

CHECKLISTS OF CULTIVARS IN *BETULA* (BIRCH)

by Frank S. Santamour, Jr. and Alice Jacot McArdle

Abstract. More than 80 cultivar names applied to selections of 12 birch (*Betula*) taxa are listed and discussed. Birch species included are *B. albosinensis*, *B. ermanii*, *B. lenta*, *B. medwediewii*, *B. nana*, *B. nigra*, *B. papyrifera*, *B. pendula*, *B. platyphylla*, *B. populifolia*, *B. pubescens*, and *B. utilis*. Some cultivars of putative hybrid (*B. pendula* x *B. pubescens*) parentage are also noted.

Résumé. Plus de 80 noms de cultivars appliqués à des variétés de 12 taxons de bouleaux (*Betula*) sont listés et discutés. Les espèces de bouleaux incluses sont *B. albosinensis*, *B. ermanii*, *B. lenta*, *B. medwediewii*, *B. nana*, *B. nigra*, *B. papyrifera*, *B. pendula*, *B. platyphylla*, *B. populifolia*, *B. pubescens*, et *B. utilis*. Quelques cultivars originant d'hybrides putatifs (*B. pendula*, *B. pubescens*) sont aussi notés.

Among the ca. 40 species of birch (*Betula*) native to temperate regions around the world, relatively few are capable of producing the stark white bark that makes some birches such desirable landscape trees. In the United States, our native gray birch (*B. populifolia* Marsh.) and paper birch (*B. papyrifera* Marsh.) are generally grown from seed. Most of the selected and vegetatively-propagated birch cultivars grown in the United States and Europe are *B. pendula* Roth, the European silver birch. Another European species (*B. pubescens* Ehrh.) and the Asiatic *B. platyphylla* Suk. are widely grown in their native areas and are becoming more popular in the United States.

The single major selection criterion for landscape use of birches over most of the United States is resistance to the bronze birch borer (*Agrilus anxius* (Gory)). Santamour (6) and Nielsen (5) have shown that none of these species, or their cultivars (including 'Whitespire' Japanese birch) are inherently resistant to this destructive insect pest. Our native river birch (*B. nigra* L.) is not considered a normal host for the borer or for the birch leaf miner (*Fenusa pusila* (Lapeletier)). However, *B. nigra* also has an array of insect pests that do not normally attack the other species and it is possible that some of these insects could become major problems as river birch becomes more widely cultivated and observed. In the authors' opinion, it is doubtful whether any of

the white-barked selections of other Asiatic species, currently grown in Europe but not tested in the United States, will be resistant to borers.

As is the case with most important cultivated landscape tree genera, there has been, and continues to be, a fair amount of nomenclatural confusion in *Betula*. At one time, the epithet "*B. alba* L." was used to refer to both of the European species we now call *B. pendula* and *B. pubescens*. Even *B. papyrifera*, *B. platyphylla*, and *B. populifolia* were often considered "varieties" of "*B. alba*". Today, there is a general agreement as to the distinctiveness of these five major white-barked taxa, but many European botanists and foresters prefer to use the epithet *B. verrucosa* Ehrh., rather than *B. pendula* Roth, to denote the species widely cultivated in the United States as "European white birch". It must be stressed, however, that although most of the cultivars of *B. pendula* grown in the United States are "pendulous" (with hanging branches) to some extent, typical trees of this species in Europe have a more upright branching habit.

Other taxonomic problems arise as a result of our imperfect knowledge of the widespread and complex Asiatic species *B. platyphylla*. We cannot possibly deal with all of these problems here, but varietal names such as "*japonica*", "*kamtschatica*", "*mandshurica*", and "*szechuanica*" have, at times, been applied to plant material of known (and sometimes, unknown) geographic origin. We consider it doubtful that these names truly represent valid and recognizable botanical varieties. Still, when the exact origin of a plant is known, the use of a varietal name may have some utility.

It is fortunate, indeed, that because of the paucity of cultivars in *B. papyrifera* we do not have to contemplate the so-called "varieties" of that species.

The five major white-barked birches (*B. papyrifera*, *B. pendula*, *B. platyphylla*, *B. populifolia*, and *B. pubescens*) all belong to the botanical Series Excelsae K. Koch (Albae Regel). One

distinguishing feature of species classified in this series is that the female catkins are pendant (hanging downward) at maturity. White-barked selections have been made from some species in the series *Costatae* Regel in which the female catkins are generally erect and nearly sessile. The cultivar 'Heritage' of our American river birch (*B. nigra*) has become widely planted since its introduction. White-barked variants of the Asiatic *B. ermanii* Cham. and the Himalayan *B. utilis* D. Don (including *B. jacquemontii* Spach) listed by Jong (4) have not been thoroughly tested in the United States. The dwarf, arctic birches of Series *Humiles* K. Koch, such as *B. nana* L., may also have somewhat whitish bark.

Among the dark-barked birches of series *Costatae*, neither our native black birch (*B. lenta* L.) nor *B. medwediewii* Regel from the Caucasus have much to offer in American landscapes. On the other hand, the bark of certain selections of *B. albosinensis* Burkill from China may be shiny orange-red, especially on young trees.

Perhaps the purple-leaved birches deserve special mention. None of these cultivars have, as far as we know, a kind of "permanent" and attractive reddish leaf color similar to that of Norway maple (*Acer platanoides* L.) 'Crimson King'; at least, not in northeastern United States. Rather, the young leaves are quite purplish, but as they mature they turn a rather dark, dull green.

In 1975, we crossed the gray birch (*B. populifolia*), as female, with *B. pendula* 'Purpurea' (PI 91460), a 44-year-old tree then growing at the U.S. Plant Introduction Station in Glenn Dale, Maryland. The hybrid progeny from this cross segregated as 168 green and 97 purple seedlings in the cotyledon stage. The best 10 purple-leaved seedlings were planted in our test plots in 1976, along with some of their green-leaved siblings. These purple-leaved trees could well have been identified as gray birch had not their origin been known. In 1982, we inter-crossed the two best red-leaved hybrids. From 18 catkins, only a single seedling germinated, and it has not exhibited any improvement in the permanence of reddish leaf color over the first-generation hybrids.

In our opinion, it is doubtful whether a purple-leaved cultivar of *B. populifolia* ('Purpurea') ever

existed. The plant given that name could well have been a hybrid between *B. populifolia* and *B. pendula* 'Purpurea'. At any rate, we can find no record of the current existence of any plants called *B. populifolia* 'Purpurea' and have chosen to consider the cultivar name as invalid.

While we are discussing purple-leaved birches, we should mention some nomenclatural problems, engendered by international agreements, that are bound to cause confusion in the future. Before 1982, applications for plant patents in the United States did not have to include a cultivar name for the plant in question. Obviously, this situation required a bit of detective work in order to put the right name with the right plant. Some plants were patented that never were given cultivar names, never appeared in nursery catalogs, and never were made available to the general public. When a patented plant was later given a cultivar name in nursery catalogs, the plant patent number for that plant was usually included in the nursery listing. Sometimes the name was also used before a patent was obtained, but cross-checking plant patents and nursery catalogs usually provided the descriptive information needed for a checklist.

After 1982, when the United States became signatory to international plant "variety" protection agreements, a cultivar name was required on all applications for plant patents. At first, this seemed to be a major step to lessen nomenclatural confusion.

Unfortunately, this policy has led to greater confusion. Plants, not names, are patented, and the life of a plant patent is 17 years. Federal "trade mark" names, on the other hand, are virtually forever. Thus, many nurseries have patented plants under "junk" cultivar names, and then marketed the same plant under a trade-marked name, which is usually more descriptive and more geared to popular usage. Furthermore, such basically useless cultivar names are also used for obtaining trade-mark names for *non-patented* plants.

Included in this checklist is a non-patented purple-leaved cultivar of *B. pendula* introduced by Monrovia Nursery Co. and given the cultivar name 'Monle'. The trade-mark name for that cultivar was listed as "Purple Rain". Which of these two names is the *valid* name? In the absence of precedents,

we have chosen to validate **PURPLE RAIN**, but to also list **MONLE**. How and when this nomenclatural dilemma will be solved is unknown, but growers of landscape tree cultivars should be aware of the potential of two "valid" names for cultivars in the future.

The two most extensive and recent monographs on birch, those of Fontaine in 1970 (1) and Jong in 1986 (4), were written in Dutch, and both were combinations of botanical and cultivar nomenclature. Neither of the Dutch works made major reference to the extensive 1957 work of Hylander (3) on Scandinavian birch-forms. For the most part, we have considered the "forms" of Hylander as cultivars (when there is clear evidence of cultivation), with reference only to Hylander (3), rather than to the original citations (many of the various Scandinavian languages) provided in this work. Hylander (3) also has made extensive use of the term "nothomorph" (abbreviated "nm.") to designate certain hybrid selections or variants. Whether a plant is a hybrid or not, it may still be a cultivar, and we have considered some of these "nothomorph" names as valid cultivars.

The cultivars are discussed under their respective species which are listed in alphabetical order as follows: *B. albosinensis*, *B. ermanii*, *B. lenta*, *B. medwediewii*, *B. nana*, *B. nigra*, *B. papyrifera*, *B. pendula*, *B. platyphylla*, *B. populifolia*, *B. pubescens*, and *B. utilis*. Cultivars of putative hybrids between *B. pendula* and *B. pubescens* are noted under "Hybrids" following the species listings.

As in previous lists, **VALID CULTIVAR** names are given in boldface capitals and **INVALID CULTIVAR** names in lightface capitals.

Betula albosinensis

FASCINATION (P.C. de Jong (4))—as a new name for a plant grown by C. Esveld, Boskoop, Netherlands; originally imported from England as *B. caerulea-grandis*; attractive bark.

HERGEST (P.C. de Jong (4))—originated as a seedling at Hergest Croft Gardens, Herefordshire, England; formerly known as *B. 'Hergest'*; fast growing.

Betula ermanii

BLUSH (P.C. de Jong (4))—new name proposed for a plant long cultivated in the Netherlands as *B. costata*; name refers to bark color.

FASTIGIATA—name found in Woody Plant Source List—1987,

compiled by T.J. Cole, Plant Research Centre, Agriculture Canada. Listed by Hortico Inc., Waterdown, Ontario. Name invalid because in Latin form after 1959.

GRAYSWOOD (P.C. de Jong (4))—name applied to a plant grown at Grayswood Hill, Surrey, England as *B. costata*; catkins less stiff than 'Blush'.

HOLLAND (P.C. de Jong (4))—new name for a plant grown in the Netherlands as *B. ermanii* (type Holland); not absolutely sure it is pure *B. ermanii*, could be a hybrid.

NANA—name found in Woody Plant Source List—1987, compiled by T.J. Cole, Plant Research Centre, Agriculture Canada. Listed by Hortico, Inc., Waterdown, Ontario. Name invalid because in Latin form.

Betula lenta

LACINIATA (A. Rehder, 1907, Rhodora 9:109-117)—as forma *laciniata* f.n.. Single tree with incisely lobed leaves found near New Boston, New Hampshire in 1902. As far as we can determine, this tree was never propagated or brought into cultivation.

Betula medwediewii

GOLD BARK (P.C. de Jong (4))—a selection from Alph. van der Bom Nurs., Netherlands, about 1965; more tree-like than normal for this dark-barked species.

Betula nana

GLENCARRY (P.C. de Jong (4))—a selection from Scotland.

Betula nigra

HERITAGE—Registered with the Arnold Arboretum in 1979 (S.A. Spongberg, AABGA Bull. 14 (4):97-100, 1980). Selected for bark color that is much whiter than normal for *B. nigra*. It is *not* a hybrid—but pure *B. nigra*. Originated as a seedling and selected by Earl Cully. Plant Patent No. 4409, April 24, 1979.

SUWANEE—(R.L. Byrnes, 1985, Proc. Fla. State Hort. Soc. 98:308-309)—with leaves larger and shinier than the species, and with salmon-white exfoliating bark.

Betula papyrifera

CHICKADEE—Trees at the University of Guelph Arboretum, Guelph, Ontario, Canada, obtained from Beaverlodge Nurs.. Original tree was among 100 native seedlings collected 25 miles northwest of Whitecourt, Alberta, Canada. Tree slow-growing with dense, pyramidal habit. Variation among seedlings of 'Chickadee' grown for budstocks suggests to us that this cultivar is a hybrid between *B. papyrifera* and *B. resinifera* Britton.

GRANDIS (H.J. Grootendorst (2))—large tree with large, heart-shaped leaves; leaves deeply and doubly serrate. Supposedly belonging to so-called var. *commutata*, native to western North America. Not used much outside the Netherlands.

MACROPHYLLA (H.J. Grootendorst (2))—as a synonym for **GRANDIS**.

NAM SHAW (The Siebenthaler (Nurs.) Co., Dayton Ohio, Trade List, Fall-Winter 1982, p. 5)—Nam Shaw paper birch, borer resistant. Also listed in Trade Lists of Fall-Winter, 1981 and Spring-Summer, 1983 without notation on borer resistance. Plants were purchased as liners by Siebenthaler, but source was lost. Apparently no longer available. Resistance to bronze birch borer doubtful.

Betula pendula

- ARBUSCULA** (N. Hylander (3)), illus. plates XIII and XIV—as *B. verrucosa* f. *arbuscula*. Trees with smaller than normal leaves, found in Sweden and Finland. Not a cultivar name.
- ATROPURPUREA = PURPUREA**
- BIRCALENSIS** (N. Hylander (3)), illus. plate Xa)—as *B. verrucosa* f. *bircalensis*. With deeply incised triangular leaves. Found and cultivated in Finland.
- BIRKALENSIS** (F.J. Fontaine (1)) = **BIRCALENSIS**.
- CRISPA** (N. Hylander (3)), illus. plates III, IV, and V)—as *B. verrucosa* f. *crispa*. Leaves more regularly, but less deeply, incised than 'Dalecarlica'. Trees known from Sweden and Finland. Not a valid cultivar name. Hylander placed the cultivar 'Laciniata' under this *forma*.
- CUNNINGHAM'S VARIETY** (P.C. de Jong (4))—a weeping birch with sloping side branches; similar to 'Tristis' and 'Youngii'; name invalid because of use of "variety" as part of name.
- DALECARLICA**—According to N. Hylander (3) and illus. plates VI and VII, this cut-leaved, weeping birch was given the name "*dalecarlica*" by the younger Linnacus in 1781. The original tree grew at Lilla Ornas, in the Swedish province of Dalarna (Dalecarlia), but was killed in a storm in 1887. Vegetative propagations had been made, however, and the cultivar was imported into the Netherlands in 1932 (H.J. Grootendorst, (2)). Grootendorst noted that most of the trees produced in the Netherlands were exported to Scandinavia, and very few planted specimens could be found in the Netherlands. He also was able to distinguish 'Dalecarlica' from 'Laciniata' on the basis of vegetative buds during the winter; rounded in 'Dalecarlica' and pointed in 'Laciniata'.
- DENTATA VISCOSA** (H.G. Hillier, 1973, Hilliers' manual of trees and shrubs (Ed. 3) Hillier and Sons, 576 p.)—as cultivar 'Dentata Viscosa'. "A small bushy tree with coarsely toothed leaves; young growths sticky; of no special horticultural merit". According to W.J. Bean, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1, 1970, this was first distributed by Chenault of Orleans about 1912 as *B. dentata viscosa pyramidalis*. May = **VISCOSA**.
- ELEGANS** (W.J. Bean, 1970, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1)—as cv. 'Elegans', with erect leader and branches hanging almost perpendicularly, originated at Bonamy's Nurs., Toulouse (France), about 1866. May be synonymous with **TRISTIS**, but not **YOUNGII**.
- FASTIGIATA** (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Fastigiata'. According to W.J. Bean, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1, 1970, this cultivar was first distributed by Simon-Louis Freres (France) before 1870. Tree with columnar growth habit resembling a Lombardy poplar.
- GRACILIS** (H.J. Grootendorst (2))—as *B. pendula* 'Gracilis'. Small tree with various ascending branches (no main trunk), but with smaller twigs pendulous, hanging together in bundles; leaves more deeply lobed than 'Laciniata'. Tree illus. in G. Krussmann, 1960, *Handbuch der Laubgehölze*, Tafel 60. Apparently originated in Moscow about 1888, and was grown by Spath Nurs. (Germany) as *B. alba laciniata gracilis pendula* about 1930. According to Grootendorst, A. Rehder, 1940, *Manual of cultivated trees and shrubs*, incorrectly used the varietal name *gracilis* to refer to the plant known as 'Laciniata'.
- IRREGULARIS** (N. Hylander (3)), illus. plates X and XI)—as *B. verrucosa* f. *irregularis*. Leaves irregularly and deeply lobed. Many wild trees fitting this description. Not a cultivar name.
- LACINIATA**—Considered a cultivar by F.J. Fontaine (1), and by H.J. Grootendorst (2). Name placed in various synonymies by W.J. Bean, 1970. *Trees and shrubs hardy in the British Isles*, Ed. 8 and G. Krussmann, 1960, *Handbuch der Laubgehölze*. N. Hylander (3), placed it under f. *crispa*, but considered the tree commonly grown in Sweden as a clone of German origin easily distinguished from 'Dalecarlica', identical to that depicted by Reichenbach in 1850. Leaves deeply incised, but less so than in 'Dalecarlica', tree with very thick female catkins and long pendulous twigs. Grootendorst has noted that in the winter the vegetative buds on young shoots of 'Laciniata' are acuminate (sharp-pointed) while those of 'Dalecarlica' are blunt and rounded. The growth habit of the tree is upright, and only the extremities of the branches are pendulous. Probably the most widely grown cut-leaved, pendulous birch in the United States.
- LOBULATA** (N. Hylander (3), illus. plate IX)—as *B. verrucosa* f. *lobulata*. Leaves with short, entire triangular lobes. Found in several localities in Sweden. According to F.J. Fontaine (1), this form was once cultivated, but is no longer. Not considered a valid cultivar name.
- MONLE** (Monrovia Nurs. Co. Azusa, California, 1987 Wholesale Catalog, p. 19)—as *Betula pendula* Purple Rain™ 'Monle'. See **PURPLE RAIN** in listing and discussion in text.
- OBELISK** (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Obelisk', described for the first time. Found in the wild in northern France by P.L.M. van der Bom. Brought into cultivation in 1956 by Royal Nurseries Alphons van der Bom, Oudenbosch, Netherlands. Extremely fastigiata form with stiffer branches than 'Fastigiata', bark very white.
- OYCOWIENSIS** (W.J. Bean, 1970, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1)—as var. *oycowiensis* (Besser) Schneid. with *B. oycowiensis* Besser in synonymy. Species or variety native to southeast Poland. Not a cultivar name.
- PALMERI** (N. Hylander (3)), illus. plate XV)—as *B. verrucosa* f. *palmeri*. Small leaves. Trees known in wild, not in cultivation. Not a cultivar name.
- PURPLE GLORY**—a name seen in various "popular" articles on birches. May refer to either **PURPLE SPLENDOR** or **SCARLET GLORY**, or neither.
- PURPLE RAIN** (Monrovia Nurs. Co., Azusa, California, 1987 Wholesale Catalog, p. 19)—as *Betula pendula* Purple Rain™ 'Monle'. A selection made at Monrovia from open-pollinated seedlings of *B. pendula* 'Purpurea', propagated by tissue culture; "slightly pendulous branches, new foliage displays lustrous, vivid purple coloring that is retained through the season." We have chosen to validate the trade-mark name for this cultivar. See **MONLE** in listing and discussion in text.
- PURPLE SPLENDOR**—Plant Patent No. 2107, November 28, 1961, by Darrold D. Belcher, Gresham, Oregon. Found as a red-leaved seedling in nursery that contained other green-leaved *B. pendula*. Tree with white bark, purple leaves, and drooping leader and branches.
- PURPUREA** (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Purpurea'. Light purple-red young leaves which later become somewhat duller. Originated about 1870 in France. The reddish leaf color is heritable and other purple-leaved cultivars have also been named.
- PYRAMIDALIS = FASTIGIATA**

SCARLET GLORY—Name found in records of Plant Sciences Data Center of the American Horticultural Society. Scions received by the Arnold Arboretum in 1964 from Lakeland Nurs., Garden City, Long Island, New York, and propagated (and repropagated) by grafting. A purple-leaved, slow-growing tree; some have been killed by borers. No published description exists, and we do not wish to validate the name here.

SELLANDII (N. Hylander (3)), illus. plates XVI, XVII)—as *B. verrucosa* f. *sellandii*. Small leaves, broom-like branching habit with short numerous shoots. Trees found in wild, not cultivated. Not a cultivar name.

SERRATA (N. Hylander (3)), illus. plate I)—as *B. verrucosa* f. *serrata*. Leaves shallowly incised, serrate. Specimens known from several locations in the wild. Not a cultivar name.

SERRATOLOBULATA (N. Hylander (3)), illus. plate VIII)—as *B. verrucosa* f. *serratolobulata*. Leaves with short, triangular lobes (as in "Lobulata", but regularly serrate. Groups of wild trees noted as having similar leaves. Not a cultivar name.

SUBARBUSCULA (N. Hylander (3)), illus. plate XII)—as *B. verrucosa* f. *subarbuscula*. Small leaves. Based on a single, wild tree; not cultivated. Not a cultivar name.

SUBDALECARLICA (N. Hylander (3)), illus. plate II)—as *B. verrucosa* f. *subdalecarlica*. Leaves incised more than *SERRATA*, but less than 'Crispa'. One tree known in Finland. Not a cultivar name.

TRISTIS (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Tristis'. Very graceful, pendulous branches develop from an irregular crown; leaves normal for species; bark reasonably white. Supposedly originated in the Netherlands about 1867. Illus. (p. 22) in H.J. Grootendorst (2). Also illus. in G. Krussmann, 1960, *Handbuch der Laubgehölze*, Tafel 60. May be synonymous with **ELEGANS**.

TROST DWARF—Registered with the U.S. National Arboretum in 1984 (T.R. Dudley, 1986, AABGA Bull. 19 (3):86-94) by Richard Bush. A truly dwarf birch discovered in 1976 by Dieter Trost at Southern Oregon Nurseries, Medford, Oregon. Listed since 1978 in Richard Bush's Nursery catalog as *B. dissectum* 'Trost Dwarf'. Called *B. alba* 'Trost's Dwarf' by T.T. Steel, 1985, *Amer. Nurseryman* 164 (4):142. Leaves deeply dissected; 8-year-old plant measured about 3 ft wide and 2.5 ft tall.

VISCOSA (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Viscosa'. Dense, twiggy small tree with very sticky (viscous) twigs and leaves; leaves sometimes curled or folded along mid-rib, coarsely doubly serrate to lobed. Originated about 1912 in France. May be synonymous with **DENTATA VISCOSA**.

YOUNGII (F.J. Fontaine (1))—as *B. verrucosa* cv. 'Youngii'. Plant grown only as a graft on standards at various heights. No major trunk, branches strongly horizontal, eventually pendulous, forming an umbrella-shaped crown. Leaves more or less triangular, doubly serrate. Originated in England about 1873.

Betula platyphylla

WHITESPIRE—Registered with the U.S. National Arboretum in 1983 (T.R. Dudley AABGA Bull. 18 (4):97-129, 1984) as *B. platyphylla* Sukachev var. *japonica* (Miquel) Hara 'Whitespire' by E.R. Hasselkus. A cultivar propagated from seed (not a clone) of several

trees that originated from a seed collection from a single tree in Japan by J.L. Creech in 1956 (PI 235128). Plants with chalky-white, non-exfoliating bark. Originally introduced in 1977 as "University of Wisconsin Strain". Plants (the parents of this seed-propagated cultivar) at the Longenecker Horticultural Gardens at the University of Wisconsin were apparently not attacked by the bronze birch borer and the cultivar supposedly had a "high degree of borer resistance". More extensive trials (Nielsen, 5) have shown that 'Whitespire' is susceptible. There seems to have been some confusion in the trade between 'Whitespire' and *B. platyphylla* var. *szechuanica* sold by Evergreen Nurs. Co., Sturgeon Bay, Wisconsin. Herbarium specimens on file at the U.S. National Arboretum indicate that identification is relatively simple since the "szechuanica" looks surprisingly similar to gray birch (*B. populifolia*). A complete story (except for borer susceptibility) on 'Whitespire' was given by E.R. Hasselkus, *The Public Garden* 2 (3): 23, 29; 1987.

SZECHUANICA—one of the many so-called geographical "varieties" of Japanese white birch, known botanically as *B. mandshurica* var. *szechuanica* (Schneid.) Rehd. or *B. platyphylla* var. *szechuanica* (Schneid.) Rehd.. True-to-name plants are native to Szechuan (Sichuan) Province in China but the seedling plants sold under this name by Evergreen Nurs. Co., Sturgeon Bay, Wisconsin, are of uncertain origin and resemble the American gray birch (*B. populifolia*) in many respects. Not a cultivar name.

Betula populifolia

INCISIFOLIA (M.L. Fernald, 1945, *Rhodora* 47:303-329)—as f. *incisifolia*, with deeply cut leaves, growing wild. Fernald rejected the name "laciniata" as a variety, based on inadequate identification and intended "incisifolia" as a replacement epithet. Not, however, a cultivar name.

LACINIATA (F.J. Fontaine (1))—as cv. 'Laciniata' (Loud.) Hort. with f. *incisifolia* Fern. in synonymy. M.L. Fernald (1945, *Rhodora* 47:303-329) fully discussed the situation of var. *laciniata* (Lodd.) Loud. and concluded that the species designation was uncertain. Not a cultivar name. A spontaneous plant of var. *laciniata* in Massachusetts is illustrated by D.S. Correll (1942, *Rhodora* 44:236-237).

PENDULA (F.J. Fontaine (1))—as cv. 'Pendula' (Loud.) Hort. Tree with thin, drooping twigs and similar in habit to *B. verrucosa* (*B. pendula*) cv. 'Tristis'. Many trees of *B. populifolia* have this habit and, since we are reasonably certain that the tree described by Loudon in 1838 was never widely propagated or distributed, we consider this confusing name invalid.

PURPUREA (F.J. Fontaine (1))—as cv. 'Purpurea' (Ellw. & Barry) Hort. Doubtful whether such a purple-leaved variant of *B. populifolia* ever existed; may have been a hybrid with *B. pendula* 'Purpurea' (see text). Since we were unable to determine if any descendants of the Ellwanger and Barry selection were still extant, we consider the name invalid.

Betula pubescens

ASPLENOIDES—probably = **URTICIFOLIA**, according to F.J. Fontaine (1). At any rate, not currently considered a valid cultivar name.

AUREA (F.J. Fontaine (1))—as cv. 'Aurea' Hort.,

with young leaves yellow. G. Krussman, *Handbuch der Laubgehölze*, Vol. 1, 1959 was cited as the only reference for this cultivar. Name invalid because in Latin form after January 1, 1959.

CRENATA NANA (W.J. Bean, 1970, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1)—as cv. 'Crenata Nana'. Noted as var. *crenata nana* in Ed. 7 (1950). "A dwarf, round bush growing at the rate of 2 or 3 in. annually".

INCISA (N. Hylander (3)), illus. plates XIX and XX—as f. *incisa* Anna Helms, with deeply cut leaves. F.J. Fontaine (1), stated that it was found in Sweden in 1914. May only be cultivated locally in Sweden.

INTEGRIFOLIA (F.J. Fontaine (1))—as cv. 'Integrifolia' (Larss.) Hylander. Leaves practically without lobes. Tree found in Sweden in 1865. May no longer be in cultivation. Illus. plate XVIII in N. Hylander (3).

LACINIATA—= **URTICIFOLIA**, according to F.J. Fontaine (1). At any rate, not currently considered a valid cultivar name.

MURITHII (F.J. Fontaine (1))—as cv. 'Murithii' (Gillot) Hort. An old cultivated form that originated in Switzerland in the early 1800's. Somewhat shrubby growth habit, with knotty trunk and gray bark; leaves coarsely, doubly serrate. May no longer be in cultivation. Considered as a variety of subsp. *carpatica* in W.J. Bean, *Trees and shrubs hardy in the British Isles*, Ed. 8, Vol. 1, 1970.

PONTICA (W.J. Bean, 1950, *Trees and shrubs hardy in the British Isles*, Ed. 7, Vol. 1)—as var. *pontica* Watson. Later (ed. 8, Vol. 1, 1970) considered a variety of subsp. *carpatica*. Leaves tapered at base, mostly glabrous, young shoots slightly warted. Not a cultivar name.

QUERCIFOLIA—probably = **URTICIFOLIA**, according to F.J. Fontaine (1). At any rate, not currently considered a valid cultivar name.

TORTUOSA (F.J. Fontaine (1))—as var. *tortuosa* Lindquist. Tree with somewhat shrubby growth habit and turning or bent branches. Sometimes considered as *B. tortuosa* Ledeb. Not valid as a cultivar name.

UNDULATA (W.J. Bean, 1950, *Trees and shrubs hardy in the British Isles*, Ed. 7, Vol. 1)—as var. *undulata*, with leaf margins wavy; shoots slightly warted. Not mentioned in Ed. 8, Vol. 1, 1970. Not a cultivar name.

URTICIFOLIA (F.J. Fontaine (1))—as a cultivar of *B. pubescens*. Probably should be considered as a hybrid between *B. pendula* and *B. pubescens*, according to N. Hylander (3). See under "Hybrids".

VARIEGATA (F.J. Fontaine (1))—as cv. 'Variegata' Hort. A tree of unknown origin described by C. Schneider from a specimen at the Moscow Botanic Garden. Cultivar has white-variegated-striped leaves that turn more green during the growing season, dense crown with some what twisted branches, and whiter bark than normal *B. pubescens*.

Betula utilis

DOORENBOS (P.C. de Jong (4))—new name proposed for a plant selected from seedlings of Japanese origin by S.G.A. Doorenbos; not clear whether this cultivar belongs to subsp. *utilis* or subsp. *jacquemontii*.

GRAYSWOOD GHOST (P.C. de Jong (4))—tree with beautiful white bark and large, shiny leaves grown at Grayswood Hill, Surrey England; very similar to 'Inverleith'.

Name originally proposed by K. Ashburner and T. Schilling, 1985, *The Plantsman* 7(2): 116-125.

HILLIER (P.C. de Jong (4))—new name proposed for a plant grown by Hillier's Nurs., England as *B. jacquemontii*; with duller and broader leaves than **GRAYSWOOD GHOST**.

INVERLEITH (P.C. de Jong (4))—a well known tree with snow-white bark grown at the Royal Botanic Garden, Edinburgh as *B. jacquemontii*. Name originally proposed by K. Ashburner and T. Schilling, 1985, *The Plantsman* 7 (2):116-125, who considered that either *B. papyrifera* or *B. pubescens* had been involved in its parentage.

JERMYSNS (H.G. Hillier, 1982, *The Hillier colour dictionary of trees and shrubs*. Van Nostrand Reinhold, 323 p., illus. p. 54). Tree with "creamy-white stems; peeling orange-brown or coppery bark on trunk and main branches; good autumn colour." Named for "Jermyns House", which became Hillier's residence in 1953. Not assigned to any particular species, but P.C. de Jong (4) placed it under *B. utilis*. Autumn leaf color not specified, although it is probably yellow.

SAUWALA WHITE (P.C. de Jong (4))—selected from seedlings collected in Central Nepal and the original tree was grown at Wisley Gardens, England; might be a hybrid with *B. platyphylla* var. *szechuanica*. Name originally proposed by K. Ashburner and T. Schilling, 1985, *The Plantsman* 7 (2):116-125.

EDINBURGH (P.C. de Jong (4))—new name proposed for a plant grown at the Royal Botanic Gardens, Edinburgh; originally considered as a hybrid between *B. utilis* and *B. albosinensis* and not worthy of cultivation, but after some years its strong, upright growth habit was observed.

Hybrids

DENTATOINCISA (N. Hylander (3), not illus.)—as nm. (nothomorph) *dentatoincisa*. Only one specimen noted. Not a cultivar name.

HJELMQVISTIANA (N. Hylander (3), illus. plates XXVI and XXVII)—as nm. (nothomorph) *hjelmqvistiana*. Leaves similar to cultivated **URTICIFOLIA**, but with more regularly rhombic leaves. Based on a plant grown in the botanic garden in Lund, Sweden.

INCISA (N. Hylander (3), illus. plates XX and XXI)—as nm. (nothomorph) *incisa*. Leaf lobes distinct. Found in the wild. Not a cultivar name.

LAMIIFOLIA (N. Hylander (3), illus. plate XXII)—as nm. (nothomorph) *lamiifolia*. Single tree noted in Norway. Not a cultivar name.

MIRABILIS (N. Hylander (3), illus. plate XXVIII)—as nm. (nothomorph) *mirabilis*. Small, narrow, irregularly incised leaves. Only one tree noted. Not a cultivar name.

RIGIDA (N. Hylander (3), illus. plate XXIII)—as nm. (nothomorph) *rigida*. Leaves remotely incised. Only one specimen collected. Not a cultivar name.

URTICIFOLIA (N. Hylander (3), illus. plates XXIV and XXV)—as nm. (nothomorph) *urticifolia*. Leaves long-acuminate, deeply and sharply incised, somewhat hairy on upper surface, moreso on lower surface. Considered a cultivar of *B. pubescens* by F.J. Fontaine (1) but is probably of hybrid origin. Found in 1836 in Sweden.

Literature Cited

1. Fontaine, F.J. 1970. *Het Geslacht Betula (Bijdrage tot een Monografie)*. Belmontiana 13 (4):99-180 (1969).
2. Grootendorst, H.J. 1973. *Betula*: Keuringsrapport van de Keuringscommissie Sierbomen N.A.K.B. Dendroflora Nr. 10, p. 15-25.
3. Hylander, N. 1957. *On cut-leaved and small-leaved forms of Schandinavian birches*. Svensk. Bot. Tidskr. 51:417-436, plus 28 plates.
4. Jong, P.C. de. 1986. *Betula*. Dendroflora Nr. 23, p. 328.
5. Nielsen, D.G. 1987. Personal communication. Research conducted at the Ohio Agricultural Research and Development Center.
6. Santamour, F.S., Jr. 1982. *Which white birches are least susceptible to bronze birch borer?* Amer. Nurseryman 156 (11):61-63.

*Research Geneticist and former
Horticulturist, respectively
U.S. National Arboretum
Agricultural Research Service
U.S. Department of Agriculture
Washington, D.C. 20002*

Abstracts

SMITH, D. and S. GILL. 1987. **Anatomy of an IPM program**. Landscape Management, August p. 46-48, 50.

For years, cover sprays have been the traditional method of pest control. However, preventive sprays may actually produce some detrimental side effects in urban areas; such as increased pest resistance to pesticides, resurgence of target pests following treatment and outbreaks of secondary pests once the target pest has been killed. Research has tested a management concept called Integrated Pest Management in urban landscape settings. IPM programs use a monitoring program in which landscapes are regularly inspected for cultural problems, insects and disease pests. Cover sprays are eliminated; instead, individual plants (hot spots) are spot treated with the least toxic pesticide available once the pest is noticed. Control material could be a biorational (such as *Bacillus thuringiensis*, milky spore or insecticidal soap), or a short residual, low toxicity pesticide, such as synthetic pyrethroid. These programs have shown that IPM methods control pests even better than do cover sprays.

LUTZ, A., A.O. PAULUS, D.M. FERRIN, and J.A. NELSON. 1988. **A new disease of myrtle**. California Agriculture 42(2): 24-25.

During the summer of 1986, extensive plant death was reported in a mature myrtle planting in San Diego County. *Cylindrocladium scoparium* was isolated from both cutting and crowns of myrtle. This soilborne fungus causes root rot, stem canker, damping off, and foliage blight on plants throughout the world. Mature myrtle plants with cylindrocladium root rot show branch dieback and stunting; cankers may appear in the crown region, and the wood beneath the bark is dark brown. Cuttings exposed to the fungus initially develop lesions on the cut ends; these lesions enlarge and extend up the stems. Both stem and leaf tissues turn brown or black.