 corr. hoc loco (76.7.5)
[*Festuco heterophyllae-Quercetum pyrenaicae* Br.-Bl. in Vegetatio 14(1-4): 96, tb. 29. 1967 (art. 43)]

Taxonomic correction: *Festuca heterophylla* Lam. should be *Festuca braun-blanquetii* (Fuente, Ortúñez & Ferrero) Rivas Mart., Fern. Gonz. & Loidi

Festuco microphyllae-Bellardiochloetum variegatae Vigo 1984 nom. corr. et nom. inv. hoc loco (60.1.2)
[*Bellardiochloa-Festucetum nigrescentis* Vigo in Collect. Bot. (Barcelona) 15: 461, tb. 4. 1984 (art. 42, 43)]

Taxonomic correction: *Festuca nigrescens* Lam. should be *Festuca nigrescens* subsp. *microphylla* (St.-Yves) Markgr.-Dann.

Frankenio ericifoliae-Zygophylletum fontanesii Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. Santos hoc loco (19.4.1)

[*Frankenio capitatae-Zygophylletum fontanesii* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in *Itinera Geobot.* 7: 326, tb. 58A. 1993 (art. 43)]

Taxonomic correction: *Frankenia capitata* Webb should be *Frankenia ericifolia* Chr.P. Sm. ex DC.

Galio pyrenaici-Salicetum fontqueri Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 corr. hoc loco (33.4.2)

[*Galio pyrenaici-Salicetum breviserratae* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas, *Veg. Alta Mont. Cantábrica: Los Picos de Europa*: 165, tb. 45. 1984 (art. 43)]

Taxonomic correction: *Salix breviserrata* Flod. should be *Salix breviserrata* subsp. *fontqueri* T.E. Díaz, Fern. Prieto & Nava

Galio rotundifolii-Pinetum pyrenaicae Gruber 1997 corr. hoc loco (74.3.9)

[*Galio rotundifolii-Pinetum sylvestris* Gruber in *Bull. Soc. Hist. Nat. Toulouse* 133: 16, tb. 1997 (art. 43)]

Taxonomic correction: *Pinus sylvestris* L. should be *Pinus sylvestris* var. *pyrenaica* Svob.

Gaudinio verticicolae-Hordeion bulbosi Galán, Deil, Haug & Vicente 1997 corr. hoc loco (59.9)

[*Gaudinio fragilis-Hordeion bulbosi* Galán, Deil, Haug & Vicente in *Acta Bot. Malacitana* 22: 155. 1997 (art. 43)]

Taxonomic correction: *Gaudinia fragilis* (L.) P. Beauv. should be *Gaudinia fragilis* var. *verticicola* Rivas Mart. & A. Galán

Genisto scorpii-Berberidetum seroi O. Bolòs (1954) 1997 corr. hoc loco (66.1.9)

[*Genisto scorpii-Berberidetum vulgaris* O. Bolòs (1954) 1997 in *Acta Bot. Barcinon.* 44: 207 (art. 43)]

Taxonomic correction: *Berberis vulgaris* L. should be *Berberis hispanica* subsp. *seroi* (O. Bolòs & Vigo) Rivas Mart., Loidi & Arnaiz

Geo urbani-Coryletum avellanae F. Valle, Mota & Gómez-Mercado 1986 corr. Gómez-Mercado hoc loco (76.10.5)

[*Geo heterocarpus-Coryletum avellanae* F. Valle, Mota & Gómez-Mercado, *Actas del II Simposio sobre el agua en Andalucía*, vol 2: 567. 1986 (art. 43)]

Taxonomic correction: *Geum heterocarpum* Boiss. should be *Geum urbanum* L.

Geranio rotundifolii-Theligonetum cynocrambes Rivas-Martínez & Malato-Beliz in Rivas-Martínez 1978 Rivas-Martínez corr. hoc loco (41.3.6)

[*Geranio pusilli-Theligonetum cynocrambes* Rivas-Martínez & Malato-Beliz in Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 34(2): 568, tb. 5, rel. 5 (holotypus) 1978 (art. 43)]

Taxonomic correction: *Geranium pusillum* Burm.f. should be *Geranium rotundifolium* L.

Gypsophiletum tomentosae Br.-Bl. & O. Bolòs 1958 corr. hoc loco (23.7.1)

[*Gypsophiletum perfoliatae* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 96, tb. 20. 1958 (art. 43), *Senecio auriculae-Gypsophiletum tomentosae* Br.-Bl. & O. Bolòs 1958 corr. Peinado & Martínez-Parras in *Lazaroa* 4: 134. 1983 (art. 29), (holotypus of *Gypsophilenion tomentosae* Peinado & Martínez-Parras in *Lazaroa* 4: 134. 1983 (corresp. name) of *Limonion catalaunico-viciosoi* Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 24. 1984), *Gypsophiletum ilderdensis* Br.-Bl. & O. Bolòs 1958 corr. O. Bolòs & Vigo, *Flora dels Països Catalans* 1: 63. 1984]

Taxonomic correction: *Gypsophila perfoliata* auct. should be *Gypsophila tomentosa* L.

Halimio alyssoidis-Ulicetum breoganii (Rivas-Martínez 1979) Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 corr. hoc loco (61.4.8)

[*Daboecio-Ulicetum gallii halimietosum alyssoidis* Rivas-Martínez in *Lazaroa* 1: 30, tb. 2. 1979 (art. 27), *Halimio alyssoidis-Ulicetum gallii* (Rivas-Martínez 1979) Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas in *Veg. Alta Mont. Cantábrica*: 128. 1984 (art. 43)]

Taxonomic correction: *Ulex gallii* Planch. should be *Ulex gallii* subsp. *breoganii* (Castrov. & Valdés Berm.) Rivas Mart., T.E. Díaz, Fern. Prieto, Loidi & Penas

Hypecoo imberbis-Iondrabetum auriculatae Esteve 1973 corr. hoc loco (39.2.6)

[*Hypecoo pseudograndiflori-Iondrabetum auriculatae* Esteve in *Veg. Fl. Reg. Centr. Mer. Murcia*: 100, c. 4 (tb. 9). 1973 (art. 43)]

Taxonomic correction: *Hypecoum pseudograndiflorum* Petrovic should be *Hypecoum imberbe* Sm.

Ixantho viscosae-Laurion novocanariensis Oberdorfer ex Santos in Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 corr. hoc loco (82.4)

[*Laurion macaronesicum* Rübel, *Pflanzengesellschaften der Erde*. 1930 (art. 2b, 8), *Laurion macaronesicum* Rübel ex Oberdorfer in *Beitr. Naturk. Forsch. Südwestdeutschl.* 24(1): 67, tb. 4. 1965 (art. 8, 34), *Ixantho-Laurion azoricae* Oberdorfer ex Santos in Rivas-Martínez, Arnaiz, Barreno & A. Crespo in *Opusc. Bot. Pharm. Complut.* 1: 38 1977 (art. 43)]

Taxonomic correction: *Laurus azorica* (Seub.) Franco should be *Laurus novocanariensis* nom. nov. (*Laurus canariensis* Webb & Berthel., non Willd.)

Jasiono centralis-Minuartietum juressi Rivas-Martínez 1981 corr. hoc loco (49.3.3)

[*Jasiono centralis-Minuartietum bigerrensis* Rivas-Martínez in *Anales Real Acad. Farm.* 47: 451, tb. 9. 1981 (art. 43)]

Taxonomic correction: *Minuartia recurva* var. *bigerrensis* Pau should be *Minuartia recurva* subsp. *juressi* (Willd. ex Schlecht.) Mattf.

Junipero phoeniceae-Pinetum mauretanicae F. Valle, Mota & Gómez-Mercado 1989 corr. Rivas-Martínez & J.A. Molina hoc loco (74.1.2)

[*Junipero phoeniceae-Pinetum salzmannii* F. Valle, Mota & Gómez-Mercado in *Doc. Phytosoc.* 11: 460, tb. 1. 1989 (art. 43)]

Taxonomic correction: *Pinus nigra* subsp. *salzmannii* (Dunal) Franco should be *Pinus nigra* subsp. *mauretanic* (Maire & Peyérimh.) Heywood

Junipero sabinae-Pinetum ibericae Rivas Goday & Borja 1961 corr. Rivas-Martínez & J.A. Molina hoc loco (74.1.4)

[*Junipero sabinae-Pinetum sylvestris* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 56, tb. 6. 1961 (art. 43)]

Taxonomic correction: *Pinus sylvestris* L. should be *Pinus sylvestris* var. *iberica* Svob.

Lauro novocanariensis-Perseetum indicae Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & Cerspo 1977 corr. hoc loco (82.4.3)

[*Lauro azoricae-Perseetum indicae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 (art. 10d, 43)]

Taxonomic correction: *Laurus azorica* (Seub.) Franco should be *Laurus novocanariensis* nom. nov. (*Laurus canariensis* Webb & Berthel., non Willd.)

Ligustro vulgaris-Berberidetum seroi Rivas-Martínez & G. López in G. López 1976 corr. hoc loco (66.1.10)

[*Ligustro-Berberidetum hispanicae* Rivas-Martínez & G. López in G. López in *Anales Inst. Bot. Cavanilles* 33: 54, tb. 15. 1976 (art. 43)]

Taxonomic correction: *Berberis hispanica* Boiss. & Reut. should be *Berberis hispanica* subsp. *seroi* (O. Bolòs & Vigo) Rivas Mart., Loidi & Arnaiz

Limonietum pseudebusitani Rivas-Martínez, Costa & Loidi 1992 corr. hoc loco (19.1.13)

[*Limonietum ebusitani* Rivas-Martínez, Costa & Loidi in *Itinera Geobot.* 6: 149, tb. 18. 1992 (art. 43)]

Taxonomic correction: *Limonium ebusitanum* (Font Quer) Font Quer should be *Limonium pseudebusitanum* Erben

Limonio dodartii-Frankenietum laevis Izco & J.M. Sánchez 1997 corr. T.E. Díaz, Nava & A.R. García corr. hoc loco (20.5.3)

[*Limonio binervosi-Frankenietum laevis* Izco & J.M. Sánchez in *Thalassas* 12: 70. 1997 (art. 43)]

Taxonomic correction: *Limonium binervosum* (G.E.Sm.) C.E. Samon should be *Limonium dodartii* (Girard) Kuntze

Lino differentis-Lepidietum subulati Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. hoc loco (64.9.6)

[*Lino suffruticosi-Lepidietum subulati* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 14: 469, tb. 5. 1957 (art. 43)]

Taxonomic correction: *Linum suffruticosum* L. should be *Linum suffruticosum* subsp. *differens* (Pau) Rivas Goday & Rivas Mart.

Loto cretici-Ammophiletum australis Rivas-Martínez 1965 corr. hoc loco (16.1.1)

[*Loto-Ammophiletum* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 401. 1965 (art. 43)]

Taxonomic correction: *Ammophila arenaria* subsp. *arundinacea* (Husnot) H. Lindb., nom. illeg. (= *Ammophila arenaria* (L.) Link) should be *Ammophila arenaria* subsp. *australis* (Mabille) M. Láinz

Nicotiano glaucae-Onopordetum micropteri O. Bolòs 1957 corr. Alcaraz hoc loco (34.10.8)

[*Nicotiano glaucae-Onopordetum macracanthi* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 550. 1957 (art. 43)]

Taxonomic correction: *Onopordum macrocanthum* Schousb. should be *Onopordum macrocanthum* subsp. *micropterum* (Pau) Mateo & M.B. Crespo [*Onopordum micropterum* Pau]

Ononido aragonensis-Berberidetum seroi Rivas Goday & Borja 1961 corr. hoc loco (66.1.12)

[*Ononido aragonensis-Berberidetum hispanicae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 69, tb. 8. 1961 (art. 43)]

Taxonomic correction: *Berberis hispanica* Boiss. & Reut. subsp. *hispanica* should be *Berberis hispanica* subsp. *seroi* (O. Bolòs & Vigo) Rivas Mart., Loidi & Arnaiz

Ononido aragonensis-Pinetum ibericae (Rivas Goday & Borja 1961) Rivas-Martínez 1969 corr. hoc loco (74.1.5)

[*Ononido aragonensis-Pinetum sylvestris* (Rivas Goday & Borja 1961) Rivas-Martínez in Publ. Inst. Biol. Aplicada 46: 24. 1969 (art. 43)]

Taxonomic correction: *Pinus sylvestris* L. should be *Pinus sylvestris* var. *iberica* Svob.

Onopordetum castellani Br.-Bl. & O. Bolòs 1958 corr. hoc loco (34.10.11)

[*Onopordetum arabici* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 61, tb. 6. 1958 (art. 43), *Onopordetum nervosi* Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez in Anales Inst. Bot. Cavanilles 32: 1519. 1975 (art. 43)]

Taxonomic correction: *Onopordum arabicum* auct. should be *Onopordum nervosum* subsp. *castellanum* G. González, Pérez Morales, Penas & Rivas Mart.

Onopordion castellani Br.-Bl. & O. Bolòs 1958 corr. hoc loco (34.10)

[*Onopordion arabici* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 61. 1958 (art. 43), *Onopordion nervosi* Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez in Anales Inst. Bot. Cavanilles 32: 1519. 1975 (art. 43)]

Taxonomic correction: *Onopordum arabicum* auct. should be *Onopordum nervosum* subsp. *castellanum* G. González, Pérez Morales, Penas & Rivas Mart.

Oxyrio digynae-Doronicetum pyrenaici Chouard 1943 corr. hoc loco (33.3.3)

[ass. à *Oxyria digyna* et *Aronicum scorpioides* Chouard in Bull. Soc. Bot. France 90: 2. 1943 (art. 10, 43)]

Taxonomic correction: *Aronicum scorpioides* DC. should be *Doronicum pyrenaicum* (J. Gay ex Gren. & Godr.) Rivas Mart.

Petrocoptidetum hispanicae O. Bolòs & P. Montserrat ex F. Casas 1970 corr. Rivas-Martínez, Cantó & Izco hoc loco (29.3.5)

[*Petrocoptidetum crassifoliae* O. Bolòs & P. Montserrat ex F. Casas in Ars. Pharm. 11: 274. 1970 (art. 43), *Petrocoptidetum crassifoliae* sensu O. Bolòs & P. Montserrat in Lazaroa 5: 89. 1984 non F. Casas in Cuad. Ci. Biol. (Granada) 3: 92. 1974 (art. 31)]

Taxonomic correction: *Petrocoptis crassifolia* Rouy should be *Petrocoptis hispanica* (Willk.) Pau

Petrocoptido montsiccianae-Antirrhinetum mollis O. Bolòs 1954 corr. hoc loco (29.3.10)

[*Petrocoptido pardoii-Antirrhinetum mollis* O. Bolòs in Collect. Bot. (Barcelona) 4(2): 253. 1954 (art. 43)]

Taxonomic correction: *Petrocoptis pardoii* Pau should be *Petrocoptis montsicciana* O. Bolòs & Rivas Mart.

Pino acutisquamae-Juniperion phoeniceae A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo 1998 corr. hoc loco (75.14)

[*Pino pinastri-Juniperion phoeniceae* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo in Acta Bot. Malacitana 23: 153. 1998 (art. 43)]

Taxonomic correction: *Pinus pinaster* Aiton should be *Pinus pinaster* subsp. *acutisquama* (Boiss.) Rivas Mart., A. Asensi, Molero Mesa & F. Valle

Plantagini radicatae-Festucetum indigestae Martínez-Parras, Peinado & Alcaraz 1987 corr. hoc loco (49.5.10)

[*Plantagini radicatae-Festucetum aragonensis* Martínez-Parras, Peinado & Alcaraz in Monogr. Univ. Alcalá Henares 1: 48. 1987 (art. 43)]

Taxonomic correction: *Festuca indigesta* var. *aragonensis* Willk. [= *Festuca aragonensis* (Willk.) Fuente & Ortúñez] should be *Festuca indigesta* Boiss.

Potamo-Utricularietum australis Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 corr. hoc loco (3.6.2)

[*Potamo-Utricularietum vulgaris* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 76. 1952 (art. 43)]

Taxonomic correction: *Utricularia vulgaris* L. should be *Utricularia australis* R.Br.

Potentillo anglicae-Agrostietum azoricae Lüpnitz 1975 corr. hoc loco (60.5.2)

[*Potentillo rectae-Agrostietum castellanae* Lüpnitz in Bot. Jahrb. 95(2): 162, tb. 3. 1975 (art. 43)]

Taxonomic correction: *Potentilla recta* L. should be *Potentilla anglica* Laichard and *Agrostis castellana* Boiss. & Reut. should be *Agrostis azorica* (Seub.) Tutin & E.F. Warburg.

Potentillo montanae-Brachypodium rupestre Br.-Bl. 1967 corr. hoc loco (51.1)

[*Potentillo-Brachypodium pinnati* Br.-Bl. in Vegetatio 14(1-4): 58. 1967 (art. 43)]

Taxonomic correction: *Brachypodium pinnatum* (L.) P. Beauv. should be *Brachypodium rupestre* (Host) Roem. & Schult.

Potentillo palustris-Caricetum nigrae F. Prieto, M.C. Fernández & Collado 1987 corr. hoc loco (14.2.12)

[*Potentillo palustris-Caricetum carpetanae* F. Prieto, M.C. Fernández & Collado in Lazaroa 7: 459, tb. 8. 1987 (art. 45)]

Taxonomic correction: *Carex fusca* var. *carpetana* C. Vicioso, nom. illeg. (*Carex nigra* subsp. *iberica* Rivas Mart.) should be *Carex nigra* (L.) Reichard

Pruno hixae-Lauretalia novocanariensis Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 corr. hoc loco (82b)

[*Pruno-Lauretalia azoricae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo in Opusc. Bot. Pharm. Complut. 1: 38. 1977 (art. 43)]

Taxonomic correction: *Laurus azorica* (Seub.) Franco should be *Laurus novocanariensis* nom. nov. (*Laurus canariensis* Webb & Berthel., non Willd.)

Pruno hixae-Lauretea novocanariensis Oberdorfer 1965 corr. hoc loco (82)

[*Pruno lusitanicae-Lauretea canariensis* Oberdorfer 1965 in Beitr. Naturk. Forsch. Südwestdeutschl. 24(1): 72. 1965 (art. 43), *Pruno-Lauretea azoricae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo in Opusc. Bot. Pharm. Complut. 1: 38. 1977 (nomencl. syn.)]

Taxonomic correction: *Laurus azorica* (Seub.) Franco should be *Laurus novocanariensis* nom. nov. (*Laurus canariensis* Webb & Berthel., non Willd.)

Pterosparto lasianthi-Ericetum aragonensis Rothmaler 1954 em. Rivas-Martínez 1979 corr. hoc loco (61.2.4)

[*Pterosparto tridentati-Ericetum aragonensis* Rothmaler in Vegetatio 5-6: 598. 1954 (art. 43)]

Taxonomic correction: *Pterospartum tridentatum* (L.) Willk. in Willk. & Lange et *Pterospartum cantabricum* (Spach) Willk. should be *Pterospartum lasianthum* (Spach) Willk.

Pterosparto lasianthi-Ericetum cinereae Rothmaler 1954 corr. hoc loco (61.2.19)

[*Pterosparto tridentati-Ericetum cinereae* Rothmaler in Vegetatio 5-6: 598. 1954 (art. 43)]

Taxonomic correction: *Pterospartum tridentatum* (L.) Willk. in Willk. & Lange et *Pterospartum cantabricum* (Spach) Willk. should be *Pterospartum lasianthum* (Spach) Willk.

Puccinellio caespitosae-Suaedetum braun-blanquetii Rivas-Martínez & Costa 1984 corr. hoc loco (23.3.4)

[*Puccinellio tenuifoliae-Suaedetum brevifoliae* Rivas-Martínez & Costa in Doc. Phytosoc. 8: 20. 1984 (art. 43)]

Taxonomic correction: *Puccinellia tenuifolia* (Boiss. & Reut.) H. Lindb. (*P. stenophylla* Kerguélen) should be *Puccinellia caespitosa* G. Monts. & J.M. Monts. and *Suaeda fruticosa* var. *brevifolia* auct. should be *Suaeda vera* var. *braun-blanquetii* Castrov. & Pedrol (≡*Suaeda braun-blanquetii* (Castrov. & Pedrol) Rivas Mart., Cantó & Sánchez Mata)

Puccinellion caespitosae Rivas-Martínez in Rivas-Martínez & Costa 1976 corr. hoc loco (20.3)

[*Puccinellion fasciculatae* Rivas-Martínez in Rivas-Martínez & Costa in Coll. Phytosociol. 4: 84. 1976 (art. 43)]

Taxonomic correction: *Puccinellia fasciculata* (Torrey) E.P. Bicknell and (*P. tenuifolia* (Boiss. & Reut.) H. Lindb. should be *Puccinellia caespitosa* G. Monts. & J.M. Monts.

Puccinellietum caespitosae Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. hoc loco (20.3.4)

[*Puccinellietum convolutae* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez in Anales Inst. Bot. Cavanilles 13(2): 393, tb. 24. 1956 (art. 43)]

Taxonomic correction: *Puccinellia convoluta* (Hornem.) Hayek should be *Puccinellia caespitosa* G. Monts. & J. M. Monts.

Puccinellio caespitosae-Artemisietum gargantae Cirujano 1981 corr. hoc loco (20.3.5)

[*Puccinellio fasciculatae-Artemisietum gallicae* Cirujano in *Anales Jard. Bot. Madrid* 38(1): 221, tb. 20. 1981 (art. 43)]

Taxonomic correction: *Puccinella fasciculata* (Torr.) E.P. Bicknell should be *Puccinellia caespitosa* G. Monts. & J.M. Monts. and *Artemisia gallica* Willd. should be *Artemisia gallica* subsp. *gargantae* (Seoane-Camba & Vallès-Xirau) Rivas Mart. & Cantó

Puccinellio caespitosae-Arthrocnemetum macrostachyi Castroviejo & Cirujano 1980 corr. hoc loco (23.3.3)

[*Puccinellio fasciculatae-Arthrocnemetum macrostachyi* Castroviejo & Cirujano in *Anales Jard. Bot. Madrid* 37(1): 145, tb. 2. 1980 (art. 43)]

Taxonomic correction: *Puccinellia fasciculata* (Torr.) E.P. Bicknell should be *Puccinellia caespitosa* G. Monts. & J.M. Monts.

Puccinellio caespitosae-Sarcocornietum alpini Castroviejo & Cirujano 1980 corr. hoc loco (23.3.2)

[*Puccinellio fasciculatae-Sarcocornietum alpini* Castroviejo & Cirujano in *Anales Jard. Bot. Madrid* 37(1): 144, tb. 1. 1980 (art. 43)]

Taxonomic correction: *Puccinella fasciculata* (Torr.) E.P. Bicknell should be *Puccinellia caespitosa* G. Monts. & J.M. Monts.

Reichardio gracilis-Stipetum capensis Rivas-Martínez, Costa & Loidi 1992 corr. hoc loco (39.13.13)

[*Reichardio picroidis-Stipetum capensis* Rivas-Martínez, Costa & Loidi in *Itinera Geobot.* 6: 178, tb. 45. 1992 (art. 43)]

Taxonomic correction: *Reichardia picroides* (L.) Roth should be *Reichardia intermedia* subsp. *gracilis* (Sch.Bip. in Webb & Berthel.) Rivas Mart.

Rubo lainzii-Salicetum atrocineriae Rivas-Martínez 1965 corr. hoc loco (71.3.7)

[*Rubo corylifolii-Salicetum atrocineriae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 368. 1965 (art. 43)]

Taxonomic correction: *Rubus corylifolius* Sm. should be *Rubus lainzii* H.E. Weber

Rumici pseudalpini-Chenopodietum boni-henrici Carrillo & Vigo 1984 corr. hoc loco (34.2.1)

[*Rumici alpini-Chenopodietum boni-henrici* Carrillo & Vigo in *Collect. Bot. (Barcelona)* 15: 145, tb. 1. 1984 (art. 43)]

Taxonomic correction: *Rumex alpinus* auct., non L. (1753) should be *Rumex pseudalpinus* Höfft

Salicion discolori-neotrichae Br.-Bl. & O. Bolòs 1958 corr. hoc loco (71.6)

[*Salicion triandro-neotrichae* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 205. 1958]

Taxonomic correction: *Salix triandra* L. subsp. *triandra* should be *Salix triandra* subsp. *discolor* (Wimm. & Grab.) Arcang.

Sarcocapnetum pulcherrimae Cuatrecasas ex Esteve & F. Casas 1971 corr. Rivas-Martínez, Cantó & Izco hoc loco (29.2.7)

[*Sarcocapnetum crassifoliae* Cuatrecasas ex Esteve & F. Casas in Cuad. Ci. Biol. 1: 68. 1971 (art. 43)]

Taxonomic correction: *Sarcocapnos crassifolia* (Desf.) DC. should be *Sarcocapnos pulcherrima* C. Morales & Romero García

Sarcocapnion pulcherrimae F. Casas 1972 corr. Rivas-Martínez, Cantó & Izco hoc loco (29.2)

[*Sarcocapnion crassifoliae* F. Casas in Trab. Dep. Bot. Univ. Granada 1: 26. 1972 (art. 43), holotypus: *Sarcocapnetum crassifoliae* Cuatrecasas ex Esteve & F. Casas in Cuad. Ci. Biol. 1: 68. 1971]

Taxonomic correction: *Sarcocapnos crassifolia* (Desf.) DC. should be *Sarcocapnos pulcherrima* C. Morales & Romero García

Sarcocornio perennis-Puccinellietum ibericae J.C. Costa in J.C. Costa, Lousã & Espírito-Santo 1997 corr. hoc loco (23.1.6)

[*Sarcocornio perennis-Puccinellietum convolutae* J.C. Costa in J.C. Costa, Lousã & Espírito-Santo in Studia Bot. 15: 97, tb. 8. 1997 (art. 43)]

Taxonomic correction: *Puccinellia convoluta* (Hornem.) Hayek should be *Puccinellia iberica* H. Lindb.

Saxifrago felineri-Dethawietum tenuifoliae F. Prieto 1983 corr. Rivas-Martínez & Izco hoc loco (27.3.5)

[*Saxifrago aretioidis-Dethawietum tenuifoliae* F. Prieto in Anales Jard. Bot. Madrid 39(2): 493, tb. 3. 1983 (art. 43)]

Taxonomic correction: *Saxifraga aretioides* Lapeyr. should be *Saxifraga aretioides* subsp. *felineri* (P. Vargas) Nava & Fern. Casado

Scrophulario alpestris-Aruncetum dioici Nègre 1972 corr. hoc loco, nom. mut. et nom. inv. propos. (42.1.14)

[*Spiraeo aruncus-Scrophularietum alpestris* Nègre 1972 corr. hoc loco, *Spiraeo aruncus-Scrophularietum pyrenaicae* Nègre in Bol. Soc. Brot. 46: 314, tb. 11. 1972 (art. 42, 43, 45)]

Taxonomic correction: *Scrophularia pyrenaica* Benth. should be *Scrophularia alpestris* J. Gay ex Benth. and correct used taxon name: *Aruncus dioicus* (Walter) Fernald against *Spiraea aruncus* L.

Sedo melanantheri-Saxifragetum gredensis Martínez-Parras, Peinado & Alcaraz 1987 corr. hoc loco (11.4.3)

[*Sedo melanantheri-Saxifragetum alpigenae* Martínez-Parras, Peinado & Alcaraz in Lazaroa 7: 525, tb. 6. 1987 (art. 43)]

Taxonomic correction: *Saxifraga stellaris* subsp. *alpigena* Temesy should be *Saxifraga gredensis* Rivas Mateos

Sempervivo montani-Arenarietum moehringioidis Nègre 1968 corr. hoc loco (46.1.4)

[*Sempervivo-Arenarietum ciliatae* Nègre in Portug. Acta Biol. 9 (3-4): 196. 1968 (art. 43)]

Taxonomic correction: *Arenaria ciliata* auct., non L. should be *Arenaria moehringioides* J. Murr.

Sideritido fontquerianae-Arenarietum microphyllae Rivas Goday & Borja 1961 corr. hoc loco (52.7.14)

[*Sideritido pulvinatae-Arenarietum erinaceae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 102, tb. 14. 1961 (art. 43)]

Taxonomic correction: *Sideritis glacialis* var. *pulvinata* Font Quer (nom. nud.) should be *Sideritis glacialis* subsp. *fontqueriana* Obón & D. Rivera and *Arenaria erinacea* Boiss. should be *Arenaria erinacea* subsp. *microphylla* (Pau) Rivas Mart. & J.M. Costa

Sideritido fontquerianae-Arenarion microphyllae Rivas Goday & Borja 1961 corr. hoc loco (52.7)

[*Sideritido-Arenarion microphyllae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 99. 1961, lectotypus (art. 20): *Sideritido pulvinatae-Arenarietum aggregatae microphyllae*, *Sideritido pulvinatae-Arenarion aggregatae* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 102, tb. 14. 1961 (art. 43)]

Taxonomic correction: *Sideritis glacialis* var. *pulvinata* Font Quer (nom. nud.) should be *Sideritis glacialis* subsp. *fontqueriana* Obón & D. Rivera and *Arenaria erinacea* Boiss. should be *Arenaria erinacea* subsp. *microphylla* (Pau) Rivas Mart. & J.M. Costa

Sileno melliferae-Quercetum faginae Rivas Goday & Borja in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 corr. hoc loco (76.10.8)

[*Sileno-Quercetum valentinae* Rivas Goday & Borja in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in Anales Inst. Bot. Cavanilles 17(2): 384, tb. 17. 1960 (art. 43)]

Taxonomic correction: *Quercus valentina* Cav. (*Quercus lusitanica* Lam.) should be *Quercus faginea* Lam.

Sisymbrio irionis-Sinapietum mairei P. Prieto, Espinosa & S. Fernández 1973 corr. hoc loco (39.16.14)

[ass. de *Sinapis alba* y *Sisymbrium irio* P. Prieto, Espinosa & S. Fernández in Trab. Dep. Bot. Univ. Granada 2(2): 97. 1973 (art. 43)]

Taxonomic correction: *Sinapis alba* L. should be *Sinapis alba* subsp. *mairei* (H. Lindb.) Maire

Spiraeo aruncus-Scrophularietum alpestris Nègre 1972 corr. hoc loco (42.1.14)

[*Spiraeo aruncus-Scrophularietum pyrenaicae* Nègre in Bol. Soc. Brot. 46: 314, tb. 11. 1972 (art. 43)]

Taxonomic correction: *Scrophularia pyrenaica* Benth. should be *Scrophularia alpestris* J. Gay ex Benth.

Suaedetum albescentis Géhu 1976 corr. hoc loco (25.1.4)

[*Suaedetum prostratae* Géhu in Coll. Phytosociol. 4: 408, tb. 5. 1976 (art. 43)]

Taxonomic correction: *Suaeda prostrata* auct. should be *Suaeda albescens* Lázaro Ibiza

Teucrio homotrichi-Ulicetum parviflori Alcaraz & De la Torre 1988 corr. hoc loco (64.1.19)

[*Teucrio homotrichi-Ulicetum dianii* Alcaraz & De la Torre in Acta Bot. Malacitana 13: 336, tb. 2. 1988 (art. 43)]

Taxonomic correction: *Ulex parviflorus* var. *dianius* O. Bolòs & Vigo should be *Ulex parviflorus* Pourr. var. *parviflorus*

Typho domingensis-Phragmitetum maximi Costa, Boira, Peris & Stübing 1986 corr. hoc loco (12.1.4)

[*Typho angustifoliae-Phragmitetum maximi* Costa, Boira, Peris & Stübing in Ecol. Medit. 12 (1-2): 87, tb. 9. 1986 (art. 43)]

Taxonomic correction: *Typha angustifolia* L. should be *Typha domingensis* (Pers.) Steud.

Ulici breoganii-Ericetum mackaiana Dalda ex Rivas-Martínez 1979 corr. hoc loco (61.4.12)

[*Ulici gallii-Ericetum mackaiana* Dalda ex Rivas-Martínez in Lazaroa 1: 30, tb. 3. 1979 (art. 43)]

Taxonomic correction: *Ulex gallii* Planch. should be *Ulex gallii* subsp. *breoganii* (Castrov. & Valdés Berm.) Rivas Mart., T.E. Díaz, Fern. Prieto, Loidi & Penas

Umbilicetum rupestri-gaditani Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 corr. hoc loco (28.2.9)

[*Umbilicetum rupestri-neglecti* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 71, tb. 37. 1980 (art. 43)]

Taxonomic correction: *Umbilicus neglectus* (Cout.) Rothm. & P. Silva should be *Umbilicus gaditanus* Boiss.

Umbilico gaditani-Aeonietum urbici García Gallo & Wildpret in Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. hoc loco (31.2.20)

[*Umbilico horizontalis-Aeonietum urbici* García Gallo & Wildpret in Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in Itinera Geobot. 7: 310, tb. 51. 1993 (art. 43)]

Taxonomic correction: *Umbilicus horizontalis* (Guss.) DC. should be *Umbilicus gaditanus* Boiss.

Umbilico gaditani-Parietarietum judaicae Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. hoc loco (28.1.14)

[*Umbilico horizontalis-Parietarietum judaicae* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in Itinera Geobot. 7: 296, tb. 45. 1993 (art. 43)]

Taxonomic correction: *Umbilicus horizontalis* (Guss.) DC. should be *Umbilicus gaditanus* Boiss.

Umbilico violacei-Asplenietum corunnensis P. Silva 1970 corr. hoc loco (27.18.1)
[*Umbilico-Asplenietum cuneifolii* P. Silva in Agron. Lusit. 3-4: 288, tb. 7. 1970 (art. 43)]

Taxonomic correction: *Asplenium cuneifolium* Viv. should be *Asplenium adiantum-nigrum* subsp. *corunnense* (Christ) Rivas Mart.

Valeriano longiflorae-Petrocoptidetum guarensis F. Casas 1970 corr. hoc loco (29.3.14)

[*Valeriano longiflorae-Petrocoptidetum montsiccianae* F. Casas in Ars. Pharm. 11: 274, tb. 3. 1970 (art. 43)]

Taxonomic correction: *Petrocoptis montsicciana* O. Bolòs & Rivas Mart. should be *Petrocoptis guarensis* Fern. Casas

Veratro albi-Salicetum basalticae O. Bolòs 1984 corr. hoc loco (69.1.1)

[*Veratro-Salicetum bicoloris* O. Bolòs in Collect. Bot. (Barcelona) 15: 105, tb. 38. 1984 (art. 43)]

Taxonomic correction: *Salix bicolor* auct. pyr., non Willd. should be *Salix basaltica* H.J. Coste (pro hybr.) [= *Salix phyllicifolia* subsp. *basaltica* (H.J. Coste) O. Bolòs & Vigo]

Veronicetum cantabricae Turmel 1955 corr. hoc loco (55.2.9)

[*Veronicetum fruticosae* Turmel in Mém. Museum Natl. Hist. Nat. Paris, Sér. B, Bot. 5: 90, tb. 18. 1955 (art. 43)]

Taxonomic correction: *Veronica fruticulosa* L. should be *Veronica fruticans* subsp. *cantabrica* M. Láinz

Zygophyllo albi-Limonietum latebracteati Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 corr. hoc loco (23.5.9)

[ass. à *Statice delicatula* et *Zygophyllum album* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor in Cavanillesia 7(6-9): 99. 1935 (art. 43)]

Taxonomic correction: *Statice delicatula* Girard should be *Limonium latebracteatum* Erben

4. Nomina mutata proposita

Article 45. *Nomina mutata*: The name of a syntaxon that is formed from a taxon name that is no longer used in the most important taxonomic and floristic literature of the past 20 years, or is only quoted as a synonym, may be proposed with corresponding reasons to the Nomenclature Commission to adapt this name to the contemporary taxonomic nomenclature. The corrected name (*nomen mutatum*) retains the original author citation. The publication of a *nomen mutatum* remains provisional (*nomen mutatum propositum*, 'nom. mut. propos.')

until the Nomenclature Commission publishes its adoption or rejection. The adopted *nomina mutata* as well as the rejected ones will be included in App. V of the Code.

The correction is forbidden when it would form a later homonym of an earlier validly published name. In such a case, the next older name of the given syntaxon that is in accordance with the Rules must be adopted to replace the name to be corrected. If no such name is available a new name (*nomen novum*, see Art. 39) must be formed according to the Rules.

Achilleo odoratae-Dichanthietum ischaemi Vigo 1968 nom. mut. propos. (51.4.1)
[*Achilleo odoratae-Bothriochloetum ischaemi* Vigo in Collect. Bot. (Barcelona) 7(2): 1182. 1968 (art. 45)]

Correct used taxon name: *Dichanthium ischaemum* (L.) Roberty against *Bothriochloa ischaemum* (L.) Keng

Achnatheretalia calamagrostis Oberdorfer & Seibert in Oberdorfer 1977 nom. mut. propos. (33e)

[*Stipetalia calamagrostis* Oberdorfer & Seibert in Oberdorfer, Süddeutsch. Pflanzenges. 1: 59. 1977 (art. 45)]

Correct used taxon name: *Achnatherum calamagrostis* (L.) P. Beauv. against *Stipa calamagrostis* (L.) Wahlenb.

Achnatherion calamagrostis Jenny in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (33.14)

[*Stipion calamagrostis* Jenny in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 37. 1952 (art. 45)]

Correct used taxon name: *Achnatherum calamagrostis* (L.) P. Beauv. against *Stipa calamagrostis* (L.) Wahlenb.

Achnathero calamagrostis-Pimpinnetum puberulae Rivas Goday & Borja 1961 nom. mut. propos. (33.14.9)

[*Stipo calamagrostis-Pimpinnetum puberulae* Rivas Goday & Borja in Anales Inst. Bot. Cavani- lles 19: 152. 1961 (art. 45)]

Correct used taxon name: *Achnatherum calamagrostis* (L.) P. Beauv. against *Stipa calamagrostis* (L.) Wahlenb.

Aconito burnatii-Senecionetum elodis Quézel 1953 nom. mut. propos. (42.2.1)

[ass. à *Aconitum napellus* var. *nevadensis* et *Senecio elodes* Quézel in Mem. Soc. Brot. 9: 68. 1953 = *Aconito nevadensis-Senecionetum elodis* (art. 45)]

Correct used taxon name: *Aconitum burnatii* Gáyer against *Aconitum napellus* var. *nevadense* Uechtr. ex Gáyer.

Agrostion pourretii Rivas Goday 1958 nom. mut. propos. (9.3)

[*Agrostion salmanticae* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 612. 1958 (art. 45), *Pre-Isoetion* Rivas Goday in Anales Inst. Bot. Cavanilles 14: 513. 1957 (art. 3b)]

Correct used taxon name: *Agrostis pourretii* Willd. against *Agrostis salmantica* (Lag.) Kunth

Anogrammo leptophyllae-Davallietum canariensis Bellot & Casaseca in Casaseca 1959 nom. mut. propos. (30.2.2)

[*Gymnogrammo leptophyllae-Davallietum canariensis* Bellot & Casaseca in Casaseca 1959 (art. 45), *Gymnogramma leptophylla-Davallia canariensis* ass. Bellot & Casaseca in Casaseca in Bol. Univ. Compos. 67: 297. 1959 (art. 14)]

Correct used taxon name: *Anogramma leptophylla* (L.) Link against *Gymnogramma leptophylla* (L.) Desv.

Aphyllantho monspeliensis-Seslerietum caeruleae O. Bolòs 1956 nom. mut. propos. (51.2.3)

[*Aphyllantho-Seslerietum calcareae* O. Bolòs in Collect. Bot. (Barcelona) 10: 108, tb. 1. 1956 (art. 45)]

Correct used taxon name: *Sesleria caerulea* (L.) Ard. against *Sesleria calcarea* (Pers.) Opiz

Arabido glabrae-Rhamnetum alpinae O. Bolòs 1962 nom. mut. propos. (66.1.6)

[*Turritido glabrae-Rhamnetum alpinae* O. Bolòs, Actas III Congr. Intern. Estud. Pirenaicos: 43. 1962 (art. 45)]

Correct used taxon name: *Arabis glabra* (L.) Bernh. against *Turritis glabra* L.

Arenario grandiflorae-Festucetum yvesii Baudière & Serve 1975 nom. mut. propos. (46.1.1)

[*Arenario grandiflorae-Festucetum durissimae* Baudière & Serve, Actes 96e Congr. Nat. Soc. Sav.: 91. 1975 (art. 45)]

Correct used taxon name: *Festuca yvesii* Sennen & Pau against *Festuca durissima* (Hack.) D. Prain

Arenario intricatae-Polypodietum cambrici M.B. Crespo 1993 nom. mut. propos. (30.1.10 = 30.1.2)

[*Arenario intricatae-Polypodietum serrulati* M.B. Crespo in Ecol. Medit. 19: 1. 1993 (art. 45)]

Correct used taxon name: *Polypodium cambricum* L. against *Polypodium vulgare* subsp. *serrulatum* Arcang.

Aristido coerulescentis-Hyparrhenietum sinaicae Rivas-Martínez & Alcaraz in Alcaraz 1984 nom. mut. propos. (56.7.3)

[*Aristido coerulescentis-Hyparrhenietum pubescentis* Rivas-Martínez & Alcaraz in Alcaraz, Fl. Veg. NE Murcia: 279, tb. 58. 1984 (art. 45)]

Correct used taxon name: *Hyparrhenia sinaica* (Delile) Llauradó ex G. López against *Hyparrhenia hirta* subsp. *pubescens* (Vis.) Paunero

Artemisio gallicae-Limonietum virgati Br.-Bl. 1933 nom. mut. propos. (23.5.1)

[*Artemisio gallicae-Staticetum virgatae* Br.-Bl. 1933 (art. 45), ass. à *Statice virgata* et *Artemisia gallica* Br.-Bl., Prodr. Group. Vég. 1: 19. 1933 (art. 14)]

Correct used taxon name: *Limonium virgatum* (Willd.) Fourr. against *Statice virgata* Willd.

Arthrocnemion macrostachyi Rivas-Martínez & Costa 1984 nom. mut. propos. (23.2)

[*Arthrocnemion glauci* Rivas-Martínez & Costa in Doc. Phytosoc. 8: 18. 1984 (art. 45)]

Correct used taxon name: *Arthrocnemum macrostachyum* (Moris.) Moris against *Arthrocnemum glaucum* Ung.Stenb.

Arunco dioici-Scrophularietum alpestris Nègre 1972 nom. corr. et nom. mut. propos. (42.1.14)

[*Spiraea aruncus-Scrophularietum alpestris* Nègre in Bol. Soc. Brot. 46: 314, tb. 11. 1972 corr. hoc loco (art. 45)]

Correct used taxon name: *Aruncus dioicus* (Walter) Fernald against *Spiraea aruncus* L.

Asplenietalia petrarchae Br.-Bl. in Meier & Br.-Bl. 1934 nom. mut. propos. (27c)

[*Asplenietalia glandulosi* Br.-Bl. in Meier & Br.-Bl., Prod. Group. Vég. 2. 1934 (art. 45)]

Correct used taxon name: *Asplenium petrarchae* (Guérin) DC. against *Asplenium glandulosum* Loisel.

Asplenio billotii-Cheilantheum tinaei Rivas-Martínez & Costa 1973 corr. Sáenz & Rivas-Martínez 1979 nom. mut. propos. (27.8.2)

[*Asplenio billotii-Cheilantheum duriensis* Rivas-Martínez & Costa 1973 corr. Sáenz & Rivas-Martínez 1979 in Lagasalia 8(2): 235. 1979 (art. 45)]

Correct used taxon name: *Cheilanthes tinaei* Tod. against *Cheilanthes x duriensis* Mendonça & Vasc.

Asplenio csikii-Sarcocapnetum enneaphyllae F.J. Pérez, T.E. Díaz & P. Fernández 1990 nom. mut. propos. (29.1.4)

[*Asplenio pachyrachidis-Sarcocapnetum enneaphyllae* F.J. Pérez, T.E. Díaz & P. Fernández in Monogr. Inst. Piren. Ecol. (Jaca) 5: 571, tb. 1. 1990 (art. 45)]

Correct used taxon name: *Asplenium csikii* Kummerle & Andrásovszky against *Asplenium trichomanes* subsp. *pachyrachis* (Christ) Lovis & Reichst.

Asplenion petrarchae Br.-Bl. in Meier & Br.-Bl. 1934 nom. mut. propos. (27.11)

[*Asplenion glandulosi* Br.-Bl. in Meier & Br.-Bl., Prodr. Group. Vég. 2. 1934 (art. 45)]

Correct used taxon name: *Asplenium petrarchae* (Guérin) DC. against *Asplenium glandulosum* Loisel.

Astragalo austriaci-Ononidetum cristatae Rivas Goday & Borja 1961 nom. mut. propos. (52.7.3)

[*Astragalo austriaci-Ononidetum cenisiae* Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 190, tb. 41. 1961 (art. 45)]

Correct used taxon name: *Ononis cristata* Mill. against *Ononis cenisia* L.

Astragalo granatensis-Festucetum hystricis Quézel 1953 nom. mut. propos. (64.8.2)

[*Astragalo boissieri-Festucetum hystricis* Quézel in *Mem. Soc. Brot.* 9: 21. 1953 (art. 45)]

Correct used taxon name: *Astragalus granatensis* Lam. against *Astragalus boissieri* Fisch.

Astragalo tragacanthae-Cistetum repentis Franquesa 1995 nom. mut. propos. (19.5.1)

[*Astragalo massiliensis-Cistetum repentis* Franquesa in *Arxius Secc. Ci. Inst. Estud. Catalans* 109: 153, tb. 49. 1995 (art. 45), *Cisto repentis-Astragaletum tragacanthae* Franquesa 1995 nom. inv. (art. 42)]

Correct used taxon name: *Astragalus tragacantha* L. against *Astragalus massiliensis* (Mill.) Lam.

Azorinetum vidalii Lüpnitz 1976 nom. mut. propos. (20.7.1)

[*Campanuletum vidalii* Lüpnitz in *Beitr. Biol. Pflanzen* 51: 198, tb. 8 1976 (art. 45)]

Correct used taxon name: *Azorina vidalii* (H.C. Watson) Feer against *Campanula vidalii* H.C. Watson

Berberido hispanicae-Quercetum pyrenaicae F. Valle, Gómez-Mercado & Mota 1988 nom. mut. propos. (76.7.3)

[*Berberido australis-Quercetum pyrenaicae* F. Valle, Gómez-Mercado & Mota in *Anales Jard. Bot. Madrid* 45(1): 247. 1988 (art. 45)]

Correct used taxon name: *Berberis hispanica* Boiss. & Reut. against *Berberis vulgaris* subsp. *australis* (Boiss.) Heywood

Bolboschoenenion maritimi Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (12.1b)

[*Scirpenion maritimi* Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 35. 1980 (art. 45)]

Correct used taxon name: *Bolboschoenus maritimus* (L.) Palla subsp. *maritimus* against *Scirpus maritimus* L. subsp. *maritimus*

Bolboschoenetalia compacti Hejný in Holub, Hejný, Moravec & Neuhäusl 1967 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (12d)

[*Scirpetalia compacti* Hejný in Holub, Hejný, Moravec & Neuhäusl 1967 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 33. 1980 (art. 45), *Bolboschoenetalia maritimi* Hejný in Holub, Hejný, Moravec & Neuhäusl in *Róznpr. Cesk. Akad. Rada Mat.-Prirodn.* 77(3):29. 1967 (art. 43)]

Correct used taxon name: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm.

Bolboschoenetum compacti Van Langendock 1931 corr. Bueno & F. Prieto in Bueno 1997 nom. mut. propos. (12.7.1)

[*Scirpetum compacti* Van Langendock 1931 corr. Bueno, Fl. Veg. Estuarios Asturianos: 159. 1997 (art. 45)]

Correct used taxon name: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm.

Bolboschoenion compacti Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (12.7)

[*Scirpion compacti* Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 35. 1980 (art. 45), *Scirpion maritimi* Dahl & Hadač in Saertr. Nytt Mag. Naturvidensk., (Oslo) 82: 251. 1941 (art. 43)]

Correct used taxon name: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm.

Bolboschoeno compacti-Phragmitetum australis Bueno & F. Prieto in Bueno 1997 nom. mut. propos. (12.7.2)

[*Scirpo compacti-Phragmitetum australis* Bueno & F. Prieto in Bueno, Fl. Veg. Estuarios Asturianos: 159, tb. 21. 1997 (art. 45)]

Correct used taxon name: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm.

Bolboschoeno compacti-Schoenoplectetum litoralis Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (12.7.3)

[*Scirpetum maritimi-litoralis* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 294. 1952, *Scirpetum compacto-litoralis* Br.-Bl., Roussine & Nègre 1952 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 40. 1980 (art. 45)]

Correct used taxa names: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm. and *Schoenoplectus litoralis* (Schr.) Palla against *Scirpus litoralis* Schrad. (incl. var. *thermalis* Trab.)

Bolboschoeno compacti-Scirpetum tabernaemontani Bueno & F. Prieto in Bueno 1997 nom. mut. propos. (12.7.4)

[*Scirpetum compacto-tabernaemontani* Bueno & F. Prieto in Bueno, Fl. Veg. Estuarios Asturianos: 159, tb. 19. 1997 (art. 45)]

Correct used taxon name: *Bolboschoenus maritimus* subsp. *compactus* (Hoffm.) Hejný against *Scirpus maritimus* subsp. *compactus* Hoffm.

Brachypodium distachyi Rivas-Martínez 1978 nom. mut. propos. (50.13)

[*Trachynion distachyae* Rivas-Martínez in Coll. Phytosociol. 6: 64. 1978 (art. 45)]

Correct used taxon name: *Brachypodium distachyon* (L.) P. Beauv. against *Trachynia distachya* (L.) Link

Bromo-Piptatherion miliacei O. Bolòs 1970 nom. mut. propos. (34.12 = 34.6)
[*Bromo-Oryzopsis miliaceae* O. Bolòs in *Vegetatio* 21: 49. 1970 (art. 45)]

Correct used taxon name: *Piptatherum miliaceum* (L.) Coss. against *Oryzopsis miliacea* (L.) Asch. & Schweinf.

Bunio incrassati-Galietum tricornuti Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 nom. mut. propos. (39.2.2)
[*Bunio incrassati-Galietum tricornis* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas, *Prodr. Group. Vég.* 3. 1936 (art. 45)]

Correct used taxon name: *Galium tricornutum* Dandy against *Galium tricorne* Stokes

Calendulo algarbiensis-Parietarium judaicae J. & P. Guitián ex Izco & Amigo 2001 nom. mut. propos. (28.3.2)
[*Calendulo algarbiensis-Parietarium diffusae* J. & P. Guitián ex Izco & Amigo in *Lazaroa* 21: 39. 2001 (art. 45)]

Correct used taxon name: *Parietaria judaica* L. against *Parietaria diffusa* Mert. & Koch

Calystegietalia sepium Tüxen ex Mucina 1993 nom. mut. propos. (40b)
[*Convolvuletalia sepium* Tüxen ex Mucina in *Pflanzenges. Österr.* 1: 231. 1993 (art. 45)]

Correct used taxon name: *Calystegia sepium* (L.) R.Br. against *Convolvulus sepium* L.

Calystegion sepium Tüxen ex Oberdorfer 1957 nom. mut. propos. (40.5)
[*Convolvulion sepium* Tüxen ex Oberdorfer, *Süddeutsch. Pflanzenges.*: 83. 1957 (art. 45)]

Correct used taxon name: *Calystegia sepium* (L.) R.Br. against *Convolvulus sepium* L.

Calliergonello cuspidatae-Eleocharitetum palustris O. Bolòs & Vigo in O. Bolòs 1967 nom. mut. propos. (12.2.3)
[*Acrocladio cuspidati-Eleocharitetum palustris* O. Bolòs & Vigo in O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 38(1): 43, tb. 18. 1967 (art. 45)]

Correct used taxon name: *Calliergonella cuspidata* (Hedw.) Loeske against *Acrocladium cuspidatum* Hedw.

Campanulion mollis Martínez-Parras & Peinado 1990 nom. mut. propos. (27.14)
[*Campanulion velutinae* Martínez-Parras & Peinado in *Acta Bot. Malacitana* 15: 195. 1990 (art. 45)]

Correct used taxon name: *Campanula mollis* L. against *Campanula velutina* Desf.

Camptolometum canariensis Sunding 1972 nom. mut. propos. (26.1.5)
[*Lyperietum canariensis* Sunding in *Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S.* 29: 100. 1972 (art. 45)]

Correct used taxon name: *Camptoloma canariensis* (Webb & Berthel.) Hilliard against *Lyperia canariensis* Webb & Berthel.

Capparietum rupestris O. Bolòs & Molinier ex O. Bolòs 1962 nom. mut. propos. (28.1.3)

[*Capparietum inermis* O. Bolòs & Molinier ex O. Bolòs, El paisaje vegetal barcelonés: 89, tb. 40. 1962 (art. 45)]

Correct used taxon name: *Capparis spinosa* subsp. *rupestris* (Sm.) Nyman against *Capparis spinosa* var. *inermis* Turra

Cardaminetum raphanifoliae Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (11.3.2)

[*Cardaminetum latifoliae* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 90. 1952 (art. 45)]

Correct used taxon name: *Cardamine raphanifolia* Pourr. against *Cardamine latifolia* Vahl

Cardario drabae-Elytrigietum repentis Müller & Görs 1969 nom. mut. propos. (34.3.1)

[*Cardario drabae-Agropyretum repentis* Müller & Görs in Vegetatio 58: 203. 1969 (art. 45)]

Correct used taxon name: *Elytrigia repens* (L.) Desv. ex Nevski against *Agropyron repens* (L.) P. Beauv.

Caricetalia nigrae Koch 1926 em. Br.-Bl. 1949 nom. mut. propos. (14b)

[*Caricetalia fuscae* Koch 1926 em. Br.-Bl. in Vegetatio 1(4-5): 299. 1949 (art. 45)]

Correct used taxon name: *Carex nigra* (L.) Reichard against *Carex fusca* All.

Caricetum nigrae Br.-Bl. 1915 nom. mut. propos. (14.2.3)

[*Caricetum fuscae* Br.-Bl. in Arch. Sci. Phys. Nat. Genève, 4 sér., 39/40: 5. 1915 (art. 45)]

Correct used taxon name: *Carex nigra* (L.) Reichard against *Carex fusca* All.

Carici pendulae-Salicetum atrocineriae A. & O. Bolòs 1950 nom. mut. propos. (71.2.1)

[*Carici pendulae-Salicetum catalaunicae* A. & O. Bolòs, Veg. Com. Barc.: 139. 1950 (art. 45)]

Correct used taxon name: *Salix atrocinerea* Brot. against *Salix atrocinerea* subsp. *catalaunica* (Sennen) Goerz

Caricion reuterianae (Rivas-Martínez, Fernández-González & Sánchez-Mata 1986) J.A. Molina 1996 nom. mut. propos. (12.5)

[*Caricion broterianae* (Rivas-Martínez, Fernández-González & Sánchez-Mata 1986) J.A. Molina in Lazaroa 16: 71. 1996 (art. 45)]

Correct used taxon name: *Carex reuteriana* Boiss. against *Carex broteriana* Samp.

Carici rupestris-Kobresietea myosuroidis Ohba 1974 nom. mut. propos. (44)

[*Carici rupestris-Kobresietea bellardii* Ohba in Phytocoenologia 1(3): 379. 1974 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Kobresia bellardii* (All.) K. Koch

Caricion maritimae Br.-Bl. in Volk 1940 nom. mut. propos. (14.5)

[*Caricion juncifoliae* Br.-Bl. in Volk in Jahresber. Naturf. Ges. Graubündens 76 (1938/1939): 29. 1940 (art. 45)]

Correct used taxon name: *Carex maritima* Gunnerus against *Carex juncifolia* All.

Caricion nigrae Koch 1926 em. Klika 1934 nom. mut. propos. (14.2)

[*Caricion fuscae* Koch 1926 em. Klika in Rozpr. Ces. Akad. Ved. Emeni, Praha 44: 1. 1934 (art. 45)]

Correct used taxon name: *Carex nigra* (L.) Reichard against *Carex fusca* All.

Caucalidion platycarpi Tüxen ex Von Rochow 1951 nom. mut. propos. (39.1)

[*Caucalidion lappulae* Tüxen ex Von Rochow in Pflanzensoziologie 8: 26. 1951 (art. 45)]

Correct used taxon name: *Caucalis platycarpus* L. against *Caucalis lappula* Grande

Chamaesyction prostratae Rivas-Martínez 1976 nom. mut. propos. (38.5)

[*Euphorbion prostratae* Rivas-Martínez in Acta Bot. Malacitana 2: 60. 1976 (art. 45)]

Correct used taxon name: *Chamaesyce prostrata* (Aiton) Small against *Euphorbia prostrata* Aiton

Chamaecytiso-Pinetalia canariensis Rivas Goday & Esteve ex Esteve 1969 nom. mut. propos. (78a)

[*Cytiso-Pinetalia canariensis* Rivas Goday & Esteve ex Esteve in Bol. Real Soc. Esp. Hist. Nat., Secc. Biol. 67: 80. 1969 (art. 45)]

Correct used taxon name: *Chamaecytisus proliferus* (L.f.) Link against *Cytisus proliferus* L.f.

Chamaecytiso-Pinetea canariensis Rivas Goday & Esteve ex Esteve 1969 nom. mut. propos. (78)

[*Cytiso-Pinetea canariensis* Rivas Goday & Esteve ex Esteve in Bol. Real Soc. Esp. Hist. Nat., Secc. Biol. 67: 95. 1969 (art. 45)]

Correct used taxon name: *Chamaecytisus proliferus* (L.f.) Link against *Cytisus proliferus* L.f.

Chenoleoideo tomentosae-Suaedetum mollis Sunding 1972 corr. Reyes, Wildpret & León 2001 nom. mut. propos. (37.6.1)

[*Chenoleo tomentosae-Suaedetum mollis* Sunding 1972 corr. Reyes, Wildpret & León in Phytocoenologia 31(2): 218. 2001 (art. 45)]

Correct used taxon name: *Chenoleoides tomentosa* (Lowe) Botsch. against *Chenolea tomentosa* (Lowe) Maire

Chenoleoidetalia tomentosae Sunding 1972 nom. mut. propos. (37b)

[*Chenoletalia tomentosae* Sunding in Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 43. 1972 (art. 45)]

Correct used taxon name: *Chenoleoides tomentosa* (Lowe) Botsch. against *Chenolea tomentosa* (Lowe) Maire

Chenoleoidion tomentosae Sunding 1972 nom. mut. propos. (37.6)

[*Chenoleion tomentosae* Sunding in Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 43. 1972 (art. 45)]

Correct used taxon name: *Chenoleoides tomentosa* (Lowe) Botsch. against *Chenolea tomentosa* (Lowe) Maire

Chenopodio vulvariae-Descurainietum sophiae Rivas-Martínez 1964 nom. mut. propos. (39.8.7)

[*Chenopodio-Descurainietum densiflorae* Rivas-Martínez in Anales Inst. Bot. Cavanilles 21(1): 101, tb. 13. 1964 (art. 45)]

Correct used taxon name: *Descurainia sophia* (L.) Webb ex Prantl against *Descurainia sophia* var. *densiflora* (Lange) Rivas Mart.

Chrysanthemo-Piptatheretum paradoxo O. Bolòs 1978 nom. mut. propos. (43.2.1)

[*Chrysanthemo-Oryzopsietum paradoxae* O. Bolòs in Rev. Cat. Geogr. 1(3): 415. 1978 (art. 45)]

Correct used taxon name: *Piptatherum paradoxum* (L.) P. Beauv. against *Oryzopsis paradoxa* (L.) Nutt.

Cistancho phelypaeae-Sarcocornietum fruticosae Géhu ex Géhu & Géhu-Franck 1977 nom. mut. propos. (23.1.2)

[*Cistancho phelypaeae-Arthrocnemum fruticosi* Géhu ex Géhu & Géhu-Franck in Acta Bot. Malacitana 3: 148, tb. 2. 1977 (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Arthrocnemum fruticosum* (L.) Moq.

Clematido balearicae-Juniperetum turbinatae (O. Bolòs, Molinier & P. Montserrat 1970) Rivas-Martínez 1975 nom. mut. propos. (75.9.3)

[*Clematido balearicae-Juniperetum lyciae* (O. Bolòs, Molinier & Montserrat 1970) Rivas-Martínez in Anales Inst. Bot. Cavanilles 31(2): 208. 1975 (art. 45)]

Correct used taxon name: *Juniperus turbinata* Guss. against *Juniperus lycia* auct.

Coincyo hispidae-Brassicetum barrelieri Rivas-Martínez & Izco 1977 nom. mut. propos. (39.14.6)

[*Rhynchosinapio hispidae-Brassicetum barrelieri* Rivas-Martínez & Izco in Anales Inst. Bot. Cavanilles 34(1): 376, tb. 4. 1977 (art. 45)]

Correct used taxon name: *Coincya hispida* (Cav.) Greuter & Burdet against *Rhynchosinapis hispida* (Cav.) Heywood

Conopodio ramosi-Festucetum gautieri Br.-Bl. & O. Bolòs in O. Bolòs 1967 nom. mut. propos. (52.2.1)

[*Conopodio ramosi-Festucetum scopariae* Br.-Bl. & O. Bolòs in O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 110, tb. 35. 1967 (art. 45)]

Correct used taxon name: *Festuca gautieri* (Hack.) K. Richt. against *Festuca scoparia* (A. Kerner & Hack.) Nyman

Convolvulo arvensis-Elytrigion repentis Görs 1966 nom. mut. propos. (34.3)

[*Convolvulo arvensis-Agropyrion repentis* Görs in Natur-u. Landschaftsschutzgeb. Baden-Württ. 3: 476. 1966 (art. 45)]

Correct used taxon name: *Elytrigia repens* (L.) Desv. ex Nevski against *Agropyron repens* (L.) P. Beauv.

Coronopodo squamati-Sclerochloetum durae Br.-Bl. in Br.-Bl. Gajewski, Wraber & Walas 1936 nom. mut. propos. (38.3.1)

[*Coronopodo procumbentis-Sclerochloetum durae* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas, Prodr. Group. Vég. 3. 1936 (art. 45)]

Correct used taxon name: *Coronopus squamatus* (Forssk.) Asch. against *Coronopus procumbens* Gilib.

Crithmo-Limonietalia Molinier 1934 nom. mut. propos. (19a)

[*Crithmo-Staticetalia* Molinier in Ann. Mus. Hist. Nat. Marseille 27(1): 1. 1934 (art. 45)]

Correct used taxon name: *Limonium* Mill. (type: *Limonium vulgare* Mill. (typ. cons.) = *Statice limonium* L.) against *Statice* L. (type: *Statice armeria* L. = *Armeria vulgaris* Willd.)

Crithmo-Limonietea Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (19)

[*Crithmo-Staticetea* Br.-Bl. in Br.-Bl., Roussine & Nègre, : 32. 1952 (art. 45)]

Correct used taxon name: *Limonium* Mill. (type: *Limonium vulgare* Mill. (typ. cons.) = *Statice limonium* L.) against *Statice* L. (type: *Statice armeria* L. = *Armeria vulgaris* Willd.)

Crithmo-Limonion Molinier 1934 nom. mut. propos. (19.1)

[*Crithmo-Staticion* Molinier in Ann. Mus. Hist. Nat. Marseille 27(1): 1. 1934 (art. 45)]

Correct used taxon name: *Limonium* Mill. (type: *Limonium vulgare* Mill. (typ. cons.) = *Statice limonium* L.) against *Statice* L. (type: *Statice armeria* L. = *Armeria vulgaris* Willd.)

Crithmo maritimi-Limonietum ovalifolii Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 nom. mut. propos. (19.3.1)

[*Crithmo-Limonietum lanceolati* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in Itinera Geobot. 3: 95, tb. 15. 1990 (art. 45)]

Correct used taxon name: *Limonium ovalifolium* (Poir.) Kuntze against *Limonium lanceolatum* (Hoffmanns. & Link) Franco

Crypsio schoenoidis-Fimbristyletum bisumbellatae Br.-Bl. & Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. Brullo & Minissale 1998 nom. mut. propos. (9.6.5)

[*Heleochoo schoenoidis-Fimbristyletum bisumbellatae* Br.-Bl. & Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. Brullo & Minissale in Itinera Geobot. 11: 280. 1998 (art. 45)]

Correct used taxon name: *Crypsis schoenoides* (L.) Lam. against *Heleochloa schoenoides* (L.) Host ex Roem.

Crypsio-Paspaletalia distichi Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. inv. et nom. mut. propos. (59d)

[*Paspalo-Heleochloetalia* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 70. 1952 (art. 45), *Heleochloo-Paspaletalia distichi* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (art. 42)]

Correct used taxon name: *Crypsis schoenoides* (L.) Lam. against *Heleochloa schoenoides* (L.) Host ex Roem.

Cryptogrammo crispae-Poetum fontquerii Nègre 1968 nom. mut. propos. (33.6.1)

[*Allosoro crispae-Poetum fontquerii* Nègre in Monde Pl. 359: 9. 1968 (art. 45)]

Correct used taxon name: *Cryptogramma crispa* (L.) R.Br. ex Hooker against *Allosorus crispus* (L.) Röhlting

Cynaro humilis-Galactitetum tomentosae Rivas Goday 1964 nom. mut. propos. (34.10.2)

[*Bourgaeo humilis-Galactitetum tomentosae* Rivas Goday, Veg. Fl. Guadiana: 400. 1964 (art. 45)]

Correct used taxon name: *Cynara humilis* L. against *Bourgaea humilis* (L.) Coss.

Cypero alopecuroidis-Bolboschoenetum maritimi Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 nom. mut. propos. (12.1.7)

[*Cypero alopecuroidis-Scirpetum maritimi* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in Itinera Geobot. 7: 336, tb. 61. 1993 (art. 45)]

Correct used taxon name: *Bolboschoenus maritimus* (L.) Palla against *Scirpus maritimus* L.

Cypero micheliani-Crypsietum alopecuroidis Rivas Goday & E. Valdés in Rivas Goday 1970 nom. mut. propos. (9.6.1)

[*Cypero micheliani-Heleochloetum alopecuroidis* Rivas Goday & E. Valdés in Rivas Goday in Anales Inst. Bot. Cavanilles 27: 267, tb. 6. 1970 (art. 45)]

Correct used taxon name: *Crypsis alopecuroides* (Piller & Mitterp.) Schrad. against *Heleochloa alopecuroides* (Piller & Mitterp.) Host. ex Roem.

Cypero mucronati-Elytrigietum junceae Kühnholtz ex Br.-Bl. 1933 nom. mut. propos. (16.2.2)

[*Cypero mucronati-Agropyretum juncei* Kühnholtz ex Br.-Bl., Prodr. Group. Vég. 1: 6. 1933 (art. 45)]

Correct used taxon name: *Elytrigia juncea* (L.) Nevski against *Agropyron junceum* (L.) P. Beauv.

Cytisetum multifloro-eriocarp Rivas Goday 1964 nom. mut. propos. (65.1.2)

[*Cytiso multiflori-Sarothamnetum eriocarp* Rivas Goday, Veg. Fl. Guadiana: 465. 1964 (art. 45)]

Correct used taxon name: *Cytisus striatus* subsp. *eriocarpus* (Boiss. & Reut.) Rivas Mart. against *Sarothamnus eriocarpus* Boiss. & Reut.

Cytiso lotoidis-Callunetum vulgaris O. Bolòs 1956 nom. mut. propos. (61.1.2)

[*Cytiso gallici-Callunetum* O. Bolòs in Collect. Bot. (Barcelona) 5(1): 236, tb. 26. 1956 (art. 45)]

Correct used taxon name: *Cytisus lotoides* Pourr. against *Cytisus gallicus* A. Kern

Cytiso villosi-Ericetum arboreae Zéller 1959 nom. mut. propos. (65.7.2)

[*Cytiso triflori-Ericetum arboreae* Zéller in Pirineos 47-50: 59, tb. 9. 1959 (art. 45)]

Correct used taxon name: *Cytisus villosus* Pourr. against *Cytisus triflorus* L'Hér.

Digitario ischaemi-Illecebreum verticillati Diemont, Sissingh & Westhoff 1940 nom. mut. propos. (9.4.8)

[*Panico-Illecebreum verticillati* Diemont, Sissingh & Westhoff in Commun. Stat. Int. Géobot. Médit. Montpellier 76: 215. 1940 (art. 45)]

Correct used taxon name: *Digitaria ischaemum* (Schreb.) Muhl. against *Panicum ischaemum* Schreb.

Eleocharition parvulae Segal 1968 nom. mut. propos. (6.2)

[*Scirpion parvuli* Segal, Pflanzensoziologische Systematik: 220. 1968 (art. 45)]

Correct used taxon name: *Eleocharis parvula* (Roem. & Schult.) Link ex Bluff, Nees & Schauer against *Scirpus parvulus* Roem. & Schult.

Elytrigietalia repentis Oberdorfer, Müller & Görs in Oberdorfer & al. 1967 nom. mut. propos. (34b)

[*Agropyretalia repentis* Oberdorfer, Müller & Görs in Oberdorfer & al. in Schriftenreihe Vegetationsk 2: 7. 1967 (art. 45)]

Correct used taxon name: *Elytrigia repens* (L.) Desv. ex Nevski against *Agropyron repens* (L.) P. Beauv.

Elytrigienion boreoatlanticae Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (16.2a)

[*Agropyrenion junceiformis* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 64. 1980 (art. 45)]

Correct used taxon name: *Elytrigia juncea* subsp. *boreoatlantica* (Simonet & Guin.) Hyl. against *Agropyron junceiforme* (A. & D. Löve) A. & D. Löve

Elytrigienion junceae Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (16.2b)

[*Agropyrenion farcti* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 64. 1980 (art. 45)]

- Correct used taxon name: *Elytrigia juncea* (L.) Nevski against *Agropyron farctum* (Viv.) Rothm.
- Elytrigietum athericae* Corillion 1953 corr. Bueno, Cuadernos de Medio Ambiente (Oviedo) 3: 169. 1997 nom. mut. propos. (34.5.1)
[*Agropyretum litorei* Corillion in Rev. Gen. Bot. 60: 707, tb. 11. 1953, (lectotypus in Bueno rel. 2) sub. *Agropyretum pycnanthi* Bueno 1997 (art. 45)]
- Correct used taxon name: *Elytrigia atherica* (Link) Kerguélen ex Carreras against *Agropyron pycnanthum* (Godr.) Gren. & Godr.
- Elytrigion athericae* Géhu 1968 nom. mut. propos. (34.5)
[*Agropyron pungentis* Géhu in Bull. Soc. Bot. France 17(2): 77. 1968 (art. 45)]
- Correct used taxon name: *Elytrigia atherica* (Link) Kerguélen ex Carreras against *Agropyron pungens* auct. non (Pers.) Roem. & Schult.
- Elytrigio athericae-Suaedetum verae* (Arènes 1933) Géhu 1976 corr. Bueno 1997 nom. mut. propos. (23.4.1)
[*Agropyro pungentis* ("littoralis")-*Suaedetum verae* (Arènes 1933) Géhu in Coll. Phytosociol. 4: 428. 1976 1997 (art. 43), *Agropyro pycnanthi-Suaedetum verae* (Arènes 1933) Géhu 1976 corr. Bueno, Fl. Veg. Estuarios Asturianos: 162. 1997 (art. 45)]
- Correct used taxon name: *Elytrigia atherica* (Link) Kerguélen ex Carreras against *Agropyron pungens* auct., non (Pers.) Roem. & Schult.
- Elytrigio boreoatlanticae-Honckenyon peploidis* Tüxen in Br.-Bl. & Tüxen 1952 nom. mut. propos. (16.2)
[*Agropyro-Minuartion peploidis* Tüxen in Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 248. 1952 (art. 45)]
- Correct used taxa names: *Honckenya peploides* (L) Ehrh. against *Minuartia peploides* (L.) Hiern and *Elytrigia juncea* subsp. *boreoatlantica* (Simonet & Guin.) Hyl. against *Agropyron junceum* subsp. *boreoatlanticum* Simonet & Guin.
- Equiseto ramosissimi-Saccharetum ravennae* Br.-Bl. & O. Bolòs 1958 nom. mut. propos. (70.2.1)
[*Equiseto ramosissimi-Erianthetum ravennae* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 200, tb. 41. 958 (art. 45)]
- Correct used taxon name: *Saccharum ravennae* (L.) Murray against *Erianthus ravennae* (L.) P. Beauv.
- Erico erigenae-Salicetum pedicellatae* Esteve 1973 nom. mut. propos. (71.9.2)
[*Erico mediterraneae-Salicetum pedicellatae* Esteve, Veg. Fl. Reg. Centr. Mer. Murcia: 193. 1973 (art. 45)]
- Correct used taxon name: *Erica erigena* R. Ross against *Erica mediterranea* auct., non L.

Erico multiflorae-Thymelaeetum tinctoriae Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 nom. mut. propos. (64.1.5)

[*Erico multiflorae-Passerinetum tinctoriae* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor in Cavanillesia 7(6-9): 106. 1935 (art. 45)]

Correct used taxon name: *Thymelaea tinctoria* (Pourr.) Endl. against *Passerina tinctoria* Pourr.

Euphorbio paraliae-Cyperetum capitati Sunding 1972 nom. mut. propos. (81.2.1)

[*Euphorbio paraliae-Cyperetum kallii* Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 38, tb. 3. 1972 (art. 45)]

Correct used taxon name: *Cyperus capitatus* Vandelli against *Cyperus kallii* (Forssk.) Murb.

Euphorbio paraliae-Elytrigietum boreoatlanticae Tüxen in Br.-Bl. & Tüxen 1952 nom. mut. propos. (16.2.1)

[*Euphorbio paraliae-Agropyretum atlanticum* Tüxen in Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 248, tb. 12. 1952 (sub *Euphorbio-Agropyretum atlantici juncei*), *Euphorbio-Agropyretum junceiformis* Tüxen in Br.-Bl. & Tüxen 1952 nom. mut. (art. 45)]

Correct used taxon names: *Elytrigia juncea* subsp. *boreoatlantica* (Simonet & Guin.) Hyl. (incl. subsp. *Agropyron junceum atlanticum* Simonet = Type occidental tetraploid) against *Agropyron junceiforme* (D. & A. Löve) D. & A. Löve

Festucion airoidis Br.-Bl. 1948 nom. mut. propos. (46.1)

[*Festucion supinae* Br.-Bl., Veg. Alp. Pyr. Or.: 203. 1948 (art. 45)]

Correct used taxon name: *Festuca airoides* Lam. against *Festuca supina* Schur

Festucion gautieri Br.-Bl. 1948 nom. mut. propos. (52.3)

[*Festucion scopariae* Br.-Bl., Veg. Alp. Pyr. Or.: 150. 1948 (art. 45)]

Correct used taxon name: *Festuca gautieri* (Hack.) K. Richt. against *Festuca scoparia* (A. Kerner & Hack.) Nyman

Festuco hystricis-Helictotrichetum filifolii O. Bolòs 1967 nom. mut. propos. (56.1.2)

[*Festuco hystricis-Avenetum filifoliae* O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 119, tb. 39. 1967 (art. 45)]

Correct used taxon name: *Helictotrichon filifolium* (Lag.) Henrard against *Avena filifolia* Lag.

Flueggeion tinctoriae Rivas Goday 1964 nom. mut. propos. (71.7)

[*Securinegion buxifoliae* Rivas Goday, Veg. Fl. Guadiana: 555. 1964 (art. 45)]

Correct used taxon name: *Flueggea tinctoria* (L.) G.L. Webster against *Securinega buxifolia* auct. (*Securinega tinctoria* (L.) Rothm.)

Fontinali antypireticae-Ranunculetum ololeuci Br.-Bl., P. Silva, Rozeira & Fontes 1952 nom. mut. propos. (10.2.3)

[*Fontinali-Ranunculetum lusitanici* Br.-Bl., P. Silva, Rozeira & Fontes in Agron. Lusit. 14(4): 310. 1952 (art. 45)]

Correct used taxon name: *Ranunculus ololeucos* Lloyd against *Ranunculus lusitanicus* Freyn

Galio broteriani-Caricetum reuteriana Rivas-Martínez ex Fuente 1986 nom. mut. propos. (12.5.3)

[*Galio broteriani-Caricetum broteriana* Rivas-Martínez ex Fuente in Lazaroa 8: 136, tb. 4. 1986 (art.45)]

Correct used taxon name: *Carex reuteriana* Boiss. against *Carex broteriana* Samp.

Genisto benehoavensis-Adenocarpetum spartioidis Santos 1983 nom. mut. propos. (78.2.6)

[*Telino benehoavensis-Adenocarpetum spartioidis* Santos, Fl. Veg. La Palma: 84, tb. 10. 1983 (art. 45)]

Correct used taxon name: *Genista benehoavensis* (Bolle ex Svent.) Del Arco against *Telina benehoavensis* (Bolle ex Svent.) Santos

Glycerietum notatae Kulczynski 1928 nom. mut. propos. (12.2.5)

[*Glycerietum plicatae* Kulczynski in Bull. Acad. Polon. Sci. et Lettr. Cl. Sci. Math. Nat. B: 57. 1928 (art. 45)]

Correct used taxon name: *Glyceria notata* Chevall. against *Glyceria plicata* (Fr.) Fr.

Hainardio cylindricae-Rostrarietum phleoidis Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (22.3.1)

[*Hainardio cylindricae-Lophochloetum hispidae* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 48, tb. 26. 1980 (art. 45)]

Correct used taxon name: *Rostraria phleoides* (Desf.) Holub against *Lophochloa hispida* (Savi) Pignatti

Halimio ocymoidis-Cistetum psilosepali Br.-Bl., P. Silva & Rozeira 1965 nom. mut. propos. (61.2.14)

[*Halimio ocymoidis-Cistetum hirsuti* Br.-Bl., P. Silva & Rozeira in Agron. Lusit. 23(4): 282, tb. 14. 1965 (art. 45)]

Correct used taxon name: *Cistus psilosepalus* Sweet against *Cistus hirsutus* Lam.

Halimionetum portulacoidis Kühnholtz 1926 nom. mut. propos. (23.1.5)

[*Obionetum portulacoidis* Kühnholtz 1926 (art. 45), ass. à *Obione portulacoides* Kühnholtz in Anales Éc. Nat. Agr. Montpellier 19: 57. 1926 (art. 10)]

Correct used taxon name: *Halimione portulacoides* (L.) Aellen against *Obione portulacoides* (L.) Moq.

Hammado articulatae-Atriplicion glaucae Rivas Goday & Rivas-Martínez ex Rigual 1972 nom. mut. propos. (37.3)

[*Haloxylon-Atriplicion* Rivas Goday & Rivas-Martínez ex Rigual in Publ. Inst. Est. Alicantinos 2(1): 99. 1972 (art. 45)]

Correct used taxon name: *Hammada articulata* (Moq.) O. Bolòs & Vigo against *Haloxylon tamariscifolium* Pau

Hedero-Telinetum patentis Mateo 1983 nom. mut. propos. (75.7.9)

[*Hedero-Cytisetum patentis* Mateo in Publ. Ministerio Agricultura, Ser. Monogr. 31: 266, tb. 86. 1983 (art. 45)]

Correct used taxon name: *Teline patens* (DC.) Talavera & P.E. Gibbs against *Cytisus patens* sensu Willk., non L.

Helianthemo thibaudii-Teucrietum libanitidis Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. Díez Garretas, Fernández-González & Asensi 1996 nom. mut. propos. (64.10.1)

[*Helianthemo thibaudii-Teucrietum verticillati* Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. Díez Garretas, Fernández-González & Asensi in Lazaroa 17: 152. 1996 (art. 45)]

Correct used taxon name: *Teucrium libanitis* Schreb. against *Teucrium verticillatum* Cav.

Helictotricho cantabrici-Seslerietum hispanicae Br.-Bl. 1967 nom. mut. propos. (52.5.2)

[*Aveno cantabricae-Seslerietum hispanicae* Br.-Bl. in Vegetatio 14(1-4): 61, tb. 22. 1967 (art. 45)]

Correct used taxon name: *Helictotrichon cantabricum* (Lag.) Gervais against *Avena cantabrica* Lag.

Heliotropio supini-Crypsietum schoenoidis Rivas Goday 1956 nom. mut. propos. (9.6.6)

[*Heliotropio supini-Heleochloetum schoenoidis* Rivas Goday in Anales Inst. Bot. Cavanilles 13(2): 371, tb. 14. 1956 (art. 45)]

Correct used taxon name: *Crypsis schoenoides* (L.) Lam. against *Heleochloa schoenoides* (L.) Host ex Roem.

Herniario fruticosae-Teucrietum pumili Rivas-Martínez & Costa 1970 nom. mut. propos. (64.9.3)

[*Herniario fruticosae-Teucrietum floccosi* Rivas-Martínez & Costa in Anales Inst. Bot. Cavanilles 27: 203, tb. 1. 1970 (art. 45)]

Correct used taxon name: *Teucrium floccosum* Coincy against *Teucrium pumilum* L.

Hieracio breviscapi-Festucetum airoidis Br.-Bl. 1948 nom. mut. propos. (46.1.2)

[*Hieracio pumili-Festucetum supinae* Br.-Bl., Veg. Alp. Pyr. Or.: 204. 1948 (art. 45)]

Correct used taxon name: *Hieracium breviscapum* DC. against *Hieracium pumilum* Lapeyr. non L. and *Festuca airoides* Lam. against *Festuca supina* Schur

Honckenyo-Leymetea arenarii Tüxen 1966 nom. mut. propos. (18)

[*Honckenyo-Elymetea arenarii* Tüxen in Ann. Bot. Fenn. 3: 358. 1966 (art. 45)]

Correct used taxon name: *Leymus arenarius* (L.) Hochst. against *Elymus arenarius* L.

Hymenocarpus hamosi-Malcolmietum patulae Rivas Goday 1958 nom. mut. propos. (50.5.1)

[*Anthyllido hamosae-Malcolmietum patulae* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 565. 1958 (art. 45)]

Correct used taxon name: *Hymenocarpos hamosus* (Desf.) Viv. against *Anthyllis hamosa* Desf.

Hymenocarpus hamosi-Malcolmion trilobae Rivas Goday 1958 nom. mut. propos. (50.6)

[*Anthyllido hamosae-Malcolmion lacerae* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 564. 1958 (art. 45)]

Correct used taxon names: *Hymenocarpos hamosus* (Desf.) Viv. against *Anthyllis hamosa* Desf. and *Malcolmia triloba* (L.) Spreng. against *Malcolmia lacera* (L.) DC.

Hylotelephium maximi-Umbilicetum rupestris Vigo & Carreras in Carreras, I. Soriano & Vigo 1984 nom. mut. propos. (28.2.6)

[*Sedo maximi-Umbilicetum rupestris* Vigo & Carreras in Carreras, I. Soriano & Vigo in Collect. Bot. (Barcelona) 15: 112, tb. 2. 1984 (art. 45)]

Correct used taxon name: *Hylotelephium maximum* (L.) Holub in Severöces against *Sedum telephium* var. *maximum* L. (= *S. maximum* (L.) Hoffm.)

Hyparrhenietum hirtosinicae A. & O. Bolòs & Br.-Bl. in A. & O. Bolòs 1950 nom. mut. propos. (56.7.1)

[*Andropogonetum hirtopubescentis* A. & O. Bolòs & Br.-Bl. in A. & O. Bolòs, Veg. Com. Barc.: 99. 1950 (art. 45)]

Correct used taxon name: *Hyparrhenia sinaica* (Delile) Llaurodó ex G. López against *Andropogon pubescens* Vis.

Hyperico androsaemi-Ulmetum glabrae Vanden Berghen 1968 nom. mut. propos. (76.2.1)

[*Androsaemo-Ulmetum glabrae* Vanden Berghen in Bull. Soc. Roy. Bot. Belgique 102: 115. 1968 (art. 45)]

Correct used taxon name: *Hypericum androsaemum* L. against *Androsaemum officinale* All.

Hypochoerido achyrophorae-Brachypodietum retusi O. Bolòs & Molinier 1958 nom. mut. propos. (56.1.3)

[*Hypochoerido achyrophorae-Brachypodietum ramosi* O. Bolòs & Molinier in Collect. Bot. (Barcelona) 5(3): 780, tb. 10. 1958 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Imperato cylindricae-Saccharion ravennae Br.-Bl. & O. Bolòs 1958 nom. mut. propos. (70.2)

[*Imperato cylindricae-Erianthion ravennae* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 199. 1958 (art. 45)]

Correct used taxon name: *Saccharum ravennae* (L.) Murray against *Erianthus ravennae* (L.) P. Beauv.

Inulo crithmoidis-Elytrigietum athericae Géhu ex Izco, J. Guitián & J.M. Sánchez 1993 nom. mut. propos. (34.5.2)

[*Inulo crithmoidis-Elymetum pycnanthi* Géhu ex Izco, J. Guitián & J.M. Sánchez in *Lazaroa* 13: 160, tb. 5. 1993 (art. 45)]

Correct used taxon name: *Elytrigia atherica* (Link) Kerguélen ex Carreras against *Elymus pycnanthus* (Godr.) Melderis

Inulo viscosae-Piptatheretum miliacei O. Bolòs 1957 nom. mut. propos. (34.12.6 = 34.6.6)

[*Inulo viscosae-Oryzopsietum miliaceae* O. Bolòs in *Collect. Bot. (Barcelona)* 5(2): 561. 1957 (art. 45)]

Correct used taxon name: *Piptatherum miliaceum* (L.) Coss. against *Oryzopsis miliacea* (L.) Asch. & Schweinf.

Ipomoeo purpureae-Lycietum europaei O. Bolòs 1962 nom. mut. propos. (37.5.1)

[*Pharbitidi purpureae-Lycietum europaei* O. Bolòs, *Paisaje Veg. Barc.*: 113, tb. 61. 1962 (art. 45)]

Correct used taxon name: *Ipomoea purpurea* Roth against *Pharbitis hispida* Choisy (sub *Pharbitis purpurea* (Roth) Voigt)

Irido latifoliae-Festucetum spadiceae Nègre 1968 nom. mut. propos. (52.4.2)

[*Irido xiphioidis-Festucetum spadiceae* Nègre in *Monde Pl.* 359: 9. 1968 (art. 45)]

Correct used taxon name: *Iris latifolia* (Mill.) Voss against *Iris xiphioides* Ehrh.

Irido pseudacori-Polygonetum salicifolii O. Bolòs 1957 nom. mut. propos. (12.4.11)

[*Irido pseudacori-Polygonetum serrulati* O. Bolòs in *Collect. Bot. (Barcelona)* 5(2): 556. 1957 (art. 45)]

Correct used taxon name: *Polygonum salicifolium* Brouss. ex Willd. against *Polygonum serrulatum* Lag.

Irido sisyrinchii-Stipetum capensis O. Bolòs & Molinier 1958 nom. mut. propos. (50.13.21 = 50.10.5)

[*Irido sisyrinchii-Stipetum retortae* O. Bolòs & Molinier in *Collect. Bot. (Barcelona)* 5(3): 784, tb. 11. 1958 (art. 45)]

Correct used taxon name: *Stipa capensis* Thunb. against *Stipa retorta* Cav.

Isolepido-Lythretum baetici Rivas Goday 1970 nom. mut. propos. (9.7.2)

[*Isolepido-Lythretum castellani* Rivas Goday in *Anales Inst. Bot. Cavanilles* 27: 257, tb. 4. 1970 (art. 45)]

Correct used taxon name: *Lythrum baeticum* Gonz.-Albo against *Lythrum castellanum* Gonz.-Albo

Jasonio saxatilis-Chaenorhinetum cadevallii A. & O. Bolòs 1950 corr. O. Bolòs 1967 nom. mut. propos. (27.11.3)

[*Jasonio glutinosae-Linarietum cadevallii* A. & O. Bolòs 1950 corr. O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 38(1): 11, tb. 4. 1967 (art. 45)]

Correct used taxon name: *Chaenorhinum organifolium* subsp. *cadevallii* (O. Bolòs & Vigo) Laínz against *Linaria organifolia* subsp. *cadevallii* O. Bolòs & Vigo and *Jasonia saxatilis* (Lam.) Guss. against *Jasonia glutinosa* auct.

Jasonio saxatilis-Teucrietum thymifolii Rigual, Esteve & Rivas Goday 1963 corr. Alcaraz & De la Torre 1988 nom. mut. propos. (27.12.4)

[*Jasonio glutinosae-Teucrietum thymifolii* Rigual, Esteve & Rivas Goday 1963 corr. Alcaraz & De la Torre in *Acta Bot. Malacitana* 13: 334. 1988 (art. 45)]

Correct used taxon name: *Jasonia saxatilis* (Lam.) Guss. against *Jasonia glutinosa* auct.

Juncetum acutiflori Br.-Bl. 1915 nom. mut. propos. (59.3.9)

[*Juncetum sylvatici* Br.-Bl. in *Arch. Sci. Phys. Nat. Genève*, 4 sér., 39/40: 5. 1915 (art. 45)]

Correct used taxon name: *Juncus acutiflorus* Ehrh. ex Hoffmanns. against *Juncus sylvaticus* auct., non Reichard

Juncetum perpusilli Rivas-Martínez 1964 nom. mut. propos. (9.2.3)

[*Juncetum nanae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 21(1): 72, tb. 8. 1964 (art. 45)]

Correct used taxon name: *Juncus tenageia* subsp. *perpusillus* Fern.-Carv. & F. Navarro against *Juncus tenageia* f. *nana* Cout.

Juncetum tenuis Diemont, Sissingh & Westhoff ex Tüxen 1950 nom. mut. propos. (59.11.1)

[*Juncetum macri* Diemont, Sissingh & Westhoff ex Tüxen in *Mitt. Florist.-Soziol. Arbeitsgem.* 9: 296. 1950 (art. 45)]

Correct used taxon name: *Juncus tenuis* Willd. against *Juncus macer* S.F. Gray

Juniperetum turbinatae Molinier ex O. Bolòs 1967 nom. mut. propos. (75.9.6)

[*Juniperetum lyciae* Molinier ex O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 38(1): 158. 1967 (art. 45)]

Correct used taxon name: *Juniperus turbinata* Guss. against *Juniperus lycia* auct.

Kobresietalia myosuroidis Oberdorfer 1957 nom. mut. propos. (44a)

[*Elynetalia myosuroidis* Oberdorfer, *Süddeutsch. Pflanzenges.*: 305. 1957 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch

Kobresio myosuroidis-Oxytropidetum foucaudii Chouard 1943 nom. mut. propos. (44.1.1)

[*Elyno myosuroidis-Oxytropidetum lazicae* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch and *Oxytropis foucaudii* Gillot against *Oxytropis lazica* Boiss.

Kobresio myosuroidis-Oxytropidetum halleri (Br.-Bl. 1948). Küpfer 1974 nom. mut. propos. (44.1.2)

[*Elyno myosuroidis-Oxytropidetum halleri* (Br.-Bl. 1948) Küpfer in Boissiera 23: 1. 1974 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch

Kobresio myosuroidis-Seslerietea caeruleae Br.-Bl. 1948 nom. mut. propos. (45)

[*Elyno-Seslerietea* Br.-Bl. in Inst. Esp. Edafol. Ecol. Fisiol. Veg. 9: 147. 1948 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch

Koelerion arenariae Tüxen 1937 nom. mut. propos. (53.2)

[*Koelerion albescens* Tüxen in Mitt. Florist.-Soziol. Arbeitsgem. 3: 1. 1937 (art. 45)]

Correct used taxon name: *Koeleria arenaria* Dumort. against *Koeleria albescens* DC.

Lastreo limbospermae-Betuletum pubescentis Rivas-Martínez 1968 corr. hoc loco nom. mut. propos. (76.13.2)

[*Thelypterido limbospermae-Betuletum pubescentis* Rivas-Martínez in Publ. Inst. Biol. Aplicada 45: 101. 1968 corr. hoc loco (art. 45), *Thelypterido limbospermae-Betuletum carpaticae* Rivas-Martínez corr. Rivas-Martínez, Mem. Mapa Series Veg. España: 160. 1987 (art. 43)]

Correct used taxon name: *Lastraea limbosperma* (All.) Holub & Pouzar against *Thelypteris limbosperma* (All.) H.P. Fuchs.

Lathyro longestipulati-Seslerietum caeruleae Romo 1989 nom. mut. propos. (52.4.3)

[*Lathyro longestipulati-Seslerietum albicantis* Romo in Arxius Secc. Ci. Inst. Estud. Catalans 90: 1. 1989 (art. 45)]

Correct used taxon name: *Sesleria caerulea* (L.) Ard. against *Sesleria albicans* Kit. ex Schult.

Lavandulo-Echinospartion boissieri Rivas Goday & Rivas-Martínez 1969 nom. mut. propos. (64.4)

[*Lavandulo-Genistion boissieri* Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 47. 1969 (art. 45)]

Correct used taxon name: *Echinopartum boissieri* (Spach) Rothm. against *Genista boissieri* Spach

Leontodonto microcephali-Ranunculetum alismoidis Esteve & P. Prieto in P. Prieto 1971 nom. mut. propos. (14.6.1 = 14.2.10)

[*Leontodonto microcephali-Ranunculetum uniflori* Esteve & P. Prieto in P. Prieto in Collec. Monogr. Univ. Granada 11: 83, tb. 1971 (art. 45)]

Correct used taxon name: *Ranunculus alismoides* Bory against *Ranunculus angustifolius* var. *uniflorus* Boiss.

Limonio bellidifolii-Sarcocornietum fruticosae Br.-Bl. 1933 nom. mut. propos. (23.1.4)

[*Statico bellidifoliae-Salicornietum fruticosae* Br.-Bl., Prodr. Group. Vég. 1: 17. 1933 (art. 45)]

Correct used taxon name: *Limonium bellidifolium* (Gouan) Dumort. against *Statice bellidifolia* (Gouan) Lam. & DC. and *Sarcocornia fruticosa* (L.) A.J. Scott against *Salicornia fruticosa* (L.) L.

Linario elegantis-Arnoaseridetum minimae Bellot & Casaseca in Casaseca 1959 nom. mut. propos. (39.4.10)

[*Linario delphinioidis-Arnoaseridetum* Bellot & Casaseca in Casaseca in Bol. Univ. Compos. 67: 297. 1959 (art. 45)]

Correct used taxon name: *Linaria elegans* Pourr. ex Cav. against *Linaria delphinioides* J. Gay ex Knowles & Westcott

Linario tursicae-Loeflingietum baeticae Rivas-Martínez, Costa, Castroviejo & E. Valdés in Costa, Castroviejo, Rivas-Martínez & E. Valdés 1978 nom. mut. propos. (50.6.3)

[*Linario donyanae-Loeflingietum baeticae* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Costa, Castroviejo, Rivas-Martínez & E. Valdés in Coll. Phytosociol. 6: 106, tb. 1. 1978 (art. 45)]

Correct used taxon name: *Linaria tursica* Valdés & Cabezudo against *Linaria donyanae* Valdés Berm., Castrov., Rivas Mart. & M.J. Costa

Lino biennis-Cynosuretum cristati Allorge ex Oberdorfer & Tüxen in Tüxen & Oberdorfer 1958 nom. mut. propos. (59.6.8)

[*Lino angustifolii-Cynosuretum cristati* Allorge ex Oberdorfer & Tüxen in Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32: 1. 1958 (art. 45)]

Correct used taxon name: *Linum bienne* Mill. against *Linum angustifolium* Huds.

Lithospermo purpureocaerulei-Ulmetum minoris O. Bolòs 1956 nom. mut. et nom. inv. propos. (71.2.17)

[*Ulmo carpinifoliae-Lithospermetum purpureocaerulei* O. Bolòs in Collect. Bot. (Barcelona) 5(1): 240, tb. 29. 1956 (art. 42, 45)]

Correct used taxon name: *Ulmus minor* Mill. against *Ulmus carpinifolia* Ruppius ex Suckow

Loto hispidi-Chaetopogonetum fasciculati Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (9.3.4 = 9.4.7)

[*Loto subbiflori-Chaetopogonetum fasciculati* Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 27, tb. 11. 1980 (art. 45)]

Correct used taxon name: *Lotus hispidus* Desf. ex DC. in Lam. & DC. against *Lotus subbiflorus* Lag.

Lythro flexuosi-Crypsietum schoenoidis Rivas-Martínez 1966 nom. mut. propos. (9.7.3 = 9.6.7)

[*Lythro flexuosi-Heleochloetum schoenoidis* Rivas-Martínez in *Bol. Real Soc. Esp. Hist. Nat., Secc. Biol.* 64: 363, tb. 1. 1966 (art. 45)]

Correct used taxon name: *Crypsis schoenoides* (L.) Lam. against *Heleochloa schoenoides* (L.) Host ex Roem.

Luzulo henriquesii-Betuletum celtibericae Rivas-Martínez 1965 nom. mut. propos. (76.14.4)

[*Luzulo cantabricae-Betuletum celtibericae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 380. 1965 (art. 45)]

Correct used taxon name: *Luzula sylvatica* subsp. *henriquesii* (Degen) P. Silva against *Luzula sylvatica* subsp. *cantabrica* P. Monts.

Malcolmio trilobae-Hymenocarpetum hamosi Rivas Goday 1958 nom. mut. propos. (50.6.4)

[*Malcolmio lacerae-Anthyllidetum hamosae* Rivas Goday in *Anales Inst. Bot. Cavanilles* 15: 567, tb. 6. 1958 (art. 45)]

Correct used taxon name: *Malcolmia triloba* (L.) Spreng. against *Malcolmia lacera* (L.) DC. and *Hymenocarpos hamosus* (Desf.) Viv. against *Anthyllis hamosa* Desf.

Matricario discoideae-Polygonetum arenastri Müller ex Oberdorfer 1971 corr. Passarge 1996 nom. mut. propos. (38.2.2)

[*Matricario matricarioidis-Polygonetum arenastri* Müller ex Oberdorfer 1971 corr. Passarge, *Pflanzenges. Nordostdeutsch.*: 243. 1996 (art. 42, 45)]

Correct used taxa name: *Matricaria discoidea* DC. against *Matricaria matricarioides* (Less.) Porter

Menthion cervinae Br.-Bl. ex Moor 1937 nom. mut. propos. (9.2)

[*Preslion cervinae* Br.-Bl. ex Moor, *Prodr. Group. Vég.* 4: 22. 1937 (art. 45)]

Correct used taxon name: *Mentha cervina* L. against *Preslia cervina* (L.) Fresen.

Micromerio benthami-Telinetum microphyllae Sunding 1972 nom. mut. propos. (82.2.2)

[*Micromerio benthami-Cytisetum congesti* Sunding in *Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S.* 29: 132, tb. 32. 1972 (art. 45)]

Correct used taxon name: *Teline microphylla* (DC.) Gibbs & Dingw. against *Cytisus congestus* (Webb & Berthel.) Ball

Minuartio cerastiifoliae-Androsacetum ciliatae Chouard 1943 nom. mut. propos. (46.3.1)

[*Alsino cerastiifoliae-Androsacetum ciliatae* Chouard 1943 (art. 45), ass. à *Androsace ciliata* et *Alsine cerastiifolia* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 10)]

Correct used taxon name: *Minuartia cerastiifolia* (Ramond ex DC.) Graebn. against *Alsine cerastiifolia* (Ramond ex DC.) Fenzl

Mniobryo albicantis-Cerastietum cerastoidis Nègre 1972 nom. mut. et nom. inv. propos. (48.1.4)

[*Cerastio trigyni-Mniobryetum albicantis* Nègre in Bol. Soc. Brot. 46: 284, tb. 4. 1972 (art. 42, 45)]

Correct used taxon name: *Cerastium cerastoides* (L.) Britton against *Cerastium trigynum* Vill.

Molineriellion laevis Br.-Bl., P. Silva, Rozeira & Fontes 1952 nom. mut. propos. (50.3)

[*Molinerion laevis* Br.-Bl., P. Silva, Rozeira & Fontes in Agron. Lusit. 14(4): 320, tb. *Arenarieto-Cerastietum ramosissimae*. 1952 (art. 45)]

Correct used taxon name: *Molineriella laevis* (Brot.) Rouy against *Molineria laevis* (Brot.) Hack.

Murbeckiello boryi-Sperguletum rimarum F. Prieto 1983 corr. Izco & Ortiz 1989 nom. mut. propos. (27.9.5)

[*Murbeckiello boryi-Sperguletum pourretii* F. Prieto 1983 corr. Izco & Ortiz in Lazaroa 11: 189. 1989 (art. 45)]

Correct used taxon name: *Spergula rimarum* J. Gay & Durieu ex Lacaita against *Spergula viscosa* subsp. *pourretii* M. Laínz

Nevadensienion purpureae Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 nom. mut. propos. (49.1a)

[*Ptilotrichenion purpurei* Rivas-Martínez, Fernández-González & Sánchez-Mata in Opusc. Bot. Pharm. Complut. 2: 94. 1986 (art. 45)]

Correct used taxon name: *Nevadensia purpurea* (Lag. & Rodr.) Rivas Mart. against *Ptilotrichum purpureum* (Lag. & Rodr.) Boiss.

Nevadension purpureae Quézel 1953 nom. mut. propos. (49.1)

[*Ptilotrichion purpurei* Quézel in Mem. Soc. Brot. 9: 43. 1953 (art. 45)]

Correct used taxon name: *Nevadensia purpurea* (Lag. & Rodr.) Rivas Mart. against *Ptilotrichum purpureum* (Lag. & Rodr.) Boiss.

Nymphoidetum peltatae Bellot 1951 nom. mut. propos. (3.2.3)

[*Limnanthemetum nymphoidis* Bellot 1951 (art. 45), ass. de *Limnanthemum nymphoides* Bellot in Trab. Jard. Bot., Santiago de Compostela 4: 1. 1951 (art. 14)]

Correct used taxon name: *Nymphoides peltata* (S.G. Gmel.) Kuntze against *Limnanthemum nymphoides* (L.) Hoffmanns. & Link

Ononido pyrenaicae-Santolinetum pecten O. Bolòs 1976 nom. mut. propos. (64.7.4)

[*Ononido-Santolinetum benthamiana* O. Bolòs in Collect. Bot. (Barcelona) 11: 129, tb. 3. 1976 (art. 45)]

Correct used taxon name: *Santolina chamaecyparissus* subsp. *pecten* Rouy against *Santolina benthamiana* Jord. & Fourr

Oxytropido-Kobresion myosuroidis Br.-Bl. (1948) 1949 nom. mut. propos. (44.1)

[*Oxytropido-Elynon myosuroidis* Br.-Bl. (1948) 1949 in Vegetatio 2(1): 24 (art. 45)]

Correct used taxon name: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch

Oxytropido neglectae-Festucetum gautieri Rivas-Martínez, Bàscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut. propos. (52.3.3)

[*Oxytropido pyrenaicae-Festucetum scopariae* Rivas-Martínez, Bàscones, T.E. Díaz, Fernández-González & Loidi in Itinera Geobot. 5: 332, tb. 52. 1991 (art. 45)]

Correct used taxon names: *Festuca gautieri* (Hack.) K. Richt. against *Festuca scoparia* (A. Kerner & Hack.) Nyman and *Oxytropis neglecta* Ten. against *Oxytropis pyrenaica* Godr. & Gren. in Gren. & Godr.

Oxytropido neglectae-Kobresietum myosuroidis Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 nom. mut. propos. (44.1.3)

[*Oxytropido pyrenaicae-Elynetum myosuroidis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas, Veg. Alta Mont. Cantábrica: 71, tb. 1. 1984 (art. 45)]

Correct used taxon names: *Kobresia myosuroides* (Vill.) Fiori against *Elyna myosuroides* (Vill.) Fritsch and *Oxytropis neglecta* Ten. against *Oxytropis pyrenaica* Godr. & Gren. in Gren. & Godr.

Palustriellion commutatae Koch 1928 nom. mut. propos. (11.2)

[*Cratoneurion commutati* Koch in Zeitschr. Hydrol. Aarau 4 (3-4): 131. 1928 (art. 45)]

Correct used taxon name: *Palustriella commutata* (Hedw.) Ochyra against *Cratoneuron commutatum* (Hedw.) G. Roth

Parietario judaicae-Asplenietum sagittati Rivas-Martínez, Costa & Loidi 1992 nom. mut. propos. (28.4.3)

[*Parietario judaicae-Phyllitidetum sagittatae* Rivas-Martínez, Costa & Loidi in Itinera Geobot. 6: 172, tb. 38. 1992 (art. 45)]

Correct used taxon name: *Asplenium sagittatum* (DC.) Bange against *Phyllitis sagittata* (DC.) Guinea & Heywood

Paspalo distichi-Polypogonetum viridis Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 nom. mut. propos. (59.10.6)

[*Paspalo distichi-Agrostietum verticillatae* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 (art. 45), ass. à *Paspalum distichum* et *Agrostis verticillata* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas, Prodr. Group. Vég. 3. 1936 (art. 10, 14)]

Correct used taxon name: *Polypogon viridis* (Gouan) Breistr. against *Agrostis verticillata* Vill.

Paspalo distichi-Polypogonenion viridis Rivas-Martínez, Fernández-González & Loidi 1999 nom. mut. propos. (59.10a)

[*Paspalo-Polypogonenion semiverticillati* Rivas-Martínez, Fernández-González & Loidi in Itinera Geobot. 13: 391. 1999 (art. 45)]

Correct used taxon name: *Polypogon viridis* (Gouan) Breistr. against *Polypogon semiverticillatus* (Forssk.) Hyl.

Paspalo-Polypogonion viridis Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (59.10)

[*Paspalo distichi-Agrostion verticillatae* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 71. 1952 (art. 45)]

Correct used taxon name: *Polypogon viridis* (Gouan) Breistr. against *Agrostis verticillata* Vill.

Patellifolietum patellaris F. Casas 1971 nom. mut. propos. (39.9.1)

[*Betum patellaris* F. Casas in Publ. Inst. Biol. Aplicada 50: 49. 1971 (art. 45)]

Correct used taxon name: *Patellifolia patellaris* (Moq.) A.J. Scott, Ford-Lloyd & J.T. Williams against *Beta patellaris* Moq.

Phlomido lychnitidis-Brachypodietum retusi Br.-Bl. 1925 nom. mut. propos. (56.1.4)

[*Phlomido lychnitidis-Brachypodietum ramosi* Br.-Bl. in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 3: 304. 1925 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Phragmition australis Koch 1926 nom. mut. propos. (12.1)

[*Phragmition communis* Koch in Jb. St. Gallischen Naturwiss. Ges. 61: 1. 1926 (art. 45)]

Correct used taxon name: *Phragmites australis* (Cav.) Trin. ex Steud. against *Phragmites communis* Trin.

Picrido rielii-Achnatheretum calamagrostis O. Bolòs 1961 nom. mut. propos. (33.14.7)

[*Picrido rielii-Stipetum calamagrostis* O. Bolòs in Anales Inst. Bot. Cavanilles 18: 253. 1961 (art. 45)]

Correct used taxon name: *Achnatherum calamagrostis* (L.) P. Beauv. against *Stipa calamagrostis* (L.) Wahlenb.

Pinguiculo longifoliae-Caricetum brachystachys Chouard 1942 nom. mut. propos. (27.16.3)

[*Pinguiculo longifoliae-Caricetum tenuis* Chouard 1942 (art. 45), ass. à *Pinguicula longifolia* et *Carex tenuis* Chouard in Bull. Soc. Bot. France 89: 257. 1942 (art. 10)]

Correct used taxon name: *Carex brachystachys* Schrank in Schrank & K. Moll against *Carex tenuis* Host

Piptathero miliacei-Antirrhinetum granitici Rivas Goday 1964 corr. Rivas-Martínez 1969 nom. mut. propos. (28.1.8)

[*Oryzopsis miliaceae-Antirrhinetum granitici* Rivas Goday, Veg. Fl. Guadiana: 107. 1964 corr. Rivas-Martínez in Publ. Inst. Biol. Aplicada 46: 10. 1969 (art. 45)]

Correct used taxon name: *Piptatherum miliaceum* (L.) Coss. against *Oryzopsis miliacea* (L.) Asch. & Schweinf.

Piptathero miliacei-Daucetum maximi O. Bolòs & Vigo 1972 nom. mut. propos. (34.12.7 = 34.6.7)

[*Oryzopsis miliaceae-Daucetum maximi* O. Bolòs & Vigo in Rapp. Com. Int. Mer. Médit 21(3): 81. 1972 (art. 45)]

Correct used taxon name: *Piptatherum miliaceum* (L.) Coss. against *Oryzopsis miliacea* (L.) Asch. & Schweinf.

Plantaginion nivalis Quézel 1953 nom. mut. propos. (60.3)

[*Plantaginion thalackeri* Quézel in Mem. Soc. Brot. 9: 49. 1953 (art. 45)]

Correct used taxon name: *Plantago nivalis* Boiss. against *Plantago thalackeri* Pau

Platycapno saxicolae-Iberidion lagascanae Rivas Goday & Rivas-Martínez 1963 nom. mut. propos. (33.2)

[*Platycapno-Iberidion granatensis* Rivas Goday & Rivas-Martínez, Estud. Clas. Past. Esp.: 260. 1963 (art. 45)]

Correct used taxon name: *Iberis carnosa* subsp. *lagascanae* (DC.) Rivas Mart., A. Asensi, Molero Mesa & F. Valle against *Iberis carnosa* subsp. *granatensis* (Boiss. & Reut.) Moreno

Pleurosoretum hispanici Pérez-Raya & Molero 1988 nom. mut. propos. (30.1.3)

[*Asplenietum hispanici* Pérez-Raya & Molero in Acta Bot. Malacitana 13: 342, tb. 1. 1988 (art. 45)]

Correct used taxon name: *Pleurosorus hispanicus* (Coss.) C.V. Morton against *Asplenium hispanicum* (Coss.) Greuter & Burdet

Polygono maritimi-Elytrigietum athericae Herrera in T.E. Díaz & F. Prieto 1994 nom. mut. propos. (34.5.4)

[*Polygono maritimi-Elymetum pycnanthi* Herrera in T.E. Díaz & F. Prieto in Lazaroa 8: 463, tb. 14. 1994 (art. 45)]

Correct used taxon name: *Elytrigia atherica* (Link) Kerguélen ex Carreras against *Elymus pycnanthus* (Godr.) Melderis

Polypodietum cambrici Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (30.1.5)

[*Polypodietum serrati* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 22. 1952 (art. 45)]

Correct used taxon name: *Polypodium cambricum* L. against *Polypodium serratum* (Willd.) A. Kerner

Polypodio cambrici-Saxifragetum fragilis Molero Brion. & Pujadas in Molero Brion. 1984 nom. mut. propos. (30.1.6)

[*Polypodio cambrici-Saxifragetum corbariensis* Molero Brion. & Pujadas in Molero Brion. in Butll. Inst. Catalana Hist. Nat., Sec. Bot. 51: 139, tb. 1. 1984 (art. 45)]

Correct used taxon name: *Saxifraga fragilis* Schrank against *Saxifraga corbariensis* Timb.-Lagr.

Polypodion cambrici Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (30.1)

[*Polypodion serrati* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 22. 1952 (art. 45)]

Correct used taxon name: *Polypodium cambricum* L. against *Polypodium serratum* (Willd.) A. Kerner

Poo annuae-Spergularietum marinae Herrera, Aedo, T.E. Díaz & F. Prieto 1988 nom. mut. propos. (22.1.3 = 38.4.5)

[*Poo annuae-Spergularietum salinae* Herrera, Aedo, T.E. Díaz & F. Prieto in Acta Bot. Malacitana 13: 331, tb. 2. 1988 (art. 45)]

Correct used taxon name: *Spergularia marina* (L.) Besser against *Spergularia salina* J. Presl. & C. Presl

Poo bulbosae-Onobrychidetum humilis Rivas Goday, Ladero & C. Rivas in Rivas Goday & Ladero 1970 nom. mut. propos. (54.1.2)

[*Poo bulbosae-Onobrychidetum eriophorae* Rivas Goday, Ladero & C. Rivas in Rivas Goday & Ladero in Anales Real Acad. Farm. 36(2): 162, tb. 2. 1970 (art. 45)]

Correct used taxon name: *Onobrychis humilis* (L.) G. López against *Onobrychis eriophora* Desv.

Potentillo montanae-Koelerietum pyramidatae Chouard 1943 nom. mut. propos. (51.1.8)

[*Potentillo splendentis-Koelerietum pyramidatae* Chouard 1943 (art. 45), ass. à *Koeleria pyramidata* et *Potentilla splendens* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 10)]

Correct used taxon name: *Potentilla montana* Brot. against *Potentilla splendens* Ramond ex DC.

Prunello hastifoliae-Cytisetum scoparii Susplugas 1942 nom. mut. propos. (65.6.1)

[ass à *Sarothamus scoparius* et *Prunella hastifolia* Susplugas, Sol Vég. Haut Vallespir (Pyr. Or.): 93, tb. 5. (nomen). 1942 (art. 45)]

Correct used taxon name: *Cytisus scoparius* (L.) Link against *Sarothammus scoparius* (L.) W.D.J. Koch

Puccinellio maritimae-Sarcocornietum fruticosae Géhu 1976 nom. mut. propos. (23.1.3)

[*Puccinellio maritimae-Salicornietum fruticosae* Géhu in Coll. Phytosociol. 4: 426, tb. 14. 1976 (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Salicornia fruticosa* (L.) L.

Puccinellio maritimae-Sarcocornietum perennis Géhu 1976 nom. mut. propos. (23.1.7)

[*Puccinellio maritimae-Arthrocnemetum perennis* Géhu in Coll. Phytosociol. 4: 420, tb. 11. 1976 (art. 45)]

Correct used taxon name: *Sarcocornia perennis* (Mill.) A.J. Scott against *Arthrocnemum perenne* (Mill.) Moss

Pulicario paludosae-Agrostietum pourretii Rivas Goday 1956 nom. mut. propos. (9.3.3)

[*Pulicario uliginosae-Agrostietum salmanticae* Rivas Goday in Anales Inst. Bot. Cavanilles 13(2): 386, tb. 20. 1956 (art. 45)]

Correct used taxon name: *Pulicaria paludosa* Link in Schrad. against *Pulicaria uliginosa* Hoffmanns. & Link and *Agrostis pourretii* Willd. against *Agrostis salmantica* (Lag.) Kunth

Pulsatillo vulgaris-Ononidetum cristatae Mayor 1968 nom. mut. propos. (52.7.11)

[*Pulsatillo vulgaris-Ononidetum cenisiae* Mayor in Collect. Bot. (Barcelona) 7(2): 773, tb. 1968 (art. 45)]

Correct used taxon name: *Ononis cristata* Mill. against *Ononis cenisia* L.

Pyro bourgaeanae-Flueggeetum tinctoriae Rivas Goday 1964 nom. mut. et inv. propos. (71.7.1)

[*Securinego buxifoliae-Pyretum marianae* Rivas Goday, Veg. Fl. Guadiana: 560, tb. 83. 1964 (art. 42, 45)]

Correct used taxon name: *Flueggea tinctoria* (L.) G.L. Webster against *Securinega tinctoria* (L.) Rothm. (*Securinega buxifolia* auct.) and *Pyrus bourgaeana* Decne. against *Pyrus communis* var. *mariana* Willk.

Quercion pubescenti-petraeae Br.-Bl. 1932 nom. mut. propos. (76.9)

[*Quercion pubescenti-sessiliflorae* Br.-Bl. in Beih. Bot. Centralbl. (Dresden) 49B: 8. 1932 (art. 45)]

Correct used taxon name: *Quercus petraea* (Matt.) Liebl. against *Quercus sessiliflora* Salisb.

Quercion lusitanicae Rothmaler 1954 nom. mut. propos. (75.11)

[*Quercion fruticosae* Rothmaler 1954 (art. 45), *Frutici-Quercion* Rothmaler in *Vegetatio* 5/6: 599. 1954 (art. 14)]

Correct used taxon name: *Quercus lusitanica* Lam. against *Quercus fruticosa* Brot.

Quercococciferae-Pistacietum lentisci Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 nom. mut. propos. (75.5.17)

[*Quercococciferae-Lentiscetum* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor in *Cavanillesia* 7(6-9): 90. 1935 (art. 45)]

Correct used taxon name: *Pistacia lentiscus* L. against *Lentiscus* (*Pistacia lentiscus*)

Ranunculo scelerati-Paspaletum distichi Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Andrade 1988 nom. mut. propos. (59.10.7)

[*Ranunculo scelerati-Paspaletum paspalodis* Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Andrade in *Acta Bot. Barcinon.* 37: 310-311, tb. 1. 1988 (art. 45)]

Correct used taxon name: *Paspalum distichum* L. against *Paspalum paspalodes* (Michaux) Scribn.

Resedetum pau O. Bolòs 1974 nom. mut. propos. (33.13.2)

[*Resedetum valentinae* O. Bolòs, *Misc. Alcobe*: 79. 1974 (art. 45)]

Correct used taxon name: *Reseda pau* Valdés Berm. & Kaercher against *Reseda valentina* Pau

Rhinantho mediterranei-Leuzeetum cynaroidis O. Bolòs 1970 nom. mut. propos. (52.4.5 = 45.1.6)

[*Rhinantho mediterranei-Rhaponticetum cynaroidis* O. Bolòs in *Arch. Natur. Landschafts.* 10: 139, tb. 1. 1970 (art. 45)]

Correct used taxon name: *Leuzea cynaroides* (L.) Holub against *Rhaponticum centauroides* (L.) O. Bolòs

Rhododendrenion pontici Rivas-Martínez & Sánchez-Mata 2001 nom. mut. propos. (75.13b)

[*Rhododendrenion baetici* Rivas-Martínez & Sánchez-Mata in *Lazaroa* 21: 151. 2001 (art. 45)]

Correct used taxon name: *Rhododendron ponticum* L. against *Rhododendron baeticum* Boiss. & Reut.

Rorippion nasturtii-aquatice Géhu & Géhu-Franck 1987 nom. mut. propos. (12.3)

[*Nasturtion officinalis* Géhu & Géhu-Franck in *Publ. Univ. La Laguna. Ser. Informes* 22: 314. 1987 (art. 45)]

Correct used taxon name: *Rorippa nasturtium-aquaticum* (L.) Hayek against *Nasturtium officinale* R.Br. in W.T. Aiton

Roso arvensis-Quercetum pubescentis Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut. propos. (76.9.3)

[*Roso arvensis-Quercetum humilis* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in *Itinera Geobot.* 5: 254. 1991 (art. 45)]

Correct used taxon name: *Quercus pubescens* Willd. (nom. conserv.) against *Quercus humilis* Mill.

Ruppium cirrhosae Hocquette 1927 corr. Iversen 1934 nom. mut. propos. (6.1.1)

[*Ruppium spiralis* Hocquette 1927 corr. Iversen in *Ringkøbings Fjords Naturhist. i Brakvandsperioden 1915-1931*: 18. 1934 (art. 45)]

Correct used taxon name: *Ruppia cirrhosa* (Petagna) Grande against *Ruppia spiralis* L. ex Dumort.

Ruto angustifoliae-Brachypodium retusi Br.-Bl. & O. Bolòs 1958 nom. mut. propos. (56.1.6)

[*Ruto angustifoliae-Brachypodium ramosi* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 134, tb. 29. 1958 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Salicion eleagni Aichinger 1933 nom. mut. propos. (71.5)

[*Salicion incanae* Aichinger in *Pflanzensoziol. (Jena)* 2: 5. 1933 (art. 45)]

Correct used taxon name: *Salix eleagnos* Scop. subsp. *eleagnos* against *Salix incana* Schrank subsp. *incana*

Salsolo kali-Cakiletum maritimae Costa & Mansanet 1981 nom. mut. propos. (17.2.4)

[*Salsolo kali-Cakiletum aegyptiacae* Costa & Mansanet in *Anales Jard. Bot. Madrid* 37(2): 279, tb. 1. 1981 (art. 45)]

Correct used taxon name: *Cakile maritima* Scop. against *Cakile maritima* subsp. *aegyptiaca* (L.) Nyman

Salsolo oppositifoliae-Suaedion verae Rigual 1972 nom. mut. propos. (37.2)

[*Salsolo oppositifoliae-Suaedion fruticosae* Rigual in *Publ. Inst. Est. Alicantinos* 2(1): 98. 1972 (art. 45)]

Correct used taxon name: *Suaeda vera* Forssk. ex J.F. Gmel. against *Suaeda fruticosa* var. *longifolia* (Koch) Fenzl. & Ledeb.

Salvio lavandulifoliae-Genistetum pumilae Costa, Peris, Izco & Molina in Costa & Peris 1985 nom. mut. propos. (64.5.5)

[*Salvio lavandulifoliae-Genistetum mugronensis* Costa, Peris, Izco & Molina in Costa & Peris in *Lazaroa* 6: 85, tb. 2. 1985 (art. 45)]

Correct used taxon name: *Genista pumila* Vierh. against *Genista mugronensis* Vierh.

Sanguisorbo hybridae-Quercetum suberis Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 nom. mut. propos. (75.2.7)

[*Poterio agrimonioidis-Quercetum suberis* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 362, tb. 12. 1960 (art. 45)]

Correct used taxon name: *Sanguisorba hybrida* (L.) Font Quer against *Poterium agrimonioides* L. ex Spach

Sarcocornienion fruticosae Rivas-Martínez & Costa 1984 nom. mut. propos (23.1a)

[*Arthrocnemion fruticosi* Rivas-Martínez in Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 17. 1984 (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Arthrocnemum fruticosum* (L.) Moq.

Sarcocornienion perennis Rivas-Martínez in Rivas-Martínez & Costa 1984 nom. mut. propos (23.1b)

[*Arthrocnemion perennis* Rivas-Martínez in Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 18. 1984 (art. 45)]

Correct used taxon name: *Sarcocornia perennis* (Mill.) A.J. Scott against *Arthrocnemum perenne* (Mill.) Moss

Sarcocornietalia fruticosae Br.-Bl. 1933 nom. mut. propos. (23a)

[*Salicornietalia fruticosae* Br.-Bl., *Prodr. Group. Vég.* 1: 12. 1933, *Salicornietalia fruticosae* Br.-Bl. in *Comm. Stat. Inst. Géobot. Médit Montpellier* 9: 35. 1931 (art. 8) (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Salicornia fruticosa* (L.) L.

Sarcocornietea fruticosae Br.-Bl. & Tüxen ex A. & O. Bolòs 1950 nom. mut. propos. (23)

[*Salicornietea fruticosae* Br.-Bl. & Tüxen ex A. & O. Bolòs, *Veg. Com. Barc.*: 86. 1950 (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Salicornia fruticosa* (L.) L.

Sarcocornion fruticosae Br.-Bl. 1933 nom. mut. propos. (23.1)

[*Salicornion fruticosae* Br.-Bl., *Prodr. Group. Vég.* 1: 15. 1933 (art. 45)]

Correct used taxon name: *Sarcocornia fruticosa* (L.) A.J. Scott against *Salicornia fruticosa* (L.) L.

Saturejo-Thymbrenion capitatae (Rivas Goday & Rivas-Martínez 1969) Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 393. 1999 nom. mut. propos. (64.2b)

[*Saturejo-Coridothymenion capitati* (Rivas Goday & Rivas-Martínez 1969) Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 393. 1999 (art. 45)]

Correct used taxon name: *Thymra capitata* (L.) Cav. against *Coridothymus capitatus* (L.) Rechb.

Saturejo-Thymbrion capitatae Rivas Goday & Rivas-Martínez 1969 nom. mut. propos. (64.2)

[*Saturejo-Coridothymion capitati* Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 109. 1969 (art. 45)]

Correct used taxon name: *Thymbra capitata* (L.) Cav. against *Coridothymus capitatus* (L.) Rchb.

Saturejo intricatae-Echinopartetum boissieri Rivas Goday & Rivas-Martínez corr. Martínez-Parras, Peinado & Alcaraz 1984 nom. mut. propos. (64.4.2)

[*Saturejo intricatae-Genistetum boissieri* Rivas Goday & Rivas-Martínez 1969 corr. Martínez-Parras, Peinado & Alcaraz in Lazaroa 5: 128. 1984 (art. 45)]

Correct used taxon name: *Echinopartum boissieri* (Spach) Rothm. against *Genista boissieri* Spach

Saxifragetum pubescentis Br.-Bl. 1948 nom. mut. propos. (27.6.7)

[*Saxifragetum mixtae* Br.-Bl., Veg. Alp. Pyr. Or.: 37, tb. 2. 1948 (art. 45)]

Correct used taxon name: *Saxifraga pubescens* Pourr. against *Saxifraga mixta* Lapeyr.

Saxifragion fragosoi Rivas-Martínez in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 nom. mut. propos. (32.4)

[*Saxifragion continentalis* Rivas-Martínez in Rivas-Martínez, Fernández-González & Sánchez-Mata in Opusc. Bot. Pharm. Complut. 2: 51. 1986 (art. 45)]

Correct used taxon name: *Saxifraga fragosoi* Sennen against *Saxifraga continentalis* (Engl. & Irmsch.) D.A. Webb

Saxifraga aizoidis-Silenetum pusillae Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut. propos. (27.16.4)

[*Saxifraga aizoidis-Heliospermetum quadridentati* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in Itinera Geobot. 5: 388, tb. 71. 1991 (art. 45)]

Correct used taxon name: *Silene pusilla* Waldst. & Kit. against *Heliosperma quadridentatum* (Murray) Schinz & Thell.

Scheuchzerio palustris-Caricetea nigrae Tüxen 1937 nom. mut. propos. (14)

[*Scheuchzerio-Caricetea fuscae* Tüxen in Mitt. Florist.-Soziol. Arbeitsgem. 3: 1. 1937 (art. 45)]

Correct used taxon name: *Carex nigra* (L.) Reichard against *Carex fusca* All.

Schoenoplecto lacustris-Phragmitetum australis Koch 1926 nom. mut. propos. (12.1.1)

[*Scirpo lacustris-Phragmitetum* Koch in Jb. St. Gallischen Naturwiss. Ges. 61: 1. 1926 (art. 45)]

Correct used taxon name: *Schoenoplectus lacustris* (L.) Palla against *Scirpus lacustris* L.

Scirpo globiferi-Juncetum acuti Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 nom. mut. propos. (59.7.12)

[*Holoschoeno globiferi-Juncetum acuti* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in Itinera Geobot. 7: 337, tb. 62. 1993 (art. 45)]

Correct used taxon name: *Scirpus holoschoenus* subsp. *globiferus* (L.f.) Huds. against *Holoschoenus globifer* (L.f.) Rchb.

Sedion candollei Rivas-Martínez, Fernández-González & Loidi 1999 nom. mut. propos. (48.3)

[*Mucizonion sedoidis* Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 385. 1999 (art. 45)]

Correct used taxon name: *Sedum candollei* Raym.-Hamet against *Mucizonia sedoides* (D.C.) D.A. Webb

Sedo caespitosi-Crassuletum tillaeae Rivas Goday 1958 nom. mut. propos. (50.1.23)

[*Sedo caespitosi-Tillaeetum muscosae* Rivas Goday in *Anales Inst. Bot. Cavanilles* 15: 582, tb. 9. 1958 (art. 45)]

Correct used taxon name: *Crassula tillaea* Lest.-Garl. against *Tillaea muscosa* L.

Sedo forsterani-Agrostietum castellanae Tüxen & Oberdorfer 1958 nom. mut. propos. (57.1.7)

[*Sedo elegantis-Agrostietum castellanae* Tüxen & Oberdorfer in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel* 32: 1. 1958 (art. 45)]

Correct used taxon name: *Sedum forsteranum* Sm. against *Sedum elegans* Lej.

Sedo mucizoniae-Galietum verrucosi Rivas Goday 1964 nom. mut. propos. (32.3.13 = 28.1.7)

[Ass. *Mucizonia hispida* et *Galium valantia* Rivas Goday, *Veg. Fl. Cuenca Extr. Guadiana*: 113, tb. 3. 1964 (art.45)]

Correct used taxon name: *Sedum mucizonia* (Ortega) Raym.-Hamet against *Mucizonia hispida* DC. ex Batt. & Trab., and *Galium verrucosum* Huds. against *Galium valantia* Weber

Sedo mucizoniae-Notholaenetum marantae Rivas Goday & Esteve 1972 nom. mut. propos. (32.2.5)

[*Mucizonia hispidae-Cheilantheum marantae* Rivas Goday & Esteve in *Anales Real Acad. Farm.* 38(3): 428, tb. 5. 1972 (art. 45)]

Correct used taxon names: *Notholaena marantae* (L.) Desv. against *Cheilanthes marantae* (L.) Domin. and *Sedum mucizonia* (Ortega) Raym.-Hamet against *Mucizonia hispida* DC. ex Batt. & Trab.

Sedo-Polypodietum cambrici O. Bolòs & Vives in O. Bolòs 1957 nom. mut. propos. (30.2.8)

[*Sedo-Polypodietum serrati* O. Bolòs & Vives in O. Bolòs in *Collect. Bot. (Barcelona)* 5(2): 533. 1957 (art. 45)]

Correct used taxon name: *Polypodium cambricum* L. against *Polypodium serratum* (Willd.) A. Kerner

Senecioni auriculae-Limonietum furfuracei Rigual 1968 nom. mut. propos. (23.9.8)

[*Senecioni majoris-Limonietum furfuracei* Rigual in Collect. Bot. (Barcelona) 7(2): 981, tb. 3. 1968 (art. 45)]

Correct used taxon name: *Senecio auricula* Bourg. ex Coss. subsp. *auricula* against *Senecio auricula* subsp. *major* (Willk.) Rivas Mart. & M.J. Costa

Senecioni cinerariae-Astragaletum tragacanthae O. Bolòs & Vigo 1984 nom. mut. et nom. inv. propos. (19.5.2)

[*Astragalo massiliensis-Senecionetum cinerariae* O. Bolòs & Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 73: 195, tb. 9. 1984 (art. 42, 45)]

Correct used taxon name: *Astragalus tragacantha* L. against *Astragalus massiliensis* (Mill.) Lam.

Serratulo tinctoriae-Nardetum strictae Tüxen in Tüxen & Oberdorfer 1958 nom. mut. propos. (60.2.3)

[*Serratulo seoanei-Nardetum strictae* Tüxen in Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32: 1. 1958 (art. 45)]

Correct used taxon name: *Serratula tinctoria* L. var. *tinctoria* against *Serratula tinctoria* var. *seoanei* Willk.

Seslerio caeruleae-Festucetum gautieri Br.-Bl. 1948 nom. mut. propos. (52.3.5)

[*Seslerio caeruleae-Festucetum scopariae* Br.-Bl., Veg. Alp. Pyr. Or.: 151, tb. 19. 1948 (art. 45)]

Correct used taxon name: *Festuca gautieri* (Hack.) K. Richt. against *Festuca scoparia* (A. Kerner & Hack.) Nyman

Sileno pusillae-Cystopteridetum montanae Chouard 1942 nom. mut. propos. (33.10.3)

[*Sileno quadrifidae-Cystopteridetum montanae* Chouard 1942 (art. 45), ass. à *Silene quadrifida* et *Cystopteris montana* Chouard in Bull. Soc. Bot. France 89: 257. 1942 (art. 10)]

Correct used taxon name: *Silene pusilla* Waldst. & Kit. against *Silene quadrifida* auct., non L.

Sileno secundiflorae-Petrorhagietum saxifragae O. Bolòs 1957 nom. corr. et nom. mut. propos. (55.4.3)

[*Sileno secundiflorae-Tunicetum saxifragae* O. Bolòs 1957 nom. corr., *Sileno glaucae-Tunicetum saxifragae* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 567-569. 1957 (art. 44, 45)]

Correct used taxon name: *Petrorhagia saxifraga* (L.) Link against *Tunica saxifraga* (L.) Scop.

Solenopsio laurentiae-Juncetum tingitani Rivas Goday & Borja in Rivas Goday 1968 nom. mut. propos. (9.4.6)

[*Laurentio michelii-Juncetum tingitani* Rivas Goday & Borja in Rivas Goday in Collect. Bot. (Barcelona) 7(2): 1022, tb. 4. 1968 (art. 45)]

Correct used taxon name: *Solenopsis laurentia* (L.) C. Presl against *Laurentia michelii* A. DC.

Soncho-Aeonietalia Rivas Goday & Esteve ex Sunding 1972 nom. mut. propos. (31a)
[*Soncho-Sempervivetalia* Rivas Goday & Esteve ex Sunding in Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 94. 1972 (art. 45)]

Correct used taxon name: *Aeonium* Webb & Berthel. against *Sempervivum* L.

Soncho-Aeonion Sunding 1972 nom. mut. propos. (31.2)
[*Soncho-Sempervivion* Sunding in Skr. Norske Vidensk.-Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 94. 1972 (art. 45)]

Correct used taxon name: *Aeonium* Webb & Berthel. against *Sempervivum* L.

Sparganio angustifolii-Callitrichetum platycarpae Rivas Goday & Rivas-Martínez 1958 nom. mut. propos. (10.1.2)
[*Sparganio angustifolii-Callitrichetum fontqueri* Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 16: 574, tb. 50. 1958 (art. 45)]

Correct used taxon name: *Callitriche platycarpa* Kütz. against *Callitriche fontqueri* Allorge

Spartocytisetum supranubii Oberdorfer ex Esteve 1973 nom. mut. propos. (78.2.4)
[*Spartocytisetum nubigeni* Oberdorfer ex Esteve in Trab. Dep. Bot. Univ. Granada 2(1): 3. 1973 (art. 45)]

Correct used taxon name: *Spartocytisus supranubius* (L.f.) Christ ex G. Kunkel against *Spartocytisus nubigenus* Webb & Berthel.

Spartocytision supranubii Oberdorfer ex Esteve 1973 nom. mut. propos. (78.2)
[*Spartocytision nubigeni* Oberdorfer ex Esteve in Trab. Dep. Bot. Univ. Granada 2(1):3.1973 (art.45)]

Correct used taxon name: *Spartocytisus supranubius* (L.f.) Christ ex G. Kunkel against *Spartocytisus nubigenus* Webb & Berthel.

Sphenopo divaricati-Arthrocnemetum macrostachyi Br.-Bl. 1933 nom. mut. propos. (23.2.4)
[*Sphenopo divaricati-Arthrocnemetum glauci* Br.-Bl., Prodr. Group. Vég. 1: 21. 1933 (art. 45)]

Correct used taxon name: *Arthrocnemum macrostachyum* (Moris.) Moris against *Arthrocnemum glaucum* Ung.Stenb.

Stipion capensis Br.-Bl. & O. Bolòs ex Izco 1974 nom. mut. propos. (50.10)
[*Stipion retortae* Br.-Bl. & O. Bolòs ex Izco in Coll. Int. C.N.R.S. 235: 452. 1974 (art. 45)]

Correct used taxon name: *Stipa capensis* Thunb. against *Stipa retorta* Cav.

Suaedetum verae Br.-Bl. ex O. Bolòs & Molinier 1958 nom. mut. propos. (23.4.6)
[*Suaedetum fruticosae* Br.-Bl. ex O. Bolòs & Molinier in Collect. Bot. (Barcelona) 5(3): 829. 1958 (art. 45)]

Correct used taxon name: *Suaeda vera* Forssk. ex J.F. Gmel. against *Suaeda fruticosa* auct.

Teucrio libanitidis-Thymetum membranacei Bellot, Esteve & Rigual in Rivas Goday & Esteve 1968 nom. mut. propos. (64.10.3)

[*Teucrio verticillati-Thymetum pallentis* Bellot, Esteve & Rigual in Rivas Goday & Esteve in *Anales Inst. Bot. Cavanilles* 23: 62, tb. 7. 1968 (art. 45)]

Correct used taxon name: *Teucrium libanitis* Schreb. against *Teucrium verticillatum* Cav. and *Thymus membranaceus* Boiss. against *Thymus pallens* Lag.

Teucrio pseudochamaepityos-Brachypodietum retusi O. Bolòs 1957 nom. mut. propos. (56.1.8)

[*Teucrio pseudochamaepityos-Brachypodietum ramosi* O. Bolòs in *Collect. Bot. (Barcelona)* 5(2): 565. 1957 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Teucrio pyrenaici-Potentilletum montanae Br.-Bl. 1967 nom. mut. propos. (51.1.9)

[*Teucrio pyrenaici-Potentilletum splendidis* Br.-Bl. in *Vegetatio* 14(1-4): 64, tb. 23. 1967 (art. 45)]

Correct used taxon name: *Potentilla montana* Brot. against *Potentilla splendens* Ramond ex DC.

Thero-Brachypodium retusi Br.-Bl. 1925 nom. mut. propos. (56.1)

[*Thero-Brachypodium ramosi* Br.-Bl. in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel* 3: 304. 1925 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Trifolio-Brachypodietum retusi A. & O. Bolòs & Br.-Bl. in O. Bolòs 1956 nom. mut. propos. (56.1.9)

[*Trifolio-Brachypodietum ramosi* A. & O. Bolòs & Br.-Bl. in O. Bolòs in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel* 31: 80. 1956 (art. 45)]

Correct used taxon name: *Brachypodium retusum* (Pers.) P. Beauv. against *Brachypodium ramosum* Roem. & Schult.

Triplachno nitentis-Catapodietum marini O. Bolòs, Folch & Vigo in O. Bolòs 1989 nom. mut. propos. (22.2.9)

[*Triplachno nitentis-Desmazerietum marinae* O. Bolòs, Folch & Vigo in O. Bolòs in *Folia Bot. Misc.* 6: 115. 1989 (art. 45)]

Correct used taxon name: *Catapodium marinum* (L.) C.E. Hubb. against *Desmazeria marina* (L.) Druce

Tuberarienion guttatae Rivas-Martínez 1978 nom. mut. propos. (50.1a)

[*Helianthemion guttati* Rivas-Martínez in *Coll. Phytosociol.* 6: 61. 1978 (art. 45)]

Correct used taxon name: *Tuberaria guttata* (L.) Fourr. against *Helianthemum guttatum* (L.) Mill.

Tuberarietalia guttatae Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 nom. mut. propos. (50a)

[*Helianthemetalia guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner, Prodr. Group. Vég. 1940 (art. 45)]

Correct used taxon name: *Tuberaria guttata* (L.) Fourr. against *Helianthemum guttatum* (L.) Mill.

Tuberarietea guttatae (Br.-Bl. in Br.-Bl., Roussine & Nègre 1952) Rivas Goday & Rivas-Martínez 1963 nom. mut. propos. (50)

[*Helianthemetea guttati* (Br.-Bl. in Br.-Bl., Roussine & Nègre 1952) Rivas Goday & Rivas-Martínez 1963 em. Rivas-Martínez in Coll. Phytosociol. 6: 59. 1978 (art. 45)]

Correct used taxon name: *Tuberaria guttata* (L.) Fourr. against *Helianthemum guttatum* (L.) Mill.

Tuberarion guttatae Br.-Bl., in Br.-Bl., Molinier & Wagner 1940 nom. mut. propos. (50.1)

[*Helianthemion guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner, Prodr. Group. Vég. 1940 (art. 45)]

Correct used taxon name: *Tuberaria guttata* (L.) Fourr. against *Helianthemum guttatum* (L.) Mill.

Ulmo minoris-Lithospermetum purpureocaerulei O. Bolòs 1956 nom. mut. propos. (71.2.17)

[*Ulmo carpinifoliae-Lithospermetum purpureocaerulei* O. Bolòs in Collect. Bot. (Barcelona) 5(1): 240, tb. 29. 1956 (art. 45)]

Correct used taxon name: *Ulmus minor* Mill. against *Ulmus carpinifolia* Ruppius ex Suckow

Urtico membranaceae-Anthriscetum caucalidis Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (41.2.9)

[*Urtica dubiae-Anthriscetum caucalidis* Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 76, tb. 40. 1980 (art. 45)]

Correct used taxon name: *Urtica dubia* Forssk., nom. inval. (= *Urtica caudata* Vahl non Burm.f.) should be *Urtica membranacea* Poir.

Valeriano montanae-Gymnocarpium robertiani Chouard 1943 nom. mut. propos. (33.10.4)

[*Valeriano montanae-Polypodietum robertiani* Chouard 1943 (art. 45), ass. à *Polypodium robertianum* et *Valeriana montana* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 10)]

Correct used taxon name: *Gymnocarpium robertianum* (Hoffm.) Newman against *Polypodium robertianum* Hoffm.

Veronico turbicolae-Festucetum rivularis Quézel 1953 nom. mut. propos. (14.6.3 = 14.2.9)

[Ass. à *Festuca rivularis* et *Veronica repens* var. *nevadensis* Quézel in Mem. Soc. Brot. 9: 64, tb. 19. 1953 (art. 45)]

Correct used taxon name: *Veronica turbicola* Rivas Mart., A. Asensi, Molero & F. Valle against *Veronica repens* var. *nevadensis* Pau

Violo crassiusculae-Linarietum glacialis Quézel 1953 nom. mut. propos. (33.7.3)

[*Violo nevadensis-Linarietum glacialis* Quézel in Mem. Soc. Brot. 9: 39, tb. 11. 1953 (art. 45)]

Correct used taxon name: *Viola crassiuscula* Bory against *Viola nevadensis* Boiss.

5. Nomina inversa proposita

Many of the nomina inversa proposita listed in this chapter have been previously proposed or used in different papers by several authors. In this publication we only put together all the proposals to be sent to the Nomenclature Commission.

Article 42. Nomina inversa: When a name is not formed according to Recommendation 10C [should the name of a syntaxon be formed from two taxa of which one is dominant, then the latter should appear in the second place. In the case of two dominant taxa of different strata, the taxon of the dominant stratum should appear in the second place], a proposal may be made to the Nomenclature Commission to correct the order of the taxon names. The Commission decides on the question and publishes the corrected name with the inverted order (nomen inversum) the application of which is thus obligatory.

Aceri opali-Quercetum petraeae Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. inv. propos. (76.5.4)

[*Quercu petraeae-Aceretum opali* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 254. 1952 (art. 42)]

Agrostio truncatulae-Trisetetum ovati Rivas Goday 1958 nom. inv. propos. (50.3.6)

[*Trisetu ovati-Agrostietum truncatulae* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 637, tb. 30. 1958 (art. 42)]

Anthoxantho aristati-Holcetum setiglumis Rivas Goday 1958 nom. inv. propos. (50.1.6)

[*Holco setiglumis-Anthoxantheum aristati* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 627, tb. 27. 1958 (art. 42)]

Antirrhino sempervirentis-Scrophularietum pyrenaicae Quézel 1956 nom. inv. propos. (29.3.13)

[*Scrophulario pyrenaicae-Antirrhinetum sempervirentis* Quézel in Collect. Bot. (Barcelona) 5(1): 185, tb. 5. 1956 (art. 42)]

Astragalo sesamei-Poetum bulbosae Rivas Goday & Ladero 1970 nom. inv. propos. (54.3.1)

[*Poo bulbosae-Astragaletum sesamei* Rivas Goday & Ladero in Anales Real Acad. Farm. 36(2): 170, tb. 3. 1970 (art. 42)]

Astragalo sesamei-Poion bulbosae Rivas Goday & Ladero 1970 nom. inv. propos. (54.3)

[*Poo bulbosae-Astragalion sesamei* Rivas Goday & Ladero in Anales Real Acad. Farm. 36(2): 165. 1970 (art. 42)]

Balloto hirsutae-Carthametum arborescentis Rivas Goday & Rigual corr. Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989 nom. inv. propos. (34.10.5)

[*Carthamo arborescentis-Ballotetum hirsutae* Rivas Goday & Rigual 1958 corr. Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez in Itinera Geobot. 2: 93. 1989 (art. 42)]

- Bryo argentei-Saginetum procumbentis* Diemont, Sissingh & Westhoff. 1940 nom. inv. propos. (38.1.1)
[*Sagino-Bryetum argentei* Diemont, Sissingh & Westhoff in Commun. Stat. Int. Géobot. Médit. Montpellier 76: 215. 1940 (art. 42)]
- Cardamino hirsutae-Geranietaalia purpurei* Brullo in Brullo & Marcenò 1985 nom. inv. propos. (41a)
[*Geranio purpurei-Cardaminetalia hirsutae* Brullo in Brullo & Marcenò in Coll. Phytosociol. 12: 71. 1985 (art. 42)]
- Carici depressae-Quercetum canariensis* O. Bolòs 1959 nom. inv. propos. (76.5.3)
[*Quercu canariensis-Caricetum depressae* O. Bolòs in Arxius Secc. Ci. Inst. Estud. Catalans 26: 28. 1959 (art. 10c, 42)]
- Carici punctatae-Juncetum acutiflori* O. Bolòs 1959 nom. inv. propos. (59.3.10)
[*Junco acutiflori-Caricetum punctatae* O. Bolòs in Arxius Secc. Ci. Inst. Estud. Catalans 26: 83. 1959 (art. 42)]
- Chenopodio boni-henrici-Rumicetum pseudalpini* Carrillo & Vigo 1984 nom. corr. et nom. inv. propos. (34.2.1)
[*Rumici pseudalpini-Chenopodietum boni-henrici* Carrillo & Vigo 1984 corr. hoc loco (art. 42), *Rumici alpini-Chenopodietum boni-henrici* Carrillo & Vigo in Collect. Bot. (Barcelona) 15: 145, tb. 1. 1984 (art. 43)]
- Cirsio tuberosi-Brometum erecti* O. Bolòs 1967 nom. inv. propos. (51.1.4)
[*Bromo erecti-Cirsietum tuberosi* O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 102, tb. 30. 1967 (art. 42)]
- Cisto laurifolii-Buxetum sempervirentis* Carreras, Carrillo, Masalles, Ninot & Vigo 1993 nom. inv. propos. (66.1.15)
[*Buxo sempervirentis-Cistetum laurifolii* Carreras, Carrillo, Masalles, Ninot & Vigo in Acta Bot. Barcinon. 42: 214, tb. 72. 1993 (art. 42)]
- Cisto repentis-Astragaletum tragacanthae* Franquesa 1995 nom. inv. propos. (19.5.1)
[*Astragalo massiliensis-Cistetum repentis* Franquesa in Arxius Secc. Ci. Inst. Estud. Catalans 109: 153, tb. 49. 1995, *Astragalo tragacanthae-Cistetum repentis* Franquesa 1995 nom. mut. (art. 45) (art. 42)]
- Crassulo tillaeae-Sedetum caespitosi* Rivas Goday 1958 nom. inv. propos. (50.1.23)
[*Sedo caespitosi-Crassuletum tillaeae* Rivas Goday in Anales Inst. Bot. Cavanilles 15: 582, tb. 9. 1958. (art. 42)]
- Eleusino-Euphorbietum prostratae* O. Bolòs & A. Marcos 1953 nom. inv. propos. (38.5.2)
[*Euphorbio-Eleusinetum geminatae* O. Bolòs & A. Marcos in Collect. Bot. (Barcelona) 3(3): 370. 1953 (art. 42)]
- Equiseto hyemalis-Alnetum glutinosae* O. Bolòs 1957 nom. inv. propos. (71.1.1)
[*Alno glutinosae-Equisetetum hyemalis* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 486. 1957 (art. 42)]

- Eragrostio papposae-Brassicetum cossonianae* Esteve 1973 nom. inv. propos. (39.12.1)
[*Brassico cossonianae-Eragrostietum papposae* Esteve, Veg. Fl. Reg. Centr. Mer. Murcia 110, c. 8, tb. 13. 1973 (art. 42)]
- Erico vagantis-Ulicetum europaei* Guinea 1949 nom. inv. propos. (61.4.14)
[*Ulici europaei-Ericetum vagantis* Guinea, Vizcaya y su paisaje vegetal: 367, tb. 2. 1949 (art. 42)]
- Eriophoro latifolii-Caricetum paniculatae* O. Bolòs & Vives in O. Bolòs 1956 nom. inv. propos. (12.4.6)
[*Carici paniculatae-Eriophoretum latifolii* O. Bolòs & Vives in O. Bolòs in Collect. Bot. (Barcelona) 5(1): 219, tb. 22. 1956 (art. 42)]
- Eruco vesicariae-Diplofaxietum eruroidis* Rigual 1972 nom. inv. propos. (39.7.3)
[*Diplofaxio eruroidis-Erucetum vesicariae* Rigual in Publ. Inst. Est. Alicantinos 2(1): 75, tb. 15. 1972 (art. 42)]
- Festuco hystricis-Astragaletum granatensis* Quézel 1953 nom. inv. propos. (64.8.2)
[*Astragalo granatensis-Festucetum hystricis* Quézel in Mem. Soc. Brot. 9: 21. 1953 nom. mut. propos. (art. 42)]
- Galactito tomentosae-Cynaretum humilis* Rivas Goday 1964 nom. inv. propos. (34.10.2)
[*Cynaro humilis-Galactitetum tomentosae* Rivas Goday, Veg. Fl. Guadiana: 400, tb. 60. 1964 (art. 42)]
- Genisto carpetanae-Nardetum strictae* Rivas-Martínez 1964 nom. inv. propos. (60.4.12)
[*Nardo strictae-Genistetum carpetanae* Rivas-Martínez in Anales Inst. Bot. Cavanilles 21(1): 139, tb. 20A. 1964 (art. 42)]
- Heleochloo-Paspaletalia distichi* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. inv. propos. (59d)
[*Paspalo-Heleochloetalia* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 70. 1952 (art. 42)]
- Helleboro occidentalis-Fagetum sylvaticae* O. Bolòs 1957 nom. inv. propos. (76.1.3)
[*Fago-Helleboretum occidentalis* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 496. 1957 (art. 42)]
- Honckenyo peploidis-Elytrigion boreoatlanticae* Tüxen in Br.-Bl. & Tüxen 1952 nom. inv. propos. (16.2)
[*Elytrigio boreoatlanticae-Honckenyon peploidis* Tüxen in Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 248. 1952 nom. mut. (art. 42)]
- Ipomoeo purpureae-Lycion europaei* O. Bolòs 1988 nom. inv. propos. (37.5)
[*Lycio europaei-Ipomoeion purpureae* O. Bolòs in Acta Bot. Barcinon. 37: 31. 1988 (art. 10c, 42)]
- Junipero sabinae-Pinetalia sylvestris* Rivas-Martínez 1965 nom. inv. propos. (74a)
[*Pino-Juniperetalia* Rivas-Martínez in Anales Inst. Bot. Cavanilles 22: 348. 1965 (art. 10c, 42)]

Junipero sabiniae-Pinetea sylvestris Rivas-Martínez 1965 nom. inv. propos. (74)
[*Pino-Juniperetea* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 348. 1965 (art. 10c, 42)]

Junipero sabiniae-Pinion ibericae Rivas Goday ex Rivas Goday & Borja 1961 corr. Rivas-Martínez & J.A. Molina in Rivas-Martínez, Fernández-González & Loidi 1999 nom. inv. propos. (74.1)
[*Pino ibericae-Juniperion sabiniae* Rivas Goday ex Rivas Goday & Borja 1961 corr. Rivas-Martínez & J.A. Molina in Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 397. 1999 (art. 42)]

Lamio flexuosi-Alnetum glutinosae (O. Bolòs in Oberdorfer 1953) O. Bolòs 1954 nom. inv. propos. (71.1.2)
[*Alno glutinosae-Lamietum flexuosi* (O. Bolòs in Oberdorfer 1953) O. Bolòs in *Collect. Bot. (Barcelona)* 4(2): 283, tb. 13. 1954 (art. 10e, 42)]

In Heinrich E. Weber's remarkable survey of the European hedges and scrubs (*Itinera Geobotanica* 11: 103. 1998) there is a confusion concerning the interpretation of the text about the association *Alneto-Lamietum flexuosi* (*Collectanea Botanica* 4: 283-286. 1954). In the text of the *Collectanea Botanica* this association is not included in the alliance *Lonicero-Berberidion hispanicae*. Actually it is included, according to thinking of that period, in the alliance *Populion albae* and in the order *Populetalia albae*. The *Alneto-Lamietum* is, in fact, a wood that has nothing to do with the alliance *Lonicero-Berberidion hispanicae*. Instead, it is related to the alliance *Alno-Ulmion* of the order *Fagetalia sylvaticae*. I hope this mistake will soon be corrected.

[O. Bolòs]

Lithospermo purpureocaerulei-Ulmetum minoris O. Bolòs 1956 nom. inv. propos. (71.2.17)
[*Ulmo carpinifoliae-Lithospermetum purpureocaerulei* O. Bolòs in *Collect. Bot. (Barcelona)* 5(1): 240, tb. 29. 1956 (art. 45), *Ulmo minoris-Lithospermetum purpureocaerulei* O. Bolòs 1956 nom. mut. (art. 42)]

Mayteno umbellatae-Oleion maderensis Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez 2000 nom. inv. propos. (80.2)
[*Oleo maderensis-Maytenion umbellatae* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez in *Silva Lusit.* 7(2): 258. 2000 (art. 42)]

Medicagini suffruticosae-Brometum erecti P. Montserrat 1960 nom. inv. propos. (51.1.5)
[*Bromo erecti-Medicaginetum suffruticosae* P. Montserrat in *Anales Inst. Bot. Cavanilles* 18: 296. 1960 (art. 42)]

Mentho longifoliae-Juncetum inflexi Lohmeyer 1953 nom. inv. propos. (59.15.6)
[*Junco inflexi-Menthetum longifoliae* Lohmeyer in *Mitt. Florist.-Soziol. Arbeitsgem.* 4: 59. 1953 (art. 42)]

Micromerio hyssopifoliae-Cistetalia monspeliensis Pérez de Paz, Del Arco & Wildpret 1990 nom. inv. propos. (80b)
[*Cisto monspeliensis-Micromerietalia hyssopifoliae* Pérez de Paz, Del Arco & Wildpret in *Vieraea* 19: 54. 1990 (art. 42)]

Micromerio hyssopifoliae-Cistion monspeliensis Pérez de Paz, Del Arco & Wildpret 1990 nom. inv. propos. (80.3)

[*Cisto monspeliensis-Micromerion hyssopifoliae* Pérez de Paz, Del Arco & Wildpret in Vieraea 19: 54. 1990 (art. 42)]

Mniobryo albicantis-Cerastietum cerastoidis Nègre 1972 nom. inv. propos. (48.1.4)

[*Cerastio trigyni-Mniobryetum albicantis* Nègre 1972, *Cerastio cerastoidis-Mniobryetum albicantis* Nègre 1972 nom. mut. (art. 45) (art. 42)]

Myrico gale-Franguletum alni Peinado & A. Velasco in Peinado, G. Moreno & A. Velasco 1983 nom. inv. propos. (71.3.2)

[*Frangulo alni-Myricetum gale* Peinado & A. Velasco in Peinado, G. Moreno & A. Velasco in Willdenowia 13(2): 355, tb. 2. 1983 (art. 10c, 42)]

Oxytropido foucaudii-Kobresietum myosuroidis Chouard 1943 nom. inv. propos. (44.1.1)

[*Elyno myosuroidis-Oxytropidetum lazicae* Chouard in Bull. Soc. Bot. France 90: 25. 1943 (art. 45), *Kobresio myosuroidis-Oxytropidetum foucaudii* Chouard 1943 nom. mut. (art. 42)]

Oxytropido halleri-Kobresietum myosuroidis (Br.-Bl. 1948) Küpfer 1974 nom. inv. propos. (44.1.2)

[*Elyno myosuroidis-Oxytropidetum halleri* (Br.-Bl. 1948) Küpfer in Boissiera 23: 1. 1974 (art. 45), *Kobresio myosuroidis-Oxytropidetum halleri* (Br.-Bl. 1948) Küpfer 1974 nom. mut. (art. 42)]

Pegano harmalae-Salsoletum vermiculatae Br.-Bl. & O. Bolòs 1954 nom. inv. propos. (37.1.10)

[*Salsolo vermiculatae-Pegagnetum harmalae* Br.-Bl. & O. Bolòs in Collect. Bot. (Barcelona) 4(2): 238. 1954 (art. 42)]

Periballio-Trifolion subterranei Rivas Goday 1964 nom. inv. propos. (54.1)

[*Trifolio subterranei-Periballion* Rivas Goday, Veg. Fl. Guadiana: 340. 1964 (art. 10c, 42)]

Pimpinello puberulae-Achnatheretum calamagrostis Rivas Goday & Borja 1961 nom. inv. propos. (33.14.9)

[*Achnathero calamagrostis-Pimpinellatum puberulae* Rivas Goday & Borja 1961 nom. mut. (art. 42)]

Pinguiculo grandiflorae-Caricetum frigidae Br.-Bl. 1948 nom. inv. propos. (14.4.1)

[*Carici frigidae-Pinguiculatum grandiflorae* Br.-Bl., Veg. Alp. Pyr. Or.: 125, tb. 15. 1948 (art. 42)]

Pittosporo undulati-Myricion fayae Lüpnitz 1976 nom. inv. propos. (73.2)

[*Myrico fayae-Pittosporion undulati* Lüpnitz in Beitr. Biol. Pflanzen 51: 263. 1976 (art. 42)]

Polygono arenastri-Matricarietum discoideae Müller ex Oberdorfer 1971 corr. Passarge 1996 nom. inv. propos. (38.2.2)

[*Matricario discoideae-Polygonetum arenastri* Müller ex Oberdorfer 1971 corr. Passarge, Pflanzenges. Nordostdeutsch.: 243. 1996 nom. mut. (art. 42)]

Polygono arenastri-Sclerochloetum durae Soó ex Korneck 1969 corr. Mucina 1993 nom. inv. propos. (38.3.4)

[*Sclerochloa durae-Polygonetum arenastri* Soó ex Korneck 1969 corr. Mucina in Pflanzengesells. Österreichs 1: 84. 1993 (art. 42)]

Potentillo alchimilloidis-Antirrhinetum sempervirentis Rivas Goday, Esteve, Rigual & Borja 1954 nom. inv. propos. (29.3.1)

[*Antirrhino sempervirentis-Potentilletum alchimilloidis* Rivas Goday, Esteve, Rigual & Borja in Anales Inst. Bot. Cavanilles 12: 485, tb. 4. 1954 (art. 42)]

Puccinellio ibericae-Sarcocornietum perennis J.C. Costa in J.C. Costa, Lousã & Espírito-Santo 1997 nom. corr. et nom. inv. propos. (23.1.6)

[*Sarcocornio perennis-Puccinellietum ibericae* J.C. Costa in J.C. Costa, Lousã & Espírito-Santo in Studia Bot. 15: 97, tb. 8. 1997 corr. hoc loco (art. 42)]

Ranunculo acetosellifolii-Vaccinietum nani Quézel 1953 nom. inv. propos. (60.3.5)

[*Vaccinio nani-Ranunculetum acetosellifolii* Quézel in Mem. Soc. Brot. 9: 54, tb. 16. 1953 (art. 42)]

Rhamno crenulatae-Juniperetum canariensis Santos 1983 corr. O. Rodríguez, Del Arco, García Gallo, Acebes, Pérez de Paz & Wildpret 1998 nom. inv. propos. (80.1.8)

[*Junipero canariensis-Rhamnetum crenulatae* Santos 1983 corr. O. Rodríguez, Del Arco, García Gallo, Acebes, Pérez de Paz & Wildpret, Cat. Syntax. Subreg. Canaria: 17. 1998 (art. 42)]

Rhamno crenulatae-Oleetalia cerasiformis Santos 1983 nom. inv. propos. (80a)

[*Oleo cerasiformis-Rhamnetalia crenulatae* Santos, Veg. Fl. La Palma: 59. 1983 (art. 42)]

Rhamno crenulatae-Oleetea cerasiformis Santos ex Rivas-Martínez 1987 nom. inv. propos. (80)

[*Oleo cerasiformis-Rhamnetea crenulatae* Santos ex Rivas-Martínez, Mem. Mapa Series Veg. España: 156. 1987 (art. 42)]

Rhododendro ferruginei-Abietetum albae (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl. 1948 nom. inv. propos. (77.1.2)

[*Abieti albae-Rhododendretum ferruginei* (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl., Veg. Alp. Pyr. Or.: 250. 1948 (art. 42)]

Rubo idaei-Sambucetum racemosae O. Bolòs 1979 nom. inv. propos. (66.5.2)

[*Sambuco racemosae-Rubetum idaei* O. Bolòs in Doc. Phytosociol. 4: 70, tb. 1. 1979 (art. 10c, 42)]

Rusco hypophylli-Buxetum sempervirentis O. Bolòs 1958 nom. inv. propos. (75.5.8)

[*Buxo sempervirentis-Ruscetum hypophylli* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 594. 1958 (art. 42)]

Saxifrago geranioidis-Rhododendretum ferruginei (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl. 1948 nom. inv. propos. (77.2.1)

[*Rhododendro ferruginei-Saxifragetum geranioidis* (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl., Veg. Alp. Pyr. Or.: 252, tb. 29. 1948 (art. 42)]

- Scrophulario alpestris-Aruncetum dioici* Nègre 1972 nom. inv. propos. (42.1.14)
 [*Aruncio dioici-Scrophularietum alpestris* Nègre 1972 corr. et mut. hoc loco (art. 42, 45), *Spiraeo aruncus-Scrophularietum pyrenaicae* Nègre in Bol. Soc. Brot. 46: 314, tb. 11. 1972 (art. 43)]
- Senecioni cinerariae-Astragaletum tragacanthae* O. Bolòs & Vigo, Flora dels Països Catalans 1. 1984 nom. inv. et nom. mut. propos. (19.5.2)
 [*Astragalo massiliensis-Senecionetum cinerariae* O. Bolòs & Vigo in Arxius Secc. Ci. Inst. Estud. Catalans 73: 195, tb. 9. 1984 (art. 45, 42)]
- Seseli cantabrici-Brachypodietum rupestris* Br.-Bl. 1967 corr. Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 nom. inv. propos. (51.1.2)
 [*Brachypodio rupestris-Seselietum cantabrici* Br.-Bl. 1967 corr. Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas, Veg. Alta Mont. Cantábrica: 129. 1984 (art. 42)]
- Stipo parviflorae-Lygeetum sparti* Br.-Bl. & O. Bolòs 1954 nom. inv. propos. (56.2.4)
 [*Lygeo sparti-Stipetum parviflorae* Br.-Bl. & O. Bolòs in Collect. Bot. (Barcelona) 4(2): 237. 1954 (art. 42)]
- Thymelaeo hirsutae-Salsoletum oppositifoliae* Rivas Goday & Bellot in Rivas Goday & Rivas-Martínez 1959 nom. inv. propos. (37.2.6)
 [*Salsolo oppositifoliae-Thymelaeetum hirsutae* Rivas Goday & Bellot ex Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 16: 561. 1959 (art. 42)]
- Thymelaeo tinctoriae-Ericetum multiflorae* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 nom. mut. & nom. inv. propos. (64.1.5)
 [*Erico multiflorae-Passerinetum tinctoriae* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor in Cavanillesia 7(6-9): 106. 1935 (art. 42, 45)]
- Trifolio subterranei-Poetum bulbosae* Rivas Goday 1964 nom. inv. propos. (54.1.3)
 [*Poo bulbosae-Trifolietum subterranei* Rivas Goday, Veg. Fl. Guadiana: 342, tb. 48. 1964 (art. 42)]
- Urtico piluliferae-Silybetum mariani* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 nom. inv. propos. (34.11.8)
 [*Silybo-Urticetum* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas, Prodr. Group. Vég. 3. 1936 (art. 42)]
- Urtico piluliferae-Silybion mariani* Sissingh ex Br.-Bl. & O. Bolòs 1958 nom. inv. propos. (34.11)
 [*Silybo-Urticion* Sissingh ex Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 64. 1958 (art. 42)]
- Zizipho loti-Maytenetum europaei* F. Casas 1970 nom. inv. propos. (75.8.2)
 [*Gymnosporio europaei-Ziziphetum loti* F. Casas in Publ. Inst. Biol. Aplicada 49: 114, tb. 5. 1970 (art. 42)]

6. Nomina ambigua, dubia and conservanda proposita

Article 36. Nomina ambigua. A name must be rejected when, as a consequence of earlier misinterpretation or various emendations or for any other reason, it has been used so often in a false sense which excludes its type that its re-introduction in its original, correct sense would be a source of continual errors (nomen ambiguum). Since a judgement on the concept nomen ambiguum is necessarily subjective, the rejection of a name on the basis of this article will be regulated by the Nomenclature Commission by the publication of nomina ambigua rejicienda.

Article 37. Nomina dubia. The name of an association or subassociation may be rejected when the type rel. on which it is based is considered so incomplete or complex that its assignment to one of the associations or subassociations distinguished today does not seem possible (nomen dubium).

Article 52. Conservation of syntaxon names. To avoid inappropriate changes of commonly used, validly published names of syntaxa owing to strict application of the Rules, some names applied in accordance with the nomenclatural type can be established as exceptions according to special criteria. These names can be protected as nomina conservanda (see the ruling in Principle IV). This rule particularly applies to well-known and long-accepted names of classes and orders. The adopted nomina conservanda as well as the rejected ones will be included in App. VI of the Code.

Aphyllanthion Br.-Bl. & Pawłowski 1931 non Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. amb. rejic. propos. (art. 36) (59.8)

[*Aphyllanthion* Br.-Bl. & Pawłowski in Rev. Bot. Appl. Agric. Trop. 11: 1. 1931, holotypus: *Prunello hyssopifoliae-Deschampsietum mediae* Br.-Bl. & Pawłowski 1931 (l.c.), *Deschampsion mediae* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 135. 1952, holotypus (art. 20): *Prunello hyssopifoliae-Deschampsietum mediae* Br.-Bl. & Pawłowski in Rev. Bot. Appl. Agric. Trop. 11: 1. 1931 (59.8.6) sub *Deschampsietum mediae* Br.-Bl. in Br.-Bl., Roussine & Nègre, l. c.: 138. 1952, *Aphyllanthion* Br.-Bl. in Br.-Bl., Roussine & Nègre, l. c.: 184. 1952, lectotypus: *Aphyllantho-Leontodontetum villarsii* Br.-Bl. in Br.-Bl., Roussine & Nègre, l.c.: 185. 1952]

Caricetea curvulae Br.-Bl. 1948 nom. conserv. propos. (46)

[*Juncetea trifidi* Hadač in Klika & Hadač in Priroda (Brno) 36: 26. 1944 (art. 36, 52)]

Lamio albi-Chenopodietalia boni-henrici Kopecký 1969 nom. amb. rejic. propos. (art. 36) (40a)

[Lectotypus hoc loco: *Rumicion alpini* Rübél ex Klika in Klika & Hadač in Priroda (Brno) 36: 26. 1944, *Galio aparines-Alliarietalia petiolatae* Görs & Müller 1969, *Glechometalia hederaceae* Tüxen in Tüxen & Brun-Hool 1975 (syntax. syn.)]

Lygeo-Stipetalia Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 113. 1958 nom. conserv. propos. (art. 52) (56a)

[Against *Thero-Brachypodietalia* Br.-Bl. ex Bharucha in Beih. Bot. Central bl. (Dresden) II 50. 247. 1933 nom. amb. propos. (art. 36)]

- Lygeo-Stipetea* Rivas-Martínez 1978 nom. conserv. propos. (art. 52) (56)
[Against *Thero-Brachypodietea* Br.-Bl. in Br.-Bl., Emberger & Molinier 1947 (art. 2b, 8), *Thero-Brachypodietea ramosi* Br.-Bl. ex A. & O. Bolòs 1950 nom. amb. rejic. propos. in Rivas-Martínez, Fernández-González & Loidi in Itinera Geobot. 13: 389. 1999 (art. 52, 36), *Phlomidis lychnitidis-Brachypodietea retusi* Roselló 1994 (art. 8)]
- Rosmarino-Ericion multiflorae* Br.-Bl. in Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen & Moor 1935 (syntax. syn.) nom. conserv. propos. (art. 52) (64.1)
[Against *Rosmarinion officinalis* Br.-Bl. ex Molinier in Ann. Mus. Hist. Nat. Marseille 27(1): 143. 1934]
- Rupicampanulion* Rothmaler 1954 nomen dubium propos. (art. 37) (29.4)
[*Rupicampanulion* Rothmaler in Vegetatio 5-6: 599. 1954, lectotypus (art. 20): *Rupicampanuletum cantabricum* Rothmaler in Bot. Jahrb. Syst. 72(1): 119. 1941 (nom. dub. art. 37, 38 et nom. illeg. art. 34), *Petrocoptidion glaucifoliae* (P. Fernández, Penas & T.E. Díaz 1983) Rivas-Martínez, Cantó & Izco stat. nov., *Petrocoptidenion glaucifoliae* P. Fernández, Penas & T.E. Díaz in Anales Jard. Bot. Madrid 40(1): 220. 1983 (art. 27), *Petrocoptidion cantabricum* F. Casas 1972 (art. 34), *Petrocoptidenion grandifloro-viscosae* P. Fernández, Penas & T.E. Díaz in Anales Jard. Bot. Madrid 40(1): 226. 1983 (corresp. name)]
- Saturejo-Coridothymion capitati* Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 109. 1969 (syntax. syn.) nom. conserv. propos. (art. 52) (64.2)
[Against *Eryngio-Ulicion erinacei* Rothmaler in Repert. Spec. Nov. Regni Veg. Beih. 128: 66. 1943]
- Thero-Brachypodietalia* Br.-Bl. ex Bharucha 1933 nom. amb. rejic. propos. (art. 36, 52) (56a)
[*Lygeo-Stipetalia* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 113. 1958, *Phlomidis lychnitidis-Brachypodietalia retusi* Roselló, Cat. Fl. Veg. Alto Mijares: 413. 1994 (art. 5)]
- Thero-Salicornietalia* Pignatti 1953 nom. ambig. rejic. propos. (art. 36) (25a)
[*Thero-Suaedetalia* Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 97. 1958 (art. 39)]
- Thero-Salicornietea* Tüxen in Tüxen & Oberdorfer ex Géhu & Géhu-Franck in Doc. Phytosoc. 8: 53. 1984 (syntax. syn.) nom. conserv. propos. (art. 52) (25)
[Against *Thero-Suaedetea* Rivas-Martínez in Bol. Real Soc. Esp. Hist. Nat., Secc. Biol. 70: 158. 1972]
- Thero-Salicornion* Br.-Bl. 1933 nom. ambig. rejic. propos. (art. 36) (25.1)
[*Thero-Suaedion* Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 102. 1952 (art. 39)]

C. ADJUSTMENTS AND ADDITIONS TO SYNTAXONOMICAL CHECKLIST OF SPAIN & PORTUGAL (2001)

Errors detected either in the application of the Code of Phytosociological Nomenclature referred to authorities, or in the placement of several syntaxa appeared in *Itinera Geobot.* 14:5-341, 2001, are here corrected. The names of the new syntaxa published from June to December 2001, as well as the new syntaxa here proposed are also listed, numbered or brought to synonymy, as needed.

Allio montani-Stipetum eriocaulis I. Soriano in *Acta Bot. Barcinon.* 47: 127, tb. 63. 2001, is a new association of the calcareous Eastern Pyrenees that seems to be better included in *Ononidion striatae* Br.-Bl. & Susplugas in *Bull. Soc. Bot. France* 84: 669. 1937 as (52.2.4).

Agropyrenion farcti Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 64. 1980 (16.2b), syntaxon name used in *Itinera Geobot.* 14: 35. 2001, should be designated as *Elytrigienion junceae* because the valid name is *Elytrigia juncea* (L.) Nevski and not *Agropyron farctum* (Viv.) Rothm. (= *Elytrigia mediterranea* (Simonet & Guin.) Prokudin ≡ *Agropyron junceum* subsp. *mediterraneum* Simonet & Guin. nom. superfl. = *Agropyron junceum* (L.) P. Beauv.).

Agrostietum nebulosae Ladero, F. Navarro, C.J. Valle & Gallego 1984 ass. nova hoc loco (22.3.6). Typus associatio: *Polypogono maritimi-Hordeetum marini agrostietosum nebulosae* Ladero, F. Navarro, C.J. Valle & Gallego in *Doc. Phytosoc.* 8: 169, tb., holotypus núm. 11. 1984. Charact. ass.: *Agrostis nebulosa* Boiss. & Reut. Diagnosis: Pioneer ephemeral community on flat loamy slightly inundated saline soils spread in meso-supramediterranean Douro-Castilian and Manchegan biogeographic territories.

Androsacion ciliatae Rivas-Martínez, Publ. Inst. Est. Altoarag. (Homenaje a Pedro Montserrat): 723. 1988 (46.3), Pyrenean upper-cryorotemperate early snow-free of poor or rich congelifracated slopes or screes communities. We estimate again [Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 378. 1999] that *Androsacion ciliatae* seems to be better placed in the nival Alpine and Pyrenean order *Drabetalia hoppeanae* Zollitsch in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967 as (33.16) [*Drabetalia hoppeanae* Zollitsch 1966 nom. inval. (art. 1), *Drabetalia hoppeanae* Zollitsch in Merxmüller & Zollitsch 1967 (art. 33), *Drabetalia hoppeanae* Zollitsch 1968 (art. 31)], than in the order *Caricetalia curvulae* Br.-Bl. in Br.-Bl. & Jenny 1926 [*Itinera Geobot.* 14: 102. 2001.]

Aperetalia spicae-venti J. Tüxen & Tüxen in Malato-Beliz, J. Tüxen & Tüxen in *Mitt. Florist.-Soziol. Arbeitsgem.* 8: 146. 1960 (39b), that corresponds with the Eurosiberian and Mediterranean cereal weed communities on sandy or sandy-loamy poor soils only represented in West Europe by *Scleranthion annui* (39.4), could be considered as syntaxonomic

synonym of *Centaureetalia cyani* Tüxen ex Von Rochow 1951 (39a).

Aquilegio hirsutissimae-Xatardietum scabrae O. Bolòs & P. Montserrat in O. Bolòs 1974 in *Itinera Geobot.* 14: 67. 2001 (33.1.2), sub *Aquilegio-Xatardietum scabrae* O. Bolòs & P. Montserrat in O. Bolòs, *Miscellanea Alcobè*: 80. 1974, should be named *Aquilegio montsicciana-Xatardietum scabrae* according to the protologue and the characteristic specie: *Aquilegia viscosa* subsp. *montsicciana* (Font Quer) O. Bolòs & Vigo.

Arenarietum viridis O. Bolòs in *Collect. Bot. (Barcelona)* 5(1): 195. 1956 (50.13.2), by error "1967", placed in *Itinera Geobot.* 14: 111. 2001 in *Trachynion distachyae*, should be removed into *Frankenion pulverulentae* (22.2) as the new number (22.2.10).

Arenario frigidae-Festucetum indigestae Rivas-Martínez 1965 corr. hoc loco (49.1.3)

[*Arenario imbricatae-Festucetum indigestae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 374. 1965 (art. 43). Wrong year of publication.]

Arenario intricatae-Polypodietum cambrici M.B. Crespo in *Ecol. Medit.* 19: 3-5. 1993 nom. mut. propos. (30.1.2), placed in *Polypodion serrati* in *Itinera Geobot.* 14: 62. 2001, should be removed into *Bartramio-Polypodiunion cambrici* (O. Bolòs & Vives in O. Bolòs 1957) Rivas-Martínez suball. nova hoc loco (30.1b) as (30.1.10).

Aristolochia sempervirentis-Quercion ilicis Barbero & Quézel ex Rivas-Martínez all. nova hoc loco (75.15) (Holotypus: *Chamaecytiso cretici-Quercetum ilicis* Barbero & Quézel in *Ecol. Medit. (Marseille)* 5: 193, tb. 5, rel. 1. 1980)

[*Cyclamini cretici-Quercion brachyphyllae-ilicis* Barbero & Quézel in *Ecol. Medit. (Marseille)* 5: 180. 1980 (arts. 5, 10)]

Upper thermo to lower supramediterranean subhumid-humid *Quercus ilex* subsp. *ilex*, *Quercus brachyphylla* and *Quercus macrolepis* evergreen and uncommon semideciduous natural potential vegetation mesoforest communities of Eastern Mediterranean Subregion, characterized by *Aristolochia sempervirens* L., *Cyclamen creticum* Hildebr., *Hypericum empetrifolium* Willd., *Quercus brachyphylla* Kotschy, *Quercus macrolepis* Kotschy.

Astrantio majoris-Coryletum avellanae Rivas Goday & Borja in *Anales Inst. Bot. Cavanilles* 19: 31, tb. 1. 1961 (76.12.2), placed in *Itinera Geobot.* 14: 183. 2001 in *Corylo-Populion tremulae* (76.12), should be moved to *Berberidenion seroi*: *Berberidion vulgaris* as (66.1.20).

Atriplicetum hastato-tornabeni O. Bolòs, *El paisaje vegetal barcelonés*: 110, tb. 66. 1962 (17.2.1) in *Itinera Geobot.* 14: 37. 2001, should be named *Atriplicetum hastato-tarracoenensis* O. Bolòs 1962 corr. O. Bolòs & Vigo, *Flora dels Països Catalans* 1: 70. 1984, because *Atriplex tornabeni* Tineo in Guss. seems to be *Atriplex rosea* subsp. *tarracoenensis* (Sennen) O. Bolòs & Vigo (cf. *Flora dels Països Catalans* 2: 781. 1990).

Avenello ibericae-Quercetum orocantabricae Rivas-Martínez, Amigo, Bueno, T.E. Díaz, F. Prieto, Izco, Penas & Puente ass. nova hoc loco (76.8.9) [New association.]

Aveno cantabricae-Seslerietum hispanicae Br.-Bl. in *Vegetatio* 14(1-4): 61, tb. 22. 1967 (52.5.2), should be named *Helictotricho cantabrici-Seslerietum hispanicae* Br.-Bl. 1967 nom. mut. [*Aveno cantabricae-Seslerietum hispanicae* Br.-Bl. 1967, by error *Helictotricho cantabrici-Seslerietum argenteae* Br.-Bl. 1967 nom. mut. (Addenda) in *Itinera Geobot.* 14: 116. 2001] because according to Braun-Blanquet (1967) the *Sesleria* of the calcareous mountains of Basque Country belongs to the endemic *Sesleria argentea* subsp. *hispanica* (Pau & Sennen) V. Allorge & P. Allorge and not to the Italian *Sesleria argentea* (Savi) Savi.

Balloto-Conion maculati Brullo in Brullo & Marcenó in *Coll. Phytosociol.* 12: 90. 1985 (40.4), is the prioritarious valid name of *Conio maculati-Sambucion ebuli* (O. Bolòs & Vigo ex Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi 1991) all. nova (Addenda) in *Itinera Geobot.* 14: 94. 2001 (40.4), and its principal synonyms and corresponding names are: *Sambucion ebuli* (O. Bolòs & Vigo ex Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez & Costa in *Acta Bot. Barcinon.* 45: 493. 1998 (art. 2b) non *Sambucion ebuli* Eliáš 1986, *Sambucenion ebuli* Folch, *La vegetació dels Països Catalans*: 418. 1981 (art. 2b, 8), *Sambucenion ebuli* O. Bolòs & Vigo, *Flora dels Països Catalans* 1: 73. 1984 (art. 8), *Sambucenion ebuli* Rivas-Martínez ex Alcaraz, *Flora y vegetación del NE de Murcia*: 226. 1984 (art. 5), *Sambucenion ebuli* O. Bolòs & Vigo ex Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi in *Itinera Geobot.* 5: 372. 1991 (art. 27a, 46H) (nomencl. syn.), *Sambucenion ebuli* O. Bolòs & Vigo ex Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez, *Guía Geobotánica de la Excursión de la XI Jornadas de Fitosociología*: 85. 1991 (art. 31).

Beto maritimae-Lavateretum arboreae ass. nova (37.4.2), placed in *Itinera Geobot.* 14: 79. 2001 in *Medicagini citrinae-Lavaterion arboreae* O. Bolòs, Folch & Vigo in O. Bolòs & Vigo in *Arxius Secc. Ci. Inst. Estud. Catalans* 73: 184. 1984 (37.4) seems provisionally to be better to include in *Dauco-Melilotion* Görs 1966 as (34.4.6).

Brassico almeriensis-Pterocephaletum spathulati Lorite, F.B. Navarro, Algarra, Gallardo & F. Valle in *Fitosociología* 38(1): 19. 2001 (64.14.8). [Latterly published new association.]

Bromo-Oryzopsis miliaceae O. Bolòs in *Vegetatio* 21: 49. 1970 (34.6), placed in *Itinera Geobot.* 14: 73. 2001 in *Agropyretalia repentis* (34b) by its floristical and ecological characters seems to be better included in the order *Carthametalia lanati* Brullo in Brullo & Marcenó in *Coll. Phytosociol.* 12: 113. 1985 (34d).

Bromo ramosi-Eupatorienion cannabini (O. Bolòs & Masalles in O. Bolòs 1983) I. Soriano in *Acta Bot. Barcinon.* 47: 85. 2001, has been proposed as an auxiliary rank of *Calystegion sepium* Tüxen ex Oberdorfer 1957 nom. mut. as (40.5b).

Caricetum camposii-cuprinae Salazar, Lorite, Cano & F. Valle in *Stud. Geobot.* 20: 19, tb. 2. 2001 (59.3.11), should be accepted as prioritary name of *Junco effussi-Caricetum camposii* ass. nova (59.3.11) (Addenda) in *Itinera Geobot.* 14: 126. 2001.

Carici camposii-Salicetum atrocineriae Salazar, Lorite, Cano & F. Valle in Stud. Geobot. 20: 25, tb. 7. 2001 (71.3.11). [Latterly published new association.]

Carici paniculatae-Eriophoretum latifolii O. Bolòs & Vives in O. Bolòs in Collect. Bot. (Barcelona) 5(1): 219, tb. 22. 1956 (12.4.6)

[*Carici paniculatae-Eriophoretum latifolii* O. Bolòs & Vives 1956 in Itinera Geobot. 14: 33. 2001. Wrong authors citation.]

Catabroso-Glycerietum plicatae Br.-Bl. in Vegetatio 1: 285. 1949 (12.2.5), is not a validly published name (art. 2b); it seems that the first valid name for this Eurosiberian mesotrophic aquatic community of *Glyceria notata* Chevall. (= *Glyceria plicata* (Fr.) Fr.) belongs to *Glycerietum plicatae* Kulczynski in Bull. Acad. Polon. Sci. et Lettr. Cl. Sci. Math. Nat. B. 57. 1928 (*Glycerietum notatae* Kulczynski 1928 nom. mut. propos.)

Centaureo mariolensis-Festucetum gautieri Solanas, M.B. Crespo, Alcaraz & Ríos, Vegetación y cambios climáticos (F. Gómez Mercado & J.F. Mota (eds.): 323, tb. 6. 2001 (52.7.15). [Latterly published new association.]

Cicendio filiformis-Solenopsis laurentiae Brullo & Minissale in Itinera Geobot. 11: 275. 1998, (holotypus: *Laurentio-Anthocerotetum dichotomi* Br.-Bl. in Bull. Soc. Et. Sci. Nat. Nimes 47: 9. 1935) could be included in *Isoetion* Br.-Bl. in Bull. Soc. Et. Sci. Nat. Nimes 47: 1. 1935 (9.1) (lectotypus: *Isoetum durieui* Br.-Bl. 1935, ap. Brullo & Minissale, l.c.).

Cirsio micranthi-Scirpetum holoschoeni Lorite, Salazar, Cano & F. Valle in Salazar, Lorite, Cano & F. Valle in Stud. Geobot. 20: 25, tb. 5. 2001, should be included as a geographical race in the most general *Holoschoenetum vulgare* Br.-Bl. ex Tchou 1948 (59.7.11).

Cisto clusii-Ulicetum rivasgodayani Nieto & Cabezudo in Nieto, Cabezudo & Trigo in Acta Bot. Malacitana Bot. Malacitana 14: 163, tb. 1. 1989 (64.2.3), placed in Itinera Geobot. 14: 144. 2001 in *Saturejo-Coridothymenion* (64.2b) should be moved to *Lavandulion lanatae* as 64.15.8.

Cisto salviifolii-Sarothamnetum catalaunici A. & O. Bolòs in O. Bolòs in Veröff. Ver. Geobot. Inst. E.T.H. Stiftung Rübel 31: 84. 1956 (62.1.6) should be accepted as the priority valid name for the secondary scrub communities growing in eroded silicicolous soils, chiefly organized by *Cistus* (*C. salviifolius*, *C. monspeliensis*, *C. ladanifer*), *Lavandula stoechas*, *Calicotome spinosa* and *Ulex parviflorus* in mesomediterranean subhumid Catalonia (Vallesan-Empordanese included the humid oceanic "Catalanidic" and "Ruscinic" territories) of calcifugous *Quercenion ilicis*: *Viburno-Quercetum ilicis* and *Carici-Quercetum suberis* natural potential vegetation zones. The main synonyms of the association are *Lavandulo stoechadis-Cistetum monspeliensis* (Lapraz 1974) Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas in Itinera Geobot. 14: 139. 2001 (art. 5), *Cistetum catalaunicum cistosum monspeliensis* Lapraz in Collect. Bot. (Barcelona) 9: 90, tb. 1. 1974 (lectotypus hoc loco rèl. 78) (corresp. name), ass. *Cistus crispus-Calicotome*

spinosa Br.-Bl. 1940 subass. de *Cistus salviifolius* A. & O. Bolòs, Veg. Com. Barcelonesas: 133. 1950 (at. 3b) (lectotypus: O. Bolòs in Mem. Real Acad. Ci. Barcelona 45: 516. 1983 sub *Cisto salviifolii-Sarothamnetum catalaunici*), *Lupino angustifolii-Lavanduletum stoechadis* Franquesa in Arxius Secc. Ci. Inst. Estud. Catalans 109: 92, tb. 1, rèl. 3. 1995 (syntax. syn., art. 37?). As *Sarothamnus catalaunicus* Webb (*Cytisus catalaunicus* (Webb) Briq.) is an infrequent and non characteristic specie of the association (only differential of territory) should be a better name: *Cytiso catalaunici-Cistetum salviifolii* A. & O. Bolòs in O. Bolòs 1956 nom. inv. et nom. mut. (art. 42, 45).

Cochleario navarranae-Linarietum odoratissimae P. Montserrat & Villar in Doc. Phytosoc. 7/8: 11, tb. 1974. This omitted but well characterized Cantabrian-Basque (Navarro-Alavés District) scree association should be included in the alliance *Iberido-Linarion propinqua* with the new number (33.5.4).

Corylo-Populion tremulae (Br.-Bl. ex O. Bolòs 1973) Rivas-Martínez & Costa in Acta Bot. Barcinon. 45: 489. 1998 (76.12), *Corylo-Populenion tremulae* Br.-Bl. ex O. Bolòs in Pirineos 108. 82. 1973 (76.12a) and *Pulmonario affinis-Betulenion pendulae* suball. nova (Addenda) in Itinera Geobot. 14: 183. 2001 (76.12b), should be consider as same syntaxon.

Crataego monogynae-Loniceretum arboreae O. Bolòs in Collect. Bot. (Barcelona) 4(2): 282, tb. 12. 1954 (66.3.2), should be named *Crataego granatensis-Loniceretum arboreae* O. Bolòs 1954 because as O. Bolòs (1954) suspected the *Crataegus* in the releves is *Crataegus granatensis* Boiss.

Crepido albidae-Erinetum alpini Br.-Bl. in Vegetatio 13(3): 138, tb. 2. 1966 (27.3.7)

Crepido-Erinetum Br.-Bl. 1966 [Lectotypus: Romo in Monogr. Inst. Pir. Ecol. (Jaca) 4: 739. 1988], should be considered nomen dubium (art. 37) because the combination complex in the releves of *Teucrio pyrenaici-Bromion erecti* grassland species and some broad rupicolous *Asplenietea trichomanis* species do not permit it to be assigned to any association distinguished today. Consequently *Sedo-Seslerion* Br.-Bl. in Vegetatio 13(3): 138. 1966, is also a nomen dubium (art. 38), and *Drabo dedeanae-Saxifragetum trifurcatae* C. Navarro in Lazaroa 4: 119, tb. 1. 1983 the correct valid name (art. 22), should be placed into *Drabo dedeanae-Saxifragenion trifurcatae* F. Prieto ex Rivas-Martínez, Fernández-González & Loidi in Itinera Geobot. 13: 375. 1999.

Cymbalario muralis-Adiantetum capilli-veneris Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González in Itinera Geobot. 7: 297, tb. 46. 1993 (28.2.5), should be included as synonymous of *Adianto capilli-veneris-Parietarietum judaicae* Segal, Ecological notes on wall vegetation: 159. 1969 (28.2.5).

Daboecio cantabricae-Ulicetum cantabrici (Br.-Bl. 1967) Rivas-Martínez in Lazaroa 1: 30. 1979 (excl. tb. 2) corr. Rivas-Martínez, Báscones, T.E. Díaz, F. Prieto &

Loidi in *Itinera Geobot.* 5: 368. 1991 (excl. tb. 64) (61.4. 4), sub *Daboecio cantabricae-Ulicetum gallii* (Br.-Bl. 1967) Rivas-Martínez 1979 ap. *Itinera Geobot.* 14: 137. 2001 (61.4.4) should be placed as synonymous of *Ulici europaei-Ericetum vagantis* Guinea, Vizcaya y su paisaje vegetal: 367, tb. 2. 1949 (61.4.14).

Dactylo marinae-Armerietum majoris Neto, Capelo, Caraça & J.C. Costa in *Silva Lusit.* 9(2): 268, tb. 1. 2001 (19.3.7). [Latterly published new association.]

Dauco-Melilotion Görs 1966 (34.4), placed in *Itinera Geobot.* 14: 72. 2001 in *Agropyretalia repentis* (34b), by its floristical and ecological characters seems to be better included in the order *Artemisietalia vulgaris* Lohmeyer in Tüxen 1947 (34a).

Desmazerio marinae-Medicaginetum inermis Curcó in *Butll. Parc Nat. Delta de l'Ebre* 5: 15, tb. 5. 1990 (50.7.2)

[Wrong Code application: invalid name lack of holotypus (art. 5). Sandy slightly nitrophilous therophytic community of *Vulpia fasciculata* and *Lagurus ovatus*.]

Desmazerio marinae-Phleetum arenarii Herrera in *Guineana* 1: 240, tb. 56. 1995 (53.2.1), placed in *Itinera Geobot.* 14: 119. 2001 in *Koelerion albescentis* (53.2), should be moved to *Linarion pedunculatae* as (50.8.4).

Diantho broteroi-Launaetum laniferae Peñas, Cabello, F. Valle & Mota in *Lazaroa* 22: 103, tb. 5. 2001 (32.2.7) [Latterly published new association.]

Drabo estevei-Ononidetum striatae G. Navarro & J.A. Molina in *Doc. Phytosoc.* 19: 112, tb. 3. 2001 (52.7.5)

[*Drabo aizoidis-Ononidetum striatae* ass. nova (Addenda) in *Itinera Geobot.* 14: 117. 2001 (52.7.5). Latterly published new association.]

Elyno-Seslerietea Br.-Bl. in *Inst. Esp. Edafol. Ecol. Fisiol. Veg.* 9: 147. 1948 (45)

[*Festuco-Seslerietea* Barbéro & Bonin in *Bull. Soc. Bot. France* 116: 227. 1969 (syntax. syn.). Wrong Code application (art. 35).]

Epilobienion hirsuti Vigo in *Butll. Inst. Catalana Hist. Nat., Sec. Bot.* 44: 77. 1979.

Riverine very humid and nitrophilous megaforbic community, characterized by *Epilobium hirsutum* described by Vigo (1979) that should be incorporated in *Convolvulion sepium* Tüxen ex Oberdorfer 1957 as corresponding name as (40.5).

Epipactido helleborines-Fagetum sylvaticae (Rivas-Martínez 1962) Rivas-Martínez ex J.F. Pérez & T.E. Díaz in *Lazaroa* 7: 184. 1987 (76.1.11)

[*Helleboro-Fagetum epipactidetosum* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 20: 119. 1962 (basion.), *Epipactido helleborines-Fagetum* Rivas-Martínez (1962) 1983 in *Lazaroa* 4: 163. 1983 (art. 5). Wrong syntaxon authors in the valid name.]

Erico terminalis-Nerietum oleandri Rivas Goday & Esteve ex Salazar, A. García & F. Valle in *Acta Bot. Malacitana Bot. Malacitana* 26: 122, tb. 7, holotypus rel. 4. 2001 (70.4.1)

[*Erico-Nerietum galietosum viridiflori* Rivas Goday & Esteve in *Anales Real Acad. Farm.* 38(3):

411, tb. 1. 1972 (art. 4a), *Erico erigenae-Nerietum oleandri* Rivas Goday & Esteve 1972 in *Itinera Geobot.* 14: 160. 2001 (art. 4a, 5). [Wrong Code application].

Erico terminalis-Salicetum eleagni Salazar, A. García & F. Valle in *Acta Bot. Malacitana Bot. Malacitana* 26: 126, tb. 9. 2001. New dolomiticulous willow river association of mesomediterranean belt in the southern streams of the Malacitan-Almijarensian Sector. The name should be corrected because *Salix eleagnos* Scop. corresponds to *Salix eleagnos* subsp. *angustifolia* (Cariot) Rech. f. (*Erico terminalis-Salicetum angustifoliae* Salazar & al. 2001 corr. hoc loco), and the association seems to be better included in *Salicion pedicellatae* Galán & al. 1999 as (71.9.4).

Erodio castellani-Festucetum microphyllae G. Navarro & J.A. Molina in *Doc. Phytosoc.* 19: 113, tb. 4. 2001 (51.1.16)

[*Galio idubedae-Brometum erecti* ass. nova (Addenda) in *Itinera Geobot.* 14: 113. 2001 (51.1.16). Latterly published new association.]

Euphorbio pithyusae-Anthemidetum maritimae Llorens, Llop & Gil ass. nova hoc loco (19.2.1)

[*Dactylido hispanicae-Anthemidetum maritimae* ass. nova (Addenda) in *Itinera Geobot.* 14: 38. 2001. Change of name.]

Ferulo communis-Diplotaxietum virgatae Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 58, tb. 5. 1958 corr. O. Bolòs in *Acta Bot. Barcinon.* 44: 212. 1997. [Unintentionally omitted nitrophilous therophytic gypsicolous Monegrian association, that should be included in *Hordeion leporini* as (39.16.15), characterized by *Diplotaxis virgata* (Cav.) DC., *Reseda phyteuma* subsp. *aragonensis* (Loscos & J. Pardo in Willk.) Rivas Mart., *Sisymbrium runcinatum* Lag. ex DC. and *Erodium malacoides* subsp. *aragonense* (Loscos) O. Bolòs & Vigo.]

Festuco graniticolae-Echinopartetum pulviniformis Costa, Ten., Morla & Sáinz in *Lazaroa* 13: 144, tb. 1. 1993, placed in *Itinera Geobot.* 14: 167. 2001 in *Cytisium oromediterranei* (74.5.4) should be removed into *Genistion polygaliphyllae* with the new number (65.3.13).

Festuco pruinosa-Armerietum euskadiensis Rivas-Martínez & C. Navarro in *C. Navarro* 1982 (20.6.7), was validly published only in the year 1983 in *Lazaroa* 4: 125. 1983, and not in the PhD multicopied manuscript of C. Navarro in 1982.

Fraxino orni-Aceretum granatensis Alcaraz, Ríos, Solanas & M.B. Crespo in *Solanas, M.B. Crespo, Alcaraz & Ríos, Vegetación y cambios climáticos* (F. Gómez Mercado & J.F. Mota, eds.): 321, tb. 2. 2001 (76.10.11). [Latterly published new association.]

Galio elongati-Caricetum acutiformis J.A. Molina & Curcó in *Curco* in *Lazaroa* 22: 73, tb. 5. 2001 (12.4.15). [Latterly published new association.]

Galio idubedae-Brometum erecti ass. nova, in *Itinera Geobot.* 14: 113. 2001 (51.1.16), should be eliminated because we lack now of adequate information.

Galio idubedae-Nardetum strictae (Rivas Goday & Borja 1961) nom. nov. in *Itinera Geobot.* 14: 132. 2001 (60.1.5), placed in *Itinera Geobot.* 14: 132. 2001 in *Carici macrostyli-Nardenion strictae* (60.1a) should be moved to *Campanulo herminii-Nardion strictae* as (60.4.16).

Galio rotundifolii-Pinetum sylvestris Gruber in *Bull. Soc. Hist. Nat.* 133: 16. 1997 (74.3.9)

[*Galio rotundifolii-Pinetum pyrenaicae* Gruber 1997 corr. hoc loco. Association described in French North Pyrenees, recently recognized in Spanish Central North Pyrenees.]

Genisto sanabrensis-Juniperetum nanae F. Prieto in *Anales Jard. Bot. Madrid* 39(2): 511. 1983, placed in *Itinera Geobot.* 14: 167. 2001 in *Cytision oromediterranei* (74.5.5) should be removed into *Juniperion nanae* with the new number (77.3.6).

Geranio cinerei-Ranunculetum gouanii Gruber 1978 in *Itinera Geobot.* 14: 101. 2001 (45.2.6) was not previously validly published [M. Gruber (1978), *La vegetation des Pyrénées ariégeoises et catalanes occidentales*, These inedit., Université Aix-Marseille].

Glycerietum fluitantis Wilzek in *Beitr. Biol. Pflanzen* 23: 3. 1935 (12.2.6), has a priority valid name: *Glycerietum fluitantis* Eggler in *Feddes Repert. Spec. Nov. Regni Veg.* 73(1): 10. 1933.

Helianthemo almeriensis-Sideritidenion pusillae (Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989) Rivas-Martínez suball. nova, stat. nov. hoc loco (64.11b) [New suballiance.]

Helichryso maritimi-Koelerietum glaucae Oriente, *Veg. Fl. Playas Dunas Santander*: 243, tb. 12. 1974 nom. mut. in *Itinera Geobot.* 14: 36. 2001 (16.5.1), is a faulty nomina mutata proposition (art. 45): the Atlantic sandy coastal *Koeleria arenaria* Dumort., is not synonymous of the inland Central European *Koeleria glauca* (Schrad.) DC.; but, on the contrary, *Helichrysum stoechas* var. *maritimum* Lange in Willk. & Lange seems to be a particular coastal sand dune ecotype.

Herniario boissieri-Festucetum hystricis Peñas, Cabello, F. Valle & Mota in *Folia Geobot.* 36: 351. 2001 (52.7.16). [Latterly published new association].

Iberido microcarpae-Stipetum offneri Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 4: 24. 1990 (56.1.10). [Unintentionally omitted association of calco-dolomitic shallow soils in thermomediterranean sub-humid of Serra da Arrabida (Ribatagan-Sadensean Sector)].

Iberido saxatilis-Erinaceetum anthyllidis G. Navarro ass. nova hoc loco (52.7.18)

[*Iberido ibericae-Erinaceetum anthyllidis* G. Navarro in *Opusc. Bot. Pharm. Complut.* 5: 36, tb. 16. 1989 (art. 2c), excl. corr. (Addenda) et (art. 3f) in *Itinera Geobot.* 14: 146. 2001 as 64.5.12. Wrong Code application.]

Illecebro verticillati-Agrostietum pourretii Brullo & Minissale in *Itinera Geobot.* 11: 282. 1998, is based in *Pulicario paludosae-Agrostietum pourretii chaetopogonetosum*

fasciculati Ruíz & A. Valdés in *Studia Bot.* 6: 27, tb. 2. 1988, but as the Spanish authors proposed, it seems better to consider the community only as a dryer subassociation of *Pulicario-Agrostietum pourretii* (9.3.3).

Irido sisyrrinchii-Stipetum retortae O. Bolòs & Molinier in *Collect. Bot.* (Barcelona) 5(3): 784, tb. 11. 1958, (*Irido-Stipetum capensis* nom. mut. propos.) placed in *Itinera Geobot.* 14: 110. 2001 in *Stipion retortae* as 50.10.5, should be moved to *Trachynion distachyae* as 50.13.21.

Isolepido setaceae-Centaurietum chloodis Rivas Goday ex Brullo & Minissale in *Itinera Geobot.* 11: 281. 1998 (holotypus rel. 2) is based in *Isolepido-Centaurietum chloodis* Rivas Goday in *Anales Inst. Bot. Cavanilles* 27: 255, tb. 1970 (art. 3b). If we accept the new association against the art. 2b, it should be included in *Nanocyperion flavescens* Koch ex Libbert 1933 (9.5.11).

Juncenion squarrosi Oberdorfer, *Suddeutsche Pflanzengesellschaften*: 325. 1957 (60.2b). Communities on wet and histic soils of supratemperate Atlantic and Subatlantic (dif. suball. *Juncus squarrosus*, *Carex nigra*, *Gentiana pneumonanthe*, *Molinia caerulea*, *Pedicularis sylvatica*, etc.) could be accepted in Cantabrian-Atlantic territories of Iberian Peninsula. Thus the Portuguese and Spanish syntaxonomy of *Violion caninae* Schwickerath, *Pflanzensoziologie* 6: 163. 1944 includes: 60.2a. *Violenion caninae* Pepler-Lisbach & Petersen in *Syn. Pflanzenges.* Deutch. *Calluno-Ulicetea*, 8(1): 24. 2001 [60.2.1. *Jasiono laevis-Danthonietum decumbentis* Loidi in *Colecc. Tesis Doct. Univ. Complutense* 83, 4: 97, tb. 29. 1983, 60.2.3. *Serratulo tinctoriae-Nardetum strictae* Tüxen in Tüxen & Oberdorfer, in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübél* 32: 178, tb. 57. 1958 nom. mut. (sub. *Serratulo seoanei-Nardetum*), and 60.2b. *Juncenion squarrosi* Oberdorfer, *Suddeutsche Pflanzengesellschaften*: 325. 1957 [60.2.2. *Nardo strictae-Caricetum binervis* Br.-Bl. & Tüxen in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübél* 25: 352, tb. 50. 1952 (*Merenhero pyrenaicae-Nardetum* Tüxen in Tüxen & Oberdorfer in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübél* 32: 182, tb. 57. 1958 (art. 3b).]. [Suballiance accepted in our territory.]

Junipero hemisphaericae-Echinospertetum horridi O. Bolòs & P. Montserrat ex Rivas Goday & Rivas-Martínez 1969 (52.6.3)

[*Echinosperto horridi-Lavanduletum pyrenaicae* O. Bolòs & P. Montserrat 1984 (syntax. syn.). Wrong year citation in synonymous.]

Koelerio gracilis-Avenuletum mirandanae Br.-Bl. in Br.-Bl. & Moor 1938 corr. O. Bolòs in Carreras, Carrillo, X. Font, Ninot & Vigo in *Collect. Bot.* (Barcelona) 14: 156. 1983 (51.4.6), placed in *Artemisio albae-Dichanthion* (51.4) should be removed into *Chamaespartio-Agrostienion capillaris* Vigo 1982 (51.1b) as (51.1.23).

Koelerio pyramidatae-Lavanduletum pyrenaicae I. Soriano in *Acta Bot. Barcinon.* 47: 126, tb. 62. 2001, could be included as a mesic variant of *Ononido striatae-Anthyllidetum montanae* Vives in *Acta Geobot. Barcinon.* 1: 162, tb. 14. 1964 (50.2.3)

Lavatero davaei-Suaedetum verae O. Bolòs, Folch & Vigo in O. Bolòs in Folia Bot. Misc. 6: 121, tb. 2, holotypus rel. 9. 1989 (23.4.4)

[*Lavatero davaei-Suaedetum verae* O. Bolòs, Folch & Vigo ass. nova (Addenda) in Itinera Geobot. 14: 46. 2001 (23.4.4) nomen superfluum (art. 18b, 29c). Wrong interpretation of the protologue.]

Limonietum retuso-formenterae L. Llorens in Anales Jard. Bot. Madrid 42(2): 477, tb. 7. 1986 (23.5.8) was not validly published because one of the name-giving taxon: *Limonium formenterae* L. Llorens in Lazaroa 8: 72. 1987 was published one year latter than association (art. 31). The new association name is *Limonietum retuso-biflori* L. Llorens hoc loco (typus and description in Anales Jard. Bot. Madrid 42(2): 447, tb. 7, holotypus rel. 1. 1986) since *Limonium formenterae* L. Llorens has as priority name *Limonium biflorum* (Pignatti) Pignatti in Bot. J. Linn. Soc. 64: 368. 1971.

Limonio-Anabasiatum limonietosum estevei Esteve & F. Casas in Cuad. Ci. Biol. 2(2): 102. 1973

[*Limonietum estevei* (Esteve & F. Casas 1973) ass. nova in Itinera Geobot. 14: 151. 2001 (64.12.4) (64.12.3)]

Lectotypus hoc loco, l.c. rel. 3 [Almería: Coast between Carboneras and Mojacar, Lomos Cantal. 3 m, S, 100 m²]. Characteristic species: 2 *Limonium estevei*, 1 *Limonium cymuliferum*, + *Anabasis articulata*, + *Anthyllis cytisoides*, + *Frankenia corymbosa*, + *Limonium insigne*, + *Salsola papillosa*, + *Teucrium eriocephalum*, + *Thymus hyemalis*. Companion species: + *Asparagus horridus*, + *Launaea arborescens*, + *Limonium echioides*, + *Lygeum spartum*, + *Ononis hispanica*, + *Sporobolus arenarius*, + *Stipa tenacissima*.

Similar to *Limonio insignis-Anabasiatum hispanicae* (64.12.4), well differentiated by its particular mesologic environment and by the special local Almeriensean endemic *Limonium estevei*, living in a narrow band about ten kilometers wide, not far from the coast, in the vertic marls and schists with micas and graphite from the district of Cabrera-Mojacar, in the lower thermomediterranean belt, upper arid, semihyperoceanic without freeze, belonging to the vegetation series of the *Mayteno-Periploco angustifoliae* sigmetum, where it grows on sandy textured lithosols rich in chloride ions and perhaps heavy metals. [F. Alcaraz].

Limonio binervosi-Armerietum depilatae T.E. Díaz & F. Prieto ass. nova hoc loco (20.5.5) [New association.]

Limonio quesadensis-Lygeetum sparti A. García in A. García, Salazar, J. Torres, Cano & F. Valle in Journ. Arid Envir. 48: 328, tb. 2. 2001 (56.2.5). [Latterly published new association.]

Limonio serotini-Juncetum maritimi Teles ex Izco, P. Guitián & J.M. Sánchez in Lazaroa 13: 153. 1993 (20.4.2), should be accepted as a valid name and consequently a syntax. syn. of *Junco maritimi-Caricetum extensae* Géhu in Coll. Phytosociol. 4: 441. 1976 (Izco 2001).

Linario donyanae-Loeflingietum baeticae Rivas-Martínez, Costa, Castroviejo & E. Valdés in Costa, Castroviejo, Rivas-Martínez & E. Valdés in Coll. Phytosociol. 6: 106, tb.

1. 1978 (50.6.3)

[Lectotypus hoc loco, l.c., tb. 1, rel. 1, Huelva: Coto de Doñana, Sabinar de Marqués, 0.5 m². *Linarío donyanae-Loeflingietum baeticae* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 90. 1980 apud *Itinera Geobot.* 14: 109. 2001 (art. 5, 22, 31). Wrong citation of the correct valid name.]

Lino appressi-Genistetum rigidissimae Rivas-Martínez 1967 corr. G. Navarro in *Opusc. Bot. Pharm. Complut.* 5: 40. 1989 (64.5.13), should be changed of the author correction by *Lino appressi-Genistetum rigidissimae* Rivas-Martínez 1967 corr. F. Casas & Susanna in *Treb. Inst. Bot. Barcelona* 10: 64. 1985.

Loto castellani-Agrostietum pourretii Brullo & Minissale in *Itinera Geobot.* 11: 282. 1998 (holotypus rel. 4), is based in *Pulicario-Agrostietum pourretii* Rivas Goday 1956 sensu Sánchez-Mata, *Flora Veg. Macizo Oriental Sierra Gredos*: 77, tb. 11. 1989, but it seems clear as Sánchez-Mata has suggested, that it corresponds to the standard *Pulicario-Agrostietum pourretii* (9.3.3).

Loto hispidi-Chaetopogonetum fasciculati Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés in *Lazaroa* 2: 27, tb. 11. 1980 (9.4.7) nom. mut., placed in *Cicendion* (9.4), should be removed into *Agrostion pourretii* Rivas Goday 1958 nom. mut. as (9.3.4).

Lupino angustifolii-Lavanduletum stoechadis Franquesa in *Arxius Secc. Ci. Inst. Estud. Caltalans* 109: 92, tb. 1. 1995 (62.1.6) (art. 37)

[*Lupino angustifolii-Lavanduletum stoechadis* Franquesa 1995 (62.1.6) (syntax. syn.) in *Itinera Geobot.* 14: 139. 2001. Wrong Code application.]

Luzulo carpetanae-Nardetum strictae G. Navarro & J.A. Molina in *Doc. Phytosoc.* 19: 112, tb. 2. 2001 (60.4.16). [Latterly published new association.]

Luzulo henriquesii-Aceretum pseudoplatani F. Prieto & Bueno in T. E. Díaz & F. Prieto in *Itinera Geobot.* 8: 294, tb. 4. 1994 (76.14.5), placed in *Itinera Geobot.* 14: 184. 2001 in *Betulion fontqueri-celtibericae* (76.14) should be moved to *Luzulo henriquesii-Quercenion petraeae* as (76.8.10).

Lycopodio clavati-Juniperetum nanae Br.-Bl., P. Silva & Rozeira in Rivas-Martínez in *Anales Real Acad. Farm.* 40(1): 69. 1974, placed in *Itinera Geobot.* 14: 167. 2001 in *Cytision oromediterranei* (74.5.6) should be removed into *Juniperion nanae* with the number (77.3.7).

Lythro flexuosi-Crypsietum schoenoidis Rivas-Martínez in *Bol. Real Soc. Esp. Hist. Nat., Secc. Biol.* 64: 363, tb. 1. 1966 (9.6.7) nom. mut., placed in *Verbenion supinae* Slavnic 1951 should be removed into *Lythron tribracteati* Rivas Goday & Rivas-Martínez ex Rivas Goday 1970 as (9.7.3).

Lythro salicariae-Caricetum ripariae Cirujano, Medina & Cobo in *Anales Jard. Bot. Madrid* 58(1): 201. 2000 (12.4.16). [Latterly published new association which has as syntaxonomical synonym *Galio elongati-Caricetum ripariae* Molina & Curc6 ex Curc6 in

Lazaroa 22: 74. 2001.]

Melampyro-Holcetalia Passarge 1979 (43b) should be included as syntax. syn. of *Origanetalia vulgaris* Müller 1962 (43a).

Mercuriali ambiguae-Succowietum balearicae O. Bolòs, Folch & Vigo in O. Bolòs 1989 corr. Juan & M.B. Crespo in Acta Bot. Malacitana 26: 221. 2001 (41.3.7)

[*Mercuriali annuae-Succowietum balearicae* O. Bolòs, Folch & Vigo in O. Bolòs in Folia Bot. Misc. 6: 125, tb. 5. 1989, in Itinera Geobot. 14: 96. 2001 (41.3.7). Correction recently published.]

Mercuriali perennis-Fraxinetum excelsioris F. Prieto & Vázquez in Lazaroa 7: 377, tb. 5. 1987 (76.4.5), placed in *Pulmonario longifoliae-Quercion roboris* (76.4) should be removed into *Tilio-Acerion* as (76.2.5).

Mnio horni-Vandenboschietum speciosae T.E. Díaz, M.C. Fernández & Collado ass. nova hoc loco (30.3.4) [New association.]

Molinio-Holoschoenion Br.-Bl. ex Tchou in Vegetatio 1: 19. 1948 (59.7)

[In the alliance we recognize two suballiances: 59.7a. *Molinio-Holoschoenion* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 102. 1980 (holotypus: *Holoschoenetum vulgaris* Br.-Bl. ex Tchou in Vegetatio 1: 19. 1948) in rich soils mostly central, northern and eastern Iberian Peninsula, that include the associations: 59.7.1., 59.7.2., 59.7.3., 59.7.4., 59.7.5., 59.7.6., 59.7.8., 59.7.9., 59.7.10., 59.7.11., 59.7.14., 59.7.15., 59.7.16., 59.7.18., 59.7.19., 59.7.20., 59.7.21., 59.7.22., 59.7.23., 59.7.25., and 59.7b. *Brizo-Holoschoenion* (Rivas Goday 1964) Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 100. 1980 (*Brizo-Holoschoenion* Rivas Goday, Fl. Veg. Guadiana: 263. 1964, *Brizo-Holoschoenion* Rivas Goday & Borja in Anales Inst. Bot. Cavanilles 19: 232. 1961 (art. 3b), whose elected lectotypus hoc loco is: *Trifolium resupinatum-Holoschoenetum* Rivas Goday, Fl. Veg. Guadiana: 263, tb. 2. 1964) in poor siliceous soils mostly central, western and southern Iberian Peninsula and Canarian, that include the associations: 59.7.7., 59.7.12., 59.7.13., 59.7.17., 59.7.24., 59.7.26., 59.7.27.; differentiated by *Agrostis reuteri*, *Festuca ampla*, *Galium debile*, *Linum tenue*, *Trifolium phleoides* and *Trifolium resupinatum*.]

Mucizonia hispidae-Galietum valantiae Rivas Goday, Veg. Fl. Cuenca Extr. Guadiana: 113, tb. 3. 1964 (28.1.7) placed in *Parietario-Galium muralis* (28.1) should be removed into *Rumici indurati-Dianthion lusitani* as (32.3.13) with the name *Sedo mucizoniae-Galietum verrucosi* Rivas Goday 1964 nom. mut. propos. (art. 45) because the correct used taxon name should be *Sedum mucizonia* (Ortega) Raym.-Hamet and not *Mucizonia hispida* DC. ex Batt. & Trab.; and *Galium verrucosum* Huds. against *Galium valantia* Weber.

Myrtillo-Quercetum roboris P. Silva, Rozeira & Fontes 1950 corr. Br.-Bl., P. Silva & Rozeira in Agron. Lusit. 18(3): 179. 1956 (76.7.17)

[*Myrtillo-Quercetum broteroanae* P. Silva, Rozeira & Fontes in Agron. Lusit. 12(3): 435, tb. 1. 1950 (art. 43), *Vaccinio myrtilli-Quercetum roboris* P. Silva, Rozeira & Fontes 1950, nom. mut.

propos. in *Itinera Geobot.* 14: 180. 2001 (Addenda) (76.7.17). Wrong nomen mutatum propositum of the syntaxon name because the specific epithet was validly published as generic name *Myrtillus* Bubani (art. 14, example e)].

Onobrychidenion hispanicae Royer ex Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 387. 1999 (51.1c).

[In our present conception of the Pyrenean and Oroiberian basophilous supratemperate xerophytic grassland, *Onobrychidenion hispanicae* should be placed as a corresponding name inside the alliance *Teucryo pyrenaicae-Bromion erecti* Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 388. 1999 (51.2).

Onopordetum acantho-castellani ass. nova hoc loco (34.10.10)

[*Onopordetum acantho-nervosi* Rivas-Martínez 1987 in *Itinera Geobot.* 14: 75. 2001 (art. 7). Wrong code application.]

Onopordetum acauli (Br.-Bl. 1948) Vigo & Carreras in Carreras, Carrillo, Font, Masalles, Ninot, I. Soriano & Vigo in *Acta Bot. Barcinon.* 44: 185. 1997 (34.8.6), placed in *Cirsion richteriano-chodati* (34.8) should be removed into *Onopordion acanthii* as (34.7.5).

Parietarium judaicae Arènes ex Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 27. 1952 corr. hoc loco (sub *Parietarium murale* (Arènes 1929) Br.-Bl. 1931 (art. 1, 2b, 34) (28.1.9)

[In this extended anthropogenic wall association, meso-supramediterranean pluvisesonal and thermo-mesotemperate oceanic, at least Mediterranean and Cantabrian-Atlantic, should be included: *Parietarium judaicae* K. Buchwald, Berich über die Exkursion des Institutes für angewandte Botanik der Universität von 30.5-9.6.1952 in die oberitalienischen Seen und die Riviera Levante: 36. 1952 (syntax. syn.), *Linario cymbalariae-Parietarium ramiflorae* Pignatti in *Archiv. Bot.* 28, 3 ser. 12(4): 316, tb. 10. 1952 (syntax. syn.), *Hyosciamo albi-Parietarium judaicae* Segal, Ecological notes on wall vegetation: 154. 1969, *Parietario judaicae-Chelidonetum majoris* O. Boldòs & Masalles, Mapa de la vegetació de Catalunya, esc. 1: 50.000, Mem. num. 33: 99. 1983 (syntax. syn.).]

Parietario lusitanicae-Geranium purpurei Alcaraz, Garre, Martínez-Parras & Peinado in *Collect. Bot. (Barcelona)* 16(2): 416, tb. 1. 1986, accepted in *Itinera Geobot.* 14: 97. 2001 as 41.3.9, should be considered synonymous of *Soncho diana-Parietarium lusitanicae* Esteve, *Veget. Fl. prov. Murcia*: 85. 1973 (41.3.11).

Petrocoptidetum wiedmannii Ladero, T.E. Díaz, Penas, Rivas-Martínez & C. Valle in *Itinera Geobot.* 1: 70. 1987 (29.4.4)

[Unintentionally omitted association of calcareous over hanged walls spread in euoceanic mesotemperate humid belt of Ubinnean-Picoeuropean and Ovetensean subsectors, characterized by the endemic *Petrocoptis pyrenaica* subsp. *wiedmannii*.]

Phlomido-Brachypodium retusi G. Mateo, Publ. Ministerio Agricultura, Ser. Monogr. 31: 190. 1983 (56.1), is an invalid name (art. 5) and not only a latter published name (art. 22) as *Itinera Geobot.* 14: 121. 2001 proposed. (56.1)

Pimpinello gracilis-Festucetum nevadensis Peñas, Cabello, F. Valle & Mota in Folia Geobot. 36(4): 369. 2001 (52.7.17). [Latterly published new association].

Pinguiculo longifoliae-Androsacetum cylindricae F. Casas in Ars. Pharm. 11: 278. 1970 (29.3.11)

[*Pinguiculo longifoliae-Androsacetum cylindricae* F. Casas 1972 in Itinera Geobot. 14: 61. 2001. Wrong year of publication.]

Pino acutisquamae-Juniperion phoeniceae A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo in Acta Bot. Malacitana 23: 153. 1998 corr. hoc loco (75.14), has been validly published by A.V. Pérez & al. (1998: 153) and consequently the proposition of the same alliance in Itinera Geobot. 14: 176. 2001 is wrong and superfluous. In our conception the alliance contain the close shrubby communities that can have an open canopy (sabine formations, open pine forest) which are the head of the magnesi-colous, calco-dolomiticulous or serpentinicolous edaphoxerophilous series (permanent communities) in thermo, meso and lower supramediterranean dry to humid bioclimatic belts in Betic Biogeographic Province; the characteristic species are: *Pinus pinaster* subsp. *acutisquama*, *Rhamnus myrtifolius* and *Rhamnus velutinus*.

Pistacio lentisci-Oleetum cerasiiformis Del Arco, Salas, Acebes, Marrero, Reyes & Pérez de Paz in Ann. Bot. Fenn. 39: 32. 2002 (80.1.13). [Latterly published new association.]

Plantagini penyalarensis-Festucetum ibericae G. Navarro & J.A. Molina in Doc. Phytosoc. 19: 109, tb. 1. 2001 (60.4.13)

[*Plantagini penyalarensis-Festucetum ibericae* ass. nova (Addenda) in Itinera Geobot. 14: 133. 2001 (60.4.13). Latterly published new association.]

Poo annuae-Spergularietum marinae Herrera, Aedo, T.E. Díaz & F. Prieto in Acta Bot. Malacitana 13: 331, tb. 2. 1988 (38.4.5) nom. mut. (sub. *Poo-Spergularietum salinae* Herrera & al., l.c. 1988), placed in Itinera Geobot. 14: 82. 2001 in *Polycarpion tetraphylli* (38.4) should be removed into *Saginion maritimae* Westhoff, Van Leeuwen & Adriani 1962 with the new number 22.1.3.

Pteridio aquilini-Ericetum vagantis Vanden Berghen in Coll. Phytosociol. 1: 91-96. 1975 (61.4.16)

[Syn.: *Vaccinio myrtilli-Ulicetum gallii* (Loidi 1983) Loidi, García-Mijangos, Herrera, Berastegi & Darquistade in Folia Geobot. Phytotax. 32: 266. 1997 (art. 22, 25) (61.4.16) in Itinera Geobot. 14: 138. 2001. Wrong Code application by omission. syn.: *Daboecio-Ulicetum europaei ulicetosum gallii* Br.-Bl. in Vegetatio 14(1-4): 77, tb. 27. 1967 p. min. p. in Itinera Geobot. 14: 137. 2001 as (61.4.4), excl. lectotypus ap. Rivas-Martínez in Lazaroa 1: 30. 1979 (ap. Loidi & al., in Folia Geobot. Phytotax. 32: 262. 1997), sub *Daboecio-Ulicetum gallii ulicetosum gallii* (Br.-Bl. 1967) Rivas-Martínez in Lazaroa 1: 30. 1979.]

Pteridio pubescentis-Ericenion azoricae Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Díaz & Aguiar suball. nova hoc loco (73.1b)

[*Pteridio aquilini-Ericenion azoricae*, holotypus: *Pteridio aquilini-Ericetum azoricae* ass. nova (Addenda) in Itinera Geobot. 14: 164. 2001 (73.1b). Lack of new syntaxon authors indication.]

Pteridio pubescentis-Ericetum azoricae ass. nova hoc loco (73.1.4)

[*Pteridio aquilini-Ericetum azoricae* ass. nova (Addenda) in *Itinera Geobot.* 14: 164. 2001. Correction of the name.]

Puccinellietum caespitosae Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 13: 393, tb. 24. 1956 (20.3.4)

[*Puccinellietum caespitosae* Rivas Goday 1955 corr. (Addenda) in *Itinera Geobot.* 14: 40. 2001 (20.3.4). Wrong translated of syntaxon authors.]

Quercetum rotundifoliae Br.-Bl. & O. Bolòs in Vives, Publ. Univ. Barcelona Fac. Ci., Homenaje a F. Pradillo Vaquer: 200. 1956 (75.1.14), has been also published validly with identical name during the same year: *Quercetum rotundifoliae* Br.-Bl. & O. Bolòs in O. Bolòs in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 31: 85. 1956, with a synoptic table of five releves, since O. Bolòs in *Acta Bot. Barcinon.* 44: 218. 1997 preferred the Vives' name we must accept that decision (art. 33).

Radiolo linoidis-Isoetetum durieui Brullo & Minissale in *Itinera Geobot.* 11: 282. 1998 (holotypus rel. 4), is based in *Isoetetum durieui* Br.-Bl. 1936 sensu O. Bolòs, Molinier & Montserrat in *Acta Bot. Barcinon.* 5: 90, tb. 8. 1970, but it seems better, as O. Bolòs & al. (l.c.) suggested, to consider (if we do not apply art. 2b) it as syntaxonomical synonym of *Isoetetum durieui* Br.-Bl. 1936 (9.1.3).

Ranunculetum saniculifolii ass. nova (Addenda) in *Itinera Geobot.* 14: 18. 2001 (3.3.8) proposed by Pizarro & Melendo seems possible to be considered as the same association as *Callitricho stagnalis-Ranunculetum saniculifolii* Galán in A.V. Pérez, Galán, P. Navas, D. Navas, Y. Gil & Cabezudo in *Acta Bot. Malacitana* 24: 160, tb. 11, rel. 1-18. 1999 (3.3.4). In any case the Galán's table is very confuse: many of the releves are *Callitriche stagnalis* "populations", the table has two times of that specie (one *Callitriche cribose* Schots. ?) and only three releves have *Ranunculus saniculifolius*; consistently it should be possible in the future to be considered as *nomen dubium* (art. 37).

Ranunculo acetosellifolii-Vaccinietum nani Quézel 1953 (60.3.5), is a nomen inversum (art. 42) and not nomem correat (art. 43) as it has been erroneously proposed in *Itinera Geobot.* 14: 133. 2001; the original Quézel's name is *Vaccinio nani-Ranunculetum acetosellifolii* Quézel in *Mem. Soc. Brot.* 9: 54, tb. 16. 1953.

Ranunculo granatensis-Cochlearietum megalospermae Salazar, Lorite, Cano & F. Valle in *Stud. Geobot.* 20: 22, tb. 3. 2001 (59.7.28). [Latterly published new association.]

Ranunculo scelerati-Paspaleum paspalodis Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Andrade in *Acta Bot. Barcinon.* 37: 311. 1988 (59.10.7)

[*Ranunculo scelerati-Paspaleum paspalodis* Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Ollala 1988 in *Itinera Geobot.* 14: 130. 2001 (59.10.7). Wrong translation of syntaxon authors.]

Ranunculo thorae-Seslerietum caeruleae Vigo ex Rivas-Martínez ass. nova hoc loco (45.2.7)

[*Ranunculo thorae-Seslerietum caeruleae* Vigo in *Folia Bot. Misc.* 1: 8. 1979 (art. 5), name accep-

ted in Itinera Geobot. 14: 101. 2001. Wrong Code application.]

Rhamno velutini-Maytenetum europaei Peinado, Alcaraz & Martínez-Parras in Flora et Vegetatio Mundi 10: 174. 1992 (75.5.19), the lower thermomediterranean dry calco-dolomiticulous permanent community of Malagan-Almijarensian coastal territories has as nomenclatural synonym *Calicotomo intermediae-Maytenetum senegalensis* Cabezudo & A.V. Pérez in Acta Bot. Malacitana 26: 229. 2001.

Rhamno velutini-Quercetum cocciferae Nieto, A.V. Pérez & Cabezudo in Lazaroa 10: 38, tb. 2. 1988, placed in Itinera Geobot. 14: 171. 2001 as synonym of *Asparago albi-Rhamnetum oleoidis* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in Anales Inst. Bot. Cavanilles 17(2): 320, tb. 2. 1960 (75.5.2), should be removed and placed as synonymous of *Rhamno myrtifolii-Juniperetum phoeniceae* Molero & Pérez-Raya in Lazaroa 7: 306, tb. 1. 1987 (75.14.2).

Rhinantho mediterranei-Rhaponticetum cynaroidis O. Bolòs in Arch. Natur. Landschafts. 10: 139, tb. 1. 1970 (45.1.6), placed in *Primulion intricatae* in Itinera Geobot. 14: 101. 2001 and now proposed as *Rhinantho mediterranei-Leuzeetum cynaroidis* O. Bolòs 1970 nom. mut. propos. (art. 45), should be moved to *Festucion spadiceae* as (52.4.5).

Rubetum caesio-canescens ass. nova (Addenda) in Itinera Geobot. 14: 157. 2001 (66.2.4), erroneously placed in *Pruno-Rubenion ulmifolii* should be considered synonymous of *Rubetum caesio-canescens* Ríos & Alcaraz in Ríos 1996 nom. ined. in Itinera Geobot. 14: 157. 2001 (66.2.11) nom. inval. (art. 1), association validly published now by the same authors.

Rubo-Buxetum sempervirentis Tüxen in Tüxen & Oberdorfer in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 32: 254, tb. 78. 1958 (66.2.14) (*Rubus-Buxus sempervirens* ass. Tüxen, l.c.) is obviously synonymous and homonym of *Buxo sempervirentis-Rubetum ulmifolii* Tüxen in Tüxen & Oberdorfer 1958 (66.2.15), but as the protologue is too complex and the *Rubus* and *Rosa* preponderant species are not determined, should be better considered the association as nomen dubium (art. 37).

Rupicapnetum decipiens A.V. Pérez, Cabezudo & Nieto in Acta Bot. Malacitana 20: 311, tb. 1. 1995 (29.2.4)

Rupicapnetum "africanae" A.V. Pérez, Cabezudo & Nieto in Acta Bot. Malacitana 20: 310, tb. 1. 1995, as characteristics species in text is specified: *Rupicapnos africana* subsp. *decipiens*, consequently the name is not a latter homonym (art. 31) and so a nomen novum is not necessary (art. 39): *Rupicapnetum decipiens* (A.V. Pérez, Cabezudo & Nieto 1995) A.V. Pérez & Galán in Acta Bot. Malacitana 22: 234. 1997.

Salicion discolori-neotrichae Br.-Bl. & O. Bolòs in Anales Estac. Exp. Aula Dei 5: 205. 1958 corr. hoc loco (71.6)

[In this Iberian and Catalan-Valencian alliance should be placed the associations (71.5.2) *Salicetum cantabricae* as 71.6.3. and (71.5.3) *Saponario-Salicetum purpureae* as 71.6.4.]

Salicion pyrenaicae Vigo ex Rivas-Martínez all. nova hoc loco (45.2), has the same content that the invalid alliance *Laserpitio-Ranunculion thorae* Vigo in Folia Bot. Misc. 1: 8. 1979 (art. 8) accepted by us (45.2) in *Itinera Geobot.* 14: 101. 2001. [New alliance.]

Salsolo-Carthamion Rivas Goday & Rivas-Martínez, Estudio y clasificación de los pastizales españoles: 109. 1963 (*Carthamo arborescentis-Salsolion oppositifoliae* (37.2) was not validly published (art. 3a) since was proposed as “nova comb.” of *Salsolo-Peganion* Br.-Bl. & O. Bolòs 1954 p.p. and *Salsolo-Fagonion* Rivas Goday & Rigual 1958 prov. Years later Rigual (1972: 98) accepted *Salsolo-Carthamion* as a particular alliance based only in *Carthamo arborescentis-Ballotetum hispanicae* Rivas Goday & Rigual in Anales Inst. Bot. Cavanilles 16: 540, tb. 29. 1958, today placed in *Onopordion castellani* as 38.10.5. The valid name for the alliance 37.2. is *Salsolo oppositifoliae-Suaedion fruticosae* Rigual in Publ. Inst. Est. Alicantinos 2(1): 98. 1972 and its obliged lectotype (art. 20) is *Salsolo oppositifoliae-Suaedetum fruticosae* Rivas Goday & Rigual in Anales Inst. Bot. Cavanilles 16: 534, tb. 25. 1958.

Salvio candelabri-Sideritetum foetentis Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 103, tb. 20. 1969 (65.9.8)

[Unintentionally omitted association, upper thermomediterranean semiarid calciphilous Almeriense. We chose as lectotypus association the releve num. 5, tb. 20 (l.c.), from Cerros del Piorno (Enix, Almería), alt. 700 m, exp. South, that belongs to the *Ephedro fragilis-genistetosum retamoidis* (rectae: *genistetosum retamoidis*). The association name should be *Salvio candelabri-Sideritetum lasianthae* nom. mut. propos. (art. 45), because the correct used taxon name is *Sideritis lasiantha* A. Juss. ex Pers. (1806) prioritarious to *Sideritis foetens* Clemente ex Lag. (1816).]

Sarcocapno enneaphyllae-Antirrhinetum mollissimi F. Casas in Publ. Inst. Biol. Aplicada 50: 49, tb. 1. 1971, placed in *Itinera Geobot.* 14: 60. 2001 in *Sarcocapnion enneaphyllae* (29.1.9) should be removed into *Sarcocapnion pulcherrimae* with the number (29.2.9).

Saturejo malacitanae-Coridothymetum capitati Cabezudo & A.V. Pérez in Acta Bot. Malacitana 26: 233, tb. 3. 2001, should be integrated as syntaxonomical synonym of *Teucro lusitanici-Coridothymetum capitati* (Rivas Goday & Rivas-Martínez 1969) Asensi & Díez Garretas in Doc. Phytosoc. 11: 266. 1989 (64.2.8) [*Teucro lusitanici-Coridothymetum baeticum* Rivas Goday & Rivas-Martínez in Anales Inst. Bot. Cavanilles 25: 115. 1969 (art. 34).]

Saxifraga longifoliae-Petrocoptidetum pyrenaicae Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi in *Itinera Geobot.* 5: 381, tb. 67. 1991, not included in *Itinera Geobot.* 14: 61. 2001, should be placed as synonymous of *Petrocoptidetum pyrenaicae* F. Casas in Ars. Pharm. 11: 273. 1970 (29.3.7) as Peralta & Bascónes in Anales Jard. Bot. Madrid 54(1): 514. 1996 suggested.

Scirpetum maritimi-compacti Br.-Bl. in Br.-Bl., Roussine & Nègre, Group. Vég. France Médit.: 92. 1952

[This name was proposed by Braun-Blanquet (l.c. pg. 294) for the same association (l.c. pg. 92) under the name *Scirpetum maritimi* Br.-Bl. 1931 (art. 8), consequently the authority of O. Bolòs, El Paisaje vegetal barcelonés: 85. 1962 is superfluous.]

Scrophulario laxiflorae-Rhododendretum baetici A.V. Pérez, Galán & Cabezudo 2000 corr. (Addenda) (75.13.13) in *Itinera Geobot.* 14: 176. 2001. *Scrophulario laxiflorae-Rhododendretum baetici* A.V. Pérez, Galán & Cabezudo 2000 corr. Rivas-Martínez & Sánchez-Mata in *Lazaroa* 21: 152. 2001, should be designated again as *Scrophulario laxiflorae-Rhododendretum pontici* A.V. Pérez, Galán & Cabezudo in *Acta Bot. Malacitana* 25: 201. 2000, because one of the localities that Linnaeus mentioned in the type of *Rhododendron ponticum* L., *Sp. Pl. ed. 2: 562. 1762* was Algeciras (Spain) and corresponds with the type area listed in the protologue of *Rhododendron baeticum* Boiss. & Reut. in Boiss., *Diagn. Pl. Orient. ser. 2, 3: 118. 1856* (see G. López, 2001); then, *Rhododendron ponticum* and *Rhododendron baeticum* are the same taxon. Consistently *Rhododendrenion baetici* Rivas-Martínez & Sánchez-Mata in *Lazaroa* 21: 151. 2001 (holotypus: *Scrophulario laxiflorae-Rhododendretum pontici* A.V. Pérez, Galán & Cabezudo in *Acta Bot. Malacitana* 25: 201, tb. 1, rel. 17. 2000) should be designated *Rhododendrenion pontici* Rivas-Martínez & Sánchez-Mata 2001 nom. mut. (art. 45) as (75.13b)

Scrophulario laxiflorae-Rhododendron pontici A.V. Pérez, Galán & Cabezudo in A.V. Pérez & Cabezudo in *Acta Bot. Malacitana* 26: 226. 2001 (December) has as nomenclatural type *Scrophulario laxiflorae-Rhododendretum pontici* A.V. Pérez, Galán & Cabezudo in *Acta Bot. Malacitana* 25: 201. 2000 (75.13.13), that is the same type as *Rhododendrenion pontici* Rivas-Martínez & Sánchez-Mata in *Lazaroa* 21: 151. 2001 (March), therefore they are homotypical synonymous (75.13b). In any case we consider as synonymous both syntaxa at suballiance level in the jurisdiction of *Arbuto unedonis-Laurion nobilis* Rivas-Martínez, Fernández-González & Loidi in *Itinera Geobot.* 13: 400. 1999, and consistently *Rhododendretalia pontici* A.V. Pérez, Galán & Cabezudo in A.V. Pérez & Cabezudo in *Acta Bot. Malacitana* 26: 226. 2001 as syntaxonomic synonym of *Pistacio-Rhamnetalia alaterni* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 31(2). 213. 1975.

Senecioni castellani-Lygeetum sparti Rivas Goday & Rivas-Martínez in Rivas-Martínez & Costa 1976 corr. De la Torre, M.A. Alonso & Vicedo in *Anales Biol. Univ. Murcia* 22: 113. 2000 (23.8.3)

[*Senecioni castellani-Lygeetum sparti* Rivas Goday & Rivas-Martínez in Rivas-Martínez & Costa 1976 corr. (Addenda) in *Itinera Geobot.* 14: 47. 2001 (23.8.3). Correction latterly published.]

Sideritido incanae-Lavanduletum lanatae Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez, *Guía Geobotánica de la Excursión de las XI Jornadas de Fitosociología* (Murcia): 68. 1991, placed in *Itinera Geobot.* 14: 152. 2001 in *Lavandulion lanatae* (64.15.5) should be removed into *Lavandulo-Echinospartion boissieri* with the number (64.4.6).

Sisymbrello-Isolepidetum setaceae (Vigo 1968) Brullo & Minissale in *Itinera Geobot.* 11: 282. 1998 (lectotypus rel. 4), is based in *Nanojuncetum valentinum* Vigo in *Arxius Secc. Ci. Inst. Estud. Catalans* 37: 210, tb. 39. 1968. But the type-releve and the rest of the

table on which it is based are so complex that its assignment to any today distinguished association does not seem possible, and so we consider the name as *nomem dubium* (art. 37).

Soncho tenerrimi-Salsolietum vermiculatae O. Bolòs & Molinier in Collect. Bot. (Barcelona) 5(3): 847, tb. 31, (lectotypus rel. 1, hoc loco) 1958 (37.1.11), a coastal thermic Balearic (Mallorca) association, placed in *Salsolo-Peganion* Br.-Bl. & O. Bolòs 1954 (37.1) in *Itinera Geobot.* 14: 77. 2001, should be better included in *Carthamo-Salsolion oppositifoliae* Rivas Goday & Rivas-Martínez 1963 as (37.2.10).

Sphagno pylaesii-Caretum verticillati J. Rodríguez, Izco & Ramil in Acta Bot. Gallica 148(3): 210. 2001 (14.1.4). [Latterly published new association.]

Stipo bromoidis-Brachypodietum phoenicoidis Rivas Goday, Veg. Fl. Cuenca Extr. Guadiana: 395, tb. 59. 1964 (51.4.9). [Unintentionally omitted association of calcareous Araceno-Pacense subhumid territory.]

Suaedo braun-blanquetii-Tamaricetum canariensis Rivas-Martínez, Cantó & Sánchez-Mata ass. nova hoc loco (70.3.6). [New association.]

Teucrio salviastris-Echinospartetum pulviniformis Rivas-Martínez 1974 corr. Rivas-Martínez in Anales Real Acad. Farm. 47(4): 470, tb. 19. 1981, placed in *Itinera Geobot.* 14: 167. 2001 in *Cytision oromediterranei* (74.5.8) should be removed into *Genistion polygaliphyllae* with the number (65.3.14).

Thelypterido limbospermae-Betuletum pubescentis Rivas-Martínez 1987 corr. (Addenda) in *Itinera Geobot.* 14: 183. 2001 (76.13.2), should be named *Lastreo limbospermae-Betuletum pubescentis* Rivas-Martínez in Publ. Inst. Biol. Aplicada 45: 101. 1968 in Publ. Inst. Biol. Aplicada 44: 23, tb. 4, rel. 26. 1968 nom. mut. propos., *Thelypterido-Betuletum* Rivas-Martínez in Publ. Inst. Biol. Aplicada 44: 21, tb. 4. 1968 (art. 3b), *Thelypterido-Betuletum carpaticae* Rivas-Martínez 1987 corr. in Mem. Mapa Series Veg. España: 160. 1987. [Wrong interpretation of original valid name.]

Thymo moroderi-Teucrietum libanitidis Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez ex Peinado, Alcaraz & Martínez-Parras in Vegetatio Mundi 10: 234. 1992 (64.10.4), should be accepted as the first valid name of the association because they chose "lectotype" (holotypus) and give a name (art. 5) within the original diagnosis of the ass. *Thymus longiflorus-ciliatus* et *Teucrium verticillatum* Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez in Anales Inst. Bot. Cavanilles 14: 477, tb. 7. 1957, that it is an illegitimate name by the three plant species mentioned in the original diagnosis (art. 10). The priority proposition of Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez, Datos Veg. Murcia: 74. 1991, as *Thymo moroderi-Teucrietum libanitidis* is non valid because they do not mention (art. 5) the nomenclatural type of the illegitimate association name of Rivas Goday & al. (1957: 477). Consequently, the first legitimate change of rank (art. 27) of the valid alliance *Thymo-Teucrium verticillati* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano,

Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 14: 475. 1957 (*Thymo moroderi-Teucrienion libanitidis*) is also Peinado & al. (1992: 232) and not Alcaraz & al. (1991: 74) as we wrongly accepted in *Itinera Geobot.* 14: 149. 2001.

Thymo-Teucrion verticillati Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 14: 475. 1957 (64.10), seems better at the suballiance rank: *Thymo-Teucrienion verticillati* (Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957) Peinado, Alcaraz & Martínez-Parras in *Vegetatio Mundi* 10: 232. 1992 (64.9d) (as *Thymo moroderi-Teucrienion libanitidis*).

Typho-Schoenoplectetum tabernaemontani Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 81. 1958 (12.1.5), was published under this name, and we obviously can not applied the art. 45 as proposed in *Itinera Geobot.* 14: 27. 2001.

Trisetum flavescens-Brachypodietum phoenicoidis A. & O. Bolòs in O. Bolòs in *Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel* 31: 81. 1956 (51.3.9)

[Com. de *Brachypodium phoenicoides* y *Trisetum flavescens* A. & O. Bolòs, Veg. Com. Barcelonenses: 109. 1950 (art. 2c). Unintentionally omitted association of mesic siliceous deep soils of Vallesan-Empordanese north exposed coastal mountains.]

Umbilico gaditani-Asplenietum marini Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Dias & Aguiar ass. nova hoc loco (28.4.4) [New association.]

Umbilico violacei-Asplenietum corunnensis P. Silva 1970 corr. Rivas-Martínez & Izco hoc loco (27.18.1)

[*Cheilanthes-Asplenietum cuneifolii* P. Silva 1965 p.p. nom. inval. (art. 1), *Umbilico-Asplenietum cuneifolii* P. Silva in *Agron. Lusit.* 3-4: 288, tb. 7. 1970 (art. 43), *Cheilanthes-Asplenietum corunnensis* P. Silva 1970 corr. Ortiz & J. Rodríguez 1993 (art. 29), *Asplenietum corunnensis* ass. nova in *Itinera Geobot.* 14: 56. 2001 (27.18.1). Wrong Code application. Lectotypus associatio: P. Silva in *Agron. Lusit.* 3-4: 288, tb. 7, rel. 6. 1970 (sub *Umbilico-Asplenietum cuneifolii* P. Silva 1970). [Bragança, Donai, Penas do Moral, fissuras de rochas serpentinadas, alt. 800 m., N.]. Characteristic species: 4 *Asplenium corunnense* (sub. *Asplenium cuneifolium*), 2 *Umbilicus rupestris* f. *violaceus*. Companion species: 1 *Cerastium brachypetalum* subsp. *tauricum*, 1 *Micropyrum teneillum*, + *Centranthus calcitrapae*, + *Petrorhagia nanteuilii*.]

Vaccinio myrtilli-Juniperetum nanae Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 377. 1965, placed in *Itinera Geobot.* 14: 167. 2001 in *Cytision oromediterranei* (74.5.9) should be removed into *Juniperion nanae* with the new number (77.3.8).

Veronico aragonensis-Bordereetum pyrenaicae Gruber, Thèse Fac. Sc. Techn. St. Jérôme: 60, tb. 8. 1978 (inedit), should be included in *Aquilegio pyrenaicae-Bordereetum pyrenaicae* Quézel in *Collect. Bot. (Barcelona)* 5(1): 182, tb. 3. 1956 (33.1.3) [J.L. Benito].

Viburno tini-Quercetum rivasmartinezii Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 corr. Capelo & J.C. Costa in *Silva Lusit.* 9(2): 271. 2001 (75.3.12). [Correction name (art. 43) recently proposed for *Viburno tini-Quercetum*

cocciferae Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa in *Itinera Geobot.* 3: 54. 1990, because *Quercus coccifera* L. belongs to *Quercus coccifera* subsp. *rivasmartinezii* Capelo & J.C. Costa in *Silva Lusit.* 9(2): 270. 2001.]

**D. SYNTAXONOMICAL LOCATION OF NEW SYNTAXA, ALTERED NAMES,
ADJUSTMENTS AND ADDITIONS**

The about 1000 new, altered, adjusted and added syntaxon names dealt with in this publication, as Addenda of the “Syntaxonomical checklist of vascular plant communities of Spain and Portugal to association level” (S. Rivas-Martínez, F. Fernández-González, J. Loidi, M. Lousã & A. Penas: *Itinera Geobot.* 14: 5-341. 2001), are hierarchically ranged below with their reference number and under their belonging class. The syntaxa followed by an asterisk (*) are records not known from Spanish and Portuguese territories.

1. CHARETEA FRAGILIS

Nothing to be added.

2. LEMNETEA

Nothing to be added.

3. POTAMETEA

3.2.1. *Myriophyllo alterniflori-Potametum natantis* Rivas-Martínez, Fernández-González, Sánchez-Mata, Pizarro & Sardinero 2002 (ass. nova)

3.2.3. *Nymphoidetum peltatae* Bellot 1951 nom. mut. propos.
[*Limnanthemetum nymphoidis* Bellot 1951 (art. 45)]

3.3.3. *Callitricho brutiae-Ranunculetum peltati* Pizarro & Rivas-Martínez 2002 (ass. nova)

3.3.4. *Callitricho stagnalis-Ranunculetum saniculifolii* Galán in A.V. Pérez, Galán, P. Navas, D. Navas, Y. Gil & Cabezudo 1999
[*Ranunculetum saniculifolii* Pizarro & Melendo 2001 (art. 2b) (3.3.8)]

3.3.7. *Callitricho-Ranunculetum baudotii* O. Bolòs, Molinier & P. Montserrat 1970 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Callitricho-Ranunculetum aquatilis* O. Bolòs, Molinier & P. Montserrat 1970 (art. 43)]

3.4.1. *Callitricho brutiae-Ranunculetum pseudofluitantis* Pizarro & Rivas-Martínez 2002 (ass. nova)

3.4.2. *Callitricho lusitanicae-Ranunculetum penicillati* Pizarro 2002 (ass. nova)
[*Callitricho lusitanicae-Ranunculetum penicillati* Pizarro 1995 (art. 3b)]

3.6.2. *Potamo-Utricularietum australis* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Potamo-Utricularietum vulgare* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 43)]

4. HALODULO WRIGHTII-THALASSIETEA TESTUDINUM

4.1.2. *Halophiletum decipientis* Wildpret & M.C. Gil 2002 (ass. nova)

5. POSIDONIETEA

Nothing to be added.

6. RUPPIETEA

- 6.1.1. *Ruppium cirrhosae* Hocquette 1927 corr. Iversen 1934 nom. mut. propos.
[*Ruppium spiralis* Hocquette 1927 corr. Iversen 1934 (art. 45)]

7. ZOSTERETEA MARINAE

Nothing to be added.

8. BIDENTETEA TRIPARTITAE

Nothing to be added.

9. ISOETO-NANOJUNCETEA**9.1. Isoetion** Br.-Bl. 1935

[*Cicendio filiformis-Solenopsis laurentiae* Brullo & Minissale 1998]

9.1.3. Isoetum durieui Br.-Bl. 1936

[*Radiolo linoidis-Isoetum durieui* Brullo & Minissale 1998]

[9.1.]. *Laurentio-Anthocerotum dichotomi* Br.-Bl. 1935 (*)

9.2. Menthion cervinae Br.-Bl. ex Moor 1937 nom. mut. propos.

[*Preslion cervinae* Br.-Bl. ex Moor 1937 (art. 45)]

9.2.3. Juncetum perpusilli Rivas-Martínez 1964 nom. mut. propos.

[*Juncetum nanae* Rivas-Martínez 1964 (art. 45)]

9.3. Agrostion pourretii Rivas Goday 1958 nom. mut. propos.

[*Agrostion salmanticae* Rivas Goday 1958 (art. 45)]

9.3.3. Pulicario paludosae-Agrostietum pourretii Rivas Goday 1956 nom. mut. propos.

[*Pulicario uliginosae-Agrostietum salmanticae* Rivas Goday 1956 (art. 45)]

9.3.4. Loto hispidi-Chaetopogonetum fasciculati Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos. (9.4.7)

[*Loto subbiflori-Chaetopogonetum fasciculati* Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]

9.4.6. Solenopsio laurentiae-Juncetum tingitani Rivas Goday & Borja in Rivas Goday 1968 nom. mut. propos.

[*Laurentio michelii-Juncetum tingitani* Rivas Goday & Borja in Rivas Goday 1968 (art. 45)]

9.4.8. Digitario ischaemi-Illecebreum verticillati Diemont, Sissingh & Westhoff 1940 nom. mut. propos.

[*Panico-Illecebreum verticillati* Diemont, Sissingh & Westhoff 1940 (art. 45)]

9.4.9. Sedetum lagascae Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardi-nero 2002 (ass. nova)**9.5.5. Gnaphalio uliginosi-Spergularietum capillaceae** L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui 2002 (ass. nova)**9.5.11. Isolepido setaceae-Centaurietum chlooidis** Rivas Goday ex Brullo & Minissale 1998**9.6.1. Cypero micheliani-Crypsietum alopecuroidis** Rivas Goday & E. Valdés in Rivas Goday 1970 nom. mut. propos.

[*Cypero micheliani-Heleochoetum alopecuroidis* Rivas Goday & E. Valdés in Rivas Goday 1970 (art. 45)]

- 9.6.5. *Crypsio schoenoidis-Fimbristyletum bisumbellatae* Br.-Bl. & Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. Brullo & Minisale 1998 nom. mut. propos.
[*Heleocholeo schoenoidis-Fimbristyletum bisumbellatae* Br.-Bl. & Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. Brullo & Minisale 1998 (art. 45)]
- 9.6.6. *Heliotropio supini-Crypsietum schoenoidis* Rivas Goday 1956 nom. mut. propos.
[*Heliotropio supini-Heleocholetum schoenoidis* Rivas Goday 1956 (art. 45)]
- 9.7.2. *Isolepido-Lythretum baetici* Rivas Goday 1970 nom. mut. propos.
[*Isolepido-Lythretum castellani* Rivas Goday 1970 (art. 45)]
- 9.7.3. *Lythro flexuosi-Crypsietum schoenoidis* Rivas-Martínez 1966 nom. mut. propos. (9.6.7)
[*Lythro flexuosi-Heleocholetum schoenoidis* Rivas-Martínez 1966 (art. 45)]

10. ISOETO-LITTORELLETEA

- 10.1.2. *Sparganio angustifolii-Callitrichetum platycarpae* Rivas Goday & Rivas-Martínez 1958 nom. mut. propos.
[*Sparganio angustifolii-Callitrichetum fontqueri* Rivas Goday & Rivas-Martínez 1958 (art. 45)]
- 10.2.3. *Fontinali antypireticae-Ranunculetum ololeuci* Br.-Bl., P. Silva, Rozeira & Fontes 1952 nom. mut. propos.
[*Fontinali-Ranunculetum lusitanici* Br.-Bl., P. Silva, Rozeira & Fontes 1952 (art. 45)]

11. MONTIO-CARDAMINETEA

- 11.2. *Palustriellion commutatae* Koch 1928 nom. mut. propos.
[*Cratoneurion commutati* Koch 1928 (art. 45)]
- 11.2.3. *Cratoneuro filicini-Anagallidetum tenellae* Ríos & Alcaraz 2002 (ass. nova)
- 11.3.2. *Cardaminetum raphanifoliae* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos.
[*Cardaminetum latifoliae* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45)]
- 11.4.2. *Sedetum campanulati* Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero 2002 (ass. nova)
- 11.4.3. *Sedo melanantheri-Saxifragetum gredensis* Martínez-Parras, Peinado & Alcaraz 1987 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Sedo melanantheri-Saxifragetum alpigenae* Martínez-Parras, Peinado & Alcaraz 1987 (art. 43)]
- 11.5. *Ranunculion omiophyllo-hederacei* Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero 2002 (all. nova)
- 11.5.1. *Montio amporitanae-Ranunculetum hederacei* Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero 2002 (ass. nova)
- 11.5.2. *Myosotido stoloniferae-Ranunculetum omiophylli* Rivas-Martínez, Fernández-González, Pizarro, Sánchez-Mata & Sardinero 2002 (ass. nova)

12. PHRAGMITO-MAGNOCARICETEA

- 12.1. *Phragmition australis* Koch 1926 nom. mut. propos.
[*Phragmition communis* Koch 1926 (art. 45)]
- 12.1.1. *Schoenoplecto lacustris-Phragmitetum australis* Koch 1926 nom. mut. propos.
[*Scirpo lacustris-Phragmitetum* Koch 1926 (art. 45)]
- 12.1.4. *Typho domingensis-Phragmitetum maximi* Costa, Boira, Peris & Stübing 1986 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Typho angustifoliae-Phragmitetum maximi* Costa, Boira, Peris & Stübing 1986 (art. 43)]
- 12.1.5. *Typho-Schoenoplectetum tabernaemontani* Br.-Bl. & O. Bolòs 1958
- 12.1b. *Bolboschoenenion maritimi* Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Scirpenion maritimi* Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 12.1.7. *Cypero alopecuroidis-Bolboschoenetum maritimi* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 nom. mut. propos.
[*Cypero alopecuroidis-Scirpetum maritimi* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (art. 45)]
- 12.2.3. *Calliergonello cuspidatae-Eleocharitetum palustris* O. Bolòs & Vigo in O. Bolòs 1967 nom. mut. propos.
[*Acrocladio cuspidati-Eleocharitetum palustris* O. Bolòs & Vigo in O. Bolòs 1967 (art. 45)]
- 12.2.5. *Glycerietum notatae* Kulczynski 1928 nom. mut. propos.
[*Glycerietum plicatae* Kulczynski 1928 (art. 45)]
- 12.2.6. *Glycerietum fluitantis* Egger 1933
- 12.2.7. *Glycerio declinatae-Alopecuretum aequalis* Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero 2002 (ass. nova)
- 12.3. *Rorippion nasturtii-aquatice* Géhu & Géhu-Franck 1987 nom. mut. propos.
[*Nasturtion officinalis* Géhu & Géhu-Franck 1987 (art. 45)]
- 12.3.1. *Apietum bermejoi* Llorens & Gil 2002 (ass. nova)
- 12.4.2. *Caricetum camposii-paniculatae* Molero, J. López & Rivas-Martínez 2002 (ass. nova)
- 12.4.6. *Eriophoro latifolii-Caricetum paniculatae* O. Bolòs & Vives in O. Bolòs 1956 nom. inv. propos.
[*Carici paniculatae-Eriophoretum latifolii* O. Bolòs & Vives in O. Bolòs 1956 (art. 42)]
- 12.4.11. *Irido pseudacori-Polygonetum salicifolii* O. Bolòs 1957 nom. mut. propos.
[*Irido pseudacori-Polygonetum serrulati* O. Bolòs 1957 (art. 45)]
- 12.4.15. *Galio elongati-Caricetum acutiformis* J.A. Molina & Curcó in Curcó 2001
- 12.4.16. *Lythro salicariae-Caricetum ripariae* Cirujano, Medina & Cobo 2000
[*Galio elongati-Caricetum ripariae* Molina & Curcó ex Curcó 2001]

- 12.5. *Caricion reuterianae* (Rivas-Martínez, Fernández-González & Sánchez-Mata 1986) J.A. Molina 1996 nom. mut. propos.
[*Caricion broterianae* (Rivas-Martínez, Fernández-González & Sánchez-Mata 1986) J.A. Molina 1996 (art. 45)]
- 12.5.1. *Caricetum tartesiana* Díez Garretas, Cuenca & Asensi 1988 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Caricetum mauritanicae* Díez Garretas, Cuenca & Asensi 1988 (art. 43)]
- 12.5.3. *Galio broteriani-Caricetum reuterianae* Rivas-Martínez ex Fuente 1986 nom. mut. propos.
[*Galio broteriani-Caricetum broterianae* Rivas-Martínez ex Fuente 1986 (art. 45)]
- 12d. **Bolboschoenetalia compacti** Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Scirpetalia compacti* Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 12.7. **Bolboschoenion compacti** Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Scirpion compacti* Dahl & Hadač 1941 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 12.7.1. *Bolboschoenetum compacti* Van Langendock 1931 corr. Bueno & F. Prieto in Bueno 1997 nom. mut. propos.
[*Scirpetum compacti* Van Langendock 1931 corr. Bueno & F. Prieto in Bueno 1997 (art. 45)]
- 12.7.2. *Bolboschoeno compacti-Phragmitetum australis* Bueno & F. Prieto in Bueno 1997 nom. mut. propos.
[*Scirpo compacti-Phragmitetum australis* Bueno & F. Prieto in Bueno 1997 (art. 45)]
- 12.7.3. *Bolboschoeno compacti-Schoenoplectetum litoralis* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Scirpetum maritimi-litoralis* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 corr. Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 12.7.4. *Bolboschoeno compacti-Scirpetum tabernaemontani* Bueno & F. Prieto in Bueno 1997 nom. mut. propos.
[*Scirpetum compacto-tabernaemontani* Bueno & F. Prieto in Bueno 1997 (art. 45)]

13. OXYCOCCO-SPHAGNETEA

Nothing to be added.

14. SCHEUCHZERIO PALUSTRIS-CARICETEA NIGRAE Tüxen 1937 nom. mut. propos.

[*Scheuchzerio-Caricetea fuscae* Tüxen 1937 (art. 45)]

- 14.1.2. *Drosero longifoliae-Caricetum limosae* Rivas-Martínez in Loidi, Biurrun & Herrera 1997 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Drosero intermediae-Caricetum limosae* Rivas-Martínez in Loidi, Biurrun & Herrera 1997 (art. 43)]

- 14.1.3. *Eleocharito multicaulis-Rhynchosporetum albae* C. Valle & F. Navarro ex Rivas-Martínez 2002 (ass. nova)
[*Eleocharito multicaulis-Rhynchosporetum albae* Tüxen ex C. Valle & F. Navarro 1984 (art. 5)]
- 14.1.4. *Sphagno pylaesii-Caretum verticillati* J. Rodríguez, Izco & Ramil 2001
- 14b. **Caricetalia nigrae** Koch 1926 nom. mut. propos.
[*Caricetalia fuscae* Koch 1926 (art. 45)]
- 14.2. **Caricion nigrae** Koch 1926 nom. mut. propos.
[*Caricion fuscae* Koch 1926 (art. 45)]
- 14.2.2. *Caricetum echinato-nigrae* Rivas-Martínez (1964) 2002 (nom. nov.)
[*Caricetum ibericae* Rivas-Martínez (1964) 1989 (art. 43, 31, 39)]
- 14.2.3. *Caricetum nigrae* Br.-Bl. 1915 nom. mut. propos.
[*Caricetum fuscae* Br.-Bl. 1915 (art. 45)]
- 14.2.5. *Carici echinatae-Trichophoretum caespitosi* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 14.2.6. *Carici nigrae-Sphagnetum recurvi* Rivas Goday & Rivas-Martínez ex F. Prieto, M.C. Fernández & Collado 1987 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Carici carpetanae-Sphagnetum recurvi* Rivas Goday & Rivas-Martínez ex F. Prieto, M.C. Fernández & Collado 1987 (art. 43)]
- 14.2.12. *Potentillo palustris-Caricetum nigrae* F. Prieto, M.C. Fernández & Collado 1987 nom. mut. propos.
[*Potentillo palustris-Caricetum carpetanae* F. Prieto, M.C. Fernández & Collado 1987 (art. 45)]
- 14.6. **Festucion frigidae** Rivas-Martínez, Díez Garretas, Asensi, Molero & F. Valle 2002 (all. nova)
- 14.6.1. *Leontodonto microcephali-Ranunculetum alismoidis* Esteve & P. Prieto in P. Prieto 1971 nom. mut. propos. (14.2.10)
[*Leontodonto microcephali-Ranunculetum uniflori* Esteve & P. Prieto in P. Prieto in Collec. Monogr. Univ. Granada 11: 83, tb. 1971 (art. 45)]
- 14.6.2. *Pinguiculo nevadensis-Eleocharitetum quinqueflorae* Rivas-Martínez, Asensi, Díez Garretas, Molero & F. Valle 2002 (ass. nova)
- 14.6.3. *Veronico turbicolae-Festucetum rivularis* Quézel 1953 nom. mut. propos. (14.2.9)
[Ass. à *Festuca rivularis* et *Veronica repens* var. *nevadensis* Quézel 1953 (art. 45)]
- 14.4.1. *Pinguiculo grandiflorae-Caricetum frigidae* Br.-Bl. 1948 nom. inv. propos.
[*Carici frigidae-Pinguiculetum grandiflorae* Br.-Bl. 1948 (art. 42)]
- 14.4.6. *Tofieldio calyculatae-Caricetum pulicaris* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 14.5. **Caricion maritimae** Br.-Bl. in Volk 1940 nom. mut. propos.
[*Caricion juncifoliae* Br.-Bl. in Volk 1940 (art. 45)]

15. UTRICULARIETEA INTERMEDIO-MINORIS

Nothing to be added.

16. AMMOPHILETEA

- 16.1.1. *Loto cretici-Ammophiletum australis* Rivas-Martínez 1965 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Loto-Ammophiletum* Rivas-Martínez 1965 (art. 43)]
- 16.2. *Honckenyo peploidis-Elytrigion boreoatlanticae*- Tüxen in Br.-Bl. & Tüxen 1952 nom. inv. et nom. mut. propos.
[*Agropyro-Minuartion peploidis* Tüxen in Br.-Bl. & Tüxen 1952 (art. 45, 42)]
- 16.2a. *Elytrigion boreoatlanticae* Rivas-Martínez & Géhu in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Agropyrenion junceiformis* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45), *Agropyro-Minuartienion peploidis*]
- 16.2.1. *Euphorbio paraliae-Elytrigietum boreoatlanticae* Tüxen in Br.-Bl. & Tüxen 1952 nom. mut. propos.
[*Euphorbio paraliae-Agropyretum atlanticum* Tüxen in Br.-Bl. & Tüxen 1952 (art. 45), *Euphorbio-Agropyretum junceiformis* Tüxen in Br.-Bl. & Tüxen nom. mut. in Darimont, Duvingneaud & Lambinon 1962 (art. 45)]
- 16.2b. *Elytrigion junceae* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Agropyrenion farcti* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 16.2.2. *Cypero mucronati-Elytrigietum junceae* Br.-Bl. 1933 nom. mut. propos.
[*Cypero mucronati-Agropyretum juncei* Kühnholtz ex Br.-Bl. 1933 (art. 45)]
- 16.3. *Sporobolion arenarii* (Géhu & Géhu-Franck ex Géhu & Biondi 1994) Rivas-Martínez & Cantó 2002 (all nova)
- 16.3.1. *Eryngio maritimi-Sporoboletum arenarii* (Arènes ex Géhu & Biondi 1994) Rivas-Martínez & Cantó 2002 (nom. nov.)
[*Sporoboletum arenarii* Arènes ex Géhu & Biondi 1994 non Rothmaler 1943 (art. 31)]
- 16.5.1. *Helichryso maritimi-Koelerietum glaucae* Oriente 1974

17. CAKILETEA MARITIMAE

- 17.1.3. *Atriplici-Cakiletum integrifoliae* R. Alvarez 1972 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Atriplici-Cakiletum maritimae* R. Alvarez 1972 (art. 43)]
- 17.2.1. *Atriplicetum hastato-tarraconensis* O. Bolòs 1962 corr. O. Bolòs & Vigo 1984
- 17.2.4. *Salsolo kali-Cakiletum maritimae* Costa & Mansanet 1981 nom. mut. propos.
[*Salsolo kali-Cakiletum aegyptiacae* Costa & Mansanet 1981 (art. 45)]

18. HONCKENYO-LEYMETEA ARENARII Tüxen 1966 nom. mut. propos.

[*Honckenyo-Elymetea arenarii* Tüxen 1966 (art. 45)]

European class not found in the territory

19. CRITHMO-LIMONIETEA Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos.

[*Crithmo-Staticetea* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45)]

19a. Crithmo-Limonietalia Molinier 1934 nom. mut. propos.

[*Crithmo-Staticetalia* Molinier 1934 (art. 45)]

- 19.1. **Crithmo-Limonion** Molinier 1934 nom. mut. propos.
[*Crithmo Stacion* Molinier 1934 (art. 45)]
- 19.1.9. *Dauco commutati-Limonietum biflori* Gil & Llorens 1995 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Dauco gingidii-Limonietum biflori* Gil & Llorens 1995 (art. 43)]
- 19.1.10. *Dauco commutati-Limonietum marisoli* Gil & Llorens 1995 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Dauco gingidii-Limonietum marisoli* Gil & Llorens 1995 (art. 43)]
- 19.1.13. *Limonietum pseudebusitani* Rivas-Martínez, Costa & Loidi 1992 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Limonietum ebusitani* Rivas-Martínez, Costa & Loidi 1992 (art. 43)]
- 19.2.1. *Euphorbio pithysuae-Anthemidetum maritimae* Llorens, Llop & Gil 2002 (ass. nova)
- 19.3.1. *Crithmo maritimi-Limonietum ovalifolii* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 nom. mut. propos.
[*Crithmo-Limonietum lanceolati* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 (art. 45)]
- 19.3.7. *Dactylo marinae-Armerietum majoris* Neto, Capelo, Caraça & J.C. Costa 2001
- 19.4.1. *Frankenio ericifoliae-Zygophylletum fontanesii* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. Santos 2002 (corr. nova)
[*Frankenio capitatae-Zygophylletum fontanesii* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (art. 43)]
- 19.5. **Astragalion tragacanthae** (Folch ex Rivas-Martínez, Fernández-González & Loidi 1999) Rivas-Martínez, Fernández-González & Loidi 2002 (all nova)
[*Astragalenion massiliensis* Folch ex Rivas-Martínez, Fernández-González & Loidi 1999 (art. 27a., 45)]
- 19.5.1. *Cisto repentis-Astragaletum tragacanthae* Franquesa 1995 nom. mut. et nom. inv. propos.
[*Astragalo massiliensis-Cistetum repentis* Franquesa 1995 (art. 45, 42)]
- 19.5.2. *Senecioni cinerariae-Astragaletum tragacanthae* O. Bolòs & Vigo 1984 nom. mut. et nom. inv. propos.
[*Astragalo massiliensis-Senecionetum cinerariae* O. Bolòs & Vigo 1984 (art. 42, 45)]
- 19.5.3. *Dauco halophili-Astragaletum vicentini* (Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990) Rivas-Martínez, Fernández-González & Loidi 2002 (nom. nov.)
[*Astragaletum vicentini* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 (art. 31, 39, 45)]

20. JUNCETEA MARITIMI

- 20.3. **Puccinellion caespitosae** Rivas-Martínez in Rivas-Martínez & Costa 1976 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellion fasciculatae* Rivas-Martínez in Rivas-Martínez & Costa 1976 (art. 43)]

- 20.3.1. *Artemisio gargantae-Puccinellietum pungentis* Barrera & Cirujano 1986 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Artemisio gallicae-Puccinellietum pungentis* Barrera & Cirujano 1986 (art. 43)]
- 20.3.4. *Puccinellietum caespitosae* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellietum convolutae* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano & Rivas-Martínez 1956 (art. 43)]
- 20.3.5. *Puccinellio caespitosae-Artemisietum gargantae* Cirujano 1981 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellio fasciculatae-Artemisietum gallicae* Cirujano 1981 (art. 43)]
- 20.4.2. *Junco maritimi-Caricetum extensae* Géhu 1976
[*Limonio vulgaris-Juncetum maritimi* Teles in P. da Silva & Teles 1972 (art. 1), *Limonio serotini-Juncetum maritimi* Teles ex Izco, P. Guitián & J.M. Sánchez 1993 (syntax. syn.)]
- 20.5. *Limonio ovalifolii-Frankenion laevis* Arbesú, Bueno & F. Prieto 2002 (all. nova)
- 20.5.2. *Crithmo maritimi-Frankenietum laevis* Arbesú, Bueno & F. Prieto 2002 (ass. nova)
- 20.5.3. *Limonio dodartii-Frankenietum laevis* Izco & J.M. Sánchez corr. T.E. Díaz, Nava & A.R. García 2002 (corr. nova)
[*Limonio binervosi-Frankenietum laevis* Izco & J.M. Sánchez 1997 (art. 43)]
- 20.5.5. *Limonio binervosi-Armerietum depilatae* T.E. Díaz & F. Prieto 2002 (ass. nova)
- 20.6.7. *Festuco pruinosa-Armerietum euskadiensis* Rivas-Martínez & C. Navarro in C. Navarro 1983
- 20.6.8. *Festuco pruinosa-Brachypodietum rupestris* Arbesú, Bueno & F. Prieto 2002 (ass. nova)
- 20.7.1. *Azoretum vidalii* Lüpnitz 1976 nom. mut. propos.
[*Campanuletum vidalii* Lüpnitz 1976 (art. 45)]

21. PUCCINELLIO-SALICORNIETEA Topa 1939

European class not found in the territory

22. SAGINETEA MARITIMAE

- 22.1.3. *Poo annuae-Spergularietum marinae* Herrera, Aedo, T.E. Díaz & F. Prieto 1988 nom. mut. propos. [38.4.5]
[*Poo annuae-Spergularietum salinae* Herrera, Aedo, T.E. Díaz & F. Prieto 1988 (art. 45)]
- 22.2.2. *Catapodio spicati-Saginetum maritimae* (O. Bolòs & Vigo 1984) Rivas-Martínez 2002 (ass. nova)
[*Sagino maritimae-Tortelletum flavovirentis cerastietosum gussonei* O. Bolòs & Vigo 1984 (basion.) (art. 27d)]

- 22.2.3. *Catapodio marini-Frankenietum pulverulentae* Rivas-Martínez, Costa & Loidi (1992) 2002 (nom. nov.)
[*Parapholido incurvae-Desmazerietum marinae* Rivas-Martínez, Costa & Loidi 1992 non *Parapholido incurvae-Catapodietum marini* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.M. Costa 1990 (art. 31, 39, 45)]
- 22.2.9. *Triplachno nitentis-Catapodietum marini* O. Bolòs, Folch & Vigo in O. Bolòs 1989 nom. mut. propos.
[*Triplachno nitentis-Desmazerietum marinae* O. Bolòs, Folch & Vigo in O. Bolòs 1989 (art. 45)]
- 22.2.10. *Arenarietum viridis* O. Bolòs 1956 [50.13.2]
- 22.3.1. *Hainardio cylindricae-Rostrarietum phleoidis* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Hainardio cylindricae-Lophochloetum hispidae* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 22.3.6. *Agrostietum nebulosae* Ladero, F. Navarro, C.J. Valle & Gallego 1984
- 23. SARCOCORNIETEA FRUTICOSAE** Br.-Bl. & Tüxen ex A. & O. Bolòs 1950 nom. mut. propos.
[*Salicornietea fruticosae* Br.-Bl. & Tüxen ex A. & O. Bolòs 1950 (art. 45)]
- 23a. **Sarcocornietalia fruticosae** Br.-Bl. 1933 nom. mut. propos.
[*Salicornietalia fruticosae* Br.-Bl. 1933 (art. 45)]
- 23.1. **Sarcocornion fruticosae** Br.-Bl. 1933 nom. mut. propos.
[*Salicornion fruticosae* Br.-Bl. 1933 (art. 45)]
- 23.1.a. **Sarcocornienion fruticosae** Rivas-Martínez & Costa 1984 nom. mut. propos.
[*Arthrocnemenion fruticosi* Rivas-Martínez & Costa 1984 (art. 45)]
- 23.1.2. *Cistancho phelypaeae-Sarcocornietum fruticosae* Géhu ex Géhu & Géhu-Franck 1977 nom. mut. propos.
[*Cistancho phelypaeae-Arthrocnemetum fruticosi* Géhu ex Géhu & Géhu-Franck 1977 (art. 45)]
- 23.1.3. *Puccinellio maritimae-Sarcocornietum fruticosae* Géhu 1976 nom. mut. propos.
[*Puccinellio maritimae-Salicornietum fruticosae* Géhu 1976 (art. 45)]
- 23.1.4. *Limonio bellidifolii-Sarcocornietum fruticosae* Br.-Bl. 1933 nom. mut. propos.
[*Statico bellidifoliae-Salicornietum fruticosae* Br.-Bl. 1933 (art. 45)]
- 23.1b. **Sarcocornienion perennis** Rivas-Martínez in Rivas-Martínez & Costa 1984 nom. mut. propos.
[*Arthrocnemenion perennis* Rivas-Martínez in Rivas-Martínez & Costa 1984 (art. 45)]
- 23.1.5. *Halimionetum portulacoidis* Kuhnholz 1926 nom. mut. propos.
[*Obionetum portulacoidis* Kuhnholz 1926 (art. 45)]
- 23.1.6. *Puccinellio ibericae-Sarcocornietum perennis* J.C. Costa in J.C. Costa, Lousã & Espírito-Santo nom. corr. et nom. inv. propos.
[*Sarcocornio perennis-Puccinellietum convolutae* J.C. Costa in J.C. Costa, Lousã & Espírito-Santo 1997 (art. 42, 43)]
- 23.1.7. *Puccinellio maritimae-Sarcocornietum perennis* Géhu 1976 nom. mut. propos.
[*Puccinellio maritimae-Arthrocnemetum perennis* Géhu 1976 (art. 45)]

- 23.2. *Arthrocnemion macrostachyi* Rivas-Martínez & Costa 1984 nom. mut. propos.
[*Arthrocnemion glauci* Rivas-Martínez & Costa 1984 (art. 45)]
- 23.2.4. *Sphenopo divaricati-Arthrocnemetum macrostachyi* Br.-Bl. 1933 nom. mut. propos.
[*Sphenopo divaricati-Arthrocnemetum glauci* Br.-Bl. 1933 (art. 45)]
- 23.3.1. *Limonio ruizii-Sarcocornietum alpini* Rivas-Martínez, Cantó & Sánchez-Mata 2002 (ass. nova)
- 23.3.2. *Puccinellio caespitosae-Sarcocornietum alpini* Castroviejo & Cirujano 1980 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellio fasciculatae-Sarcocornietum alpini* Castroviejo & Cirujano 1980 (art. 43)]
- 23.3.3. *Puccinellio caespitosae-Arthrocnemetum macrostachyi* Castroviejo & Cirujano 1980 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellio fasciculatae-Arthrocnemetum macrostachyi* Castroviejo & Cirujano 1980 (art. 43)]
- 23.3.4. *Puccinellio caespitosae-Suaedetum braun-blanquetii* Rivas-Martínez & Costa 1984 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Puccinellio tenuifoliae-Suaedetum brevifoliae* Rivas-Martínez & Costa 1984 (art. 43)]
- 23.4.1. *Elytrigio athericae-Suaedetum verae* (Arènes 1933) Géhu 1976 corr. Bueno 1997 nom. mut. propos.
[*Agropyro pungentis* ("littoralis")-*Suaedetum verae* (Arènes 1933) Géhu 1976 (art. 43), *Agropyro pycnanthi-Suaedetum verae* (Arènes 1933) Géhu 1976 corr. Bueno 1997 (art. 45)]
- 23.4.4. *Lavatero davaei-Suaedetum verae* O. Bolòs, Folch & Vigo in O. Bolòs 1989
- 23.4.6. *Suaedetum verae* Br.-Bl. ex O. Bolòs & Molinier 1958 nom. mut. propos.
[*Suaedetum fruticosae* Br.-Bl. ex O. Bolòs & Molinier 1958 (art. 45)]
- 23.4.7. *Frankenio capitatae-Suaedetum verae* Reyes, Rivas-Martínez & Wildpret 2002 (ass. nova)
- 23.5.1. *Artemisio gallicae-Limonietum virgati* Br.-Bl. 1933 nom. mut. propos.
[*Artemisio gallicae-Staticetum virgatae* Br.-Bl. 1933 (art. 45)]
- 23.5.8. *Limonietum retuso-biflori* L. Llorens 1986
- 23.5.9. *Zygophyllo albi-Limonietum latebracteati* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[ass. à *Statice delicatula* et *Zygophyllum album* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 (art. 43)]
- 23.7.1. *Gypsophiletum tomentosae* Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Gypsophiletum perfoliatae* Br.-Bl. & O. Bolòs 1958 (art. 43)]
- 23.8.3. *Senecioni castellani-Lygeetum sparti* Rivas Goday & Rivas-Martínez in Rivas-Martínez & Costa 1976 corr. De la Torre, M.A. Alonso & Vicedo 2000
[*Senecioni auriculacae-Lygeetum sparti* Rivas Goday & Rivas-Martínez in Rivas-Martínez & Costa 1976 (art. 43)]

- 23.9.8. *Senecioni auriculae-Limonietum furfuracei* Rigual 1968 nom. mut. propos.
 [*Senecioni majoris-Limonietum furfuracei* Rigual 1968 (art. 45)]

24. SPARTINETEA MARITIMAE

Nothing to be added.

- 25. THERO-SALICORNITEA** Tüxen in Tüxen & Oberdorfer ex Géhu & Géhu-Frank 1984
 nom. conserv. propos.

[*Thero-Suaedetea* Rivas-Martínez 1972 (art. 52)]

- 25a. **Thero-Suaedetalia** Br.-Bl. & O. Bolòs 1958

[*Thero-Salicornietalia* Pignatti 1953 (art. 36) nom. ambig. propos.]

- 25.1. **Thero-Suaedion** Br.-Bl. in Br.-Bl., Roussine & Nègre 1952

[*Thero-Salicornion* Br.-Bl. 1933 (art. 36) nom. ambig. propos.]

- 25.1.2. *Atriplici salinae-Suaedetum spicatae* O. Bolòs & Vigo 1984 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)

[*Atriplici hastatae-Suaedetum maritimae* O. Bolòs & Vigo 1984 (art. 43)]

- 25.1.3. *Cressetum villosae* Rothmaler 1943 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)

[*Cressetum creticae* Rothmaler 1943 (art. 43)]

- 25.1.4. *Suaedetum albescentis* Géhu 1976 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)

[*Suaedetum prostratae* Géhu 1976 (art. 43)]

- 25.1.6. *Suaedetum spicato-splendentis* Rivas-Martínez, Cantó & Sánchez-Mata 2002 (ass. nova)

26. ADIANTETEA

- 26.1.5. *Camptolometum canariensis* Sunding 1972 nom. mut. propos.

[*Lyperietum canariensis* Sunding 1972 (art. 45)]

- 26.2.2. *Eucladio-Pinguiculetum mundi* T.E. Díaz, Guerra & Nieto 1982 corr. Asensi & Díez Garretas 2002 (corr. nova)

[*Eucladio-Pinguiculetum vallisneriifoliae* T.E. Díaz, Guerra & Nieto 1982 (art. 43)]

- 26.2.5. *Southbyo tophaceae-Pinguiculetum dertosensis* Asensi & Díez Garretas 2002 (ass. nova)

27. ASPLENIETEA TRICHOMANIS

- 27.3.5. *Saxifrago felineri-Dethawietum tenuifoliae* F. Prieto 1983 corr. Rivas-Martínez & Izco 2002 (corr. nova)

[*Saxifrago aretioidis-Dethawietum tenuifoliae* F. Prieto 1983 (art. 43)]

- 27.3.7. *Drabo dedeanae-Saxifragetum trifurcatae* C. Navarro 1983

[*Crepido albidiae-Erinetum alpini* Br.-Bl. 1966]

- 27.6.1. *Alchemillo saxatilis-Saxifragetum pentadactylis* Gruber & Focquet ex Benito & Rivas-Martínez 2002 (ass. nova)

- 27.6.7. *Saxifragetum pubescentis* Br.-Bl. 1948 nom. mut. propos.

[*Saxifragetum mixtae* Br.-Bl. 1948 (art. 45)]

- 27.6.8. *Saxifragetum retusae* Gruber ex Rivas-Martínez 2002 (ass. nova)
- 27.8.2. *Asplenio billotii-Cheilanthes tinaei* Rivas-Martínez & Costa 1973 corr. Sáenz & Rivas-Martínez 1979 nom. mut. propos.
[*Asplenio billotii-Cheilanthes duriensis* Rivas-Martínez & Costa 1973 corr. Sáenz & Rivas-Martínez 1979 (art. 45)]
- 27.9.5. *Murbeckiello boryi-Sperguletum rimarum* F. Prieto 1983 corr. Izco & Ortiz 1989 nom. mut. propos.
[*Murbeckiello boryi-Sperguletum pourretii* F. Prieto 1983 corr. Izco & Ortiz 1989 (art. 45)]
- 27c. **Asplenetalia petrarchae** Br.-Bl. in Meier & Br.-Bl. 1934 nom. mut. propos.
[*Asplenetalia glandulosi* Br.-Bl. in Meier & Br.-Bl. 1934 (art. 45)]
- 27.11. **Asplenion petrarchae** Br.-Bl. in Meier & Br.-Bl. 1934 nom. mut. propos.
[*Asplenion glandulosi* Br.-Bl. in Meier & Br.-Bl. 1934 (art. 45)]
- 27.11.3. *Jasonio saxatilis-Chaenorhinetum cadevallii* A. & O. Bolòs 1950 corr. O. Bolòs 1967 nom. mut. propos.
[*Jasonio glutinosae-Linarietum cadevallii* A. & O. Bolòs 1950 corr. O. Bolòs 1967 (art. 45)]
- 27.12.4. *Jasonio saxatilis-Teucrietum thymifolii* Rigual, Esteve & Rivas Goday 1963 corr. Alcaraz & De la Torre 1988 nom. mut. propos.
[*Jasonio glutinosae-Teucrietum thymifolii* Rigual, Esteve & Rivas Goday 1963 corr. Alcaraz & De la Torre 1988 (art. 45)]
- 27.14. **Campanulion mollis** Martínez-Parras & Peinado 1990 nom. mut. propos.
[*Campanulion velutinae* Martínez-Parras & Peinado 1990 (art. 45)]
- 27.14.5. *Saxifragetum bourgeanae* Díez Garretas, Asensi & Martín 2002 (ass. nova)
- 27.16.3. *Pinguiculo longifoliae-Caricetum brachystachys* Chouard 1942 nom. mut. propos.
[*Pinguiculo longifoliae-Caricetum tenuis* Chouard 1942 (art. 45)]
- 27.16.4. *Saxifrago aizoidis-Silenetum pusillae* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut.
[*Saxifrago aizoidis-Heliospermetum quadridentati* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 (art. 45)]
- 27.18.1. *Umbilico violacei-Asplenietum corunnensis* P. Silva 1970 corr. Rivas-Martínez & Izco 2002 (corr. nova)
[*Umbilico-Asplenietum cuneifolii* P. Silva 1970 (art. 43), *Asplenietum corunnensis* P. Silva ass. nova in Itinera Geobot. 14: 56. 2001 (art. 2b)]
- 27.18.3. *Asplenio corunnensis-Saxifragetum gemmulosae* Rivas-Martínez, Izco & Costa ex Asensi & Esteve 1977 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Asplenio-Saxifragetum gemmulosae* Rivas-Martínez, Izco & Costa ex Asensi & Esteve 1977 (art. 43)]

28. PARIETARIETEA

- 28.1.3. *Capparietum rupestris* O. Bolòs & Molinier ex O. Bolòs 1962 nom. mut. propos.
[*Capparietum inermis* O. Bolòs & Molinier ex O. Bolòs 1962 (art. 45)]

- 28.1.5. *Centrantho rubri-Hypericetum majoris* Rivas-Martínez 1969 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Centrantho-Hypericetum hircini* Rivas-Martínez 1969 (art. 43)]
- 28.1.8. *Piptathero miliacei-Antirrhinetum granitici* Rivas Goday 1964 corr. Rivas-Martínez 1969 nom. mut. propos.
[*Oryzopsis miliaceae-Antirrhinetum granitici* Rivas Goday 1964 corr. Rivas-Martínez 1969 (art. 45)]
- 28.1.14. *Umbilico gaditani-Parietarium judaicae* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Umbilico horizontalis-Parietarium judaicae* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (art. 43)]
- 28.2.1. *Asplenio azoricae-Cymbalarietum muralis* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 28.2.5. *Adianto capilli-veneris-Parietarium judaicae* Segal 1969
[*Cymbalaria muralis-Adiantetum capilli-veneris* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (syntax. syn.)]
- 28.2.6. *Hylotelephio maximi-Umbilicetum rupestris* Vigo & Carreras in Carreras, I. Soriano & Vigo 1984 nom. mut. propos.
[*Sedo maximi-Umbilicetum rupestris* Vigo & Carreras in Carreras, I. Soriano & Vigo 1984 (art. 45)]
- 28.2.9. *Umbilicetum rupestri-gaditani* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Umbilicetum rupestri-neglecti* Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 43)]
- 28.3.2. *Calendulo algarbiensis-Parietarium judaicae* J. & P. Guitián ex Izco & Amigo 2001 nom. mut. propos.
[*Calendulo algarbiensis-Parietarium diffusae* J. & P. Guitián ex Izco & Amigo 2001 (art. 45)]
- 28.4. ***Asplenion marini*** Rivas-Martínez & Izco 2002 (all. nova)
- 28.4.3. *Parietario judaicae-Asplenietum sagittati* Rivas-Martínez, Costa & Loidi 1992 nom. mut. propos.
[*Parietario judaicae-Phyllitidetum sagittatae* Rivas-Martínez, Costa & Loidi 1992 (art. 45)]
- 28.4.4. *Umbilico gaditani-Asplenietum marini* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 28.5. ***Lavaterion maritimae*** Rivas-Martínez & Cantó 2002 (all. nova)
- 28.5.3. *Erodietum gausseniani* Rivas-Martínez & Cantó 2002 (ass. nova)
- 28.5.4. *Lavatero maritimae-Erodietum crispi* Franquesa ex Rivas-Martínez & Cantó 2002 (ass. nova)
[Com. *Lavatera maritima-Erodium petraeum* subsp. *crispum* Franquesa 1995 (art. 3c)]

- 29. PETROCOPTIDO PYRENAICAE-SARCOCAPNETEA ENNEAPHYLLAE** Rivas-Martínez, Cantó & Izco 2002 (classis nova)
- 29a. **Sarcocapnetalia enneaphyllae** F. Casas 1972
- 29.1. **Sarcocapnion enneaphyllae** F. Casas 1972
- 29.1.4. *Asplenio csikii-Sarcocapnetum enneaphyllae* F.J. Pérez, T.E. Díaz & P. Fernández 1990 nom. mut. propos.
[*Asplenio pachyrachidis-Sarcocapnetum enneaphyllae* F.J. Pérez, T.E. Díaz & P. Fernández 1990 (art. 45)]
- 29.1.8. *Moehringietum castellanae* Rivas-Martínez, Cantó & Izco 2002 (ass. nova)
- 29.2. **Sarcocapnion pulcherrimae** F. Casas 1972 corr. Rivas-Martínez, Cantó & Izco 2002 (corr. nova)
[*Sarcocapnion crassifoliae* F. Casas 1972 (art. 43)]
- 29.2.4. *Rupicapnetum decipientis* A.V. Pérez, Cabezudo & Nieto 1995
[*Rupicapnetum africanae* A.V. Pérez, Cabezudo & Nieto 1995 (art. 31, 39)]
- 29.2.6. *Sarcocapno saetabensis-Chaenorhinetum tenelli* M.B. Crespo 2002 (ass. nova)
- 29.2.7. *Sarcocapnetum pulcherrimae* Cuatrecasas ex Esteve & F. Casas 1971 corr. Rivas-Martínez, Cantó & Izco 2002 (corr. nova)
[*Sarcocapnetum crassifoliae* Cuatrecasas ex Esteve & F. Casas 1971 (art. 43)]
- 29.2.9. *Sarcocapno enneaphyllae-Antirrhinetum mollissimi* F. Casas 1971 (29.1.9)
- 29b. **Petrocoptidetalia pyrenaicae** Rivas-Martínez, Cantó & Izco 2002 (ordo novus)
- 29.3.1. *Potentillo alchimilloidis-Antirrhinetum sempervirentis* Rivas Goday, Esteve, Rigual & Borja 1954 nom. inv. propos.
[*Antirrhino sempervirentis-Potentilletum alchimilloidis* Rivas Goday, Esteve, Rigual & Borja 1954 (art. 42)]
- 29.3.3. *Asplenio csikii-Petrocoptidetum crassifoliae* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 29.3.4. *Asplenio csikii-Petrocoptidetum pseudoviscosae* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 29.3.5. *Petrocoptidetum hispanicae* O. Bolòs & P. Montserrat ex F. Casas 1970 corr. Rivas-Martínez, Cantó & Izco 2002 (corr. nova)
[*Petrocoptidetum crassifoliae* O. Bolòs & P. Montserrat ex F. Casas 1970 (art. 43)]
- 29.3.6. *Petrocoptidetum montserratii* Rivas-Martínez, Cantó & Izco 2002 (ass. nova)
- 29.3.7. *Petrocoptidetum pyrenaicae* F. Casas 1970
[*Saxifrago longifoliae-Petrocoptidetum pyrenaicae* Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi 1991 (suntax. syn.)]
- 29.3.9. *Petrocoptido hispanicae-Androsacetum willkommii* F. Casas 1970 corr. Benito in Villar & Benito 2001
[*Petrocoptido hispanicae-Androsacetum cylindricae* F. Casas 1970 (art. 43)]
- 29.3.10. *Petrocoptido montsicciana-Antirrhinetum mollis* O. Bolòs 1954 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Petrocoptido pardoi-Antirrhinetum mollis* O. Bolòs 1954 (art. 43)]
- 29.3.11. *Pinguiculo longifoliae-Androsacetum cylindricae* F. Casas 1970

- 29.3.13. *Antirrhino sempervirentis-Scrophularietum pyrenaicae* Quézel 1956 nom. inv. propos.
[*Scrophulario pyrenaicae-Antirrhinetum sempervirentis* Quézel 1956 (art. 42)]
- 29.3.14. *Valeriano longiflorae-Petrocoptidetum guarensis* F. Casas 1970 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Valeriano longiflorae-Petrocoptidetum montsiciana* F. Casas 1970 (art. 43)]
- 29.4. ***Petrocoptidion glaucifoliae*** (P. Fernández, Penas & T.E. Díaz 1983) Rivas-Martínez, Cantó & Izco 2002 (all. nova)
[*Petrocoptidenion glaucifoliae* P. Fernández, Penas & T.E. Díaz 1983 (art. 27a)]
- 29.4.4. *Petrocoptidetum wiedmannii* Ladero, T.E. Díaz, Penas, Rivas-Martínez & C. Valle 1987

30. ANOMODONTO-POLYPODIETEA

- 30.1. ***Polypodium cambrici*** Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos.
[*Polypodium serrati* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45)]
- 30.1b. ***Bartramio strictae-Polypodiunion cambrici*** (O. Bolòs & Vives 1957) Rivas-Martínez 2002 (suball. nova, stat. nov.)
[*Sedo cepaeae-Polypodiunion serrulati* M.B. Crespo in Ecol. Medit. 19: 6. 1993 (art. 27) (30.2), *Pterogonio gracilis-Polypodiunion vulgaris* M.B. Crespo in Ecol. Medit. 19: 8. 1993 (art. 27)]
- 30.1.3. *Pleurosoretum hispanici* Pérez-Raya & Molero 1988 nom. mut. propos.
[*Asplenietum hispanici* Pérez-Raya & Molero 1988 (art. 45)]
- 30.1.5. *Polypodietum cambrici* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos.
[*Polypodietum serrati* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45)]
- 30.1.6. *Polypodio cambrici-Saxifragetum fragilis* Molero Brion. & Pujadas in Molero Brion. 1984 nom. mut. propos.
[*Polypodio cambrici-Saxifragetum corbariensis* Molero Brion. & Pujadas in Molero Brion. 1984 (art. 45)]
- 30.1.10. *Arenario intricatae-Polypodietum cambrici* M.B. Crespo 1993 nom. mut. propos. (30.1.2)
[*Arenario intricatae-Polypodietum serrulati* M.B. Crespo 1993 (art. 45)]
- 30.2.2. *Anogrammo leptophyllae-Davallietum canariensis* Bellot & Casaseca in Casaseca 1959 nom. mut. propos.
[*Gymnogrammo leptophyllae-Davallietum canariensis* Bellot & Casaseca in Casaseca 1959 (art. 45)]
- 30.2.8. *Sedo-Polypodietum cambrici* O. Bolòs & Vives in O. Bolòs 1957 nom. mut. propos.
[*Sedo-Polypodietum serrati* O. Bolòs & Vives in O. Bolòs 1957 (art. 45)]
- 30.3.2. *Elaphoglosso semicylindrici-Polypodietum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 30.3.4. *Mnio horni-Vandenboschietum speciosae* T.E. Díaz, M.C. Fernández & Collado 2002 (ass. nova)

- 30.4.4. *Solenopsis balearicae-Naufragetum balearicae* (Duvigneaud 1970) Llorens & Gil 2002 (ass. nova)
- 30.5.3. *Selaginello denticulatae-Saxifragetum gemmulosae* F.J. Pérez, T.E. Díaz, P. Fernández & Salvo ex Rivas-Martínez & Izco 2002 (ass. nova)

31. GREENOVIO-AEONIETEA

- 31a. **Soncho-Aeonietalia** Rivas Goday & Esteve ex Sunding 1972 nom. mut. propos.
[*Soncho-Sempervivetalia* Rivas Goday & Esteve ex Sunding 1972 (art. 45)]
- 31.2. **Soncho-Aeonion** Sunding 1972 nom. mut. propos.
[*Soncho-Sempervivion* Sunding 1972 (art. 45)]
- 31.2.20. *Umbilico gaditani-Aeonietum urbici* García Gallo & Wildpret in Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Umbilico horizontalis-Aeonietum urbici* García Gallo & Wildpret in Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (art. 43)]

32. PHAGNALO-RUMICETEA INDURATI

- 32.2.5. *Sedo mucizoniae-Notholaenetum marantae* Rivas Goday & Esteve 1972 nom. mut. propos.
[*Mucizonio hispidiae-Cheilanthesetum marantae* Rivas Goday & Esteve 1972 (art. 45)]
- 32.2.7. *Diantho broteroi-Launaetum laniferae* Peñas, Cabello, F. Valle & Mota 2001
- 32.3.6. *Diantho lusitani-Antirrhinetum rupestris* Molero, Marín & M. López 2002 (ass. nova)
- 32.3.13. *Sedo mucizoniae-Galietum verrucosi* Rivas Goday 1964 nom. mut. propos.
[*Mucizonio hispidiae-Galietum valantiae* Rivas Goday 1964 (art. 45) [28.1.7]]
- 32.4. **Saxifragion fragosoi** Rivas-Martínez in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 nom. mut. propos.
[*Saxifragion continentalis* Rivas-Martínez in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 (art. 45)]

33. THLASPIETEA ROTUNDIFOLII

- 33.1.1. *Allio schoenoprasi-Ranunculetum heterocarpi* F. Casas 1970 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Allio schoenoprasi-Ranunculetum parnassifolii* F. Casas 1970 (art. 10, 43)]
- 33.1.2. *Aquilegio montsiccianae-Xatardietum scabrae* O. Bolòs & P. Montserrat in O. Bolòs 1974
- 33.1.3. *Aquilegio pyrenaicae-Bordereetum pyrenaicae* Quézel 1956
[*Veronico aragonensis-Bordereetum pyrenaicae* Gruber 1978 (inedit)]
- 33.2. **Platycapno saxicolae-Iberidion lagascanae** Rivas Goday & Rivas-Martínez 1963 nom. mut. propos.
[*Platycapno-Iberidion granatensis* Rivas Goday & Rivas-Martínez 1963 (art. 45)]

- 33.3.3. *Oxyrio digynae-Doronicetum pyrenaici* Chouard 1943 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousa & Penas 2002 (corr. nova) [ass. à *Oxyria digyna* et *Aronicum scorpioides* Chouard 1943 (art. 10, 43)]
- 33.4.2. *Galio pyrenaici-Salicetum fontqueri* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousa & Penas 2002 (corr. nova) [*Galio pyrenaici-Salicetum breviserratae* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (art. 43)]
- 33.4.4. *Linario filicaulis-Ranunculetum cabrerensis* R. Alonso, Puente, Penas & F. Salegui 2002 (ass. nova)
- 33.5.4. *Cochleario navarranae-Linarietum odoratissimae* P. Montserrat & Villar 1974
- 33.6.1. *Cryptogrammo crispae-Poetum fontquerii* Nègre 1968 nom. mut. propos. [*Allosoro crispi-Poetum fontquerii* Nègre 1968 (art. 45)]
- 33.7.3. *Violo crassiusculae-Linarietum glacialis* Quézel 1953 nom. mut. propos. [*Violo nevadensis-Linarietum glacialis* Quézel 1953 (art. 45)]
- 33.10.3. *Sileno pusillae-Cystopteridetum montanae* Chouard 1942 nom. mut. propos. [*Sileno quadrifidae-Cystopteridetum montanae* Chouard 1942 (art. 45)]
- 33.10.4. *Valeriano montanae-Gymnocarpietum robertiani* Chouard 1943 nom. mut. propos. [*Valeriano montanae-Polypodietum robertiani* Chouard 1943 (art. 45)]
- 33.13.2. *Resedetum pauii* O. Bolòs 1974 nom. mut. propos. [*Resedetum valentinae* O. Bolòs 1974 (art. 45)]
- 33e. **Achnatheretalia calamagrostis** Oberdorfer & Seibert in Oberdorfer 1977 nom. mut. propos. [*Stipetalia calamagrostis* Oberdorfer & Seibert in Oberdorfer 1977 (art. 45)]
- 33.14. **Achnatherion calamagrostis** Jenny in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. [*Stipion calamagrostis* Jenny in Br.-Bl., Roussine & Nègre 1952 (art. 45)]
- 33.14.7. *Picrido rielii-Achnatheretum calamagrostis* O. Bolòs 1961 nom. mut. propos. [*Picrido rielii-Stipetum calamagrostis* O. Bolòs 1961 (art. 45)]
- 33.14.9. *Pimpinello puberulae-Achnatheretum calamagrostis* Rivas Goday & Borja 1961 nom. mut. et inv. propos. [*Stipo calamagrostis-Pimpinelletum puberulae* Rivas Goday & Borja 1961 (art. 45), *Achnathero calamagrostis-Pimpinelletum puberulae* Rivas Goday & Borja 1961 nom. mut. (art. 42)]
- 33.16. **Androsacion ciliatae** Rivas-Martínez 1988 [46.3]

34. ARTEMISIETEA VULGARIS

- 34.2.1. *Chenopodio boni-henrici-Rumicetum pseudalpini* Carrillo & Vigo 1984 nom. corr. et nom. inv. propos. [*Rumici alpini-Chenopodietum boni-henrici* Carrillo & Vigo 1984 (art. 42, 43)]
- 34.4. **Dauco-Melilotion** Görs 1966
- 34.4.6. *Beto maritimae-Lavateretum arboreae* Arbesú, Bueno & F. Prieto 2002 (ass. nova) [37.4.2]

- 34b. **Elytrigietalia repentis** Oberdorfer, Müller & Görs in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967 nom. mut. propos.
[*Agropyretalia repentis* Oberdorfer, Müller & Görs in Oberdorfer, Görs, Korneck, Lohmeyer, Müller, Philippi & Seibert 1967 (art. 45)]
- 34.3. **Convolvulo arvensis-Elytrigion repentis** Görs 1966 nom. mut. propos.
[*Convolvulo arvensis-Agropyrion repentis* Görs 1966 (art. 45)]
- 34.3.1. **Cardario drabae-Elytrigietum repentis** Müller & Görs 1969 nom. mut. propos.
[*Cardario drabae-Agropyretum repentis* Müller & Görs in Vegetatio 58: 203. 1969 (art. 45)]
- 34.5. **Elytrigion athericae** Géhu 1968 nom. mut. propos.
[*Agropyrion pungentis* Géhu 1968 (art. 45)]
- 34.5.1. **Elytrigietum athericae** Corillion 1953 corr. Bueno 1997 nom. mut. propos.
[*Agropyretum litorei* Corillion 1953, (lectotypus in Bueno rel. 2) sub. *Agropyretum pycnanthi* Bueno 1997 (art. 45)]
- 34.5.2. **Inulo crithmoidis-Elytrigietum athericae** Géhu ex Izco, J. Guitián & J.M. Sánchez 1993 nom. mut. propos.
[*Inulo crithmoidis-Elymetum pycnanthi* Géhu ex Izco, J. Guitián & J.M. Sánchez 1993 (art. 45)]
- 34.5.4. **Polygono maritimi-Elytrigietum athericae** Herrera in T.E. Díaz & F. Prieto 1994 nom. mut. propos.
[*Polygono maritimi-Elymetum pycnanthi* Herrera in T.E. Díaz & F. Prieto 1994 (art. 45)]
- 34B. **Onopordenea acanthii** Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 2002 (subclassis nova)
- 34.7.5. **Onopordetum acauli** (Br.-Bl. 1948) Vigo & Carreras in Carreras, Carrillo, Font, Masalles, Ninot, I. Soriano & Vigo 1997 (34.8.6)
- 34.8.5. **Cynoglossopicti-Cirsietum chodati** Bellot 1968 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[ass. à *Cirsium eriophorum-Cynoglossum pictum* Bellot 1968 (art. 14, 43)]
- 34.10. **Onopordion castellani** Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Onopordion arabici* Br.-Bl. & O. Bolòs 1958 (art. 43)]
- 34.10.2. **Galactito tomentosae-Cynaretum humilis** Rivas Goday 1964 nom. inv. propos.
[*Bourgaeo humilis-Galactitietum tomentosae* Rivas Goday 1964 (art. 42)]
- 34.10.3. **Carlino hispanicae-Carthametum lanati** Ladero, F. Navarro & C. Valle 1983 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Carlino corymbosae-Carthametum lanati* Ladero, F. Navarro & C. Valle 1983 (art. 43)]
- 34.10.5. **Balloto hirsutae-Carthametum arborescentis** Rivas Goday & Rigual corr. Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989 nom. inv. propos.
[*Carthamo arborescentis-Ballotetum hirsutae* Rivas Goday & Rigual 1958 corr. Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989 (art. 42)]
- 34.10.8. **Nicotiano glaucae-Onopordetum micropteri** O. Bolòs 1957 corr. Alcaraz 2002 (corr. nova)
[*Nicotiano glaucae-Onopordetum macracanthi* O. Bolòs 1957 (art. 43)]

- 34.10.10. *Onopordetum acantho-castellani* Rivas-Martínez & Sánchez-Mata 2002 (ass. nova)
- 34.10.11. *Onopordetum castellani* Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Onopordetum arabici* Br.-Bl. & O. Bolòs 1958 (art. 43)]
- 34.10.13. *Resedetum suffruticosae* Rivas-Martínez & Sánchez-Mata 2002 (ass. nova)
- 34.11. *Urtico piluliferae-Silybion mariani* Sissingh ex Br.-Bl. & O. Bolòs 1958 nom. inv. propos.4
[*Silybo-Urticion* Sissingh ex Br.-Bl. & O. Bolòs 1958 (art. 42)]
- 34.11.7. *Silybetum hispanici* Rivas-Martínez, Cantó, M.B. Crespo & Sánchez-Mata 2002 (ass. nova)
- 34.11.8. *Urtico piluliferae-Silybetum mariani* Br.-Bl. in Br.-Bl., Gajeswki, Wraber & Walas 1936 nom. inv. propos.
[*Silybo-Urticetum* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 (art. 42)]
- 34.12. **Bromo-Piptatherion miliacei** O. Bolòs 1970 nom. mut. propos.
[*Bromo-Oryzopsis* *miliaceae* O. Bolòs 1970 (art. 45) (34.6)]
- 34.12.1. *Bromo sterilis-Sisymbrietum macrolomae* Ninot, Soriano & Vigo in Vigo 1996 (34.6.1)
- 34.12.2. *Centaureo maritimae-Echietum sabulicolae* Costa & Mansanet 1981 (34.6.2)
[*Centauretum stenophyllo-sonchifoliae* Peris, Pérez-Badia & P. Soriano in Estesó, Pérez-Badia & Soriano 1988 (syntax. syn.)]
- 34.12.3. *Euphorbio terracinae-Lobularietum columbretensis* Carretero & Boira 1987 corr. Carretero & Aguilera 1995 (34.6.3)
- 34.12.4. *Ferulo tingitanae-Carthametum arborescentis* Galán, Cortés & I. Sánchez 2000 (34.6.4)
- 34.12.5. *Inuletum revolutae* O. Bolòs ex Rivas-Martínez 2002 (ass. nova) (34.6.5)
[*Inuletum revolutae* O. Bolòs 1975 (art. 3b)]
- 34.12.6. *Inulo viscosae-Piptatheretum miliacei* O. Bolòs 1957 nom. mut. propos. (34.6.6)
[*Inulo viscosae-Oryzopsietum miliaceae* O. Bolòs 1957 (art. 45)]
- 34.12.7. *Piptathero miliacei-Daucetum maximi* O. Bolòs & Vigo 1972 nom. mut. propos. (34.6.7)
[*Oryzopsio miliaceae-Daucetum maximi* O. Bolòs & Vigo 1972 (art. 45)]
- 34.12.8. *Piptathero miliacei-Foeniculetum vulgaris* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (34.6.8)
- 34.12.9. *Verbasco litigiiosi-Ononidetum ramosissimae* Galán, I. Sánchez & Vicente 1997 (34.6.9)
- 34.12.10. *Verbasco martinezii-Ononidetum ramosissimae* Galán, I. Sánchez & Vicente 1997 (34.6.10)

35. EPILOBIETEA ANGUSTIFOLII

Nothing to be added.

36. ORYZETEA SATIVAE

Nothing to be added.

37. PEGANO-SALSOLETEA

- 37.1.7. *Artemisio valentinae-Camphorosmetum monspeliacae* Rivas-Martínez, Cantó & Sánchez-Mata 2002 (ass. nova)
- 37.1.10. *Pegano harmalae-Salsoletum vermiculatae* Br.-Bl. & O. Bolòs 1954 nom. inv. propos.
[*Salsolo vermiculatae-Pegagnetum harmalae* Br.-Bl. & O. Bolòs 1954 (art. 42)]
- 37.2. *Salsolo oppositifoliae-Suaedion verae* Rigual 1972 nom. mut. propos.
[*Salsolo oppositifoliae-Suaedion fruticosae* Rigual 1972 (art. 45)]
- 37.2.3. *Cynomorio coccinei-Lycietum intricati* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa (1990) 2002 (nom. nov.)
[*Salsolo vermiculatae-Lycietum intricati* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 non Llorens & Guijarro 1982 (art. 31, 39)]
- 37.2.6. *Thymelaeo hirsutae-Salsoletum oppositifoliae* Rivas Goday & Bellot in Rivas Goday & Rivas-Martínez 1959 nom. inv. propos.
[*Salsolo oppositifoliae-Thymelaeetum hirsutae* Rivas Goday & Bellot ex Rivas Goday & Rivas-Martínez 1959 (art. 42)]
- 37.2.10. *Soncho tenerrimi-Salsoletum vermiculatae* O. Bolòs & Molinier 1958 (37.1.11)
- 37.3. *Hammado articulatae-Atriplicion glaucae* Rivas Goday & Rivas-Martínez ex Rigual 1972 nom. mut. propos.
[*Haloxylo-Atriplicion* Rivas Goday & Rivas-Martínez ex Rigual 1972 (art. 45)]
- 37.5. *Ipomoeo purpureae-Lycion europaei* O. Bolòs 1988 nom. inv. propos.
[*Lycio europaei-Ipomoeion purpureae* O. Bolòs 1988 (art. 10c, 42)]
- 37.5.1. *Ipomoeo purpureae-Lycietum europaei* O. Bolòs 1962 nom. mut. propos.
[*Pharbitidi purpureae-Lycietum europaei* O. Bolòs 1962 (art. 45)]
- 37b. *Chenoleoidetalia tomentosae* Sunding 1972 nom. mut. propos.
[*Chenoletalia tomentosae* Sunding 1972 (art. 45)]
- 37.6. *Chenoleoidion tomentosae* Sunding 1972 nom. mut. propos.
[*Chenoleion tomentosae* Sunding 1972 (art. 45)]
- 37.6.1. *Chenoleoideo tomentosae-Suaedetum mollis* Sunding 1972 corr. Reyes, Wildpret & León 2001 nom. mut. propos.
[*Chenoleo tomentosae-Suaedetum mollis* Sunding 1972 corr. Reyes, Wildpret & León 2001 (art. 45)]

38. POLYGONO-POETEA ANNUAE

- 38.1.1. *Bryo argentei-Saginetum procumbentis* Diemont, Sissingh & Westhoff. 1940 nom. inv. propos.
[*Sagino-Bryetum argentei* Diemont, Sissingh & Westhoff 1940 (art. 42)]
- 38.2.2. *Polygono arenastri-Matricarietum discoideae* Müller ex Oberdorfer 1971 corr. Passarge 1996 nom. inv. et nom. mut. propos.
[*Matricario matricarioidis-Polygonetum arenastri* Müller ex Oberdorfer 1971 corr. Passarge 1996 (art. 42, 45)]

- 38.3.1. *Coronopodo squamati-Sclerochloetum durae* Br.-Bl. in Br.-Bl. Gajewski, Wraber & Walas 1936 nom. mut. propos.
[*Coronopodo procumbentis-Sclerochloetum durae* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 (art. 45)]
- 38.3.4. *Polygono arenastri-Sclerochloetum durae* Soó ex Korneck 1969 corr. Mucina 1993 nom. inv. propos.
[*Sclerochloa durae-Polygonetum arenastri* Soó ex Korneck 1969 corr. Mucina 1993 (art. 42)]
- 38.4.2. *Crepido pusillae-Filaginietum petro-ianii* Llorens & Gil 2002 (ass. nova)
- 38.5. ***Chamaesyction prostratae*** Rivas-Martínez 1976 nom. mut. propos.
[*Euphorbion prostratae* Rivas-Martínez 1976 (art. 45)]
- 38.5.2. *Eleusino-Euphorbietum prostratae* O. Bolòs & A. Marcos 1953 nom. inv. propos.
[*Euphorbio-Eleusinietum geminatae* O. Bolòs & A. Marcos 1953 (art. 42)]

39. STELLARIETEA MEDIAE

- 39.1. ***Caucalidion platycarpi*** Tüxen ex Von Rochow 1951 nom. mut. propos.
[*Caucalidion lappulae* Tüxen ex Von Rochow 1951 (art. 45)]
- 39.1.4. *Chaenorhino minoris-Euphorbietum longistylae* Rivas Goday & Borja 1961 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Linario minoris-Euphorbietum graecae* Rivas Goday & Borja 1961 (art.43)]
- 39.2.2. *Bunio incrassati-Galietum tricornuti* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 nom. mut. propos.
[*Bunio incrassati-Galietum tricornis* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 (art. 45)]
- 39.2.6. *Hypecoo imberbis-Iondrabetum auriculatae* Esteve 1973 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Hypecoo pseudograndiflori-Iondrabetum auriculatae* Esteve 1973 (art. 43)]
- 39.4.10. *Linario elegantis-Arnoseridetum minima* Bellot & Casaseca 1959 nom. mut. propos.
[*Linario delphinoidis-Arnoseridetum* Bellot & Casaseca in Casaseca 1959 (art. 45)]
- 39.7.3. *Eruco vesicariae-Diplotaxietum eruroidis* Rigual 1972 nom. inv. propos.
[*Diplotaxio eruroidis-Erucetum vesicariae* Rigual 1972 (art. 42)]
- 39.8.6. *Chenopodio muralis-Parietarietum judaicae* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 corr. Rivas-Martínez & Sánchez-Mata 2002 (corr. nova)
[*Chenopodio muralis-Parietarietum officinalis* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 (art. 43)]
- 39.8.7. *Chenopodio vulvariae-Descurainietum sophiae* Rivas-Martínez 1964 nom. mut. propos.
[*Chenopodio-Descurainietum densiflorae* Rivas-Martínez 1964 (art. 45)]
- 39.8.8. *Epilobio brachycarpi-Chenopodietum opulifolii* Rivas-Martínez, C. Navarro & Cantó 2002 (ass. nova)
- 39.8.9. *Sisymbrietum erysimoidis* (Ladero, Socorro, Molero, M. López, Zafra, Marín, Hurtado & Pérez-Raya 1981) Rivas-Martínez & Ladero 2002 (ass. nova)
[*Sisymbrio irionis-Malvetum parviflorae sisymbrietosum erysimoidis* Ladero & al. 1981 (basion.) (art. 27d)]

- 39.9.1. *Patellifolietum patellaris* F. Casas 1971 nom. mut. propos.
[*Betetum patellaris* F. Casas 1971 (art. 45)]
- 39.10.1. *Anthoxantho ovati-Vulpietum geniculatae* Cantó 2002 (ass. nova)
- 39.12.1. *Eragrostio papposae-Brassicetum cossonianae* Esteve 1973 nom. inv. propos.
[*Brassico cossonianae-Eragrostietum papposae* Esteve 1973 (art. 42)]
- 39.13.9. *Medicagini littoralis-Stipetum capensis* M.B. Crespo 2002 (ass. nova)
- 39.13.11. *Orlayo grandiflorae-Aegilopetum geniculatae* Romo ex Rivas-Martínez & Izco 2002 (ass. nova)
[*Aegilopo-Orlayetum grandiflorae* Romo 1989 (art. 5)]
- 39.13.13. *Reichardio gracilis-Stipetum capensis* Rivas-Martínez, Costa & Loidi 1992 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Reichardio picroidis-Stipetum capensis* Rivas-Martínez, Costa & Loidi 1992 (art. 43)]
- 39.14.4. *Coincyo setigerae-Sisymbrietum chrysanthi* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 corr. Rivas-Martínez & Sánchez-Mata 2002 (corr. nova)
[*Coincyo setigerae-Sisymbrietum austriaci* Rivas-Martínez & Sánchez-Mata in Sánchez-Mata 1989 (art. 43)]
- 39.14.6. *Coincyo hispidae-Brassicetum barrelieri* Rivas-Martínez & Izco 1977 nom. mut. propos.
[*Rhynchosinapio hispidae-Brassicetum barrelieri* Rivas-Martínez & Izco 1977 (art. 45)]
- 39.15.3. *Fedio cornucopiae-Sinapietum mairei* Peinado, Martínez-Parras & Bartolomé 1986 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Fedio cornucopiae-Sinapietum albae* Peinado, Martínez-Parras & Bartolomé 1986 (art. 43)]
- 39.16.14. *Sisymbrio irionis-Sinapietum mairei* P. Prieto, Espinosa & S. Fernández 1973 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[ass. de *Sinapis alba* y *Sisymbrium irio* P. Prieto, Espinosa & S. Fernández 1973 (art. 43)]
- 39.16.15. *Ferulo communis-Diplotaxietum virgatae* Br.-Bl. & O. Bolòs 1958 corr. O. Bolòs 1997

40. GALIO-URTICETEA

- 40a. **Galio aparines-Alliarietalia petiolatae** Görs & Müller 1969
[*Lamio albi-Chenopodietalia boni-henrici* Kopecký 1969 nom. amb. rejic. propos. (art. 36)]
- 40.4. **Balloto-Conion maculati** Brullo in Brullo & Marcenó 1985
[*Conio maculati-Sambucion ebuli* O. Bolòs & Vigo ex Rivas-Martínez, Bascónes, T.E. Díaz, Fernández-González & Loidi 1991]
- 40b. **Calystegietalia sepium** Tüxen ex Mucina 1993 nom. mut. propos.
[*Convolvuletalia sepium* Tüxen ex Mucina 1993 (art. 45)]
- 40.5. **Calystegion sepium** Tüxen ex Oberdorfer 1957 nom. mut. propos.
[*Convolvulion sepium* Tüxen ex Oberdorfer 1957 (art. 45), *Epilobienion hirsuti* Vigo 1979 (corresp. name)]

- 40.5b. *Bromo ramosi-Eupatorienion cannabini* (O. Bolòs & Masalles in O. Bolòs 1983) I. Soriano 2001
- 40.5.3. *Cirsio ferocis-Epilobietum hirsuti* O. Bolòs 1996 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Cirsio monspessulani-Epilobietum hirsuti* O. Bolòs 1996 (art. 43)]
- 40.5.6. *Scrophulario auriculatae-Epilobietum hirsuti* Ríos & Alcaraz 2002 (ass. nova)
[*Scrophulario auriculatae-Epilobietum hirsuti* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]

41. CARDAMINO HIRSUTAE-GERANIETEA PURPUREI Rivas-Martínez, Fernández-González & Loidi (1999) 2002 (classis nova)

- [*Geranio purpurei-Cardaminenea hirsutae* Rivas-Martínez, Fernández-González & Loidi 1999]
- 41a. **Cardamino hirsutae-Geranietalia purpurei** Brullo in Brullo & Marcenó 1985 nom. inv. propos.
[*Geranio purpurei-Cardaminetalia hirsutae* Brullo in Brullo & Marcenó 1985 (art. 42)]
- 41.2.3. *Cerastio taurici-Myosotidetum gracillimae* Roselló 1994 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Cerastio taurici-Myosotidetum ramosissimae* Roselló 1994 (art. 43)]
- 41.2.9. *Urtico membranaceae-Anthriscetum caucalidis* Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 nom. mut. propos.
[*Urtico dubiae-Anthriscetum caucalidis* Rivas-Martínez & Costa in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (art. 45)]
- 41.3. **Parietario lusitanico-mauritanicae** Rivas-Martínez & Cantó 2002 (all. nova)
- 41.3.6. *Geranio rotundifolii-Theligonetum cynocrambes* Rivas-Martínez & Malato-Beliz in Rivas-Martínez 1978 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Geranio pusilli-Theligonetum cynocrambes* Rivas-Martínez & Malato-Beliz in Rivas-Martínez 1978 (art. 43)]
- 41.3.7. *Mercuriali ambiguae-Succowietum balearicae* O. Bolòs, Folch & Vigo in O. Bolòs 1989 corr. Juan & M.B. Crespo 2001
[*Mercuriali annuae-Succowietum balearicae* O. Bolòs, Folch & Vigo in O. Bolòs 1989 (art. 43)]
- 41.3.11. *Soncho diana-Parietarium lusitanicae* Esteve 1973
[*Parietario lusitanicae-Geranium purpurei* Alcaraz, Garre, Martínez-Parras & Peinado 1986 (41.3.9) (syntax. syn.)]

42. MULGEDIO-ACONITETEA

- 42.1.9. *Hugueninietum suffruticosae* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 42.1.14. *Spiraeo aruncus-Scrophularietum alpestris* Nègre 1972 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Scrophulario alpestris-Aruncetum dioici* Nègre 1972 nom. inv. et nom. mut., *Spiraeo aruncus-Scrophularietum pyrenaicae* Nègre 1972 (art. 42, 43, 45)]
- 42.2.1. *Aconito burnatii-Senecionetum elodis* Quézel 1953 nom. mut. propos.
[*Aconito nevadensis-Senecionetum elodis* Quézel 1953 (art. 45)]
- 42.3.2. *Lilio pyrenaici-Molopospermetum peloponesiaci* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)

43. TRIFOLIO-GERANIETEA**43a. *Origanetalia vulgaris* Müller 1962**[*Melampyro-Holcetalia* Passarge 1979 (syntax. syn.) (43b)]**43.2.1. *Chrysanthemo-Piptatheretum paradoxo* O. Bolòs 1978 nom. mut. propos.**[*Chrysanthemo-Oryzopsietum paradoxae* O. Bolòs 1978 (art. 45)]**43.5.6. *Ranunculo adunci-Geranium sylvatici* Rfós & Alcaraz 2002 (ass. nova)****44. CARICI RUPESTRIS-KOBRESIETEA MYOSUROIDIS Ohba 1974 nom. mut. propos.**[*Carici rupestris-Kobresietea bellardii* Ohba 1974 (art. 45)]**44a. *Kobresietalia myosuroidis* Oberdorfer 1957 nom. mut. propos.**[*Elynetalia myosuroidis* Oberdorfer 1957 (art. 45)]**44.1. *Oxytropido-Kobresion myosuroidis* Br.-Bl. (1948) 1949 nom. mut. propos.**[*Oxytropido-Elynion myosuroidis* Br.-Bl. (1948) 1949 (art. 45)]**44.1.1. *Oxytropido foucaudii-Kobresietum myosuroidis* Chouard 1953 nom. inv. propos.**[*Kobresio myosuroidis-Oxytropidetum foucaudii* Chouard 1943 nom. mut. (art. 42),
Elyno myosuroidis-Oxytropidetum lazicae Chouard 1943 (art. 45)]**44.1.2. *Oxytropido halleri-Kobresietum myosuroidis* (Br.-Bl. 1948) Küpfer 1974 nom. inv. et mut. propos.**[*Kobresio myosuroidis-Oxytropidetum halleri* (Br.-Bl. 1948). Küpfer 1974 nom. mut. (art. 42),
Elyno myosuroidis-Oxytropidetum halleri (Br.-Bl. 1948). Küpfer 1974 (art. 45),
]**44.1.3. *Oxytropido neglectae-Kobresietum myosuroidis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 nom. mut. propos.**[*Oxytropido pyrenaicae-Elynetum myosuroidis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (art. 45)]**45. KOBRESIO MYOSUROIDIS-SESLERIETEA CAERULEAE Br.-Bl. 1948 nom. mut. propos.**[*Festuco-Seslerietea, Elyno-Seslerietea* Br.-Bl. 1948 (art. 45)]**45.2. *Salicion pyrenaicae* Vigo ex Rivas-Martínez 2002 (all. nova)**[*Laserpitio-Ranunculion thorae* Vigo 1979 (art. 8)]**45.2.6. *Geranio cinerei-Ranunculetum gouanii* Gruber 1978****45.2.7. *Ranunculo thorae-Seslerietum caeruleae* Vigo ex Rivas-Martínez 2002 (ass. nova)**[*Ranunculo thorae-Seslerietum caeruleae* Vigo 1979 (art. 5)]**45.2.8. *Alchemillo alpigenae-Dryadetum octopetalae* I. Soriano 1998 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)**[*Alchemillo plicatulae-Dryadetum octopetalae* I. Soriano 1998 (art. 43) (45.2.5)]**46. CARICETEA CURVULAE Br.-Bl. 1948 nom. conserv. propos.**[*Juncetea trifidi* Hadač in Klika & Hadač 1944 (art. 36, 52)]**46.1. *Festucion airoidis* Br.-Bl. 1948 nom. mut. propos.**[*Festucion supinae* Br.-Bl. 1948 (art. 45)]**46.1.1. *Arenario grandiflorae-Festucetum yvesii* Baudière & Serve 1975 nom. mut. propos.**[*Arenario grandiflorae-Festucetum durissimae* Baudière & Serve 1975 (art. 45)]

- 46.1.2. *Hieracio breviscapii-Festucetum airoidis* Br.-Bl. 1948 nom. mut. propos.
[*Hieracio pumili-Festucetum supinae* Br.-Bl. 1948 (art. 45)]
- 46.1.4. *Sempervivo montani-Arenarietum moehringioidis* Nègre 1968 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Sempervivo-Arenarietum ciliatae* Nègre 1968 (art. 43)]
- 46.3.1. *Minuartio cerastiifoliae-Androsacetum ciliatae* Chouard 1943 nom. mut. propos.
[*Alsino cerastiifoliae-Androsacetum ciliatae* Chouard 1943 (art. 45)]

47. LOISELEURIO-VACCINIETEA

Nothing to be added.

48. SALICETEA HERBACEAE

- 48.1.1. *Alchemillo fissae-Luzuletum candollei* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 48.1.4. *Mniobryo albicantis-Cerastietum cerastoidis* Nègre 1972 nom. inv. propos.
[*Cerastio cerastoidis-Mniobryetum albicantis* Nègre 1972 nom. mut. (art. 45), *Cerastio trigyni-Mniobryetum albicantis* Nègre 1972 (art. 42)]
- 48.3. *Sedion candollei* Rivas-Martínez, Fernández-González & Loidi 1999 nom. mut. propos.
[*Mucizonion sedoidis* Rivas-Martínez, Fernández-González & Loidi 1999 (art. 45)]

49. FESTUCETEA INDIGESTAE

- 49.1. *Nevadension purpureae* Quézel 1953 nom. mut. propos.
[*Ptilotrichion purpurei* Quézel 1953 (art. 45)]
- 49.1a. *Nevadensienion purpureae* Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 nom. mut. propos.
[*Ptilotrichenion purpurei* Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 (art. 45)]
- 49.1.2. *Festucetum moleroio-pseudoeskieae* Quézel 1953 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Festucetum baetico-pseudoeskieae* Quézel 1953 (art. 43)]
- 49.1.3. *Arenario frigidae-Festucetum indigestae* Rivas-Martínez 1965 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Arenario imbricatae-Festucetum indigestae* Rivas-Martínez 1965 (art. 43)]
- 49.1.4. *Cirsio gregarii-Dactyletum juncinellae* Molero & J. López 2002 (ass. nova)
- 49.2.2. *Antennario dioicae-Festucetum curvifoliae* Rivas-Martínez 1987 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Antennario dioicae-Festucetum aragonensis* Rivas-Martínez 1987 (art. 43)]
- 49.2.3. *Armerio microcephalae-Festucetum aragonensis* (Rivas-Martínez & G. Navarro in G. Navarro 1989) Rivas-Martínez, Cantó & Sánchez-Mata 2002 (ass. nova, stat. nov.)
[*Antennario dioicae-Festucetum aragonensis armerietosum microcephalae* Rivas-Martínez & G. Navarro in G. Navarro. 1989 (basion.) (art. 27d)]

- 49.3.2. *Jasiono brevisepalae-Festucetum curvifoliae* M.E. García, L. Herrero, T.E. Díaz, Penas & F. Salegui 2002 (ass. nova)
- 49.3.3. *Jasiono centralis-Minuartietum juressi* Rivas-Martínez 1981 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Jasiono centralis-Minuartietum bigerrensis* Rivas-Martínez 1981 (art. 43)]
- 49.5.1. *Arenario querioidis-Festucetum gredensis* Rivas-Martínez, Sánchez-Mata & Fuente in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 corr. Rivas-Martínez & Sánchez-Mata 2002 (corr. nova)
[*Arenario querioidis-Festucetum summilusitanae* Rivas-Martínez, Sánchez-Mata & Fuente in Rivas-Martínez, Fernández-González & Sánchez-Mata 1986 (art. 43)]
- 49.5.2. *Armerio transmontanae-Plantaginetum radicatae* Aguiar 2002 (ass. nova)
- 49.5.4. *Diantho langeani-Festucetum rivas-martinezii* Penas, Puente, R. Alonso, A. Fernández, Lence, Del Río & F. Salegui 2002 (ass. nova)
- 49.5.10. *Plantagini radicatae-Festucetum indigestae* Martínez-Parras, Peinado & Alcaraz 1987 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Plantagini radicatae-Festucetum aragonensis* Martínez-Parras, Peinado & Alcaraz 1987 (art. 43)]
- 50. TUBERARIETEA GUTTATAE** (Br.-Bl. in Br.-Bl., Roussine & Nègre 1952) Rivas Goday & Rivas-Martínez 1963 nom. mut. propos.
[*Helianthemetea guttati* (Br.-Bl. in Br.-Bl., Roussine & Nègre 1952) Rivas Goday & Rivas-Martínez 1963 (art. 45)]
- 50a. **Tuberarietalia guttatae** Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 nom. mut. propos.
[*Helianthemetalia guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 (art. 45)]
- 50.1. **Tuberarion guttatae** Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 nom. mut. propos.
[*Helianthemion guttati* Br.-Bl. in Br.-Bl., Molinier & Wagner 1940 (art. 45)]
- 50.1a. **Tuberarion guttatae** Rivas-Martínez 1978 nom. mut. propos.
[*Helianthemion guttati* Rivas-Martínez 1978 (art. 45)]
- 50.1.3. *Anthyllido lusitanicae-Tuberarion guttatae* Aguiar & Penas 2002 (ass. nova)
- 50.1.6. *Anthoxantho aristati-Holcetum setiglumis* Rivas Goday 1958 nom. inv.
[*Holco setiglumis-Anthoxantheum aristati* Rivas Goday 1958 (art. 42)]
- 50.1.23. *Crassulo tillaeae-Sedetum caespitosi* Rivas Goday 1958 nom. inv. propos.
[*Sedo caespitosi-Tillaeetum muscosae* Rivas Goday 1958 (art. 42), *Sedo caespitosi-Crassuleetum tillaeae* Rivas Goday 1958 nom. mut. (art. 45)]
- 50.3. **Molineriellion laevis** Br.-Bl., P. Silva, Rozeira & Fontes 1952 nom. mut. propos.
[*Molinerion laevis* Br.-Bl., P. Silva, Rozeira & Fontes 1952 (art. 45)]
- 50.3.4. *Holcetum gayani* Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero 2002 (ass. nova)
- 50.3.5. *Ctenopsietum delicatulae* Sardinero, Fernández-González & Sánchez-Mata 2002 (ass. nova)

- 50.3.6. *Agrostio truncatulae-Trisetetum ovati* Rivas Goday 1958 nom. inv. propos.
[*Triseto ovati-Agrostietum truncatulae* Rivas Goday 1958 (art. 42)]
- 50.5.1. *Hymenocarpus hamosi-Malcolmietum patulae* Rivas Goday 1958 nom. mut. propos.
[*Anthyllido hamosae-Malcolmietum patulae* Rivas Goday 1958 (art. 45)]
- 50.6. ***Hymenocarpus hamosi-Malcolmion trilobae*** Rivas Goday 1958 nom. mut. propos.
[*Anthyllido hamosae-Malcolmion lacerae* Rivas Goday 1958 (art. 45)]
- 50.6.1. *Corynephorus macrantheri-Arenarietum algarbiensis* P. Silva & Teles ex Rivas-Martínez & Izco 2002 (ass. nova)
[*Anachorto-Arenarietum algarbiensis* P. Silva in P. Silva & Teles 1972 nom. inval. (art. 1)]
- 50.6.3. *Linario tursicae-Loeflingietum baeticae* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Costa, Castroviejo, Rivas-Martínez & E. Valdés 1978 nom. mut. propos.
[*Linario donyanae-Loeflingietum baeticae* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Costa, Castroviejo, Rivas-Martínez & E. Valdés 1978 (art. 45)]
- 50.6.4. *Malcolmion trilobae-Hymenocarpetum hamosi* Rivas Goday 1958 nom. mut. propos.
[*Malcolmion lacerae-Anthyllidetum hamosae* Rivas Goday 1958 (art. 45)]
- 50.7.2. *Desmazerio marinae-Medicaginetum inermis* Curcó 1990
- 50c. ***Brachypodietalia distachyi*** Rivas-Martínez 1978
[*Trachynietalia distachyae* Rivas-Martínez 1978 pro syn.]
- 50.10. ***Stipion capensis*** Br.-Bl. & O. Bolòs ex Izco 1974 nom. mut. propos.
[*Stipion retortae* Br.-Bl. & O. Bolòs ex Izco 1974 (art. 45)]
- 50.13. ***Brachypodion distachyi*** Rivas-Martínez 1978 nom. mut. propos.
[*Trachynion distachyae* Rivas-Martínez 1978 (art. 45)]
- 50.13.5. *Campanulo afrae-Galietum verticillati* Esteve 1968 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Campanulo kremeri-Galietum verticillati* Esteve 1968 (art. 43)]
- 50.13.10. *Euphorbietum acuminato-merinoi* Aguiar & Penas 2002 (ass. nova)
- 50.13.21. *Irido sisyrynchii-Stipetum capensis* O. Bolòs & Molinier 1958 nom. mut. propos. (50.10.5)
[*Irido sisyrynchii-Stipetum retortae* O. Bolòs & Molinier 1958 (art. 45)]
- 50d. ***Cutandietalia maritimae*** Rivas-Martínez, Díez Garretas & Asensi 2002 (ordo novus)
- 50.7.4. *Laguro ovati-Silenetum balearicae* Llorens & Gil 2002 (ass. nova)
- 50.8.4. *Desmazerio marinae-Phleetum arenarii* Herrera 1995 [53.2.1]

51. FESTUCO-BROMETEA

- 51.1. ***Potentillo montanae-Brachypodion rupestris*** Br.-Bl. 1967 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)sa1
[*Potentillo-Brachypodion pinnati* Br.-Bl. 1967 (art. 43)]
- 51.1.2. ***Seseli cantabrici-Brachypodietum rupestris*** Br.-Bl. 1967 corr. Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 nom. inv. propos.
[*Brachypodio pinnati-Seselietum cantabrici* Br.-Bl. 1967 (art. 43), *Brachypodio rupestris-Seselietum cantabrici* Br.-Bl. 1967 corr. Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (art. 42)]

- 51.1.4. *Cirsio tuberosi-Brometum erecti* O. Bolòs 1967 nom. inv. propos.
[*Bromo erecti-Cirsietum tuberosi* O. Bolòs 1967 (art. 42)]
- 51.1.5. *Medicagini suffruticosae-Brometum erecti* P. Montserrat 1960 nom. inv. propos.
[*Bromo erecti-Medicaginetum suffruticosae* P. Montserrat 1960 (art. 42)]
- 51.1.8. *Potentillo montanae-Koelerietum pyramidatae* Chouard 1943 nom. mut. propos.
[*Potentillo splendidis-Koelerietum pyramidatae* Chouard 1943 (art. 45)]
- 51.1.9. *Teucrio pyrenaici-Potentilletum montanae* Br.-Bl. 1967 nom. mut. propos.
[*Teucrio pyrenaici-Potentilletum splendidis* Br.-Bl. 1967 (art. 45)]
- 51.1.16. *Erodio castellani-Festucetum microphyllae* G. Navarro & J.A. Molina 2001
- 51.1.23. *Koelerio gracilis-Avenuletum mirandanae* Br.-Bl. in Br.-Bl. & Moor 1938 corr.
O. Bolòs in Carreras, Carrillo, X. Font, Ninot & Vigo. 1983 (51.4.6)
- 51.2. ***Teucrio pyrenaici-Bromion erecti*** Rivas-Martínez, Fernández-González & Loidi 1999
[*Onobrychidenion hispanicae* Royer ex Rivas-Martínez, Fernández-González & Loidi 1999 (51.1c)]
- 51.2.3. *Aphyllantho monspeliensis-Seslerietum caeruleae* O. Bolòs 1956 nom. mut. propos.
[*Aphyllantho-Seslerietum calcareae* O. Bolòs 1956 (art. 45)]
- 51.3.2. *Elytrigio campestris-Brachypodietum phoenicoidis* Rivas-Martínez & Izco 2002 (ass. nova)
- 51.3.4. *Festuco andres-molinae-Brachypodietum phoenicoidis* Rivas Goday & Borja 1961 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Festuco trichophyllae-Brachypodietum phoenicoidis* Rivas Goday & Borja 1961 (art. 43)]
- 51.3.9. *Trisetum flavescens-Brachypodietum phoenicoidis* A. & O. Bolòs in O. Bolòs 1956
[Com. de *Brachypodium phoenicoides* y *Trisetum flavescens* A. & O. Bolòs 1950 (art. 2c)]
- 51.4. ***Artemisio albae-Dichanthion ischaemi*** X. Font ex Rivas-Martínez & M.L. López 2002 (all. nova)
- 51.4.1. *Achilleo odoratae-Dichanthietum ischaemi* Vigo 1968 nom. mut. propos.
[*Achilleo odoratae-Bothriochloetum ischaemi* Vigo 1968 (art. 45)]
- 51.4.4. *Festuco andres-molinae-Saturejetum montanae* G. Montserrat 2000 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Festuco indigestae-Saturejetum montanae* G. Montserrat 2000 (art. 43)]
- 51.4.9. *Stipo bromoidis-Brachypodietum phoenicoidis* Rivas Goday 1964
- 52. FESTUCO HYSTRICIS-ONONIDETEA STRIATAE** Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 2002 (classis nova)
[*Festuco hystricis-Ononidetea striatae* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1991 (art. 17)]
- 52.2.1. *Conopodio ramosi-Festucetum gautieri* Br.-Bl. & O. Bolòs in O. Bolòs 1967 nom. mut. propos.
[*Conopodio ramosi-Festucetum scopariae* Br.-Bl. & O. Bolòs in O. Bolòs 1967 (art. 45)]

- 52.2.4. *Allio montani-Stipetum eriocaulis* I. Soriano 2001
- 52.3. ***Festucion gautieri*** Br.-Bl. 1948 nom. mut. propos.
[*Festucion scopariae* Br.-Bl. 1948 (art. 45)]
- 52.3.3. *Oxytropido neglectae-Festucetum gautieri* Rivas-Martínez, Bäscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut. propos.
[*Oxytropido pyrenaicae-Festucetum scopariae* Rivas-Martínez, Bäscones, T.E. Díaz, Fernández-González & Loidi 1991 (art. 45)]
- 52.3.5. *Seslerio caeruleae-Festucetum gautieri* Br.-Bl. 1948 nom. mut. propos.
[*Seslerio caeruleae-Festucetum scopariae* Br.-Bl. 1948 (art. 45)]
- 52.4.2. *Irido latifoliae-Festucetum spadiceae* Nègre 1968 nom. mut. propos.
[*Irido xiphiodidis-Festucetum spadiceae* Nègre 1968 (art. 45)]
- 52.4.3. *Lathyro longestipulati-Seslerietum caeruleae* Romo 1989 nom. mut. propos.
[*Lathyro longestipulati-Seslerietum albicantis* Romo 1989 (art. 45)]
- 52.4.5. *Rhinantho mediterranei-Leuzeetum cynaroidis* O. Bolòs 1970 nom. mut. propos.
[45.1.6]
[*Rhinantho mediterranei-Rhaponcticetum cynaroidis* O. Bolòs 1970 (art. 45)]
- 52.5.2. *Helictotricho cantabrici-Seslerietum hispanicae* nom. mut. propos.
[*Aveno cantabricae-Seslerietum hispanicae* Br.-Bl. 1967 (art. 45)]
- 52.6.3. *Junipero hemisphaericae-Echinospartetum horridi* O. Bolòs & P. Montserrat ex Rivas Goday & Rivas-Martínez 1969
[*Echinosparto horridi-Lavanduletum pyrenaicae* O. Bolòs & P. Montserrat 1984 (syntax. syn.), *Echinosparto horridi-Thymelaeetum nivalis* (G. Montserrat 1986) X. Font 1993 (syntax. syn.)]
- 52.7. ***Sideritido fontquerianae-Arenarion microphyllae*** Rivas Goday & Borja 1961 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousa & Penas 2002 (corr. nova)
[*Sideritido pulvinatae-Arenarion aggregatae* Rivas Goday & Borja 1961 (art. 43)]
- 52.7.3. *Astragalo austriaci-Ononidetum cristatae* Rivas Goday & Borja 1961 nom. mut. propos.
[*Astragalo austriaci-Ononidetum cenisiae* Rivas Goday & Borja 1961 (art. 45)]
- 52.7.5. *Drabo estevei-Ononidetum striatae* G. Navarro & J.A. Molina 2001
- 52.7.11. *Pulsatillo vulgaris-Ononidetum cristatae* Mayor 1968 nom. mut. propos.
[*Pulsatillo vulgaris-Ononidetum cenisiae* Mayor 1968 (art. 45)]
- 52.7.14. *Sideritido fontquerianae-Arenarietum microphyllae* Rivas Goday & Borja 1961 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousa & Penas 2002 (corr. nova)
[*Sideritido pulvinatae-Arenarietum erinaceae* Rivas Goday & Borja 1961 (art. 43)]
- 52.7.15. *Centaureo mariolensis-Festucetum gautieri* Solanas, M.B. Crespo, Alcaraz & Ríos 2001
- 52.7.16. *Herniario boissieri-Festucetum hystricis* Peñas, Cabello, F. Valle & Mota 2001
- 52.7.17. *Pimpinello gracilis-Festucetum nevadensis* Peñas, Cabello, F. Valle & Mota 2001
- 52.7.18. *Iberido saxatilis-Erinaceetum anthyllidis* G. Navarro ex Rivas-Martínez 2002 (ass. nova) [64.5.12]
[*Iberido ibericae-Erinaceetum anthyllidis* G. Navarro 1989 (art. 2c)]

53. KOELERIO-CORYNEPHORETEA Klika in Klika & V. Novák 194153.2. *Koelerion arenariae* Tüxen 1937 nom. mut. propos.[*Koelerion albescens* Tüxen 1937 (art. 45)]**54. POETEA BULBOSAE**54.1. *Periballio-Trifolion subterranei* Rivas Goday 1964 nom. inv. propos.[*Trifolium subterranei-Periballion* Rivas Goday 1964 (art. 10c, 42)]54.1.2. *Poo bulbosae-Onobrychidetum humilis* Rivas Goday, Ladero & C. Rivas in Rivas Goday & Ladero 1970 nom. mut. propos.[*Poo bulbosae-Onobrychidetum eriophorae* Rivas Goday, Ladero & C. Rivas in Rivas Goday & Ladero 1970 (art. 45)]54.1.3. *Trifolium subterranei-Poetum bulbosae* Rivas Goday 1964 nom. inv. propos.[*Poo bulbosae-Trifolietum subterranei* Rivas Goday 1964 (art. 10c, 42)]54.3. *Astragalo sesamei-Poion bulbosae* Rivas Goday & Ladero 1970 nom. inv. propos.[*Poo bulbosae-Astragalion sesamei* Rivas Goday & Ladero 1970 (art. 42)]54.3.1. *Astragalo sesamei-Poetum bulbosae* Rivas Goday & Ladero 1970 nom. inv. propos.[*Poo bulbosae-Astragaletum sesamei* Rivas Goday & Ladero 1970 (art. 42)]**55. SEDO-SCLERANTHETEA**55.1.4. *Spergulario rupicolae-Sedetum anglici* Arbesú, Bueno & F. Prieto 2002 (ass. nova)55.2.9. *Veronicetum cantabricae* Turmel 1955 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)[*Veronicetum fruticosae* Turmel 1955 (art. 43)]55.4.3. *Sileno secundiflorae-Petrorhagietum saxifragae* O. Bolòs 1957 nom. corr. et nom. mut. propos.[*Sileno secundiflorae-Tunicetum saxifragae* O. Bolòs 1957 nom. corr., *Sileno glaucae-Tunicetum saxifragae* O. Bolòs in Collect. Bot. (Barcelona) 5(2): 567-569. 1957 (art. 44, 45)]**56. LYGEO-STIPETEA** Rivas-Martínez 1978 nom. conserv. propos.[*Thero-Brachypodietea* Br.-Bl. ex A. & O. Bolòs 1950 (art. 36, 52)]56a. *Lygeo-Stipetalia* Br.-Bl. & O. Bolòs 1958 nom. conserv. propos.[*Thero-Brachypodietalia* Br.-Bl. ex Bharucha 1933 nom. amb. propos. (art. 36, 52)]56.1. *Thero-Brachypodium retusi* Br.-Bl. 1925 nom. mut. propos.[*Thero-Brachypodium ramosi* Br.-Bl. 1925 (art. 45)]56.1.2. *Festuco hystricis-Helictotrichetum filifolii* O. Bolòs 1967 nom. mut. propos.[*Festuco hystricis-Avenetum filifoliae* O. Bolòs 1967 (art. 45)]56.1.3. *Hypochoerido achyrophorae-Brachypodietum retusi* O. Bolòs & Molinier 1958 nom. mut. propos.[*Hypochoerido achyrophorae-Brachypodietum ramosi* O. Bolòs & Molinier 1958 (art. 45)]

- 56.1.4. *Phlomido lychnitidis-Brachypodietum retusi* Br.-Bl. 1925 nom. mut. propos.
[*Phlomido lychnitidis-Brachypodietum ramosi* Br.-Bl. 1925 (art. 45)]
- 56.1.6. *Ruto angustifoliae-Brachypodietum retusi* Br.-Bl. & O. Bolòs 1958 nom. mut. propos.
[*Ruto angustifoliae-Brachypodietum ramosi* Br.-Bl. & O. Bolòs 1958 (art. 45)]
- 56.1.8. *Teucrio pseudochamaepityos-Brachypodietum retusi* O. Bolòs 1957 nom. mut. propos.
[*Teucrio pseudochamaepityos-Brachypodietum ramosi* O. Bolòs 1957 (art. 45)]
- 56.1.9. *Trifolio-Brachypodietum retusi* A. & O. Bolòs & Br.-Bl. in O. Bolòs 1956 nom. mut. propos.
[*Trifolio-Brachypodietum ramosi* A. & O. Bolòs & Br.-Bl. in O. Bolòs 1956 (art. 45)]
- 56.1.10. *Iberido microcarpae-Stipetum offneri* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990
- 56.2.1. *Agropyro pectinati-Lygeetum sparti* Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Eremopyro cristati-Lygeetum* Br.-Bl. & O. Bolòs 1958 (art. 43)]
- 56.2.4. *Stipo parviflorae-Lygeetum sparti* Br.-Bl. & O. Bolòs 1954 nom. inv. propos.
[*Lygeo sparti-Stipetum parviflorae* Br.-Bl. & O. Bolòs 1954 (art. 42)]
- 56.2.5. *Limonio quesadensis-Lygeetum sparti* A. García in A. García, Salazar, J. Torres, Cano & F. Valle 2001
- 56.4.1. *Avenulo pauneroi-Helictotrichetum cazorlensis* Gómez-Mercado & F. Valle 1991 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Avenulo bromoidis-Helictotrichetum cazorlensis* Gómez-Mercado & F. Valle 1991 (art. 43)]
- 56.5.2. *Dactylido hispanicae-Stipetum junceae* Penas, M.E. García, De Paz, L. Herrero, R. Alonso & F. Salegui 2002 (ass. nova)
- 56.5.5. *Stipetum cazorlensis* (J. Torres & Cano in J. Torres, A. García, Salazar & Cano 2001) Rivas-Martínez 2002 (ass. nova)
[*Helictotricho filifolii-Festucetum scariosae stipetosum cazorlensis* J. Torres & Cano in J. Torres, A. García, Salazar & Cano 2001 (basion.) (art. 27d)]
- 56.6. *Trisetum velutini-Brachypodion boissieri* Rivas-Martínez, Molero & Pérez-Raya 2002 (all. nova)
- 56.7.1. *Hyparrhenietum hirtosinicae* A. & O. Bolòs & Br.-Bl. in A. & O. Bolòs 1950 nom. mut. propos.
[*Andropogonetum hirtopubescentis* A. & O. Bolòs & Br.-Bl. in A. & O. Bolòs 1950 (art. 45)]
- 56.7.2. *Andryalo laxiflorae-Hyparrhenietum hirtae* Peinado, Martínez-Parras & Alcaraz ex Díez Garretas & Asensi 2002 (ass. nova)
- 56.7.3. *Aristido coerulescentis-Hyparrhenietum sinicae* Rivas-Martínez & Alcaraz in Alcaraz 1984 nom. mut. propos.
[*Aristido coerulescentis-Hyparrhenietum pubescentis* Rivas-Martínez & Alcaraz in Alcaraz 1984 (art. 45)]
- 56.7.8. *Heteropogono contorti-Hyparrhenietum sinicae* M.B. Crespo 2002 (ass. nova)

57. STIPO GIGANTEAE-AGROSTIETEA CASTELLANAE

- 57.1.1. *Asphodelo aestivi-Armerietum gaditanae* Allier & Bresset 1977 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Asphodelo cerasiferi-Armerietum gaditanae* Allier & Bresset 1977 (art. 43)]
- 57.1.7. *Sedo forsterani-Agrostietum castellanae* Tüxen & Oberdorfer 1958 nom. mut. propos.
[*Sedo elegantis-Agrostietum castellanae* Tüxen & Oberdorfer 1958 (art. 45)]
- 57.2. ***Festucion merinoi*** Rivas-Martínez & Sánchez-Mata in Rivas-Martínez, Sánchez-Mata & Fernández-González 1986 corr. Rivas-Martínez & Sánchez-Mata 2002 (corr. nova)
[*Festucion elegantis* Rivas-Martínez & Sánchez-Mata in Rivas-Martínez, Sánchez-Mata & Fernández-González 1986 (art. 43)]
- 57.3.2. *Centaureo ornatae-Stipetum clausae* Rivas-Martínez & Fernández-González 1991 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Centaureo ornatae-Stipetum lagascae* Rivas-Martínez & Fernández-González 1991 (art. 43)]
- 57b. ***Parafestucetalia albidae*** Rivas-Martínez, Capelo, J.C. Costa, Lousã, Fontinha, Jardim & Sequeira 2002 (ordo novus)

58. VIOLETEA CALAMINARIAE Br.-Bl. & Tüxen ex Ernst 1965

European class not found in the territory

59. MOLINIO-ARRHENATHERETEA

- 59.1.2. *Deschampsio refractae-Molinietum caeruleae* (Rivas Goday & Borja 1961) Rivas-Martínez 2002 (nom. nov.)
[*Deschampsio-Molinietum gudaricum* Rivas Goday & Borja 1961 (art. 34, 39)]
- 59.3.9. *Juncetum acutiflori* Br.-Bl. 1915 nom. mut. propos.
[*Juncetum sylvatici* Br.-Bl. 1915 (art. 45)]
- 59.3.10. *Carici punctatae-Juncetum acutiflori* O. Bolòs 1959 nom. inv. propos.
[*Junco acutiflori-Caricetum punctatae* O. Bolòs 1959 (art. 42)]
- 59.3.11. *Caricetum camposii-cuprinae* Salazar, Lorite, Cano & F. Valle 2001
[*Junco effussi-Caricetum camposii* ass. nova in Syntax. Checklist 2001]
- 59.4.3. *Galio veri-Arrhenatheretum bulbosi* (Rivas Goday & Borja 1961) Rivas-Martínez 2002 (nom. nov.)
[*Galio veri-Arrhenatheretum gudaricum* Rivas Goday & Borja 1961 (art. 34, 39)]
- 59.6.8. *Lino biennis-Cynosuretum cristati* Allorge ex Oberdorfer & Tüxen in Tüxen & Oberdorfer 1958 nom. mut. propos.
[*Lino angustifolii-Cynosuretum cristati* Allorge ex Oberdorfer & Tüxen in Tüxen & Oberdorfer 1958 (art. 45)]
- 59.7a. ***Molinio-Holoschoenenion*** Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980
- 59.7.9. *Geo rivales-Cirsietum rosulati* Ríos & Alcaraz 2002 (ass. nova)

- 59.7.11. *Holoschoenetum vulgaris* Br.-Bl. ex Tchou 1948
[*Cirsio micranthi-Scirpetum holoschoeni* Lorite, Salazar, Cano & F. Valle in Salazar, Lorite, Cano & F. Valle 2001 (syntax. syn.)]
- 59.7b. ***Brizo-Holoschoenenion*** (Rivas Goday 1964) Rivas-Martínez in Rivas-Martínez, Costa, Castroviejo & E. Valdés 1980 (59.7)
- 59.7.12. *Scirpo globiferi-Juncetum acuti* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 nom. mut. propos.
[*Holoschoeno globiferi-Juncetum acuti* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, Acebes, T.E. Díaz & Fernández-González 1993 (art. 45)]
- 59.7.28. *Ranunculo granatensis-Cochlearietum megalospermae* Salazar, Lorite, Cano & F. Valle 2001
- 59.8. ***Aphyllanthion*** Br.-Bl. & Pawłowski 1931 non Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. amb. rejic. propos.
[*Deschampsion mediae* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 36)]
- 59.8.3. *Cirsio gregarii-Deschampsietum hispanicae* Ríos & Alcaraz 2002 (ass. nova)
- 59.9. ***Gaudinio verticicolae-Hordeion bulbosi*** Galán, Deil, Haug & Vicente 1997 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Gaudinio fragilis-Hordeion bulbosi* Galán, Deil, Haug & Vicente 1997 (art. 43)]
- 59d. ***Crypsio-Paspaletalia distichi*** Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. inv. et nom. mut. propos.
[*Paspalo-Heleochloetalia* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45), *Heleochloo-Paspaletalia distichi* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos. (art. 42)]
- 59.10. ***Paspalo-Polypogonion viridis*** Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 nom. mut. propos.
[*Paspalo distichi-Agrostion verticillatae* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 45)]
- 59.10a. ***Paspalo distichi-Polypogonenion viridis*** Rivas-Martínez, Fernández-González & Loidi 1999 nom. mut. propos.
[*Paspalo-Polypogonenion semiverticillati* Rivas-Martínez, Fernández-González & Loidi 1999 (art. 45)]
- 59.10.6. ***Paspalo distichi-Polypogonetum viridis*** Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 nom. mut. propos.
[*Paspalo distichi-Agrostietum verticillatae* Br.-Bl. in Br.-Bl., Gajewski, Wraber & Walas 1936 (art. 45)]
- 59.10.7. *Ranunculo scelerati-Paspaleum distichi* Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Andrade 1988 nom. mut. propos.
[*Ranunculo scelerati-Paspaleum paspalodis* Rivas Goday 1964 corr. Peinado, Bartolomé, Martínez-Parras & Andrade 1988 (art. 45)]
- 59.11.1. *Juncetum tenuis* Diemont, Sissingh & Westhoff ex Tüxen 1950 nom. mut. propos.
[*Juncetum macri* Diemont, Sissingh & Westhoff ex Tüxen 1950 (art. 45)]

- 59.13.1. *Potentillo anserinae-Agrostietum stoloniferae* R. Alonso, Lence, Puente, Penas & F. Salegui 2002 (ass. nova)
- 59.15.1. *Cirsio paniculati-Juncetum inflexi* Vigo 1968 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Cirsio coriacei-Juncetum inflexi* Vigo 1968 (art. 43)]
- 59.15.6. *Mentho longifoliae-Juncetum inflexi* Lohmeyer 1953 nom. inv. propos.
[*Junco inflexi-Menthetum longifoliae* Lohmeyer 1953 (art. 42)]
- 59.15.13. *Senecioni laderoi-Juncetum inflexi* M.E. García, L. Herrero, C. Pérez, Penas & F. Salegui 2002 (ass. nova)

60. NARDETEA STRICTAE

60aa. *Nardenia strictae*

- 60.1.2. *Festuco microphyllae-Bellardiochloetum variegatae* Vigo 1984 nom. corr. et nom. inv. propos.
[*Bellardiochloa-Festucetum nigrescentis* Vigo 1984 (art. 42, 43)]
- 60.2a. *Violenion caninae* Peppler-Lisbach & Petersen 2001
- 60.2.3. *Serratulo tinctoriae-Nardetum strictae* Tüxen in Tüxen & Oberdorfer 1958 nom. mut. propos.
[*Serratulo seoanei-Nardetum strictae* Tüxen in Tüxen & Oberdorfer 1958 (art. 45)]
- 60.2b. *Juncenion squarrosi* Oberdorfer 1957
- 60.2.2. *Nardo strictae-Caricetum binervis* Br.-Bl. & Tüxen 1952
[*Merendero-Nardetum* Tüxen in Tüxen & Oberdorfer 1958 (art. 3b)]
- 60.4.13. *Plantagini penyalarensis-Festucetum ibericae* G. Navarro & J.A. Molina 1. 2001
- 60.4.16. *Luzulo carpetanae-Nardetum strictae* G. Navarro & J.A. Molina 2001
- 60.5. *Festucion jubatae* Lüpnitz 1976
- 60.5.2. *Potentillo anglicae-Agrostietum azoricae* Lüpnitz 1975 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Potentillo rectae-Agrostietum castellanae* Lüpnitz 1976 (art. 43)]
- 60ab. *Campanulo herminii-Nardenia* Rivas-Martínez, Fernández-González & Sánchez-Mata 1986
- 60.3. *Plantaginion nivalis* Quézel 1953 nom. mut. propos.
[*Plantaginion thalackeri* Quézel 1953 (art. 45)]
- 60.3.1. *Allio schoenoprasii-Ranunculetum demissi* F. Casas & Morales in Esteve & F. Casas 1971 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Allio-Ranunculetum nevadensis* F. Casas & Morales in Esteve & F. Casas 1971 (art. 43)]
- 60.3.5. *Ranunculo acetosellifolii-Vaccinietum nani* Quézel 1953 nom. inv. propos.
[*Vaccinio nani-Ranunculetum acetosellifolii* Quézel 1953 (art. 42)]
- 60.4.5. *Campanulo herminii-Festucetum rivularis* Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero 2002 (ass. nova)
[*Aulacomnio-Festucetum rivularis* Rivas-Martínez 1964 (art. 3b)]

- 60.4.12. *Genisto carpetanae-Nardetum strictae* Rivas-Martínez 1964 nom. inv. propos.
 [*Nardo strictae-Genistetum carpetanae* Rivas-Martínez 1964 (art. 42)]
- 60.4.16. *Galio idubedae-Nardetum strictae* (Rivas Goday & Borja 1961) Rivas-Martínez 2002 (nom. nov.) (60.1.5)
 [*Nardetum gudaricum* Rivas Goday & Borja 1961 (art. 34, 39)]

61. CALLUNO-ULICETEA

- 61.1.2. *Cytiso lotoidis-Callunetum vulgaris* O. Bolòs 1956 nom. mut. propos.
 [*Cytiso gallici-Callunetum* O. Bolòs 1956 (art. 45)]
- 61.2.4. *Pterosparto lasianthi-Ericetum aragonensis* Rothmaler 1954 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
 [*Pterosparto tridentati-Ericetum aragonensis* Rothmaler 1954 (art. 43)]
- 61.2.14. *Halimio ocymoidis-Cistetum psilosepali* Br.-Bl., P. Silva & Rozeira 1965 nom. mut. propos.
 [*Halimio ocymoidis-Cistetum hirsuti* Br.-Bl., P. Silva & Rozeira 1965 (art. 45)]
- 61.2.19. *Pterosparto lasianthi-Ericetum cinereae* Rothmaler 1954 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
 [*Pterosparto tridentati-Ericetum cinereae* Rothmaler 1954 (art. 43)]
- 61.4.2. *Carici asturicae-Callunetum vulgaris* Bueno & F. Prieto 2002 (ass. nova)
- 61.4.8. *Halimio alyssoidis-Ulicetum breoganii* (Rivas-Martínez 1979) Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
 [*Halimio alyssoidis-Ulicetum gallii* (Rivas-Martínez 1979) Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (art. 43)]
- 61.4.12. *Ulici breoganii-Ericetum mackaiana* Dalda ex Rivas-Martínez corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
 [*Ulici gallii-Ericetum mackaiana* Dalda ex Rivas-Martínez 1979 (art. 43)]
- 61.4.14. *Erico vagantis-Ulicetum europaei* Guinea 1949 nom. inv. propos.
 [*Ulici europaei-Ericetum vagantis* Guinea 1949 (art. 42), *Daboecio cantabricae-Ulicetum cantabrici* (Br.-Bl. 1967) Rivas-Martínez 1979 corr. Rivas-Martínez, Báscones, T.E. Díaz, F. Prieto & Loidi 1991 (61.4.4), *Daboecio cantabricae-Ulicetum gallii* (Br.-Bl. 1967) Rivas-Martínez 1979 (61.4.4)]
- 61.5.4. *Saturejo salzmännii-Drosophylletum lusitanici* (Galán & Vicente 1996) Rivas-Martínez 2002 (ass. nova)
 [*Stauracantho boivinii-Drosophylletum saturejetosum salzmännii* Galán & Vicente 1996 (basion.) (art. 27d)]

62. CISTO-LAVANDULETEA

- 62.1.6. *Lavandulo stoechadis-Cistetum monspeliensis* (Lapraz 1974) Rivas-Martínez 2002 (ass. nova)
 [*Cistetum catalaunicum cistosum monspeliensis* Lapraz 1974 (basion.) (art. 27d), *Lupino angustifolii-Lavanduletum stoechadis* Franquesa 1995 (art. 37)]

62.2.3. *Genisto scorpii-Cistetum laurifolii* Penas, De Paz, M.E. García, M.J. López, R. Alonso, Del Río & F. Salegui 2002 (ass. nova)

62.3.11. *Thymo gracilis-Cistetum ladaniferi* Asensi & Díez Garretas 2002 (ass. nova)

63. CISTO-MICROMERIETEA Oberdorfer 1954

European class not found in the territory

64. ROSMARINETEA OFFICINALIS Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 2002 (classis nova)

[*Rosmarinetea officinalis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1991 (art. 17)]

64.1. ***Rosmarino-Ericion multiflorae*** Br.-Bl. in Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen & Moor 1935 nom. conserv. propos.

[*Rosmarinion officinalis* Br.-Bl. ex Molinier 1934 (art. 52)]

64.1.5. ***Thymelaeo tinctoriae-Ericetum multiflorae*** Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 nom. mut. et nom. inv. propos.

[*Erico multiflorae-Passerinetum tinctoriae* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 (art. 42, 45)]

64.1.19. ***Teucrio homotrichi-Ulicetum parviflori*** Alcaraz & De la Torre 1988 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)

[*Teucrio homotrichi-Ulicetum dianii* Alcaraz & De la Torre 1988 (art. 43)]

64.2. ***Saturejo-Thymbrion capitatae*** Rivas Goday & Rivas-Martínez 1969 nom. mut. et conserv. propos.

[*Saturejo-Coridothymion capitati* Rivas Goday & Rivas-Martínez 1969 (art. 45), *Eryngio-Ulicion erinacei* Rothmaler 1943 (art. 52)]

64.2b. ***Saturejo-Thymbrenion capitatae*** (Rivas Goday & Rivas-Martínez 1969) Rivas-Martínez, Fernández-González & Loidi 1999 nom. mut. propos.

[*Saturejo-Coridothymion capitati* (Rivas Goday & Rivas-Martínez 1969) Rivas-Martínez, Fernández-González & Loidi 1999 (art. 45)]

64.2.8. ***Teucrio lusitanici-Coridothymetum capitati*** (Rivas Goday & Rivas-Martínez 1969) Asensi & Díez Garretas 1989

[*Teucrio lusitanici-Coridothymetum baeticum* Rivas Goday & Rivas-Martínez 1969 (art. 34), *Saturejo malacitanae-Coridothymetum capitati* Cabezedo & A.V. Pérez 2001 (syn-tax. syn.)]

64.4. ***Lavandulo-Echinospartion boissieri*** Rivas Goday & Rivas-Martínez 1969 nom. mut. propos.

[*Lavandulo-Genistion boissieri* Rivas Goday & Rivas-Martínez 1969 (art. 45)]

64.4.2. ***Saturejo intricatae-Echinospartetum boissieri*** Rivas Goday & Rivas-Martínez corr. Martínez-Parras, Peinado & Alcaraz 1984 nom. mut. propos.

[*Saturejo intricatae-Genistetum boissieri* Rivas Goday & Rivas-Martínez 1969 corr. Martínez-Parras, Peinado & Alcaraz 1984 (art. 45)]

64.4.3. ***Teucrio leonis-Erinaceetum anthyllidis*** P. Sánchez & Alcaraz 2002 (ass. nova)

[*Salvio pseudovellereae-Teucrietum leonis* P. Sánchez & Alcaraz 1993 (art. 5, 10)]

64.4.6. ***Sideritido incanae-Lavanduletum lanatae*** Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez 1991 (64.15.5)

- 64.5.5. *Salvio lavandulifoliae-Genistetum pumilae* Costa, Peris, Izco & Molina in Costa & Peris 1985 nom. mut. propos.
[*Salvio lavandulifoliae-Genistetum mugronensis* Costa, Peris, Izco & Molina in Costa & Peris in Lazaroa 6: 85, tb. 2. 1985 (art. 45)]
- 64.5.13. *Lino appressi-Genistetum rigidissimae* Rivas-Martínez 1967 corr. F. Casas & Susanna 1985
- 64.5c. ***Sideritido ilicifoliae-Thymenion loscosii*** Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata 2002 (suball. nova)
- 64.7.4. *Ononido pyrenaicae-Santolinetum pecten* O. Bolòs 1976 nom. mut. propos.
[*Ononido-Santolinetum benthamiana* O. Bolòs 1976 (art. 45)]
- 64.8.2. *Festuco hystricis-Astragaletum granatensis* Quézel 1953 nom. mut. et nom. inv. propos.
[*Astragalo boissieri-Festucetum hystricis* Quézel 1953 (art. 42, 45)]
- 64.8.3. *Astragalo andresmolinae-Bupleuretum spinosi* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Gil & Cabezudo 1998corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Astragalo nevadensis-Bupleuretum spinosi* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Gil & Cabezudo 1998 (art. 43)]
- 64.9.3. *Herniario fruticosae-Teucrietum pumili* Rivas-Martínez & Costa 1970 nom. mut. propos.
[*Herniario fruticosae-Teucrietum floccosi* Rivas-Martínez & Costa 1970 (art 45)]
- 64.9.6. *Lino differentis-Lepidietum subulati* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Lino suffruticosi-Lepidietum subulati* Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 (art. 43)]
- 64.9.16. *Teucro expansi-Gypsophiletum hispanicae* Rivas-Martínez & Fernández-González 2002 (ass. nova)
- 64.9d. ***Thymo-Teucrienion verticillati*** (Rivas Goday in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957) Alcaraz, P. Sánchez, De la Torre, Ríos & J. Alvarez 1991 nom. mut. propos. (64.10)
- 64.10.1. *Helianthemo thibaudii-Teucrietum libanitidis* Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. Díez Garretas, Fernández-González & Asensi 1996 nom. mut. propos.
[*Helianthemo thibaudii-Teucrietum verticillati* Rivas Goday & Rigual in Rivas Goday, Borja, Monasterio, Galiano, Rigual & Rivas-Martínez 1957 corr. Díez Garretas, Fernández-González & Asensi 1996 (art. 45)]
- 64.10.3. *Teucro libanitidis-Thymetum membranacei* Bellot, Esteve & Rigual in Rivas Goday & Esteve 1968 nom. mut. propos.
[*Teucro verticillati-Thymetum pallentis* Bellot, Esteve & Rivas Goday in Rivas Goday & Esteve 1968 (art. 45)]
- 64.11b. ***Helianthemo almeriensis-Sideritidenion pusillae*** (Alcaraz, T.E. Díaz, Rivas-Martínez & P. Sánchez 1989) Rivas-Martínez 2002 (suball. nova)
- 64.12.4. *Limonio-Anabasiatum limonietosum estevei* Esteve & F. Casas 1973 (64.12.3)
[*Limonietum estevei* (Esteve & F. Casas 1973) ass. nova]

- 64.14.8. *Brassico almeriensis-Pterocphaletum spathulati* Lorite, F.B. Navarro, Algarra, Gallardo & F. Valle 2001
- 64.15. *Lavandulion lanatae* (Martínez-Parras, Peinado & Alcaraz 1984) Rivas-Martínez, Molero & Pérez-Raya 2002 (all. nova)
[*Lavandulenion lanatae* Martínez-Parras, Peinado & Alcaraz 1984 (art. 27a)]

65. CYTISETEA SCOPARIO-STRIATI

- 65.1.1. *Adenocarpetum argyrophylli* Rivas-Martínez, Cantó, Sánchez-Mata & Belmonte 2002 (ass. nova)
- 65.1.2. *Cytisetum multifloro-eriocarpi* Rivas Goday 1964 nom. mut. propos.
[*Cytiso multiflori-Sarothamnetum eriocarpi* Rivas Goday 1964 (art. 45)]
- 65.1.6. *Pteridio aquilini-Cytisetum oromediterranei* Gavilán, Cantó, Fernández-González, Rivas-Martínez & Sánchez-Mata 2002 (ass. nova)
- 65.3.2. *Carici asturicae-Genistetum obtusirameae* Bueno & F. Prieto 2002 (ass. nova)
- 65.3.3. *Cytisetum scopario-oromediterranei* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Cytisetum scopario-purgantis* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (art. 43)]
- 65.3.6. *Cytiso oromediterranei-Genistetum obtusirameae* R. Alonso, Puente, Penas & F. Salegui 2002 (ass. nova)
- 65.3.8. *Echinopartatum iberici* Rivas-Martínez 1974 corr. Rivas-Martínez & Sánchez-Mata 2002 (corr. nova)
[*Echinopartatum lusitanici* Rivas-Martínez 1974 (art. 43)]
- 65.3.13. *Festuco graniticolae-Echinopartatum pulviniformis* Costa, Ten., Morla & Sáinz 1993 [74.5.4]
- 65.3.14. *Teucrio salviastris-Echinopartatum pulviniformis* Rivas-Martínez 1974 corr. Rivas-Martínez 1981 [74.5.8]
- 65.6. *Cytision oromediterraneo-scoparii* Rivas-Martínez, Cantó & Sánchez-Mata 2002 (all. nova)
- 65.6.1. *Prunello hastifoliae-Cytisetum scoparii* Susplugas 1942 nom. mut. propos.
[ass à *Sarothamus scoparius* et *Prunella hastifolia* Susplugas 1942 (art. 45)]
- 65.6.2. *Senecioni adonidifolii-Cytisetum oromediterranei* (Rivas-Martínez 1968) Rivas-Martínez & Cantó 2002 (ass. nova)
[*Cytisetum purgantis pyrenaicum* Rivas-Martínez 1968 (art. 34, 39)]
- 65.8. *Retamion monospermae* Rivas-Martínez & Cantó 2002 (all. nova)
- 65b. *Cytiso villosi-Telinetalia monspessulanae* Rivas-Martínez, Galán & Cantó 2002 (ordo novus)
- 65.7. *Telinion monspessulano-linifoliae* Rivas-Martínez, Galán & Cantó 2002 (all. nova)
- 65.7.1. *Cytiso baetici-Telinetum monspessulanae* Rivas-Martínez, Galán & Cantó (ass. nova)
- 65.7.2. *Cytiso villosi-Ericetum arboreae* Zéller 1959 nom. mut. propos.
[*Cytiso triflori-Ericetum arboreae* 1959 (art. 45)]
- 65.9.8. *Salvio candelabri-Sideritetum lasianthae* nom. mut. propos.
[*Salvio candelabri-Sideritetum foetentis* Rivas Goday & Rivas-Martínez 1969 (art. 45)]

66. RHAMNO-PRUNETEA

- 66.1.3. *Pruno mahalebo-Cornetum sanguineae* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 66.1.4. *Rhamno catharticae-Ribesetum alpini* L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui 2002 (ass. nova)
- 66.1.6. *Arabido glabrae-Rhamnetum alpinae* O. Bolòs 1962 nom. mut. propos.
[*Turritido glabrae-Rhamnetum alpinae* O. Bolòs 1962 (art. 45)]
- 66.1.9. *Genisto scorpii-Berberidetum seroi* O. Bolòs (1954) 1997 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Genisto scorpii-Berberidetum vulgaris* O. Bolòs (1954) 1997 (art. 43)]
- 66.1.10. *Ligustro vulgaris-Berberidetum seroi* Rivas-Martínez & G. López in G. López 1976 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Ligustro-Berberidetum hispanicae* Rivas-Martínez & G. López in G. López 1976 (art. 43)]
- 66.1.12. *Ononido aragonensis-Berberidetum seroi* Rivas Goday & Borja 1961 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Ononido aragonensis-Berberidetum hispanicae* Rivas Goday & Borja 1961 (art. 43)]
- 66.1.15. *Cisto laurifolii-Buxetum sempervirentis* Carreras, Carrillo, Masalles, Ninot & Vigo 1993 nom. inv. propos.
[*Buxo sempervirentis-Cistetum laurifolii* Carreras, Carrillo, Masalles, Ninot & Vigo 1993 (art. 42)]
- 66.1.20. *Astrantio majoris-Coryletum avellanae* Rivas Goday & Borja 1961 [76.12.2]
- 66.2.11. *Rubetum caesio-canescens* Ríos & Alcaraz 2002 (ass. nova) (66.2.4)
[*Rubetum caesio-canescens* Ríos & Alcaraz in Ríos 1996 nom. inval. (art. 1)]
- 66.3.2. *Crataego granatensis-Loniceretum arborea* O. Bolòs 1954 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Crataego monogynae-Loniceretum arborea* O. Bolòs 1954 (art. 43)]
- 66.5.1. *Sambuco racemosae-Prunetum padi* Rivas-Martínez, Costa & P. Soriano 2002 (ass. nova)
- 66.5.2. *Rubo idaei-Sambucetum racemosae* O. Bolòs 1979 nom. inv. propos.
[*Sambuco racemosae-Rubetum idaei* O. Bolòs 1979 (art. 10c, 42)]

67. LONICERO-RUBETEA PLICATI Haveman, Schaminée & Stortfelder in Stortfelder, Schaminée & Hommel 1999

European class not found in the territory

68. ALNETEA GLUTINOSAE

Nothing to be added.

69. BETULO CARPATICAE-ALNETEA VIRIDIS

- 69.1.1. *Veratro albi-Salicetum basalticae* O. Bolòs 1984 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Veratro-Salicetum bicoloris* O. Bolòs 1984 (art. 43)]

70. NERIO-TAMARICETEA

- 70.2. *Imperato cylindricae-Saccharion ravennae* Br.-Bl. & O. Bolòs 1958 nom. mut. propos.
 [*Imperato cylindricae-Erianthion ravennae* Br.-Bl. & O. Bolòs 1958 (art. 45)]
- 70.2.1. *Equiseto ramosissimi-Saccharetum ravennae* Br.-Bl. & O. Bolòs 1958 nom. mut. propos.
 [*Equiseto ramosissimi-Erianthetum ravennae* Br.-Bl. & O. Bolòs 1958 (art. 45)]
- 70.3.6. *Suaedo braun-blanquetii-Tamaricetum canariensis* Rivas-Martínez, Cantó & Sánchez-Mata 2002 (ass. nova)
- 70.4.1. *Erico terminalis-Nerietum oleandri* Rivas Goday & Esteve ex Salazar, A. García & F. Valle 2001

71. SALICI PURPUREAE-POPULETEA NIGRAE (Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991) Rivas-Martínez & Cantó 2002 (classis nova)

- [*Salici purpureae-Populetea nigrae* Rivas-Martínez & Cantó ex Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 (art.27a)]
- 71.1.1. *Equiseto hyemalis-Alnetum glutinosae* O. Bolòs 1957 nom. inv. propos.
 [*Alno glutinosae-Equisetetum hyemalis* O. Bolòs 1957 (art. 42)]
- 71.1.2. *Lamio flexuosi-Alnetum glutinosae* (O. Bolòs in Oberdorfer 1953) O. Bolòs 1954 nom. inv. propos.
 [*Alno glutinosae-Lamietum flexuosi* (O. Bolòs in Oberdorfer 1953) O. Bolòs 1954 (art. 42)]
- 71.1.4. *Carici pendulae-Fraxinetum excelsioris* Biurrun & García-Mijangos 2002 (ass. nova)
- 71.1.5. *Euphorbio hybernae-Fraxinetum excelsioris* L. Herrero, M.E. García, T.E. Díaz, Penas & F. Salegui 2002 (ass. nova)
- 71.2.1. *Carici pendulae-Salicetum atrocineriae* A. & O. Bolòs 1950 nom. mut. propos.
 [*Carici pendulae-Salicetum catalaunicae* A. & O. Bolòs 1950 (art. 45)]
- 71.2.8. *Salici neotrichae-Populetea nigrae* T.E. Díaz & Penas ex Rivas-Martínez & Cantó 2002 (ass. nova)
- 71.2.11. *Aro cylindracei-Ulmetum minoris* T.E. Díaz, Andrés, Llamas, L. Herrero & D. Fernández 1987 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
 [*Aro maculati-Ulmetum minoris* T.E. Díaz, Andrés, Llamas, L. Herrero & D. Fernández 1987 (art. 43)]
- 71.2.17. *Lithospermo purpureocaerulei-Ulmetum minoris* O. Bolòs 1956 nom. mut. et inv. propos.
 [*Ulmo carpinifoliae-Lithospermetum purpureocaerulei* O. Bolòs 1956 (art. 42, 45)]
- 71.2.18. *Viburno lantanae-Ulmetum minoris* Biurrun & García-Mijangos 2002 (ass. nova)
- 71.3.2. *Myrico gale-Franguletum alni* Peinado & A. Velasco in Peinado, G. Moreno & A. Velasco 1983 nom. inv. propos.
 [*Frangulo alni-Myricetum gale* Peinado & A. Velasco in Peinado, G. Moreno & A. Velasco 1983 (art. 10c, 42)]

- 71.3.7. *Rubo lainzii-Salicetum atrocineriae* Rivas-Martínez 1965 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Rubo corylifolii-Salicetum atrocineriae* Rivas-Martínez 1965 (art. 43)]
- 71.3.11. *Carici camposii-Salicetum atrocineriae* Salazar, Lorite, Cano & F. Valle 2001
- 71.5. ***Salicion eleagni*** Aichinger 1933 nom. mut. propos.
[*Salicion incanae* Aichinger 1933 (art. 45)]
- 71.5b. ***Salicion cantabricae*** Rivas-Martínez & T.E. Díaz 2002 (suball. nova)
- 71.6. ***Salicion discolori-neotrichae*** Br.-Bl. & O. Bolòs 1958 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Salicion triandro-neotrichae* Br.-Bl. & O. Bolòs 1958 (art. 43)]
- 71.6.3. *Salicetum cantabricae* Rivas-Martínez, T.E. Díaz, F. Prieto, Loidi & Penas 1984 (71.5.2)
- 71.6.4. *Saponario-Salicetum purpureae* Tchou 1948 (71.5.3)
- 71.7. ***Flueggeion tinctoriae*** Rivas Goday 1964 nom. mut. propos.
[*Securinegion buxifoliae* Rivas Goday 1964 (art. 45)]
- 71.7.1. *Pyro bourgaeanae-Flueggeetum tinctoriae* Rivas Goday 1964 nom. mut. et nom. inv. propos.
[*Securinego buxifoliae-Pyretum marianae* Rivas Goday 1964 (art. 42, 45)]
- 71.9.2. *Erico erigenae-Salicetum pedicellatae* Esteve 1973 nom. mut. propos.
[*Erico mediterraneae-Salicetum pedicellatae* Esteve 1973 (art. 45)]
- 71.9.4. *Erico terminalis-Salicetum eleagni* Salazar, A. García & F. Valle 2001

72. ERICO-PINETEA Horvat 1959

European class not found in the territory

73. **LAURO AZORICAE-JUNIPERETEA BREVIFOLIAE** Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (classis nova)
- 73.1.1. *Cerastio vulgare-Juniperetum brevifoliae* Lüpnitz 1975 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Cerastio vagantis-Juniperetum brevifoliae* Lüpnitz 1975 (art. 43)]
- 73.1b. ***Pteridio pubescentis-Ericenion azoricae*** Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (suball. nova)
- 73.1.3. *Festuco petraeae-Corematetum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 73.1.4. *Pteridio pubescentis-Ericetum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 73.2. ***Pittosporo undulati-Myricion fayae*** Lüpnitz 1976 nom. inv. propos.
[*Myrico fayae-Pittosporion undulati* Lüpnitz 1976 (art. 42)]
- 73.2.1. *Carici hochstetterianae-Picconietum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 73.3. ***Dryopterido azoricae-Laurion azoricae*** Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (all. nova)
- 73.3.1. *Dryopterido azoricae-Lauretum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)
- 73.3.2. *Woodwardio radicans-Prunetum azoricae* Rivas-Martínez, Lousã, F. Prieto, J.C. Costa, Días & Aguiar 2002 (ass. nova)

- 74. JUNIPERO SABINAE-PINETEA SYLVESTRIS** Rivas-Martínez 1965 nom. inv. propos.
[*Pino-Juniperetea* Rivas-Martínez 1965 (art. 10c, 42)]
- 74a. **Junipero sabinae-Pinetalia sylvestris** Rivas-Martínez 1965 nom. inv. propos.
[*Pino-Juniperetalia* Rivas-Martínez 1965 (art. 10c, 42)]
- 74.1. **Junipero sabinae-Pinion ibericae** Rivas Goday ex Rivas Goday & Borja 1961
corr. Rivas-Martínez & J.A. Molina in Rivas-Martínez, Fernández-González &
Loidi 1999 nom. inv. propos.
[*Pino ibericae-Juniperion sabinae* Rivas Goday ex Rivas Goday & Borja 1961 corr. Ri-
vas-Martínez & J.A. Molina in Rivas-Martínez, Fernández-González & Loidi 1999 (art.
42)]
- 74.1.1. *Daphno hispanicae-Pinetum nevadensis* Rivas-Martínez 1965 corr. Rivas-
Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002
(corr. nova)
[*Daphno oleoidis-Pinetum sylvestris* Rivas-Martínez 1965 (art. 43)]
- 74.1.2. *Junipero phoeniceae-Pinetum mauretanae* F. Valle, Mota & Gómez-Mercado
1989 corr. Rivas-Martínez & J.A. Molina 2002 (corr. nova)
[*Junipero phoeniceae-Pinetum salzmanni* F. Valle, Mota & Gómez-Mercado 1989 (art.
43)]
- 74.1.3. *Junipero sabinae-Pinetum mauretanae* Rivas-Martínez, Gómez-Mercado & F.
Valle 2002 (ass. nova)
- 74.1.4. *Junipero sabinae-Pinetum ibericae* Rivas Goday & Borja 1961 corr. Rivas-
Martínez & J.A. Molina 2002 (corr. nova)
[*Junipero sabinae-Pinetum sylvestris* Rivas Goday & Borja 1961 (art. 43)]
- 74.1.5. *Ononido aragonensis-Pinetum ibericae* (Rivas Goday & Borja 1961) Rivas-
Martínez 1969 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco,
Loidi, Lousã & Penas 2002 (corr. nova)
[*Ononido aragonensis-Pinetum sylvestris* (Rivas Goday & Borja 1961) Rivas-Martínez
1969 (art. 43)]
- 74.3.2. *Pinetum uncinato-pyrenaicae* Rivas-Martínez, Costa, J.A. Molina & P. Soriano
2002 (ass. nova)
- 74.3.9. *Galio rotundifolii-Pinetum pyrenaicae* Gruber 1997 corr. Rivas-Martínez, T.E.
Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Galio rotundifolii-Pinetum sylvestris* Gruber 1997 (art. 43)]
- 74.4.2. *Avenello ibericae-Pinetum uncinatae* (Rivas-Martínez & Tarazona in Rivas-
Martínez, G. Navarro, Mendiola & Tarazona 1987) Rivas-Martínez & J.A. Mo-
lina 2002 (ass. nova)
[*Vaccinio myrtilli-Juniperetum nanae pinetosum uncinatae* Rivas-Martínez & Tarazona
in Rivas-Martínez, G. Navarro, Mendiola & Tarazona 1987 (basion.) (art. 27d)]
- 74.4.3. *Calluno-Pinetum ibericae* (Vigo 1968) Rivas-Martínez & J.A. Molina 2002
(nom. nov.)
[*Deschampsio-Pinetum valentinum* Vigo 1968 (art. 34, 39)]
- 74.4.5. *Pteridio aquilini-Pinetum ibericae* Rivas-Martínez & J.A. Molina 2002 (ass.
nova)
- 74.4.6. *Vaccinio myrtilli-Pinetum ibericae* Rivas-Martínez & J.A. Molina 2002 (ass.
nova)

- 74.5.1. *Avenello ibericae-Juniperetum nanae* Rivas-Martínez, Fernández-González, Sánchez-Mata & Sardinero 2002 (ass. nova)
 74.7.2. *Berberido seroi-Juniperetum sabiniae* Rivas Goday & Borja 1961 nom. corr. et nom. inv. propos.
 [Sabino-Berberidetum hispanicae Rivas Goday & Borja 1961 (art. 42, 43)]

75. QUERCETEA ILICIS

- 75.1.6. *Asparago acutifolii-Quercetum rotundifoliae* Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata 2002 (ass. nova)
 [Bupleuro rigidi-Quercetum rotundifoliae Rivas-Martínez 1982 (art. 2b)]
 75.1.7. *Asplenio adianti-nigri-Quercetum rotundifoliae* (Carreras, Carrillo, Ninot & Vigo 1997) Rivas-Martínez 2002 (ass. nova)
 [Quercetum rotundifoliae asplenietosum adianti-nigri Carreras, Carrillo, Ninot & Vigo 1997 (basion.) (art. 27d)]
 75.1.14. *Quercetum rotundifoliae* Br.-Bl. & O. Bolòs in O. Bolòs 1956
 75.2.4. *Junipero lagunae-Quercetum suberis* Rivas-Martínez, Aguiar, Cantó & Ladero 2002 (ass. nova)
 75.2.7. *Sanguisorbo hybridae-Quercetum suberis* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 nom. mut. propos.
 [Poterio agrimonoidis-Quercetum suberis Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 (art. 45) (Addenda)]
 75.3.1. *Aro italici-Oleetum sylvestris* Rivas-Martínez & Cantó 2002 (ass. nova)
 75.3.7. *Rhamno oleoidis-Quercetum rotundifoliae* Rivas-Martínez 2002 (ass. nova)
 75.3.12. *Viburno tini-Quercetum rivasmartinezii* Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 corr. Capelo & J.C. Costa 2001
 [Viburno tini-Quercetum cocciferae Rivas-Martínez, Lousã, T.E. Díaz, Fernández-González & J.C. Costa 1990 (art. 43)]
 75.3.14. *Vinco difformis-Ceratonietum siliquae* (Martín, Díez Garretas & Asensi 1992) Rivas-Martínez 2002 (ass. nova)
 [Clematido cirrhosae-Ceratonietum siliquae phlomidetosum purpureae Martín, Díez Garretas & Asensi 1992 (basion.) (art. 27d)]
 75.4. ***Genisto retamoidis-Phlomidion almeriensis*** Rivas Goday & Rivas Martínez 1969
 75.5.3. *Asparago albi-Quercetum cocciferae* Rivas-Martínez 2002 (ass. nova)
 75.5.8. *Rusco hypophylli-Buxetum sempervirentis* O. Bolòs 1958 nom. inv. propos.
 [Buxo sempervirentis-Ruscetum hypophylli O. Bolòs 1958 (art. 42)]
 75.5.17. *Quercu cocciferae-Pistacietum lentisci* Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 nom. mut. propos.
 [Quercu cocciferae-Lentiscetum Br.-Bl., Font Quer, G. Braun-Blanquet, Frey, Jansen, & Moor 1935 (art. 45)]
 75.5.19. *Rhamno velutini-Maytenetum europaei* Peinado, Martínez-Parras & Alcaraz 1992 (75.5.11)
 [Calicotomo intermediae-Maytenetum senegalensis Cabezudo & A.V. Pérez 2001]
 75.6.1. *Ampelodesmo mauritanicae-Arbutetum unedonis* Llorens, Gil & Tébar 2002 (ass. nova)

- 75.7.5. *Daphno gnidii-Quercetum cocciferae* Rivas-Martínez, Cantó, Fernández-González & Sánchez-Mata 2002 (ass. nova)
[*Rhamno-Cocciferetum matritense* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 (art. 3b, 34)]
- 75.7.9. *Hedero-Telinetum patentis* Mateo 1983 nom. mut. propos.
[*Hedero-Cytisetum patentis* Mateo 1983 (art. 45)]
- 75.8.2. *Zizipho loti-Maytenetum europaei* F. Casas 1970 nom. inv. propos.
[*Gymnosporio europaei-Ziziphietum loti* F. Casas 1970 (art. 42)]
- 75.9.2. *Astragalo tragacanthae-Juniperetum macrocarpae* Rivas-Martínez & Cantó 2002 (ass. nova)
- 75.9.3. *Clematido balearicae-Juniperetum turbinatae* (O. Bolòs, Molinier & P. Montserrat 1970) Rivas-Martínez 1975 nom. mut. propos.
[*Clematido balearicae-Juniperetum lyciae* (O. Bolòs, Molinier & P. Montserrat 1970) Rivas-Martínez 1975 (art. 45)]
- 75.9.4. *Coremato albi-Juniperetum macrocarpae* M.B. Crespo, De la Torre, Alcaraz, Costa & Solanas 2002 (ass. nova)
- 75.9.6. *Juniperetum turbinatae* Molinier ex O. Bolòs 1967 nom. mut. propos.
[*Juniperetum lyciae* Molinier ex O. Bolòs 1967 (art. 45)]
- 75.11. ***Quercion lusitanicae*** Rothmaler 1954 nom. mut. propos.
[*Quercion fruticosae* Rothmaler 1954 (art. 45)]
- 75.11.3. *Senecioni lopezii-Quercetum lusitanicae* Rivas-Martínez 2002 (ass. nova)
- 75.13b. ***Rhododendrenion pontici*** Rivas-Martínez & Sánchez-Mata 2001 nom. mut. propos.
[*Rhododendrenion baetici* Rivas-Martínez & Sánchez-Mata 2001 (art. 45)]
- 75.14. ***Pino acutisquamae-Juniperion phoeniceae*** A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo 1998 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Pino pinastri-Juniperion phoeniceae* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo 1998 (art. 43)]
- 75.14.2. *Rhamno myrtifolii-Juniperetum phoeniceae* Molero & Pérez-Raya 1987
[*Rhamno velutini-Quercetum cocciferae* Nieto, A.V. Pérez & Cabezudo in Lazaroa 10: 38, tb. 2. 1988 (75.5.2)]
- 75.14.3. *Rhamno lycioidis-Pinetum halepensis* (J. Torres, García-Fuentes, Salazar, Cano & F. Valle 1999) Rivas-Martínez 2002 (ass. nova)
[*Junipero phoeniceae-Pinetum halepensis* J. Torres, García-Fuentes, Salazar, Cano & F. Valle 1999 (arts. 31, 39), non *Pino halepensis-Juniperetum phoeniceae* A.V. Pérez & Cabezudo in A.V. Pérez, P. Navas, D. Navas, Y. Gil & Cabezudo 1998 (art.37(?)) (syntax. syn.) of *Rhamno myrtifolii-Juniperetum phoeniceae* Molero & Pérez-Raya 1987]
- 75.15. ***Aristolochio sempervirentis-Quercion ilicis*** Barbero & Quézel ex Rivas-Martínez 2002 (all. nova)
[*Cyclamini cretici-Quercion brachyphyllae-ilicis* Barbero & Quézel 1980 (arts. 5, 10)]

76. QUERCO-FAGETEA

- 76.1.3. *Helleboro occidentalis-Fagetum sylvaticae* O. Bolòs 1957 nom. inv. propos.
[*Fago-Helleboretum occidentale* O. Bolòs 1957 (art. 42)]
- 76.1.6. *Roso pendulinae-Fagetum sylvaticae* Rivas-Martínez, Costa & P. Soriano 2002
(ass. nova)
- 76.1.11. *Epipactido helleborines-Fagetum sylvaticae* (Rivas-Martínez 1962) Rivas-Martínez ex J.F. Pérez & T.E. Díaz 1987
- 76.2.1. *Hyperico androsaemi-Ulmetum glabrae* Vanden Berghen 1968 nom. mut. propos.
[*Androsaemo-Ulmetum glabrae* Vanden Berghen 1968 (art. 45)]
- 76.2.5. *Mercuriali perennis-Fraxinetum excelsioris* F. Prieto & Vázquez 1987 (76.4.5)
- 76.3.2. *Pulmonario affinis-Abietetum albae* Rivas-Martínez, Costa & P. Soriano 2002
(ass. nova)
- 76.4. ***Pulmonario longifoliae-Quercion roboris*** Rivas-Martínez & Izco 2002 (all. nova)
- 76.5.3. *Carici depressae-Quercetum canariensis* O. Bolòs 1959 nom. inv. propos.
[*Quercu canariensis-Caricetum depressae* O. Bolòs 1959 (art. 10b, 42)]
- 76.5.4. *Aceri opali-Quercetum petraeae* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952
nom. inv. propos.
[*Quercu petraeae-Aceretum opali* Br.-Bl. in Br.-Bl., Roussine & Nègre 1952 (art. 42)]
- 76.7.3. *Berberido hispanicae-Quercetum pyrenaicae* F. Valle, Gómez-Mercado & Mota
1988 nom. mut. propos.
[*Berberido australis-Quercetum pyrenaicae* F. Valle, Gómez-Mercado & Mota 1988 (art.
45)]
- 76.7.5. *Festuco braun-blanquetii-Quercetum pyrenaicae* Br.-Bl. 1967 corr. Rivas-Martínez,
T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002
(corr. nova)
[*Festuco heterophyllae-Quercetum pyrenaicae* Br.-Bl. 1967 (art. 43)]
- 76.7.7. *Genisto falcatae-Quercetum pyrenaicae* Penas & T.E. Díaz ex Rivas-Martínez
2002 (ass. nova)
- 76.7.9. *Luzulo baeticae-Quercetum pyrenaicae* Rivas-Martínez 2002 (ass. nova)
- 76.7.15. *Lonicero periclymeni-Quercetum pyrenaicae* Rivas-Martínez 2002 (ass. nova)
- 76.7.17. *Myrtillo-Quercetum roboris* P. Silva, Rozeira & Fontes 1950 corr. Br.-Bl., P.
Silva & Rozeira 1956
[*Myrtillo-Quercetum broteroanae* P. Silva, Rozeira & Fontes 1950 (art. 43)]
- 76.7.19. *Viburno tini-Quercetum roboris* (Br.-Bl., P. Silva & Rozeira 1956) J.C. Costa,
Capelo, Honrado, Aguiar & Lousã 2002 (ass. nova)
[*Rusco-Quercetum roboris viburnetosum tini* Br.-Bl., P. Silva & Rozeira 1956 (basion.)
(art. 27d)]
- 76.8b. ***Luzulo henriquesii-Quercenion petraeae*** Rivas-Martínez & Izco 2002 (suball.
nova)
- 76.8.5. *Asperulo odoratae-Quercetum petraeae* (Rivas-Martínez & G. Navarro in G.
Navarro 1989) Rivas-Martínez & Cantó 2002 (ass. nova)
- 76.8.9. *Avenello ibericae-Quercetum orocantabricae* Rivas-Martínez, Amigo, Bueno,
T.E. Díaz, F. Prieto, Izco, Penas & Puente 2002 (ass. nova)

- 76.8.10. *Luzulo henriquesii-Aceretum pseudoplatani* F. Prieto & Bueno in T.E. Díaz & F. Prieto 1994 (76.14.5)
- 76.9. ***Quercion pubescenti-petraeae*** Br.-Bl. 1932 nom. mut. propos.
[*Quercion pubescenti-sessiliflorae* Br.-Bl. 1932 (art. 45)]
- 76.9.3. *Roso arvensis-Quercetum pubescentis* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 nom. mut. propos.
[*Roso arvensis-Quercetum humilis* Rivas-Martínez, Báscones, T.E. Díaz, Fernández-González & Loidi 1991 (art. 45)]
- 76.10.5. *Geo urbani-Coryletum avellanae* F. Valle, Mota & Gómez-Mercado 1986 corr. Gómez-Mercado 2002 (corr. nova)
[*Geo heterocarp-Coryletum avellanae* F. Valle, Mota & Gómez-Mercado 1986 (art. 43)]
- 76.10.8. *Sileno melliferae-Quercetum faginae* Rivas Goday & Borja in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Sileno-Quercetum valentinae* Rivas Goday & Borja in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez 1960 (art. 43)]
- 76.10.11. *Fraxino orni-Aceretum granatensis* Alcaraz, Ríos, Solanas & M.B. Crespo in Solanas, M.B. Crespo, Alcaraz & Ríos 2001
- 76.11. ***Paeonio broteroi-Abietion pinsapo*** (Rivas-Martínez 1987) Rivas-Martínez & Asensi 2002 (all. nova)
- 76d. ***Betulo pendulae-Populetaia tremulae*** Rivas-Martínez & Costa 2002 (ordo novus)
[*Betulo pendulae-Populetaia tremulae* Rivas-Martínez & Costa 1998 (art. 8)]
- 76.12. ***Corylo-Populion tremulae*** (Br.-Bl. ex O. Bolòs 1973) Rivas-Martínez & Costa 1998
[*Corylo-Populion tremulae* Br.-Bl. 1961 (art. 2b, 8), *Corylo-Populion tremulae* Br.-Bl. ex O. Bolòs 1973 (76.12a) (corresp. name), *Pulmonario affinis-Betulenion pendulae* Rivas-Martínez, Fernández-González, Loidi, Lousã & Penas 2001 (76.12b) (art. 2b)]
- 76.12.5. *Pulmonario affinis-Betuletum pendulae* Vigo ex Rivas-Martínez & Costa 2002 (ass. nova)
- 76.13. ***Betulion carpatico-pubescentis*** Rivas-Martínez & Costa 2002 (all. nova)
- 76.13.2. *Lastreo limbospermae-Betuletum pubescentis* Rivas-Martínez 1968 nom. mut. propos.
[*Thelypterido limbospermae-Betuletum pubescentis* Rivas-Martínez 1968 (art. 45), *Thelypterido limbospermae-Betuletum carpaticae* Rivas-Martínez 1987]
- 76.14. ***Betulion fontqueri-celtibericae*** Rivas-Martínez & Costa 2002 (all. nova)
- 76.14.1. *Holco mollis-Betuletum celtibericae* Amigo & M.I. Romero 2002 (ass. nova)
[*Holco mollis-Betuletum celtibericae* Amigo & Romero 1994 (art. 2b)]
- 76.14.2. *Laserpitio eliasii-Coryletum avellanae* Puente, M.J. López, Penas & F. Salegui 2002 (ass. nova)
- 76.14.3. *Linario triornithophorae-Coryletum avellanae* R. Alonso, Puente, Penas & F. Salegui 2002 (ass. nova)
- 76.14.4. *Luzulo henriquesii-Betuletum celtibericae* Rivas-Martínez 1965 nom. mut. propos.
[*Luzulo cantabricae-Betuletum celtibericae* Rivas-Martínez 1965 (art. 45)]
- 76.14.9. *Salici capreae-Betuletum fontqueri* Molero & Rivas-Martínez 2002 (ass. nova)

77. VACCINIO-PICEETEA

- 77.1.2. *Rhododendro ferruginei-Abietetum albae* (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl 1948 nom. inv. propos.
[*Abieti albae-Rhododendretum ferruginei* (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl 1948 (art. 42)]
- 77.2.1. *Saxifrago geranioidis-Rhododendretum ferruginei* Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939 nom. inv. propos.
[*Rhododendro ferruginei-Saxifragetum geranioidis* Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939 (art. 42)]
- 77.3.1. *Cotoneastro pyrenaici-Juniperetum nanae* (Turmel 1955) Rivas-Martínez & J.A. Molina 2002 (nom. nov)
- 77.3.4. *Vaccinio microphylli-Juniperetum nanae* Rivas-Martínez ex F. Prieto 1983 corr. Loidi & Biurrun 1996 nom. inv. propos.
[*Junipero nanae-Vaccinietum microphylli* Rivas-Martínez ex F. Prieto 1983 corr. Loidi & Biurrun 1996 (art. 42)]
- 77.3.5. *Vaccinio microphylli-Callunetum vulgaris* Bueno & F. Prieto 2002 (ass. nova)
- 77.3.6. *Genisto sanabrensis-Juniperetum nanae* F. Prieto 1983 [74.5.5]
- 77.3.7. *Lycopodio clavati-Juniperetum nanae* Br.-Bl., P. Silva & Rozeira in Rivas-Martínez 1974 [74.5.6]
- 77.3.8. *Vaccinio myrtilli-Juniperetum nanae* Rivas-Martínez 1965 [74.5.9]

78. CHAMAECYTISO-PINETEA CANARIENSIS Rivas Goday & Esteve ex Esteve 1969 nom. mut. propos.[*Cytiso-Pinetea canariensis* Rivas Goday & Esteve ex Esteve 1969 (art. 45)]**78a. Chamaecytiso-Pinetalia canariensis** Rivas Goday & Esteve ex Esteve 1969 nom. mut. propos.[*Cytiso-Pinetalia canariensis* Rivas Goday & Esteve ex Esteve 1969 (art. 45)]**78.2. Spartocytisium supranubii** Oberdorfer ex Esteve 1973 nom. mut. propos.[*Spartocytisium nubigeni* Oberdorfer ex Esteve 1973 (art. 45)]**78.2.4. Spartocytisetum supranubii** Oberdorfer ex Esteve 1973 nom. mut. propos.[*Spartocytisetum nubigeni* Oberdorfer ex Esteve 1973 (art. 45)]**78.2.6. Genisto benehoavensis-Adenocarpetum spartioidis** Santos 1983 nom. mut. propos.[*Telino benehoavensis-Adenocarpetum spartioidis* Santos 1983 (art. 45)]**79. KLEINIO-EUPHORBIETEA CANARIENSIS**

Nothing to be added.

80. RHAMNO CRENULATAE-OLEETEA CERASIFORMIS Santos ex Rivas-Martínez 1987 nom. inv. propos.[*Oleo cerasiformis-Rhamnetea crenulatae* Santos ex Rivas-Martínez 1987 (art. 42)]**80a. Rhamno crenulatae-Olectalia cerasiformis** Santos 1983 nom. inv. propos.[*Oleo cerasiformis-Rhamnetalia crenulatae* Santos 1983 (art. 42)]

- 80.1.8. *Rhamno crenulatae-Juniperetum canariensis* Santos 1983 corr. O. Rodríguez, Del Arco, García Gallo, Acebes, Pérez de Paz & Wildpret 1998 nom. inv. propos.
[*Junipero canariensis-Rhamnetum crenulatae* Santos 1983 corr. O. Rodríguez, Del Arco, García Gallo, Acebes, Pérez de Paz & Wildpret 1998 (art. 42)]
- 80.1.13. *Pistacio lentisci-Oleetum cerasiiformis* Del Arco, Salas, Acebes, Marrero, Reyes & Pérez de Paz 2002
- 80.2. *Mayteno umbellatae-Oleion maderensis* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez 2000 nom. inv. propos.
[*Oleo maderensis-Maytenion umbellatae* Capelo, J.C. Costa, Lousã, Fontinha, Jardim, Sequeira & Rivas-Martínez 2000 (art. 42)]
- 80b. **Micromerio hyssopifoliae-Cistetalia monspeliensis** Pérez de Paz, Del Arco & Wildpret 1990 nom. inv. propos.
[*Cisto monspeliensis-Micromerietalia hyssopifoliae* Pérez de Paz, Del Arco & Wildpret 1990 (art. 42)]
- 80.3. *Micromerio hyssopifoliae-Cistion monspeliensis* Pérez de Paz, Del Arco & Wildpret 1990 nom. inv. propos.
[*Cisto monspeliensis-Micromerion hyssopifoliae* Pérez de Paz, Del Arco & Wildpret 1990 (art. 42)]
- 81. POLYCARPAEO NIVEAE-TRAGANETEA MOQUINI** Santos ex Rivas-Martínez & Wildpret 2002 (classis nova)
[*Zygophyllo fontanesii-Polycarpaetea niveae* Santos 1983 (art. 5)]
- 81.2. *Polycarpaeo niveae-Euphorbion paraliae* Rivas-Martínez & Wildpret 2002 (all. nova)
- 81.2.1. *Euphorbio paraliae-Cyperetum capitati* Sunding 1972 nom. mut. propos.
[*Euphorbio paraliae-Cyperetum kallii* Sunding 1972 (art. 45)]
- 82. PRUNO HIXAE-LAURETEA NOVOCANARIENSIS** Oberdorfer 1965 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Pruno lusitanicae-Lauretea canariensis* Oberdorfer 1965 (art. 43)]
- 82.2.1. *Chamaecytiso canariae-Adenocarpetum villosi* (Sunding 1972) Rivas-Martínez & Wildpret 2002 (nom. nov.)
[*Adenocarpus villosi-Cytisetum proliferi* Sunding 1972 (art. 31, 39)]
- 82.2.2. *Micromerio benthami-Telinetum microphyllae* Sunding 1972 nom. mut. propos.
[*Micromerio benthami-Cytisetum congesti* Sunding 1972 (art. 45)]
- 82b. **Pruno hixae-Lauretalia novocanariensis** Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Pruno-Lauretalia azoricae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 (art. 43)]
- 82.4. *Ixantho viscosae-Laurion novocanariensis* Oberdorfer ex Santos in Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Ixantho-Laurion azoricae* Oberdorfer ex Santos in Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 (art. 43)]

- 82.4.3. *Lauro novocanariensis-Perseetum indicae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & Cerspo 1977 corr. Rivas-Martínez, T.E. Díaz, Fernández-González, Izco, Loidi, Lousã & Penas 2002 (corr. nova)
[*Lauro azoricae-Perseetum indicae* Oberdorfer ex Rivas-Martínez, Arnaiz, Barreno & A. Crespo 1977 (art. 10d, 43)]
- 82.7. *Polysticho fulcinelli-Ericion arboreae* Rivas-Martínez, Capelo, J.C. Costa, Lousã, Fontinha, Jardim & Sequeira 2002 (all. nova)

E. INDEX OF CITATIONS OF ALTERED AND ADDED NAMES AND RELATED SYNTAXA

The altered and added syntaxon names, synonyms and related syntaxa acted in this "Addenda" are alphabetically listed below with the original citations. The syntaxa followed by an asterisk (*) are records not known from Spanish and Portuguese territories.

- Abieti albae-Rhododendretum ferruginei* (Br.-Bl. in Br.-Bl., Sissingh & Vlieger 1939) Br.-Bl., Veg. Alp. Pyr. Or.: 250. 1948 (art. 42) (77.1.2)
- Achilleo odoratae-Bothriochloetum ischaemi* Vigo in Collect. Bot. (Barcelona) 7(2): 1182. 1968 (51.4.1)
- Aconitum napellus* var. *nevadensis* et *Senecio elodes* ass. Quézel in Mem. Soc. Brot. 9: 68. 1953 (art. 45) (42.2.1)
- Acrocladio cuspidati-Eleocharitetum palustris* O. Bolòs & Vigo in O. Bolòs in Mem. Real Acad. Ci. Barcelona 38(1): 43, tb. 18. 1967 (art. 45) (12.2.3)
- Actaeo spicatae-Coryletum avellanae* Carreras & Ninot in Carrillo & Ninot in Mem. Real Acad. Ci. Barcelona 99(2): 127. 1992 (76.12.1)
- Adenocarpetum argyrophylli* Rivas-Martínez & Belmonte in Opusc. Bot. Pharm. Complut. 5: 72. 1989 (art. 2b) (65.1.1)
- Adenocarpus foliolosi-Cytisetum proliferi* Esteve in Bol. Real Soc. Esp. Hist. Nat., Secc. Biol. 6: 90. 1969 (art. 37) (82.2.1)
- Adenocarpus villosi-Cytisetum proliferi* Sunding in Skr. Norske Vidensk Akad. Oslo, Mat.-Naturvidensk. Kl., N.S. 29: 129, tb. 31. 1972 (art. 31, 39) (82.2.1)
- Adiantum capilli-veneris-Parietarietum judaicae* Segal, Ecological notes on wall vegetation: 159. 1969 (28.2.5)
- Aegilopo-Orlayetum grandiflorae* Romo in Mem. Real Acad. Ci. Barcelona 90: 408, tb. 16. 1989 (39.13.11)
- Agropyrenion farcti* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 64. 1980 (art. 45) (16.2b)
- Agropyrenion junceiformis* Rivas-Martínez, Costa, Castroviejo & E. Valdés in Lazaroa 2: 64. 1980 (art. 45) (16.2a)
- Agropyretalia repentis* Oberdorfer, Müller & Görs in Oberdorfer & al. in Schriftenreihe Vegetationsk 2: 7. 1967 (art. 45) (34b)
- Agropyretum litorei* Corillion in Rev. Gen. Bot. 60: 707, tb. 11. 1953 (34.5.1)
- Agropyron pungentis* Géhu in Bull. Soc. Bot. France 17(2): 77. 1968 (art. 45) (34.5)
- Agropyron pungentis* ("littoralis")-*Suaedetum verae* (Arènes 1933) Géhu in Coll. Phytosociol. 4: 428. 1976 (art. 43) (23.4.1)
- Agropyron pycnanthi-Suaedetum verae* (Arènes 1933) Géhu 1976 corr. Bueno, Fl. Veg. Estuarios Asturianos: 162. 1997 (art. 45) (23.4.1)

- Agropyro-Brachypodietum phoenicoidis* Rivas-Martínez & Izco ex G. López in *Anales Inst. Bot. Cavanilles* 34(2): 660. 1978 (art. 2b) (51.3.2)
- Agropyro-Mimuartion peploidis* Tüxen in *Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel* 25: 248. 1952 (art. 45) (16.2)
- Agrostion salmanticae* Rivas Goday in *Anales Inst. Bot. Cavanilles* 15: 612. 1958 (art. 45) (9.3)
- Agrostio-Tamaricetum canariensis inuletosum crithmoidis* Fernández-González, A. Molina & Loidi in *Acta Bot. Malacitana* 15: 314, tb. 2. 1990 (70.3.6)
- Alchemillo plicatulae-Dryadetum octopetalae* I. Soriano in *J. Bot. Soc. bot. Fr.* 5: 24, tb. 1. 1998 (art. 43) (45.2.8= 45.2.5)
- Allio montani-Stipetum eriocaulis* I. Soriano in *Acta Bot. Barcinon.* 47: 127, tb. 63. 2001 (52.2.4)
- Allio schoenoprasi-Ranunculetum parnassifolii* F. Casas in *Ars. Pharm.* 11: 281, tb. 10. 1970 (art. 43) (33.1.1)
- Allio-Ranunculetum nevadensis* F. Casas & Morales in Esteve & F. Casas in *Cuad. Ci. Biol.* 1: 65. 1971 (art. 43) (60.3.1)
- Allosoro crispi-Poetum fontquerii* Nègre in *Monde Pl.* 359: 9. 1968 (art. 45) (33.6.1)
- Alno glutinosae-Equisetetum hyemalis* O. Bolòs in *Collect. Bot. (Barcelona)* 5(2): 486. 1957 (art. 42) (71.1.1)
- Alno glutinosae-Lamietum flexuosi* (O. Bolòs in Oberdorfer 1953) O. Bolòs in *Collect. Bot. (Barcelona)* 4(2): 283, tb. 13. 1954 (art. 10e, 42) (71.1.2)
- Alno-Populetea* Fukarek & Fabijanic in Tüxen (ed.), *Pflanzensoziologische Systematik*: 112. 1958 (art. 2b) (71)
- Andropogonetum hirto-pubescentis* A. & O. Bolòs & Br.-Bl. in A. & O. Bolòs, *Veg. Com. Barc.*: 99. 1950 (art. 45) (56.7.1)
- Androsace ciliata* et *Alsine cerastiifolia* ass. Chouard in *Bull. Soc. Bot. France* 90: 25. 1943 (art. 10) (46.3.1)
- Androsacion ciliatae* Rivas-Martínez, *Publ. Inst. Est. Altoarag. (Homenaje a Pedro Montserrat)*: 723. 1988 (33.16 = 46.3)
- Androsaemo-Ulmetum glabrae* Vanden Berghen in *Bull. Soc. Roy. Bot. Belgique* 102: 115. 1968 (art. 45) (76.2.1)
- Anogrammo leptophyllae-Parietarietum lusitanicae* Rivas-Martínez & Ladero in Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 34(2): 562, tb. 3. 1978 (41.3.1)
- Antennario dioicae-Festucetum aragonensis armerietosum microcephalae* Rivas-Martínez & G. Navarro in G. Navarro in *Opusc. Bot. Pharm. Complut.* 5: 12, tb. 1. 1989 (art. 27d, 46H) (49.2.3)
- Antennario dioicae-Festucetum aragonensis* Rivas-Martínez, *Mem. Mapa Series Veg. España*: 162. 1987 (art. 43) (49.2.2)

- Anthyllido hamosae-Malcolmietum patulae* Rivas Goday in *Anales Inst. Bot. Cavanilles* 15: 565. 1958 (50.5.1)
- Anthyllido hamosae-Malcolmion lacerae* Rivas Goday in *Anales Inst. Bot. Cavanilles* 15: 564. 1958 (50.6)
- Antirrhinetum charidemi* F. Casas in *Trab. Dep. Bot. Univ. Granada* 1: 36, tb. 12. 1972 (28.5.1)
- Antirrhinetum microphylli* F. Casas in *Cuad. Ci. Biol. (Granada)* 3: 92, tb. 3. 1974 (29.1.1)
- Antirrhinetum pertegasii* O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 38(1): 9, tb. 2. 1967 (29.1.2)
- Antirrhinetum pulverulenti* F. Casas in *Cuad. Ci. Biol. (Granada)* 3: 91, tb. 2. 1974 (29.1.3)
- Antirrhino sempervirentis-Potentilletum alchimilloidis* Rivas Goday, Esteve, Rigual & Borja in *Anales Inst. Bot. Cavanilles* 12: 485, tb. 4. 1954 (art. 42) (29.3.1)
- Antirrhino sempervirentis-Potentilletum alchimilloidis* Rivas Goday in Rivas Goday, Esteve, Rigual & Borja in *Anales Inst. Bot. Cavanilles* 12(1): 487, tb. 4. 1954 (29.3.1)
- Aperetalia spicae-venti* J. Tüxen & Tüxen in *Malato-Beliz*, J. Tüxen & Tüxen in *Mitt. Florist.-Soziol. Arbeitsgem.* 8: 146. 1960 (39b)
- Aphyllanthion* Br.-Bl. & Pawłowski in *Rev. Bot. Appl. Agric. Trop.* 11: 1. 1931 (59.8)
- Aphyllanthion* Br.-Bl. in Br.-Bl., Roussine & Nègre, *Group. Vég. France Médit.*: 184. 1952 (59.8)
- Aphyllantho-Bupleuretum fruticescentis* Br.-Bl. & O. Bolòs in *Anales Estac. Exp. Aula Dei* 5: 190, tb. 39. 1958 (64.5.21)
- Aphyllantho-Seslerietum calcareae* O. Bolòs in *Collect. Bot. (Barcelona)* 10: 108, tb. 1. 1956 (art. 45) (51.2.3)
- Aquilegio pyrenaicae-Bordereetum pyrenaicae* Quézel in *Collect. Bot. (Barcelona)* 5(1): 182, tb. 3. 1956 (33.1.3)
- Aquilegio-Xatardietum scabrae* O. Bolòs & P. Montserrat in O. Bolòs, *Miscellanea Alcobe*: 80. 1974 (33.1.2)
- Arctostaphylos uva-ursi* et *Juniperus nana* ass. Turmel in *Mém. Museum Natl. Hist. Nat. Paris, Sér. B, Bot.* 5: 167, tb. 67. 1955 (77.3.1)
- Arenarietum viridis* O. Bolòs in *Collect. Bot. (Barcelona)* 5(1): 195. 1956 (22.2.10 = 50.13.2)
- Arenario delaguardiae-Centaureetum bombycinae* Mota, F. Valle & Cabello in *Vegetatio* 109: 35, tb. 4. 1993 (64.15.1)
- Arenario grandiflorae-Festucetum durissimae* Baudière & Serve, *Actes 96e Congr. Nat. Soc. Sav.*: 91. 1975 (art. 45) (46.1.1)
- Arenario imbricatae-Festucetum indigestae* Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 22: 374. 1965 (art. 43) (49.1.3)

- Arenario intricatae-Polypodietum cambrici* M.B. Crespo in *Ecol. Medit.* 19: 3-5. 1993
nom. mut. (30.1.10 = 30.1.2)
- Arenario intricatae-Polypodietum serrulati* M.B. Crespo in *Ecol. Medit.* 19: 1. 1993 (art. 45) (30.1.10 = 30.1.2)
- Arenario querioidis-Festucetum summilusitanae* Rivas-Martínez, Sánchez-Mata & Fuente in Rivas-Martínez, Fernández-González & Sánchez-Mata in *Opusc. Bot. Pharm. Complut.* 2: 57. 1986 (art. 43) (49.5.1)
- Aristido coerulescentis-Hyparrhenietum pubescentis* Rivas-Martínez & Alcaraz in Alcaraz, *Fl. Veg. NE Murcia*: 279, tb. 58. 1984 (art. 45) (56.7.3)
- Armerio depilatae-Frankenietum laevis* Bueno & F. Prieto in Bueno, *Fl. Veg. Estuarios Asturianos*: 187, tb. 5. 1997 (20.5.3 = 20.5.1)
- Aro maculati-Ulmetum minoris* T.E. Díaz, Andrés, Llamas, L. Herrero & D. Fernández in *Publ. Univ. La Laguna, Ser. Informes* 22: 178, tb. 1. 1987 (art. 43) (71.2.11)
- Artemisio albae-Xerobromenion* X. Font in *Mem. Real Acad. Ci. Barcelona* 105: 95. 1993 (art. 5) (51.4)
- Artemisio gallicae-Puccinellietum pungentis* Barrera & Cirujano in *Trab. Dept. Bot. Univ. Complut. Madrid* 13: 112, tb. 1. 1986 (art. 43) (20.3.1)
- Arthrocnemenion fruticosi* Rivas-Martínez in Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 17. 1984 (art. 45) (23.1a)
- Arthrocnemenion perennis* Rivas-Martínez in Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 18. 1984 (art. 45) (23.21b)
- Arthrocnemetum glauci catapodietosum marini* (Rivas-Martínez, Costa & Loidi 1992) O. Bolòs in *Mem. Real Acad. Ci. Barcelona* 114: 49. 1996 (corresp. name) (22.2.3)
- Arthrocnemion glauci* Rivas-Martínez & Costa in *Doc. Phytosoc.* 8: 18. 1984 (art. 45) (23.2)
- Asparago albi-Rhamnetum oleoidis* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 320, tb. 2. 1960 (75.5.2)
- Asparago-Rhamnetum oleoidis cocciferetosum* Rivas Goday in Rivas Goday, Borja, Esteve, Galiano, Rigual & Rivas-Martínez in *Anales Inst. Bot. Cavanilles* 17(2): 324, tb. 3. 1960 p.p. (75.5.3)
- Asphodelo cerasiferi-Armerietum gaditanae* Allier & Bresset in *Monografías ICONA* 18: 59. 1977 (art. 43) (57.1.1)
- Asplenietalia glandulosi* Br.-Bl. in Meier & Br.-Bl., *Prodr. Group. Vég.* 2. 1934 (art. 45) (27c)
- Asplenietum catalaunici* F. Casas 1970 corr. O. Bolòs & Vigo, *Flora dels Països Catalans* 1: 65. 1984 (29.3.2)
- Asplenietum celtiberici* F. Casas in *Ars. Pharm.* 11: 275, tb. 8. 1970 (art. 43) (29.3.2)

- Asplenietum hispanici* Pérez-Raya & Molero in Acta Bot. Malacitana 13: 342, tb. 1. 1988 (art. 45) (30.1.3)
- Asplenietum marini* Br.-Bl. & Tüxen in Veröff. Ber. Geobot. Inst. E.T.H. Stiftung Rübel 25: 233, tb. 3. 1952 (28.4.1)
- Asplenio billotii-Cheilanthesetum duriensis* Rivas-Martínez & Costa 1973 corr. Sáenz & Rivas-Martínez 1979 in Lagascalia 8(2): 235. 1979 (art. 45) (27.8.2)
- Asplenio cuneifolii-Saxifragetum gemmulosae* Rivas-Martínez, Izco & Costa in Trab. Dep. Bot. Fisiol. Veg. Madrid 6: 27. 1973 (art. 3b) (27.18.3)
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F. AUTHORS OF SYNTAXON NAMES (J. Izco)

Introduction

Science is that intellectual activity the object of which is to understand nature -including the human species, human thought and human society- through experimentation and observation in accordance with systematic and objective criteria. This understanding must be ordered in such a way as to derive predictive models and laws from the diversity observed. In this sense, the ordering of biological diversity into typological models is eminently scientific. Biological taxonomy is that area of science which aims to order intellectual abstractions representing the typological diversity of flora, fauna and vegetation, thus permitting intelligible scientific communication.

A given taxonomic model is the result of criteria applied, and these in turn are the result of the prior objective knowledge of scientists, and the convergence of their opinions. For this reason taxonomic models have evolved over time, becoming increasingly objective and precise, as well as increasingly stable. The instrumental value of these models permits further scientific advances. In line with this Ayala (1996) states in reference to plants that "the need for systematic studies has never been greater than at present", for reasons ranging from their fundamental importance for evolutionary biology to "the aesthetic emotion and ethnic identity that they satisfy".

Nomenclature is the final step in the process of classification. The name is the label attached to a concept, simplifying its communication; not the object or the idea represented, but rather its representative. In this sense names are analogous to paper money, which has no intrinsic value but simply represents a promise to pay. For this reason taxonomic names are accompanied by the name of their originator and the year of publication, so that at any time the precise meaning of the concept can be confirmed.

In the biological sciences (Botany, Zoology, Microbiology), nomenclature is governed by field-specific codes which derive from analogous principles and which resolve existing problems in similar ways. This convergence has recently materialized in the Bio-code project promoted by the International Union of Biological Sciences, whose aim is to provide orientation about various issues relating to biological nomenclature. As the youngest of the biological sciences, Phytosociology has been the last to develop a code of nomenclature, the International Code of Phytosociological Nomenclature (ICPN), the first version of which was published 25 years ago, the latest in the year 2000 (Weber et al., 2000). This third version states (Definition 12) that: "The term author citation refers in this Code to the representation of the name of the author(s) that validly published or validated the syntaxon name, followed by the year of the valid publication or validation". Article 46 justifies this approach: "In order to ensure that the indication of the name of a syntaxon is exact and complete, the name of the author (names of authors) who first validly published or validated this name together with the year of valid publication or validation must be quoted".

The number of authors in a field is of course roughly proportional to the number of entities described. In the nomenclature of plants and fungi, Brummitt & Powell (1992) have counted almost 30,000 authors over 250 years of botanical nomenclature. This number greatly exceeds the number of syntaxon authors, as expected for a nomenclatural system which is much younger and which groups species into syntaxa representing a higher level of ecological organization. Even so, problems arise in the transcription and identification of syntaxon authors. Izco (1997) has previously detailed the conflicts arising from author names with the same spelling, and has suggested several approaches to solve these problems. In a more recent publication, the same author (Izco, 2000) summarized with examples the diversity of author names for a single taxon (Izco, 2000). Now, for the first time, the current ICPN includes a recommendation (Recommendation 46B) on possible conflicts between author names and their resolution; however, this recommendation does not solve all possible conflicts. Before this problem becomes too serious, it is of interest to attempt to solve existing conflicts, to develop procedures for the standardization of names, and to promote the creation of an "author bank". The sooner the better! In this connection, the present publication aims to deal with problems relating to author citation, and to propose guidelines for the standardization of author names that already appear in the phytosociological literature.

The standardization of syntaxon author names proposed here is based in the criteria of Brummitt & Powell (op. cit.), which were in turn based in analogous previous studies from different fields (vascular plants, fungi, ferns, bryophytes, etc.) and on the conclusions of various informal working groups.

Normalization of author and syntaxon names

The normalization of names in phytosociology follows the same general rule as in other sciences: the use of the author's first surname or abbreviation thereof, with or without initials. However, this approach is not universally applicable, above all for authors (living or dead) who are already known by other forms. In such cases it may be considered justifiable to use the existing form (e.g. the author's two surnames, initials of first names, etc.). Nevertheless, there is clearly a need for normalization of these basic principles, with absolute values and flexible criteria of application.

Principles.

The normalization is based in a number of absolute basic principles:

1. The Principle of Universality. Normalization affects all author names for syntaxa regulated by the current ICPN (Weber et al., 2000). This implies any syntaxon name, as defined in the ICPN (Definition 1), of any of the principal ranks (association, alliance, order, class) or auxiliary ranks (subassociation, suballiance, suborder, subclass) (Definition 2), that is both effectively published (Definition 3) and validly published (Definition 4).

The authors of invalid names incorporated into valid names by the mechanisms established in the ICPN should likewise be normalized.

2. The Principle of Alphabet Uniformity. All names should be written in the Latin alphabet, and normalized accordingly. This is not an argument against the use of accents, which do not exist in Latin but which should be maintained in accordance with use in the language of origin (most importantly Finno-Ugric and Slavonic languages).

3. Principle of Univocality. Each author name should correspond univocally to one person, and vice-versa. Some authors may use a normalized form of their name in other fields, but this should not affect their name in Phytosociology, where it may have to compete with other names, and where usage may have consecrated other forms of citation. For example, Brummitt & Powell (op. cit.) propose Rivas Mart. as a normalized form for Salvador Rivas Martínez in taxonomy; however, the form Rivas-Martínez must be retained in Phytosociology, in view of its widespread use.

4. Principle of Homonymy. Homonyms are names with identical orthography (not taking into account accents or phonetic transcriptions) that must therefore be normalized to different forms so as to avoid error. Full and abbreviated forms that differ by only the full stop of the abbreviation are also considered homonyms.

Criteria.

1. Stability. Here, as with codes of nomenclature, the aim is to regulate in favour of stability and common use. It is neither possible nor desirable to fix absolute criteria, nor to apply such criteria retrospectively. Experience demonstrates that there will always be cases that were not considered when the criteria were initially fixed; furthermore, changing the name of an author will often simply lead to confusion.

2. Simplicity. A normalized name should be formed by the author's surname or its abbreviation, accompanied if necessary by his/her initial/s. Contractions should not be used. Some surnames are double, comprised of two terms, and in some countries two surnames (Spain, Portugal and other Spanish- and Portuguese-speaking countries) are traditionally used. This may give rise to confusion if one or other or both names are used inconsistently. There is no universal formula for normalization in such cases, but here we propose the use of the first surname, except in cases in which the author him/herself prefers the second surname or both surnames, and/or in which the use of the first surname would conflict with common use, and/or in which the use of the first surname is only insufficiently discriminant with respect to other names.

3. Grammatical particles, apocopes and other elements. In some languages, surnames often contain grammatical particles, apocopes, articles, prepositions and other such elements. The citation of such names varies very widely. Typically these elements precede the proper name, so it is reasonable that this is how they should appear in the citation. The use of upper and lower face varies widely, and the only sensible solution appears to be adherence to custom, despite the difficulties that this may cause.

4. Breakage of homonymy. In cases of homonymy of the first surname, initials must be used for disambiguation. A single initial should be sufficient if this breaks the homonymy, unless one of the authors in question has a composite name and habitually signs with both names or various initials, in which case the initials should be used. In recent years, it has become common for Spanish authors to use a hyphen between the two surnames, to break homonymy of the first surname. In these cases initials should be used, even if this means a slight name change with respect to previous publications.

In cases in which it is necessary to break homonymy, the simplest form should be used for the author more frequently cited, and the most complex form for the author less frequently cited.

5. Abbreviations and contractions. Abbreviations are much more commonly used for first names than for surnames. Most commonly, first names are reduced to the first letter, in upper face, followed by a full stop. The first surname should never be abbreviated, except if it is a hyphenated composite. When the second surname is necessary to break homonymy, it should be abbreviated if it is too long. Abbreviations should contain at least one syllable, and should terminate in a consonant. Contractions are likewise infrequent, although Braun-Blanquet has conventionally been written Br.-Bl., which must be maintained as common usage. The contraction of new names is not recommended, and is not included in the standardization presented in Annex I.

Data bank of the Authors of syntaxon names

Registration form

(A) Given name:

(B) Surname (1):

(C) Usual form of the author in Syntaxonomy:

(D) Place of birth: country (2) (toponyms at birth) / country (2) (present toponyms if different from previous), locality (toponyms at birth) / locality (present toponyms if different from previous):

(E) Date of birth (day/month/year, 00/00/0000):

(F) Deceased authors, date of death (day/month/year, 00/00/0000):

(G) Title of Ph.D. (doctorate) (Original language):

(H) Title of Ph.D. (doctorate) (English language):

(I) Date of Ph.D. (doctorate) (day/month/year, 00/00/0000):

(J) Director of Ph.D. (doctorate):

(K) University, locality (toponyms at date of title) / locality (present toponyms if different from previous), country (2) (toponyms at date of title) / country (2) (present toponyms if different from previous):

(L) Phytosociological field (3): Cormo. __, Bryo. __, Myc. __, Lich. __, Macrophyt. __, Microphyt. __.

(M) Area (3): Europe __, Asia __, North America __, South America __, Africa __, Australia __, Polynesia __.

Remarks:

If you have a second doctorate, please complete an additional form with the data for that doctorate.

- (1) In cases in which you have previously used one or more different names (for reasons of marriage, religion, etc.), please indicate the previous names in Remarks.
- (2) As internationally recognized.
- (3) Principally: XX; Occasionally: X.

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LIST OF AUTHORS OF SYNTAXON NAMES

<i>Standard form of the name</i>	<i>Surname and given name (date of birth and death)</i>
Acebes	Acebes Ginovés, Juan Ramón (1950-)
Adriani	Adriani, M.J.
Aedo	Aedo Pérez, Carlos (1960-)
Aeschimann	Aeschimann, David (1956-)
Aguiar	Aguiar, Carlos Francisco Gonçalves (1963-)
Aguilella	Aguilella Palasí, Antoni (1956-)
Aichinger	Aichinger, E.
Aizpuru	Aizpuru Oiarbide, Iñaki (1956-)
Albrecht	Albrecht, J.
Alcaraz	Alcaraz Ariza, Francisco (1958-)
Algarra	Algarra Avila, José Antonio (1974-)
Allier	Allier, Claude (1939-)
Allorge	Allorge, Pierre (1891-1944)
Almeida	Almeida, Ana Maria Santiago Ferreira de (1950-)
J. Alonso	Alonso Felpete, José Ignacio (1973-)
M.T. Alonso	Alonso, M.T.
J.R. Alonso	Alonso Fernández, J. Ramón (1952-)
R. Alonso	Alonso Redondo, Raquel (1970-)
M.A. Alonso	Alonso Vargas, María Ángeles (1970-)
Alvarado	Alvarado Guerri, Juan José (1964-)
Arbesú	Alvarez Arbesú, Ramón Luis (1964-)
R. Alvarez	Alvarez Díaz, Ramón (1927-1994)
J. Alvarez	Alvarez Rogel, José (1965-)
H. Alves	Alves, Henrique Nepomuceno (1968-)
Alves	Alves, Paulo Mendes (1975-)
Amich	Amich García, Francisco (1953-)
Amigo	Amigo Vázquez, Francisco Javier (1956-)
Amils	Amils Pibermat, Ricardo (1947-)
Amor	Amor Morales, Ángel (1959-)
Andrade	Andrade Olalla, Antonia
Andrés	Andrés Rodríguez, Jaime (1935-1997)
Antunes	Antunes, Joao Henrique Satyro de Castro (1947-)
Archiloque	Archiloque, Alain (1939-)
Arènes	Arènes, Jean (1898-1960)
Arnaiz	Arnaiz Ronda, Carlos (1948-)
Arnold	Arnold Apostolides, Nelly
Arsenio	Arsenio, Pedro Ramos dos Santos (1971-)
Asensi	Asensi Marfil, Alfredo (1949-)
Aubert	Aubert, Guy (1934-)
Aune	Aune, Egil Ingvar (1945-)
Avanzini	Avanzini, Aldo (1949-1992)
G. Azcárate	See Giménez de Azcárate Cornide, Joaquín

Balátová	Balátová-Tulácková, Emilie
Ballester	Ballester, P.
Ballesteros	Ballesteros i Segarra, Enric
Bannes	Bannes-Puygiron, G. de
Barbero	Barbero, Marcel (1940-)
Barkman	Barkman, Jan Johannes (1922-1990)
Barquín	Barquín Diez, Eduardo (1943-)
Barreno	Barreno Rodríguez, Eva (1950-)
Barrera	Barrera Martínez, Ildefonso (1951-)
Barreto	Barreto Caldas, Francisco (1943-)
Bartolomé	Bartolomé Esteban, Carmen (1958-)
Báscones	Báscones Carretero, Juan Carlos (1949-)
Baudière	Baudière, André (1932-)
Baulies	Baulies Bochaca, Xavier
Beeftink	Beeftink, W.G.
Beger	Beger, Herber K.E. (1899-1955)
Béguin	Béguin, Claude (1939-)
Béguinot	Béguinot, Auguste (1875-1940)
Bellot	Bellot Rodríguez, Francisco (1911-1983)
Belmonte	Belmonte López, María Dolores (1954-)
Belsher	Belsher, Thomas (1943-)
Benabid	Benabid, Abdalmalek
Benito	Benito Alonso, José Luis (1967-)
Bennema	Bennema, J.
Berastegi	Berastegi Garziandia, Asun (1970-)
Bharucha	Bharucha, Faridunji Rustomji (1904-)
Bibiloni	Bibiloni, G.
Biondi	Biondi, Edoardo (1944-)
Biurrun	Biurrun Galarraga, Idoia (1966-)
Böcher	Böcher, Tyge Wittrock (1909-1983)
Böckelmann	Böckelmann, Werner
Boira	Boira Tortajada, Herminio (1943-)
O. Bolòs	Bolòs i Capdevila, Oriol de (1924-)
A. Bolòs	Bolòs i Vayreda, Antoni de (1889-1975)
Bonin	Bonin, Gilles (1938-)
Borel	Borel, Louis (1935-)
Børgesen	Børgesen, Frederik Christian Emil (1866-1954)
Borhidi	Borhidi, Attila (1932-)
Borja	Borja Carbonell, José (1902-1993)
Böttcher	Böttcher, Hans (1935-)
Boucher	Boucher, Christian (1949-)
C.F. Boudouresque	Boudouresque, Charles-François (1941-)
G. Braun-Blanquet	Braun-Blanquet, Gabrielle
Br.-Bl.	Braun-Blanquet, Josias (1884-1980)
Bresset	Bresset, Vivette (1938-)
Brinkmeier	Brinkmeier, R.
Brullo	Brullo, Salvatore (1947-)
Brun-Hool	Brun-Hool, J.

Bueno.....	Bueno Sánchez, Miguel Álvaro (1962-)
Büker.....	Büker, R.
Burgaz.....	Burgaz Moreno, Ana Rosa (1952-)
Burollet.....	Burollet, Pierre André (1889- ?)
Cabello.....	Cabello Piñar, Francisco Javier (1965-)
Cabezudo.....	Cabezudo Artero, Baltasar (1946-)
Camarasa.....	Camarasa i Castillo, Josep Maria
Camuñas.....	Camuñas Mohinelo, Elena (1969-)
Canalís.....	Canalís i Hernández, Víctor
Cano.....	Cano Carmona, Eusebio (1952-)
Cantó.....	Cantó Ramos, Paloma (1956-)
Capelo.....	Capelo, Jorge Henrique Gonçalves (1965-)
Caraça.....	Caraça, Rute
Cardona.....	Cardona i Florit, Maria dels Àngels (1940-1992)
Carqué.....	Carqué Álamo, Eduardo (1963-)
Carrasco.....	Carrasco Salazar, María Andrea (1944-)
Carreras.....	Carreras i Raurell, Jordi
Carretero.....	Carretero Cervero, José Luis (1941-)
Carrillo.....	Carrillo i Ortuño, Empar (1954-)
Casanovas.....	Casanovas i Poch, Laia
Casares.....	Casares Porcel, Manuel (1956-)
Casas.....	Casas i Arcarons, Carme
F. Casas.....	See Fernández Casas, Francisco Javier
Casaseca.....	Casaseca Mena, Bartolomé (1920-1998)
Rego.....	Castro Rego, Francisco (1955-)
Castroviejo.....	Castroviejo Bolibar, Santiago (1946-)
Catalán.....	Catalán Rodríguez, Pilar (1958-)
Ceballos.....	Ceballos y Fernández de Córdoba, Luis (1896-1967)
Charrier.....	Charrier, Joseph (1879-1963)
Chirilà.....	Chirilà, C.
Chouard.....	Chouard, Pierre (1903-1983)
Christiansen.....	Christiansen, Willi (1885-1966)
Chytrý.....	Chytrý, Milan (1967-)
Cirujano.....	Cirujano Bracamonte, Santos (1950-)
Collado.....	Collado Prieto, Miguel Ángel (1953-)
Comps.....	Comps, Bernard (1936-)
Conard.....	Conard, Henry Shoemaker (1874-1971)
Conesa.....	Conesa i Mor, Josep Antoni
Corillion.....	Corillion Robert, J. (1908-)
Cortés.....	Cortés, John E.
J.C. Costa.....	Costa, José Carlos Augusta da (1955-)
Costa.....	Costa Talens, Manuel (1938-)
Costa Ten.....	Costa Tenorio, Margarita (1951-)
A. Crespo.....	Crespo de las Casas, Ana (1948-)
M.B. Crespo.....	Crespo Villalba, Manuel Benito (1962-)
Cruz.....	Cruz Rot, Marcelino de la
Cuatrecasas.....	Cuatrecasas i Arumí, Josep (1903-1996)
Cuenca.....	Cuenca, J. (1960-)

Curcó	Curcó i Masip, Antoni
Dahl	Dahl, Eilif (1916-1993)
Dalda	Dalda González, Jenaro (1918-1999)
Dambaska	Dambaska, I.
Dana	Dana Sánchez, Elías
Darimont	Darimont, Fredy
Darquistade	Darquistade Fadrique, Ainhoa (1971-)
De Foucault	De Foucault, Bruno (1951-)
De la Torre	De la Torre García, Antonio (1962-)
De Paz	De Paz Canuria, Elena (1956-)
Deil	Deil, Ulrich (1948-)
Del Arco	Del Arco Aguilar, Marcelino José (1953-)
Del Rfo	Del Rfo González, Sara (1973-)
Del Risco	Del Risco, Enrique (1939-)
Delelis	Delelis-Dusollier, Annick (1942-)
Delgado	Delgado Iniesta, María José (1968-)
Den Hartog	Den Hartog, Cornelius (1931-)
Días	Días, Eduardo (1958-)
T.E. Díaz	Díaz González, Tomás Emilio (1949-)
Diemont	Diemont, W.H.
Dierschke	Dierschke, Hartmut (1937-)
Dierßen	Dierßen, Klaus (1948-)
Díez Garretas	Díez Garretas, Blanca (1950-)
Dijk	Dijk, J.W.
Doing	Doing, Henk
Drouineau	Drouineau
Dupont	Dupont, Pierre (1925-)
Durand	Durand, G.
Duvigneaud	Duvigneaud, Jacques (1920-)
Eggler	Eggler, J.
El Antri	El Antri, Mohammed
Elena	Elena Roselló, Juana Ana (1949-)
Eliáš	Eliáš, Pavol (1949-)
Ellenberg	Ellenberg, Heinz (1913-1997)
Ellmauer	Ellmauer, Thomas
Emberger	Emberger, Louis (1897-1969)
Ernst	Ernst, Wallace (1928-1971)
Escudero	Escudero Alcántara, Adrián (1965-)
Espinosa	Espinosa Fernández, Presentación (1943-)
Espírito-Santo	Espírito-Santo, María Dalila Paula do (1951-)
Esteso	Esteso Esteso, Francisco
Esteve	Esteve Chueca, Fernando (1919-1988)
Esteves	Esteves, A.
Fabijanac	Fabijanac
Fanlo	Fanlo, M. Rosario (1947-)
Farràs	Farràs i de Blas, Antoni (1949-1990)
Farris	Farris
Feldmann	Feldmann, Jean (1905-1978)

J.V. Fernández	Fernández, J.V.
P. Fernández	Fernández Areces, María Pilar
M.I. Fernández	Fernández Arias, María Isabel
M.A. Fernández	Fernández Casado, María de los Ángeles (1952-)
F. Casas	Fernández Casas, Francisco Javier (1945-)
S. Fernández	Fernández Fábregas, Salvador
Galiano	Fernández Galiano Fernández, Emilio (1923-)
Gallardo	Gallardo San Salvador, José Angel (1962-)
M. Fernández	Fernández Galván, Manuel (1947-)
D. Fernández	Fernández González, Delia (1958-)
Fernández-González	Fernández González, Federico (1956-)
M.C. Fernández	Fernández Ordóñez, María del Carmen (1949-)
J. Fernández	Fernández Palacio, José Vicente (1958-)
F. Prieto	Fernández Prieto, José Antonio (1950-)
A. Fernández	Fernández Rodríguez, Ana (1974-)
Fernández-Carv.	Fernández-Carvajal Álvarez, María del Carmen (1951-)
Ferre	Ferre, E. (1944-)
Figuerola	Figuerola Lamata, Ramón (1953-)
Fijalkowski	Fijalkowski, Dominik (1922-)
Filigheddu	Filigheddu
Focquet	Focquet, P.
Folch	Folch i Guillén, Ramon (1946-)
X. Font	Font i Castell, Xavier (1958-)
Font Quer	Font i Quer, Pius (1888-1964)
Fontes	Fontes, Fernando Carvalho (1915-)
Fontinha	Fontinha, Susana (1965-)
Franquesa	Franquesa i Codinach, Teresa
Freitag	Freitag, Helmut E. (1932-)
Frey	Frey, E.
Fuente	de la Fuente García, Vicenta (1950-)
Fuertes	Fuertes Lasala, Esther (1941-)
Fujiwara	Fujiwara, Kazue (1944-)
F. Fukarek	Fukarek, F.
P. Fukarek	Fukarek, Paule (1912-1983)
Funk	Funk, Georg
Furnari	Furnari, Francesco (1933-)
Gajewski	Gajewski, Waclaw (1911-)
Galán	Galán de Mera, Antonio (1961-)
Galiano	See Fernández Galiano Fernández, Emilio
Gallardo	Gallardo
Gallego	Gallego Martín, Francisca (1947-)
Gamisans	Gamisans, Jacques (1944-)
Gams	Gams, Helmut (1893-1976)
M. García	García Antón, M.
R. García	García Cachán, Rosa (1960-)
J. García	García Casanova, José (1954-)
A. García	García Fuentes, Antonio (1968-)
García Gallo	García Gallo, Antonio (1956-)

M.E. García	García González, Marta Eva (1959-)
García Mijangos	García Mijangos, Itziar (1959-)
D. García	García San León, David (1971-)
P. García	García Murillo, Pablo (1962-)
A.R. García	García Rodríguez, Antonio (1961-)
G. Sancho	García Sancho, Leopoldo (1956-)
García-Baq.	García-Baquero Moneo, Gonzalo (1971-)
Garre	Garre Belmonte, Manuel (1960-)
Gavilán	Gavilán García, Rosario Gloria (1963-)
Géhu	Géhu, Jean Marie (1930-)
Géhu-Franck	Géhu-Franck, Jeanette (1923-)
J. Gil	Gil, J.
L. Gil	Gil Vives, Lorenzo (1966-)
M.C. Gil	Gil Rodríguez, María Candelaria (1951-)
Y. Gil	Gil, Yolanda (1968-)
Gillner	Gillner, V.
G. Azcárate	Giménez de Azcárate Cornide, Joaquín (1962-)
M.A. Giménez	Giménez Giménez, María Ángeles
E. Giménez	Giménez Luque, Esther (1971-)
Gödde	Gödde, M.
Gomes	Gomes, Carlos José Pinto (1957-)
Gómez Mercado	Gómez Mercado, Francisco (1963-)
F.J. González	González, F.J.
J.L. González	González, José Luis
M.A. González	González Zapatero, María Ángeles (1948-)
González-Albo	González-Albo Campillo, José (1913-1938)
Görs	Görs, Sabine
Grabherr	Grabherr, Georg (1946-)
Grabner	Grabner, Georg
Gràcia	Gràcia i Passola, Esperança (1942-)
Gruber	Gruber, Michel (1943-)
Guàrdia	Guàrdia i Rúbies, Roser (1961-)
Guerlesquin	Guerlesquin, Micheline Y. (1928-)
Guerra	Guerra Montes, Juan (1952-)
Guijarro	Guijarro, J.A.
Guinea	Guinea López, Emilio (1907-1985)
Guinochet	Guinochet, Marcel (1909-1997)
J. Guitián	Guitián Rivera, Javier (1956-)
P. Guitián	Guitián Rivera, Pablo (1960-)
A. Gutiérrez	Gutiérrez Balbás, Antonio (1962-)
I. Gutiérrez	Gutiérrez Villarías, María Isabel (1951-)
Gutte	Gutte, Peter (1939-)
Hadac	Hadac, Emil Franziskov Lazne (1914-)
Harmsen	Harmsen, G.W.
Haug	Haug, H.
Heinemann	Heinemann, P.
Hejny	Hejny, Slamovil (1924-)
den Held	den Held, Adriana Johanna (Hanneke) (1944-)

Hendoux	Hendoux, Frédéric
Hernández	Hernández Cardona, Ángel M. (1948-)
Herrera	Herrera Gallastegui, Mercedes (1959-)
L. Herrero	Herrero Cembranos, Luis (1956-)
A. Herrero	Herrero, Alberto
Heywood	Heywood, Vernon H. (1927-)
Hild	Hild, H.J.
Hinterlang	Hinterlang, Dirk
Hocquette	Hocquette, Maurice (1902-1984)
Hofmeister	Hofmeister, Heinrich
Holub	Holub, Josef Ludwig (1930-1999)
Homet	Homet García-Cernuda, Juan María (1954-)
Hommel	Hommel, P.W.F.M.
Honrado	Honrado, João José Pradinho (1974-)
Horvat	Horvat, Ivo (1897-1963)
Horvatic	Horvatic, Stjepan (Stephan) (1899-1975)
Hueck	Hueck, Kurt (1897-1965)
Hülbusch	Hülbusch, K.-H.
Hüppe	Hüppe, Joachim (1953-)
Iglesias	Iglesias Louzán, Ramiro (1953-)
Inocencio	Inocencio Pretel, Cristina (1968-)
Issler	Issler, E.
Iversen	Iversen, J.
Izco	Izco Sevillano, Jesús (1940-)
Jakucs	Jakucks, P.
Jalut	Jalut, Guy
Jansen	Jansen, P.
J. Jansen	Jansen, Jan
Jardim	Jardim, Roberto (1969-)
Jeník	Jeník, Jan (1929-)
Jenny	Jenny-Lips, H.
Jouanne	Jouanne, P. (1900-1926)
Jovet	Jovet, Paul (1896-1991)
Juan	Juan Gallardo, Ana Isabel (1971-)
Julve	Julve, Philippe (1954-)
Jurko	Jurko, A.
Kaiser	Kaiser, E.
Karner	Karner, P.
Karpov	Karpov, D.N.
M. Kästner	Kästner, M.
A. Kästner	Kästner, A. (1936-)
Kelhofer	Kelhofer, Ernst (1877-1917)
Klauck	Klauck, E.-J.
Klein	Klein, Jean Claude (1937-)
Klika	Klika, Jaromír (1888-1957)
Klötzli	Klötzli, Frank
Knapp	Knapp, Rüdiger (1917-)
Koch	Koch, Walo (1896-1956)

A. Köhler	Köhler, A.
U. Köhler	Köhler, Udo (1911-1983)
Kopecký	Kopecký, K.
Krajina	Krajina, Vladimír Joseph (1905-)
Krausch	Krausch, Heinz-Dieter (1928-)
Krause	Krause, Werner
Kruseman	Kruseman, G. Jr.
Kuhn	Kuhn, K.
Kühnholtz	Kühnholtz-Lordat, M.
Küpfer	Küpfer, Philippe (1942-)
Ladero	Ladero Álvarez, Miguel (1939-)
Lambinon	Lambinon, Jacques (1936-)
Lang	Lang, G.
B. Lanjouw	Lanjouw, B.
Lanjouw	Lanjouw, Joseph (1902-1984)
Laorga	Laorga Sánchez, Susana (1957-)
Lapraz	Lapraz, Guy (1918-)
Lastra	Lastra Menéndez, Juan José (1954-)
Lavagne	Lavagne, André (1932-)
Lazare	Lazare, Jean-Jacques (1949-)
Lázaro	Lázaro Suau, Roberto (1952-)
Lebrun	Lebrun, Jean-Pierre (1932-)
Leite	Leite, Alexandra Maria
Lemée	Lemée, Georges (1908-1996)
Lems	Lems, Kornelius (1931-1968)
Lence	Lence Paz, María del Carmen (1969-)
León	León Arencibia, María Catalina (1951-)
Lepš	Lepš, Jan
Letouzey	Letouzey-Dulau, Josette (1940-)
Libbert	Libbert, W.
Limbourg	Limbourg, P.
Liou	Liou, Tchen-Ngo
Lippert	Lipper, Wolfgang (1937-)
Litardière	Litardière, René Verriet de (1888-1957)
Llamas	Llamas García, Félix (1952-)
Llop	Llop
Llorens	Llorens García, Leonardo (1946-)
Lobo	Lobo Urrutia, Luis (1967-)
Lohmeyer	Lohmeyer, W.
Loidi	Loidi Arregui, Javier (1953-)
Loisel	Loisel, Roger (1938-)
Lopes	Lopes, Maria do Carmo (1954-)
M.L. López	López Fernández, María Luisa (1940-)
G. López	López González, Ginés (1950-)
M. López	López Guadalupe, Manuel (1933-)
J. López	López Nieto, Juan Manuel (1965-)
M.J. López	López Pacheco, María José (1950-)
J.A. López	López Sáez, José Antonio (1966-)

G.V. López	López Vélez, Gemma
Loriente	Loriente Escallada, Enrique (1931-2000)
Lorite	Lorite Moreno, Juan (1971-)
M. Losa	Losa España, Mariano (1893-1965)
J.M. Losa	Losa Quintana, José María (1930-)
Lousã	Lousã, Mario Fernandes (1940-)
Luceño	Luceño Garcés, Modesto (1955-)
Lucía	Lucía Sauquillo, Vicente (1951-)
Lüdi	Lüdi, W.
Lüpnitz	Lüpnitz, Dieter
Luquet	Luquet, Aimé
Maas	Maas, F.M.
Maire	Maire, René (1878-1949)
Malato-Beliz	Malato-Beliz, João Vicente Cordeiro (1920-1993)
Malcuit	Malcuit, G. (1882-1960)
Malmer	Malmer, N.
Mansanet	Mansanet Mansanet, José (1915-1990)
Marcenò	Marcenò, Cosimo (1939-)
A. Marcos	Marcos, A.
B. Marcos	Marcos Laso, Bernarda (1952-)
N. Marcos	Marcos Samaniego, Nieves
Marcot	Marcot-Coqueugniot, Jacqueline (1930-)
Margalef	Margalef López, Ramón (1919-)
Marín	Marín Calderón, Guadalupe (1945-)
Markus	Markus, Ch.
Marschall	Marschall, Fra
Martín	Martín Osorio, Victoria Eugenia (1957-)
M. Martínez	Martínez, M.
G. Martínez	Martínez García, Gonzalo (1936-)
Martínez-Parras	Martínez Parras, José María (1953-)
Marrero	Marrero Gómez, María del Carmen
Masalles	Masalles i Saumell, Ramon Maria (1948-)
Masclans	Masclans i Girvès, Francesc (1905-2000)
Mateo	Mateo Sanz, Gonzalo (1953-)
A. Matuszkiewicz	Matuszkiewicz, A.
W. Matuszkiewicz	Matuszkiewicz, Wladyslaw (1921-)
Mauric	Mauric, Alain (1961-)
Mayor	Mayor López, Matías (1938-)
Mayoral	Mayoral Arqué, Antoni
Medina	Medina Domingo, Leopoldo (1967-)
Meier	Meier, H.
Melendo	Melendo Luque, Manuel (1961-)
Mendiola	Mendiola Ubillos, María Ángeles (1953-)
Merker	Merker, H.
Mesquita	Mesquita, Sandra Cristina Paul Fernandes (1971-)
Milbradt	Milbradt, Joachim (1948-)
Minissale	Minissale, Pietro (1960-)
Mirkin	Mirkin, Boris M.

Miyawaki	Miyawaki, Akira (1928-)
Molero Brion	Molero Briones, Julián (1946-)
Molero	Molero Mesa, Joaquín (1952-)
R. Molina	Molina, Rafael
J.A. Molina	Molina Abril, José Antonio (1960-)
A. Molina	Molina Maruenda, Andrés (1956-1991)
Molinier	Molinier, René (1899-1975)
Monasterio	Monasterio Fernández, Agustín (1910-1975)
A. Monteiro	Monteiro, Ana (1956-)
H. Monteiro	Monteiro Neto, Honorio da Costa (1900-1978)
G. Montserrat	Montserrat Martí, Gabriel María (1956-)
J.M. Montserrat	Montserrat Martí, Josep María (1955-)
P. Montserrat	Montserrat Recoder, Pedro (1918-)
Moor	Moor, Max
Moore	Moore, J.J.
R. Morales	Morales Alonso, R.
C. Morales	Morales Torres, María Concepción (1944-)
Morán	Morán
Moravec	Moravec, Jaroslav (1929-)
G. Moreno	Moreno Horcajada, Gabriel (1951-)
J.M. Moreno	Moreno Rodríguez, José Manuel (1952-)
Morla	Morla Juaristi, Carlos (1950-)
Mossa	Mossa, Luigi (1938-)
Mota	Mota Poveda, Juan Francisco (1961-)
Mouga	Mouga, Teresa
Mucina	Mucina, Ladislav (1956-)
Müller	Müller, Theodor (1894-1969)
Muñoz	Muñoz Medina, José María (1895-1979)
Nava	Nava Fernández, Herminio Severiano (1956-)
F. Navarro	Navarro Andrés, Florentino (1947-)
C. Navarro	Navarro Aranda, Carmen (1949-)
F.B. Navarro	Navarro Reyes, Francisco Bruno (1973-)
G. Navarro	Navarro Sánchez, Gonzalo (1955-)
D. Navas	Navas Fernández, David (1966-)
P. Navas	Navas Fernández, Patricia (1965-)
Nègre	Nègre, Robert (1924-)
Negrillo	Negrillo Galindo, Ana María (1950-)
Neto	Neto, Carlos da Silva (1960-)
Neuhäusl	Neuhäusl, Robert
Neumann	Neumann
Nezadal	Nezadal, Werner (1945-)
Nieto	Nieto Caldera, José María (1955-)
J. Nieto	Nieto Carriondo, Juana
Nimis	Nimis, Pier Luigi (1953-)
Ninot	Ninot i Sugrañes, Josep Maria (1955-)
Noirfalise	Noirfalise, Albert
Nordhagen	Nordhagen, Rolf (1894-1979)
F.A. Novák	Novák, F.A. (1892-1964)

V. Novák	Novák, V.
Nowinski	Nowinski, M.
Oberdorfer	Oberdorfer, Erich (1905-)
Ohba	Ohba, Tatsuyuki (1936-)
Olano	Olano Mendoza, José Miguel (1966-)
Onaindia	Onaindia Olalde, Miren (1954-)
Orshan	Orshan, G.
Ortiz	Ortiz Núñez, Santiago (1957-)
Ortuño	Ortuño, Francisco
Osvald	Osvald, H.
Padrón	Padrón Padrón, Pedro Agustín (1962-)
Paes	Paes, Ana Paula (1961-)
Pajarón	Pajarón Sotomayor, Santiago (1954-)
Papió	Papió i Perdígó, Christian
Parriaud	Parriaud, Henri (1924-)
Pascual	Pascual, P.
Passarge	Passarge, Harro
Passchier	Passchier, H.
Pavillard	Pavillard, Jules (1868-1961)
Pawlowski	Pawlowski, Bogumil (1898-1971)
Peciar	Peciar, V.
Pedro	Pedro, Jose Gomes (1915-)
Peinado	Peinado Lorca, Manuel (1953-)
Penas	Penas Merino, Ángel (1948-)
Peñas	Peñas de Giles, Julio (1966-)
Peppler-Lisbach	Peppler-Lisbach
Peralta	Peralta de Andrés, Francisco Javier (1962-)
Perdígó	Perdígó Arisó, Maria Teresa (1925-)
Pérez-Badia	Pérez Badia, María Rosa (1961-)
F.J. Pérez	Pérez Carro, Francisco Javier
J.L. Pérez	Pérez Chiscano, José Luis (1930-)
Pérez de Paz	Pérez de Paz, Pedro Luis (1949-)
A.V. Pérez	Pérez Latorre, Andrés Vicente (1965-)
C. Pérez	Pérez Morales, Carmen (1952-)
Pérez-Raya	Pérez Raya, Francisco (1956-)
Peris	Peris Gisbert, Juan Bautista (1948-)
Pertíñez	Pertíñez Izquierdo, Concepción (1965-)
Petersen	Petersen
Philippi	Philippi, Georg (1936-)
Pietsch	Pietsch, Werner
Pignatti	Pignatti, Alessandro (1930-)
E. Pignatti	Pignatti, Erika (1929-) [Wikus Erica]
Pino	Pino i Vilalta, Joan (1967-)
P. Silva	See Silva, Antonio Rodrigo Pinto da
C. Pinto	Pinto Gomes, Carlos Jose (1957-)
Pizarro	Pizarro Domínguez, José (1956-)
Poli	Poli Marchese, Emilia (1936-)
Pop	Pop, I.

Porta	Porta Casanellas, Jaime (1945-)
Pott	Pott, Richard (1951-)
Prada	Prada Moral, María del Carmen (1953-)
Preising	Preising, Ernst (1911-)
F. Prieto	See Fernández Prieto, José Antonio
P. Prieto	Prieto, Pablo (1933-)
Puente	Puente García, Emilio (1957-)
Pujadas	Pujadas i Salvá, Antoni J. (1950-)
Pulgar	Pulgar Sañudo, Iñigo (1962-)
Quézel	Quézel, Pierre (1926-)
Rameau	Rameau, Jean-Claude (1943-)
Ramil	Ramil Rego, Pablo (1962-)
Rauschert	Rauschert, Stephan (1931-1986)
Rebholz	Rebholz, E.
Recasens	Recasens i Guinjuan, Jordi (1957-)
Redeker	Redeker, G.C.
Rego	See Francisco Castro, Rego
Rehnelt	Rehnelt, K.
Reyes	Reyes Betancort, Jorge Alfredo (1970-)
Richard	Richard, Jean-Louis (1921-)
Rigual	Rigual Magallón, Abelardo (1918-)
Rigueiro	Rigueiro Rodríguez, Antonio (1951-)
Ríos	Ríos Ruiz, Segundo (1961-)
Rioux	Rioux, Jean-Antoine (1923?-)
Rita	Rita Larrucea, Juan (1957-)
Rivas Goday	Rivas Goday, Salvador (1905-1981)
C. Rivas	Rivas Martínez, Constantino (1937-)
Rivas-Martínez	Rivas Martínez, Salvador (1935-)
Robledo	Robledo Miras, Antonio (1961-)
O. Rodríguez	Rodríguez Delgado, Octavio (1957-)
M. Rodríguez	Rodríguez Guitián, Manuel (1964-)
J. Rodríguez	Rodríguez Oubiña, Juan José (1954-)
J.C. Rodríguez	Rodríguez Piñero, José Cristobal (1953-)
A. Rodríguez	Rodríguez Rodríguez, Antonio (1952-)
P. Rodríguez	Rodríguez Rojo, María del Pilar (1972-)
L. Rodríguez	Rodríguez Tamayo, L.
Rodwell	Rodwell, John S.
Romero	Romero Buján, María Inmaculada (1956-)
Romo	Romo Díez, Angel María (1955-)
J. Roselló	Roselló Picornell, Josep Antoni (1961-)
R. Roselló	Roselló Gimeno, Roberto (1952-)
Rothmaler	Rothmaler, Werner (1908-1962)
Roussine	Roussine, Nathalie-A. (1889-1968) [born Desiatova-Sostenko]
G. Roux	Roux, George (1942-)
J. Roux	Roux, Jacques
Royer	Royer, Jean-Marie (1944-)
Rozeira	Rozeira, Arnaldo Deodata da Fonseca (1912-1984)
Rübel	Rübel, Eduard August (1876-1960)

Rubio.....	Rubio Sánchez, Agustín (1965-)
Ruiz	Ruiz Téllez, Trinidad
Sáenz	Sáenz Lafn, Concepción (1935-) [Sáenz de Rivas]
Sáinz	Sáinz Ollero, Helios (1950-)
Salas	Salas Pascual, Marcos (1965-)
Salazar	Salazar Mendías, Carlos (1969-)
F. Salegui	Fernández Salegui, Ana Belén (1971-)
Salvo	Salvo Tierra, Ángel Enrique (1957-)
M.E. Sánchez	Sánchez, María Eugenia
M.A. Sánchez	Sánchez Anta, María Ángeles (1946-)
J.M. Sánchez	Sánchez Fernández, José María (1965-)
I. Sánchez	Sánchez García, Íñigo
P. Sánchez	Sánchez Gómez, Pedro (1961-)
Sánchez-Mata	Sánchez Mata, Daniel [Pablo de la Cruz] (1959-)
N. Sánchez	Sánchez Pascual, N.
J.A. Sánchez	Sánchez Rodríguez, Juan Antonio (1951-)
Sans	Sans i Serra, Francesc Xavier (1959-)
M.T. Santos	Santos Bobillo, María Teresa (1941-)
F. Santos	Santos Francés, Fernando (1949-)
A. Santos	Santos Guerra, Arnoldo (1948-)
Sáinz	Sáinz Fábrega
Sardinero	Sardinero Roscales, Santiago (1962-)
Sauer	Sauer, F.
Scamoni	Scamoni, A.
Scelsi	Scelsi, Fabrizio (1961-)
Schaminée	Schaminée, Joop H.J. (1957-)
Scharfetter	Scharfetter, Rudolf (1860-1956)
Schipper	Schipper, P.C.
Schönfelder	Schönfelder, Peter
Schubert	Schubert, R.
Schwabe	Schwabe, Angelika (1950-) [Schwabe-Kratochwil]
Schwickerath	Schwickerath, Mathias Friederich (1892-1974)
Schwippel	Schwippel, I.
Sebastià	Sebastià i Álvarez, Maria Teresa
Segal	Segal, Ronald Henry (1940-)
Seibert	Seibert, Paul
Sell	Sell, Y.
Sequeira	Sequeira, Miguel Pinto da Silva Meneses de (1964-)
Serve	Serve, León (1941-)
Sesé	Sesé Franco, Jose Antonio (1965-)
P. Silva	Silva, Antonio Rodrigo Pinto da (1912-1992)
J. Silva	Silva Pando, Francisco Javier (1955-)
Silván	Silván Beraza, Francisco (1965-)
Sissingh	Sissingh, Gerard
Sjögren	Sjögren, Erik
Slavnic	Slavnic, Z.
O. Socorro	Socorro Abreu, Oswaldo (1949-)
S. Socorro	Socorro Hernández, Juan Sergio (1955-)

Sokolowski	Sokolowski, M.
Solanas	Solanas Ferrándiz, José Luis (1955-)
Soó	Soó von Bere, Károly Rezső (1903-1980)
P. Soriano	Soriano Guarinos, Pilar (1959-)
I. Soriano	Soriano i Tomàs, Ignasi (1957-)
Sougnez	Sougnez, Nicolas
Spampinato	Spampinato, Giovanni (1958-)
Spichiger	Spichiger, Rodolphe (1946-)
Stoffers	Stoffers, Anton Lambertus (1926-)
Stortelder	Stortelder, Anton F.H.
Stübing	Stübing Martínez, Gerardo (1957-)
Suárez	Suárez Rodríguez, Carlos (1957-)
Sukopp	Sukopp, Herbert (1930-)
Sunding	Sunding, Per (1938-)
Susplugas	Susplugas, Jean (1905-1987)
Suzuki	Suzuki Tokio, T. (1911-)
Taffetani	Taffetani, Fabio (1952-)
Tallon	Tallon, Gabriel (1890-1972)
Tamajón	Tamajón, R.
Tarazona	Tarazona Lafarga, María Teresa (1951-)
Tchou	Tchou, Yen-Tcheng
Tébar	Tébar Garau, Francisco Javier (1964-)
Teles	Teles, Antonio do Nascimento (1925-)
Terradas	Terradas i Serra, Jaume (1943-)
Terrón	Terrón Alfonso, Arsenio (1959-)
Theurillat	Theurillat, Jean-Paul (1952-)
Thimm	Thimm, I.
Timbal	Timbal, Jean (1943-)
Topa	Topa, E. (1900-)
J. Torres	Torres Cordero, Juan Antonio (1966-)
L. Torres	Torres Epuny, Lluís de
Touffet	Touffet, Jean
Trautmann	Trautmann, W.
Tregubov	Tregubov, V.
Trigo	Trigo, María del Mar (1958-)
Turmel	Turmel, Jean Marie (1920-)
J. Tüxen	Tüxen, Jes (1930-)
Tüxen	Tüxen, Reinhold (1899-1980)
Ubrizsy	Ubrizsy, G.
Ulman	Ulman, J.
E. Valdés	Valdés Bermejo, Enrique (1945-1999)
A. Valdés	Valdés Franzi, Arturo (1948-)
C. Valle	Valle Gutiérrez, Cipriano Jesús (1955-)
F. Valle	Valle Tendero, Francisco (1953-)
Van Langendonck	Van Langendonck, H.J.
Van Leeuwen	Van Leeuwen, C.G.
Vanden Berghen	Vanden Bergen, Constant (1914-)
Vargas	Vargas Gómez, Pablo (1965-)

Varo	Varo Alcalá, Juan (1943-)
T. Vasconcelos	Vasconcelos, Teresa (1949-)
Vázquez	Vázquez Fernández, Victor Manuel (1954-)
E. Velasco	Velasco i Batlle, Eulàlia
A. Velasco	Velasco Negueruela, Arturo (1946-)
Velayos	Velayos Rodríguez, Mauricio (1955-)
Vicedo	Vicedo Maestre, María Auxiliadora (1971-)
Vicente	Vicente Orellana, José Alfredo
Vicherek	Vicherek, J.
Vicioso	Vicioso Martínez, Carlos (1886-1968)
Vigo	Vigo i Bonada, Josep (1937-)
E. Pignatti	E. Vikus, Erika. See E. Pignatti
Villar	Villar Pérez, Luis (1946-)
Villegas	Villegas, N.
Vives	Vives i Codina, Josep (1931-1993)
C. Vlieger	Vlieger, J.
V. Vlieger	Vlieger, V.
Voggenreiter	Voggenreiter, Volker
Volk	Volk, O.H.
Vollmar	Vollmar, F.
Vollrath	Vollrath, H.
Von Rochow	Von Rochow, Margarita
Wagner	Wagner, H.
Walas	Walas, J.
Wallisch	Wallisch, K.
S. Wallnöfer	Wallnöfer, S.
Wangerin	Wangerin, Walther (1884-1938)
Wattez	Wattez, Jean-Roger (1937-)
Weber	Weber, Heinrich E. (1932-)
Weber-Old.	Weber-Oldecop, D.W.
Weeda	Weeda, E.J.
Westhoff	Westhoff, Viktor (1914-2001)
Wildpret	Wildpret de la Torre, Wolfredo (1933-)
Wraber	Wraber, M.
Zafra	Zafra Valverde, María Luisa (1942-)
Zaldívar	Zaldívar, Pilar (1959-)
Zeller	Zeller, W.
Zitti	Zitti, R.
Zobrist	Zobrist, L.
Zohary	Zohary, M.
Zoller	Zoller, Heinrich (1923-)
B. Zollitsch	Zollitsch, B.
Zólyomi	Zólyomi, B.