

CULTIVAR CHECKLIST OF WHITE OAK SPECIES (EXCL. *QUERCUS ROBUR* L.)

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Abstract. Cultivars of species in the genus *Quercus*, subgenus *Quercus* (white oaks, exclud. *Q. robur* L.) are listed and described. Valid cultivar names are found in only the following species: *Q. alba*, *Q. dentata*, *Q. frainetto*, *Q. ilex*, *Q. macrocarpa*, *Q. petraea*, *Q. pubescens* and *Q. pyrenaica*. Invalid names are listed in many of the above-mentioned species as well as in *Q. bicolor*. A listing of cultivars of white oak hybrids is included.

The first installment in our listings of *Quercus* (oak) cultivars (5) concerned only one species, the English oak (*Quercus robur* L.). The present list includes the cultivars in the remaining species of the subgenus QUERCUS (=subg. LEPIDOBALANUS Endl.).

Cultivar names encountered in this subgenus present a special challenge. The proclivity of early taxonomists and horticulturists to use descriptive and, in today's manner of thinking, somewhat erudite latin adjectives (e.g. 'Pendula', 'Variegata') to denote plants that differed from the norm, resulted in many cultivar names that have been used for more than one species in this subgenus. This is especially true for *Q. petraea* (Mattuschka) Liebl. (= *Q. sessiliflora* Salisb.), which has 12 cultivar names in common with *Q. robur* (= *Q. pedunculata* Ehrh.).

The duplication of cultivar names between *Q. robur* and the other white oak species is considerably less frequent, but there are occasional duplications among these other species. The Code (3) specifies that only one cultivar within each "cultivar class" can be valid.

According to the Code, a cultivar class may be a genus, subgenus, section, series, or species, with the major criterion for class selection being the absence of potential confusion in the identification of plants bearing the same cultivar name. One codicil that could be added to this criterion might be the actual existence of a plant under a duplicate name.

It is well known that natural hybridization occurs between oak species in the same subgenus. It should be better known that such hybridization is far less frequent than is stated by many

authorities. Indeed, the fact that we can actually identify and classify oak species, especially when the range of infraspecific variability is known, tends to reduce any possible confusion of cultivars. In addition, a review of several recent horticultural compilations (1, 2, 4) has revealed that very few of the same-named cultivars of different white oak species are currently in cultivation. Therefore, we consider it both proper and expedient to use the species as the cultivar class. It follows that there is no need to invalidate cultivar names based on priority. The present listing will show the range of variation possible within species.

We have recognized cultivars in the following species: *Q. alba* L., *Q. dentata* Thunb., *Q. frainetto* Ten., *Q. ilex* L., *Q. macrocarpa* Michx., *Q. petraea*, *Q. pubescens* Willd., and *Q. pyrenaica* Willd., and the cultivar lists are presented under each species in this alphabetical order. In addition, a small listing of cultivars of oak hybrids is appended.

Quercus alba, *Q. bicolor*, and *Q. macrocarpa* are North American species but, with one interesting exception, none of the cultivars are grown in North America. *Q. dentata* is an Asiatic species and all others are of European origin.

As in previous lists, **VALID CULTIVARS** are given in boldface capitals and **INVALID** names in lightface capitals. Many more **INVALID** names, previously used as "varieties", could have been listed in some species, but these were mostly derived from unnecessary "splitting" of natural variants in the wild (see Schwarz, 6), and did not merit further recognition.

Quercus alba

ELONGATA (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 277) - as *Q. alba elongata*; with longer narrower leaves which turn orange-red in autumn. Earliest reference and origin of this cultivar is unknown.

FASTIGIATA (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 227) - as *Q. alba fastigiata*, poplar-shaped.

LATILOBA (C.S. Sargent, Bot. Gaz. 65: 454, 1918) - as var. *latiloba*. Later changed to f. *latiloba* according to A.,

Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 132. Probably not cultivated.

MICROCARPA (A. Lavalley, Arb. Segrezianum, Paris, 1877, 207) - as *Q. alba* var. *microcarpa*, without description and *Q. microcarpa* Hort. as synonymous.

OBTUSILOBA (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 277) - as *Q. alba obtusiloba*, with blunt lobes.

OLIVAEFORMIS HAMPTERI (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 277) - as *Q. alba olivaeformis Hampteri*; similar to 'Obtusiloba', with larger leaves. Listed under *Q. macrocarpa* Mchx. by L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 80. Probably = *Q. macrocarpa*.

PANNOSA (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 277) - as *Q. alba pannosa*. According to L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 80, does not belong to *Q. alba*. Probably = *Q. macrocarpa* but not considered a cultivar of this species.

PINNATIFIDA (A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 132) - as *Q. alba* f. *pinnatifida* (Michx.), grad. nov. Probably best considered at the forma level.

PUBESCENS (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 75) as *Q. alba pubescens*, Willd. Spec. plant. IV, p. 448 (1805); leaves pubescent beneath.

REPANDA (A. Michaux, Hist. Chenes Amer. no. 4, t.5, fig. 2, 1801) - as *Quercus alba (repanda)*. A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 132, listed this as f. *repanda*, leaves with shallow sinuses and fruit with short stalks. Probably not cultivated.

SINUATA (H. Jager and L. Beissner, Die Ziergeholze, Ed. 3, Weimar, 1889, p. 277) - as *Q. alba sinuata* (syn. *Q. alba pubescens* Willd.) = **PUBESCENS**.

Q. bicolor

ANGUSTIFOLIA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 87) - as *Quercus bicolor angustifolia*. = *Q. bicolor* Willd., according to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 134.

CUNEIFORMIS (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 87) - as *Quercus bicolor cuneiformis*. = *Q. bicolor* Willd., according to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 134.

LYRATA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 87) - as *Quercus bicolor lyrata*. = *Q. bicolor* Willd., according to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 134.

Q. dentata

PINNATIFIDA - First described at the species level; *Quercus pinnatifida* Franchet & Savatier, Enum. Pl. Jap. 1:445, 1875. Later changed to *Quercus dentata* var. *pinnatifida* by Matsumura in Bot. Mag. Tokyo 5:9, 1891, and then *Q. dentata* f. *pinnatifida* by A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 135. Best considered a cultivar (W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 472); a Japanese garden selection with leaves deeply dissected into narrow, crisped lobes.

Q. frainetto

TRUMP (H.J. Grootendorst, Dendroflora Nr. 17, 1980, p. 24-33) - a new selection of the N.A.K.B. (Nederlandse Algemene Keuringsdienst voor Boomwekerij - General Netherlands Inspection Service); tree with dense oval crown, branches fairly steeply ascending, original tree found on Tromp street.

Q. ilex

BICTON (Hillers' Manual of Trees & Shrubs, ed. 2, Hillier & Sons Limited, Winchester, England, 1972, p. 256, and perhaps earlier publications) - with large, broad leaves; a remarkable old specimen at Bicton, South Devon.

CRISPA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, p. 1899) - As *Q. l. crispa* Lodd. Cat. ed. 1836; leaves wrinkled at edges. According to W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 483, the leaves are small and obicular, averaging ½ in. in length, the margin decurved; slow growing and known in gardens since the early 19th century.

CURLLEAF (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 507) = **CRISPA**.

DIVERSIFOLIA (Royal Gardens, Kew Hand-list of Trees Shrubs Grown in Arboretum, 1896, Part II, p. 189) - as var. *diversifolia*, Hort., without description.

FAGIFOLIA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, p. 1899) - as *Q. l. fagifolia* Lodd. Cat., ed. 1836; broader, less rigid leaves, which are more or less undulated, and sometimes slightly serrated.

FORD (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 507) = **FORDII**.

FORDII (J.C. Loudon, The Gardener's Magazine 19: 36, 1843) - as *Quercus ilex Fordii*, "a distinct and very beautiful variety which assumes a conical shape, and is a free grower."

GENABII (Royal Gardens, Kew Hand-list of Trees and Shrubs Grown in Arboretum, 1896, Part II, p. 189) - as var. *Genabii*, Hort.; without description. According to W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 483, this selection was distributed by Smith's Nursery, Worcester, before 1870; leaves very large and leathery, coarsely toothed towards apex.

GRAMUNTIA (G. Krussmann, Handbuch der Laubgehölze, Berlin, 1962, vol. 2, p. 305) - as a cultivar of *Q. ilex* with leaves elliptic to rounded, teeth narrow and thorny. Described first as a species (Linnaeus, Species Plantarum II, p. 995) and often later as a variety of *Q. ilex*. Listed in Hilliers' Manual of Trees & Shrubs, E. 4, Hillier & Sons Limited, Winchester, England, 1974, p. 256, as *Q. ilex gramuntia*, "a slow-growing compact shrubby form with spine-toothed leaves."

INTEGRIFOLIA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, vol 3, p. 1899) - as *Q. l. integrifolia* Lodd. Cat., ed. 1838; leaves lanceolate, entire. Apparently introduced by the Loddiges Nurs., Hackney, England.

LANUGINOSA (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 197) - as *Q. ilex* var. *lanuginosa*; without description.

LATIFOLIA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, p. 1899) - as *Q. l. latifolia* Lodd. Cat., ed. 1836, with *Q. l. oblonga* Hort. as a synonym; broad leaves, nearly entire, may be upwards of 5 in. long. Apparently introduced by the Loddiges Nurs., Hackney, England.

LITTLELEAF (H.P. Kelsey and W.A. Dayton, Standardized Plant

Names, 1942, p. 507) = MICROPHYLLA

LONGIFOLIA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, vol. 3, p. 1900) - as *Q.l. longifolia* Lodd. Cat., ed. 1836 with synonym *Q.l. salicifolia* Hort., long, very narrow leaves; plant propagated from a tree at Sawbridgeworth by the nursery of Messrs. Rivers. The Loddiges Nurs. (Hackney, England) tree and the Messrs. Rivers tree may actually represent two separate cultivars but the latter may have gone unnamed.

LUSITANICA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1844, vol. 3, p. 1900) - as *Q.l. lusitanica* Lodd. Cat., ed. 1836. Probably based on *Q. lusitanica* Lamarck, of which numerous forms were cited by L. Beissner, E. Schelle, and H. Zabel, Handbuch der Laubholz-Benennung, Berlin, 1903, p. 72-73.

MACROPHYLLA (K. Koch, Dendrologie 2, 1873, p. 56 - as *Q. ilex macrophylla*); there are two different selections bearing this appellation, one with elongated leaves with teeth and the undersurface silver grey, the other resembling the Himalayan *Q. incana*.

MICROPHYLLA (G. Krussmann, Handbuch der Laubgehölze, Berlin, 1962, vol. 2, p. 305) - as *Q. ilex f. microphylla*; leaves elliptical, 2-2.7 cm long, 1.2 cm wide, with thorny teeth, native to the mountains of Algeria. Probably a geographic variant of the species.

ROTUNDIFOLIA (Lamarck, Encyclopedie methodique I, p. 723 (1785); original reference not seen) - as *Q. rotundifolia*; leaves rounded with piercing teeth, fruit eaten because of their mild taste (K. Koch, Dendrologie 2, Part 2, 1873, p. 55). According to W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 484, there is an example of this selection at Kew (Gardens); should not be confused with *Q. ilex* var. *balota* a botanical variety from the southern Iberian peninsula and N. Africa, which is treated in some works as *Q. ilex* var. *rotundifolia*.

SERRATIFOLIA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, vol. 3, p. 1899) - as *Q.l. serratifolia* Lodd. Cat., 1836; leaves lanceolate serrated. Apparently introduced by the Loddiges Nurs., Hackney, England.

SHEPHERDI (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 197) - as *Q. ilex* var. *Shepherdii*; without description.

SMILAX (K. Koch, Dendrologie 2, Part 2, 1873, p. 55) - as *Qu. Smilax*; described as such by Linnaeus, Species Plantarum II, p. 994, leaves entire, narrowly elongated.

VARIEGATA (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, vol. 3, p. 1899) - *Q.l. variegata*; leaves variegated with white; brought into notice in 183 by Mr. Veitch of the Killerton Nursery.

Q. macrocarpa

ASHWORTH - Name found in the records of the Plant Sciences Data Center of the American Horticultural Society, grafted plant growing at the Holden Arboretum, Mentor, Ohio. Original tree selected by Mr. Fred Ashworth, Huevelton, New York, for abundant production of sweet, edible fruit (L.H. MacDaniels, the Cornell Plantations, vol. 36 (1), 1980). A small grove of seedlings from this cultivar were planted in 1979 at the Cornell Plantations, Seneca County, New York (L.H. MacDaniels, l.c.).

MACROPHYLLA (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 208) - as *Q. macrocarpa* var. *macrophylla*, without description.

OLIVAEFORMIS - A. Rehder, Bibliography of Cultivated Trees Shrubs, Arnold Arboretum of Harvard University, 1949,

p. 133, considers this a valid variety of *Q. macrocarpa*, as var. *olivaeformis* (Michx. f.) Gray. Not a cultivar but may be the most common sort grown in European gardens (B.K. Boom, Nederlandse Dendrologie, Wageningen, 1972, p. 128.)

OLIVAEFORMIS HAMPTERI (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 80) - See *Q. alba* "OLIVAEFORMIS HAMPTERI". Probably = *Q. macrocarpa*, but not a cultivar of that species.

PANDURATA (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 208) - as *Q. macrocarpa* var. *pandurata*, without description.

PANNOSA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 80) - as *Qu. pannosa*, listed under *Q. macrocarpa*, and is probably that species. Previously considered a cultivar of *Q. alba*.

Quercus petraea

ACUMINATA (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 630) - as *Quercus sessiliflora acuminata*; leaves oblong-oval, acuminate, margin undulate, with short rounded teeth, petioles long and yellow, foliage a bright, shiny green. Three trees found in native woodland, and probably not cultivated.

ACUTIFOLIA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 66) - as equivalent to **ACUMINATA**, and with similar description. An earlier reference is cited but is unavailable. Probably not cultivated.

ACUTILOBA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67 - as *Quercus sessiliflora acutitoba*; twigs reddish and somewhat hairy in youth, leaves with reddish-yellow petioles, margin coarsely serrate with short pointed teeth, base somewhat cordate or sharply narrow-ed.

AFGHANISTANENSIS (E. Petzold and G. Kirchner, Arboretum Muscaviense, 1864, p. 630) - as *Quercus sessiliflora Afghanistanensis* Bth.; plant received from the Flottbeck Nursery (James Booth and Sons, Flottbeck, Germany), similar to 'Acuminata' but the foliage is somewhat more luxuriant; the leaves are broader; doubtful that it came from Afghanistan as noted in their catalog.

ALBO-VARIEGATA (C.K. Schneider, Handbuch der Laubholzkunde 1, 1904, p. 196) - as *Q. sessilis f. albo-variegata*; leaves variegated white.

ALNOIDES (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 201) - as *Quercus sessiliflora alnoides*; without description. L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67, described this selection as having ovoid leaves with rounded tips, shallow rounded lobes, and pubescent along the veins but with scattered short hairs on the remaining surfaces.

AMBIGUA (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 201) - as *Q. sessiliflora ambigua*; without description.

ARGENTEO-VARIEGATA (A. Lavallee, Arb. Segrezianum, Paris, 1877, p. 201) - as *Q. sessiliflora argenteo-varietatis*; without description.

AUREA (G. Krussmann, Handbuch der Laubgehölze, Ed. 1, vol. 2, 1962, p. 312) - young shoots yellow, leaves first yellow but later turning green, with only the veins yellow; based on var. *aurea* Schur.; originated before 1857.

AUREO-MACULATA (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67) - as *Q. sessilifl. foliis aureo-maculatis*; with yellowish-white margined leaves.

AUREO-VARIEGATA (C.K. Schneider, Handbuch der Laubholzkunde 1, 1904, p. 196) - *Q. sessilis f. aureo-variegata*; leaves variegated yellow.

- COCHLEATA** (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 630) - as *Quercus sessiliflora cochleata* Hort.; with blistered, inflated leaves.
- COLUMNA** See under hybrid listing.
- COLUMNARE** - Name found in the records of the Plant Sciences Data Center of the American Horticultural Society; plant at the Arboretum of the Barnes Foundation, Merion, Pennsylvania, and received from the Brimfield Gardens Nursery, Wethersfield, Connecticut. May = **COLUMNA**.
- COLUMNARIS** (Hilliers' Manual of Trees and Shrubs, Ed. 2, Hillier & Sons Limited, Winchester, England, 1972, p. 258) - a densely-branched columnar tree of medium size, arose as a sport of 'Mespilifolia'. Doubtful that this is the same as 'Columna', and the name 'Columnaris' is invalid because in Latin form after January 1, 1959.
- CUCULLATA** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 201) - as *Q. sessiliflora cucullata*; without description.
- CUTLEAF** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) - intended as name to replace **INSECATA** and **LACINIATA**.
- DEVONIANA** (The Augustine Henry Forestry Herbarium at the National Botanic Gardens, Glasnevin, Dublin, A Catalogue of Specimens, 1957, p. 70) - as *Q. petraeavar. devoniana* Hort., without description.
- DSCHOROCHEMENSIS** (The Augustine Henry Forestry Herbarium at the National Botanic Gardens, Glasnevin, Dublin, A Catalogue of Specimens, 1957, p. 70) - as *Q. petraea var. dschorochensis* Hort., without description. Name also used by O. Schwarz, Monographie der Eichen Europas und des Mittelmeergebietes, I. Textband, Berlin, 1937, p. 64, as *Q. dschorochensis* K. Koch, Linnaea XXII (1849) 328. Not considered a valid species name but likely cultivated.
- FALKENBERGENSIS** (E. Petzold and G. Kirchner, Arboretum Muscaviense, 1864, p. 630 - as *Quercus sessiliflora Falkenbergensis* Bth.; originated in the nursery of James Booth and Sons (Flottbeck, Germany), leaves dark-green, blunt and widened at the tips, with shallow, roundish lobes; original tree found near Falkenberg (near Hamburg, Germany). According to W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 501, cultivar was put into commerce by Booth's in 1837.
- FULHAMENSIS** (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67) - as *Q. sessilifl. Fulhamensis*, a synonym for **AFGHANISTANENSIS**.
- GELTOWIENSIS** (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 630-631) - as *Quercus sessiliflora Geltowiana*; received as an unnamed seedling from the Royal Nursery in Geltow (near Potsdam, East Germany), given the name 'Geltowiana' by Petzold and Kirchner; similar to 'Acuminata' and 'Afghanistanensis' but with blistered and inflated leaves. Name changed to 'Geltowiensis' by W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 501, and considered to be a cultivated selection arising from f. *sublobata* (Kit.) Schneid.
- GIESLERI** - According to B.K. Boom, Nederl. Dendrol. Ver. Jaarb. 20: 37-120, 1954-55, this cultivar was first listed as *Q. sessiliflora giesleri* by L. Spath, Cat. No. 64, 1885, p. 4; tree found by the court gardener Giesler in Glienicke near Potsdam, Germany; with very long, narrow leaves, partly with shallow lobes and partly entire.
- HETEROPHYLLA** (L. Beissner, E. Schelle, and H. Zabel, Handbuch der Laubholz-Benennung, Berlin, 1903, p. 79) - as *Quercus sessiliflora heterophylla*; without description. Apparently intended to replace the names listed as synonyms, **CUCULLATA**, **COCHLEATA**, and **CRISPA**, but since these names do not all represent the same selection, we do not consider **HETEROPHYLLA** to represent a cultivar.
- IBERICA** (W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 1, 1914, vol. II, p. 325) - as *Q. sessiliflora var. iberica*, with lobes of leaf pointed. A. Lavalley, Arb. Segrezianum, 1877, p. 202, listed it without description, but with synonym *Q. iberica* Bieb. Since *Q. iberica* has rounded leaf lobes, the plant mentioned by Bean is probably a distinct cultivar of *Q. petraea*.
- INSECATA** (G. Krussman, Handbuch der Laubgehölze, Ed. 2, Berlin, 1978, vol. 3, p. 101) - leaves irregularly deeply cut and lobed, partly filiform, dark green, occasionally with whitish border; based on f. *insecata* Rehder (A. Rehder, J. Arnold Arboretum 22:569-579, 1941) and f. *laciniata* Spath (H.L. Spath, Mitt. Deutsch. Dendr. Ges. 22:118-1434, 1913). Rehder proposed the name 'Insecata' (at the formal level) for the oak described as *Quercus sessiliflora laciniata* Koehne (Deutsche Dendr., 1893, p. 130), a plant known only in cultivation, since the older homonym *Q. sessiliflora laciniata* (Lam.) Lamarck & DeCandolle (Fl. Franc., Ed. 3, vol. 3, p. 310, 1805) refers to a frequent, naturally occurring variant. The name 'Insecata' was actually proposed by A. Rehder even earlier as *Q. sessiliflora f. insecata* (J. Arnold Arboretum 1:135, 1919).
- LACINIATA** (G. Krussmann, handbuch der Laubgehölze, Ed. 2, Berlin, 1978, vol. 3, p. 101) - leaves deeply incised. Based on the plant originally described by Lamarck (Encycl. Meth. Bot. 1:717, 1786) as *Quercus robur laciniata*.
- LACINIATA CRISPA** (H.A. Hesse (Nurs.), Weener, Germany, Cat. Fall 1928 - Spring 1929, p. 145) - as *Q. sessiliflora laciniata crispa* Hort. Musk.; leaves more or less irregularly incised and lobed, often very narrow and drawn out in length.
- LONGIFOLIA** - L. Dippel (Handbuch der Laubholzkunde 2,) 1892, p. 66) used this name to replace other names considered as synonyms, but since these names do not all represent the same selection, we do not consider **LONGIFOLIA** to represent a cultivar.
- LOUETTEI** (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 631) - as *Quercus sessiliflora Louettei*; received from the Flottbeck Nurs. (James Booth and Sons, Flottbeck, Germany) as *Q. pedunculata Louettei*; with long yellow petioles, leaves very long and narrow, entire, pointed at both ends, and dark, shiny green. According to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 129, = **MESPILIFOLIA**, but it is more likely these are two similar, but distinct cultivars.
- MACROCARPA** (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 631) - *Quercus sessiliflora macrocarpa*; acorns the size of large plums, luxuriant foliage.
- MACROPHYLLA** (E. Petzold and G. Kirchner, Arboretum Muscaviense, Gotha, 1864, p. 631) - as *Quercus sessiliflora macrophylla* Hort.; received from the Travemund Nursery, with exceedingly large and vigorous, elongated leaves.
- MEDLAR** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) = **MESPILIFOLIA**.
- MESPILIFOLIA** (A. Rehder, Bibliography of Cultivated Trees

- and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 129) - as *Q. petraea* f. *mespilifolia* (Waltr.), grad. nov. Although this tree was originally described from the wild and this type of variation may occur in the wild, we consider it a cultivar since plants available now as 'Mespilifolia' are presumably vegetatively propagated and therefore identical. "Leaves lanceolate to narrowly oblong, up to 5 in. long, 1 in. wide, tapered at both ends, sinuately lobed to almost entire" (W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 501).
- MUSCAVIENSIS** (G. Krussmann, Handbuch der Laubgehölze, ed. 1, vol. 2, 1962, p. 313) - as cultivar, with leaves of first growth nearly entire; those of the second growth lobed and nearer the type. Krussmann cited K. Browicz, Rocznik Sect. Dendr. Polsk. 9:71-122, 1953, as a reference, thus allowing validation of the cultivar name in Latin form before 1959.
- NIGRA** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 202) - *Q. sessiliflora* var. *nigra*. = *Q. robur* **NIGRA**.
- PALIDE-VARIEGATA** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 202) - as *Q. sessiliflora* var. *foliis palide-variegatis*; without description.
- PENDULA** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 202) - as *Q. sessiliflora pendula*; without description. Described by E.-A. Carriere, Rev. Horticole 59:61, 1887; seedling discovered about 1867 growing in the lawn of the military hospital, Vincennes, France, and carefully raised by M. Alliaume, the chief gardener; original tree grew to approximately 5 feet in height and then all branches spread out laterally and become pendulous, forming an immense dome; to propagate, trees were grafted at a height to allow passage beneath.
- PINNATA** (C.K. Schneider, Handbuch der Laubholzkunde 1, 1904, p. 196, fig. 102e) - as *Q. sessilis* f. *pinnata*, leaves as in fig. 102e.
- PSEUDOBULLATA** (A. Camus, Les Chenes, Monographie du genre *Quercus*, 1938-1939, Tome II, p. 230) - as var. *pseudobullata*, leaves bullate between the veins.
- PUBESCENS** (J.C. Loudon, Arboretum et Fruticetum Britannicum, London, 1838, vol. 3, p. 1736-1737, Fig. 1573) - Leaves downy beneath. According to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 127, this = *Quercus pubescens* Willdenow.
- PURPLE** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) = **PURPUREA**.
- PURPUREA** (A. Lavalley, Arb. Segrezianum, Paris, (Oct.) 1877, p. 202) - as *Q. sessiliflora purpurea*; without description. According to G. Krussmann, Handbuch der Laubgehölze, Ed. 1, vol. 2, 1962, p. 313, the leaves are at first brownish-purple, becoming later dark reddish gray-green with red veins. Since both **PURPUREA** AND **RUBICUNDA** were first published in 1877, some authors (Bean, Krussmann) consider them to be indistinguishable, however the former has priority through a publication date one month earlier than the latter.
- RUBENS** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 202) - as *Q. sessiliflora rubens*; without description.
- RUBICUNDA** (C. van Kleef, Sieboldia 3, No. 46, (Nov.) 1877, p. 374-377) - as *Q. sessiliflora rubicunda*, with chestnut-brown leaves which become dark green with age. W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. 3, 1976, p. 501, stated that the young leaves were reddish-purple. = **PURPUREA**.
- SALICIFOLIA** (Hilliers' Manual of Trees & Shrubs, Hillier & Sons Limited, Winchester, England, 1972, p. 258) - leaves ovate-oblong to oblong-lanceolate, entire or with an occasional shallow lobe; original tree in the Trompenburg Arboretum, Rotterdam, the Netherlands.
- SESSILIFOLIA** (A. Lavalley, Arb. Segrezianum, Paris, 1877, p. 202) - as *Q. sessiliflora sessilifolia*; without description.
- SPEENSIS** (T. Ottolander, Sieboldia 5(17): 131-133, 1879) - as *Q. sessilifl. speensis*; leaves broad and short.
- VARIABILIS** (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67) - as *Q. sessilifl. variabilis*; with yellowish-white spotted leaves.
- VARIEGATA** (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 67) - as *Quercus sessiliflora variegata*; variegated leaved oak. Probably best considered a *forma* designation from which various cultivars were selected (e.g. 'Aureomaculata' and 'Variabilis').
- WEEPING** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) = **PENDULA**.
Q. pubescens
- ALTISSIMA** (H. Jager and L. Beissner, Die Ziergehölze, Ed. 3, Weimar, 1889, p. 291) - *Q. pubescens* var. *altissima*; more vigorous growth.
- BRACHYPHYLLA** - Often listed as a form, subspecies, variety, or synonym of *Q. pubescens*, but considered as a species, *Q. brachyphylla* Kotschy, by W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 505-506.
- BRACHYPHYLLOIDES** (C.K. Schneider, Handbuch der Laubholzkunde 1, 1904, p. 194-195) - as *Q. lanuginosa* (*Q. pubescens*) f. *brachyphylloides* (Wiesb.), (=var. *typica* Beck, Fl. N. Ostr. 270, 1890); leaves with short lobes, illus. Fig. 122, b,c. Since Beck's var. *typica* = *Q. pubescens* Willd. according to A. Rehder, Bibliography of Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 127, it is likely that "Brachyphylloides" also = *Q. pubescens*.
- CRISPATA** (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 70-71) - *Quercus pubescens crispata*; with curled leaves, first described as *Qu. crispata* (Stev. in bull. de la soc. d. nat. d. Mosc. XXX. S, 386, 1857 (not seen)).
- CURLEAF** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) = **CRISPATA**.
- CUTLEAF** (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) = **PINNATIFIDA**.
- DALECHAMPII** (L. Beissner, E. Schelle, and H. Zabel, Handbuch der Laubholz-Benennung, Berlin, 1903, p. 77, as *Quercus pubescens Dalechampii* Tenore. Considered a species, *Q. dalechampii* Tenore by many, including A. Rehder, Manual of Cultivated Trees and Shrubs, E. 2, Macmillan, 1940, p. 167.
- DISSECTA** (W.J. Bean, Trees and Shrubs Hardy in the British Isles, vol. II, 1914, p. 314) - *Q. lanuginosa* Var. *dissecta*; leaves smaller, lobes deeper, much undulated.
- HARTWISSIANA** (L. Dippel, Handbuch der Laubholzkunde 2, 1892, p. 70) - as *Q. pubescens Hartwissiana*. = *Q. hartwissiana* Stev.
- IBERICA** (T. Wenzig, Jahrb. Bot. Gart. Mus. Berlin 4: 190, 1886) as *Q. pubescens iberica*. According to A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 130, = *Q. iberica* Bleb.
- LANUGINOSA** (L. Dippel, Handbuch der Laubholzkunde 2,

1892, p. 70) - as *Q. pubescens lanuginosa*, with *Qu. lanuginosa* Thuill. as a synonym. Probably = *Q. pubescens* Willd.

PENDULA (A. Rehder in L.H. Bailey, Cyclopedia of American Horticulture, vol. 4, 1901, p. 1482) - as *Q. lanuginosa* var. *pendula* Jacq. (*Q. Aegilops*, var. *pendula* and *Pseudaegilops pendula*, Hort.), with pendulous branches and densely tomentose leaves, considered by some to be a hybrid with *Q. Toza* Bosc. *Q. Toza* Bosc. = *Q. pyrenaica* Willdenow (A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 117).

PINNATIFIDA - Considered as a cultivar by G. Krussman, Handbuch der Laubgehölze, Ed. 2, Berlin, 1978, vol. 3 p. 104; leaves 3-6 cm long, deeply lobed, often coarsely dentate, undersides tomentose. A. Rehder, Manual of Cultivated Trees and Shrubs, Ed. 2, Macmillan, 1940, p. 167. described it as variety *pinnatifida* (Gmel.) Spenner.

PRIONOTA (C.K. Schneider, Handbuch der Laubholzkunde 1, 1904, p. 195) - as *Q. lanuginosa* (*Q. pubescens*) f. *prionota* (Beck, Fl. N. - Ostr. 270, 1890), lobes pointed, incorrectly claimed to be a hybrid with *Q. cerris*, illus. Fig. 122, d. Probably not cultivated.

TENOREI (A. Rehder, J. Arnold Arboretum 1:121-146, 1919) - as *Quercus lanuginosa* var. *Tenorei*, with *Quercus Dalechampii* Tenore as one of many synonyms. = *Q. dalechampii* Tenore (A. Rehder, Bibliography of Cultivated Trees and Shrubs, Arnold Arboretum of Harvard University, 1949, p. 130.)

Q. pyrenaica

PENDULA (T. Ottolander, Sieboldia 5 (17): 132, 1879) - as *Q. Tozae pendula*; with weeping branches. B.K. Boom (Nederl. Dendrol. Ver. Jaarb. 20:37-120, 1954-55) designated this selection more appropriately as *Quercus pyrenaica* Willd. cv. *Pendula*.

Hybrids

COLUMNNA (H.A. Hesse (Nurs.), Weener, Germany, Cat. Fall 1940-Spring 1941, p. 113) - as *Q. sessiliflora* "Columnna"; with large, oblong, narrow, gray-green leaves and upright, dense, growth habit. According to J.R.P. van Hoey Smith, Rotterdam (personal communication and Journal of the Royal Horticultural Society vol. XCVII, Part 5, May 1973, p. 205-210), 'Columnna' is a hybrid between *Q. petraea* 'Muscaviensis' and *Q. robur* 'Fastigiata', and was listed as such in old Hesse catalogs. Mr. van Hoey Smith has grown numerous seed from 'Columnna' and has found the second generation to exhibit wide variation, ranging from that of one putative parent to the other.

EVERGREEN (H.P. Kelsey and W.A. Dayton, Standardized Plant Names, 1942, p. 508) - as a clone of the "polybrid" *Q. turneri*, with *aizoon*, *austriaca sempervirens*, and *pseudoturneri* as synonyms. = **PEUDOTURNERI**.

FILICIFOLIA (Hillier's Manual of Trees and Shrubs, Ed. 2, Hillier & Sons Limited, Winchester, England, 1972, p. 259) - as a cultivar of *Q. x rosacea* Bechst., an epithet used to denote hybrids between *Q. petraea* and *Q. robur*; supposedly including *Q. robur* 'Filicifolia' and *Q. robur* 'Pectinata'. O. Schwarz placed it under *Q. robur* (W.J. Bean, Trees and Shrubs Hardy in the British Isles, Ed. 8, vol. III, 1976, p. 510) which seems appropriate since proof of hybridity is lacking.

MACON (Robert S. Hebb, AABGA Bull. 7:47-54, 1973) - a hybrid oak (*Q. macranthera x frainetto*) registered by Mr.

J.R.P. van Hoey-Smith, Arboretum Trompenburg, Rotterdam, Holland; originated in 1958, leaves intermediate in form between two parents, buds resemble *Q. macranthera*. Also described and illustrated in J.R.P. van Hoey-Smith, J. Royal Horticultural Soc., May 1973, p. 205-210, fig. 113, and R.S. Hebb, Arnoldia 33: 199-209, 1973.

PONDAIM (Robert S. Hebb, AABGA Bull. 7: 47-54, 1973) - a hybrid oak (*Q. pontica* X *Q. dentata*) registered by Mr. J.R.P. van Hoey-Smith, Arboretum Trompenburg, Rotterdam, Holland; originated in 1963, leaves intermediate between the parents, considered to have the same hardness as the parents. Also described and illustrated in J.R.P. van Hoey-Smith, J. Royal Horticultural Soc., May 1973, p. 205-210, fig. 112, and R.S. Hebb, Arnoldia 33: 199-209, 1973.

PEUDOTURNERI (G. Krussmann, Handbuch der Laubgehölze, Berlin, 1962, vol. 2, p. 320) - as a cultivar of *Q. x turneri*, an epithet used to denote hybrids, probably between *Q. ilex* and *Q. robur*; listed by H.J. Elwes and A. Henry, The Trees of Great Britain and Ireland, Edinburgh, 1910, vol. 5, p. 1289-90, as a variety; = *Q. pseudoturneri* Schneid., *Q. aizoon* Koehne, *Q. austriaca sempervirens* Hort., probably arising in England before 1800, propagated by Rivers in Sawbridgeworth; leaves longer, narrower, remaining green throughout most of the winter.

PUNGENS - According to B.K. Boom, Nederl. Dendrol. Ver. Jaarb. 21:85-178, 1956, 1957, and 1958, this selection was put into commerce by H.A. Hesse (Nurs.), Weener, Germany, Cat. 1927/28, p. 132, as *Q. sessiliflora pungens* Freyn; however it is best considered *Q. pendulina* 'Pungens', a selection of the hybrid between *Q. pubescens* Willd. and *Q. robur* L. (B.K. Boom, Nederlandse Dendrologie, Wageningen, 1959, ed 4, p. 131). Tree with rather narrow habit, leaves glabrous above, tomentose beneath, acorns 2-to several on a 1-3 cm long peduncle.

Literature Cited

1. Bailey, Liberty Hyde. 1976. Hortus third: a concise dictionary of plants cultivated in the United States and Canada. Macmillan, New York, 1290 p.
2. Boom, B.K. 1972. Nederlandse Dendrologie, Ed. 8. H. Veenman & Zonen B. V., Wageningen, 456 p.
3. Brickell, C.D., A.F. Kelly, F. Schneider, and E.G. Voss. 1980. International code of nomenclature for cultivated plants - 1980. Regnum Vegetabile vol. 104, 32 p.
4. Krussman, G. 1978. Handbuch der Laubgehölze, Ed. 2, Vol 3. Paul Parey, Berlin, 496 p.
5. McArdle, A.J. and F.S. Santamour, Jr. 1985. *Cultivar checklist for English oak (Quercus robur)*. J. Arboric. 11:307-315.
6. Schwarz, O. 1936-9. Monographie der Eichen Europas und des Mittelmeergebietes I. Text, 1936-7, 200 p.; II. Atlas, 1937-9, 64 t. (Repert. Sp. Nov. Reg. Veg. Sonderbeih. D.), Berlin.

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