

Nomenclature and syntaxonomic notes on some high-rank syntaxa of the European grassland vegetation

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Abstract: Di Pietro, R., Theurillat, J.P., Capelo, J., Fernández-González, F., Terzi, M., Čarni, A. & Mucina, L. *Nomenclature and syntaxonomic notes on some high-rank syntaxa of the European grassland vegetation. Lazaroa 36:79-106 (2015).*

We present descriptions of a new order (*Ranunculo cortusifolii-Geranietalia reuteri*) and of a new alliance (*Stachyo lusitanicae-Cheirolophion sempervirentis*) for the herbaceous fringe communities of Macaronesia and of the southwestern Iberian Peninsula, respectively. A new alliance, the *Polygalo mediterraneae-Bromion erecti* (mesophilous post-cultural grasslands), was introduced for the Peninsular Italy. We further validate and typify the *Armerietalia rumelicarum* (perennial grasslands supported by nutrient-poor soils on siliceous bedrocks at elevations characterized by the submediterranean climate of south-central Balkan Peninsula), the *Securigero-Dasypyrrion villosae* (lawn and fallow-land tall-grass annual vegetation of Italy), and the *Cirsio vallis-demoni-Nardion* (acidophilous grasslands on siliceous substrates of the Southern Italy). Nomenclatural issues (validity, legitimacy, synonymy, formal corrections) have been discussed and clarified for the following names: *Brachypodio-Brometalia*, *Bromo pannonicum-Festucion csikhegyensis*, *Corynephorum-Plantaginion radicatae*, *Heleochloion*, *Hieracio-Plantaginion radicatae*, *Nardetea strictae*, *Nardetalia strictae*, *Nardo-Callunetea*, *Nardo-Galium saxatile*, *Oligo-Bromion*, *Paspalo-Heleochloetalia*, *Plantagini-Corynephorion* and *Scorzoneretalia villosae*.

Keywords: *Chenopodietea*, International Code of Phytosociological Nomenclature, EuroVegChecklist, *Festucetea indigestae*, *Festuco-Brometea*, *Nardetea strictae*, Phytosociology, *Stipo giganteae-Agrostietea castellanae*, *Trifolio-Geranietea*.

Resumen: Di Pietro, R., Theurillat, J.P., Capelo, J., Fernández-González, F., Terzi, M., Čarni, A. & Mucina, L. *Notas nomenclaturales y sintaxonómicas sobre diversos sintáxones de alto rango de los pastizales europeos. Lazaroa 36: 79-106 (2015).*

Se describen un nuevo orden (*Ranunculo cortusifolii-Geranietalia reuteri*) y una nueva alianza (*Stachyo lusitanicae-Cheirolophion sempervirentis*) para la vegetación herbácea de linderos forestales de los archipiélagos de Canarias y Madeira y del suroeste de la Península Ibérica, respectivamente, así como una nueva alianza (*Polygalo mediterraneae-Bromion erecti*) para los pastizales mesófilos de campos abandonados de Italia peninsular. Además, se valida y tipifica el orden *Armerietalia rumelicarum* (pastos vivaces de suelos pobres en nutrientes sobre sustratos silíceos, propios de los climas submediterráneos del centro y sur de la Península Balcánica), y las alianzas *Securigero-Dasypyrrion villosae* (vegetación de praderas y eriales dominados por gramíneas altas en Italia) y *Cirsio vallis-demoni-Nardion* (cervunales acidófilos de Italia meridional). Se discuten y clarifican distintos aspectos nomenclaturales (validez, legitimidad, sinonimia, correcciones formales) de los siguientes nombres: *Brachypodio-Brometalia*, *Bromo pannonicum-Festucion csikhegyensis*, *Corynephorum-Plantaginion radicatae*, *Heleochloion*, *Hieracio-Plantaginion radicatae*, *Nardetea strictae*, *Nardetalia strictae*, *Nardo-Callunetea*, *Nardo-Galium saxatile*, *Galio saxatile-Nardion*, *Oligo-Bromion*, *Paspalo-Heleochloetalia*, *Plantagini-Corynephorion* y *Scorzoneretalia villosae*.

Palabras clave: *Chenopodietea*, ICPN, EuroVegChecklist, *Festucetea indigestae*, *Festuco-Brometea*, *Nardetea strictae*, Fitosociología, *Stipo giganteae-Agrostietea castellanae*, *Trifolio-Geranietea*.

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INTRODUCTION

During the preparation of the publication ‘Vegetation of Europe: Hierarchical floristic classification system of vascular plant, bryophyte, lichen, and algae communities’ (MUCINA & al., submitted; hereafter referred to as ‘EuroVegChecklist’), thousands of published syntaxonomical concepts of European phytosociological classes, orders and alliances have been assessed. The syntaxon names related to these concepts were checked for the compliance with the rules of the International Code of Phytosociological Nomenclature (WEBER & al., 2000). In many cases, these revisions revealed a need for formal description of new vegetation units, nomenclature changes or adjustments, or stabilization of the current names by their typification. The present paper is one of the series of papers (e.g. DIDUKH & MUCINA, 2014; ČARNI & MUCINA, 2015; CHYTRÝ & al., 2015; DANIĚLS & al., 2015; LYSENKO & MUCINA, 2015) addressing these issues.

The aim of this paper is to formally describe several new syntaxa, perform nomenclatural changes, and discuss nomenclatural issues in some grassland or herb-rich vegetation types of Europe and Macaronesia.

The nomenclature of the plant species used in this paper follows Euro+Med Plant Base (2006–, see www.emplantbase.org), except for *Linum*, *Polygala*, *Rumex* and *Viola* (here the original names as they appeared in the discussed publications, were used).

*POLYGALO MEDITERRANEA*E-BROMION
ERECTI, A NEW ALLIANCE FROM THE
APENNINES (PENINSULAR ITALY)
(by Romeo Di Pietro)

Polygalo mediterraneae-Bromion erecti
(Biondi, Allegrezza et Zuccarello 2005) Di
Pietro stat. nov. hoc loco
(*Brometalia erecti*, *Festuco-Brometea*)

BASIONYM (SUBALLIANCE): *Polygalo mediterraneae-Bromenion erecti* Biondi, Allegrezza et Zuccarello 2005 (BIONDI & al., 2005: 157, 159).

NAME-GIVING TAXA: *Bromopsis erecta*, *Polygala nicaeensis* subsp. *mediterranea*.

TYPE (*holotypus*): *Centaureo bracteatae-Brometum erecti* Biondi, Ballelli, Allegrezza, Guitian et Taffetani 1986 (BIONDI & al., 1986: Doc. Phytosociol. 10: 117-126).

DIAGNOSTIC TAXA: *Brachypodium rupestre*, *Carex flacca* subsp. *serrulata*, *Centaurea jacea* subsp. *gaudinii*, *Cota tinctoria* subsp. *australis*, *Dorycnium pentaphyllum* subsp. *herbaceum*, *Galium verum*, *Linum viscosum*, *Ononis masquillieri*, *O. spinosa*, *Ornithogalum pyramidale*, *Polygala flavescens*, *P. nicaeensis* subsp. *mediterranea*, *Stachys cretica* subsp. *salviifolia*, *Trifolium incarnatum* subsp. *molinerii*, *T. ochroleucon*.

DIAGNOSIS: mesophilous grasslands supported by marl-arenaceous and clayey substrates in the colline, submontane and lower montane altitudinal belts of the Apennines.

DISTRIBUTION: Apennines (Italy).

SYNTAXONOMY: The meso-xerophilous grasslands dominated by *Brachypodium rupestre* were generally considered as a transitory vegetation state forming after abandonment of intensively grazed and mown pastures and meadows (BONANOMI & ALLEGREZZA, 2004; BONANOMI & al., 2006). *Brachypodium rupestre* is competitive also in forest clearings (LUCCHESI, 1990), and appears to be abundant in the undergrowth of thermophilous oak and mixed open forests and associated shrublands, especially on the Tyrrhenian macroslope of the Apennines (BLASI & DI PIETRO, 1998; BLASI & al., 2000, 2001; DI PIETRO & al., 2010). In natural habitats, *B. rupestre* plays a subordinate role in the *Bromopsis erecta* dry grasslands as well as in the *Lolium-Cynosurus* mesophilous grasslands. It attains dominance in semi-mesophilous grasslands developed on clayey or marly-arenaceous substrates in the colline and lower-montane altitudinal belts. As a dominating element, it also occurs on abandoned formerly cultivated terraces on slopes of coastal ranges where leached, clay-rich terra rossa soils occur. The *B. rupestre* grasslands of the Peninsular Italy are currently classified in the *Dorycnio-Brachypodietum*, supported by the marly-arenaceous substrates of the Northern Apennines (UBALDI, 1988), the *Polygalo*

flavescentis-Brachypodium rupestris in the submontane belt (LUCCHESI & al., 1995), and the *Galio lucidi-Brachypodium rupestris* in the subcoastal zones of the Tyrrhenian macroslope of the Central Apennines (DI PIETRO & BLASI, 2002). In the Southern Italy, the *Polygalo mediterraneae-Brachypodium rupestris* was described from the submontane and lower montane belts of the Lucanian Apennines (DI PIETRO & al., 2014). Some *B. rupestre* communities (not classified as associations) were also described for the Northern Apennines (BARCELLA & al., 2014).

BIONDI & al. (1995) classified the *Brachypodium rupestre* communities in the Italian endemic alliance *Phleo ambigui-Bromion erecti* (*Brometalia erecti*, *Artemisio albae-Bromenalia erecti*). The mixed *Brachypodium rupestre* and *Bromopsis erecta* communities (e.g. *Centaureo bracteatae-Brometum erecti*, *Pseudolysimachio-Brometum erecti*, *Ononido masquillieri-Brometum erecti*) were classified by the latter authors in the *Bromion erecti* or in the mesophilous suborder *Leucanthemo-Bromenalia erecti*. Subsequently BIONDI & al. (2005) classified all the non-calciophilous grasslands of the mesotemperate bioclimatic belt of the northern-central regions of the Apennines in a new suballiance – the *Polygalo mediterraneae-Bromenion erecti* (type association: *Centaureo bracteatae-Brometum erecti*). Although the latter authors have not classified the *Polygalo flavescentis-Brachypodium rupestris* (the only *Brachypodium rupestre* dominated community considered in their paper) in the *Polygalo-Bromenion*, they had included *Brachypodium rupestre* in the list the character-species of their new suballiance. On the other hand, they included here some pioneer communities (such as the *Coronillo minimae-Astragalium monspessulani* and the *Astragalo monspessulani-Scabiosetum crenatae*) supported by the marl-clay, highly eroded substrates.

The scheme proposed by BIONDI & al. (1995, 2005) was modified by UBALDI (1997, 2003, 2011), who proposed three new alliances, namely the *Botriochloo-Bromion* Ubaldi 1997, the *Coronillo-Astragalion* Ubaldi 2003 and the *Filipendulo-Bromion* Ubaldi 2011 (in addition to the *Bromion erecti*) to classify the Apennine

dry and semi-mesophilous grasslands of the marly-arenaceous and marly-calcareous substrates. UBALDI (l.c.) kept the *Dorycnio-Brachypodium* (the only *Brachypodium rupestre* community cited in the Ubaldi's works) in the *Bromion erecti* together with some other semi-mesophilous mixed *B. rupestre* and *Bromopsis erectus* communities such as the *Centaureo bracteatae-Brometum* and the *Pseudolysimachio-Brometum*.

FOGGI & al. (2014) described other semi-mesophilous non-calciophilous grasslands for the Tuscan Apennines, and classified those in a new suballiance (*Festuco inopsis-Bromenion erecti*). According to these authors, this suballiance should include the pioneer, acidophilous, oligotrophic communities of the *Bromion erecti* on marly-clayey and arenaceous substrata; it was distinguished from the *Polygalo-Bromenion* Biondi et al. 2005 as being characterized by a strong mesophilous component and typical of post-cultural environments.

In my opinion the pioneer communities developed on flyschoid eroded substrates as well as the xerophilous communities dominated by *Bromopsis erectus* occurring both on limestone or marly-calcareous substrates should be considered as syntaxonomically distinct from the mesophilous (natural or post-cultural) *Brachypodium rupestre* grasslands. For this reason I propose to classify the pioneer grasslands of sandy-clayey substrates characterised by a high subshrub and shrub component (*Astragalus monspessulanum*, *Coronilla minima*, *Lomelosia crenata* etc.) in the *Coronillo-Astragalion* Ubaldi 2003. I suggest also classifying the *Bromopsis erecta* open dry grasslands of the Central and Southern Apennines on limestone in the *Cytiso-Bromion*, and the dry grasslands on calcareous marly-arenaceous substrates of the Central and Northern Apennines in the *Botriochloo-Bromion* Ubaldi 1997 or in the *Festuco-Bromion* Barbero et Loisel 1972.

As for the natural grasslands developed of the post-cultivation, abandoned or very extensively used habitats on marly-clayey or pelithic-arenaceous substrates as well as those developed on colluvial leached soils over limestone, I propose

here a new alliance: the *Polygalo mediterraneae-Bromion erecti*. The *Polygalo-Bromion* differs from similar syntaxa occurring in Central Europe by the presence of Mediterranean floroelements, such as orchids (e.g. *Anacamptis papilionacea*, *Ophrys bertolonii*, *O. fusca*, *O. garganica*, *O. incubacea*, *Orchis antropophora*, *Serapias vomeracea*) as well as *Centaurea jacea* subsp. *gaudinii*, *Carex flacca* subsp. *serrulata*, *Polygala nicaeensis* subsp. *mediterranea* and *Stachys cretica* subsp. *salviifolia* missing in the Central European grasslands. *Brachypodium rupestre* itself is almost completely absent from Central Europe where it is substituted by *Brachypodium pinnatum*. According to a recent taxonomical revision (BARTOLUCCI & DOMINA, 2014), *Thymus longicaulis* (very common especially in the *B. rupestre* communities of the Apennines) is endemic to the Peninsular Italy and the Western Balkans and it is substituted by other taxa of the *Thymus serpyllum* group in Central Europe.

On the basis of the most important syntheses published on dry and semi-mesophilous grasslands published since 1990 (ROYER, 1991; RODWELL, 1992; MUCINA & KOLBEK, 1993; RIVAS-MARTÍNEZ & al., 2001; RODWELL & al., 2002; DENGLER, 2004; BIONDI & al., 2005; DENGLER & al., 2006), the European vegetation system now reflects the importance of biogeography and can be summarised (at the level of alliance) as follows:

- Chrysopogono-Danthonion* (the Balkans)
- Cirsio-Brachypodion* (eastern regions of Central Europe)
- Filipendulo-Helictotrichion* (North Europe)
- Gentiano-Helictotrichion pratensis* (Northern France and the British Isles)
- Polygalo mediterraneae-Bromion erecti* (Apennine Peninsula).
- Potentillo splendidis-Brachypodion* (Iberian Peninsula)

VALIDATION AND SYNTAXONOMICAL DISCUSSION ON THE *SECURIGERO-DASYPYRION*, AN ALLIANCE OF THE MEDITERRANEAN ABANDONED PASTURES (by Romeo Di Pietro)

***Securigero securidacae-Dasyphyron villosi* Cano-Ortiz, Biondi et Cano in Cano-Ortiz & al. ex Di Pietro all. nov. hoc loco**

(*Brometalia rubenti-tectorum*, *Chenopodietea*)

SYNONYMS: *Securigero securidacae-Dasyphyron villosi* Cano-Ortiz, Biondi et Cano in Cano-Ortiz et al. 2014 *nom. inval.* (ICPN art. 5); *Securigero securidacae-Dasyphyron villosi* Cano-Ortiz, Biondi et Cano ex Cano-Ortiz, Biondi et Cano in Biondi, Allegrezza, Casavecchia, Galdenzi, Gasparri, Pesaresi, Poldini, Sburlino, Vagge et Venanzoni 2015 *nom. inval.* (ICPN art. 2b).

NAME-GIVING SPECIES: *Dasyphyron villosum*, *Securigera securidaca*.

TYPE (*holotypus hoc loco*): *Vulpia ligusticae-Dasyphyretum villosi* Fanelli 1998 (FANELLI, 1998: Rend. Fis. Acc. Lincei 9: 149-170).

DIAGNOSTIC TAXA: *Anisantha diandra*, *A. rigida*, *Avena sterilis*, *Clinopodium nepeta*, *Crepis neglecta*, *Dasyphyron villosum*, *Foeniculum vulgare*, *Hordeum bulbosum*, *Knautia integrifolia*, *Lagurus ovatus*, *Tyrimnus leucographus*, *Vicia villosa*, *Vulpia ligustica*.

DISTRIBUTION: Apennines (Italy) and probably SW Balkans (sub-coastal zones of the Southern Albania and the Northern Greece).

DIAGNOSIS: Central Mediterranean and sub-mediterranean mesophilous lawn and fallow vegetation dominated by tall annual or short-lived perennials.

SYNTAXONOMY: The *Dasyphyron villosum* communities are one of the most common anthropogenic grassland types of the Peninsular Italy. They occur both in urban environments (road verges, traffic flowerbed dividers, etc.) and in rural areas (abandoned fields, edges etc.). PIGNATTI (1952) described the 'Ass. a *Bromus villosus* ed *Haynaldia villosa* Pign. 1953' from the sub-coastal habitats of the Venice Lagoon and classified it in the *Sisymbriion officinalis* (*Chenopodietalia albi*, *Stellarietea mediae* in his classification scheme) as a vegetation unit substituting the *Hordeetum murini* on the sandy coastal fallow lands. This community was also recognized also by BIONDI & al. (1999, 2001) and FILIGHEDDU & al. (1999) in other regions of Italy (Marche and Sardinia) as the *Bromo-Dasyphyretum*

villosi and classified in the *Hordeion leporini*. GENTILE (1962) and FERRO (1980) described a thermophilous form of the *Dasyphyrum villosum* grasslands in Sicily, emphasizing the regional role of the thermomediterranean component. FANELLI (1998) described two associations from the Rome countryside, the *Laguro-Dasyphyretum* (coastal regions) and the *Vulpio-Dasyphyretum* (inland regions); both were classified in the *Echio-Galactition* (*Thero-Brometalia*, *Thero-Brachypodietea*, in his syntaxonomic scheme). ALLEGREZZA (2003) identified a peculiar anthropogenic *Dasyphyrum villosum* grassland type in the Central Apennines (Marche, Umbria) characterized by notable occurrence of the *Molinio-Arrhenatheretea*, *Festuco-Brometea* and *Artemisietea vulgaris* elements, and classified this vegetation type preliminary in the '*Stellarietea mediae*' and the *Hordeion leporini*. In GUGLIELMO & al. (2012) the *D. villosum* communities occurring in abandoned groves surrounding an archaeological site in southeastern Sicily, were provisionally included in the *Echio-Galactition*. BLASI & al. (2012) proposed the *Erisymo-Dasyphyretum* to typify a sub-nitrophilous grassland community occurring in the colline belt of the Northern Latium, and classified this community in the *Taeniathero-Aegilopion* (*Thero-Brometalia*, *Stellarietea mediae*, in his classification). Finally, CANO-ORTIZ & al. (2014) described a new association – the *Securigero-Dasyphyretum villosi* from the Gargano region (Apulia), and classified this unit in the *Securigero-Dasyphyron villosi*. An attempt to validate the invalidly published *Securigero-Dasyphyron villosi* by BIONDI & al. (2015) was not successful due to the lack of a bibliographic reference to the type association of the alliance (ICPN art. 2).

The *Dasyphyrum villosum* grasslands also occur in the Balkans (*Trifolio molinieri-Haynaldietum villosae* Buia et al. 1959; RAȚIU, 1968; BOȘCAIU & RESMERIȚĂ, 1969; PĂUN & al., 1970; ROMAN, 1974; GRIGORE & COSTE, 1979), however due to the important role of the *Festuco-Brometea* species such as *Botriochloa ischaemum*, *Chrysopogon gryllus*, *Festuca valesiaca*) and some *Molinio-Arrhenatheretea* species, this vegetation differs from the *Dasyphyrum* grasslands described from

Italy. PIRINI & al. (2014) described from the Central Greece similar *Artemisia campestris-Dasyphyrum villosum* grassland (supported by dry and base-rich substrates). Most recently FANELLI & al. (2015) classified two relevés sampled in the Buna River valley (Northern Albania) in the *Bromo-Dasyphyretum villosi*. This association was included in the *Laguro ovati-Bromion rigidi* Géhu et Géhu-Franck 1985.

The classification of the *Dasyphyrum villosum* communities in the high-rank syntaxa is contentious and the long list of classes (see Table 1), spanning the *Stellarietea mediae*, *Molinio-Arrhenatheretea*, *Thero-Brachypodietea*, *Festuco-Brometea*, and *Tuberarietea guttatae*, is indicative of the problem.

Although FANELLI (1998) provisionally classified the *Dasyphyrum villosum* associations of the Rome countryside in the *Echio-Galactition*, he highlighted the possibility of including the *Dasyphyrum villosum* communities in the *Vulpio-Lotion*, an alliance originally described from the Dalmatian coast (HORVATÍĆ, 1963) to capture the slightly acidophilous therophyte-rich grassland vegetation. Fanelli (l.c.), however, also reported on the lack of an alliance including all the Central and Eastern Mediterranean grassland vegetation “dominated by tall annual or shortly perennial *Gramineae*”.

The therophyte dominant component occurring in the *Dasyphyrum villosum* community lead other authors (IZCO, 1977; PIRONE & al., 1997; GIGANTE & VENANZONI, 2007; BLASI & al., 2012) to classify these communities in the *Taeniathero-Aegilopion geniculatae*. The latter alliance, however, is dominated by low-grown annual therophytes, whereas tall annual grasses (e.g. *Avena barbata*, *A. sterilis*, *Dasyphyrum villosum*, *Vulpia ligustica*), mixed with tall perennial grasses (*Dactylis glomerata*, *Holcus lanatus*, *Hordeum bulbosum*, *Lolium perenne*, *L. multiflorum*, *Poa trivialis*), dominate the Italian *Dasyphyrum villosum* communities. The *Taeniathero-Aegilopion* occurs prevalently in the inland regions of the Spanish Meseta having sub-continental climatic conditions (IZCO, 1977; RIVAS-MARTÍNEZ & IZCO, 1978) where the most representative species of the Italian *Dasyphyrum*

villosum communities, namely *Dasypyrum villosum* and *Vulpia ligustica*, are absent.

I exclude a possible reference of these grasslands to the *Hordeion leporini* – an alliance including the Mediterranean ruderal communities rich in winter annual grasses. The *Hordeion leporini* is to be considered a geographical analogon of the temperate *Sisymbrium officinalis* (see MUCINA, 1991). The *Hordeion leporini* exhibits an anthropogenic character and it is usually restricted to habitats subject to permanent disturbance or increased nutrient supply (e.g. country roadsides, archeological areas, garbage dumps, small-farm walls, and the like). It is never subjected to haymaking, which is, on the contrary, a common practice in the *Dasypyrum villosum* communities. Tall herbs rarely dominate in the *Hordeion leporini*. Finally, the classification of the *Dasypyrum villosum* grasslands into the *Laguro-Bromion rigidi* is not considered here as a viable solution as well since the latter alliance is comprising ephemeral therophytic vegetation on disturbed coastal sand dunes of the Atlantic coast of France.

The classification of the *Dasypyrum villosum* grasslands into the *Vulpio-Lotion*, the *Taeniathero-Aegilopion* or the *Hordeion leporini* is not considered here as convincing. Here I prefer to adopt the concept of an alliance as suggested by FANELLI (1988) and CANO-ORTIZ & al. (2014). Accordingly, the alliance *Securigero securidacae-Dasypyrion villosi* Cano-Ortiz, Biondi et Cano in Cano-Ortiz et al. 2014 *nom. inval.* (ICPN art. 5) is here validated.

The core distribution area of the *Securigero securidacae-Dasypyrion villosi* is the Apennine Peninsula, however it is possible that this area might be extended in the southwestern Balkans (Greece and Albania), as suggested by FANELLI (2011) and FANELLI & al. (2015) and confirmed by personal observations for the footslopes of Mount Nemerçkë (Albania).

The high-rank syntaxa, to which the *Securigero-Dasypyrion* should be classified remain a critical issue. It is apparent that the occurrence of perennial mesophilous species (*Cynosurus cristatus*, *Holcus lanatus*, *Lolium perenne*, *Phleum pratense*, *Plantago lanceolata* etc.) in the *Dasypyrum villosum* grasslands developed on

deep and moist soils could suggest classification in the *Molinio-Arrhenatheretea*. Nevertheless I prefer to include the *Securigero-Dasypyrion* in the *Brometalia rubenti-tectorum* (*Chenopodietea*) due to the occurrence of significant anthropogenic component always associated with the *Dasypyrum villosum* grasslands; also the high number of the *Helianthemetea* mediterranean therophytes plays a supportive role.

The following associations can currently be included in the *Securigero-Dasypyrion villosi*:

- Bromo diandri-Dasypyretum villosi* Pignatti 1952
- Eryngio amethystini-Dasypyretum villosi* Rosati et al. 2012
- Laguro ovati-Dasypyretum villosi* Fanelli 1998
- Securigero securidacae-Dasypyretum villosi* Cano-Ortiz et al. 2014
- Vulpio ligusticae-Dasypyretum villosi* Fanelli 1998

The *Hordeum bulbosum* and *Vulpia ligustica* submontane communities described for the Tyrrhenian macroslope of the Central Apennines (BLASI & al., 2009), originally classified in the *Cynosurion cristati*, could also be considered as belonging to a mesophilous section of the *Securigero-Dasypyrion*.

A NEW ALLIANCE OF FRINGE VEGETATION FROM SOUTHERN IBERIA

(by Jorge Capelo)

***Stachyo lusitanicae-Cheirolophion sempervirentis* (Capelo 1996) Capelo stat. nov. hoc loco**
(*Asphodeletalia macrocarpi*, *Trifolio-Geranietea*)

BASIONYM: *Stachyo lusitanicae-Cheirolophenion sempervirentis* Capelo 1996 (CAPELO, 1996: 124-125).

NAME-GIVING TAXA: *Cheirolophus sempervirens*, *Stachys germanica* subsp. *cordigera* (syn. *S. lusitanica*).

HOLOTYPE: *Leucanthemo sylvatici-Cheirolophetum sempervirentis* Costa et al. 1993 (COSTA & al., 1993: 58, Table 5).

DIAGNOSTIC TAXA: *Arabis stenocarpa*, *Cheirolophus sempervirens*, *Helminthotheca comosa* subsp. *lusitanica*, *Prunella x intermedia*, *Stachys germanica* subsp. *cordigera*.

DISTRIBUTION: southwestern Iberian Peninsula (Spain and Portugal).

DIAGNOSIS: tall-herb woodland fringes on decalcified, neutral to slightly acid mesotrophic substrata, in the themomediterranean and low mesomediterranean belts of the southwestern Iberia; associated with the *Quercion broteroi* and the *Oleo sylvestris-Quercion rotundifoliae* (*Quercetea ilicis*) forest communities.

SYNTAXONOMY: RIVAS-MARTÍNEZ & al. (2011: 258-259) interpreted the *Origanion virentis* (*Origanetalia vulgaris*, *Trifolio-Geranietea*) as an alliance uniting both silicolous and basicolous fringe communities. This is at variance with the current classification principle adopted in the *Trifolio-Geranietea*, where the substrate is one of major drivers at the alliance level, as this is the case in the North, Central and southwestern Europe. The considerable floristic differences between the suballiances *Origanenion virentis* (on acidic silicolous soils in the mesomediterranean to supramediterranean belts) and the *Stachyo lusitanicae-Cheirolophion sempervirentis* Capelo 1996 (on basic decalcified, neutral to slightly acid mesotrophic substrates in the themomediterranean and low mesomediterranean belts) warrant recognition of the latter as an alliance in its own right.

At present, the following associations are included in the *Stachyo lusitanicae-Cheirolophion sempervirentis*:

Bartsio asperae-Origanetum virentis Lopes, P. Gomes et Ladero 2008

Leucanthemo sylvatici-Cheirolophetum sempervirentis Costa et al. 1993

Origano virentis-Leucanthemetum sylvatici Pereira 2009

Picrido algarbiensis-Cheirolophetum sempervirentis P. Gomes et Ferreira 2005

Senecio lopezii-Cheirolophetum sempervirentis Capelo 1996

Stachyo lusitanicae-Origanetum virentis (Capelo 1996) Capelo et Costa in Costa et al. 2002

A NEW ORDER OF THE FRINGE VEGETATION FROM THE CANARY ISLANDS AND MADEIRA

(by Jorge Capelo & Ladislav Mucina)

Ranunculo cortusifolii-Geranietalia reuteri
Capelo et Mucina ordo nov. hoc loco

(*Trifolio-Geranietea*)

NAME-GIVING SPECIES: *Geranium reuteri*, *Ranunculus cortusifolius*.

HOLOTYPE: *Ranunculo cortusifolii-Geranium canariensis* Rivas-Martínez, Wildpret, Del Arco, O. Rodríguez, Pérez de Paz, García Gallo, T.E. Díaz et Fernández-González 1993 (RIVAS-MARTÍNEZ & al., 1993: Itinera Geobot. 7: 225).

DIAGNOSTIC TAXA: *Dactylorhiza foliosa*, *Geranium palmatum*, *G. reuteri*, *Myosotis latifolia*, *Pericallis appendiculata*, *P. aurita*, *P. cruenta*, *P. echinata*, *P. tussilaginis*, *Pimpinella dendrotragium*, *Ranunculus cortusifolius*, *Rumex maderensis*, *Scrophularia smithii*, *Teucrium francoi*, *Viola paradoxa*.

DISTRIBUTION: Canary Islands (Spain) and Madeira (Portugal).

DIAGNOSIS: tall-herb fringe communities of Canary-Madeiran laurel forests (*Pruno-Lauretea*).

SYNTAXONOMY: The floristic composition of the Canary-Madeiran forest fringe communities is floristically (and obviously also biogeographically due to the high regional/local endemism) very different from the fringe communities of the continental Europe. According to the original proposal by RIVAS-MARTÍNEZ & al. (1993: 225–227), there are only *Brachypodium sylvaticum*, *Carex divulsa*, *C. muricata* subsp. *pairae*, *Clinopodium menthifolium* subsp. *menthifolium*, *C. vulgare* subsp. *arundanum* and *Origanum vulgare* subsp. *virens* which would be linking the Canary-Madeiran fringe communities at class and order levels (*Origanetalia vulgaris*, *Trifolio-Geranietea*) with the continental European fringe syntaxa. In order to emphasize the special position of the Canary-Madeiran fringe communities, we introduce here a new ordo – the *Ranunculo cortusifolii-Geranietalia reuteri* and designate the sole alliance thus far

recognised on both archipelagos – the *Ranunculo cortusifolii-Geranion canariensis* Rivas-Martínez et al. 1993 as the holotype of the new ordo. The character-species of the new ordo are identical to those of the type alliance as proposed in the protologue, adding those from COSTA & al. (2004; see also RIVAS-MARTÍNEZ & al. 2002). The inclusion of forest fringes of the Azores archipelago (*Pericallion malvifoliae* F. Prieto, Dias et Aguiar in F. Prieto, Aguiar et Dias 2012) in this order could also be considered as plausible. Nevertheless, as it is in the scope of a different forest vegetation class (*Lauro azoricæ-Juniperetea brevifoliae*), the only floristic link being *Ranunculus cortusifolius* and the greater floristic affinity is with Azorean grassland *Tolpido-Holcetea rigidi*, the inclusion of Azorean fringe communities in the new order remains only provisory.

ON THE PRIORITY OF THE NAME
SCORZONERETALIA VILLOSAE FOR THE
MESOXEROPHYTIC EUROPEAN
GRASSLANDS

(by Massimo Terzi & Romeo Di Pietro)

***Scorzoneretalia villosae* Kovačević 1959**
(*Festuco-Brometea*)

SYNONYMS: *Brometalia erecti* W. Koch 1926 *nom. amb. rejic. prop.* (ICPN art. 36); *Scorzonerion villosae-Chrysopogonetalia grylli* Horvatić et Horvat in Horvatić 1963 (syntax. syn.); *Brachypodio-Chrysopogonetalia* (Horvatić 1958) Boşcaiu 1972 *nom. inval.* (ICPN art. 3m; Remark 1, ICPN art. 27); *Scorzoneretalia villosae* Horvatić 1973 *nom. illeg.* (ICPN art. 31); *Scorzoneretalia villosae* Horvatić 1975 *nom. illeg.* (ICPN art. 31).

HOLOTYPE: *Scorzonerion villosae* Horvatić ex Kovačević 1959 (KOVAČEVIĆ, 1959: Godišnjak Biološkog Instituta Univerziteta u Sarajevu 1-2: 3-46).

The meso-xerophytic alliances of the *Festuco-Brometea*, previously classified in different orders, have recently been combined into

a single European mesophytic order, carrying the validly published name *Brometalia erecti* W. Koch 1926 (DENGLER & al., 2003; MUCINA & al., 2009). This name was proposed for rejection as *nomen ambiguum* since it has often been used (mostly accompanied the erroneous author citation ‘Braun-Blanquet 1936’) in a sense that excludes its nomenclatural type (DENGLER & al., 2006). It has been further proposed (see DENGLER & al., 2003; MUCINA & al., 2009) that this rejected name be substituted by the *Brachypodietalia pinnati* Korneck 1974.

A recent revision of the *Scorzoneretalia villosae* Kovačević 1959 (TERZI, 2015) stressed some similarities between the mesophilous associations classified within the *Scorzonerion villosae* Horvatić ex Kovačević 1959 and the *Brachypodietalia pinnati*. The *Scorzonerion villosae* is the nomenclatural type of the *Scorzoneretalia villosae* and of its mesophilous suborder *Scorzoneretalia villosae* Terzi 2015. The revision has also documented that the original diagnosis of the *Scorzonerion villosae-Danthonietum calycinae* Kovačević 1959, i.e. the type association of the *Scorzonerion villosae* (here including also the *Hypochoeridion maculatae* Horvatić ex Terzi 2011), was recorded in the area of Bosanski Petrovac (Bosnia-Herzegovina). This association, together with other mesophilous units of the same alliance, turned out to be similar to other Balkan mesoxerophytic syntaxa originally classified in the *Bromion erecti* and the *Danthonio-Brachypodium* Boşcaiu 1972. Many authors (e.g. BOŞCAIU, 1972; ILIJANIĆ & al., 1972; APOSTOLOVA & al., 2014; TERZI, 2015) discussed this similarity as well. BOŞCAIU (1972) classified the Illyrian *Scorzonerion villosae* and the Romanian *Danthonio-Brachypodium* in the same order, the *Brachypodio-Chrysopogonetalia* (Horvatić, 1958) Boşcaiu 1972 *nom. inval.* (SANDA & al., 2008; TERZI, 2015). The order suggested by BOŞCAIU (1972) was nomenclaturally and syntaxonomically similar to the concept of *Scorzoneretalia villosae*. In fact HORVATIĆ (1958) included the *Scorzonerion villosae* in the original diagnosis of the *Brachypodio-Chrysopogonetea* and the same

alliance was subsequently included by HORVATIĆ (1963) in the *Scorzenero-Chrysopogonetalia* or in the *Scorzeneretalia villosae* (KOVAČEVIĆ, 1959; HORVATIĆ, 1973). On the other hand, DENGLER & al. (2012) considered the *Brachypodio-Danthonion* to be a syntaxonomical synonym of the *Cirsio-Brachypodion* (the nomenclatural type of the *Brachypodietalia pinnati*) and included the latter in the *Brachypodietalia pinnati*. It is evident, therefore, that the mesophilous wing of the *Scorzeneretalia villosae* (*Scorzenerion villosae*) and the *Brachypodietalia pinnati* exhibit a significant degree of similarity.

Many species of the *Scorzenerion villosae*, including some of its diagnostic species, are shared with the *Brachypodietalia pinnati* (see for instance DENGLER & al., 2012; PEDASHENKO & al., 2013; TERZI, 2015: Online Supplement 2) and therefore, following the idea of maintaining just one single European mesoxerophytic order, the alliance *Scorzenerion villosae* should be classified within the latter order. As a consequence, two syntaxa of the same rank (*Scorzeneretalia villosae* and *Brachypodietalia pinnati*) become united and either the earliest name, the *Scorzeneretalia villosae*, should be retained as the name of the resulting syntaxon (see the Introduction in WEBER & al., 2000 and the ICPN art. 52), or the *Brachypodietalia pinnati* should be conserved.

The name *Scorzeneretalia villosae*, using the erroneous author citations 'HORVATIĆ 1973' or 'Horvatić 1975', has been used in many syntaxonomic studies (e.g. HORVATIĆ, 1973, 1975; POLDINI, 1989, 1995; POLDINI & KALIGARIČ, 1997; SELIŠKAR, 1998; REDŽIĆ, 1999; REDŽIĆ & al., 2013; PIGNATTI & PIGNATTI, 2014); it is also used in the latest version of the Interpretation Manual of the European Union Habitats (EUROPEAN COMMISSION, 2013). Following the proposal by HORVATIĆ (1973), the name *Scorzeneretalia villosae* has been used to designate the meso-xerophytic syntaxa of the Western Balkans and the southeastern Prealps. It has also been compared to the more xerothermic *Koelerietalia splendidis* Horvatić 1973 from the same region. Indeed the *Scorzeneretalia vil-*

losae became a well-known and frequently accepted name. On the contrary, the *Brachypodietalia pinnati* has been largely interpreted as a synonym of the *Brometalia erecti* or, more rarely, of the *Festucetalia valesiaca*. It has also been completely ignored as is the case of many crucial syntaxonomic studies both at the European and national levels (e.g. ROYER, 1991; DONIȚĂ & al., 1992; KOLBEK & MUCINA, 1993; BIONDI & al., 1995; THEURILLAT & al., 1995; CHYTRÝ & al., 2007 etc.), up to nearly a decade ago when the name was in some papers proposed as *nomen conservandum*.

Any further nomenclature steps (including either conservation of the *Brachypodietalia pinnati* against the *Scorzeneretalia villosae* or the conservation of the *Scorzeneretalia villosae* as prior name) could be taken only if it is shown beyond any doubt that the *Scorzeneretalia villosae* and *Brachypodietalia pinnati* are considered syntaxonomically identical (through the shared nomenclature type). In fact the wide geographical distance that separates the core distribution areas of the latter two orders (western regions of Central Europe for the *Cirsio panonici-Seslerietum caeruleae* Klika 1933 as the nomenclature type of the *Cirsio-Brachypodion* and the Western Bosnia-Herzegovina for the *Danthonio-Scorzeneretum* Kovačević 1959 as the nomenclature type of the *Scorzenerion villosae*) would leave open the possibility that *Scorzeneretalia villosae* and *Brachypodietalia pinnati* are classified as two geographically orders in their own right.

ON THE LEGITIMACY OF THE NAME *BRACHYPODIO-BROMETALIA*

(by Romeo Di Pietro, Massimo Terzi & Jean Paul-Theurillat)

The name '*Brachypodio-Brometalia* ord. nov.' was proposed by BARBERO & LOISEL (1972: 95; the date of publication of the first issue of volume 28 of the «Anales» is 1972, not 1971, as reported in the footnote of the first page). The new order was proposed to distinguish the dry grasslands under Mediterranean

influence from those of Central Europe. In BARBERO & LOISEL (1972), the order *Brachypodio-Brometalia* was divided into two new sub-orders. (1) The 'S/O - *Astragalo-Festucetalia* sub-ord. nov.' that included only the *Festuco-Bromion* Barbero et Loisel 1972 and which corresponds to dry grasslands syndynamically linked to the potential forest vegetation of the *Quercus-Fageteta* and the *Querceteta pubescentis*, and (2) the 'S/O - *Brachypodietalia phoenicoidis* (Br.-Bl. 1931) Mol. 1934', representative of dry grasslands syndynamically associated with the *Quercetalia ilicis*. However, the inclusion of the suborder *Brachypodienalia phoenicoidis* means the inclusion of the type of the '*Brachypodietalia phoenicoidis* Br.-Bl. ex Molinier 1934' (ICPN art. 27) in the new order *Brachypodio-Brometalia* through an unambiguous bibliographical reference to MOLINIER (1934). Therefore, the new name '*Brachypodio-Brometalia* Barbero et Loisel 1972' is an illegitimate *nomen superfluum* for the name '*Brachypodietalia phoenicoidis* Br.-Bl. ex Molinier 1934' (ICPN art. 29c).

VALIDATION AND SYNTAXONOMICAL
DISCUSSION ON THE *CIRSIO-NARDION*, A
MISUNDERSTOOD SILICICOLOUS
ALLIANCE OF THE SOUTHERN ITALY
(by Romeo Di Pietro & Jean-Paul Theurillat)

Cirsio vallis-demoni-Nardion strictae
Giacomini et Gentile ex Di Pietro et
Theurillat *all. nov. hoc loco*
(*Nardetalia strictae*, *Nardetea strictae*)

SYNONYMS: *Cirsio-Nardion* Giacomini et Gentile 1961 *nom. inval.* (ICPN arts. 2b, 8); *Cirsio-Nardion* Giacomini et Gentile 1966 *nom. inval.* (ICPN arts. 2b, 8); *Potentillion calabrae* de Foucault 1994 *nom. inval.* (ICPN art. 5).

NAME-GIVING TAXA: *Cirsium vallis-demoni*, *Nardus stricta*.

HOLOTYPE (hoc loco): *Luzulo multiflorae-Nardetum strictae* Giacomini et Gentile ex Bonin 1978 (BONIN, 1978: 132).

DIAGNOSTIC TAXA: *Armeria brutia*, *Avenula*

praetutiana subsp. *rigida*, *Centaurea sarfatiana*, *Cirsium vallis-demoni*, *Genista silana*, *Luzula calabra*, *Potentilla calabra*, *Viola aethnensis* subsp. *messanensis*.

DIAGNOSIS: acidophilous grasslands on siliceous substrates dominated by *Nardus stricta*, developed in the montane belt of the south central Calabria (Southern Italy).

DISTRIBUTION: Massifs of Sila, Serre Calabre and Aspromonte (Calabria, Italy).

GIACOMINI & GENTILE (1961: 56-58) described two associations – the '*Hypochaerido-Potentilletum calabrae*' and the '*Luzulo multiflorae-Nardetum strictae*' – and classified them into a new alliance, the *Cirsio-Nardion*, with *Cirsium vallis-demoni*, *Nardus stricta* and *Ranunculus thomasi* as the character-species. However, no relevés were provided, nor was a reference to published relevés for the associations. Therefore, lacking a sufficient diagnosis, the name '*Cirsio-Nardion*' is invalidly published (ICPN arts. 2b, 8). Five years later, GIACOMINI & GENTILE (1966: 136-137) proposed the same scheme in another paper, repeating the original text of their previous paper of 1961, however providing a synoptic table. The alliance '*Cirsio-Nardion*' again contains the same (see above) two associations – the '*Luzulo-Nardetum*' (with two subassociations) and the '*Hypochaerido-Potentilletum calabrae*'. In the synoptic table, the '*Luzulo-Nardetum genistosum*' has ten species listed for five relevés. Although the constant species appear to be listed (five species with a constancy of V), the species with constancy of III are quite probably missing (only one species listed), hence the requirements of the ICPN art. 7 were not fulfilled. The '*Luzulo-Nardetum agrostietosum*' has nine species listed for 11 relevés. The constant and the frequent species appear to be listed (three species with a constancy of V and two with a constancy of IV), but the medium frequency (II and III) species are almost missing with two species with a constancy of III and none of II, hence the requirements of the ICPN art. 7 were not fulfilled. The *Hypochaerido-Potentilletum calabrae* with just seven species listed, of which

none having a constancy of IV in 14 relevés and two species having a constancy of I, does not meet the criteria of the ICPN art. 7. Moreover, the characteristic species of the highest syntaxonomical ranks (class and order), as well as the companion species, are completely missing. Those three synoptic columns presented in the table do not meet the requirements of the article 7 of ICPN for a sufficient diagnosis of an association in case a synoptic table is available (to provide at a minimum the species with a constancy higher than 20%). GIACOMINI & GENTILE (1961: 136) further stated that these associations «will be described soon in a larger, floristic and ecological work» (translated from French). Therefore, the two associations included by GIACOMINI & GENTILE (1961) in the '*Cirsio-Nardion*' are deemed invalidly published (ICPN arts. 2b, 7) and, as a consequence, the name '*Cirsio-Nardion*' is lacking a sufficient diagnosis.

Without having been validated, the name '*Cirsio-Nardion*' was recently proposed again as a good syntaxonomical concept for the Apennine Peninsula by UBALDI (2011: 74) and DE FOUCAULT (2012: 251). In particular, de Foucault (2012) designated the name '*Luzulo multiflorae-Nardetum* Giacomini & Gentile 1966' as the *lectotypus* of the '*Cirsio vallis demonis-Nardion* Giacomini & Gentile 1966'. This lectotypification is superfluous as the name of the alliance is invalid. It is relevant, however, that in his paper de Foucault commented on the synoptic relevés in Giacomini & Gentile (1966) of the associations '*Luzulo multiflorae-Nardetum*' and '*Hypochaerido-Potentilletum*' as being "doubtless incomplete" making him «to renounce to include a synoptic column» in the general table of his paper.

Earlier, DE FOUCAULT (1994: 441) proposed the name '*Potentillion calabrae* (BONIN 1978) all. nov.' (*recte: Potentillion calabrae* de Foucault 1994) to accommodate syntaxonomically the grasslands supported by siliceous substrates of the Southern Italy. This alliances contained two associations, such as the '*Luzulo multiflorae-Nardetum strictae* Giacomini & Gentile 1966' and the '*Foeniculo-Festucetum spadiceae* (Giacomini & Gentile 1966) Bonin

1978'. DE FOUCAULT (1994) selected the name '*Luzulo multiflorae-Nardetum strictae* Giacomini & Gentile 1966' as the type of his new alliance. However, independently of the invalidity of the name '*Luzulo multiflorae-Nardetum strictae* Giacomini & Gentile 1966', there was neither a direct nor an indirect bibliographical reference to GIACOMINI & GENTILE (1966) in the de Foucault's paper. DE FOUCAULT (l.c.) referred to BONIN (1978) for the '*Luzulo multiflorae-Nardetum strictae* Giacomini & Gentile 1966'. Although BONIN (1978: 130-136) identified the '*Luzulo multiflorae-Nardetum strictae* Giacomini & Gentile 1966' in the Sila Massif and provided an incidental validation of the latter name with a complete phytosociological table composed of 14 relevés containing 63 species to be included in the alliance *Ranunculo-Nardion* Bonin 1972, there is no bibliographical reference to GIACOMINI & GENTILE (1966) in BONIN (1978), but only a reference to 'GIACOMINI & GENTILE (1962)' [*recte: 1961*] where the '*Luzulo-Nardetum*' was invalidly published (see above). As the incidentally validated name *Luzulo multiflorae-Nardetum strictae* Giacomini et Gentile ex Bonin 1978 is not the name designated by De Foucault for the type, a valid type is missing for the '*Potentillion calabrae* de Foucault 1994' and thus the name remains invalidly published (ICPN art. 5).

Since the names '*Cirsio vallis-demoni-Nardion strictae*' and '*Potentillion calabrae*' were invalidly published, we validate here the name *Cirsio vallis-demoni-Nardion strictae* by selecting the *Luzulo multiflorae-Nardetum strictae* Giacomini et Gentile ex Bonin 1978 as the nomenclature type of the alliance.

The idea of an alliance endemic of the siliceous substrates for the south-central Calabria is in accordance with the peculiar biogeographical and ceonological features of this area. The *Nardus stricta* grasslands of the massifs of Sila, Serre Calabre and Aspromonte are distinguished from the rest of the acidophilous grasslands of the Southern Apennines due to their strong endemic component (BERNARDO & al., 1991; BRULLO & al., 2004, 2007). Taxa such as *Anthemis cretica* subsp. *calabrica*, *Armeria*

brutia, *Helictochloa versicolor* subsp. *praetutiana*, *Carlina nebrodensis*, *Centaurea poeltiana*, *C. sarfattiana*, *Cirsium vallis-demoni*, and *Viola aethnensis* subsp. *messanensis* do not occur in the adjacent limestone massifs of Pollino and Orsomarso and they are restricted to the siliceous mountains of Calabria.

The alliance *Cirsium vallis-demoni-Nardion* is widespread throughout the Sila Massif, the Serre Calabre and the Aspromonte. It does not occur in Sicily where BRULLO & GRILLO (1978) classified the montane, mesic acidophilous grasslands of the Nebrodi Mountains (Northern Sicily) in the *Molinio-Arrhenatheretea* and proposed a new order – the *Cirsietalia vallis-demoni*. The possible syntaxonomical synonymy between the *Cirsium-Nardion* and *Ranunculo-Nardion*, as suggested by BONIN (1978), is hardly plausible. The *Cirsium-Nardion* is restricted to siliceous substrates of the montane belt, in contact with the potential *Pinus nigra* subsp. *calabrica* or *Fagus sylvatica* forests. The *Ranunculo-Nardion* occurs on limestone substrates of the subalpine belt of the Southern Apennines as primary grasslands or in places also as secondary grasslands, syndynamically linked to the potential dwarf-shrub communities of the region. DE FOUCAULT (1994) classified the *Ranunculo-Nardion* in the *Trifolietalia parnassi* Quézel 1964, supposed to occur at high elevations of the Apennines and in the Southern Greece. This suggestion, however, lacks solid floristic and ecological grounding; the *Trifolietalia parnassi* Quézel 1964 do not occur on the Apennine Peninsula.

ABBATE & al. (1984) considered the *Nardus stricta* mat-grass (*Nardetea strictae*) as the final dynamical stage of all the meso-acidophilous pastures of the Sila Massif. In contrast, BRULLO & al. (2001, 2004, 2005) have not considered the *Nardetea strictae* as occurring in the south-central Calabria where they included the majority of the mesic acidophilous montane grasslands in the *Anthemidetalia calabrica* (*Cerastio-Carlinetea nebrodensis*) which includes the Sicilian and Calabrian orophilous cushion-like vegetation. They classified the remainder of the grasslands in the *Cirsietalia*

vallis-demoni and the *Holoschoenetalia* (*Molinio-Arrhenatheretea*).

We designate the *lectotypus hoc loco* for the name *Luzulo multiflorae-Nardetum strictae* Giacomini et Gentile ex Bonin 1978 by selecting the relevé 655 of Table 12 in BONIN (1978). The remaining nomenclatural act in the context of the *Cirsium-Nardion* should be the validation of the other association proposed by GIACOMINI & GENTILE (1961), the '*Hypochaerido-Potentilletum calabrica*'. In this connection, BRULLO & al. (2004: 473) proposed the name '*Armerio brutiae-Potentilletum calabrae* Brullo, Gangale et Uzunov ass. nov.', but this name was invalidly published due to nomenclatural technicality (using the English term 'holotype' instead of the Latin '*holotypus*' as required by the ICPN art. 5). The *Hypochaerido-Potentilletum calabrica* was considered a synonym of the '*Armerio brutiae-Potentilletum calabrae*'. This association was validated later in Brullo & al. (2005: 125) who described two subassociations, such as the '*potentilletosum calabrae*' (= *typicum*) that would correspond to the '*Hypochaerido-Potentilletum calabrica*', and the '*seselietosum peucedanoidis*'. The latter subassociation includes (in the synonymy) the name '*Foeniculo-Festucetum spadiceae* Giacomini et Gentile 1961 ex Bonin 1978' considered as invalidly published by claiming that the Bonin's PhD thesis was not published as printed material (see ICPN art. 1). As already mentioned by DI PIETRO (2011), the PhD thesis of BONIN (1978) is an effective publication. Therefore the *Foeniculo-Festucetum spadiceae* Giacomini et Gentile ex Bonin 1978 is a valid name. As a consequence, the name *Armerio brutiae-Potentilletum calabrae* Brullo, Gangale et Uzunov ex Brullo in Brullo, Cormaci, Giusso del Galdo, Guarino, Minissale, Siracusa et Spampinato 2005 is a superfluous, illegitimate name (ICPN art. 29c). The name '*Foeniculo-Festucetum spadiceae*' was proposed by GIACOMINI & GENTILE (1961: 57; 1966: 136), who published this name invalidly for the same reasons mentioned above for the *Luzulo-Nardetum* and the '*Hypochaerido-Potentilletum*' (ICPN arts. 2b, 7). The name '*Foeniculo-Festucetum spadiceae*' has been validated inci-

dentally later by Bonin (1978: 135-139, Table 15) who presented a phytosociological table composed of five relevés and 56 species. To our knowledge, the name *Foeniculo-Festucetum spadiceae* Giacomini et Gentile ex Bonin 1978 has not been typified yet and therefore we designate here the *lectotypus hoc loco* for the *Foeniculo-Festucetum spadiceae* by selecting the relevé 632 in the Table 15 in BONIN (1978). Bonin included this association in his *Ranunculo-Nardion*. In agreement with DE FOUCAULT (1994), we suggest that it belongs to the *Cirsio-Nardion*.

ON THE NOMENCLATURE OF THE NAMES *NARDETEA STRICTAE*, *CALLUNO-NARDETEA*, *NARDETALIA STRICTAE* AND *NARDO-GALION SAXATILIS* (by Jean-Paul Theurillat)

***Nardetea strictae* Rivas Goday et Borja Carbonell in Rivas Goday et Mayor López 1966 nom. conserv. propos.**

For some authors (see TÜXEN, 1974), it was OBERDORFER (1949) in the first edition of his *Pflanzensoziologische Exkursionsflora* who coined the name '*Nardetea*'. However, the name '*Nardetea*' does not appear in the Oberdorfer's flora where only the German word 'Nardeten' (a plural to denominate all the meadows dominated by *Nardus stricta*) was used. On p. 16, OBERDORFER (l.c.) suggested a «class of nutrient-poor swards and pastures on acid soils» (orig.: «Klasse der bodensauren Magerrasen u. Magerweiden»), with the order *Nardetalia* retained as provisional, but the class was not named specifically. Therefore, the name '*Nardetea* Oberdorfer 1949' is a phantom.

The name '*Nardetea strictae*' was published for the first time in RIVAS GODAY & BORJA CARBONELL (1961) both as a class (pp. 10, 178, 218, 220, 225) and as a subclass (p. 218). From the syntaxonomical structure of the whole paper, it is clear that the syntaxon designated under the name '*Nardetea strictae*' should be considered at the class level. Indeed, on p. 218, the authors refer

to the 'Clase XV. — (Subclas.) *Nardetea* (Oberd., Prsg. 1949)'. In similar cases in the same paper, e.g. '*Chenopodio-Stellarietea*' on p. 275, the reverse connotation was used when a name should be retained at the subclass level: (e.g. 'Subclase (clase) XX. — *Chenopodio-Stellarietea* Riv. God. 1955'). Contrary to the opinion of DE FOUCAULT (2012: 241), the fact that the authors stated on p. 218: «To consider the order *Nardetalia* Prsg. 1949 as an independent subclass is due to the fact that the *Calluno-Ulicetalia* Tx. 1937 is not present in our region,...» (orig.: «El considerar al orden *Nardetalia* Prsg. 1949 como subclase independiente, es debido a que la *Calluno-Ulicetalia* Tx. 1937 no está presente en nuestra región, ...»), is not a procedure at variance with the Code and it is in accordance with the ICPN art. 3e. However, either at the rank of class or subclass, the name '*Nardetea*' was invalidly published (ICPN art. 2b). Indeed, there is no bibliographical reference to Preising (1949) for the order '*Nardetalia* Prsg. 1949', the only order of the original diagnosis of the name. Equally the order '*Nardetalia*' was invalidly published in RIVAS GODAY & BORJA CARBONELL (1961) with the unique alliance '*Nardo-Galium saxatilis* Prsg. 1949' that contains a single association, the '*Nardetum gudaricum*'. Although the latter name was validly published, the relevés of the association do not include the name-giving taxon *Galium saxatile* making the name '*Nardo-Galium saxatilis*' invalidly published (ICPN art. 3f). Therefore, both the class '*Nardetea* Rivas Goday & Borja Carbonell 1961' and the subclass '*Nardetea* Rivas Goday & Borja Carbonell 1961' (recte: *Nardenea* Rivas Goday et Borja Carbonell 1961) were invalidly published because both names were lacking a sufficient diagnosis (ICPN art. 2b).

In RIVAS GODAY & RIVAS-MARTÍNEZ (1963), the name '*Nardetea*' corresponding to a class on p. 148 was invalidly published. The original diagnosis of the class contains two orders: (a) the '*Nardetalia* Prsg, 1943' and (b) the '*Udo-Nardetalia* Quezel, 1953' (pp. 148-149).

(a) In the order '*Nardetalia*' three alliances were mentioned: '*Nardo-Galium saxatilis* Prsg, 1943', '*Nardo-Trifolium alpini* Prsg, 1949' and '*Campanulo-Nardion* Riv. Mart., 1960'. All

three alliances were not valid elements of the diagnosis of the order according to ICPN art. 8. For the '*Nardo-Galion saxatilis*' and the '*Nardo-Trifolion alpini*', there is no reference to 'Preising (1943)' or to 'Preising (1949)', respectively. For the '*Campanulo-Nardion*', there is no reference to 'Rivas-Martínez (1960)'. Even if we consider that the unique, validly published association '*Nardetum gudaricum* Riv. God. et Borja 1961' listed in the suballiance '*Idubedo-Nardion*' of the '*Nardo-Galion saxatilis*' would be implicitly an element of the latter alliance, one could argue that there is no unambiguous reference according to ICPN art. 2b, Note 3, to RIVAS GODAY & BORJA CARBONELL (1961). The name of the journal, the volume and the pages are missing, and only the title of the paper was given. However, even if we admit that the bibliographical indication was sufficient at that time, the name-giving taxon *Galium saxatile* is missing in the '*Nardetum gudaricum*' (ICPN art. 3f), as in RIVAS GODAY & BORJA CARBONELL (1961).

(b) The order '*Udo-Nardetalia* Quezel, 1953' contains the alliance '*Plantaginion thalackeri* Quezel, 1953'. Although a bibliographical reference is given to QUÉZEL (1953) in the «Bibliografía» on p. 264 («Contribution à l'Etude phytosociologique et Geobotanique de la Sierra Nevada»), the reference is not an unambiguous reference according to ICPN art. 2b, Note 3 since the name of the journal, the volume, and the pages are missing. Since the Quézel's paper is not a book publication, at least the journal should have been mentioned for to create an unambiguous reference. Hence, independently of the fact that the name '*Udo-Nardetalia*' was validly published in QUÉZEL (1953), the order '*Udo-Nardetalia*' was not a valid element of the original diagnosis of the class '*Nardetea*' in RIVAS GODAY & RIVAS-MARTÍNEZ (1963) according to ICPN art. 8. Therefore, the name '*Nardetea* Rivas Goday in Rivas Goday et Rivas-Martínez 1963' was invalidly published due to the absence of a sufficient diagnosis (ICPN art. 2b) because both the orders '*Nardetalia*' and '*Udo-Nardetalia*' are lacking a sufficient diagnosis or a reference to a published one.

In RIVAS-GODAY & MAYOR LÓPEZ (1966), the name '*Nardetea* Riv. God. et Borja, 1961' was accepted as a class on p. 396, with the single order '*Nardetalia* (Oberd.) Preising, 1949' that included the '*Campanulo-Nardion* Riv. Mart., 1959'. In the bibliography, there is no reference to PREISING (1949), nor a reference to a paper by Rivas-Martínez published in 1959. However, on p. 354, the authors explicitly mentioned the *Campanulo-Nardion* for the Cordillera Central with a reference to Rivas-Martínez given as «(Riv. Martz.) (20)», the number 20 corresponding in the bibliography to RIVAS-MARTÍNEZ (1963) [recte: 1964] where one would find on p. 124 the name '*Campanulo-Nardion* Rivas Mart. 1959' that is validly published with two validly published associations – the *Campanulo-Festucetum violaceae* and *Luzulo-Juncetum ellmanii* (the correct citation of the alliance name should read: *Campanulo-Nardion* Rivas-Martínez 1964). Therefore, there is a sufficient diagnosis for the order's name *Nardetalia* that is, incidentally, a later, illegitimate homonym of Preising's name in 1950 (ICPN art. 31); the correct citation of this later homonym is '*Nardetalia* Preising ex Rivas Goday et Mayor López 1966 nom. illeg.' Although illegitimate, the name '*Nardetalia*' was validly published in RIVAS GODAY & MAYOR LÓPEZ (1966) and thus provides a sufficient diagnosis for the name of the class. Following the Recommendation 10C of the ICPN, the correct citation of the name should read: *Nardetea strictae* Rivas Goday et Borja Carbonell in Rivas Goday et Mayor López 1966. However, this name is a later syntaxonomic synonym of the *Nardo-Callunetea* published by PREISING (1950).

Since the name *Nardetea strictae* is well established in phytosociological literature, we propose to conserve the *Nardetea strictae* against the earlier name *Nardo-Callunetea* Preising 1950.

***Nardo-Callunetea* Preising 1950**

In his paper about the secondary, acidic low heaths and oligotrophic swards at low elevation, PREISING (1949) proposed to group these two for-

mations, for Central Europe under an Atlantic climatic influence, in a single class – the ‘*Nardo-Callunetea*’ on the basis of their strong floristic affinities resulting from a common syngensis. Syntaxonomically, each formation corresponds to an order – the ‘*Calluno-Ulicetalia*’ for the heaths, and the ‘*Nardetalia*’ for the swards. As for the sufficient diagnosis, the *Nardo-Callunetea* Preising 1949 would be a valid name. However, the first volume of the *Mitteilungen der Floristisch-soziologischen Arbeitsgemeinschaft N.F.*, where the paper has been ‘published’ does not fulfill the conditions of the ICPN art. 1. It is not a printed matter and it is hard even for a specialist to identify the production process used. Beside the technical aspect, at least three hints support the view that the volume 1 of the *Mitteilungen der Floristisch-soziologischen Arbeitsgemeinschaft N.F.* is not a printed matter: (1) the original publication is in A4 format; (2) the volume was hardly distributed outside the society (*Arbeitsgemeinschaft*); for instance it is missing in the extensive Braun-Blanquet Library in Bailleul (France), even in the form of a reprint, and finally and perhaps most importantly, (3) the volume was reprinted in 1955 with a new pagination for a better distribution, however using probably the same technique of production.

PREISING (1950) described several associations from the northwestern Germany dominated by *Nardus stricta*, grouping them into a single alliance – the *Nardo-Galion saxatilis* within the order *Nardetalia*. Both names were validly published (see below). The order was classified in the *Nardo-Callunetea* that is referred to his previous work (PREISING, 1949). In so doing, Preising provided a sufficient diagnosis for the valid publication of the name *Nardo-Callunetea*. However, nomenclaturally the class contains only swards and no more the low heaths of the *Calluno-Ulicetalia*. Therefore, the name *Nardo-Callunetea* Preising 1950 is an earlier name (heterotypic synonym) for the name *Nardetea strictae* Rivas Goday et Borja Carbonell in Rivas Goday et Mayor López 1966. However, since the Preising’s name has nearly always been used in the broad sense as intended by its author, it is proposed to conserve the name *Nardetea strictae* for

the class of the secondary mat-grass swards on nutrient-poor, acidic soils.

***Nardetalia strictae* Oberdorfer ex Preising 1950** (*Nardetea strictae*)

The name ‘*Nardetalia*’ was validly published in Table 1 in PREISING (1950). The original diagnosis of the order contains three validly published associations (‘*Nardo-Gentianetum pneumanthis* Prsg. 1950’, ‘*Planthantera robusta-Nardus stricta*-Ass. Prsg. 1950’, ‘*Botrychium lunaria-Polygala vulgaris*-Ass. Prsg. 1950’). In his paper, Preising has not attributed the order’s name to Oberdorfer. Therefore, the correct citation of the order reads: *Nardetalia strictae* Preising 1950 (adding the specific epithet, following the ICPN Recommendation 10C).

Remark on the name ‘*Nardetalia*’ in PREISING (1949): As for the sufficient original diagnosis, the name ‘*Nardetalia*’ was validly published on p. 88 in PREISING (1949; p. 18 in reprint of 1955). Indeed, Preising retained explicitly the provisional name ‘*Nardetalia*’ published by OBERDORFER (1949: 16) to be included in his new class ‘*Nardo-Callunetea*’. The original diagnosis of the order contains three alliances: ‘*Nardo-Galion*’, ‘*Trifolio alpini-Nardion*’, ‘*Nardion boreale*’. Among these three alliances, only the ‘*Nardo-Galion*’ was validly published in the same paper. The ‘*Trifolio-Nardion*’ was invalidly published because no association had been explicitly attributed to this new alliance that corresponds pro parte to the ‘*Nardion* Braun-Blanquet 1926’ (ICPN art. 2b); the ‘*Nardion boreale*’ is a provisional name (ICPN art. 3b). However, since the publication by PREISING (1949) is not considered ‘printed matter’ in the sense of ICPN art. 1 (see above: *Nardo-Callunetea* Preising 1949), the name ‘*Nardetalia* Preising 1949’ was not effectively published.

***Nardo-Galion saxatilis* Preising 1950** (*Nardetalia strictae*, *Nardetea strictae*)

As for the name ‘*Nardetalia*’, the name ‘*Nardo-Galion saxatilis*’ is validly published in

Table 1 in PREISING (1950), with the same three validly published associations mentioned above for the order. However, the name *Nardo-Galion saxatilis* is a later syntaxonomical synonym of the *Violion caninae* Schwickerath 1944.

Remark on the name '*Nardo-Galion saxatilis*' in PREISING (1949): The name '*Nardo-Galion saxatilis*' was not effectively published (ICPN art. 1) in Preising (1949; see above: *Nardo-Callunetea* Preising 1950). Syntaxonomically, the *Nardo-Galion* is a nomenclatural synonym of the *Violion caninae* Schwickerath 1944, because Preising (l.c.) included in the '*Nardo-Galion*' two associations that form the original diagnosis of the *Violion caninae*.

NOMENCLATRURAL NOTES ON THE *PASPALO-HELEOCHLOETALIA* (by Jean-Paul Theurillat)

The name '*Paspalo-Heleochloetalia* Br.-Bl. Ord. nova' was invalidly published on p. 70 in BRAUN-BLANQUET & al. (1952) because there was no taxon belonging to the genus *Heleochloa* quoted in the original diagnosis of the order. In fact this order contains (as a valid element) only the alliance '*Paspalo-Agrostidion* Br.-Bl. all. nova' which was validly published with its unique association '*Paspaleto-Agrostidetum* Br.-Bl. 1936' for which the reference was given in the bibliography of BRAUN-BLANQUET & al. (1952).

The other alliance ('*Heleochloion* Br.-Bl. all. nova prov.') as well as its unique association ('*Heleochloetum schoenoidis* Br.-Bl. prov. '), mentioned in the order '*Paspalo-Heleochloetalia*', are considered provisional (ICPN art. 3b). Because of the missing taxa of the genus *Heleochloa* in the original diagnosis of the association *Paspalo-Agrostietum* Br.-Bl. in Br.-Bl., Gajewski, Wraber et Walas 1936, the name *Paspalo-Heleochloetalia* Br.-Bl. in Br.-Bl., Roussine et Nègre 1952 was invalidly published (ICPN art. 3f).

The name '*Paspalo-Heleochloetalia* Br.-Bl. 1952' was validly published on p. 365 in RIVAS-GODAY (1956). The original diagnosis of the name contains the '*Paspalo-Agrostidion* Br.-Bl.

1936' [recte: *Paspalo-Agrostion* Br.-Bl. 1952] and the '*Heleochloion* Br.-Bl. 1952'. The latter name was validly published on p. 366, with the association '*Heleochloeto-Fimbristyletum* Br. Bl. et Rivas Goday, nova' containing both name giving taxa of the order (*Paspalum distichum* and *Heleochloa schoenoides*). The name '*Heleochloion*', provisionally published by BRAUN-BLANQUET in BRAUN-BLANQUET & al. (1952) is thus validated in RIVAS GODAY (1956). Hence, the correct citation for both the alliance and the order is *Heleochloion* Braun-Blanquet ex Rivas Goday 1956 and *Paspalo-Heleochloetalia* Br.-Bl. ex Rivas Goday 1956, respectively.

To our knowledge, the name *Paspalo-Heleochloetalia* Br.-Bl. ex Rivas Goday 1956 (RIVAS GODAY, 1956: 365) has not been typified yet. Therefore, I select here the name *Paspalo-Agrostion* Br.-Bl. in Br.-Bl. et al. 1952 as the *lectotypus hoc loco* (BRAUN-BLANQUET & al., 1952: 71). The association *Paspalo-Agrostietum* Br.-Bl. 1936 is automatically the holotype of the name *Paspalo-Agrostion* Br.-Bl. in Br.-Bl. et al. 1952 (ICPN art. 18).

NOMENCLATURE NOTES ON THE NAMES *PLANTAGINI-CORYNEPHORION*, *CORYNEPHORO-PLANTAGINION*, *AGROSTIO CASTELLANAE-PLANTAGINION* *RADICATAE* AND *HIERACIO-PLANTAGINION* (by Jean-Paul Theurillat)

Plantagini-Corynephorion Rivas Goday et Rivas-Mart. 1963 nom. inval. (ICPN art. 2b)

In RIVAS GODAY & RIVAS-MARTÍNEZ (1963: 257), the alliance '*Plantago-Corynephorion* nova' was listed in the synsystematic scheme as a *nomen nudum* (ICPN art. 2b). The correct citation of the invalidly published name is *Plantagini-Corynephorion* Rivas Goday et Rivas-Mart. 1963 nom. inval. (ICPN 2b).

In RIVAS GODAY (1964) the alliance '*Plantago-Corynephorion* Riv. God. et Riv. Mart. 1963' in the order '*Corynephoretalia*' either does not appear to be adopted (ICPN art. 3b) or appears as a synonym (ICPN art. 3a). The

name was cited in the table of contents on p. XI after the alliance '*Corynephorion*'. In the synsystematic scheme on p. 97, it is the only alliance listed for the order '*Corynephoralia*', but on p. 414, where the latter order was described, the alliance '*Corynephorion*' appears to be retained and the 'al. *Plantago-Corynephorion* Riv. God et Riv. Martz., 1963' was listed as a synonym after a list of indicator species for the alliance '*Corynephorion* Klika 1931'. Therefore, it appears that the name '*Plantago-Corynephorion*' was not distinguished from the alliance *Corynephorion*. In addition, the name *Plantagini-Corynephorion* lacks an original diagnosis (ICPN art. 2b) with no association having been assigned to the alliance. On p. 415 only relevés of fragmentary nature were presented and attributed to the alliance *Corynephorion*. Therefore, no validation of the name *Plantagini-Corynephorion* Rivas Goday et Rivas-Mart. 1963 occurs in RIVAS GODAY (1964).

***Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. in Rivas-Mart. 1975 nom. inval.**

RIVAS-MARTÍNEZ (1975: 1523) mentioned the alliance '*Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Martínez 1963 nom. inver. 'with the single association '*Plantagini-Jasionetum sessiliflorae* Rivas-Martínez ined.'. The latter name is a *nomen nudum*, due to lack of any bibliographical reference to a published relevé. Therefore, the alliance name lacks a sufficient diagnosis too and hence was invalidly published (ICPN art. 2b). The correct citation of the invalidly published name reads: *Plantagini-Corynephorion* Rivas Goday et Rivas-Mart. in Rivas-Mart. 1975 nom. inval. (ICPN art. 2b).

***Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. ex G. López 1978**

In LÓPEZ (1978) the name '*Corynephoro-Plantaginion radicatae* Rivas Goday & Rivas-

Martínez 1963' was indicated in the syntaxonomic scheme on p. 601 for the class *Sedo-Scleranthetea*, the order *Sedo-Scleranthetalia*. On p. 661, the association '*Sclerantho-Corynephorum* Vigo 1968' was mentioned for the alliance, with an unambiguous bibliographical reference to VIGO I BONADA (1968) where the original diagnosis of the validly published association '*Sclerantho-Corynephorum* (comunicat de *Plantago radicata* i *Corynephorus canescens* Rivas i Borja 1961)' is considered to contain also three relevés published by RIVAS GODAY & BORJA (1961: 224) for the 'comunicat' in addition to other three relevés published by VIGO I BONADA (l.c.) on p. 190. Therefore, the name '*Corynephoro-Plantaginion radicatae*' was validly published in LÓPEZ (1978) because the name-giving taxon *Plantago radicata* is present in those relevés of RIVAS GODAY & BORJA (1961). Thus, the correct citation for the name reads: *Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. ex G. López 1978.

Remark: The original diagnosis of the name *Sclerantho-Corynephorum* Vigo i Bonada 1968 contains both *Scleranthus annuus* and *S. polycarpus*, and it is not possible (hence not appropriate) to add a taxon epithet for the genus following ICPN Rec. 10C (but see RIVAS-MARTÍNEZ & al., 2011: 270, '*Sclerantho polycarpi-Corynephorum canescentis*').

Corynephoro-Plantaginion radicatae sensu auct.

RIVAS-MARTÍNEZ & al. (1984: 151-152) included a new and validly published association '*Sclerantho perennis-Plantaginietum radicatae* as. nova' in the alliance '*Corynephoro-Plantaginion radicatae*', together with the association *Diantho merinoi-Plantaginietum radicatae* that is attributed to 'Penas & Díaz-González (1984)'. On p. 215, the authority for the alliance is given in the following form: '*Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Martínez in Penas et T.E. Díaz 1984'. However, the paper by PENAS & DÍAZ-GONZÁLEZ (l.c.) has not been published in 1984 but later in 1985. In RIVAS-MARTÍNEZ & al.

(1984), the original diagnosis of the *Corynephorop-Plantaginion radicatae* contains only the '*Sclerantho perennis-Plantaginietum radicatae*' that is missing the name-giving taxon *Corynephorus canescens* in both relevés (ICPN art. 3f). Therefore, the name '*Corynephorop-Plantaginion radicatae* Rivas Goday et Rivas-Martínez in Penas et T.E. Díaz 1984' was not validly published incidentally in RIVAS-MARTÍNEZ & al. (1984).

PENAS & DÍAZ-GONZÁLEZ (1985) classified two validly published associations in the '*Corynephorop-Plantaginion radicatae* Rivas Goday et Rivas-Martínez 1963 nom. invers. Rivas-Martínez 1975', namely the *Diantho merinoi-Plantaginietum radicatae* Penas et Díaz-González 1985 and the *Sclerantho-Corynephorietum* Vigo 1968 (using a bibliographical reference to VIGO I BONADA, 1968). However, the invalid alliance name in RIVAS-MARTÍNEZ (1975) was not validated incidentally in PENAS & DÍAZ-GONZÁLEZ (1985) because it included two associations (ICPN art. 5).

***Hieracio castellani-Plantaginion radicatae* Rivas-Mart. et Cantó 1987 and *Jasiono sessiliflorae-Koelerietalia crassipedis* Rivas-Mart. et Cantó 1987**

RIVAS-MARTÍNEZ & CANTÓ (1987: 253-257) described the *Hieracio castellani-Plantaginion radicatae*, which became the type of the new order – the *Jasiono sessiliflorae-Koelerietalia crassipedis*. The alliance contains two associations – the *Hieracio castellani-Festucetum indigestae* and the *Thymo sylvestris-Plantaginietum radicatae*, the latter being the type of the new alliance. The *Jasiono sessiliflorae-Koelerietalia crassipedis* is classified in the *Sedo-Scleranthetea*.

'*Agrostio castellanae-Plantaginion radicatae* Rivas Goday ex Rivas-Mart. et Fernández González 1991'

This phantom name is rather a strange hybrid mismatch between two validly published names –

the *Agrostio castellanae-Stipion giganteae* Rivas Goday ex Rivas-Mart. et Fernández-González 1991 and the *Hieracio castellani-Plantaginion radicatae* Rivas-Mart. et Cantó 1987.

Syntaxonomic summary

According to RIVAS-MARTÍNEZ & CANTÓ (1987), the alliance *Hieracio castellani-Plantaginion radicatae* corresponds syntaxonomically to the *Corynephorop-Plantaginion sensu* RIVAS-MARTÍNEZ (1975), RIVAS-MARTÍNEZ & al. (1984) and PENAS & DÍAZ-GONZÁLEZ (1985). On the other hand, it differs from the *Plantagini-Corynephorion sensu* RIVAS GODAY & RIVAS-MARTÍNEZ (1963) and the *Corynephorop-Plantaginion sensu* G. LÓPEZ (1978). This point of view was upheld later, e.g. in DÍAZ-GONZÁLEZ & FERNÁNDEZ PRIETO (1994). In RIVAS-MARTÍNEZ & al. (2011), no synonymy was given any more. However, the association '*Sclerantho polycarpi-Corynephorietum canescens* Rivas Goday et Borja ex Vigo 1968' [*recte: Sclerantho-Corynephorietum canescens*], which is the holotype of the original diagnosis of the alliance *Corynephorop-Plantaginion* Rivas Goday et Rivas-Mart. ex G. López 1978, is classified in the alliance *Hieracio castellani-Plantaginion radicatae*. In the same way, the alliances *Plantagini-Corynephorion*, *Corynephorop-Plantaginion* and *Hieracio castellani-Plantaginion radicatae* were initially included in the classes *Sedo-Scleranthetea* or *Corynephoretea*, but later reclassified in the *Festucetea indigestae* (e.g. RIVAS-MARTÍNEZ & al., 2001, 2011) as already done by PENAS & DÍAZ-GONZÁLEZ (1985). Therefore, these three alliances are syntaxonomic synonyms and the *Corynephorop-Plantaginion radicatae* Rivas Goday et Rivas-Mart. ex G. López 1978 is the earlier validly published name. In order to achieve stability, it is proposed to conserve the name in current use, the *Hieracio castellani-Plantaginion radicatae* Rivas-Mart. et Cantó 1987, a later syntaxonomical synonym of the name *Corynephorop-Plantaginion* Rivas Goday et Rivas-Mart. ex G. López 1978.

The syntaxonomical synopsis of the syntaxa handled above:

Festucetea indigestae Rivas Goday et Rivas-Mart. 1971

Jasiono sessiliflorae-Koelerietalia crassipedis Rivas-Mart. et Cantó 1987

Hieracio castellani-Plantaginion radicatae Rivas-Mart. et Cantó 1987 *nom. conserv. propos.*

Syn.: *Plantagini-Corynephorion* Rivas Goday et Rivas-Mart. 1963 *nom. inval.* (ICPN art. 2b)

Syn.: *Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. in Rivas-Martínez 1975 *nom. inval.* (ICPN art. 2b)

Syn.: *Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. ex G. López 1978

Syn.: *Corynephoro-Plantaginion radicatae sensu* Rivas-Mart. & al. 1984 [*sub: Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. in Penas et T.E. Díaz 1985]

Syn.: *Corynephoro-Plantaginion radicatae sensu* Penas & Díaz-González 1985 [*sub: Corynephoro-Plantaginion radicatae* Rivas Goday et Rivas-Mart. 1963 *nom. invers.* Rivas-Mart. 1975]

NOTES ON A FORGOTTEN NAME:

THE *OLIGO-BROMION*

(by Federico Fernández-González)

The name *Oligo-Bromion* had appeared at several occasions in the Spanish phytosociological literature during the 1960s and 1970s, yet later on it has been forgotten and in fact has not been referred to again in the most recent syntaxonomical syntheses (e.g. RIVAS-MARTÍNEZ & al., 2002, 2011). Here we trace the history and nomenclature status of the name in attempt to solve the nomenclatural and syntaxonomic intricacies surrounding this concept.

***Oligo-Bromion* Rivas Goday & Rivas-Mart. 1963 *nom. inval.* (ICPN arts. 2b, 3b, 8)**

The name was proposed by RIVAS GODAY & RIVAS-MARTÍNEZ (1963: 132) as ‘subgrupo *Oligo-Bromion* Rivas Goday & Rivas-Martínez 1963 nova prov.’ As stated in the Preamble of his book «Estudio y clasificación de los pastizales españoles», the term ‘subgrupo’ (subgroup) was used by Rivas Goday as an equivalent to alliance (in a similar way the orders were named ‘grupos’), and across the text both denominations have been frequently used in a coherent way. Nevertheless the name is invalid because it was proposed as provisional and without reference to any valid association name. The name-giving taxon is *Bromus erectus* (currently: *Bromopsis erecta*) the only species of this genus quoted among the character and differential species. Moreover, the shape of the alliance name was intended to differentiate it from the *Mesobromion* and the *Xerobromion* (*Brometalia erecti*).

***Oligo-Bromion* Rivas Goday & Rivas-Mart. in Rivas Goday 1964 *nom. inval.* (ICPN arts. 2b, 8)**

In this new proposal of RIVAS GODAY (1964) the provisional statement was removed and the diagnosis contains an association name (*‘Sileno-Linetum’*) based on four relevés and a species list from the mountains of the southwestern Spain, as well as one unassigned relevé and two more relevés named ‘Community *Vicia onobrychioides et Linaria aeruginea* prov.’ from the Sierra of Guadarrama (Central Spain). It is obvious in the RIVAS GODAY’s (1964) book where an association was proposed and when not, and in the case of the name *‘Sileno-Linetum’* the denomination of ‘community’ was indicated unambiguously it is qualified as ‘community’ at least four times across the text, and the word ‘association’ has never used for it. The last sentence before the description of the alliance *Oligo-Bromion* reads: “The following fragmentary communities may be considered as a *Brometalia [erecti] silicinea* [silicicolous], and

hence of [belonging to] *Festuco-Sedetea*...” (translated from Spanish). Therefore, in our opinion, the name ‘*Sileno-Linetum*’ is to be considered as a syntaxon without a rank and the name *Oligo-Bromion* should be considered invalid according to the ICPN arts. 2b and 8. Even if the ‘*Sileno-Linetum*’ was considered a valid association name, it would be the only valid element of the diagnosis and hence ICPN art. 3f should apply for the alliance name, because the table of ‘*Sileno-Linetum*’ does not contain any species of the genus *Bromus*. Although ICPN does not state unambiguously that only valid subordinated syntaxa must be considered when applying the ICPN art. 3f (see FERNÁNDEZ-GONZÁLEZ & IZCO, 1995), it appears implicitly so, in accordance to general logic of the ICPN.

***Oligo-Bromion* Rivas Goday et Ladero 1970
nom. inval. (ICPN arts. 2b, 8)**

The ‘alliance *Oligo-Bromion* Rivas Goday & Rivas-Martínez 1963’ (with bibliographical reference) was described again by RIVAS GODAY & LADERO (1970: 175-177). The new diagnosis contains only a list of species under the name ‘communities of *Oligo-Bromion*’; no reference was made to the ‘*Sileno-Linetum*’ described by RIVAS GODAY (1964). Therefore this name constitutes a *nomen nudum*.

***Oligobromenion* G. López 1978 nom. inval.
(ICPN art. 3f)**

LÓPEZ (1978: 652, 657-659) proposed the rank of suballiance for the *Oligo-Bromion* Rivas Goday et Rivas-Mart. 1963. Despite a valid association name is given (*Potentillo-Leucanthemopsisietum assoi* G. López 1978), the suballiance name remains invalid because no species of the genus *Bromus* (as taxonomically delimited then) was present in the corresponding relevés. This association is currently ascribed to the alliance *Hieracio castellani-Plantaginion radicatae* (*Jasiono-Koelerietalia*)

(RIVAS-MARTÍNEZ & al., 2001; see a previous note by J.-P. Theurillat on the nomenclature of this alliance included in this paper).

The *Oligobromenion* was classified by López within the alliance *Bromion [erecti]*, and it was considered as “more xeric than *Mesobromion*”. Nevertheless in the syntaxonomic scheme on page 601 the suballiance was wrongly classified in the ‘*Bromion racemosi* Tx. 1951’. The pastures of the *Oligobromenion* are supported by moderately acidic substrates and identified as having a “transitional position between the *Brometalia erecti* and the *Sedo-Scleranthetea*”. Obviously, the *Oligobromenion* G. López 1978 should be considered as a corresponding name in the synonymy of the *Hieracio-Plantaginion*.

Establishing the synonymy for the *Oligo-Bromion*

In its first proposal (RIVAS GODAY & RIVAS-MARTÍNEZ, 1963: 134-135), the list of character and differential species is long but also vague, including species of dry perennial pastures today ascribed to several alliances of the *Jasiono-Koelerietalia*, *Agrostietalia castellanae* and *Poetalia bulbosae*, as well as annuals of the *Helianthemetalia guttati*, and a few basiphilous species that would establish a weak link with the *Brometalia erecti* (for the currently accepted nomenclature of the referred syntaxa we followed RIVAS-MARTÍNEZ & al., 2001, 2002, 2011). The descriptions provided by the authors on the pastures included in the *Oligo-Bromion* and those of other related alliances suggest that closer links would correspond to the modern concepts of the *Agrostion castellanae* and the *Hieracio castellani-Plantaginion radicatae*.

Regarding the RIVAS GODAY’s (1964) proposal, the four relevés ascribed to the *Sileno-Linetum* include as many annual as perennial species. The composition of the former is similar to the *Anthoxantho-Micropyretum patens* (*Helianthemion guttati*). The list of perennials is much more heterogeneous, but several species are related to the *Hieracio-Plantaginion radicatae* (*Arenaria querioides*, *Leucanthemopsis*

pallida, *Centaurea amblensis* subsp. *tentudaica* and *C. toletana*; the reference to ‘*Centaurea tentudaica*’ in relevé 1 probably corresponds to *C. toletana*). The few supposedly basiphilous species present in the relevés (*Linum marianorum*, *L. narbonense*, *Ranunculus gramineus* and *Valeriana tuberosa*) have in fact scattered localities on siliceous substrates across the Western Iberian Peninsula. Hence a reasonable interpretation is that RIVAS GODAY (l.c.) intended to sample communities of short perennial plants (embedded in annual pastures) growing on these siliceous mountains located to the south of the Iberian Central System. This concept would reinforce the relationships between the *Oligo-Bromion* and the *Hieracio-Plantaginion radicatae*, however until today no association belonging to the latter alliance has been recognized as occurring in the southwestern Iberian mountains. The relevé 1069 (RIVAS GODAY, 1964: 419) is very different due to the abundance of perennial mesophilous graminoids pointing to the relationship with the *Agrostion castellanae* grasslands. Finally, in the relevés of the community *Vicia onobrychioides-Linaria aeruginea* (p. 420), two thirds of species are annuals that would fit within the *Hispidello hispanicae-Tuberarietum guttatae* (*Molineriellion laevis*). Only five species (*Linaria aeruginea*, *Plantago radicata*, *Corynephorus canescens*, *Centaurea alba*, ‘*Hippocrepis comosa*’ [most probably *H. carpetana* according to CASTROVIEJO, 1999]) would relate these relevés to the *Hieracio-Plantaginion*.

The species list given by RIVAS GODAY & LADERO (1970) comes from mid-mountain areas of the Sierra de Guadarrama (Central Spain) and is dominated by species related to the *Agrostion castellanae* grasslands, along with several annuals of the *Helianthemetalia guttati*, two species of the *Hieracio-Plantaginion* (‘*Festuca laevis*’ [most probably *F. rivasmartinezii* according to DEVESA & al., 2013] and *Dianthus laricifolius*) and two species (*Bromopsis erecta*, *Vicia onobrychioides*) rare on the siliceous substrates prevalent in the Sierra de Guadarrama.

In conclusion, although a proper synonymy for the *Oligo-Bromion* cannot be established

without ambiguity, yet most of the evidences points upon a relationship with dry, acidophilous, Central and Western Iberian pastures of the *Hieracio castellani-Plantaginion radicatae*. This statement fits perfectly in the case of the *Oligobromenion* G. López 1978, but it is weak in the 1970 proposal, and to an extent also for the 1963 and 1964 proposals, on account of other possible links with the *Agrostion castellanae* or the *Helianthemetalia guttati*.

NOMENCLATURE CORRECTION IN THE *BROMO PANNONICI-FESTUCION*

(by Ladislav Mucina)

Bromo pannonici-Festucion csikhegyensis
Zólyomi 1966 corr. Mucina hoc loco
 (*Stipo pulcherrimae-Festucetalia pallentis*,
Festuco-Brometea)

CORRECTED NAME: *Bromo pannonici-Festucion pallentis* Zólyomi 1936 (ZÓLYOMI, 1936: 146-147).

SYNONYMS: *Seslerio-Festucion glaucae* Klika 1931 *nom. amb. rejic. propos.* (ICPN art. 36); *Seslerio-Festucion duriusculae* Klika 1931 *nom. mut. propos. et nom. amb. rejic. propos.* (ICPN art. 36, *mut. superfl.*); *Seslerio-Festucion pallentis* Klika 1931 *corr.* Zólyomi 1966 *nom. amb. rejic. propos.* (ICPN art. 36, *corr. superfl.*); *Festucion pallentis* (Klika 1931) Korneck 1974 *nom. dubium* (ICPN art. 37).

DIAGNOSIS: Xerophilous rocky grasslands on calcareous substrates of the northern fringes of the Pannonian Basin (Southern Moravia, Southern Slovakia, Eastern Austria, Northern Hungary) and the Ukrainian Podolya (Eastern Ukraine).

KORNECK (1974) described the ‘*Festucion pallentis*’ and included into his alliance also then validly published concept of the *Seslerio-Festucion glaucae* Klika 1931. However, even when the latter concept would be rejected as *nomen ambiguum*, the *Festucion pallentis sensu* KORNECK (1974) should not be considered as an acceptable syntaxonomic concept. This alliance

lacks ecological and phytogeographic logic as it comprises virtually all dominated rocky grassland communities dominated by *Festuca pallens* group, including those on calcareous, siliceous, and ultramafic substrates that differ widely in floristic composition as well as in assembly genesis. The KORNECK's (l.c.) concept brought further confusion into the nomenclature intricate matters surrounding the communities dominated by taxa of *Festuca* ser. *Psammophilae* in Western and Central Europe and therefore should be considered *nomen dubium*.

The original suggestion by KLIKA (1931) to classify the *Festuca*-dominated xerophilous grasslands, together with dense-canopy sub-xerophilous relict *Sesleria*-dominated grasslands, into the '*Seslerio-Festucion*' has been followed for many years. ZÓLYOMI (1966) introduced the '*Bromo-Festucion pallentis* Zólyomi 66', yet still also comprising one *Sesleria*-dominated association – the '*Diantho lumnitzeri-Seslerietum variae* Zlatnik (28), Klika 37 em. Zólyomi (36) 66'. Chytrý & Mucina in MUCINA & KOLBEK (1993: 460-461; see also THEURILLAT, 1997) suggested rejecting the name '*Seslerio-Festucion glaucae*' and consequently all its 'corrected' and 'mutated' variants (e.g. *Seslerio-Festucion pallentis sensu auct.* and *Seslerio-Festucion duriusculae sensu auct.*) as *nomina ambigua*.

The taxonomic identity of the eponymous *Festuca* species in this context has always been very contentious (see MUCINA & KOLBEK, 1993: 450). So far the most acceptable solution was presented by the study of ŠMARDÁ & al. (2007) who suggested that the tetraploid '*Festuca pallens*' along the northern fringes of the Pannonian region (and in its xero-thermophilous grassland vegetation) is actually *Festuca csikhegyensis* Simonk., a taxonomically, different concept from the diploid *F. pallens* Host. This fact underpins the necessity of the name correction as suggested above.

The *Bromo pannonici-Festucion pallentis* was typified by the '*Seseli leucospermi-Festucetum pallentis* Zólyomi 1936 corr. 1966' (see MUCINA & KOLBEK, 1993). Here we perform a nomenclatural name correction (according to ICPN art. 43) of the original name and introduce:

Seseli leucospermi-Festucetum csikhegyensis
Zólyomi 1936 corr. Mucina hoc loco
(*Stipo pulcherrimae-Festucetalia pallentis*,
Festuco-Brometea)

CORRECTED NAME: '*Festuca glauca-Seseli leucospermum* Ass.' (ZÓLYOMI, 1936: 146-147)

VALIDATION OF THE ORDER FOR THE
SUBMEDITERRANEAN
OLIGO-MESOTROPHIC GRASSLANDS OF
THE SOUTHERN BALKANS
(by Ladislav Mucina & Andraž Čarni)

***Armerietalia rumelicae* V. Randelović et N. Randelović in Randelović et Zlatković ex Mucina et Čarni ord. nov. hoc loco**
(*Stipo giganteae-Agrostietea castellanae*)

VALIDATED NAME: *Armerietalia rumelicae* V. Randelović et N. Randelović in Randelović et Zlatković 2010 (ICPN art. 5).

SYNONYMS: *Armerietalia rumelicae* V. Randelović et N. Randelović 2001 (phantom); *Armerietalia rumelicae* V. Randelović et al. 2008 *nom. inval.* (ICPN arts. 2b, 5).

NAME-GIVING SPECIES: *Armeria rumelica*.

HOLOTYPE (hoc loco): *Potentillo-Armerion* Micevski 1978 (MICEVSKI, 1978: 21)

DIAGNOSTIC TAXA: *Agrostis castellana*, *Armeria rumelica*, *Centaurea stoebe* subsp. *serbica*, *Festuca panciciana*, *F. stojanovii*, *Pastinaca hirsuta*, *Potentilla inclinata*, *Plantago holosteam*, *Rhinanthus rumelicus*, *Trifolium velenovskyi*, *Dianthus cruentus*, *Viola tricolor* subsp. *macedonica*.

DISTRIBUTION: southern and central regions of the Balkan Peninsula.

MICEVSKI (1978) described two associations (*Genisto-Agrostietum byzanthinae* and *Koelerio-Festucetum stojanovii*) from siliceous-bedrocks, occurring at elevations 1000–1400 m, in the eastern regions of Macedonia. MICEVSKI (l.c.) further suggested that his two new associations should not be classified in the sub-mediterranean *Trifolion cherleri* Micevski 1972 vegetation found on siliceous bedrock at lower

elevations (up to 1000 m above sea level) and therefore described a new alliance – the *Armerio-Potentillion* that he classified in the *Astragalo-Potentilletalia* (MICEVSKI, 1971). In the classification scheme, as adopted by the EuroVegChecklist (MUCINA & al., submitted), the *Astragalo-Potentilletalia* (*Festuco-Brometea*) comprises only open calcicolous grasslands of the *Saturejo-Thymion*. The *Trifolion cherleri* represents submediterranean throphyte communities in the Southern Balkans, classified in the *Helianthemetalia guttati* Br.-Bl. in Br.-Bl. & al. 1940 (*Helianthemetea guttati* Rivas Goday et Rivas-Mart. 1963). The *Potentillo-Armerion* cannot be classified into either the *Astragalo-Potentilletalia* or in the *Helianthemetalia guttati*. This vegetation is perennial grassland supported by nutrient-poor soils on siliceous bedrocks at elevations characterized by the submediterranean climate of Macedonia, Southern Serbia and Bulgaria.

The following associations have so far been classified in the *Potentillo-Armerion*:

Genisto-Agrostietum byzanthinae Micevski 1978

Koelerio-Festucetum stojanovii Micevski 1978

Diantho-Armerietum rumeliacae N. Randelović 1978 (ICPN art. 1)

Danthonio-Trifolietum velenovskyi N. Randelović 1978 (ICPN art. 1)

Similar vegetation was described or reported from southeastern Serbia by N. RANDELOVIĆ (1978), MILOSAVLJEVIĆ & al. (2008), RANDELOVIĆ & al. (2008) and V. RANDELOVIĆ & ZLATKOVIĆ (2010). In the latter two papers, this vegetation was classified in the *Potentillo-Armerion*. V. RANDELOVIĆ & ZLATKOVIĆ (2010) proposed classification of the *Potentillo-Armerion* into a new order – the *Armerietalia rumelicae*, however since they failed to designate the *holotypus* in *expressis verbis* (as required by the ICPN after 1.1.2002), the order name remained invalid. We agree with the syntaxonomic concept of the new order suggested by RANDELOVIĆ & ZLATKOVIĆ (2010) and therefore formally validate the *Armerietalia rumelicae* herein.

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