

A revised phytosociological nomenclature for the Italian *Quercus cerris* woods

Massimo Terzi¹ , Giampiero Ciaschetti² , Paola Fortini³ , Leonardo Rosati⁴ , Daniele Viciani⁵ & Romeo Di Pietro⁶

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Abstract. This paper aims to revise the phytosociological nomenclature of the *Quercus cerris* woods occurring in Italy with particular attention to associations, subassociations, and suballiances. The syntaxa included in this revision were selected based on a physiognomical criterion, i.e., woods with dominance or codominance of *Quercus cerris*. The nomenclatural revision complied with the International Code of Phytosociological Nomenclature.

Correct names and Authors' citations were considered for all the syntaxa analyzed (121), and, in most cases, other information about nomenclatural types, localities, synonyms, classification, and other notes was reported. As regards the alliance level, the correct application of the name *Melittio albidiae-Quercion frainetto* —whose original diagnosis and type-association occur in Italy— was discussed. In all, 31 syntaxon names were validated or described: two suballiances (*Campanulo medii-Ostryenion carpinifoliae* and *Pulmonario apenninae-Carpinenion betuli*), nine associations and 20 subassociations. Five lectotypes were also designated.

Keywords: ICPN; Italian forests; *Melittio-Quercion frainetto*; Phytosociological Nomenclature; Syntaxonomy; Turkey oak forests; Vegetation.

Revisión nomenclatural de los bosques de *Quercus cerris* de Italia

Resumen. El objetivo de este artículo es la revisión de la nomenclatura fitosociológica de los bosques de *Quercus cerris* en Italia, con especial atención a las unidades inferiores: asociaciones, subasociaciones y subalianzas. La sintaxonomía incluida en esta revisión se basa sobre un criterio fisionómico, es decir, bosques con dominancia o codominancia de *Quercus cerris*. La revisión de la nomenclatura está conforme al Código Internacional de Nomenclatura Fitosociológica.

Para los sintaxones analizados (121) se tomaron en consideración los nombres correctos y las referencias de los autores y en la mayoría de los casos, se utilizó información adicional sobre los tipos nomenclaturales, como las localidades, sinónimos, clasificación, etc. En cuanto a los sintaxones superiores, aunque no eran objeto de estudio, se discutió la correcta aplicación del nombre *Melittio albidiae-Quercion frainetto*, cuyo diagnóstico original y tipo de asociación fue realizado en los bosques de Italia. En total, se validaron 31 nombres de sintaxones: dos subalianzas (*Campanulo medii-Ostryenion carpinifoliae* y *Pulmonario apenninae-Carpinenion betuli*), 9 asociaciones y 20 subasociaciones. También se designaron cinco lectotipos.

Palabras clave: ICPN; bosques de Italia; *Melittio-Quercion frainetto*; Nomenclatura fitosociológica; Sintaxonomía; bosques de roble cerris; vegetación.

Introduction

Quercus cerris L. is a south European and Euro-Mediterranean species whose distribution range gravitates in southeastern Europe and extends westwards to Italy and —with few outposts— to France and Switzerland (Pignatti, 1982; Euro+Med, 2006-2019). In Italy, *Quercus cerris* is widespread within several vegetation belts, ranging from the sea level to the lower limit of the montane beech forest (Ubaldi, 2003; Blasi *et al.*, 2004).

The *Quercus cerris* woods are among the most widespread wood types in Italy (Tabacchi *et al.*, 2007) so that they have a great ecological and economic value, being usually managed as coppices. The huge bioclimatic,

physiographic, lithological and coenological diversity of the Italian territory, led to the description of a large number of associations of *Quercus cerris* woods (Figure 1), together with some endemic higher rank syntaxa.

Despite some attempts to revise the syntaxonomy of the Italian *Quercus cerris* woods and their nomenclature (Ubaldi & Speranza, 1985; Abbate *et al.*, 1990; Ubaldi *et al.*, 1990; Ubaldi, 1995; Blasi *et al.*, 2004; Biondi *et al.*, 2002a, 2006, 2013, 2014; Di Pietro *et al.*, 2010; Taffetani *et al.*, 2012) many doubts and unresolved cases remain on both sides.

From a syntaxonomic point of view, different and sometimes contrasting interpretations have been provided (e.g. Ubaldi *et al.*, 1990; Blasi *et al.*, 2004; Biondi

¹ Institute of Biosciences and Bioresources, Italian National Council of Research. via Amendola 165, I-70126 Bari, Italy. Email: massimo.terzi@ibbr.cnr.it

² Majella National Park. via Badia 28. I-67039 Sulmona, Italy.

³ Museo Erbario, Department of Bioscience and Territory, University of Molise. Pesche, Italy.

⁴ School of Agricultural, Forestry, Food and Environmental Sciences, University of Basilicata. Via Ateneo Lucano 10. 85100 Potenza, Italy.

⁵ Department of Biology, University of Florence. via G. La Pira 4. I-50121 Firenze, Italy.

⁶ Department of Planning, Design and Technology of Architecture, Section Environment and Landscape, Sapienza University of Roma. Via Flaminia 72. I-00198, Rome, Italy.

et al., 2006; Košir *et al.*, 2012) but a comprehensive syntaxonomic revision for the entire Italian territory based on a large data set of relevés is still lacking.

As regards nomenclature, we found that some syntaxon names —considered as valid at present and, therefore, commonly used in the phytosociological literature— were instead proved to be invalidly published. In few cases, invalid associations were designated as nomenclatural type of alliances (e.g. *Coronillo emeri-Quercetum cerridis* Blasi 1984 nom. inval. for *Mespilo-Carpinion betuli* Ubaldi 2003 nom. inval.). However, the correct application of syntaxon names is a fundamental prerequisite for any syntaxonomic revision as well as for other scientific and managing purposes (e.g. biodiversity conservation, environmental planning) relying on a consistent vegetation classification. Therefore, this paper aims to revise the nomenclature of the syntaxa regarding the *Quercus cerris* woods occurring in Italy, with particular attention to suballiances, associations, and subassociations.

The phytosociological nomenclature of alliances, orders and classes occurring in Europe has already

been revised in the EuroVegChecklist (EVC, Mucina *et al.*, 2016). The EVC also provides a first syntaxonomic synthesis for the European vegetation (at the alliance level), adding to each correct syntaxon name its synonyms.

Therefore, the present revision refers to the syntaxonomic arrangements provided in the EVC (Appendix 1), with the only exception of the ‘*Melitto albidiae-Quercion* Barbero et Quezel 1976’ which was reported in the EVC for the ‘*thermophilous deciduous oak forests on slightly acidic deep soils of the Southern Balkans*,’ whereas it should be restricted to Italy (see note to the *Eu-Melittio albidiae-Quercenion frainetto* and Di Pietro *et al.*, 2020).

Although this revision is restricted to Italian syntaxa, it has a wider interest both directly —whenever a syntaxon range crosses the Italian boundary (e.g. *Seslerio-Quercetum petraeae*; Poldini, 1964, 1982)— and indirectly throughout the nomenclatural and syntaxonomic relationships between Italian and other European syntaxa (e.g. the case of the ‘*Melittio albidiae-Quercion*’ here analyzed).

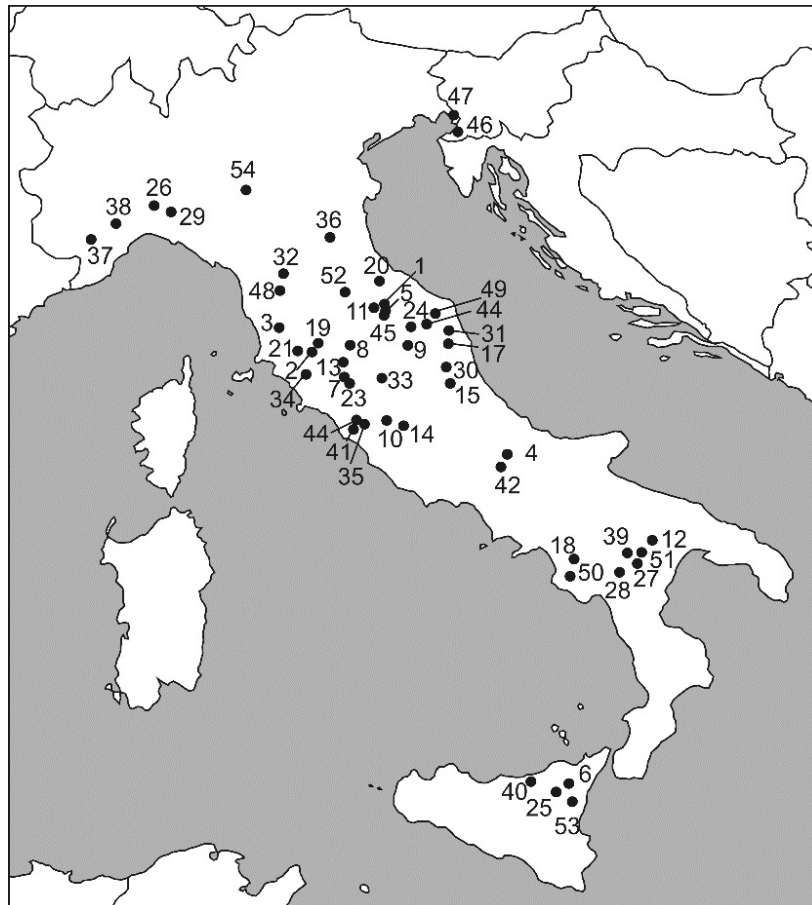


Figure 1. Map of the study area (Italy) with the localities of the type relevés ('loca classici') of *Quercus cerris* wood associations. Numbers refer to the associations listed in the text.

Methodology

The present revision deals with all the associations (and their subassociations) representing Italian woods where *Quercus cerris* occurs as dominant or co-dominant

species in at least one relevé of the original diagnosis. We considered *Quercus cerris* as dominant or co-dominant if it was recorded in the highest stratum determining the vertical structure of that vegetation type with a cover value greater than or equal to 3 on the Braun-Blanquet

scale (Braun-Blanquet, 1932; cf. Terzi *et al.*, 2017), and if no other taxon was recorded with a greater cover value.

The revision was extended also to those subassociations—usually named as ‘*quercetosum cerridis*’—that are characterized by the dominance of *Quercus cerris* even though they were originally subordinated to associations not representing typical *Quercus cerris* woods (e.g. *Roso sempervirentis-Quercetum pubescentis quercetosum cerridis*).

As several suballiances including *Quercus cerris* wood types have been described in the Italian phytosociological literature (e.g. Ubaldi, 1995; Blasi *et al.*, 2004; Biondi *et al.*, 2006; Di Pietro *et al.*, 2010; Košir *et al.*, 2013), we analyzed also the nomenclatural vicissitudes of these suballiances.

The nomenclatural revision was carried out according to the version of the International Code of Phytosociological Nomenclature (ICPN) approved on 3rd June 2019 by the Working Group on Phytosociological Nomenclature of the International Association of Vegetation Science (IAVS), that should be published as the 4th ICPN edition when the ongoing review process will be over.

The results are reported in two different sections dealing respectively with the ranks of suballiance and association/subassociation. Information is provided according to the schemes already used in similar nomenclatural papers (e.g. Terzi, 2011; Terzi *et al.*, 2017).

Suballiances are listed in the same sequence as they are reported in the syntaxonomic arrangement in Appendix 1. For each suballiance the following information is reported: i) correct name and Authors' citation; ii) holotypus; iii) possible heterotypic synonyms (SYN); iv) additional comments.

Associations (and subordinatedly their subassociations) are numbered and alphabetically ordered. For each of them, the following information is given (if available): i) correct name and Authors' citation; ii) holotypus or lectotypus; iii) locality of the original diagnosis (LOC) and the *locus classicus* of the association/subassociation (LOC-typus), here defined as the locality of the type-relevé (Figure 1); iv) syntaxonomic synonyms (SYN); v) classification (CL) of the syntaxon as proposed in its first valid publication (see also Appendix 1). As regards associations and subassociations validated in the present revision, the classification (CL) refers to that provided by the original authors.

Taxonomic nomenclature follows Bartolucci *et al.* (2018). Syntaxonomic nomenclature follows Mucina *et al.* (2016), except where indicated.

Results

Suballiances

Doronico orientalis-Fagenion sylvaticae (Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995) Di Pietro, Izco et Blasi 2004
Holotypus: *Anemone apenninae-Fagetum sylvaticae* (Gentile 1970) Brullo 1983.

Note: This suballiance derives from the change of rank of the *Doronico orientalis-Fagenion sylvaticae*, an alliance originally classified in the *Lathyro veneti-Carpinetalia* (in the EVC, this order is considered as a synonym of *Quercetalia pubescenti-petraeae*). According to Di Pietro *et al.* (2004) the *Doronico orientalis-Fagenion sylvaticae* belongs to the *Geranio striati-Fagenion* and *Fagetalia sylvaticae*.

Campanulo medii-Ostryenion carpinifoliae suball. nov.
Holotypus: *Plagio-Ostryetum* Gruber 1968; SYN: *Campanulo-Ostryenion carpinifoliae* Ubaldi 1995 nom. inval. (Art. 3g); *Campanulo mediae-Ostryenion carpinifoliae* Ubaldi ex Blasi *et al.* 2004 nom. inval. (Art. 3i).

Note: The alliance *Campanulo-Ostryenion* was originally invalidly (Art. 2b) described by Ubaldi (in Ubaldi *et al.*, 1986), without any subordinated association. Subsequently, Ubaldi (1995) lowered this alliance to the rank of suballiance, as ‘*Campanulo-Ostryenion* (Ubaldi, 1986) stat. nov.’, belonging to the *Laburno anagyroidis-Ostryenion carpinifoliae*. Ubaldi (1995) designated as nomenclatural type of the suballiance the association *Plagio-Ostryetum* Gruber 1968, which was, in turn, typified with the relevé 10 of table 2 in Gruber (1968). However, Ubaldi (1995) did not specify which species of the genus *Campanula* was considered as the name-giving taxon for this suballiance (Art. 3g). The ‘*Campanulo-Ostryenion*’ sensu Ubaldi 1995 included several associations containing more species of *Campanula*. Therefore, the *Campanulo medii-Ostryenion carpinifoliae* is validated here as a new suballiance of the *Carpinion orientalis* (see Blasi *et al.*, 2004). Following Blasi *et al.* (2004), the diagnostic species of the new suballiance are the following: *Buphthalmum salicifolium*, *Luzula nivea*, *Leucanthemum virgatum*, *Campanula medium*, and *Knautia drymeja*.

Laburno anagyroidis-Ostryenion carpinifoliae (Ubaldi 1995) Blasi, Di Pietro et Filesi 2004

Holotypus: *Ostryo carpinifoliae-Aceretum opulifolii* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995.

Note: The ‘*Laburno-Ostryenion*’ was originally invalidly (Art. 3o) proposed in several papers (Ubaldi, 1981; Ubaldi & Speranza, 1982, 1985; Ubaldi *et al.*, 1989, 1990) but it was validated some years later by Ubaldi (1995) who designated its type-association. None of these authors clearly stated from which species of the genus *Laburnum* the alliance name had been formed (cf. Art. 3g). The original diagnosis of the alliance includes several associations containing both *Laburnum anagyroides* and *Laburnum alpinum*. The latter, however, is reported only as a companion species (e.g. tables 5 and 6 in Ubaldi & Speranza, 1985) whereas *Laburnum anagyroides* is considered as a character species of the alliance (e.g. Ubaldi *et al.*, 1990). For this reason, we consider the *Laburno anagyroidis-Ostryenion carpinifoliae* validly published by Ubaldi (1995). This alliance was lowered to the rank of suballiance and

subordinated to the *Carpinion orientalis* by Blasi et al. (2004). Two alliances were reunited and the earlier name (*Carpinion orientalis*) was retained for the new one. Moreover, Poldini (1988) had invalidly (Art. 5) described another suballiance with the name ‘*Laburno anagyroidis-Ostryenion*’ whose syntaxonomic content was however different from the suballiance proposed by Blasi et al. (2004).

Eu-Crataego laevigatae-Quercenion cerridis

Holotypus: *Melico uniflorae-Quercetum cerridis* Arrigoni in Arrigoni, Mazzanti et Ricceri 1990; SYN: *Crataego laevigatae-Quercenion cerridis* Blasi, Di Pietro et Filesi in Di Pietro, Azzella et Facioni 2010.

Note: Di Pietro et al. (2010) proposed the alliance name *Crataego laevigatae-Quercenion cerridis* Arrigoni 1997 as substituting for the invalid (Art. 2b) name *Teucrio siculi-Quercenion cerridis* Ubaldi 1989. The inclusion in the *Crataego-Quercenion* of a suballiance (*Ptilostemo-Quercenion*) not comprising the type-association of the alliance (*Melico uniflorae-Quercetum cerridis*) led to the necessity of creating a new suballiance containing that nomenclatural type. Therefore, Di Pietro et al. (2010) described the *Crataego laevigatae-Quercenion cerridis*, which is, however, an autonym and should be cited without the author’s citation.

Pulmonario apenninae-Carpinenion betuli Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *suball. nov.*

Holotypus: *Centaureo montanae-Carpinetum betuli* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995; SYN: *Pulmonario apenninae-Carpinenion betuli* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni 2002 nom. inval. (Art. 5); *Pulmonario apenninae-Carpinenion betuli* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013 nom. inval. (Art. 4a).

Note: This suballiance was at first invalidly described by Biondi et al. (2002a) (Art. 5). Subsequently, Biondi et al. (2013) tried to validate the *Pulmonario apenninae-Carpinenion betuli* by designating the holotype, i.e. the *Centaureo montanae-Carpinetum betuli*. However, the suballiance was still invalid because it was subordinated to an invalid alliance, the *Physospermo verticillati-Quercenion cerridis* Biondi, Casavecchia et Biscotti in Biondi et al. 2013 (Art. 5). The latter was typified with an invalid association (‘*Physospermo verticillati-Quercetum cerris* Aita, Corbetta & Orsino 1977 em. Ubaldi, Zanotti, Puppi, Speranza & Corbetta 1990’, see below). The *Pulmonario apenninae-Carpinenion betuli* is here validated, with the same diagnostic taxa already indicated by Biondi et al. (2002a): *Acer opalus* subsp. *obtusatum*, *Anemonoides trifolia* subsp. *trifolia*, *Centaurea montana*, *Cyclamen hederifolium*, *Dactylorhiza maculata* subsp. *fuchsii*, *Daphne laureola*, *Euonymus latifolius*, *Helleborus viridis* subsp. *bocconeii*, *Lamium galeobdolon* subsp. *flavidum*, *Lilium bulbiferum* subsp. *croceum*, *Loncomelos pyrenaicus* subsp. *sphaerocarpus*, *Lonicera xylosteum*, *Pyrus communis* subsp. *pyraster*, *Pulmonaria*

vallarsae subsp. *apennina*, *Quercus pubescens*, *Viola alba* subsp. *dehnhardtii*. According to the EVC, the *Physospermo verticillati-Quercenion cerridis* is considered as a syntaxonomic synonym of the *Crataego laevigatae-Quercenion cerridis*. Therefore, the *Pulmonario apenninae-Carpinenion betuli* is here classified in the *Crataego laevigatae-Quercenion cerridis* (Appendix 1).

Eu-Pino calabricae-Quercenion congestae

Holotypus: *Vicio cassubicae-Quercetum cerridis* Brullo et Marcenò 1985; SYN: *Pino calabricae-Quercenion congestae* Blasi, Di Pietro et Filesi 2004.

Note: Blasi et al. (2004) described two new suballiances (*Quercenion virgiliana* Blasi, Di Pietro et Filesi 2004 and *Pino calabricae-Quercenion congestae*) of the *Pino calabricae-Quercenion congestae*, representing respectively oak and pine woods of the southern Calabria (the southernmost boundary of the Italian peninsula) and Sicily. *Quercus cerris* woods of this geographical area were assigned to the suballiance comprising the type-association of the alliance, i.e. the *Pino calabricae-Quercenion congestae* [recte: *Eu-Pino calabricae-Quercenion congestae*].

Eu-Melittio albidae-Quercenion frainetto

Holotypus: *Lathyro digitati-Quercetum cerridis* Bonin et Gamisans 1976; SYN: *Ptilostemone stricti-Quercenion cerridis* Bonin et Gamisans 1976.

Note: The *Ptilostemone stricti-Quercenion cerridis* was originally classified in the *Melittio albidae-Quercenion frainetto* Barbéro, Bonin, Gamisans et Quézel in Bonin et Gamisans 1976, whose original diagnosis includes only one Italian endemic association (*Lathyro digitati-Quercetum cerridis*). Conversely, in the EVC, the ‘*Melittio albidae-Quercenion* Barbéro et Quézel 1976’ [recte: *Melittio albidae-Quercenion confertae* Barbéro, Bonin, Gamisans et Quézel in Barbéro et Quézel 1977, with *Quercus conferta* Kit. = *Quercus frainetto* Ten.] is restricted to the southern Balkans. The original diagnosis of the *Melittio albidae-Quercenion confertae* consists of only two Greek associations. Since the *Melittio albidae-Quercenion confertae* was published later than the *Melittio albidae-Quercenion frainetto*, the latter has nomenclatural priority (Di Pietro et al., 2020). Accepting the separation between deciduous oak forests of southern Balkans and central-southern Apennines, as given in the EVC, the *Melittio albidae-Quercenion frainetto* should be restricted to Italy as an autonomous alliance or with a possibly synonymy with the *Crataego laevigatae-Quercenion cerridis* or, according to other interpretations, with the *Geranio striati-Fagion* (i.e. *Doronico orientalis-Fagion sylvaticae*). In the Appendix 1, the *Melittio albidae-Quercenion frainetto* is added to the syntaxonomic scheme as an autonomous alliance (see Di Pietro et al., 2020).

Quercenion dalechampii Brullo 1984

Holotypus: *Genisto aristatae-Quercetum suberis* Brullo 1984.

Note: The associations representing the *Quercus cerris* woods of Sicily were originally classified in the alliance *Erico-Quercenion ilicis* and its suballiance *Quercenion*

dalechampii (Brullo & Marcenò, 1985). Subsequently, Blasi *et al.* (2004) moved part of this alliance (which is composed of the associations dominated by deciduous oaks) to the *Pino-Quercion congestae*, which was, in turn, divided into two suballiances: *Quercenion virgilianae* Blasi, Di Pietro et Filesi 2004 and *Eu-Pino calabricae-Quercenion congestae*. According to this syntaxonomic interpretation, the *Quercus cerris* woods of Sicily and southern Calabria are to be classified in the *Eu-Pino-Quercenion*, whereas the *Quercenion dalechampii* would remain in the class *Quercetalia ilicis* this suballiance being originally typified by an evergreen wood association.

Teucro siculi-Quercenion cerridis Blasi, Di Pietro et Filesi 2004 nom. inval. (Art. 4a)

Note: This suballiance is invalid because it was originally classified in the invalid alliance '*Teucro siculi-Quercenion cerridis* Ubaldi 1988'.

Associations and subassociations

1. *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza in Ubaldi 1995

Holotypus: rel. 10, Tab. 1, p. 132, Ubaldi & Speranza (1982); LOC: Mountain ridge between Marecchia valley and Biscuvio-Candigliano valley, Apennines of Marche Region, Province of Pesaro-Urbino, Italy; LOC-typus: not available; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o); *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza in Ubaldi, Puppi, Speranza, Zanotti et Corbetta 1990 (Art. 3o); CL: *Laburno-Ostryion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

1.1. *Aceri obtusati-Quercetum cerridis aceretosum monspessulani* Ubaldi 1995

Holotypus: rel. 9, Tab. 10, p. 166, Ubaldi (1989); LOC: northern Apennines, Province of Pesaro-Urbino, Italy; LOC-typus: 'Gole del Bosso' near Cagli; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *aceretosum monspessulani* Ubaldi 1989 (Art. 4a); CL: see association.

1.2. *Aceri obtusati-Quercetum cerridis arbutetosum unedonis* Tardella, Vitanzi, Sparvoli et Catorci 2011

Holotypus: rel. 9, Tab. 5, p. 28, Tardella *et al.* (2011); LOC: central part of Umbria, Italy; LOC-typus: 'Civitelle', Perugia; CL: *Laburno anagyroidis-Ostryenion carpinifoliae*, *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

1.3. *Aceri obtusati-Quercetum cerridis cytisophylletosum sessilifolii* Taffetani, Catorci, Ciaschetti, Cutini, Di Martino, Frattaroli, Paura, Pirone, Rismondo et Zitti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nov.*

Holotypus: rel. 147, Tab. V, p. 941, Taffetani *et al.* (2012); LOC: Marche and Abruzzo Apennines (Cingoli and Mt. Pennino in the Province of Macerata; Ofena, Assergi and Capestrano in the Province of L'Aquila), Italy; LOC-typus: Bisegna, Province of L'Aquila; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi & Speranza 1982 nom. inval. (Art. 3o) *cytisophylletosum sessilifolii*

Taffetani *et al.* 2012 nom. inval. (Art. 4a); CL (from Taffetani *et al.* 2012): *Laburno anagyroidis-Ostryenion carpinifoliae*, *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

1.4. *Aceri obtusati-Quercetum cerridis ericetosum arboreae* Allegrezza ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 4, Tab. 11, p. 33, Allegrezza (2003); LOC: Mt. San Vicino, Apennines of Marche Region, Italy; LOC-typus: Campamante, Macerata; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *ericetosum arboreae* Allegrezza 2003 nom. inval. (Art. 4a); CL (from Allegrezza, 2003): '*Laburno anagyroidis-Ostryenion carpinifoliae*', *Ostryo-Carpinion orientalis*; *Quercetalia pubescenti-petraeae*; *Quercus-Fagetalia sylvaticae*.

Note: Allegrezza (2003) classified the *Aceri obtusati-Quercetum cerridis* in the '*Laburno anagyroidis-Ostryenion carpinifoliae* (Ubaldi 1981) Poldini 1987' and '*Ostryo-Carpinion orientalis*'. In the EVC, the latter is considered as a syntaxonomic synonym of the *Fraxino orni-Ostryion*.

1.5. *Aceri obtusati-Quercetum cerridis fagetosum sylvaticae* Allegrezza ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nov.*

Holotypus: rel. 7, Tab. 10, p. 32, Allegrezza (2003); LOC: Mt. San Vicino, Apennines of Marche Region; LOC-typus: Mt. Pagliano, Province of Macerata; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *fagetosum sylvaticae* Allegrezza 2003 nom. inval. (Art. 4a); CL (from Allegrezza, 2003): '*Laburno anagyroidis-Ostryenion carpinifoliae*', *Ostryo-Carpinion orientalis*; *Quercetalia pubescenti-petraeae*; *Quercus-Fagetalia sylvaticae*.

Note: see the Note at *Aceri obtusati-Quercetum cerridis ericetosum arboreae*.

1.6. *Aceri obtusati-Quercetum cerridis peucedanetosum cervariae* Ubaldi, Puppi, Speranza, Zanotti et Corbetta in Ubaldi 1995

Holotypus: rel. 6, Tab. 3, p. 135, Ubaldi & Speranza (1982); LOC: Mountain ridge between Marecchia valley and Biscuvio-Candigliano valley, Marche Apennines, Province of Pesaro-Urbino, Italy; LOC-typus: not available; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *peucedanetosum cervariae* Ubaldi, Puppi, Speranza, Zanotti et Corbetta 1990 nom. inval. (Art. 4a); *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *peucedanetosum cervariae* Ubaldi 1989 nom. inval. (Art. 4a); CL: see association.

1.7. *Aceri obtusati-Quercetum cerridis serratuletosum tinctoriae* Ubaldi et Speranza in Ubaldi 1995

Holotypus: rel. 14, Tab. 2, p. 133, Ubaldi & Speranza (1982); LOC: Mountain ridge between Marecchia valley and Biscuvio-Candigliano valley, Marche Apennines, Province of Pesaro-Urbino, Italy; LOC-typus: not available; SYN: *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *serratuletosum*

tinctoriae Ubaldi et Speranza 1982 nom. inval. (Art. 4a); *Aceri obtusati-Quercetum cerridis* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *serratuletosum tinctoriae* Ubaldi 1989 nom. inval. (Art. 4a); CL: see association.

Note: The first 6 relevés of Table 2 in Ubaldi & Speranza (1982) —which were originally included in the *Aceri-Quercetum cerridis serratuletosum tinctoriae*— were moved to the *Aceri-Quercetum cerridis aceretosum monspessulani* by Ubaldi (1995).

1.8. *Aceri obtusati-Quercetum cerridis typicum*

2. *Allio pendulini-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 10, Tab. 9, De Dominicis & Casini (1979); LOC: Val di Farma, Tuscan Apennines, Provinces of Siena, Livorno, Pisa and Grosseto, Italy; LOC-typus: Cerbaiola, Province of Siena; SYN: *Allio pendulini-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o); CL: *Lonicero etruscae-Quercion pubescentis* nom. inval., *Lathyro nigri-Quercetalia cerridis*, *Quercus-Fagetalia sylvaticae*.

3. *Anemone apenninae-Quercetum cerridis Viciani et Gabellini 2013*

Holotypus: rel. 38, Tab. 10, p. 19, Viciani & Gabellini (2013); LOC: Mt. Arseni-Poggi di Prata Regional Forest, South-Western Tuscany, Italy; LOC-typus: not available; CL: *Laburno anagyroidis-Ostryenion carpinifoliae*, *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

4. *Aremonio agrimonioidis-Quercetum cerridis* Blasi, Fortini, Grossi et Presti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova*

Holotypus: rel. 6, Tab. 2, p. 74, Blasi *et al.* (2005); LOC: Alto Molise and Valle del Trigno, Molise-Abruzzo Apennines, Italy; LOC-typus: ‘bosco di Pennataro’, Vastogirardi, Isernia; SYN: *Aremonio agrimonioidis-Quercetum cerridis* Blasi, Fortini, Grossi et Presti 2005 nom. inval. (Art. 3o); *Aremonio agrimonioidis-Quercetum cerridis* Blasi, Fortini, Grossi et Presti in Allegrezza et Biondi 2008 nom. inval. (Art. 3i); CL (from Blasi *et al.*, 2005): *Erythronio-Carpinion*; *Fagetalia sylvaticae*; *Quercus-Fagetalia sylvaticae*.

Note: This association was invalidly published by Blasi *et al.* (2005) who indicated the nomenclatural type but failed to use expressis verbis the word ‘typus’, as required by Art. 5 of the ICPN. Subsequently, Biondi & Allegrezza (2008) described two new subassociations of the *Aremonio agrimonioidis-Quercetum cerridis* and implicitly designated also the association type-relevé (through the nomenclatural type of the typical subassociation, cf. Art. 5) but they did not indicate the association as new (Art. 3i).

4.1. *Aremonio agrimonioidis-Quercetum cerridis abietetosum albae* Allegrezza et Biondi ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nov.*

Holotypus: rel. 5, Tab. 1, p. 166, Allegrezza & Biondi (2008); LOC: Alto Molise, southern Apennine; LOC-typus: ‘Abeti Soprani’, Molise, Italy; SYN: *Aremonio agrimonioidis-Quercetum cerridis* Blasi, Fortini, Grossi et Presti in Allegrezza et Biondi 2008 nom. inval. (Art. 3i)

abietetosum albae Allegrezza et Biondi 2008 (Art. 4a); CL (from Allegrezza & Biondi, 2008): *Erythronio-Carpinion*; *Fagetalia sylvaticae*; *Quercus-Fagetalia sylvaticae*.

4.2. *Aremonio agrimonioidis-Quercetum cerridis typicum*

SYN: *Aremonio agrimonioidis-Quercetum cerridis* Blasi, Fortini, Grossi et Presti in Allegrezza et Biondi 2008 nom. inval. (Art. 3i) *aremonietosum agrimonioidis* Allegrezza et Biondi 2008 nom. inval. (Art. 4a).

5. *Arisaro proboscidei-Carpinetum betuli* Ubaldi et Speranza in Ubaldi 1995

Holotypus: rel. 4, Tab. 6, p. 139, Ubaldi & Speranza (1982); LOC: Mountain ridge between Marecchia valley and Biscuvio-Candigliano valley, Marche Apennines, Province of Pesaro-Urbino, Italy; LOC-typus: not available; SYN: *Arisaro proboscidei-Carpinetum* Ubaldi et Speranza 1982 nom. inval. (Art. 3o); CL: *Laburno-Ostryion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

Note: In the type-relevé of this association, *Fagus sylvatica* is the dominant species, whereas *Quercus cerris* exhibits a low cover value. However, in other relevés of the original diagnosis as well as in other tables of the *Arisaro proboscidei-Carpinetum betuli* (e.g. Ubaldi, 1989: Tab. 6), *Quercus cerris* is largely dominant. Biondi *et al.* (2002a) proposed to lower the *Arisaro proboscidei-Carpinetum betuli* to the rank of subassociation of the *Centaureo montanae-Carpinetum betuli* with the name of *Centaureo montanae-Carpinetum betuli arisaretosum proboscidei* (Ubaldi et Speranza in Ubaldi 1995) Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni 2002. Biondi *et al.* (2013) considered this subassociation as invalidly published because of article 5 ICPN. However, in the case of a change of rank, the type and the original diagnosis of the new rank remain those of the original association (cf. Art. 27c). So, the change of rank was validly proposed by Biondi *et al.* (2002a). Two associations —both of them validly published in the same year (*Arisaro proboscidei-Carpinetum* and *Centaureo montanae-Carpinetum betuli*)— were united and the name *Centaureo montanae-Carpinetum betuli* was retained.

5.1. *Arisaro proboscidei-Carpinetum betuli ostryetosum carpinifoliae* Ubaldi 1995

Holotypus: rel. 10, Tab. 6, p. 150, Ubaldi 1988; LOC: northern Apennines, Province of Pesaro-Urbino, Italy; LOC-typus: not available; SYN: *Arisaro-Carpinetum* Ubaldi et Speranza 1982 nom. inval. (Art. 3o) *ostryetosum* Ubaldi 1988 nom. inval. (Art. 4a); CL: see association.

6. *Arrhenathero nebrodensis-Quercetum cerridis* Brullo, Minissale, Signorello et Spampinato 1996

Holotypus: rel. 1, Tab. 2, p. 642, Brullo *et al.* (1996); LOC: Nebrodi Mts., Sicily, Italy; LOC-typus: ‘Malabotta’, Province of Messina; CL: *Geranio striati-Fagion*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

7. *Asparago tenuifolii-Quercetum cerridis* Scoppola et Filesi 1995

Holotypus: rel. 18, Tab. 3, Scoppola & Filesi (1995); LOC: Mt. Rufeno, Province of Viterbo, Italy; LOC-

typus: not available; CL: *Lonicero etruscae-Quercion pubescentis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

7.1. *Asparago tenuifolii-Quercetum cerridis fraxinetosum oxycarpae* Scoppola et Filesi 1995

Holotypus: rel. 4, Tab. 3, Scoppola & Filesi (1995); LOC: Mt. Rufeno, Province of Viterbo, Italy; LOC-typus: not available; CL: see association.

Note: This subassociation was raised to the rank of association by Foggi *et al.* (2000), with the name *Fraxino oxycarpae-Quercetum cerridis* (Scoppola et Filesi 1995) Foggi, Selvi et Viciani in Foggi, Selvi, Viciani, Bettini et Gabellini 2000.

7.2. *Asparago tenuifolii-Quercetum cerridis lathyretosum nigri* Scoppola et Filesi 1995

Holotypus: rel. 26, Tab. 3, Scoppola & Filesi (1995); LOC: Mt. Rufeno, Province of Viterbo, Italy; LOC-typus: not available; CL: see association.

7.3. *Asparago tenuifolii-Quercetum cerridis typicum*

8. *Asplenio onopteridis-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 9, Tab. 7, Pedrotti *et al.* (1979); LOC: Petrignano, Lago di Trasimeno, Province of Perugia, Italy; LOC-typus: not available; SYN: *Asplenio-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o); CL: *Lonicero etruscae-Quercion pubescentis* nom. inval. (Art. 3o), *Lathyro nigri-Quercetalia cerridis*, *Quercus-Fagetalia sylvaticae*.

9. *Carici sylvaticae-Quercetum cerridis* Catorci et Orsomando 2001

Holotypus: rel. 18, Tab. 10, p. 76, Catorci & Orsomando (2001); LOC: Nocera Umbra, Provinces of Perugia and Macerata, Italy; LOC-typus: Dignano, Province of Macerata; CL: *Carpinion betuli*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

10. *Carpino orientalis-Quercetum cerridis* Blasi ex Taffetani et Biondi 1995

Holotypus: rel. 33, Tab. 1, Blasi (1984); LOC: Mt. Soratte, Lazio Region, Italy; LOC-typus: not available; SYN: *Carpino orientalis-Quercetum cerridis* Blasi 1984 nom. inval. (Art. 3o); CL: *Ostryo-Carpinion orientalis* nom. illegit., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

11. *Centaureo montanae-Carpinetum betuli* Ubaldi, Zanotti, Puppi, Speranza, Corbetta in Ubaldi 1995

Holotypus: rel. 61, Tab. 7, Ubaldi & Speranza (1985); LOC: area between Mt. Simoncello and Mt. Carpegna, Montefeltro, Tuscan-Emilian Apennines, Italy; LOC-typus: not available; SYN: *Centaureo montanae-Carpinetum betuli* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o); CL: *Laburno-Ostryion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

12. *Centaureo centaurii-Quercetum pubescentis* Zanotti, Ubaldi, Corbetta et Pirone 1995

Holotypus: rel. 2, Tab. 1, col. a, p. 55, Zanotti *et al.* (1995); LOC: area between Grottole and Grassano, Province of

Matera, Lucane Apennines, Italy; LOC-typus: ss. 7, from Grottole to Grassano; CL: *Melittio albidae-Quercion frainetto*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

Note: The original diagnosis of the *Centaureo centaurii-Quercetum pubescentis* includes some relevés collected in woods dominated by *Quercus cerris* and some others collected in woods dominated by *Quercus pubescens*. Notwithstanding the association name refers to a *Quercus pubescens* woods, the holotypus clearly represents a *Quercus cerris* wood. The division of this association in two different communities remains to be evaluated in a forthcoming syntaxonomic revision.

13. *Cephalanthero longifoliae-Quercetum cerridis* Scoppola et Filesi 1998

Holotypus: rel. 5, Tab. 1, p. 297, Scoppola & Filesi (1998); LOC: Mt. Rufeno, Lazio Region, Italy; LOC-typus not available; CL: *Lathyro montani-Quercion cerridis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

14. *Coronillo emeri-Quercetum cerridis* Blasi ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova* *Holotypus*: rel. 4, Tab. 1, Blasi (1984); LOC: Northwestern Latium, Italy; LOC-typus not available; SYN: *Coronillo emeri-Quercetum cerridis* Blasi 1984 nom. inval. (Art. 3o); CL (from Blasi, 1984): *Ostryo-Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

Note: Ubaldi (2003) designated the *Coronillo emeri-Quercetum cerridis* Blasi 1984 nom. inval. as the typus of the alliance *Mespilo-Carpinion betuli* Ubaldi 2003 nom. inval. (Art. 5). The EVC considers this latter alliance as synonym of the *Crataego laevigatae-Quercion cerridis*. On the other hand, the *Ostryo-Carpinion orientalis* is considered in the EVC as a synonym of the *Fraxino orni-Ostryion*.

14.1. *Coronillo emeri-Quercetum cerridis ericetosum arboreae* Abbate, Blasi, Spada et Scoppola ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova* *Holotypus*: rel. 41, Tab. 1, Abbate *et al.* (1990); LOC: 'Castelporziano', Rome, Italy; LOC-typus: not available; SYN: *Coronillo emeri-Quercetum cerridis* Blasi 1984 nom. inval. (Art. 3o) *ericetosum arboreae* Abbate, Blasi, Spada et Scoppola 1990 nom. inval. (Art. 4a). CL: see note.

Note: Abbate *et al.* (1990) discussed the classification of the *Coronillo emeri-Quercetum cerridis ericetosum arboreae* Abbate *et al.* 1990 nom. inval. and highlighted about its occurrence as extrazonal deciduous oak communities in the *Quercion ilicis* wood belt. However, they did not provide a definite classification for this syntaxon.

14.2. *Coronillo emeri-Quercetum cerridis genistetosum germanicae* Catorci et Orsomando 1998 nom. inval. (Art. 4a)

Note: Biondi *et al.* (2001), included the relevés of the *Coronillo emeri-Quercetum cerridis genistetosum germanicae* provided by Catorci & Orsomando (1998: Tab. 4) in the new association *Malo-Quercetum frainetto*

Biondi et al. 2001 *nom. inval.* The latter association is validated in this revision (see below).

15. *Cytiso villosi-Quercetum cerridis* Biondi, Casavecchia, Frattaroli, Pirone, Pesaresi, Di Martino, Galassi, Paradisi, Ventrone, Angelini et Ciaschetti 2008 *Holotypus*: rel. 2, Tab. 7, p. 140, Biondi et al. (2008b); *LOC*: Upper Valley of the Vomano River, central Italy; *LOC-typus*: ‘Cesacastina’, Teramo; *CL*: *Pulmonario apenninae-Carpinion betuli*, *Erythronio-Carpinion*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

15.1. *Cytiso villosi-Quercetum cerridis aceretosum obtusati* Biondi, Casavecchia, Frattaroli, Pirone, Pesaresi, Di Martino, Galassi, Paradisi, Ventrone, Angelini et Ciaschetti 2008

Holotypus: rel. 20, Tab. 7, p. 140, Biondi et al. (2008b); *LOC*: Upper Valley of the Vomano River, central Italy; *LOC-typus*: ‘Torrente Venaquaro’, Intermesoli-Pietracamela, Province of Teramo, Italy; *CL*: see association.

15.2. *Cytiso villosi-Quercetum cerridis stellarietosum holostea* Biondi, Casavecchia, Frattaroli, Pirone, Pesaresi, Di Martino, Galassi, Paradisi, Ventrone, Angelini et Ciaschetti in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013

Holotypus: rel. 26, Tab. 7, p. 140, Biondi et al. (2008b); *LOC*: Upper Valley of the Vomano River, central Italy; *LOC-typus*: ‘Valle Chiarino’, Province of L’Aquila; *SYN*: *Cytiso villosi-Quercetum cerridis* Biondi et al. 2008 *stellarietosum holostea* Biondi et al. 2008 *nom. inval.* (Art. 3o); *CL*: see association.

15.3. *Cytiso villosi-Quercetum cerridis typicum*

SYN: *Cytiso villosi-Quercetum cerridis cytisetosum villosi* Biondi et al. 2008

16. *Dactylorhizo maculatae-Quercetum petraeae*

Ubaldi, Puppi, Speranza, Zanotti et Corbetta in Ubaldi 1995 *nom. superfluum* (Art. 29c)

SYN: *Dactylorhizo-Quercetum petraeae* Ubaldi, Puppi, Speranza, Zanotti et Corbetta 1990 *nom. inval.* (Art. 3o); *CL*: *Erythronio-Quercion petraeae*, *Lathyro nigri-Quercetalia cerridis*, *Quercus-Fagetalia sylvaticae*.

Note: The *Dactylorhizo maculatae-Quercetum petraeae* is here considered as a *nomen superfluum* because of its original diagnosis (cf. Ubaldi et al., 1990; Ubaldi, 1995) includes the nomenclatural type of the *Physospermo cornubiensis-Quercetum petraeae* (as validly lectotypified by Arrigoni, 1998: see below). Ubaldi (1995) designated as holotype of this association the relevé 60 of Tab. 2 in Oberdorfer & Hofmann (1967). However, according to article 18b, the *Dactylorhizo maculatae-Quercetum petraeae* is automatically typified by type relevé of the *Physospermo cornubiensis-Quercetum petraeae* (i.e. rel. 59, Tab. 2, in Oberdorfer & Hofmann, 1967). The original diagnosis of the *Dactylorhizo maculatae-Quercetum petraeae* contains *Orchis maculata* instead of *Dactylorhiza maculata*, one of the name-giving taxon.

17. *Daphno laureolae-Quercetum cerridis* Taffetani et Biondi 1995

Holotypus: rel. 16, Tab. 2, Taffetani & Biondi (1995); *LOC*: Mt. Ascensione, Ascoli Piceno, Italy; *LOC-*

typus: not available; *CL*: *Ostryo-Carpinion orientalis* *nom. illegit.*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

Note: *Quercus cerris* is dominant/codominant in a few relevés of the original diagnosis. In the type-relevé, the dominant tree species exhibit the following cover values: *Quercus cerris* 1.2, *Quercus pubescens* 2.2, *Carpinus orientalis* 2.3.

17.1. *Daphno laureolae-Quercetum cerridis rosetosum arvensis* Taffetani, Catorci, Ciaschetti, Cutini, Di Martino, Frattaroli, Paura, Pirone, Rismondo et Zitti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 49, Tab. IV, Taffetani et al. (2012); *LOC*: Abruzzo and Molise Regions; *LOC-typus*: Bosco Montagna, Carunchio, Province of Chieti, Italy; *SYN*: *Daphno laureolae-Quercetum cerridis* Taffetani et Biondi 1995 *rosetosum arvensis* Taffetani, Catorci, Ciaschetti, Cutini, Di Martino, Frattaroli, Paura, Pirone, Rismondo et Zitti 2012 *nom. inval.* (Art. 3o); *CL* (from Taffetani et al., 2012): *Carpinion orientalis*; *Quercetalia pubescenti-petraeae*; *Quercus-Fagetalia sylvaticae*.

17.2. *Daphno laureolae-Quercetum cerridis typicum*

SYN: *Daphno laureolae-Quercetum cerridis* Taffetani et Biondi 1995 *daphnetosum laureolae* Taffetani et al. 2012.

18. *Echinopo siculi-Quercetum frainetto* Blasi et Paura 1995

Holotypus: rel. 17, Tab. 2, Blasi & Paura (1995); *LOC*: Campobasso and Mt. Farneta, near Felitto (Salerno), Italy; *LOC-typus*: Mt. Farneta; *CL*: *Teucro siculi-Quercion cerridis* *nom. inval.*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

19. *Erico arborea-Quercetum cerridis* Arrigoni in Arrigoni, Mazzanti et Ricceri 1990

Holotypus: rel. 3, Tab. 2, p. 125, Arrigoni et al. (1990); *LOC*: Province of Grosseto, Italy; *LOC-typus*: ‘Civitella Paganico’; *CL*: *Lonicero etruscae-Quercion pubescentis* *nom. inval.*, *Carpino-Melicetalia uniflorae* *nom. inval.*, *Quercus-Fagetalia sylvaticae*.

19.1. *Erico arborea-Quercetum cerridis lathyretosum veneti* Tardella, Vitanzi, Sparvoli et Catorci 2011

Holotypus: rel. 13, Tab. 2, p. 20, Tardella et al. (2011); *LOC*: between Gualdo Cattaneo and Colle Martino, Province of Perugia, Italy; *LOC-typus*: not available; *CL*: *Crataego laevigatae-Quercion cerridis* *nom. illegit.*, *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

19.2. *Erico arborea-Quercetum cerridis typicum*

20. *Erythronio dentis-canis-Quercetum cerridis* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013

Holotypus: rel. 29, Tab. 3, p. 80, Biondi et al. (2002a); *LOC*: upper Marecchia valley, Tuscany, Emilia-Romagna and Marche Apennines, Italy; *LOC-typus*: Mt. Cerignone, Selva Grossa wood, Province of Pesaro-Urbino;

SYN: *Erythronio dentis-canis-Quercetum cerridis* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni 2002 nom. inval. (Art. 5); CL: *Pulmonario apenninae-Carpinenion betuli*, *Physospermo verticillati-Quercion cerridis* nom. inval., *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

21. *Fago sylvaticae-Quercetum cerridis* Ubaldi, Puppi, Speranza, Zanotti et Corbetta in Ubaldi 1995

Holotypus: rel. 4, Tab. 8, De Dominicis & Casini (1979); LOC: Metalliferous hills, south-western Tuscany, Italy; LOC-typus: Mt. Alto, Roccastrada, Province of Grosseto; SYN: *Fago-Quercetum cerridis* Ubaldi, Puppi, Speranza, Zanotti et Corbetta 1990 (Art. 5); CL: *Lonicero etruscae-Quercion pubescentis* nom. inval., *Lathyro nigri-Quercetalia cerridis*, *Quercus-Fagetalia sylvaticae*.

Note: Despite the name of this association, *Quercus cerris* exhibits low cover values in the original table of De Dominicis & Casini (1979) acting as dominant species only in two relevés of the original diagnosis. One of these two relevés, however, is the type-relevé.

22. *Fraxino excelsioris-Aceretum obtusati* Ubaldi et Speranza in Ubaldi 1995 *quercetosum cerridis* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 74, Tab. 6, Ubaldi & Speranza (1985); LOC: Montefeltro, northern Marche, Italy; LOC-typus: not available; SYN: *Fraxino excelsioris-Aceretum obtusati* Ubaldi et Speranza in Ubaldi 1995 *quercetosum cerridis* Biondi, Casavecchia, Pinzi, Allegrezza et Baldoni 2002 nom. inval. (Art. 5; Biondi *et al.*, 2002a); CL (from Biondi *et al.*, 2002a): *Pulmonario apenninae-Carpinenion betuli*, *Erythronio-Carpinion*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

23. *Fraxino oxycarpae-Quercetum cerridis*

Note: see *Asparago tenuifolii-Quercetum cerridis fraxinetosum oxycarpae*.

24. *Hieracio racemosi-Quercetum petraeae* Pedrotti, Balleli et Biondi 1982

Holotypus: rel. 15, Tab. 1, p. 239, Pedrotti *et al.* (1982); LOC: Gubbio catchment, Perugia, Italy; LOC-typus: not available; CL: *Quercion robori-petraeae*, *Quercetalia robori-petraeae*, *Quercetalia robori-petraeae*.

25. *Ilici aquifolii-Quercetum cerridis* Raimondo, Schicchi et Bazan ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova*

Holotypus: rel. 4, Tab. 1, p. 378, Raimondo *et al.* (2009); LOC: Nebrodi Mts., Sicily, Italy; LOC-typus: C.da Lannari, Nebrodi; SYN: *Ilici aquifolii-Quercetum cerridis* Raimondo, Schicchi et Bazan 2009 nom. inval. (Art. 3o); CL (from Raimondo *et al.*, 2009): *Doronico orientalis-Fagion sylvaticae*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

26. *Knautio drymeiae-Ostryetum carpinifoliae* Mondino, Cristaldi et Puppi 1995

Holotypus: rel. 17, Tab. 2, Mondino *et al.* (1995); LOC: Curone and Borbera catchments, tributaries of the

Scrivia river, Province of Alessandria, Italy; LOC-typus: not available; CL: the syntaxonomic position has been indicated as an intermediate between the '*Quercetalia pubescentis*' and '*Lathyro-Carpinetalia*'.

Note: the original diagnosis of this association includes relevés dominated by *Ostrya carpinifolia* and *Quercus* spp. *Quercus cerris* is dominant or codominant in several relevés, mostly belonging to the typical subassociation (i.e. '*Knautio drymeiae-Ostryetum carpinifoliae sorbetosum ariae*').

26.1. *Knautio drymeiae-Ostryetum carpinifoliae typicum*
SYN: *Knautio drymeiae-Ostryetum carpinifoliae* Mondino, Cristaldi et Puppi 1995 *sorbetosum ariae* Mondino, Cristaldi et Puppi 1995.

26.2. *Knautio drymeiae-Ostryetum carpinifoliae viburnetosum lantanae* Mondino, Cristaldi et Puppi 1995

Holotypus: rel. 78, Tab. 2, Mondino *et al.* (1995); LOC: Curone and Borbera catchments, tributaries of the Scrivia river, Province of Alessandria, Italy; LOC-typus: not available; CL: see association.

27. *Lathyro digitati-Quercetum cerridis* Bonin et Gamisans 1976

Lectotypus (Brullo *et al.*, 1999): rel. 137, Tab. 1, Bonin & Gamisans (1976); LOC: Sila Greca, Calabria Region and Province of Potenza, Basilicata Region, Italy; LOC-typus: Calvello, Province of Potenza, Lucane Apennines; CL: *Ptilostemono stricti-Quercenion cerridis*, *Melittio albidiae-Quercion frainetto*, *Quercetalia pubescentis* nom. inval., *Quercus-Fagetalia sylvaticae*.

27.1. *Lathyro digitati-Quercetum cerridis anemonetosum apenninae* Bonin et Gamisans 1976

Lectotypus hoc loco: rel. 137, Tab. 1, Bonin & Gamisans (1976); LOC: Province of Potenza, Basilicata Region, and Campania and Savelli (Sila) in Province of Crotona, Italy; LOC-typus: Calvello, Province of Potenza; CL: see association.

27.2. *Lathyro digitati-Quercetum cerridis asparagetosum acutifolii* Bonin et Gamisans 1976

Lectotypus hoc loco: rel. 140, tab.1, Bonin & Gamisans (1976); LOC: Gallipoli-Cognato woods, Anzi, Province of Potenza, Italy; LOC-typus: Anzi, Province of Potenza; CL: see association.

27.3. *Lathyro digitati-Quercetum cerridis clematidetosum* Bonin et Gamisans 1976

Lectotypus hoc loco: rel. 152, tab.1, Bonin & Gamisans (1976); LOC: Dolomiti Lucane (Accettura, Oliveto Lucano and San Mauro Forte), Province of Potenza, Italy; LOC-typus: area between Oliveto Lucano and San Mauro Forte; CL: see association.

Note: The original diagnosis of this subassociation contains two *Clematis* species so that the specific epithet cannot be added (see Rec. 10c).

27.4. *Lathyro digitati-Quercetum cerridis festucetosum exaltatae* Rosati, Di Pietro et Blasi 2005

Holotypus: rel. 18, Tab. 5, p. 46, Rosati *et al.* (2005); LOC: Cannalonga, Campora and Rofrano, Province of Salerno, Italy; LOC-typus: Mt. Centaurino; CL:

Ptilostemone stricti-Quercenion cerridis, *Teucro siculi-Quercenion cerridis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

28. *Lathyro jordanii-Quercetum cerridis* Zanotti, Ubaldi, Corbetta et Pirone 1995

Holotypus: rel. 27, Tab. 1, p. 55, Zanotti et al. (1995); LOC: Lucano Apennines between the Basento and Agri valleys, Italy; LOC-typus: between Tramutola and Grumento, Province of Potenza; CL: *Melittio albidiae-Quercenion frainetto*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

29. *Lathyro montani-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 6, Tab. 8, Barbero & Bono (1970); LOC: central and eastern Ligurian Apennines and Apuane Alps, Italy; LOC-typus: Casella, Genova; SYN: *Lathyro montani-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o); CL: *Campanulo-Ostryenion carpinifoliae*, *Laburno-Ostryenion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

29.1. *Lathyro montani-Quercetum cerridis cytisetosum scoparii* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 10, Tab. 8, Barbero & Bono (1970); LOC: Apuane Alps and northern Tuscany; LOC-typus: Campo Cecina, Province of Massa-Carra, Apuane Alps, Italy; SYN: *Lathyro montani-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 (Art. 3o) *cytisetosum scoparii* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 (Art. 4a); CL: see association.

30. *Listero ovatae-Quercetum cerridis* Di Pietro et Tondi 2005

Holotypus: rel. 9, Tab. 1, p. 16, Di Pietro & Tondi (2005); LOC: Thyrrhenian side of the Laga Mts., Italy; LOC-typus: Preta, Province of Rieti; CL: *Pulmonario apenninae-Carpinion betuli*, *Erythronio-Carpinion*, *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

31. *Lonicero etruscae-Quercetum cerridis* (Taffetani et Biondi 1995) nom. nov.

Holotypus: rel. 13, Tab. 2, Taffetani & Biondi (1995); LOC: Marche, Umbria, Tuscany, Abruzzo, Molise, Campania and Apulia Regions, Italy; LOC-typus: Abbadia di Fiastra, Province of Macerata, Italy; SYN: *Lonicero xylostei-Carpinetum orientalis* Taffetani et Biondi 1995 nom. illegitimum (Art. 29b); *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrizza 1996 nom. inval. (Art. 3n); *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrizza in Allegrizza et al. 2002 (Art. 3i); CL (from Taffetani & Biondi, 1995); *Ostryo-Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

Note: Taffetani & Biondi (1995) validly described the association *Lonicero xylostei-Carpinetum orientalis*. The syntaxon name is however illegitimate because no name-giving taxa belong to the highest layer determining the vegetation structure (Art. 29b). As a consequence, Biondi

& Allegrizza (1996) introduced a new name, *Lonicero xylostei-Quercetum cerridis*, but they did not explicitly indicate which syntaxon name it was replacing, since four valid associations had been published in the original paper by Taffetani & Biondi (1995). The name *Lonicero xylostei-Quercetum cerridis* is mentioned in the ICPN (Weber et al. 2000) as an example of invalidly published name (Art. 3n example). In a subsequent paper, Allegrizza and other authors —including Biondi and Taffetani, the original authors of the rejected name— argued that the name *Lonicero xylostei-Quercetum cerridis* was clearly adopted to replace the name *Lonicero xylostei-Carpinetum orientalis* because there was an indirect univocal reference to the group of relevés sampled in ‘Selva dell’Abbadia di Fiastra’, i.e. those of the *Lonicero xylostei-Carpinetum orientalis* (Allegrizza et al., 2002). However, Biondi & Allegrizza (1996) did not provide an explicit reference to the rejected illegitimate name. For these reasons, the name *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi, 1995) Biondi et Allegrizza 1996 is here considered as invalid. However, in this work we decided not to validate the name *Lonicero xylostei-Quercetum cerridis* due to the non-ecological pertinence of the guide species of the epithet (*Lonicera xylosteum*) for an association of thermophilous turkey oak woods rich in elements of *Quercetalia ilicis*. These conclusions were also reached by Taffetani et al. (2012), who, by critically analyzing the association, had proposed to exclude *Lonicera xylosteum* from the specific characteristic component of the association. It is emblematic that in Allegrizza et al. (2002), *Lonicera xylosteum* is completely missing in a table composed of 15 relevés where the authors were proposing the new subass. *loniceretosum etruscae*. Allegrizza et al. (2002) had the opportunity to propose a new name for the association, but they did not do so because, as already explained above, they did not share the motivations of the ICPN in considering this name invalid. Accordingly, we here propose a *nomen novum* replacing the illegitimate name *Lonicero xylostei-Carpinetum orientalis* Taffetani et Biondi 1995 (*Annali di Botanica (Roma) Studi sul territorio* 51, suppl. 10: p. 237). The new name is *Lonicero etruscae-Quercetum cerridis*. According to Art. 39a, the new association is typified by the type of the *Lonicero xylostei-Carpinetum orientalis*. Characteristic species of this association are those already selected in Taffetani et al. (2012): *Rubia peregrina*, *Smilax aspera*, *Lonicera etrusca*, *Rosa sempervirens*, *Viburnum tinus*, *Asplenium onopteris*, *Ruscus aculeatus*.

31.1. *Lonicero etruscae-Quercetum cerridis ericetosum arboreae* Allegrizza et Biondi ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro subass. nova

Holotypus: rel. 7, Tab. 3, p. 39, Allegrizza & Biondi (2002); LOC: Province of Ancona, Italy; LOC-typus: woods of Gallignano, Province of Ancona, Italy; SYN: *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrizza 1996 nom. inval. (Art. 3n) *ericetosum arboreae* Allegrizza et Biondi 2002 nom. inval. (Art. 4a); *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrizza 1996 nom. inval. (Art. 3n) *ericetosum arboreae* Allegrizza et Biondi in Biondi, Allegrizza,

Casavecchia, Galdenzi, Gigante et Pesaresi 2013 nom. inval. (Art. 4a); CL (from Allegrezza & Biondi, 2002): *Ostryo-Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetea sylvaticae*.

31.2. *Lonicero etruscae-Quercetum cerridis festucetosum exaltatae* Taffetani, Catorci, Ciaschetti, Cutini, Di Martino, Frattaroli, Paura, Pirone, Rismondo et Zitti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 98, Tab. III, p. 935, Taffetani et al. (2012); LOC: Abruzzo and Molise Regions, Italy; LOC-typus: Atesa, Vallaspra and Bosco S. Pasquale, Province of Chieti, Italy; SYN: *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrezza 1996 nom. inval. (Art. 3n) *festucetosum exaltatae* Taffetani, Catorci, Ciaschetti, Cutini, Di Martino, Frattaroli, Paura, Pirone, Rismondo et Zitti 2012 nom. inval. (Art. 4a); CL (from Taffetani et al., 2012): *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetea sylvaticae*.

31.3. *Lonicero etruscae-Quercetum cerridis melicetosum uniflorae* Biondi et Allegrezza ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 8, Tab. 3, Biondi & Allegrezza (1996); LOC: Province of Ancona, Italy; LOC-typus: woods of Castelfidardo, Province of Ancona, Italy; SYN: *Lonicero xylostei-Quercetum cerridis* (Taffetani et Biondi 1995) Biondi et Allegrezza 1996 nom. inval. (Art. 3n) *melicetosum uniflorae* Biondi et Allegrezza 1996 nom. inval. (Art. 4a); CL (from Biondi & Allegrezza, 1996): *Ostryo-Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetea sylvaticae*.

31.4. *Lonicero etruscae-Quercetum cerridis typicum*

32. *Malo florentinae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova*

Holotypus: rel. 20, Tab. 2, Biondi et al. (2001); LOC: Umbria Region, Provinces of Perugia and Terni, Italy; LOC-typus: Farnetta, Terni; SYN: *Malo florentinae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o); CL (from Biondi et al., 2001): *Teucrio siculi-Quercion cerridis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetea sylvaticae*.

Note: Biondi et al. (2001) described the new association *Malo florentinae-Quercetum frainetto* without any indication of the nomenclatural type, and none of its two subassociations (*maletosum florentinae* and *viburnetosum tini*) was explicitly designated as the typical one (cf. Art. 5). It is probable that the authors considered the subass. *maletosum florentinae* as the typical one, although this designation is not present in the paper. This possibility can only be deduced from the fact that dealing with the subass. *viburnetosum tini*, the authors claimed: 'It is located on slopes slightly greater than that of the sites in which the typical subassociation takes place.' However, they did not explicitly designate the typical subassociation, as required by the ICPN, and the association is to be considered as invalid.

The association is validated here with the same nomenclatural type indicated by Biondi et al. (2001) for the subassociation *maletosum florentinae* (see 32.2).

32.1. *Malo florentinae-Quercetum frainetto viburnetosum tini* Biondi, Gigante, Pignattelli et Venanzoni ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nov.*
Holotypus: rel. 4, Tab. 2, Biondi et al. (2001); LOC: Umbria Region; LOC-typus: Abbazia di Farneto, Province of Perugia, Italy; SYN: *Malo florentinae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o) *viburnetosum tini* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 4a); CL: see association.

32.2. *Malo florentinae-Quercetum frainetto typicum*
SYN: *Malo florentinae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o) *maletosum florentinae* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 4a).

33. *Melico uniflorae-Quercetum cerridis* Arrigoni in Arrigoni, Mazzanti et Ricceri 1990

Holotypus: rel. 23, Tab. 3, p. 128, Arrigoni et al. (1990); LOC: Province of Grosseto, Italy; LOC-typus: Scansano, south of the Poggioferro-Murci road; CL: *Lonicero etruscae-Quercion pubescentis* nom. inval., *Carpino-Melicetalia uniflorae* nom. inval., *Quercus-Fagetea sylvaticae*.

33.1. *Melico uniflorae-Quercetum cerridis carpinetosum betuli* Arrigoni in Arrigoni, Mazzanti et Ricceri 1990

Holotypus: rel. 22, Tab. 3, p. 128, Arrigoni et al. (1990); LOC: Province of Grosseto, Italy; LOC-typus: Scansano, between Murci and Poggioferro; CL: see association.

34. *Mespilo germanicae-Quercetum cerridis ass. nova*

Holotypus: rel. 2, Tab. 1, Tedeschini Lalli (1995); LOC: Lazio Region; LOC-typus: Macchia Grande di Manziana, Province of Rome, Italy; SYN: *Mespilo germanicae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o); CL (from Biondi et al., 2001): *Teucrio siculi-Quercion cerridis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetea sylvaticae*.

Note: The *Mespilo germanicae-Quercetum frainetto* was invalidly described by Biondi et al. (2001) together with 2 subassociations, *mespiletosum germanicae*, and *quercetosum roboris*. These authors, however, did not indicate the nomenclatural-type relevé of the association, nor they designated one of the two subassociations as the typical one. The same applies to this association as for the *Malo-Quercetum frainetto*. The authors could consider subass. *mespiletosum germanicae* as the typical. This possibility can only be deduced from the fact that in the text, dealing with the subass. *quercetosum roboris*, the authors claimed: 'It differs from the typical subassociation in having a more markedly mesophilous ecology'. However, yet in this case, the association was invalidly published because they did not explicitly designate the typical subassociation as required by the code. For this reason, we describe here the new association *Mespilo*

germanicae-Quercetum cerridis, supported by the fact that *Quercus cerris* is the dominant tree species in the type-relevé (in the Braun-Blanquet cover-abundance scale *Q. cerris* = 4; *Q. frainetto* = 1). As holotypus of the new association, we designate the nomenclature type indicated by Biondi *et al.* (2001) for the subassociation *mespilotosum germanicae*. The diagnostic species of the *Mespilo germanicae-Quercetum cerridis* are those indicated by Biondi *et al.* (2001) for the *Mespilo germanicae-Quercetum frainetto* nom. inval.

34.1. *Mespilo germanicae-Quercetum cerridis arbutetosum unedonis* subass. nova

Holotypus: rel. 19, Tab. 2, Blasi *et al.* (2002); LOC: Lazio Region; LOC-typus: Circeo National Park, Piscina della Gattuccia, Italy; SYN: *Mespilo germanicae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o) *arbutetosum unedonis* Blasi, Stanisci, Filesi, Milanese, Perinelli et Riggio 2002 nom. inval. (Art. 4a); CL: see association.

34.2. *Mespilo germanicae-Quercetum cerridis cornetosum sanguineae* subass. nova

Holotypus: rel. 61, Tab. 2, Blasi *et al.* (2002); LOC: Lazio Region; LOC-typus: Tyrrhenian side of central Lazio: Bosco del Padiglione, Italy; SYN: *Mespilo germanicae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 5) *cornetosum sanguineae* Blasi, Stanisci, Filesi, Milanese, Perinelli et Riggio 2002 nom. inval. (Art. 4a); CL: see association.

34.3. *Mespilo germanicae-Quercetum cerridis quercetosum roboris* subass. nova

Holotypus: rel. 15, Tab. 1, Stanisci *et al.* (1996); LOC: Lazio Region; LOC-typus: Circeo National Park, Italy; SYN: *Mespilo germanicae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 5) *quercetosum roboris* Biondi, Gigante, Pignattelli et Venanzoni 2001 (Art. 4a); CL: see association.

34.4. *Mespilo germanicae-Quercetum cerridis typicum*
SYN: *Mespilo germanicae-Quercetum frainetto* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 3o) *mespilotosum germanicae* Biondi, Gigante, Pignattelli et Venanzoni 2001 nom. inval. (Art. 4a).

35. *Ostrya carpinifoliae-Aceretum opulifolii* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 15, Tab. 3, Ubaldi (1980); LOC: hills near Bologna, Italy; LOC-typus: not available; SYN: *Ostrya carpinifoliae-Aceretum opulifolii* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o); CL: *Laburno-Ostryion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fageteta sylvaticae*.

36. *Physospermo cornubiensis-Quercetum cerridis* Barbero ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova*

Holotypus: rel. 1, Tab. 3, p. 117, Barbero (1979); LOC: Ceva and Lesegno, Vicoforte Mondovi, Province of Cuneo, Italy; LOC-typus: Lesegno, Cuneo; SYN: *Physospermo cornubiensis-Quercetum cerridis* Barbero 1979 nom. inval. (Art. 3o); CL (from Barbero, 1979): *Ostrya-Carpinion*, *Querceteta pubescentis*.

Note: The volume IV of the journal *Ecologia Mediterranea*—where this association was firstly published—is dated 1978. The printing date is reported on the last page of the volume as ‘third quarter of 1979’. As a consequence, the *Physospermo cornubiensis-Quercetum cerridis* was invalidly published since there is no indication of the nomenclatural type, which is required on or after 1st January of 1979 (Art. 5).

37. *Physospermo cornubiensis-Quercetum petraeae* Oberdorfer et Hofmann 1967

Lectotypus (Arrigoni 1998): rel. 59, Tab. 2, p. 100, Oberdorfer & Hofmann (1967); LOC: central and eastern Liguria, Italy; LOC-typus: Foresta della Deiva, Sassello, Province of Savona; CL: ‘*Carpinion*’, *Fagetalia sylvaticae*, *Quercus-Fageteta sylvaticae*.

Note: The original diagnosis of the *Physospermo cornubiensis-Quercetum petraeae* consists of the relevés included in two tables, 1 and 2, in Oberdorfer & Hofmann (1967). Ubaldi (1995) lectotypified this association with the relevé 3 of table 1. However, as observed by Arrigoni (1998), Oberdorfer & Hofmann (1967) explicitly assigned the first 13 relevés (from 52 to 91) of the table 2 to the subassociation *Physospermo cornubiensis-Quercetum petraeae typicum*. As a consequence, the lectotypification of Ubaldi (1995) has to be considered as invalid because the lectotype should have been selected among the relevés of the typical subassociation (see Art. 19a). Arrigoni (1998) lectotypified the *Physospermo cornubiensis-Quercetum petraeae* with relevé 59 of table 2 in Oberdorfer & Hofmann (1967). However, this relevé had been included in the original diagnosis of the *Dactylorhizo-Quercetum petraeae* (whose nomenclatural type is the relevé 60 of the same table; cf. Ubaldi *et al.* 1990; Ubaldi 1995). For this reason, and according to article 29c of the ICPN, the *Dactylorhizo maculatae-Quercetum petraeae* is to be considered as a *nomen superfluum*.

37.1. *Physospermo cornubiensis-Quercetum petraeae geranietosum nodosi* Oberdorfer et Hofmann 1967

Lectotypus hoc loco: rel. 15, Tab. 1, p. 96, Oberdorfer & Hofmann (1967); LOC: central and eastern Liguria, Italy; LOC-typus: Forest Deiva, Sassello, Province of Savona; CL: see association.

37.2. *Physospermo cornubiensis-Quercetum petraeae typicum*

38. *Physospermo verticillati-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 30, Tab. 1, Aita *et al.* (1977); LOC: Lucane Apennines, Italy; LOC-typus: valico Sella Lata, along the road from Laurenzana to Corleto Perticara, Province of Potenza, Italy; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b); *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino ex Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 5); CL: *Doronico-Fagion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fageteta sylvaticae*.

Note: Aita *et al.* (1977), who first described the association *Physospermo verticillati-Quercetum cerridis*, wrote that they named the association ‘*ad interim*’ (i.e. as

provisional). Therefore, the association name was invalidly published by these authors (Art. 3b). Ubaldi *et al.* (1990) modified the syntaxonomic concept of this association and assigned the facies with *Ilex aquifolium* of the *Physospermo verticillati-Quercetum cerridis* (rel. 56-62 of table 1 in Aita *et al.*, 1977) to the new association *Tilio-Quercetum cerridis*. However, Ubaldi *et al.* (1990) did not validly publish the *Physospermo verticillati-Quercetum cerridis* nor the *Tilio-Quercetum cerridis*. These two associations were validated by Ubaldi (1995), who followed the syntaxonomic concept of Ubaldi *et al.* (1990). As a consequence, the authors' citations of both these two associations contain the names of Ubaldi, Zanotti, Puppi, Speranza, and Corbetta (instead of those of Aita, Corbetta, and Orsino).

38.1. *Physospermo verticillati-Quercetum cerridis abietetosum albae* Di Pietro et Fascetti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 1, Tab. 4, p. 82, Di Pietro et Fascetti (2005); LOC: mountain range comprising the Mount Li Foj (Ruoti) and Mount Caldarosa (Laurenzana), Potenza, Italy; LOC-typus: Ruoti (Potenza); SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) '*abieti-fagetosum sylvaticae*' Aita, Corbetta et Orsino 1977 nom. inval. (Art. 4a); *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *abietetosum albae* Di Pietro et Fascetti 2005 nom. inval. (Art. 4a); CL (from Di Pietro & Fascetti, 2005): *Teucrio siculi-Quercion cerridis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetia sylvaticae*.

38.2. *Physospermo verticillati-Quercetum cerridis allietosum pendulini* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 4a)

Note: Aita *et al.* (1977) invalidly described the subassociation *Physospermo verticillati-Quercetum cerridis allietosum pendulini*, based on the relevés 1-28 in table 1. These relevés were assigned to two other subassociations, *fraxinetosum orni* (rel. 1-12) and *quercetosum frainetto* (rel. 13-28), which were validated by Ubaldi (1995; see also Ubaldi *et al.*, 1990).

38.3. *Physospermo verticillati-Quercetum cerridis daphnetosum sericeae* Biondi, Biscotti, Pesaresi et Casavecchia ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 1, Tab. 4, p. 64, in Biondi *et al.* (2014); LOC: Gargano Promontory, Italy; LOC-typus: Valle Baracca, Gargano Promontory, Italy; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *daphnetosum sericeae* Biondi, Biscotti, Pesaresi et Casavecchia 2014 nom. inval. (Art. 4a); CL (from Biondi *et al.*, 2014): *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetia*.

38.4. *Physospermo verticillati-Quercetum cerridis ericetosum arboreae* Biondi, Casavecchia et Biscotti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*
Holotypus: rel. 6, Tab. 4, p. 102, Biondi *et al.* (2008a); LOC: Gargano Promontory, Italy; LOC-typus: 'Valle

del Melaino', Vico del Gargano, Gargano Promontory, Italy; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *ericetosum arboreae* Biondi, Casavecchia et Biscotti 2008 nom. inval. (Art. 4a); *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta & Orsino 1977 em. Ubaldi, Zanotti, Puppi, Speranza & Corbetta 1990 nom. inval. (Art. 5) *ericetosum arboreae* Biondi, Casavecchia et Biscotti in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013 nom. inval. (Art. 4a); CL (from Biondi *et al.*, 2008a): *Geranio striati-Fagion*, *Fagetalia sylvaticae*, *Quercus-Fagetia sylvaticae*.

38.5. *Physospermo verticillati-Quercetum cerridis fraxinetosum orni* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 2, Tab. 1, Aita *et al.* (1977); LOC: Lucane Apennines, Gallipoli-Cognato wood and Mt. Vulture, Province of Potenza, Italy; LOC-typus: Gallipoli-Cognato wood, 'strada di accesso alla tenuta Palazzo'; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *fraxinetosum orni* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 4a, 5); CL: *Doronico-Fagion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetia sylvaticae*.

Note: see *Physospermo verticillati-Quercetum cerridis allietosum pendulini*.

38.6. *Physospermo verticillati-Quercetum cerridis phillyreosum mediae* Biondi, Casavecchia et Biscotti ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 12, Tab. 4, p. 102, in Biondi *et al.* (2008a); LOC: Gargano Promontory, Italy; LOC-typus: 'along the path Caritate-Sfilzi', Vico del Gargano, Gargano Promontory, Italy; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *phillyreosum mediae* Biondi, Casavecchia et Biscotti 2008 nom. inval. (Art. 4a, 5); '*Physospermo verticillati-Quercetum cerridis* Aita, Corbetta & Orsino 1977 em. Ubaldi, Zanotti, Puppi, Speranza & Corbetta 1990' nom. inval. (Art. 5) *phillyreosum mediae* Biondi, Casavecchia et Biscotti in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013 nom. inval. (Art. 4a); CL (from Biondi *et al.*, 2008a): *Geranio striati-Fagion*, *Fagetalia sylvaticae*, *Quercus-Fagetia sylvaticae*.

38.7. *Physospermo verticillati-Quercetum cerridis quercetosum frainetto* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 17, Tab. 1, Aita *et al.* (1977); LOC: Albano di Lucania and Anzi, Provinces of Matera and Potenza, Italy; LOC-typus: 'Bosco di Albano', Albano di Lucania; SYN: *Physospermo verticillati-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 3o) *quercetosum frainetto* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 4a); CL: *Doronico-Fagion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetia sylvaticae*.

Note: see the note to the *Physospermo verticillati-Quercetum cerridis allietosum pendulini*.

38.8. *Physospermo verticillati-Quercetum cerridis typicum*

SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *pulmonarietosum* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 4a); *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) *pulmonarietosum apenninae* Ubaldi in Biondi, Casavecchia et Biscotti 2008 nom. inval. (Art. 5); *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta & Orsino 1977 nom. inval. (Art. 3b) *pulmonarietosum apenninae* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Biondi, Allegrezza, Casavecchia, Galdenzi, Gigante et Pesaresi 2013 (Art. 4a).

39. *Quercetum gussonei* Brullo et Marcenò 1985

Holotypus: rel. 6, Tab. 16, Brullo & Marcenò (1985); LOC: northern Sicily (Ficuzza, Caronia, S. Fratello), Italy; LOC-typus: Caronia, Sicily; CL: *Quercenion dalechampii*, *Erico-Quercion ilicis*, *Quercetalia ilicis*, *Quercetea ilicis*.

40. *Quercus cerridis-Betuletum pendulae* Biondi, Brugiapaglia et Tedescini-Lalli 1998

Holotypus: rel. 2, Tab. 4, Biondi et al. (1998); LOC: Caldera di Manziara, Lazio Region, Italy; LOC-typus: not available; CL: *Teucrio siculi-Quercion cerridis* nom. inval., *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

Note: *Quercus cerris* plays a subordinate role to *Betula pendula* in all the relevés.

41. *Roso arvensis-Quercetum cerridis* Ubaldi 2003

Holotypus: rel. 36, Tab. 2, Abbate (1990); LOC: Collemeluccio-Montedimezzo, Province of Isernia, and Camposauro and Taburno Mts, Province of Benevento, Italy; LOC-typus: Montedimezzo, Italy; CL: *Doronico-Fagion*, *Quercus-Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

42. *Roso sempervirentis-Quercetum pubescentis* Biondi 1986 *quercetosum cerridis* Arrigoni in Arrigoni, Foggi, Bechi et Ricceri 1997

Holotypus: rel. 60, Tab. 6, p. 82, Arrigoni et al. (1997); LOC: Mt. Morello, Province of Florence, Italy; LOC-typus: Calenzano, near the Volmiano Castle; CL: *Lonicero etruscae-Quercion pubescentis* nom. inval., *Quercus-Fagetalia sylvaticae*.

Note: *Quercus cerris* is the dominant species of this subassociation. According to Biondi et al. (2002b) and Allegrezza et al. (2002), the *Roso sempervirentis-Quercetum pubescentis quercetosum cerridis* has to be moved to the *Lonicero xylostei-Quercetum cerridis* whereas, according to Di Pietro et al. (2010), this subassociation should be included in the *Rubio peregrinae-Quercetum cerridis*. In the present revision we took into consideration only the nomenclatural aspects; the syntaxonomic relationships among these syntaxa will be revised in a forthcoming syntaxonomical paper.

43. *Rubio peregrinae-Quercetum cerridis* Di Pietro, Azzella et Facioni 2010

Holotypus: rel. 3, Tab. 1, p. 115, Di Pietro et al. (2010); LOC: Tolfa-Ceriti Mts., Latium, Italy; LOC-typus: Mt. Pozzo Ferro; CL: *Crataego laevigatae-Quercenion*

cerridis nom. illegit., *Crataego laevigatae-Quercion cerridis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

43.1. *Rubio peregrinae-Quercetum cerridis ericetosum arboreae* Di Pietro, Azzella et Facioni 2010

Holotypus: rel. 4, Tab. 2, p. 118, Di Pietro et al. (2010); LOC: Tolfa-Ceriti Mts., Latium, Italy; LOC-typus: Mt. 'Cerqueto', Italy; CL: see association.

44. *Salvio glutinosae-Quercetum cerridis* Ubaldi 2003

Holotypus: rel. 14, Tab. 6, p. 150, Ubaldi (1989); LOC: mountainous and submountainous parts of the valleys of Biscubio, Bosso, Foglia and Tevere rivers, Provinces of Pesaro-Urbino, Arezzo, Perugia, and Forlì-Cesena, Italy; LOC-typus: Serra della Stretta, Bosso river valley; CL: 'Euonymo latifolii-Fagion', *Quercus-Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

Note: this association was invalidly described (Art. 5, 7) by Ubaldi et Speranza (1985). Subsequently, Ubaldi (1995) considered the *Salvio-Quercetum cerridis* as a synonym of the *Arisaro proboscidei-Carpinetum betuli*. In the end, Ubaldi (2003) described the 'new' association *Salvio glutinosae-Quercetum cerridis*, whose original diagnosis included all the relevés originally assigned to the *Arisaro proboscidei-Carpinetum betuli*, except the nomenclatural type (rel. 4, Tab. 6, Ubaldi & Speranza, 1982). The syntaxonomic relationships between these syntaxa remain to be evaluated.

44.1. *Salvio glutinosae-Quercetum cerridis arisaretosum* Ubaldi ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*

Holotypus: rel. 5, Tab. 6, p. 139, Ubaldi & Speranza (1982); LOC: see association; LOC-typus: Valle del Marecchia, Valle del Biscuvio-Candigliano Montefeltro, Province of Pesaro-Urbino, Italy; SYN: *Salvio glutinosae-Quercetum cerridis* Ubaldi 2003 *arisaretosum* Ubaldi 2003 nom. inval. (Art. 3o); CL (from Ubaldi, 2003): 'Euonymo latifolii-Fagion', *Quercus-Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

44.2. *Salvio glutinosae-Quercetum cerridis typicum*

45. *Seslerio autumnalis-Quercetum cerridis* Dakskobler, Sadar et Čarni 2017

Holotypus: rel. 10, Tab. 1, p. 22 in Dakskobler et al. (2017); LOC: Western Slovenia; LOC-typus: Istra-Korte-Suje, Slovenia; SYN (cf. Dakskobler et al., 2017): *Paeonio officinalis-Quercetum cerridis* Dakskobler in Milošević Štukl 2012 nom. inval. (Art. 3b), *Rusco aculeati-Quercetum cerridis* Dakskobler et Sadar in Čarni et al. 2016 nom. inval. (Art. 3b); CL: *Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia*.

Note: Originally described for the western part of Slovenia, this association possibly occurs also in the North-East of Italy.

46. *Seslerio autumnalis-Quercetum petraeae* Poldini ex Codogno 1977

Lectotypus hoc loco: rel. 1, Tab. of *Seslerio-Quercetum petraeae* in Codogno (1977); LOC: Surrounding

of Trieste, Italy, and western Slovenia; LOC-typus: Roiano, 'Valle dei Mulini'; SYN: *Seslerio autumnalis-Quercetum petraeae* Poldini 1964 nom. nud. (Art. 2b), *Seslerio autumnalis-Quercetum petraeae* Poldini 1982 nom. illeg. (Art. 31); CL: *Quercion robori-petraeae*, [Codogno (1977) and Poldini (1964) did not provide any further detail on the classification of this association; see Viciani et al. 2016 for a later classification note].

Note: This association was invalidly described by Poldini (1964) and then validated by Codogno (1977), who, however, missed to indicate a holotype. Subsequently, Poldini (1982) validated this association, too, producing an illegitimate later homonym (Art. 31). Poldini (1982) designated a new relevé as nomenclatural type of his new association. This relevé cannot be retained as lectotype for the *Seslerio autumnalis-Quercetum petraeae* Poldini ex Codogno 1977 because according to Art. 19 of the ICPN, a lectotype should be selected among the relevés of the original diagnosis (i.e. those published by Codogno, 1977). For this reason, a new lectotypus is here designated. Although the original diagnosis of the *Seslerio autumnalis-Quercetum petraeae* Poldini ex Codogno 1977 does not contain any record of *Quercus cerris*, this association has been included in the present revision because *Quercus cerris* is dominant in some relevés of the original diagnosis of the later homonym association *Seslerio autumnalis-Quercetum petraeae* Poldini 1982—that is the name usually cited in scientific literature—as well as in the subassociation *avenelletesum flexuosae* (see below).

46.1. *Seslerio autumnalis-Quercetum petraeae avenelletesum flexuosae* Poldini ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *subass. nova*
Holotypus: rel. 27, Tab. 4, p. 96, Poldini (1982); LOC: North East of Italy, Istria (Croatia) and West Slovenia; LOC-typus: Draga S. Elia, San Dorligo della Valle, Trieste, Italy; SYN: *Seslerio autumnalis-Quercetum petraeae* Poldini 1982 *avenelletesum flexuosae* Poldini 1982 nom. inval. (Art. 3o); CL (from Poldini, 1982): *Ostryo-Carpinion orientalis*, *Quercetalia pubescenti-petraeae*, *Quercus-Fagetalia sylvaticae*.

Note: *Quercus cerris* is dominant in some relevés of the original diagnosis of this subassociation.

47. *Symphyto bulbosi-Quercetum cerridis* Barbero et Bonin ex Terzi, Ciaschetti, Fortini, Rosati, Viciani et Di Pietro *ass. nova*
Holotypus: rel. 1, p. 280, Barbero & Bonin (1980); LOC: Northern Apennine, Italy; LOC-typus: between Florence and Pisa, Italy; SYN: *Symphyto bulbosi-Quercetum cerridis* Barbero et Bonin 1980 nom. inval. (Art. 5); CL (from Barbero & Bonin, 1980): *Ostryo-Carpinion orientalis*, *Quercetalia*, *Quercetalia pubescentis*.

48. *Taxo baccatae-Quercetum cerridis* Zitti, Casavecchia, Pesaresi, Taffetani et Biondi 2014
Holotypus: rel. 3, Tab. 6, p. 126, Zitti et al. (2014); LOC: Tassinete area, Cingoli Mts, Marche Region, Italy; LOC-typus: 'upper part of Internone', Tassinete area; CL: *Pulmonario apenninae-Carpinion betuli*, *Physospermo verticillati-Quercion cerridis* nom. inval., *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

48.1. *Taxo baccatae-Quercetum cerridis fagetosum sylvaticae* Zitti, Casavecchia, Pesaresi, Taffetani et Biondi 2014

Holotypus: rel. 9, Tab. 6, p. 126, Zitti et al. (2014); LOC: Tassinete area, Cingoli Mts, Marche Region, Italy; LOC-typus: on the top of Tassinete area; CL: see association.

48.2. *Taxo baccatae-Quercetum cerridis typicum*

49. *Teucrio scorodoniae-Quercetum cerridis* (Arrigoni et Viciani 2001) *stat. nov.*

Holotypus: rel. A351, Tab. 3, p. 73, Arrigoni & Viciani (2001); LOC: Tuscany, Italy; LOC-typus: Province of Pistoia; Basyonym: *Teucrio scorodoniae-Castaneetum sativae* Arrigoni et Viciani 2001 *quercetosum cerridis* Arrigoni et Viciani 2001 (p.70); CL (from Gabellini et al., 2006): *Quercion roboris*, *Quercetalia roboris*, *Quercus-Fagetalia*.

Note: this association derives from the change of rank of the *Teucrio scorodoniae-Castaneetum sativae quercetosum cerridis*. Gabellini et al. (2006) raised this subassociation to the rank of association as '*Luzulo pedemontanae-Quercetum cerridis* (Arrigoni et Viciani 2001) Gabellini, Viciani, Lombardi et Foggi 2006' but, by mistake, they designated as nomenclatural type of the new association the type-relevé of the *Teucrio scorodoniae-Castaneetum sativae* Arrigoni et Viciani 2001 (i.e., rel. A270, Tab. 1a, p. 61) instead of the type relevé of the subassociation *quercetosum cerridis*. As a consequence, the *Luzulo pedemontanae-Quercetum cerridis* (Arrigoni et Viciani 2001) Gabellini, Viciani, Lombardi et Foggi 2006 is a nomen superfluum (Art. 29c example 3).

50. *Thalictro aquilegifolii-Quercetum cerridis* Rosati, Di Pietro et Blasi 2005

Holotypus: rel. 13, tab.3, p. 42, Rosati et al. (2005); LOC: Cilento, Campania Region, Italy; LOC-typus: 'Centaurino Mt.', Cilento; CL: *Doronico orientalis-Fagenion sylvaticae*, *Geranio versicoloris-Fagion* nom. mut. propos., *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

51. *Tilio vulgaris-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 57, Tab. 1, Aita et al. (1977); LOC: Montepiano woods, Accettura, Province of Potenza, Italy; LOC-typus: not available; SYN: *Physospermo verticillati-Quercetum cerridis* Aita, Corbetta et Orsino 1977 nom. inval. (Art. 3b) p.p. facies with *Ilex aquifolium* (Aita et al. 1977); *Tilio vulgaris-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta 1990 nom. inval. (Art. 5); CL: *Doronico-Fagion*, *Lathyro veneti-Carpinetalia*, *Quercus-Fagetalia sylvaticae*.

52. *Veronico officinalis-Quercetum cerridis* Casavecchia, Paradisi, Pesaresi et Biondi 2014

Holotypus: rel. 2, Tab. 3, p. 106, Casavecchia et al. (2014); LOC: Alpe della Luna Mountain, North Apennines, Italy; LOC-typus: "sentiero Italia", near Pieve Santo Stefano, Province of Arezzo; CL: *Pulmonario apenninae-Carpinion betuli*, *Physospermo verticillati-Quercion cerridis* nom. inval., *Fagetalia sylvaticae*, *Quercus-Fagetalia sylvaticae*.

53. *Vicio cassubicae-Quercetum cerridis* Brullo et Marcenò 1985

Holotypus: rel. 4, Tab. 17, Brullo & Marcenò (1985); LOC: Eastern side of Mt. Etna, Sicily, Italy; LOC-typus: ‘contrada Cerrita (Etna)’, Mt. Etna; CL: *Quercenion dalechampii*, *Erico-Quercion ilicis*, *Quercetalia ilicis*, *Quercetea ilicis*.

Note: Brullo & Marcenò (1985) designated as holotype of the association rel. 4 of table 16 by mistake. However, this indication is a printing error because table 16 refers to another association (*Quercetum gussonei*) whereas the table of the *Vicio cassubicae-Quercetum cerridis* is table 17. The *Vicio cassubicae-Quercetum cerridis* was designated as the nomenclatural type of the suballiance *Pino calabrica-Quercenion congestae* (see above) in the *Pino calabrica-Quercenion congestae*.

54. *Vinco minoris-Quercetum cerridis* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 126, Tab. 4, Alessandrini & Corbetta (1979); LOC: hills of Parma, northern Apennines, Italy; LOC-typus: Boschi Carrega, Province of Parma; CL: *Erythronio-Quercion petraeae* nom. illegit., *Lathyro nigri-Quercetalia cerridis*, *Querco-Fagetalia sylvaticae*.

Note: The *Vinco-Quercetum cerridis* —firstly proposed by Ubaldi *et al.* (1990)— was validated by Ubaldi (1995) with only one subassociation, the *Vinco minoris-Quercetum cerridis viburnetosum lantanae*. The association type-relevé does not represent a *Quercus cerris* woods since the cover values for the tree species are the following: *Carpinus betulus* (5.5), *Quercus cerris* (1.1), *Acer campestre* (1.2), and *Castanea sativa* (1.1). However, *Quercus cerris* is the dominant species in various other relevés of the association and, in particular, of the subassociation *viburnetosum lantanae*.

54.1. *Vinco minoris-Quercetum cerridis viburnetosum lantanae* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995

Holotypus: rel. 119, Tab. 4, Alessandrini & Corbetta (1979); LOC: hills in the Province of Parma, northern Apennines, Italy; LOC-typus: not available; CL: see association.

Conclusions

In this revision, 121 syntaxon names of Italian *Quercus cerris* woods have been checked for their correct forms and nomenclatural types. Although most of them are usually employed in phytosociological literature, we found that many were invalidly published. Therefore, we validated 31 syntaxon names. Validations and lectotypifications are an important stage towards the stabilization of the phytosociological nomenclature, allowing the correct use of names for both theoretical (e.g., findings synonyms) and practical applications. From this point of view, there is a strict analogy with taxonomic nomenclature. The observation that a high number of names usually mentioned and employed in the scientific literature were invalidly published highlights the need for an open-access international database of syntaxon names—as it is now recommended by the ICPN (Rec. 1c)— which could represent a useful reference for the whole scientific community.

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Appendix 1. Codes and syntaxon names of classes, orders and alliances as reported in the EVC, together with the synonyms mentioned in the text. The alliance *Melittio albidae-Quercion frainetto* has been added as an autonomous alliance (see Di Pietro *et al.*, 2019). The classification of suballiances follows Blasi *et al.* (2004) and Di Pietro *et al.* (2010).

FAG *Carpino-Fagetalia sylvaticae* Jakucs ex Passarge 1968 [*Quercus-Fagetalia sylvaticae* Br.-Bl. et Vlieger in Vlieger 1937 (Art. 35)]

FAG-02 *Fagetalia sylvaticae* Pawłowski 1928 [*Quercus-Fagetalia sylvaticae* Vanden Berghen 1957 (syntax.syn.)]

FAG-02C *Geranio striati-Fagion* Gentile 1970 [*Geranio versicoloris-Fagion* Gentile 1970 nom. mut. propos. (Art. 45); *Doronico orientalis-Fagion sylvaticae* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995 (syntax. syn.)]

Doronico orientalis-Fagion sylvaticae (Ubaldi et al. in Ubaldi 1995) Di Pietro, Izco et Blasi 2004

FAG-03 *Carpinetalia betuli* P. Fukarek 1968

FAG-03A *Carpinion betuli* Issler 1931

FAG-03C *Erythronio-Carpinion* (Horvat 1958) Marinček in Wallnöfer et al. 1993

PUB *Quercetalia pubescentis* Doing-Kraft ex Scamoni et Passarge 1959

PUB-01 *Quercetalia pubescentis-petraeae* Klika 1933 [*Quercetalia pubescentis* Br.-Bl. 1931 (Art. 2b); *Carpino-Melicetalia uniflorae* Ubaldi in Ubaldi et al. 1986 nom. inval. (Art. 2b); *Lathyro nigri-Quercetalia cerridis* Ubaldi 1995 (syntax. syn.); *Lathyro veneti-Carpinetalia* Ubaldi, Zanotti, Puppi, Speranza et Corbetta in Ubaldi 1995 (syntax. syn.)]

PUB-01F *Fraxino orni-Ostryion* Tomažič 1940 [*Ostryo-Carpinion orientalis* Horvat 1959 nomen illegittimum (Art. 29c); *Laburno anagyroidis-Ostryion carpinifoliae* Ubaldi 1995 (syntax.syn.)]

PUB-01G *Carpinion orientalis* Horvat 1958

Campanulo medii-Ostryenion carpinifoliae suball. nov.

Laburno anagyroidis-Ostryenion carpinifoliae (Ubaldi 1995) Blasi, Di Pietro et Filesi 2004

PUB-01K *Physospermo-Quercion petraeae* A.O. Horvat 1976 [*Erythronio-Quercion petraeae* Ubaldi 1989 nom. inval. (Art. 2b); *Erythronio dentis-canis-Quercion petraeae* Ubaldi 1995 nomen illegittimum (Art. 29c)]

PUB-01L *Crataego laevigatae-Quercion cerridis* Arrigoni 1997 [*Lonicero etruscae-Quercion pubescentis* Arrigoni et Foggi 1988 nom. inval. (Art. 2b); *Teucro siculi-Quercion cerridis* Ubaldi 1989 nom. inval. (Art. 2b); *Teucro siculi-Quercion cerridis* Blasi et Paura 1995 nom. inval. (Art. 5); *Lonicero etruscae-Quercion pubescentis* Arrigoni et Foggi ex Arrigoni et al. 1990 nom. inval. (Art. 2b); *Lathyro montani-Quercion cerridis* Scoppola et Filesi 1998 (syntax. syn.); *Mespilo-Carpinion betuli* Ubaldi 2003 nom. inval. (Art. 5); *Physospermo verticillati-Quercion cerridis* Biondi, Casavecchia et Biscotti 2008 nom. inval. (Art. 5); *Physospermo verticillati-Quercion cerridis* Biondi, Casavecchia et Biscotti in Biondi et al. 2013 nom. inval. (Art. 5)]

Eu-Crataego laevigatae-Quercenion cerridis

Pulmonario apenninae-Carpinion betuli Biondi et al. ex suball. nov.

PUB-01M *Pino calabrica-Quercion congestae* S. Brullo et al. 1999

Eu-Pino calabrica-Quercenion congestae

PUB-01 *Melittio albidae-Quercion frainetto* Barbero, Bonin, Gamisans et Quézel in Bonin et Gamisans 1976

Eu-Melittio albidae-Quercenion frainetto

QUE *Quercetalia robori-petraeae* Br.-Bl. et Tx. ex Oberd. 1957

QUE-01 *Quercetalia roboris* Tx. 1931 [*Quercetalia robori-sessiliflorae* Tx. 1937 (Art. 29)]

QUE-01B *Quercion roboris* Malcuit 1929 [*Quercion robori-sessiliflorae* Br.-Bl. 1932 (Art. 29c)]

QUI *Quercetalia ilicis* Br.-Bl. ex A. Bolos et O. de Bolos in A. Bolos y Vayreda 1950 [*Quercetalia ilicis* Br.-Bl. in Br.-Bl. et al. 1947 nom. inval. (Art. 2b)]

QUI-01 *Quercetalia ilicis* Br.-Bl. ex Molinier 1934

QUI-01E *Erico-Quercion ilicis* S. Brullo et al. 1977

Quercenion dalechampii Brullo 1984