

New and validated high-rank syntaxa from Europe

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Abstract: Mucina, L., Dengler, J., Bergmeier, E., Čarni, A., Dimopoulos, P., Jahn, R. & Matevski, V. *New and validated high-rank syntaxa from Europe. Lazaroa 30: 267-276 (2009).*

In the course of the compilation of a checklist of the high-rank syntaxa of Europe, it turned out that for several syntaxa no valid and legitimate names were available. With this contribution, we aim to solve some of the problems by publishing or validating seven syntaxon names (1 order, 5 alliances, 1 association) and by proposing a *nomen novum* for one illegitimate alliance name. The validations concern the *Artemisio albi-Brometalia erecti* (*Festuco-Brometea*; xerophytic basiphilous grasslands in subatlantic-submediterranean Europe), *Dictamnno albi-Ferulagion galbaniferae* (*Antherico ramosi-Geranietaalia sanguinei*, *Trifolio-Geranietaea sanguinei*; xerophytic basiphilous forest-edge communities of the Balkans and the SE Alps), *Euphorbio taurinensis-Geranium lucidi* (*Geranio-Cardaminetalia hirsutae*, *Stellarietea mediae*; short-lived nitrophilous forest-edge communities of Macedonia), and *Gentianello amarellae-Helictotrichion pratensis* (*Brometalia erecti*, *Festuco-Brometea*; meso-xerophytic basiphilous grasslands of NW Europe). A new alliance, the *Alkanno baeoticae-Pinion halepensis* (*Quercetalia ilicis*, *Quercetea ilicis*; pine forests on ultramafic soils on the island of Euboea), is described to replace the *nomen dubium Alyssion euboei*. The *Alkanno baeoticae-Pinetum halepensis* is described as a new association to serve as the type of the *Alkanno-Pinion*. Finally, within the *Poterietalia spinosi* (*Cisto-Micromerietea julianae*), the *Helichryso barrelieri-Phagnalion graeci* (phrygana communities on non-calcareous substrates in the south Aegean region) is described as new to science, and the *nomen novum Hyperico olympici-Cistion cretici* (phrygana communities on non-calcareous substrates in northern Greece) is proposed to replace the illegitimate *Cistion orientale*.

Keywords: alliance, association, Balkan Peninsula, *Cisto-Micromerietea julianae*, Europe, *Festuco-Brometea*, nomenclature, order, Phytosociology, *Quercetea ilicis*, *Stellarietea mediae*, *Trifolio-Geranietaea sanguinei*, validation.

Resumen: Mucina, L., Dengler, J., Bergmeier, E., Čarni, A., Dimopoulos, P., Jahn, R. & Matevski, V. *Nuevos y validados sintaxones de mayor rango de Europa. Lazaroa 30: 267-276 (2009).*

Los trabajos que actualmente se están desarrollando para la publicación de una check-list de los sintaxones de mayor rango de Europa, nos han llevado a tratar de legitimizar aquellos sintaxones cuyo nombre no sea válido. Para ello, en esta contribución publicamos los nombres válidos de siete sintaxones, un orden, cinco alianzas y una asociación, y proponemos un *nomen novum* para una alianza ilegítima desde el punto de vista nomenclatural. Las validaciones conciernen a *Artemisio albi-Brometalia erecti* (*Festuco-Brometea*; pastos basófilos xerofíticos en la Europa subatlántica y submediterránea), *Dictamnno albi-Ferulagion galbaniferae* (*Antherico ramosi-Geranietaalia sanguinei*, *Trifolio-Geranietaea sanguinei*; comunidades de linderos de bosques basófilos y xerofíticos de los Balcanes y suroeste de los Alpes), *Euphorbio taurinensis-Geranium lucidi* (*Geranio-Cardaminetalia hirsutae*, *Stellarietea mediae*; comunidades terofíticas nitrófilas de linderos de bosque de Macedonia), y *Gentianello amarellae-Helictotrichion pratensis* (*Brometalia erecti*, *Festuco-Brometea*; pastos meso-xerofíticos basófilos del noroeste de Europa). Además se describe la nueva alianza *Alkanno baeoticae-Pinion halepensis* (*Quercetalia ilicis*, *Quercetea ilicis*; pinares sobre suelos ultramáficos en la isla de Euboea), para reemplazar el *nomen dubium Alyssion euboei*. *Alkanno baeoticae-Pinetum halepensis* es la nueva asociación tipo de dicha alianza. Finalmente, dentro del orden *Poterietalia spinosi* (*Cisto-Micromerietea julianae*), se

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describe la alianza *Helichryso barrelieri-Phagnalion graeci* (comunidades arbustivas sobre substratos no calcáreos del sur de la región Egea) y se propone el *nomen novum* *Hyperico olympici-Cistion cretici* (frigana sobre substratos no calcáreos del norte de Grecia) para reemplazar al ilegítimo *Cistion orientale*.

Palabras clave: alianza, asociación, Península Balcánica, *Cisto-Micromerietea julianae*, Europa, *Festuco-Brometea*, nomenclatura, orden, Fitosociología, *Quercetea ilicis*, *Stellarietea mediae*, *Trifolio-Geranietea sanguinei*, validación

INTRODUCCIÓN

In the course of compilation of a standard checklist for the high-rank syntaxa (alliances, orders, classes) of Europe (MUCINA & al., in preparation), it turned out that for several syntaxa no valid or legitimate names according to the International Code of Phytosociological Nomenclature (further ICPN; WEBER & al., 2000) were available. Some of these invalid names even are in general usage, probably because authors are not aware of the invalidity. This brief nomenclatural contribution attempts to rectify the situation by validating such names. Further, two new alliances resulting from the subdivision of existing alliances as well as a new association serving as type of one of these new alliances are published. Finally, the illegitimate name of one alliance is replaced by a *nomen novum*.

Altogether, seven new syntaxa and one new name are presented. They belong to the classes *Cisto-Micromerietea julianae*, *Festuco-Brometea*, *Quercetea ilicis*, *Stellarietea mediae*, and *Trifolio-Geranietea sanguinei*. Most of them occur on the Balkan Peninsula, but also one syntaxon of subatlantic-submediterranean Europe and one of northwestern Europe are included.

In the following, the syntaxa are treated in alphabetical order. The structure of the entries mostly follows the proposal of DENGLER & al. (2003). The presentations of the syntaxa are the responsibility of the authors named in the respective subheadings. When quoting them, cite “<author(s)> in Mucina & al. 2009”.

VALIDATIONS AND DESCRIPTIONS OF SYNTAXA

Alkanno baeoticae-Pinetum halepensis Mucina & Dimopoulos *ass. nova hoc loco*

Holotypus: relevé LM 6702; sampled by Ladislav Mucina; 21-06-1999; sampling scale: BARKMAN & al. (1964); Greece, island of Euboea (Evvia), Kroupi (Dim.

Kireos), S of village; 38° 42' 53.5" N; 23° 25' 56.71" E; altitude: 340 m a.s.l.; aspect 13°; slope: 10°; area: 15 m × 15 m; total cover (projection): 80%, E3 (tree layers): 40% (10–12 m; 6–10 m high), E2 (shrub layers): 60% (0.5–2 m; 2–5 m high); E1 (herb layer): 25% (60 cm average; 10–80 cm high); cover of ground litter (decaying pine needles): 90%; substrate: deep skeletal soil over ultramafic peridotite; plant identifications (revisions): *Galium*: F. Ehrendorfer (Vienna, Austria); *Convolvulus*, *Petrorhagia*, *Reichardia*: G. Bazos (Athens, Greece).

E3-beta (upper tree): *Pinus halepensis* 2b

E3-alpha (lower tree): *Pinus halepensis* 2b

E2-beta (upper shrub): *Pinus halepensis* 2a

E2-alpha (lower shrub): *Cotinus coggygria* 2b, *Arbutus unedo* 2a, *Cistus creticus* 2a, *Pinus halepensis* 2a, *Cistus salviifolius* 1, *Hypericum empetrifolium* 1, *Sarcopoterium spinosum* 1, *Phillyrea latifolia* +, *Pistacia terebinthus* +° (sapling), *Rubus sanctus* +, *Smilax aspera* +

E1: *Brachypodium sylvaticum* 2b, *Alkanna graeca* subsp. *baeotica* 2m, *Carlina graeca* 1, *Briza minor* +, *Calystegia* sp. +, *Convolvulus cantabrica* +, *Dactylis glomerata* subsp. *hispanica* +, *Galium heldreichii* +, *Hypochaeris achyrophorus* +, *Lathyrus aphaca* +, *Muscari* sp. +, *Petrorhagia armerioides* +, *Plantago lanceolata* +, *Prunella laciniata* +, *Reichardia picroides* +, *Scorzonera serpentina* +, *Viola* sp. +, *Crataegus azarolus* r° (seedling), *Quercus coccifera* r° (seedling).

Syntaxonomic position: *Quercetea ilicis* Br.-Bl. ex A. & O. Bolòs 1950; *Quercetalia ilicis* Br.-Bl. ex Molinier 1934; *Alkanno baeoticae-Pinetum halepensis* Mucina & Dimopoulos in Mucina & al. 2009

Incl.: *Erica verticillata-Pinus halepensis*-Ges. sensu Krause & al. 1963 [Art. 3c].

This association represents low-altitude dry pine woodlands on serpentines of the island of Euboea (Greece). It has been described from peridotites of this island as “*Erica verticillata-Pinus halepensis*-Ges.” by KRAUSE & al. (1963). Our association matches best the column 1 (Sp. 1) of table 5 on page 361 of KRAUSE &

al. (1963) despite *Erica manipuliflora* (called *E. verticillata* by KRAUSE & al., 1963) does not occur in our relevé above. However, we found this species as abundant (often dominating) in the shrub layer of pine forests in other localities sampled on Euboea (MUCINA & DIMOPOULOS, 2000a).

The description of this new association became necessary since the name *Erico manipuliflorae-Pinetum halepensis* (BRULLO & al., 1997) is considered a *nomen dubium* (for details of the argument, see MUCINA & DIMOPOULOS, 2000b) and thus could not be used as the type of the new alliance *Alkanno baeoticae-Pinion halepensis* (see below). The eponymous taxon *Alkanna graeca* Boiss. & Spruner in Boiss. subsp. *baeotica* (A. DC.) Nyman is distributed in the central eastern part of Greek mainland, Euboea, and in the mountains of the Peloponnese (Oligirtos, Taigetos, Parnonas) (TAN & IATROU, 2001).

Alkanno baeoticae-Pinion halepensis* Mucina & Dimopoulos *all. nova hoc loco

Holotypus: *Alkanno baeoticae-Pinetum halepensis* Mucina & Dimopoulos in Mucina & al. 2009 (for the description of the association, see above).

Diagnostic taxa: *Alkanna graeca* subsp. *baeotica*, *Alyssum euboicum*, *Centaurea mantoudi*, *Jurinea mollis* subsp. *anatolica*, *Onosma euboica*, *Quercus trojana* subsp. *euboica*, *Scorzonera serpentinica*.

Syntaxonomic position: *Quercetalia ilicis* Br.-Bl. ex A. & O. Bolòs 1950; *Quercetalia ilicis* Br.-Bl. ex Molinier 1934.

The description of this alliance is necessary for the nomenclatural reasons referred to above as well as for the fact that there was no appropriate high-rank syntaxon described earlier to accommodate the floristically and ecologically peculiar low-altitude dry pine woodlands on ultramafic substrates of the Aegean region.

The name *Alyssion euboiei* was suggested by BRULLO & al. (1997) as a new syntaxon to encompass the pine forests and associated scrubs on ultramafic peridotites (*Erico manipuliflorae-Pinetum halepensis*) as well as phrygana (*Stachyo-Alysssetum euboiei*) and therophyte-rich communities (*Malcolmio-Alysssetum densistellati*; *Thero-Brachypodietea*). The *Alyssion euboiei* has been rejected as a *nomen dubium* since the name of the next subordinate syntaxon supposed to typify the *Alyssion euboiei* is considered a *nomen dubium* according to Art. 38 ICPN. The circumstances of this

suggestion have been elaborated in detail in MUCINA & DIMOPOULOS (2000b).

The *Alkanno baeoticae-Pinion halepensis* is a new alliance comprising Aegean *Pinus halepensis* forests on serpentine (ultramafic) substrates. It is, according to our present knowledge, distributed on the Greek island of Euboea (Evia). However, we presume its occurrence also in the adjacent Greek mainland on appropriate geological substrates.

Artemisio albae-Brometalia erecti Ubaldi ex Dengler & Mucina ordo novo hoc loco

Validated name: *Artemisio albae-Brometalia erecti* (Biondi & al. 1995) Ubaldi 1997 (UBALDI, 1997: 246) [Art. 5].

Holotypus: *Xero-Bromion erecti* Zoller 1954 (ZOLLER, 1954: 38 et seq.).

Syntaxonomic position: *Festuco-Brometea* Br.-Bl. & Tx. ex Klika & Hadač 1944.

Synonyms: *Brometalia erecti* Koch 1926 nom. amb. propos. p.p. [typo excl.]; *Brometalia erecti* Br.-Bl. 1936 nom. amb. propos. p.p. [typo excl.; Art. 31]; *Xero-Brometalia* Doing 1963 p.p. [Art. 8]; *Brometalia erecti* Br.-Bl. 1936 nom. amb. propos. sensu Korneck 1974 [typo excl.]; *Xero-Brometalia erecti* Royer ex Dengler 1994 [Art. 8, 12(2)].

Incl.: *Xero-Brometalia* Royer 1991 [Art. 12], *Artemisio albae-Brometalia erecti* Biondi & al. 1995 [Art. 5].

Character taxa of the order (and of subordinate syntaxa): *Achillea virescens*, *Argyrolobium zanonii*, *Allium sphaerocephalon*, *Arabis collina*, *Asperula purpurea*, *Avenula praetutiana*, *Bromus hordeaceus* subsp. *feronii*, *Carduncellus mitissimus*, *Carex macrolepis*, *Carlina acanthifolia*, *Catananche caerulea*, *Centaurea ambigua*, *Chamaecytisus spinescens*, *Coronilla minima*, *Crupina vulgaris*, *Dianthus sylvestris*, *Dorycnium pentaphyllum*, *Erysimum pseudorhaeticum*, *Euphorbia myrsinites*, *Festuca circummediterranea*, *F. marginata*, *F. robustifolia*, *Fumana ericoides*, *Galium corrudifolium*, *G. lucidum*, *Globularia meridionalis*, *G. punctata*, *Helianthemum apenninum*, *H. canum*, *H. nummularium* subsp. *nummularium*, *Hippocrepis comosa*, *Inula spiraeifolia*, *Koeleria splendens*, *Linum tenuifolium*, *Muscari atlanticum*, *Ononis natrix* subsp. *natrix*, *O. pusilla*, *Orobancha teucrii*, *Petrorhagia saxifraga*, *Phleum ambiguum*, *Phyteuma orbiculare* subsp. *tenerum*, *Potentilla hirta*, *P. rigoana*, *Satureja montana*, *Seseli montanum*, *Sesleria nitida*, *Sideritis*

hyssopifolia subsp. *guillonii*, *S. italica*, *Silene italica*, *Teucrium montanum*, *Thesium divaricatum*, *Thymus striatus*, *Tortella nitida*, *Trinia dalechampii*.

Differential taxa of the order (against the other orders of the class): *Artemisia alba*, *Carex halleriana*, *Cladonia convoluta*, *Convolvulus cantabrica*, *Helichrysum italicum*, *Koeleria vallesiana*, *Potentilla tabernaemontani*, *Teucrium capitatum*.

The *Artemisia albae-Brometalia erecti* comprise the xerophytic basiphilous grasslands of Italy, France, southern England, Belgium, southwestern Germany, and northwestern Switzerland. According to the present knowledge, this order contains the alliances *Xero-Bromion* Zoller 1954 (Germany, Switzerland, Belgium, England and most of France), *Festuco-Bromion* Barbero & Loisel 1971 (Provence and Liguria), *Artemisia albae-Saturejion montanae* Allegrezza et al. 1997, *Phleo ambigu-Bromion erecti* Biondi et al. 1995, and probably also *Alysson bertolonii* E. Pignatti & Pignatti 1977 and *Cytiso-Bromion caprini* Bonin in Barbero & Bonin 1969 (the last four on the Apennine Peninsula).

Traditionally, the *Festuco-Brometea* have been subdivided into geographically vicariant orders, mainly the suboceanic *Brometalia erecti* W. Koch 1926 and the subcontinental *Festucetalia valesiaca* Br.-Bl. & Tx. ex Br.-Bl. 1950, each of them comprising both xerophytic and meso-xerophytic alliances (e.g. ROYER, 1991; POTT, 1995; THEURILLAT & al., 1995; BARDAT & al., 2004; BIONDI & al., 2005). More recently, it appeared that the meso-xerophytic alliances of both orders are floristically rather similar so that it does not seem reasonable to arrange them in two different orders. Thus, many recent overviews agree in joining the meso-xerophytic alliances of the *Festuco-Brometea* throughout Europe in one order *Brometalia erecti* W. Koch 1926 nom. amb. propos. (*Brachypodietalia pinnati* Korneck 1974) (e.g. KORNECK, 1974, MUCINA & KOLBEK, 1993; DENGLER 1994, 2004a; RODWELL & al., 2002; DENGLER & al., 2003). While the meso-xerophytic basiphilous grasslands show a more or less continuous distribution through large parts of Europe, the xerophytic types occur in several widely isolated regions, where they have a clearly distinct floristic composition. Thus, it makes sense to keep them in several xerophytic orders, among others the *Festucetalia valesiaca* s.str. (subcontinental and continental steppes) and the *Stipo pulcherrimae-Festucetalia pallentis* Pop 1968 (prae-alpine-circumpannonian xerophytic grasslands on rock outcrops).

However, no order was available to encompass the

xerophytic part of the former *Brometalia erecti* s.l., i.e. the xerophytic alliances occurring in the subatlantic-submediterranean part of the class range. Three previous attempts to establish an order with such content (KORNECK, 1974; DENGLER, 1994; UBALDI, 1997) resulted in invalid or non-applicable names only (see list of synonyms above). Similarly, two suborders with the same content have been published only invalidly (ROYER, 1991; BIONDI & al., 1995). The latter two works as well as BIONDI & al. (2005) comprise extensive synoptic tables that show the floristic bipartition between the xerophytic and the meso-xerophytic alliances of the former *Brometalia erecti* s.l., and thus support our concept to separate them on order level. Thus, we validate here the most suitable of the available names, *Artemisia albae-Brometalia erecti*. It was first described as a suborder by BIONDI & al. (1995), but this description was invalid because the authors did not provide an unambiguous reference to the protologue of the selected type alliance. Neither UBALDI (1997), who raised the suborder to ordinal level, nor BIONDI & al. (2005) did correct this mistake.

The presented list of diagnostic species is mainly based on some large-scale overviews (ROYER, 1991; BIONDI & al., 1995, 2005; Dengler, unpubl.). It is somehow preliminary because we lack a comprehensive Europe-wide synthesis of dry grassland communities that would allow establishing statistically tested diagnostic species. While the core of the new order seems to be rather clear, its precise delimitation both against other xerophytic orders of the class *Festuco-Brometea* (*Festucetalia valesiaca*, *Brachypodium phoenicoidis* Br.-Bl. ex Molinier 1934, *Scorzonero-Chrysopogonetalia* Horvatić et Horvat 1958) and against “neighbouring” classes (*Festuco hystricis-Ononidetea striatae* Rivas-Mart. & al. 2002, *Rosmarinetea officinalis* Rivas-Mart. & al. 2002) needs to be clarified in the future.

***Dictamno albi-Ferulagion galbaniferae* (van Gils & al. 1975) de Foucault & al. ex Čarni & Dengler all. nova hoc loco**

Validated name: *Dictamno-Ferulagion galbaniferae* (van Gils & al. 1975) de Foucault & al. 1983 (DE FOUCAULT & al., 1983: 449) [Art. 5].

Basionym: *Dictamno albae-Ferulagenion galbaniferae* van Gils & al. 1975 (VAN GILS & al., 1975: 57 et seq.; “*Dictamno albae-Ferulagion galbaniferae* suball. nov.”).

Lectotypus [Art. 27a, selected by ČARNI (1997: p. 218)]: *Libanotido-Laserpitietum sileris* van Gils & al. 1975 (VAN GILS & al., 1975: 49).

Syntaxonomic position: *Trifolio-Geranietea sanguinei* T. Müller 1962; *Antherico ramosi-Geranietales sanguinei* Julve ex Dengler in Dengler & al. 2003.

Synonyms: *Geranion sanguinei* Tx. in T. Müller 1961 p.min.p. [Art. 8]; *Geranion sanguinei* Tx. ex T. Müller 1962 p.min.p. [typo excl.]

Character taxa of the alliance (and of subordinate syntaxa): *Betonica officinalis*, *Chamaecytisus supinus*, *Clematis recta*, *Coronilla coronata*, *Cyanus triumfettii*, *Dictamnus albus*, *Ferulago campestris*, *Galium lucidum*, *Hippocrepis emerus* subsp. *emeroides*, *Inula hirta*, *Knautia drymeia* subsp. *tergestina*, *K. fleischmannii*, *K. illyrica*, *Laserpitium siler*, *Lathyrus latifolius*, *L. pannonicus*, *Lilium bulbiferum*, *Melampyrum velebitticum*, *Orobancha lutea*, *Paenonia officinalis*, *Potentilla alba*, *Pulmonaria angustifolia*, *Ruta graveolens*, *Selinum silaifolium*, *Trifolium rubens*, *Veronica barrelieri*, *V. jacquinii*.

Differential taxa of the alliance (particularly against *Geranion sanguinei*): *Anthericum ramosum*, *Brachypodium rupestre*, *Bromus erecta*, *Buphthalmum salicifolium*, *Carex humilis*, *Cirsium pannonicum*, *Filipendula vulgaris*, *Teucrium chamaedrys*.

The *Dictamnus albi-Ferulagion galbaniferae* comprises xerophytic forest-edge communities of base-rich soils mainly on the Balkans, but with some associations reaching the southern-eastern and eastern margins of the Alps. So far, the majority of associations have been described from Slovenia (VAN GILS & al., 1975; ČARNI 1997, 1998, 2005). The named diagnostic taxa are based on a comprehensive synthesis of *Trifolio-Geranietea sanguinei* in Europe (DENGLER & al., 2006a). They comprise both geoelements of the Illyric-Dinaric region and widespread forest-edge and dry grassland species that are much more frequent in stands of the Illyric-Dinaric region than in central Europe.

Originally, these communities have been placed in the *Geranion sanguinei* within the suballiance *Dictamnus albae-Ferulagion galbaniferae*. However, several large-scale syntheses showed that one alliance *Geranion sanguinei* s.l. is too less to encompass the large variety of different xerophytic, basiphilous forest-edge communities of Europe (e.g. DE FOUCAULT & al., 1983; DENGLER & al., 2006a). Thus, there have been various proposals to split the *Geranion sanguinei* s.l. into several vicariant alliances, namely the *Geranion sanguinei* s.str. of central and western Europe, the *Galio*

littoralis-Geranion sanguinei Géhu & Géhu-Franck in de Foucault & al. 1983 of northern Europe (including Fennoscandia, Baltic countries, British Isles and temperate sea coasts), the *Origanion virentis* Rivas-Mart. & O. Bolòs in Rivas-Mart. & al. 1984 of the Iberian Peninsula and the *Dictamnus albi-Ferulagion galbaniferae* of the Balkan Peninsula (DE FOUCAULT & al., 1983; RODWELL & al., 2002; DENGLER & al., 2003, 2006a; DENGLER, 2004b). As no valid name was available for the last alliance so far, we validate the name proposed by DE FOUCAULT & al. (1983) here. To reflect the fact that the traditional *Geranion sanguinei* s.l. has now been split into four floristically and ecologically similar, vicariant alliances, it has been suggested to place them into a new order *Antherico ramosi-Geranietales sanguinei* as opposed to the *Origanetalia vulgaris* s.str., which correspond to the traditional *Trifolium medii* T. Müller s.l. and consist of the *Trifolium medii* s.str. and the *Knautia dipsacifoliae* Julve ex Dengler & Boch 2008 (DENGLER, 2003: 190-192, 2004b; DENGLER & al., 2003, 2006a; DENGLER & BOCH, 2008).

***Euphorbio taurinensis-Geranion lucidi* Matevski & Čarni all. nova hoc loco**

Validated name: *Euphorbio taurinensis-Geranion lucidi* Matevski & Čarni 2001 (MATEVSKI & ČARNI, 2001: 55-57) [Art. 8].

Holotypus: *Veronico cymbalariae-Geranietales lucidi* Matevski & Čarni 2003 (MATEVSKI & ČARNI, 2003: 77).

Syntaxonomic position: *Stellarietea mediae* Tx. & al. ex von Rochow 1951; *Geranio-Cardaminetalia hirsutae* Brullo in Brullo & Marcenó 1985.

Character taxa of the alliance: *Calamintha vardarensis*, *Euphorbia taurinensis*, *Lamium garganicum* subsp. *laevigatum*.

MATEVSKI & ČARNI (2001) suggested the alliance *Euphorbio taurinensis-Geranion lucidi* to encompass short-lived nitrophilous fringe vegetation of Macedonia (Republic of Macedonia and Greece), but failed to provide a nomenclatural type, which rendered the description invalid according to Art. 8 ICPN. Later, MATEVSKI & ČARNI (2003) described the same vegetation type as *Veronico cymbalariae-Geranietales lucidi*, but assigned it to the west-Mediterranean *Geranio-Anthriscion* Rivas-Mart. 1978. Here, we validate the name *Euphorbio taurinensis-Geranion lucidi* as we now came to the conclusion that the therophyte-rich nitrophilous fringe

communities of the west-Mediterranean and of the Balkans show floristic and ecological peculiarities that should be recognised at the level of alliance.

***Gentianello amarellae-Helictotrichion pratensis*
Royer ex Dengler *all. nova hoc loco***

Validated name: *Gentianello amarellae-Avenulion pratensis* ROYER 1991 (ROYER, 1991: 88-91 and 199) [Art. 3b].

Holotypus: *Helictotricho-Caricetum flaccae* SHIMWELL 1971 (SHIMWELL, 1971: 39 et seq.) [holotypus].

Syntaxonomic position: *Festuco-Brometea* Br.-Bl. & Tx. ex Klika & Hadač 1944; *Brometalia erecti* W. Koch 1926 nom. amb. propos. [*Brachypodietalia pinnati* Korneck 1974].

Synonyms: *Bromion erecti* W. Koch 1926 sensu auct. p.min.p. [typo excl.]; *Bromion erecti* Br.-Bl. 1936 p.p. [Art. 8, 31]; *Meso-Bromion* Oberd. 1949 sensu auct. p.min.p. [typo excl.]; *Gentiano amarellae-Avenulion pratensis* ROYER ["(Willems 1982) ROYER 1987"] ex Julve 1993 [Art. 5].

Incl.: British Isles subgroup [*Meso-Bromion*] sensu Willems 1982.

Character taxa of the alliance: *Blackstonia perfoliata*, *Gentianella amarella*, *Thymus praecox* subsp. *arcticus*.

Differential taxa of the alliance (against all other alliances of the order): *Centaurea nigra*, *Hypochaeris radicata*, *Scleropodium purum*, *Succisa pratensis*, *Trifolium repens*.

Differential taxa of the alliance (against *Filipendulo vulgaris-Helictotrichion pratensis*): *Anacamptis pyramidalis*, *Asperula cynanchica*, *Ctenidium molluscum*, *Festuca guestfalica* subsp. *guestfalica*, *Helianthemum nummularium* subsp. *obscurum*, *Koeleria macrantha*, *Leontodon hispidus*, *Polygala vulgaris*, *Sanguisorba minor*, *Sesleria albicans*.

Differential taxa of the alliance (against *Bromion erecti* and other southern alliances): *Agrostis capillaris*, *Danthonia decumbens*, *Dicranum scoparium*, *Euphrasia nemorosa*, *Festuca ovina*, *F. rubra*, *Helictotrichon pratense*, *Luzula campestris*.

The *Gentianello amarellae-Helictotrichion pratensis* comprises meso-xerophytic basiphilous grasslands of the British Isles and northern France. Traditionally, these communities have been included in a widely delimited *Bromion erecti* (*Meso-Bromion*) (e.g.

SHIMWELL, 1971). However, the meso-xerophytic basiphilous grasslands of the British Isles, Denmark, and Fennoscandia differ significantly in their floristic composition from their counterparts further south (WILLEMS, 1982; ROYER, 1991; DENGLER & al., 2003, 2006b). In particular, they (largely) lack many otherwise widespread *Festuco-Brometea* species, such as *Eryngium campestre*, *Euphorbia cyparissias*, *Koeleria pyramidata*, *Prunella grandiflora*, *Teucrium chamaedrys*, while several slightly acidophilous graminoids and mosses become more frequent to the north (e.g. DENGLER & al., 2006b; see list of differential species above). This pattern prompted WILLEMS (1982) to separate a northwest European group within the *Meso-Bromion*, which he further subdivided in a British Isles subgroup and a south Scandinavian subgroup. ROYER (1991) was the first to give a formal syntaxon name to the first subgroup, namely *Gentianello amarellae-Avenulion pratensis*, though only provisionally and thus invalidly. In a comprehensive European synthesis of *Festuco-Brometea*, I could confirm this pattern of mostly negatively differentiated community types of the meso-xerophytic basiphilous grasslands (i.e. the order *Brometalia erecti* = *Brachypodietalia pinnati*) at their northern distributional limits, which can be subdivided in a western group (British Isles and N France) and an eastern group (Fennoscandia, Denmark, N Germany, Baltic countries) (Dengler, unpubl.; see DENGLER, 2003: 199-201 and 222-223; DENGLER & al., 2003). While the latter has been formally described as *Filipendulo vulgaris-Helictotrichion pratensis* Dengler & Löbel in Dengler & al. 2003 (DENGLER & al., 2003), the first group still lacked a valid name though the alliance concept and name of ROYER (1991) was widely in use (e.g. JULVE, 1993; RODWELL & al., 2002; BARDAT & al., 2004). Accordingly, ROYER's name is validated here.

***Helichryso barrelieri-Phagnalion graeci* (Barbéro & Quézel 1989) R. Jahn stat. nov. hoc loco**

Basionym: *Helichryso barrelieri-Phagnalion graeci* BARBÉRO & QUÉZEL 1989 nom. corr. R. Jahn hoc loco

Corrected name: *Helichryso orientali-Phagnalion graeci* BARBÉRO & QUÉZEL 1989 (BARBÉRO & QUÉZEL 1989: 44).

Holotypus [Art. 27a]: *Micromerio graecae-Hypericetum empetrifolii* Barbéro & Quézel 1989 (BARBÉRO & QUÉZEL 1989: 58).

Syntaxonomic position: *Cisto-Micromerietea julianae* Oberd. 1954; *Poterietalia spinosi* Eig 1939.

Character taxa of the alliance: *Cistus salviifolius*, *C. creticus*, *Erica manipuliflora*, *Genista acanthoclada*, *Hypericum empetrifolium* subsp. *empetrifolium*, *Satureja thymbra*, *Helichrysum stoechas* subsp. *barrelieri*.

The correction of the suballiance name, which forms the basionym for the new alliance, is necessary, because *Helichrysum orientale* (L.) DC., a conspicuous, obligate Aegean chasmophyte (ZAFFRAN, 1990), does not occur in phrygana except in ungrazed areas and in the neighbourhood of rocks. It is very unlikely that this species occurred in eight out of 18 phrygana relevés, as given by BARBERO & QUÉZEL (1989: Table 1). *Helichrysum stoechas* subsp. *barrelieri* is a similar, but smaller species, known to be a common phrygana plant, which occurs in 29% of 957 phrygana relevés made by the author on Crete. This plant is also given in the tables of BARBERO & QUÉZEL (1989), but with lower frequency and only in those relevés without “*Helichrysum orientale*”. There is no doubt that the records of the two *Helichrysum* “species” in BARBERO & QUÉZEL (1989) must be united under the name *Helichrysum stoechas* subsp. *barrelieri*. According to Art. 43 ICPN, the name of the suballiance must be corrected.

OBERDORFER (1954) established the class *Cisto-Micromerietea julianae* with three alliances based on relevés from northern Greece. The alliance *Cistion orientale* (OBERDORFER 1954, for nomenclatural implications, see *Hyperico olympici-Cistion cretici* below) represents the class on non-calcareous substrates, while the *Micromerion julianae* Oberdorfer 1954 (incl. *Dorycnio-Coridothymion capitati* [Oberd. 1954] Brullo & al. 1997) occurs on calcareous substrates (OBERDORFER 1954).

Due to considerable differences in floristic composition, BARBERO & QUÉZEL (1989) separated the phrygana communities of central and southern Greece from those of northern Greece. The more southerly phrygana communities were established as a new alliance *Hyperico empetrifolii-Micromerion graecae* Barbero & Quézel 1989. Based on an extensive set of new relevés (Jahn, unpubl.), it is reasonable to subdivide the southerly communities further into one alliance on non-calcareous substrates and one on limestone. The former is newly described here as *Helichryso barrelieri-Phagnalion graeci*. It is characterized by the absence of *Euphorbia acanthothamnus*, *Phlomis fruticosa*, *Ballota acetabulosa*, and many other subnitrophilous shrubs and herbs, as well as by the presence of the taxa given

above, with low nitrogen indicator values between 1 and 3 according to BÖHLING & al. (2002).

The new alliance contains two of the three suballiances distinguished by BARBERO & QUÉZEL (1989) within the *Hyperico empetrifolii-Micromerion graecae*, the *Helichryso barrelieri-Phagnalenion graeci* on marly substrates, and the *Hyperico empetrifolii-Micromerion graecae* nom. inval. (Art. 3m, 8 ICPN) on slightly acid, igneous substrates (BARBERO & QUÉZEL, 1989). By contrast, the suballiance *Phlomidio fruticosae-Euphorbion acanthothamni* nom. inval. (Art. 3m ICPN), which holds the communities on limestone, remains in the *Hyperico empetrifolii-Micromerion graecae* s.str. (holotypus of alliance and suballiance is the *Dorycnio hirsuti-Micromerietum graecae* Barbero & Quézel 1989).

The *Helichryso barrelieri-Phagnalion graeci* consists of phrygana communities rich in *Cistus*, *Erica*, and *Genista* species. The alliance occurs on non-calcareous substrates, such as granite, gneiss, and phyllitic schists, on serpentine, on hard and soft marls, on volcanic soils, and on sand. Its distribution range includes the Ionian and the Aegean sides of the Greek mainland, the Central and South Aegean islands and the Aegean coast of Anatolia northward to approx. 39° N (BARBERO & QUÉZEL, 1989; HEISELMAYER & al., 1995; DE BOLÒS & al., 1996; BRULLO & al., 1997), i.e. a region where vegetation linked to the thermomediterranean belt is widely distributed (see map in QUÉZEL & BARBERO, 1985). Nevertheless, the communities are not strictly limited to low altitudes. In general, relevés of the *Helichryso barrelieri-Phagnalion graeci* have fewer species than those of the *Hyperico empetrifolii-Micromerion graecae* s.str.

From the *Cistion orientale* (*Hyperico olympici-Cistion cretici*, see below), the *Helichryso barrelieri-Phagnalion graeci* is differentiated by the absence or the retreat of *Chrysopogon gryllus*, *Festuca* spp., *Thymus comptus*, *Centaurea salonitana*, and further taxa with lower frequencies (OBERDORFER, 1954). Relevés from the Pilion peninsula (RAUS 1979) contain species from both syntaxa, but the diagnostic taxa of the *Helichryso barrelieri-Phagnalion graeci* have a distinctly higher constancy and frequency. Thus, they are placed in the new alliance.

REPLACEMENT OF AN ILLEGITIMATE SYNTAXON NAME

***Hyperico olympici-Cistion cretici* (Oberd. 1954) R. Jahn & Bergmeier nom. nov. hoc loco**

Basionym: *Cistion orientale* Oberd. 1954 (OBERDORFER, 1954: p. 92) [Art. 34a].

Synonym: *Cisto-Hypericion bithynici* (Oberd. 1954) Brullo & al. 1997 (BRULLO & al., 1997: 34) [Art. 3g, 43].

Lectotypus [selected by BRULLO & al. (1997: 34)]: *Calicotomo-Cistetum cretici* Oberd. 1954 (OBERDORFER, 1954: 94; “*Calycotometo-Cistetum villosae*”).

Syntaxonomic position: *Cisto-Micromerietea julianae* Oberd. 1954; *Poterietalia spinosi* Eig 1939.

OBERDORFER (1954), when establishing the class *Cisto-Micromerietea julianae*, described among others the alliance *Cistion orientale*, phrygana communities on non-calcareous substrates, based on relevés from northern Greece. *Cistion orientale* is an illegitimate name (Art. 34a ICPN), which was rejected by BRULLO & al. (1997) and substituted by *Cisto-Hypericion bithynici*. The latter name is invalid, though, as the authors did not specify the *Cistus* species involved (Art. 3g ICPN). OBERDORFER (1954: 95, “Liste III”) indicated three species of *Cistus*, with *C. creticus* (as *C. vil-*

losus) being the most constant one. Moreover, despite the fact that the name *Hypericum bithynicum* appears in OBERDORFER’s original relevés (OBERDORFER, 1954: 95; see also HORVAT & al., 1974: 120), the *Cisto-Hypericion bithynici* is based on a misidentification (Art. 43 ICPN). *H. bithynicum*, a species of damp scrub and woodland, occurs only in Turkey and has not been found in Greece (GREUTER & al., 1986).

According to Art. 39 ICPN, we propose to replace the illegitimate name *Cistion orientale* with *Hyperico olympici-Cistion cretici* as a *nomen novum*. *Hypericum olympicum* L., eponymous taxon of our new name, occurs in dry open vegetation on lime-poor, rocky, and sandy soils (e.g. RAUS, 1979; Bergmeier, unpubl.) and is mentioned by OBERDORFER (1954: 95) to occur in the *Cistion orientale*, albeit with low constancy. It is largely confined to the Greek mainland and adjacent areas of the Republic of Macedonia, Serbia, Bulgaria, and Turkey. In Greece, this very variable species is most widespread in the northern parts of the country.

ACKNOWLEDGEMENTS

We wish to thank T. Raus (Berlin) for correcting nomenclature of some taxa. F. Ehrendorfer (Vienna) and G. Bazos (Athens) kindly identified or revised some plant collections from Euboea. This paper is a result of cooperation within the “European Vegetation Survey” (EVS) – a working group of the International Association for Vegetation Science (IAVS).

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Recibido: 1 de abril de 2009

Aceptado: 15 de abril de 2009