

Hanburyana

A serial for horticultural taxonomy and nomenclature

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Cover illustration:

Cortaderia jubata

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| | |
|---|----|
| J.D. ARMITAGE. Proposals to amend the ICNCP (H3–H6) | 3 |
| A.C. LESLIE. Proposals to amend the ICNCP (H7–H9) | 9 |
| A. YOUNG. A proposal to amend the ICNCP by extending the category of grex to plants other than orchids (H10) | 11 |
| D. EDWARDS. A proposal to amend the ICNCP (H11) | 14 |
| X. JIN. Proposals to amend the ICNCP (H12–H15) | 16 |
| H. BERTRAND. International registration for cultivar names for <i>Hydrangea</i> L. 2006–2011 | 23 |
| F. VRUGTMAN. New lilac cultivar name registrations | 25 |
| J.M.H. SHAW. The correct name for the Korean willow-leaved spicebush | 32 |
| S. LURA, M. POOLER, AND J. KIRKBRIDE. Description and history of <i>Syringa oblata</i> subsp. <i>oblata</i> ‘Frank Meyer’ | 37 |
| J.D. ARMITAGE. The application of the name <i>Cortaderia</i> ‘Candy Floss’ and additional notes on pink-flowered <i>Cortaderia</i> | 41 |
| J.D. ARMITAGE. New combinations in <i>Persicaria amplexicaulis</i> (D. Don) Ronse Decr. and the reinstatement of the cultivar name ‘Arun Gem’ | 47 |
| G. AUVRAY, A. LE GLOANIC & V. MALÉCOT. A new interspecific hybrid in <i>Cytisus</i> L. (<i>Genisteae</i> , <i>Fabaceae</i>) | 51 |
| JIRÍ JAKL. <i>Magnolia</i> × <i>pruhoniana</i> , a new hybrid umbrella magnolia in section <i>Rhytidospermum</i> | 54 |

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Papers and other contributions are welcome from anyone carrying out research in horticultural taxonomy and nomenclature, both from the UK and overseas.

The remit of *Hanburyana* is to provide a place of publication for information on cultivated plants that is required to appear in print and for which no other outlet exists. Relevant topics include:

- Checklists and additions to Registers
- Lists of standards held in herbaria
- Papers and short notes on cultivated plant taxonomy
- Proposals to amend the *ICNCP* and papers on broader nomenclatural issues
- Bibliographic or biographic notes to assist with taxonomic research

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Proposals to amend the *International Code of Nomenclature for Cultivated Plants* (H3–H6)

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The *International Code of Nomenclature for Cultivated Plants* (ICNCP) (Brickell *et al.*, 2009) makes little special provision for the difficulties associated with the nomenclature of annual and seed-raised plants and, particularly, for the treatment of the name-like marketing that is often applied to them. The amendments proposed here are intended to encourage a more standardised, accurate and informative means of communicating about seed-raised plants.

Maintenances

The recombination of genetic material inherent in sexual reproduction means that horticultural plants that are raised from seed have the potential to differ in character from the taxon as originally introduced. When more than one maintenance of a seed-raised taxon is kept, divergent selection can lead to a range of entities being grown under the same name in a process sometimes called cultivar drift. The general lack of detailed descriptions or herbarium specimens of ephemeral garden plants means that it is often difficult to discern which, if any, of these entities match the original taxon. After a period of time, accessioning material of a seed-raised cultivar from its originator is no guarantee of receiving correctly named plants, as the stock is as likely as any other to have been subject to ongoing selection away from the original.

The possibility of cultivar drift is attendant on annual plants but there are also numerous perennial cultivars, such as *Echinacea purpurea* ‘Magnus’, which have diversified greatly with wide and repeated propagation by seed.

Where plants can be shown to differ from the original circumscription associated with the name under which they are retailed, and are of uniform and stable character, provision of a new name should be considered. It should also be borne in mind that Group names can be used to incorporate greater variation than can be satisfactorily encompassed by a cultivar name. However, where stock has diversified according

to different maintenances, and there is no way to identify which, if any, match the plant as originally named, indicating the holder of the maintenance in brackets after the name provides a valuable means of distinguishing one stock from another. Art. 30.5 of the *Code* allows for the use of supplementary information in brackets in order to distinguish between different usages of the same, but differently established, name for different plants. However, it does not specify that this might also be done where plants of shared origin are observed to differ. Therefore the following addition to the *Code* is proposed.

Proposal H3: The distinguishing of different maintenances

(H3) Insert new Recommendation: *Recommendation 21L*

Recommendation 21L.1. Where the original application of a cultivar name can no longer be ascertained, recognisably different maintenances may be distinguished by appending a device such as the name of the maintainer.

Series and seed mixes

In horticulture, Series (distinct from the botanical series) are marketing tools that are not provided for by the ICNCP. However, as they are usually employed, Series have many of the characteristics of a taxonomic rank. Plants belonging to a Series tend to have morphological characters in common, a unifying circumscription and a shared lineage (which allows the Series name to be inserted at an appropriate taxonomic level within a name). Because Series often serve the function of a useful taxonomic rank they have sometimes been recognised formally by transposing them as Group names.

However, some Series are applied to plants which do not share a lineage below the level of genus and do not have particular morphological characters in common and in this way serve merely to identify introductions with a particular raiser. As a consequence the transposing of Series to Group names has the potential to cause confusion by implying that they are equivalents or alternative terms. It is therefore proposed that the following recommendation is added to the *Code*.

Proposal H4: The transposing of Series to Group names

(H4) Insert new Recommendation: *Recommendation 22*

Recommendation 22B.1. The transposing of Series to Group names has the potential to cause confusion and is discouraged.

Though common in seed-marketing, Series are by no means exclusively used for annuals and are now frequently employed in the marketing of perennial and even woody plants. As has already been pointed out, their application is not always to variations on a single ideotype. A change to the definition of Series provided in the *Code* is therefore required as follows.

Proposal H5: Amendment to the Glossary definition of Series

(H5) Amend definition of Series to:

a marketing term used to associate a number of cultivars, especially those differing from each other only in one character, normally flower colour.

Art. 13 of the ICNCP defines trade designations and guidance concerning their treatment is provided in Appendix X.

Series are comparable to trade designations inasmuch as they are marketing devices not regulated by the *Code*. However, despite their wide use no guidance is offered as to their formation or incorporation into plant names.

Seed mixes are closely associated with Series, being often various admixtures of the components of a Series. The degree of morphological similarity and taxonomic relatedness found within seed mixes varies greatly from one mixture to the next. In many cases the individual components of a seed mix are already attributable to an accepted cultivar epithet so that to provide the seed mix as a whole with a cultivar name results in the unsatisfactory position of allowing the same plant to be grown under two equally valid cultivar names.

The components included in a seed mix sold under a particular name may vary significantly from year to year and from packet to packet, making it difficult to attach any taxonomic value to the name. Mixes sold as Formula Mixed should be more stable in their composition but this is hard to guarantee.

The nomenclatural treatment of seed mixes varies greatly across and within the fields of commerce, horticulture, registration and plant trialling. In the interest of mutual understanding, a logical and consistent method for dealing with both Series and seed mixes is very desirable and to that end the addition of the following to Appendix X of the Code is proposed. To accommodate this, it is suggested that Appendix X is re-titled Designations Not Regulated by This Code.

Proposal H6: Series and seed mixes

(H6) Insert new section in Appendix X concerning Series and seed mixes:

Recommendation 22B.1 The transposing of Series to Group names has the potential to cause confusion and is discouraged.

Other than in the extract given above, this Code provides no guidance concerning the use of Series and their application. While this is in keeping with the status of Series as marketing and not nomenclatural tools, it is recognised that they are commonplace devices of plant retail, in many respects serving the function of a name, and that a standardisation of their use should be encouraged. Similarly a consistent method of treating the epithets and designations applied to seed mixes would be helpful to those who deal with them. The notes below are a contribution towards that aim.

(a) Series should have an initial capital letter but should not appear in italics, single or double quotes or be distinguished typographically from surrounding text.

(b) ICRA's should seek to record the use of Series designations and to avoid the use of identical or confusingly similar epithets in the names

of cultivars, Groups and grexes. Series designations should not be registered by ICRA's since they are not regarded as names under the Code.

(c) Where a specific cultivar from a Series is offered, the Series name may be included in brackets before or after the cultivar epithet, e.g. Aquilegia vulgaris var. stellata (Barlow Series) 'Nora Barlow', Aquilegia vulgaris var. stellata 'Nora Barlow' (Barlow Series).

(d) Cultivar names incorporating the name of the Series in which they are included should be given in full, e.g. Aquilegia flabellata (Cameo Series) 'Cameo Blush', not Aquilegia flabellata (Cameo Series) 'Blush'

(e) Where a range of representatives from a Series are being sold in the same packet of seed or an unspecified cultivar belonging to a Series is offered, these can be referred to by using the Series designation after the lowest taxon to which all members of the Series are attributable. In this case the Series designation should not appear in brackets, e.g. Aquilegia vulgaris var. stellata Barlow Series.

(f) Where an additional selling name has been provided for a mixture of components of a Series this is best treated as a trade designation.

(g) When names represent nothing more than a marketing device to help sell, in one packet of seed, a diverse collection of entities, they are best treated outside a formal taxonomy and styled as trade designations. The word Mixed is preferred to Mix and the term Formula Mixed to Formula Mix.

The inclusion of this section in Appendix X would have implications for the definition and treatment of trade designations in the Code.

Some comments on synonymy in seed-raised cultivars

The practice is common of providing seed-raised plants with cultivar names when they do not differ in a horticulturally meaningful way from the generality of the species to which they belong. The circumscriptions

provided for these plants appear to make a nameworthy virtue of a character occurring throughout the species and to provide no other means of distinguishing them. Examples include *Euphorbia marginata* 'Summer Icicle'.

In some instances, when the species is considered as a whole, it may be found that cultivated stock differs to some extent from the common form and that in the provision of a name some horticulturally relevant variation has been inadvertently segregated. In these circumstances the circumscription of the cultivar can be refined to emphasise the distinguishing characteristics and consideration given to whether it might be best recognised at Group level. However, where this is not the case, it is strongly urged that the interests of gardeners are best served by more widely synonymising redundant cultivar names given to seed-raised plants. A greater acknowledgement that taxonomists have a role to play in stamping out sharp practice in horticulture is required.

REFERENCES

Brickell, C.D., Alexander, C., David, J.C., Hetterscheid, W.L.A., Leslie, A.C., Malecot, V., Jin, X. & Cubey, J.J. (2009). International Code of Nomenclature for Cultivated Plants, edn 8. *Scripta Horticulturae* **10**: i–xix, 1–184.

Proposals to amend the *International Code of Nomenclature for Cultivated Plants* (H7–H9)

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Proposal H7: Cultivar epithets

(H7) Insert new article, Art. 21.23:

21.23. A name is not established if after 1 January 1959 its cultivar epithet contains the epithet of a species from the genus in which that cultivar is placed.

This proposal seeks to deal principally with the situation in which the species epithet has been incorporated into the epithet of a new cultivar. This may happen by accident (for instance through poor editing of a list) or by design, and is considered very likely to cause confusion. The situation becomes significantly misleading if the cultivar is later found to have been misattributed and is actually derived from another species: such a case has been reported recently in *Brugmansia*. Prior to the 2009 *Code* epithets incorporating a Latin word could not have been established after 1 January 1959. This proposal does not affect the acceptability of such epithets established before the latter date.

Proposal H8: Conditions of publication

(H8) Art.25.1 (b). Delete: “in collections or gardens open to the public”

This proposal would mean that names encountered on labels in any situation would not be effectively published. The existing wording would suggest that names found, for example, on printed labels in pots in garden centres and nurseries, which may often incorporate descriptive material and even a year date, were effectively published.

Proposal H9: The Cultivar

(H9) Art.2.3. Add the following note:

Note 1. Exceptionally a cultivar may be described from a single example (but see Art. 2.4).

In past editions of the *Code* cultivars have been referred to as assemblages of plants, the implication being that to be a cultivar more than one plant must exist. There is currently no explicit statement in the *Code* that makes it clear whether this is a requirement or not. Botanically it is permissible to describe new taxa from single collections, from a single plant in some cases (e.g. *Sorbus* × *proctoriana* T.C.G. Rich) and it is strongly suspected that in practice this is often the situation with some cultivated plant taxa, especially in woody plant genera such as *Rhododendron*. It seems logical to permit this to happen with cultivars and that this issue should not have any nomenclatural consequences. Whilst one can check for the effective publication and establishment of a new epithet on the basis of the evidence in the original publication, it is not possible to check, using that evidence, whether more than one plant exists. Even if the author explicitly states the plant has been propagated, it could be that all the propagations fail or are later wiped out in some accident leaving only the original plant. Whilst it is clearly desirable that a new cultivar should be propagated before it is named, in practice this may not always be the case and this needs to be acknowledged. The reference to Art. 2.4 reminds users that only those propagations that retain the appropriate defining characters can be treated as the same cultivar.

REFERENCE

Brickell, C.D., Alexander, C., David, J.C., Hetterscheid, W.L.A., Leslie, A.C., Malecot, V., Jin, X. & Cubey, J.J. (2009). International Code of Nomenclature for Cultivated Plants, edn 8. *Scripta Horticulturae* **10**: i–xix, 1–184.

A proposal to amend the ICNCP by extending the category of grex to plants other than orchids (H10)

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Proposal H10: To amend Art. 4.1 of the *Code* regarding the grex

(H10) Art. 4.1. Delete the second sentence (“It may only be used in orchid nomenclature”):

Art. 4.1 The formal category for assembling plants based solely on specified parentage is the grex. The rules for forming grex names are laid out in Art. 23 of this *Code*.

Further examples should be added to Ex.1, and can be supplied from a number of different plant groups. A specific example from amongst the saxifrage hybrids is suggested:

Saxifraga Renaissance Group (*S. ferdinandi-coburgi* × *S. marginata* × *S. stoltzkae*) was published by Young (2002) and would become *Saxifraga* Renaissance grex on formal republication of the name as a grex.

In earlier editions of the ICNCP the concept of the collective name was used for a wide range of plants, and associated together cultivars with a shared parentage (Arts 38–45 in the 1958 & 1961 *Codes*, Arts 13–19 in the 1969 & 1980 *Codes*). The term “collective name” was applied to hybrids or crosses whether they were covered by the *Botanical Code* (hybrid formulae, preceded by ×) or by the *Cultivated Plant Code*, where it took the form of a phrase in a modern language, such as *Lilium* Bellingham Hybrids. One specific type of collective name was the grex (Art. 40 / Art. 18) and this was widely used in a range of cultivated plants, such as lilies and rhododendrons. A specific example given in the 1961 *Code* was *Rhododendron* (Jalisco grex) ‘Jalisco’.

A major revision of the ICNCP in 1995 brought about the transformation of the collective name into the Cultivar-group (Art. 4), in subsequent

Codes known as the Group. The above example would become, therefore, *Rhododendron* Jalisco Group 'Jalisco', although there is no registered cultivar 'Jalisco' in *Rhododendron* (*Rhododendron* Register & Checklist, 2nd Edition, 2004). It was at this point that the grex was restricted in application to the orchids (Note 4), on the basis of its long-standing usage in that group of plants, and the emphasis on parentage, rather than shared characteristics, which has been prevalent in that group. Subsequent *Codes* have further accentuated the distinction between the category of grex as applied only to orchids and that of Group for all other kinds of cultivated plant. The 2009 *Code* goes so far as to recognise the grex as a separate category, reflecting the requirement for the parents of a grex to be a botanical species or another grex.

The assumption inherent in this distinction is that for all Groups, even for those based solely on parentage, there is at least one shared character that will define the group taxonomically. In the most recent *Code* (2009), Art. 3.1 states, "The formal category which may comprise cultivars, individual plants or combinations thereof **on the basis of defined character-based similarity** is the Group" [author's emphasis]. Despite this assumption, specialists working on a number of different kinds of plants have continued to circumscribe and name sets of cultivars with a shared parentage but which share no unifying characteristic other than those general for the genus or infrageneric taxon to which they belong. At present these are, for lack of any other category which can be used, treated as Groups even though they do not comply with the strict definition of the Group.

An example may be found in the current practice for grouping cultivar names in *Saxifraga*. Historically *Porophyllum Saxifraga* hybrids have been grouped together using a latinised binomial name (e.g. *S. × boydii*, for *S. aretioides* × *S. burseriana*). Following the change in the ICNCP in 1995, the Saxifrage Society was encouraged to change to the Group system. This was actively promoted and to date 30 Group names have been published (e.g. *Saxifraga* Swing Group for *S. poluniniana* × *S. wendelboi* and *Saxifraga* Safran Group for *S. meeboldii* × *S. poluniniana*). These Group names are solely based on known parentage and have no character-based similarity. This is due to the fact that when two dissimilar saxifrages are hybridised, a wide range of different-looking plants is produced. There are

also currently 89 latinised binomials that represent hybrid combinations that have been produced in cultivation and often comprise a number of known species (e.g. *S. × baccii* for *S. aretioides* × *S. lilacina* × *S. media* × *S. stoltzkae*). These are currently considered as botanical epithets, but could potentially be treated as grexes under the ICNCP.

There seem to be few, if any, adverse consequences from broadening the application of the grex. The Commission may consider it appropriate not to make the provision retroactive, to avoid problems that might arise from reinstating names that had originally been grex names and which were, from 1995 onwards, treated as Group names. This would have the effect of requiring the formal establishment of new grex names, based on existing “Group” names, after the date from which such an amendment becomes effective.

REFERENCE

Brickell, C.D., Alexander, C., David, J.C., Hetterscheid, W.L.A., Leslie, A.C., Malecot, V., Jin, X. & Cubey, J.J. (2009). International Code of Nomenclature for Cultivated Plants, edn 8. *Scripta Horticulturae* **10**: i–xix, 1–184.

A proposal to amend the *International Code of Nomenclature for Cultivated Plants* (H11)

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Proposal H11: Translation of epithets

(H11) Art. 32.1 Add to Note 1:

Note 1. Notwithstanding Art. 32.1, when for marketing purposes a cultivar or grex epithet has been translated into a different language, the translated epithet is to be regarded as a trade designation (Art. 13.1). *However, the Code does not support this practice when the resulting trade designation replicates an existing epithet in the denomination class concerned. In such circumstances the use of an alternative trade designation is encouraged.*

Add new example, Ex. 3 *bis*:

Ex. 3 *bis*. *In the case of a Rhododendron cultivar epithet ‘Braune Augen’, it would be inadvisable to refer to it under the translated trade designation BROWN EYES since it might be confused with the existing Rhododendron ‘Brown Eyes’.*

Although trade designations are not regulated by the *Code*, it is felt that further guidance is needed where their use has the potential to cause confusion with epithets established under the *Code*. Art. 32.1 states “When a cultivar or grex name appears in a publication using a different language from that of its original publication, the epithet may not be translated” and Note 1 states “when for marketing reasons a cultivar or grex epithet has been translated into a different language, the translated epithet is to be regarded as a trade designation”. If such trade designations were always accompanied by their cultivar or grex epithets, confusion should be avoided. However, in practice it seems unlikely that both the trade designation and epithet would be listed together all the time. This has the potential to cause confusion when the translation replicates an established epithet. For example, within the non-bulbous

Iris denomination class, the cultivar epithet 'Barbe Noire' has recently been established. If Art. 32.1 and Note 1 as they currently stand were not strictly adhered to as discussed above, this cultivar could be confused with the already established *Iris* 'Blackbeard' of the same denomination class.

Consequently it is proposed that the above amendment and example be added to Art. 32.1, Note 1 in order to minimise the risk of confusion.

REFERENCE

Brickell, C.D., Alexander, C., David, J.C., Hetterscheid, W.L.A., Leslie, A.C., Malecot, V., Jin, X. & Cubey, J.J. (2009). International Code of Nomenclature for Cultivated Plants, edn 8. *Scripta Horticulturae* **10**: i–xix, 1–184.

Proposals to amend the *International Code of Nomenclature for Cultivated Plants* (H12–H15)

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Proposal H12: Letter-coding and numbering of clauses of the *Code*

(H12) All the clauses (each represented by a paragraph) of the parts (Preamble, Division I, separate individual Articles, Divisions III, IV, and V) are to be numbered by a consecutive part number followed by a dot and a consecutive clause number within the relevant part, and these numbers are to be preceded by code letters indicating the clauses' respective nature, as illustrated in the following schematic examples. Preamble (Pa): Pa1.1, Pa1.2, etc.; Principles (Pi): Pi2.1, Pi2.2, etc; Articles: A3.1, A3.2, N3.3, N3.4, E3.5, E3.6, A3.7, E3.8, N3.9, Rc3.10, N3.11., E3.12, etc., A4.1, E4.2, N4.3, N4.4, A4.5, A4.6, Rc4.7, Rc4.8, N4.9, N4.10, E4.11, E4.12, etc., where A, N, E, and Rc represent Article, Note, Example, and Recommendation respectively, with A3.1 for example being the code and number for the first clause (which is a Rule) in the first Article after the preceding Principle, N3.3, E3.5, Rc 3.10 for the third, fifth, tenth clause (which happen to be a Note, an Example, and a Recommendation respectively) in the same Article, and A4.1 for the first clause (which is a Rule) in the second Article; in Divisions III, IV, and V, the code for clauses in *Names of Hybrid Genera* would be H; that for *Registration of Names* would be Rg; that for *Nomenclatural Standards* would be S; that for *Modification of This Code* would be M. Any of the few clauses in the current *Code* that comprise more than one paragraph should either have the paragraphs joined together, or have them treated as separately numbered clauses.

The current numbering scheme of the *Code* does not facilitate reference and cross-reference of its clauses, because there are unavoidably duplicate numbers for clauses that belong to different parts of the *Code*, and because the clauses often cannot be found quickly by their numbers (for example, in Art. 2 of the current *Code*, the number “Note 5” gives no clue to the fact that this Note is three pages away from Note 4 and can only be found below Art. 2.19). The proposed scheme would enable the

clauses to be easily located by their consecutive numbers in each part and in the whole text of the *Code*.

Proposal H13: ICN taxa, ICN names and ICN epithets

(H13) The terms “*ICN* taxa”, “*ICN* names” and “*ICN* epithets” (and their singular forms) are proposed to replace the terms “taxa under the *ICBN*”, “names in Latin form”, “epithets in Latin form”, and similar expressions currently used in the *Code*.

The taxa under the ICBN (*International Code of Botanical Nomenclature*) are often referred to as such, and their names, and epithets in such names, are mentioned as “names in Latin form” and “epithets in Latin form” (sometimes with “form” omitted, or occasionally called “Latin names” and “Latin epithets”). These terms are wordy and/or indiscriminating because “in Latin form” is not a distinguishing character for names and epithets of the taxa under the ICBN, since the taxa under the ICNCP (including cultivars, Groups, grexes and, at generic level, graft-chimaeras) also may sometimes or always have their epithets or names in Latin form. The proposed terms would be concise and explicit for denoting the taxa and their names and epithets under the ICN (*International Code of Nomenclature for algae, fungi, and plants*, or Melbourne Code (McNeill *et al.*, 2012)), which is the new title for the ICBN.

Proposal H14: Names and epithets of cultivars, Groups, and grexes

(H14) Art. 8.1 [Modified from part of Art. 8.1 of the current *Code*] The name of a cultivar *is a word or a code or a combination of words that denotes the cultivar. The cultivar name should, unless in situations as stated in Art. 21.2 Note 1, appear together with the name of the genus or lower taxon to which the cultivar is assigned, or its unambiguous common name.*

Ex. 1. *Fragaria* ‘Cambridge Favourite’, *Fragaria* × *ananassa* ‘Cambridge Favourite’, strawberry ‘Cambridge Favourite’ (*in English*), ‘Cambridge Favourite’ strawberry, Erdbeere ‘Cambridge Favourite’ (*in German*), fraiser ‘Cambridge Favourite’ (*in French*), and ‘Cambridge Favourite’ morangueiro (*in Portuguese*) have the same cultivar name written

together with the generic or specific ICN name to which the cultivar is assigned, or its unambiguous common name.

Add: Ex. 2. +*Crataegomespilus* ‘Jules d’Asnières’, Bronvaux medlar ‘Jules d’Asnières’ (in English), and 山楂海棠 ‘Jules d’Asnières’ (in Chinese) have the same cultivar name written together with the name of the graft-chimaeral genus in Latin to which the cultivar is assigned, or its unambiguous common name.

Note 1. [Unchanged, but the concept of “name” in this Note would be different with the change of Art. 8.1.]

Note 2. Anyone using a trademark in marketing a cultivar should be aware of the risk of the trademark becoming generic (*i.e. available for free use*) unless an accepted name is also given for the cultivar. The trademark should always be accompanied by an accepted name (see Art. 17.2 and Appendix X). [Unchanged except that the first part of the footnote has “general” changed to “free” and incorporated into the text in brackets, and the second part is deleted.]

Add: [Modified from part of Art. 8.1 of the current Code] Art. 8.2 *The name of a Group is a word or a combination of words that denotes the Group. The Group name should, unless in situations as stated in Art. 21.2 Note 1, appear together with the name of the genus or lower taxon to which the Group is assigned, or its unambiguous common name.*

Ex. 3. [Ex. 2 of the current Code] *Alcea rosea* Chater’s Double Group, *Alcea* Chater’s Double Group, hollyhock Chater’s Double Group (in English), rose trémière Groupe Chater’s Double (in French), Stockrose Chaters Doppelte Gruppe (in German), and stokroos Chaters Dubbele Groep (in Dutch) have the same Group name written together with the generic or specific ICN name to which the Group is assigned, or its unambiguous common name.

Art. 8.3. [Art. 8.2 of the current Code] *The name of a grex is a word or a combination of words that denotes the grex. The grex name should, unless in situations as stated in Art. 21.2 Note 1, appear together with the name of the genus to which the grex is assigned.*

Ex. 4. [Ex. 3 of the current *Code*] *Spiranthes* Awful grex, lady's tresses Awful gx (*in English*), schroeforchis Awful grex (*in Dutch*), and Drehwurz Awful grex (*in German*) *have the same grex name written together with the generic ICN name to which the grex is assigned, or its unambiguous common name.*

Art. 8.4. [Art. 8.3 of the current *Code*] Names of cultivars, Groups, and grexes are to be written in such a way so as to *indicate their status* (Art. 14–16).

Ex. 5. [Ex. 4 of the current *Code*] *Iris* 'Cantab' is a cultivar, *Begonia* Elatior Group is a Group, and *Paphiopedilum* Sorel gx is a grex. [Some redundant and distracting words are deleted to focus on "to indicate their status"]

Note 3. [Unchanged.]

Art. 8.5 [Art. 8.4 of the current *Code*. Unchanged except that "Epithets in the names" is replaced by "Names".]

Rec. 8A.1. [Unchanged except that "Epithets in names" is replaced by "Names", "names of the taxa" is replaced by "names of the ICN taxa or graft-chimaeral genus", and "ICBN" is replaced by "ICN".]

Art. 21.2 Note 1. When the name of the genus or lower taxon is obvious from the context without confusion, the cultivar *name* may appear alone or separate from the *name of the genus or lower taxon*.

Ex. 6. [Unchanged except that "epithets" is replaced by "names".]

The current treatment that "The name of a cultivar or Group consists of a combination of the name of the genus or lower taxon to which it is assigned with a cultivar or Group epithet" (Art. 8.1) does not reflect the wide practice of the International Cultivar Registration Authorities (ICRAs) appointed by the ISHS Commission for Nomenclature and Cultivar Registration. Many if not all of their application forms for registration of new cultivar names (and Group names) have no entry for "epithet" but have the entry for "cultivar name" (or "Group name") instead, sometimes side by side with the entries for generic names, species names and infraspecific names under the ICBN.

Although the Application Form for Registration of an Orchid Hybrid provides the entry for “grex epithet” in accordance to Art. 8.2 which states “The name of a grex consists of the name of the genus to which it is assigned together with a grex epithet”, the term “grex name” is nevertheless used as a convenient substitute for the term “grex epithet” in some explanatory information provided online to the public.

Statutory plant registration authorities (SPRAs) established by Contracting Parties to UPOV do not use the term “(variety) epithet” in the sense of “cultivar epithet”, nor do they use the term “(variety) name” in the sense of “cultivar name” that comprises an ICBN botanical Latin name (or an unambiguous common name) plus a cultivar epithet. Instead, they use “generic designations” and “variety denominations”, which are “statutory epithets” equating to “cultivar epithets” but are erroneously recognised by the ICNCP as equivalent to the term “names” or “cultivar names” defined in this *Code* (see Art. 8.1 Note 1 and Art. 27.5 Note 3). Obviously, the terms of cultivar or Group or grex “epithets” and “names” in the sense of the current *Code* have no legal standing and are not widely used by many of the professional and non-professional people involved in naming and using the names of cultivated plants. In practice, only ICNCP “names” in the sense of the current “epithets” governed by the *Code* are proposed, published, established, accepted, registered, chosen, re-used, rejected, or conserved in accordance with the regulations of the *Code*.

Treating the name of a cultivar, Group or grex as consisting of an ICBN name (or ICN name from now on) (or its unambiguous common name) plus an ICNCP epithet has an undesirable effect that the name in its current sense thus formed for one and the same ICNCP taxon may be written differently due to differences in the choice of the ICN name based on the botanical taxonomic opinion or in the choice of the common name based on the language or local preference, which are nevertheless not regulated by the ICNCP. A logical question may also be raised as to whether the cultivar, Group or grex name in its current sense would become a non-scientific name, if the ICN part of the name were replaced with a common name (which itself is never regarded as a scientific name).

It is therefore more in line with common practice and neater in concept to change the current term “epithet” of ICNCP taxa to “name”, and abandon

the current concept of the term “name” altogether, by introducing a rule that the names (currently epithets) should normally appear together with the correct ICN name, or with its unambiguous equivalent common name, unless in situations as stated in Art. 21.2 Note 1. It may be pointed out incidentally that the situations stated in Art. 21.2 Note 1 are in fact quite common, as can be seen in many of the Registers, where often the cultivar names (currently epithets) only are listed without repetition of the generic name shared by all the cultivars specific to the Register or part of it that is devoted to the same genus.

As shown in some of the changes made of the Articles, Notes, and Examples above, the whole text of the *Code* needs to be checked systematically to accommodate the proposed change in concept of the term “name” and “epithet”. The *Code* would then be clearer and more consistent in this regard, avoiding the current uncertainty as to whether we should establish names, such as stated in Art. 27.1, Art. 27.5, Art. 27.6, 27F.1, and Div. V. 5, or epithets (including variety denominations, which are statutory epithets), such as stated in Art. 11.2 Ex. 1, Art. 16.4 Ex. 3 and Ex. 4, Art. 27.5 Note 1, Art. 27.6 Note 2, 27F.2, Art. 35.10, and Div. V. 6.

It is proposed that Art. 8.1 is split into Art. 8.1 and a new Art. 8.2, to accommodate the regulation that a cultivar name may be or may include a code, while a Group name may not (see Art. 21.25 and Art. 22.4).

In some of the Examples above, for consistency, “(in English)” is added where the common names are written together with cultivar, Group, or grex names (currently epithets), since English should not be an exception when other languages are indicated in brackets.

The “not protected by legislation” part of the footnote to Note 2 should be deleted, because it is potentially confusing in that “generic designation” in Note 1 immediately above denotes a name that is, on the contrary, “protected by legislation”.

For completeness, it is proposed that a new Ex. 2 is added to illustrate the name of a cultivar written together with the generic name of an intergeneric graft-chimaera (the name of a graft-chimaeral genus) in Latin form, or with an equivalent common name. The term “graft-chimaeral genus” currently appears only in the definition of “condensed formula” in the Glossary, but

should be more widely used in the *Code* in parallel to “hybrid genus” or “nothogenus”, especially in cases where it is intended to refer to the “graft-chimaeral genus” without mentioning its “name”. For example, in the Preface of the current *Code*, the statement that “genus” should be taken to include nothogenus and the generic name of an intergeneric graft-chimaera could be more conveniently expressed as “...to include nothogenus and graft-chimaeral genus” – the concept of “genus” can include “graft-chimaeral genus”, but cannot include “the generic name of an intergeneric graft-chimaera”. In Principle 2, and Arts 18.3, 25.3, 26.1, 27.1, 27.3, 28.6, the “generic name(s) of (the/an) intergeneric graft-chimara(s)” could be substituted with the less wordy “name(s) of (the/a) graft-chimaeral genus (genera)”.

Proposal H15: A denomination itself is not a taxon but may comprise one

(H15) Art. 6.4 When a denomination class *comprising a single* ICN taxon is divided or when two or more such denomination classes are united, the Rules of the *ICN* apply (*ICN*, Art. x.y) unless a *special* denomination class is established under the provisions of Art. 6.2.

The wording of the current Art. 6.4 may give a false impression that “a denomination class is a taxon whose nomenclature is governed by the *ICBN*”, which it is not, as explained in the Glossary for denomination class: “This is not recognized as a formal category under the *ICBN*”. Adjustment of the wording would avoid this potential ambiguity; thus “different denomination class” is to be changed to “special denomination class” in agreement with Art. 6.2 to which it is referred. *ICBN* and botanical nomenclature are to be changed to *ICN*.

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International registration for cultivar names for *Hydrangea* L. 2006–2011

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During the last six years, five cultivar names of *Hydrangea* were registered at Horticultural National Institute (I.N.H.), Angers, now Agrocampus-Ouest Centre d'Angers, with the International Cultivar Registration Authority (ICRA). The aim of this step is to provide for a wide circulation of the names, reducing the possibility of the same name being used for different cultivars.

In the following text, the raiser and the breeding date are given after the cultivar epithet; the commercial denominations are in capitals.

***Hydrangea macrophylla* subsp. *macrophylla* 'Vehuiah'**, Pierre Michel-Kerneur 2004, registered June 12, 2006 by J. Thoby, Pépinière Botanique, 40330 Gaujacq, France. The original plant is a chance seedling. This cultivar is a lacecap and is characterised by sterile flowers with white centre and large blue or pink margins. A photograph and a plant have been deposited at Agrocampus-Ouest, Centre d'Angers.

***Hydrangea macrophylla* subsp. *macrophylla* 'Nith Haiah'**, Pierre Michel-Kerneur 2003, registered June 12, 2006 by J. Thoby, Pépinière Botanique, 40330 Gaujacq, France. The original plant is a chance seedling. This cultivar is a very compact plant with mophead inflorescences. A photograph has been deposited at Agrocampus-Ouest, Centre d'Angers.

***Hydrangea macrophylla* subsp. *macrophylla* 'PIIHM-I'**, Dr M.A. Dirr 2003, registered May 1st, 2009 by L. Robinson, Bailey Nurseries, St Paul, Minnesota, USA. This cultivar is marketed as TWIST-N-SHOUT. The original plant is a seed selection of controlled pollination. This cultivar is characterised by pink sterile flowers (81C) and by its reblooming flowers. US Plant Patent #20,176, July 7, 2009. The story of this cultivar and a photo of the flowers has been published by Dirr (2008).

***Hydrangea quercifolia* ‘Ruby Slippers’**, S.M. Reed 2005, registered February 24, 2010, by Sandra M. Reed, US National Arboretum, 472 Cadillac Lane, McMinnville, TN 37110, USA. The original plant is an F₂ seedling produced from crossing *H. quercifolia* SNOW QUEEN (‘Flemygea’) and ‘Pee Wee’. This new compact cultivar differs from others in having a very dense habit and large upright inflorescences that age to a deep rose. A photograph has been deposited at Agrocampus-Ouest, Centre d’Angers. A description of this cultivar has been published by Reed (2010).

***Hydrangea quercifolia* ‘Munchkin’**, S.M. Reed 2003, registered February 24, 2010, by Sandra M. Reed, US National Arboretum, 472 Cadillac Lane, McMinnville, TN 37110, USA. The original plant was produced from controlled pollination of seedlings from open pollination of ‘Sikes Dwarf’. This new compact cultivar differs from others in having a very dense habit and medium-sized upright inflorescences that age to a medium pink colour. A photograph has been deposited at Agrocampus-Ouest, Centre d’Angers. A description of this cultivar has been published by Reed (2010).

During these five years many cultivars were registered by statutory authorities: UPOV (International Union for the Protection of new Varieties of Plants), CPVO (Community Plant Variety Office) and USPTO (United States Patent and Trademark Office). They can be found online at the following addresses: www.upov.int, www.cpvo.europa.eu, <http://patft.uspto.gov>.

Cultivars should be registered as soon as possible, as this is in the best interest of all parties involved. This would ensure greater consistency between labels and plants, and better communication between breeders, growers, and customers.

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New lilac cultivar name registrations¹

F. VRUGTMAN

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Commencing with Lilac Registrations 1995, standard portfolios are being established in accordance with Division V: Nomenclatural Standards of the *International Code of Nomenclature for Cultivated Plants*, edn 8 (2009).

Previous registration lists of *Syringa* cultivar names appeared in *AABGA Bulletin* (13(4): 105–110; 14(3): 95; 15(3): 71–72; 16(4): 131–132; 17(3): 67–69; 18(3): 87); *HortScience* (23(3): 458; 24(3): 435–436; 25(6): 618; 26(5): 476–477; 29(9): 972; 31(3): 327–328; 32(4): 587–588; 33(4): 588–589; 34(4): 600; 35(4): 549; 36(5): 836; 37(7): 1145; 38(6): 1301; 39(6): 1524; 40(6): 1597; 42(1): 5; 43(3): 589); *Hanburyana* 5:5–7.

Syringa komarowii subsp. *reflexa* ‘Beautiful Susan’ was registered 25 May 2011, by Kent A. Millham, Highland Botanical Park, 180 Reservoir Avenue, Rochester, NY 14620, USA. The original plant (BHS 6) was raised from seed of unknown parentage about 1930 and selected by Bernard H. Slavin (1874–1960) at Highland Botanical Park. The final selection was made by Kent Millham in the 1980s; plants were first propagated in 1985. Commercial introduction will be by Syringa Plus Nursery, P.O. Box 363, West Boxford, MA, 01885, USA, and Select Plus Nursery, 1510 Pine, Mascouche J7L 2M4, Quebec, Canada. The selection was named in 2008 by Kent Millham for his late wife, Susan Taskett Millham (1951–2007). The name was first published, albeit erroneously, as *S. pubescens* subsp. *reflexa*, in *Lilacs – Quarterly Journal of the International Lilac Society* 40(1): 6, January 2011, and correctly in 40(2): 47, March 2011, with illustration

¹ Contribution No. 193, Royal Botanical Gardens, Hamilton, Ontario, Canada.

² All correspondence concerned with additional information or plants or propagules of newly registered lilac cultivars should be directed to the registrants listed below, not to the Registrar.

on back cover. The selection is a large, vigorous shrub, 4.5m tall and 6m in diameter at maturity. It is a late-flowering lilac, usually blooming two weeks after *S. vulgaris* cultivars and three weeks after *S. × hyacinthiflora* and *S. oblata* cultivars. Thyrses nodding, 14 to 20cm long, 11cm wide; flower buds with colour Red-Purple Group 62B (*RHS Colour Chart* 1966); opening to single florets, Red-Purple Group 62D, about 9.5mm in diameter; corolla lobes reflexed; fragrant. Known to be hardy in USDA Zone 6; probably hardy at least to Zone 5. Recommended propagation is through softwood cuttings, which root quite easily. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (**HAM**), but is still incomplete.

***Syringa vulgaris* ‘Maggie Brooks’** was registered 25 May 2011, by Kent A. Millham, Highland Botanical Park, 180 Reservoir Avenue, Rochester, NY 14620, USA. The original plant was raised from open-pollinated seed of ‘Rochester’ about 1975 and selected by the late Richard A. Fenicchia (1908–1997) at Highland Botanical Park and tagged #1723. The final selection was made by Kent Millham in the 2000s; plants were first propagated in 2007. Commercial introduction will be by Lilac Hill Nursery, 2366 Turk Hill Road, Victor, NY 14564, USA. The selection was named in 2011 by Kent Millham for Ms Maggie A. Brooks (born 1955), a broadcasting personality and politician, elected 2003 as County Executive of Monroe County, New York. The name was first published in *Lilacs – Quarterly Journal of the International Lilac Society* 41(2): 54, 2012. The selection is a large shrub, 2.5 to 3m tall and 1.5 to 1.8m in diameter at 20 years of age. Thyrses up to 21cm long, to 14cm wide; flower buds with colour Violet Group 84B (*RHS Colour Chart* 1966); opening to predominantly single florets, Violet Group 84C, 22mm in diameter; newly opened florets slightly cucullate, slightly reflexed as floret ages; fragrant. Known to be hardy in USDA Zone 6; probably hardy to Zone 4. Recommended propagation is through softwood cuttings. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (**HAM**), but is still incomplete.

***Syringa* (Villosae Group) ‘Sun and Moon’** was registered 8 September 2011 by Stephen Nelson, Darasina Nursery, Writtle Park Farmhouse, Writtle Park, Edney Common, Chelmsford, Essex CM1 3QF, UK. The original plant was raised from open-pollinated seed of *Syringa wolfii*; pollen parent possibly *S. villosa*, but definitely not *S. emodi*. Sown 1998, first bloom 2003, initial vegetative propagation 2005; the selection was

made by Stephen Nelson. Commercial introduction will be by Darasina Nursery. The selection was named in 2011 by Stephen Nelson; the name 'Sun and Moon' alludes to the golden foliage and white flowers; standing out especially in twilight and moonlight, and having luminescent quality. The selection is a vigorous shrub with golden foliage; leaf blade elliptic-oblong 12.5cm × 6cm, pubescent above, villous below. Thyrses up to 15cm long, to 10cm wide; flower buds pale lilac-rose, Red Group 49D (*RHS Colour Chart* 1995); opening to single florets, white, 2cm long, 1cm wide; corolla lobes flat, hooded at tips; yellow anthers inserted below mouth of corolla tube. Flowers faintly, pleasantly fragrant. Ultimate size of shrub and winter hardiness not yet established at time of registration. The cultivar name was established by publication in *Lilacs – Quarterly Journal of the International Lilac Society* 41(1):16–17 (January 2012). A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa* 'Foxey Lady'** was registered 28 June 2012 by John H. Alexander III in behalf of The Arnold Arboretum of Harvard University, 125 Arborway, Jamaica Plain, MA 02130, USA. The original plant was selected from a batch of seedlings (accession AA 104-82) raised from seed of open-pollinated AA113-30 (*S. pubescens* subsp. *microphylla* × *S. meyeri*) which in turn resulted from open-pollinated seed of AA 7199 which was a plant of *S. microphylla* received by The Arnold Arboretum from Veitch Nursery, Exeter, UK, December 1913, and was raised from William Purdom seedlot No. 583 (Sargent, C.S. 1913. *Plantae Wilsonianae; an enumeration of the woody plants collected in western China for the Arnold Arboretum of Harvard University during the years 1907, 1908, and 1910*, p.55). The original plant, the seedling, dates from 1982; at the age of 30 years it is about 2.5m tall and 5m in diameter. A tentative selection was made about 1995; the initial propagation from cuttings took place in 1997 (AA 784-97); the final selection was made in 2008. The cultivar has been selected, named, described and introduced by John H. Alexander III in behalf of The Arnold Arboretum of Harvard University. Initial distribution took place in 2010 when a plant was sold at the International Lilac Society auction. The selection has been named after the song 'Foxey Lady' by artist Jimi Hendrix (1942–1970), retaining the original 1967 spelling. Flower buds Purple Group 75A, florets single, opening to Purple Group 75C (*RHS Colour Chart* 1966); fragrant; very floriferous; each floret similar

to those of the parents, but the abundance of bloom and the pinkish colour are outstanding, somewhat like a much improved *S. pubescens* subsp. *microphylla* 'Superba'. Flowering shortly after the peak of bloom of *S. vulgaris* cultivars. Limits of winter hardiness have not yet been established, but known to be hardy in USDA Zone 6. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa vulgaris* 'Bacio di Amore'** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. vulgaris* 'Pixie' at Select Plus International Nursery. Flowers were first observed by Corinna and Cameo Moro in 2010; named by Corinna Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds dark purple; florets single, purple to violet with violet water marks in the inner part which fade as flowers mature; petals recurved; flowers strongly fragrant. Shrub with rounded habit. Known to be hardy in USDA Zone 4. The Italian phrase *bacio di amore* translates to "kiss of love". A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa vulgaris* 'Bella Donna Sara'** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. vulgaris* 'Excellent' at Select Plus International Nursery. Flowers were first observed by Corinna and Cameo Moro in 2010; named by Corinna Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Florets single, white; florets have distinct folds or furrows in each petal unlike any other lilac seen. Fragrance extremely sweet. Shrub with rounded habit. Known to be hardy in USDA Zone 4. Named for Sara Moro, wife of the originator. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa vulgaris* 'Cristalli di Cortina'** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. vulgaris* 'White Lace' at Select Plus International

Nursery. Flowers were first observed by Corinna and Cameo Moro in 2010; named by Corinna Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds greenish white, opening to a very crisp pure white single floret; petals have a very satiny appearance. Thyrses up to 50cm long. Shrub with rounded habit. Known to be hardy in USDA Zone 4. Named for the crystals of the city of Cortina, Italy. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (**HAM**), but is still incomplete.

***Syringa vulgaris* 'Lilac Lady'** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised by the late Joel Margaretten (1910–1998) at Margaretten Park, Leona Valley, California, USA, from open-pollinated seed of *S. vulgaris* 'Mme Lemoine'. Margaretten originally named this selection 'Reva Ballreich', a name rejected since it had been used by Max Peterson in 1988 for a double, pinkish *S. vulgaris* selection. The name 'Reva Ballreich' (Margaretten) was never established; there is no known publication of this name with a description. Described and named by Frank Moro. Commercial introduction of 'Lilac Lady' will be by Select Plus International Nursery. Florets double, clear white. Shrub with rounded habit. Known to be hardy in USDA Zone 4. Named for Reva Ballreich (1925–2009), president of the International Lilac Society 1992–1997. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (**HAM**), but is still incomplete.

***Syringa vulgaris* 'Moondust'** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from a sport (bud mutation) of *S. vulgaris* 'Nadezhda' at Select Plus International Nursery. Flowers were first observed by Cameo Moro in 2008; named by Corinna Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds whitish purple. Florets double, bicolor; predominately white, tinted light purple within. Petals flat when fully opened. Florets on lower part of thyrses appear more powdery purple and are less pronounced. The name Moondust refers to its milky-white appearance. Flowers very fragrant. Shrub with rounded habit. Known to be hardy in USDA Zone 4. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (**HAM**), but is still incomplete.

***Syringa vulgaris* ‘Taylor Mitchell’** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. vulgaris* ‘White Lace’ at Select Plus International Nursery. Flowers were first observed by Cameo Moro in 2010; named by Frank Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds lavender pink; florets whitish lavender with reflexed petals. Fragrance very sweet, somewhat similar to the fragrance of baby powder. Known to be hardy in USDA Zone 4. Named for the late Taylor Mitchell, which was the stage name of Taylor Josephine Stephanie Luciw (1990–2009), Canadian folk singer and songwriter. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa pubescens* subsp. *patula* ‘Colby’s Starburst’** was registered 29 June 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. pubescens* subsp. *patula* ‘Excellens’ at Select Plus International Nursery. Flowers were first observed by Cameo Moro in 2003; named by Cameo Moro. Final selection and description by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds pinkish prior to opening at the tips; the tight area just below the bud tip is white; going down the tube there is a small area of luminescent light purple, and the base of the tube is white. On opening, the thyrses give the impression of a pink starburst. Florets single, white when fully open, with the tube retaining the white, pink, white coloration. Fine fragrance, much sweeter than any other known *patula* cultivars. Shrub with rounded habit. Known to be hardy in USDA Zone 4. Named for Colby Moro, son of Sara and Frank Moro. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

***Syringa pubescens* subsp. *patula* ‘Tanika’s’** was registered 1 July 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. pubescens* subsp. *patula* ‘Excellens’ at Select Plus International Nursery. Flowers were first observed by Frank Moro in 2009. Selected, named and described by Frank Moro. Commercial introduction

will be by Select Plus International Nursery. Flower buds medium to light pink, opening to a white, single floret. Flowers highly fragrant; much more sweet-scented than the nominate subspecies. Named for Tanika, a friend of the Moro family in Airlie Beach, Australia. Shrub with rounded habit. Known to be hardy in USDA Zone 4. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

Syringa pubescens subsp. ***patula*** ‘**Wonderland**’ was registered 1 July 2012 by Frank Moro, Select Plus International Nursery, 1510 Pine, Mascouche J7L 2M4 Quebec, Canada. The original plant was raised from open-pollinated seed of *S. pubescens* subsp. *patula* ‘*Excellens*’ at Select Plus International Nursery. Flowers were first observed by Cameo Moro in 2009. Selected and named by Cameo Moro; described by Frank Moro. Commercial introduction will be by Select Plus International Nursery. Flower buds dark purple; floret tubes retain colour well during opening phase of florets. Florets single, white, with strong, sweet fragrance. Foliage turning reddish in autumn. Shrub with rounded habit. Known to be hardy in USDA Zone 4. Named for *Alice’s Adventures in Wonderland*, the 1865 novel by C.L. Dodgson written under the pseudonym Lewis Carroll. A standard portfolio has been opened at Royal Botanical Gardens Herbarium (HAM), but is still incomplete.

The correct name for the Korean willow-leaved spicebush

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Lindera is a genus of about 100 woody species mainly from eastern Asia. *Lindera benzoin*, the spicebush, one of only three species present in eastern North America, is the one most commonly cultivated for its aromatic foliage and autumn colour. Ten species are listed in the *RHS Plant Finder 2012–2013*, with about 17 species covered in *New Trees* (Grimshaw & Bayton, 2009).

Willow-leaved spicebush is a vernacular name for the Korean tree appreciated particularly for autumn colours, and usually grown as “*Lindera salicifolia*” or “*Lindera glauca* var. *salicifolia*”. A web search revealed universal horticultural use of these names – alas, they are botanically invalid. This small tree is as yet quite rare in Britain and Europe, and is more commonly cultivated in North America. Collections from Korea are in the process of being propagated for the UK market, and consequently Bleddyn Wynn-Jones of Crûg Farm Plants enquired about the valid name. Material of Korean origin in cultivation at the JC Raulston Arboretum of North Carolina State University was made available, which compared well with herbarium material of *L. angustifolia*.

Most of the pioneering investigation of the Korean flora was published by Japanese botanists, particularly Takenoshin Nakai (1882–1952). Several factors provided Japanese botanists unrivalled access to Korea for plant collections. These included the Japanese victory in the Sino-Japanese war of 1894–1895, which forced China to recognise Korean “independence”, followed in 1910 by the Japanese formal annexation of Korea which led to Japanese control of the Korean peninsula, lasting until the close of the Second World War in 1945. One consequence of this is the relative obscurity of the relevant literature to Western botanists.

The entry in *New Trees* (Grimshaw & Bayton, 2009: 454) treats *L. angustifolia*, *L. glauca* and *L. salicifolia* together under the heading of *L. glauca*, as no recent taxonomic treatment was available when the text was prepared. Too late for inclusion in *New Trees*, the *Flora of*

China treatment of *Lauraceae* was published (Cui & van der Werff, 2008) recognising *Lindera glauca* and *L. angustifolia*, but without mentioning "*L. salicifolia*" which is an extralimital Korean taxon.

The two species are distinguished as follows:

L. glauca – young branchlets white-yellow, brown pubescent; leaf-blade broadly ovate or elliptic, occasionally nearly lanceolate; bud scales not keeled.

L. angustifolia – young branchlets yellow-green, glabrous; leaf-blade elliptic-lanceolate, apex rounded; bud scales keeled.

The plate provided in the illustrations volume of *Flora of China* 7: fig. 161, 7 & 8, depicts terminal buds with keeled and non-keeled scales.

This *Flora of China* account provides a ready means to separate the two species that were treated together in *New Trees*, and for associating the plant cultivated as "*L. salicifolia*" with *L. angustifolia*, rather than *L. glauca* as often labelled.

The Korean willow-leaved spicebush appears to be of quite limited distribution in Korea. Nakai made collections in 1929 from mountain woodland on the Tyozankan (Chozankan) peninsula on the western coast of Korea and the nearby offshore islands of Hakureito and Taiseito (Taechong-do) either side of the 38th parallel in what he called Kokai province (Hwanghae in Korean). In his field notes he observes it grew together with *Lindera glauca*, but differed in leaf shape and odour of the crushed leaves (Nakai, 1930). While he reports further collections of *Lindera glauca* from south-western Korea along with *L. erythrocarpa*, *L. obtusiloba* and *L. sericea*, which are all except *L. sericea*, sympatric on Cheju-do, no further collections of the willow-leaved spicebush came to light. It seems to be relatively local around coastal Hwanghae province, about 100 miles east of the nearest populations of *L. angustifolia* across the Yellow Sea in Shandong province on the Chinese mainland.

Nakai described his find as *Benzoin salicifolium* and the protologue reveals that the syntypes were deposited at Tokyo University Herbarium.

Unfortunately, while the online catalogue of type specimens lists these sheets, it notes that they are missing. However, a plate (t.13) was provided by Nakai (1939) in his *Flora*, along with a description. Nakai observed that Korean collections differed from the Chinese by an absence of pilose hairs on the new leaves and main veins. This was confirmed for the cultivated material available.

Nakai published a Korean woody *Flora* in parts as *Flora Sylvatica Koreana*. Part 22, published in 1939, contained the account of Korean *Lauraceae* in which Nakai reduced the plant called *Benzoin salicifolium* to a variety of *Benzoin angustifolium*. Nakai used the generic name *Benzoin* in preference to *Lindera* Thunberg (1783), which was a later homonym of *Lindera* Adanson (1763). *Lindera* Thunberg has subsequently been conserved. Hence a recombination under *Lindera angustifolia* is required to provide a valid name for this taxon:

***Lindera angustifolia* var. *glabra* (Nakai) J.M.H. Shaw comb. nov.**

- = *Benzoin angustifolium* var. *glabrum* Nakai, *Flora Sylvatica Koreana* **22**: 80–81 (1939).
- = *Benzoin salicifolium* Nakai, *Bot. Mag.* (Tokyo) **44**(517): 29 (1930) [*nom. illegit.*, non *Benzoin salicifolium* Kuntze (1891)].
- = *Lindera salicifolia* (Nakai) C.M. Pak, *Flora Coreana* **2**: 119 (1996) [*nom. illegit.* (Art. 11.4, a combination based on an illegitimate name & Art. 53.1, later homonym of *Lindera salicifolia* (Miq.) Boerlage, 1900)].
- = *Lindera nakaiana* Kamikoti, *Trans. Nat. Hist. Soc. Kagoshima College of Agriculture and Forestry* **4**(15): 3 (1935). This would be the correct name if *L. angustifolia* var. *glabra* were recognised at species rank.

Two varieties of *L. angustifolia* can now be recognised:

var. *angustifolia* – leaves apically pilose, mature leaves retaining pilose hairs on main veins. Mainland China.

var. *glabra* – leaves glabrous. Western Korea, around the 38th parallel.

Overlooked names in *Lauraceae*

During the preparation of this note it became apparent that *Lindera nakaiana* Kamikoti was missing from IPNI. Eventually, thanks to the

kindness of Dr David Boufford (Harvard University Herbaria), Dr Kentaro Hosaka and Ms Akiko Shimizu (University of Tokyo), a copy of the original paper in the rather obscure *Transactions of the Natural History Society of Kagoshima Imperial College of Agriculture and Forestry* was made available to several researchers including IPNI editors. As a result the 22 previously overlooked names published therein, all in *Lauraceae*, are now available through IPNI. (The records can be retrieved at www.ipni.org; search on plant names by entering Kamik. in the "Author standard form" box. As far as we know, Sizuka Kamikoti (1910–?) published very few other names.)

Fortunately the impact on the recent *Flora of China* (Cui & van der Werff, 2008) account is minimal as most of the new names apply to taxa within the *Flora Malesiana* region. If desired, *Phoebe gamblei* Kamik.(1935) could be added to the synonyms listed under *Phoebe chinensis* Chun (1921) in *Flora of China*.

It was further noted that *Benzoin sinoglauca* Nakai, *Flora Sylvatica Koreana* 22: 81 (1939), appears to have been overlooked during preparation of *Flora of China* nor does it appear in the earlier *Lauraceae* account in *Flora Republicae Popularis Sinicae* (Li, 1982). It is based on syntypes from Jiangxi (Kiangsi) and Zhejiang (Chekiang). According to Nakai (1939) while of similar appearance to *Lindera angustifolia* it differs in mode of growth. He wrote "branches and turions are simple, and perhaps it belongs to a different section".

It may also be useful, at least horticulturally, to note that Nakai (1939) provided botanical infraspecific names for forms of *L. glauca* (as *Benzoin glauca* f. *glabellum* Nakai) and *L. obtusilobum* (as *Benzoin obtusilobum* f. *ovatum* Nakai, f. *quinquelobum* Uyeki, and f. *villosum* Nakai), all based on Korean types. Future recombination under *Lindera* would be required before the names could be used.

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Description and history of *Syringa oblata* subsp. *oblata* ‘Frank Meyer’

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Syringa oblata Lindl. was first collected in China in the 1850s by the British explorer Robert Fortune. The plant was described as being somewhat earlier blooming than *S. vulgaris* L., as well as possibly more tolerant to late spring frosts (Fiala, 1988). A monograph of the lilacs (McKelvey, 1928) accepted *Syringa oblata* with four varieties: *S. oblata* var. *alba* Rehder; *S. oblata* var. *dilatata* (Nakai) Rehder; *S. oblata* var. *giraldii* (Lemoine) Rehder; and *S. oblata* var. *hupehensis* Pamp. All of the white-flowered forms were placed in var. *alba*. Green (1984) suggested that *S. oblata* var. *giraldii* is synonymous with the type variety, *S. oblata* var. *oblata*. Fiala (1988) accepted *S. oblata* with three varieties: *S. oblata* var. *alba* Rehder; *S. oblata* var. *dilatata* (Nakai) Rehder; and *S. oblata* var. *donaldii* J.L. Fiala. Specimens of *S. oblata* var. *alba* were collected by Fortune in the 1850s and later by the American explorer Frank Meyer in 1908 (Fiala, 1988; Fiala and Vrugtman, 2008). One of the accessions collected by Meyer (PI 23031) was given the name ‘Frank Meyer’ by Father Fiala (1988), who stated, “Because it is such an excellent white *oblata*, I have designated it in this book as *S. oblata alba* ‘Frank Meyer’ so it will not be lost or misidentified with any other form.” To be established according to the *International Code of Nomenclature for Cultivated Plants*, a new cultivar name must be accompanied by a description or a reference to a previous description that consists of a word or words that indicate one or more recognisable characters of the cultivar or distinguish the new cultivar from a previously published cultivar (Brickell *et al.*, 2009: Art. 27). Fiala included the phrase “white *oblata*”, which has one word, white, describing a recognisable character of ‘Frank Meyer’, so he established the cultivar name. However, he did not designate a standard for this new cultivar. In preparation for their treatment of *Oleaceae* in the *Flora of China* (Chang *et al.*, 1996), Green and Chang (1995) reorganised the infraspecific classification of *S. oblata* into two subspecies, *S. oblata* subsp. *oblata* and *S. oblata* subsp. *dilatata* (Nakai) P.S. Green & M.C. Chang. Fiala and Vrugtman (2008) accepted the infraspecific classification of Green and

Chang (1995), and had three cultivars under *S. oblata* subsp. *oblata*: 'Alba' (a white form), 'Frank Meyer' (a white form), and 'Giraldii' (a purple to pinkish form). We are accepting Fiala and Vrugtman's cultivars and here describe the history of and designate a standard for *Syringa oblata* subsp. *oblata* 'Frank Meyer'.

On 31 March 1908, the U.S. Department of Agriculture's agricultural explorer Frank N. Meyer procured plants of a white-flowered form of *Syringa oblata* from a market in the Fengtai district of Beijing, China under the Chinese name he recorded as *Pai ting hsien*. Meyer assigned it collection number 693 and delivered an unknown number of plants of the white-flowered lilac to the U.S. Plant Introduction Station in Chico, California in June of the same year. Shortly thereafter it was assigned Plant Inventory number PI 23031 by the U.S. Department of Agriculture's Bureau of Plant Industry, with an entry published in *Bulletin No. 142, Foreign Seeds and Plants Inventory No. 15*. It is particularly noteworthy that this lilac was acquired at the same market as two other discoveries that would later come to bear Meyer's name: *Citrus meyeri* Yu. Tanaka (Meyer collection number 691, PI 23028) and *Syringa meyeri* C. K. Schneid. (collection numbers 694 and 695, PI 23032 and PI 23033).

From Chico, California the plant was either transported or clonal material was distributed to the U.S. Plant Introduction Station at Glenn Dale, Maryland, where it was recorded as *Syringa oblata* var. *affinis* (L. Henry) Lingelsh. Although the date of its initial planting at Glenn Dale is unknown, the U.S. National Arboretum holds a herbarium specimen collected from it when it flowered in 1952, as well as a specimen from 1965 that indicated its size as a small tree 4.5m (15ft) tall, suggesting an already mature plant. Glenn Dale utilised its own numbering system for accessions in its permanent plantings, so the plant there retained its Plant Inventory number (PI 23031) and was assigned number B-53673 (a "Bell number", after the facility's former name, Bell Station). It was at Glenn Dale that Father John L. Fiala witnessed it as a large individual growing near the greenhouse, although he mistakenly believed that Meyer had collected seed and not plants, and was moved to propose the cultivar name 'Frank Meyer' for it in his 1988 book *Lilacs: The Genus Syringa*. Sadly, this magnificent plant at Glenn Dale was lost some years ago.

In 1975, propagules of the plant at Glenn Dale were brought to the closely affiliated U.S. National Arboretum in nearby Washington, DC, where there was a *Syringa* breeding program run by Dr Donald Egolf. There the selection was given accession number NA 37242 and determined as *Syringa oblata* subsp. *oblata*. The plant, or hybrids from it, was used in at least 17 crosses between the years of 1978 and 1993 that resulted in several advanced selections that are still planted in the research nursery. 'Frank Meyer' was later propagated for the public display gardens, where two individuals can be found growing today. This cultivar has also been documented as growing at the JC Raulston Arboretum in Raleigh, NC, obtained from a commercial nursery. We have prepared flowering and fruiting herbarium specimens from the two plants at the U.S. National Arboretum that were propagated from the original Glenn Dale plant, and designated here one of the flowering specimens as the standard for 'Frank Meyer'.

Syringa oblata Lindl. subsp. ***oblata*** 'Frank Meyer' J.L. Fiala, *Lilacs: The genus Syringa* 59 (1988). Standard, designated here: USA, District of Columbia, U.S. National Arboretum, cultivated, Asian Valley, NA37242-J, [fl.], 1 Apr 2012, R.D. Webster 3671 (standard, NA; duplicate of standard, HAM).

Shrubs 4–5m tall, with 3–7 stems each 3–7.5cm in diam., with the bark grey, smooth on younger stems and vertically furrowed on older stems, glabrous. Leaves opposite or closely pseudo-opposite up to 7mm apart, with the petioles 1–1.5cm long, glabrous, with the blades broadly ovate, truncate and abruptly attenuate at the base, acuminate at the apex, 6–11.5cm × 5.5–9cm, 1.1–1.3 times as long as wide, with the margin entire, with 5 or 6 pairs of arcuate lateral veins not reaching the margin, glabrous. Panicles lateral, sessile, ovoid, 9–15cm × 5–9cm, 1.5–2.2(–3) times as long as wide, with 4–6 pairs of branches, 0.5–5cm long from apex to base, all parts with short gland-tipped hairs, 0.04–0.1mm long. Flowers 4-fid, pedicellate, with the pedicels 2–3mm long, with short gland-tipped hairs, with the calyx cupulate with 4 lobes on the rim, with the cup 0.7–1mm long, c.1.5mm wide, with the lobes broadly triangular, acute at the apex, with short gland-tipped hairs outside and glabrous inside, with the corolla salverform, white, glabrous, with the tube 9–9.5mm long, 1.5–2mm in diam., glabrous, with the lobes 4, elliptic, obtuse at the apex, 6–7.5mm × 3.4–4mm, glabrous, with 2 anthers sessile, oblong, obtuse

at the base and apex, dorsifixed c. $\frac{2}{3}$ of the way up from the base of the tube, c.2mm long, with the ovary ovoid, 1–1.2mm \times c.0.8mm, green, glabrous, with the style terete, c.2mm long, glabrous, with the stigma lobes elliptic, 1–1.5mm \times c.0.5mm, glabrous. Capsules bilocular, loculicidal, compressed parallel to the septum, c.2mm \times c.0.5mm, c.0.3mm thick, glabrous, with 2 seeds in each locule, the seeds planar, narrowly obovate, 0.9–1.2mm \times 0.2–0.3mm, glabrous.

Additional specimens examined: USA: District of Columbia: U.S. National Arboretum, Asian Collections – China Valley, Bed 3, year received 1975, NA 37242-P, other associated numbers PI 23031, 319ES, and VIP-N, 28 m, 38°54'43"N, 76°57'23"W, [fr.], 16 May 2012, J.H. Kirkbride, Jr. & R.T. Olsen 6636 (NA), NA 37242-J, 6637 (NA); U.S. National Arboretum, cultivated, Asian Valley, NA37242-P, [fl.], 1 Apr 2012, R.D. Webster 3670 (NA, HAM).

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The application of the name *Cortaderia* ‘Candy Floss’ and additional notes on pink-flowered *Cortaderia*

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The application of the name *Cortaderia* ‘Candy Floss’

In 2006 a trial of pampas grasses was established at RHS Garden Wisley. One of the most striking entries was a plant submitted as *C. jubata* (Lem.) Stapf ‘Candy Floss’. This was entered by Knoll Gardens and was grown from seed collected in California by the nursery’s proprietor, Neil Lucas. Two plants were grown, both of which flowered in 2007 before being badly hit by frost in the winter of 2007–2008, only one plant reappearing and recovering weakly before being killed the following winter.

However, another pampas grass received as ‘Candy Floss’ continued to thrive at Wisley. This plant had also been donated by Knoll Gardens, having been grown from seed collected at the same time as the plants in trial. This individual was planted on the Grass Borders in 2006 where it has since been an eye-catching feature of late summer. With its pink, drooping, mane-like inflorescences it is superficially very like the female, apomictic *C. jubata*, but close inspection of the flowers reveals that it is functionally male, possessing large, fully formed anthers and setting only small seeds which failed to germinate when sown. It appears then that this plant is not *C. jubata* but an example of hermaphrodite *C. selloana* (Schant.) Asch. & Graebn. Lucas (pers. comm.) reports that in obtaining seed several plants were visited and it seems very likely these represented a mixed population.

The name *Cortaderia* ‘Candy Floss’ was first published in the 2006 Knoll Gardens Catalogue (Lucas, 2006) with the following description: “Healthy mounds of full sized foliage are crowned with large fluffy flowers of a delicate...shade of pink in late summer. Sunny open spot. Height 2m+. Semi-evergreen.” As the name was published without a specific epithet this could apply equally to *C. jubata* or the Wisley plant. There was no intention to apply the name to more than one entity and as all cultivated plants of *C. jubata* are considered an apomictic clone for which the provision of a

cultivar name would presently be superfluous, it is here proposed that the name 'Candy Floss' be restricted to the Wisley plant and its vegetatively obtained propagules. This is done with the support of the plant's raiser and to this end a more detailed circumscription is provided below. Colour references to *RHS Colour Chart* (2007).

***Cortaderia selloana* 'Candy Floss'**

Robust perennial grass to 2.5m or more. Leaves to c.190cm long by 11mm wide at midpoint, gracefully arching, sharply scabrid at margins and at midrib, becoming smooth at base, dark glaucous green (191A); ligule a ring of white, fleecy hairs to 2mm; sheath glabrous. Culms stout, just exceeding foliage at anthesis. Panicles large, one-sided, mop-like, to 60cm long, primary branches to 30cm, rachis yellow flushed red here and there, glumes and lemmas silvery grey with a flush of purplish red (187D) especially on upper lemma and on pedicels; anthers yellow (11C) to c.4mm, pollen copious.

Nomenclatural standard. A specimen taken from the plant growing at RHS Garden Wisley has been deposited at **WSY** (barcode WSY0133440) and is here designated the nomenclatural standard.

C. selloana 'Highfield Pink' differs in having glumes and lemmas flushed brownish red (187C) and leaves darker (137C); *C. selloana* 'Roi des Roses' differs in having glumes and lemmas flushed brownish red (187C) and leaves darker (147C/D) and longer (to 220cm); *C. selloana* 'Rendatleri' differs in having leaf sheaths hairy and culms greatly exceeding foliage at anthesis. However, it must be supposed that there exist other clones of hermaphrodite *C. selloana* which would appear very similar.

A young, vegetatively propagated plant of *Cortaderia selloana* 'Candy Floss' is growing well in the author's garden and further stock is to be returned to Knoll Gardens to propagate and distribute.

Confusion between *C. jubata* and hermaphrodite *C. selloana*

The clearest morphologically detectable differences between *C. selloana* and *C. jubata* are linked to their distinct breeding systems. In *C. selloana* there is general consensus that around half of plants are females and half self-incompatible hermaphrodites so that the species is reproductively chiefly dioecious (Connor, 1973). In *C. jubata* reproduction is by autonomous

apomixis and Edgar & Connor (2000) state that only female plants are known. This contradicts Stapf (1897) who describes a male inflorescence from a cultivated plant grown from seed said to have been collected by Benedikt Roezl, the introducer of *C. jubata*, stating it to be identical to specimens of *Gynerium roseum Rendatleri* [sic] in the Kew Herbarium. 'Rendatleri' is in fact a hermaphrodite cultivar of *C. selloana* so it appears either that the male plant was not grown from Roezl's seed after all or that Roezl also encountered *C. selloana* somewhere on his travels.

Connor (1973) and Armitage (2010), among others, report that differences in reproductive function in *C. selloana* are reflected in the overall appearance of the inflorescence with hermaphrodite plants often bearing one-sided, pinkish or purplish inflorescences on arching stems superficially much like those of *C. jubata*. This has led to frequent difficulty, especially among field workers, in telling the species apart where they grow together as they do in New Zealand, Hawaii and South Africa (Edgar & Connor, 2000; Chimera, 1997; Robinson, 1984). Both species also occur in California where Lambrinos (2001), based on a study of herbarium specimens, reports that over the last 80 years the inflorescences of *C. selloana* have become more like those of *C. jubata*.

Cortaderia jubata can be distinguished from female *C. selloana* in having pinkish rather than white inflorescences and from hermaphrodite *C. selloana* in having staminodes to 0.15mm rather than anthers to 4.5mm (Edgar & Connor, 2000). The species can also be distinguished by their leaves alone which are narrow, glaucous and gracefully arching in *C. selloana* and broader, dark green and bending abruptly in the upper third in *C. jubata*. Additionally, they differ in their chromosome number (*C. selloana*, $2n=72$; *C. jubata*, $2n=108$; Edgar & Connor, 2000) and their resistance to low temperatures. Lucas (pers. comm.) relates that at his nursery in Dorset his entire stock of *C. jubata* was killed by the winter of 2010–2011 while *C. selloana* recovered well.

Notes on pink-flowered *Cortaderia*

The introduction to cultivation of *Cortaderia jubata*

According to Hooker (1898) *Cortaderia jubata* was first collected by Colonel Hall in about 1830, but its introduction to cultivation appears to

have come in 1876 when Victor Lemoine received seeds at his nursery in Nancy collected by the Czech (not Swiss as given by Stapf, 1905) traveller Benedikt Roezl on Chimborazo, the highest summit in Ecuador.

It arrived in the British Isles some time during the following three years when material was obtained from Lemoine by William Gumbleton of Belgrove in Queenstown, County Cork. It appears to have done well in Ireland's mild climate and Gumbleton records that his plant "produced at one time as many as forty-six spikes" which bore "a rosy-purple silky sheen" but that it was "unable to bear any severe frost without injury, if not death" (Gumbleton, 1905). Elsewhere Gumbleton (1899) states that this plant was killed in the winters of 1879–1880 and 1894–1895 when "28° to 29°[F] of frost were registered" but that small side-shoots survived and grew away when separated in the spring (this is contrary to Hooker, 1898, who indicates the latter winter was that of 1895–1896 and that the plant did not recover).

Though tender in Britain, when *C. jubata* has been introduced to more temperate parts of the world, it has frequently proved aggressively invasive, notably in California, New Zealand and Hawaii. Using molecular evidence Okada *et al.* (2009) have shown that naturalised plants sampled from all three of these places are the same female clone and that they match the clone most commonly encountered in herbarium material collected from southern Ecuador. This suggests the idea that all plants outside the natural range of the species originate with the Roezl collection. However, a curious reference to a second clone appears in *Revue Horticole* (André, 1886) where Mr Charles Noble is reported to have grown, as *Gynerium jubatum* (*C. jubata*), a miserable plant like a poor form of *C. selloana*. To this the author adds his recollection of having seen two forms of *C. jubata* on Chimborazo, one of little aesthetic merit and the other much finer, and concludes that both must have been introduced to cultivation. Okada *et al.* (2009) identified 14 clones of *C. jubata* among wild-collected specimens in herbaria, so it does seem possible that more than one clone may have been in cultivation, though perhaps only briefly.

***Cortaderia* 'Pink Feather'**

The cultivar name 'Pink Feather' (sometimes given as 'Rosa Feder' or 'Feather Pink') is often used as a synonym for 'Rosea' (e.g. Wood, 2002) and appears to be rather vaguely applied to hermaphrodite plants

of *C. selloana* with pinkish flowers. Versions of the name also feature regularly in seed lists (e.g. Chiltern Seeds, 2011; Jelitto Perennial Seeds, 2011) and in association with seeds sold over the internet.

Plants entered for trialling at Wisley under the name *C. selloana* 'Pink Feather' proved to be *C. jubata* and suffered a similar fate to the *C. jubata* plants grown as 'Candy Floss' in the winter of 2007–2008. Presumably the abundance with which viable seed is set by *C. jubata* compared to hermaphrodite *C. selloana*, and the fact that that seed will give rise to uniform progeny, means that, in places where both species grow, there is a tendency among people wishing to retail seed of pink pampas grasses to harvest from *C. jubata*. The extent to which names originally applied to pink-flowered plants of *C. selloana* are now being attached to *C. jubata* is not clear.

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New combinations in *Persicaria amplexicaulis* (D. Don) Ronse Decr. and the reinstatement of the cultivar name 'Arun Gem'

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In recircumscribing genera within the *Polygonaceae*, Ronse De Craene (Ronse De Craene & Akeroyd, 1988) provided several new combinations in *Persicaria*, including *P. amplexicaulis*. However, recombinations below specific level were not made, with the consequence that *Bistorta amplexicaulis* var. *pendula* H. Hara is without a valid combination in *Persicaria*.

This plant occurs from Central Nepal to Bhutan and differs from the typical variety in having racemes distinctly pendulous with only one flower in each node. Hara (1975) also identifies the presence of papillae on the veins on the underside of the leaves as a distinguishing character but Yonekura & Ohashi (2002) point out this is also sometimes a feature in var. *amplexicaulis*. *Bistorta amplexicaulis* var. *pendula* is widely accepted in works dealing with Himalayan plants (Grierson & Long, 1983; Polunin & Stainton, 1984; Hara *et al.*, 1982) and is not synonymous with *Polygonum amplexicaule* var. *sinense* Forbes & Hemsl., another plant with lax inflorescences, which Yonekura & Ohashi (2002) treat as a synonym of their *Bistorta henryi* Yonek. & H. Ohashi. Besides var. *pendula* and the autonym var. *amplexicaulis*, Yonekura & Ohashi recognise two further infraspecific taxa within *Bistorta amplexicaulis*. Recombinations of all three are made below:

***Persicaria amplexicaulis* var. *pendula* (H. Hara) J.D. Arm., comb. nov.**

Basionym: *Bistorta amplexicaulis* var. *pendula* H. Hara, in H. Ohashi, *Fl. E. Himalaya*, 3rd Rep.: 30 (1975).

***Persicaria amplexicaulis* var. *dhorpatanensis* (Yonek. & H. Ohashi) J.D. Arm., comb. nov.**

Basionym: *Bistorta amplexicaulis* var. *dhorpatanensis* Yonek. & H. Ohashi, *J. Jap. Bot.* 77(2): 71 (2002).

Persicaria amplexicaulis* subsp. *sinomontana (Sam.) J.D. Arm., **comb. nov.**
 Basionym: *Polygonum sinomontanum* Sam., in Hand.-Mazz., *Symb. Sin.*
 part 7: 177 (1929).

Two further infraspecific taxa, *Bistorta amplexicaulis* var. *alba* Munshi & Javeid and *Bistorta amplexicaulis* var. *speciosa* (Meisn.) Munshi & Javeid **comb. nud.**, are given by Yonekura & Ohashi as synonyms of *B. amplexicaulis* var. *amplexicaulis*. From the typical variety Munshi & Javeid (1986) distinguish var. *alba* in having branched flowering stems, small spikes of white flowers and anthers usually not exerted, and var. *speciosa* in having large spikes of deeply purplish red flowers and other characters overlapping with var. *amplexicaulis*. Even among the comparatively small selection of clones in British cultivation, plants intermediate between these segregates and the typical variety are found and their transfer into *Persicaria* is not judged worthwhile.

Variants of *Persicaria amplexicaulis* var. *pendula* in cultivation

In 1971 Lancaster, Beer and Morris collected, as *Polygonum*, seeds of *Persicaria amplexicaulis* var. *pendula* which they encountered in the Arun Valley, Nepal, close to the Tibetan border, and introduced with the collection code B.L. & M. 236 (Lancaster, 1995). Seeds were sent to Alan Bloom of Bressingham Gardens who grew the plant and wished to sell it, but, as it remained unidentified, Lancaster provided the cultivar name 'Arun Gem' under which it could be traded (R. Lancaster, pers. comm.). Material sent to the Natural History Museum was subsequently identified, so that by the time the name 'Arun Gem' first appeared in print it was noted in the accompanying description that it was "said correctly to be *P. amplexicaule Pendula*" (Bressingham Gardens, 1977). In accordance with this it has been treated as a synonym in *RHS Plant Finder* from 1991 onwards.

However, in 2002 a joint Crûg Farm Plants and Heronswood Nursery expedition resulted in a further collection of *P. amplexicaulis* var. *pendula* from eastern Nepal, close to the border with China, which was introduced under the collectors' code HWJK 2255 (Wynn-Jones & Wynn-Jones, 2007). This differs significantly from the Arun Valley stock, primarily in its shorter, broader inflorescences (c.60 × 15mm) and pinker flowers (*RHS Colour Chart*, 2007, 72D). Consequently, in referring to the earlier introduction, the name 'Arun Gem' becomes of value as a cultivar attributable to

P. amplexicaulis var. *pendula*. A detailed circumscription is given below. Colour references are to the *RHS Colour Chart* (2007).

***Persicaria amplexicaulis* var. *pendula* ‘Arun Gem’**

Herbaceous perennial to c.70cm. Basal leaves c.110 × 55mm on petioles to 100mm, long-ovate, mid green (N137B), paler beneath (greyer than 138B), minutely hairy on the midrib and the veins underneath, margins undulate to unevenly, bluntly serrate, ciliate, base sagittate; cauline leaves similar but lacking petiole, base clasping stem, much reduced in size towards apex of the stem. Stems upright, hollow, straw-coloured, striate; ochrae a papery sheath to c.70mm, acute, brown. Inflorescences c.2–3 per stem, pendulous, c.80 × 100mm; flowers 1 per axil, subtended by papery bracts, 5 × 3mm, ovate, apiculate, brown (177B/C) with a darker midrib; tepals 2 × 1.5mm, elliptic, red-pink (58A/B); anthers exerted for c.1mm, black-blue; filaments reddish.

Nomenclatural standard. No specimen of the original material sent for verification has been traced at **BM**. Therefore a specimen taken from a plant growing at RHS Garden Hyde Hall, received from Beth Chatto Ltd in 1998, has been deposited at **WSY** (barcode, WSY0133483) and is here designated the nomenclatural standard.

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A new interspecific hybrid in *Cytisus* L. (Genisteae, Fabaceae)

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Cytisus scoparius L. and related species (*Cytisus* sections *Alburnoides* DC. and *Spartopsis* Dumort.) have been used in breeding programmes for ornamental purposes since the end of the nineteenth century. The first interspecific hybrid *C. × praecox* (Rob.) Hort. was obtained in 1867 in England from a cross between *C. multiflorus* (L'Hér. ex Aiton) Sweet and *C. oromediterraneus* Rivas Mart. et al. (Steffen, 1929). Three other hybrids were obtained at the Royal Botanic Gardens, Kew between 1891 and 1900, two of which were the result of spontaneous cross-breeding (*C. × beanii* Dallimore and *C. × kewensis* Bean) (Steffen, 1929). The third hybrid (*C. × dallimorei* Rolfe) was obtained from a directed cross-breeding between *C. multiflorus* (section *Alburnoides*, Auvray & Malécot, 2013) and *C. scoparius* f. *andreas* (Puiss.) Zabel (section *Spartopsis*, Auvray & Malécot, 2013) (Steffen, 1929). Around 1950 Boskoop Proefstation in the Netherlands started a breeding programme that resulted in the creation of a new intersectional hybrid between *C. × dallimorei* 'Burkwoodii' and *C. × praecox*. Two cultivars ('Hollandia' and 'Zeelandia') were obtained from that breeding and have since been widely commercialised and used as parents of other cultivars (Boom, 1955). Yet the original hybrid remains unnamed. A name is therefore proposed below, in recognition of the institution that gave rise to this intersectional hybrid of *Cytisus*.

***Cytisus × boskoopii* Auvray & Le Gloanic, nothosp. nov.**

Parentage: *Cytisus × dallimorei* Rolfe × *Cytisus × praecox* (Rob.) Hort.

Description. Frutex 0.5–1.5m altus. Caules aut 8-costati costis in sectione linearibus aut 5-costati costis in sectione angularibus. Folia aut unifoliata aut trifoliata, laminis ellipticis vel obovalis, 10–20 × 3–5mm. Calyx ciliatus. Vexillum 14–17 × 9–15 mm, ellipticum vel ovale, glabrum, apice emarginatum, indentatum vel curvatum. Alae 13–19 × 4–9mm, oblongae

vel falciformes, glabrae. Carina $12-18 \times 4-8$ mm, falciformis, glabra. Stylus recurvatus. Legumen $20-80 \times 5-10$ mm, planum, oblongum, demum 1-14-seminale. Semina stropholata.

Erect shrub, up to 1.5m high. Twigs alternate, unarmed, with 5 ribs V-shaped in transverse section or 8 ribs T-shaped in transverse section, sericeous when young, glabrous or glabrescent when mature. Leaves stipulate, unifoliolate or trifoliolate; stipule with 2 ribs; unifoliolate leaves with petiole reduced or absent; trifoliolate leaves with petiole up to 10mm long; folioles $10-20 \times 3-5$ mm, linear to elliptic or obovate, sericeous. Flowers 1-2 in axillary clusters; calyx campanulate, divided into 2 lips; standard white, pink or yellowish orange, $14-17 \times 9-15$ mm, elliptic or obovate, with apex recurved and emarginate, glabrous; wings yellow, yellowish orange or pink, $13-19 \times 4-9$ mm, oblong, elliptic or sub-falcate, glabrous; keel pale yellow, yellow, pink or white, $12-18 \times 4-8$ mm, falcate, usually glabrous. Stamens 10. Style recurved. Fruit $20-80 \times 5-10$ mm, plane, oblong, pilose either on the whole surface or only at the margins, 1- to 14-seeded. Seeds ovoid, with large strophioles.

Typus: Cultivar 'Zeelandia', Netherlands, Boskoop, proeftuin [Trial Garden], B.K. Boom. 29475, 26.v.1955. (Holo, LI).

Cultivars assigned to *Cytisus* \times *boskoopii*

'Hollandia', obtained in 1955 at Boskoop Proefstation in the Netherlands from a cross between *Cytisus* \times *praecox* and *C.* \times *dallimorei* 'Burkwoodii' (Boom, 1955). Standard pink and crimson with white macula; external part of the wings pink and crimson.

'Zeelandia', obtained in 1955 at Boskoop Proefstation in the Netherlands from a cross between *Cytisus* \times *praecox* and *C.* \times *dallimorei* 'Burkwoodii' (Boom, 1955). Standard pale pink; external part of the wings pink with thin lines of salmon.

'Dukaat', obtained in 1965 at Boskoop Proefstation in the Netherlands from a self-pollination of a sister of 'Hollandia' and 'Zeelandia' (number 4904-7 in breeder's notes, Hop, pers. comm.). Standard white; external part of the wings yellow.

'La Coquette', obtained in 1965 by Lombarts in the Netherlands from a self-pollination of 'Hollandia' (Van de Laar, 1971). Standard pink and yellow; external part of the wings yellow striated with vermillion.

'Boskoop Ruby', obtained in 1978 at Boskoop Proefstation in the Netherlands from a self-pollination of a cross between *Cytisus* × *praecox* and 'Hollandia', that cross having previously been irradiated with 2kRad gamma-rays (Hop, pers. comm.). Standard pink and crimson with white macula; external part of the wings pink and crimson.

'Apricot Gem', cited for the first time in 2005 (Hoffman) and most likely obtained from a crossbreeding of 'Dukaat' (Auvray, 2011). Standard yellow, pink and orange; external part of the wings yellow, red and orange.

'Windlesham', most probably obtained from a selfing or bud sport of 'Boskoop Ruby' (Auvray, 2011). There is some confusion regarding the origin of this cultivar, mainly because of the occurrence of a *Cytisus scoparius* 'Windlesham Ruby' with ruby-red flowers selected by Fromow before 1956 (van de Laar, 1971). Standard pink and crimson with white macula; external part of the wings pink and crimson.

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Magnolia* × *pruhoniciana*, a new hybrid umbrella magnolia in section *Rhytidospermum

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Abstract. *Magnolia* × *pruhoniciana* is described as a new hybrid species of *Magnolia* raised in 1952 in Průhonice Park. It is the hybrid of *Magnolia obovata* Thunb. (*M. hypoleuca* Siebold & Zucc.) and *Magnolia tripetala* (L.) L. Hybrid origin of described plants was confirmed from morphological data as well as by isozyme analysis. The possibility of introgressive hybridisation of *Magnolia* species in cultivation is discussed.

Introduction

The first artificial hybridisation of *M. obovata* and *M. tripetala* was probably made in Průhonice Park by Viktor Keskevič before 1952. There are still over 120 hybrid plants in cultivation in Průhonice Park (some reaching 20m high), although the parent plants are probably no longer still growing there. Plants from this hybrid were also distributed to Lednice Castle Park in 1955 (in 2004 three F₁ hybrids were recorded here and two are still growing; also one F₂ seedling of Průhonice origin); seedlings of the second filial generation were also grown in the Prague Zoological Garden (three to eight cultivated plants between 1989 and 2005, newly cultivated four big-leaf umbrella magnolias). Spoelberch in Hunt (1998; see caption to Fig. 116) illustrates plants grown from seed collected in 1988 from Průhonice in the Belgian arboretum Herkenrode. The author confirmed four hybrid plants when he visited Herkenrode in 2007, and found that some of the seedlings were not hybrids.

Magnolia × *pruhoniciana* is an interspecific hybrid between the Japanese species *Magnolia obovata* (syn. *M. hypoleuca*) and North American *Magnolia tripetala*. Like its parents, the hybrid is hardy in the temperate zones of Europe. The hybrid was first described in Spongberg (1981) as cultivar named *Magnolia* 'Silver Parasol' from trees cultivated in the Arnold Arboretum, in Massachusetts, where the hybrid had arisen spontaneously from cultivated trees. The origin of the hybrid in Průhonice is well documented although the first report is probably in Vašák (1973) and earlier in Czech literature (e.g. Svoboda, 1967).

Both parent species of *Magnolia* \times *pruhoniana* are members of section *Rhytidospermum* Spach. These magnolias are deciduous trees or large shrubs with leaves crowded into false whorls at the ends of branches, distinctly alternate on new shoots (flush-type leaf-emergence pattern). Leaf blades are large or very large. The type species of the section is *M. tripetala*. The section as defined by Dandy (1950) was divided into three series: *Macrophyllae* Dandy ex Tobe (group of *M. macrophylla*, American species); *Auriculatae* Tobe (group of *M. fraseri*, American species) (Tobe, 1993) and *Rhytidospermae* Figlar (Asian species with American *M. tripetala*) (Figlar, 1997). Based on molecular studies and stomata morphology, Figlar & Nooteboom (2004) raised the series *Macrophyllae* and *Auriculatae* to separate sections (*Macrophylla* and *Auriculata*). In this treatment, section *Oyama* (group of *Magnolia sieboldii*) was reduced to a subsection within section *Rhytidospermum*. The vigour of the hybrid between *M. obovata* and *M. tripetala* supports the close relationship of the parent taxa, despite their occurrence on two different continents, as shown by molecular studies (Qui *et al.*, 1995; Kim *et al.*, 2001; Azuma *et al.*, 2001).

Results

Plants of *Magnolia* \times *pruhoniana* and its parent species were measured and investigated, as reported in Jakl (2005) and Jakl & Bažant (2009). A morphometrical analysis of 203 fruits from both parent species and the hybrid (Fig. 1) showed that *M. obovata* has from 108 to 209 follicles with 130–163 as the quartile range, *M.* \times *pruhoniana* (58–)91–107(–145) follicles and *M. tripetala* (24–)51–63(–79) follicles. The number of stamen scars, based on the examination of 88 fruits (Fig. 2), showed that *M. obovata* has (143–)169–194(–214), *M.* \times *pruhoniana* (92–)113–148(–159) and *M. tripetala* (65–)76–89(–114) stamen scars. Numbers of tepals are in *M.* \times *pruhoniana* 11, 12 to 15, whereas *M. obovata* has (6–)9–12 tepals and *M. tripetala* has 6–9(–12) tepals. Among the hybrids there are two tree forms: a solitary pyramidal tree, rarely multistemmed, and a broom-like tree, often with two or more stems (multistemmed is more common in *M. tripetala* than *M. obovata*, but this may depend on the environment).

Isozyme analysis was carried out on the hybrid and the two parent species using, for example, ADH, EST, LAP, PGDH enzyme systems as well as vertical electrophoresis PAGE. Two-unit enzymes were usually heterozygotic, and

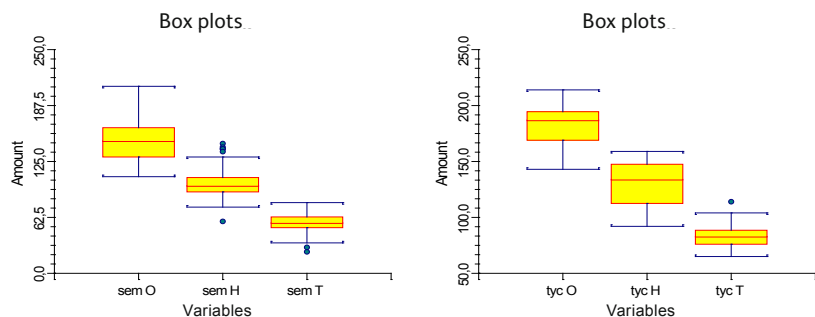


Fig. 1 (left). Numbers (amount) of follicles in *Magnolia obovata* (sem O), *M. × pruhoniana* (sem H) and *M. tripetala* (sem T). Fig. 2 (right). Numbers (amount) of stamen scars on fruit aggregates in *Magnolia obovata* (tyc O), *M. × pruhoniana* (tyc H) and *M. tripetala* (tyc T).

the single-unit enzyme (LAP) had two (the same) alleles. The analyses confirmed the hybrid nature of *M. × pruhoniana*.

To confirm the hybrid status of the plants raised by Keskevič, the author carried out 143 crossings of the parent species, hybrid and back-crosses. Seed viability of the progeny (based on germination tests of hundreds of seeds with germination often exceeding 60%) and follicetum (fruit aggregate) production (i.e. examination of the number of seeds, or follicles with seeds in fruit aggregates and the number of fruit aggregates on trees) were recorded. Caryological studies were undertaken to check for polyploidy.

Voucher specimens of *Magnolia × pruhoniana* are deposited in the herbarium of the Institute of Botany, Academy of Sciences of the Czech Republic, CZ-252 43 Průhonice, Czech Republic.

Discussion

The studies failed to demonstrate whether *Magnolia tripetala* or *M. obovata* was the female parent of the Průhonice hybrid plants. Although the hybrid phenotype is intermediate between the two parents, it shows characteristics typical of *M. obovata*, which are not present in *M. tripetala*. However, if the plants are not in flower or bearing fruit aggregates it is very difficult to differentiate the hybrid from *M. obovata* as both have narrowly ovate and rarely bilobed leaves and a tree-like habit. The hybrid can only be distinguished

with certainty by determining the numbers of follicles and stamen scars. As demonstrated in Fig. 1 and Fig. 2, the hybrid is entirely intermediate between the parents and shows little overlap in these characters.

Natural hybridisation is only possible when both parent species grow close together and this only rarely occurs. No seedlings are found under cultivated plants of the hybrid and it is rare for the hybrid to be propagated by seed. The possibility that the hybrid has arisen as the result of a cross with other species of magnolias (for example, species of the section *Oyama* – *Magnolia sieboldii*) is ruled out as there are no other species of *Magnolia* growing nearby and the hybrid phenotype is consistent with the stated parentage.

While the hybrid plants are hardy and attractive (Jakl & Bažant, 2009), they are not as yet commercially available in horticulture. As it has not proved possible to propagate the hybrid by cuttings and it does not produce runners, the most reliable means of reproduction is by seed, as the plants fruit well naturally.

Taxonomy

Magnolia* × *pruhoniana* Jakl, *nothosp. nov.

Parentage: *Magnolia obovata* Thunb. × *Magnolia tripetala* (L.) L.

Description. Arbor decidua, mediocris, interdum plus quam 20m alta, saepe bitruncata, corona ovoideo-conica vel late cylindrica. Gemmae glabrae. Folia lamina elliptica usque obovata, plerumque 20–45cm longa et 10–22cm lata, integerrima, apice fere acuminato, rare sinuato, pagina inferiore pubescenti, petiolo ad basin glabro vel pubescenti (saepe simul ab eadem arbore), initio vegetationis subaurantiaco. Flores erecti, albi, 16–25cm in diametro, tepala numero 11–12(–15), tria exteriora pagina abaxiali fusco- usque olivaceo-roseola, androeceum liberum polymerumque staminibus numero (92–)113–148(–159), filamenta staminum phoeniceo-carmesina, gynaeceum apocarpum carpellis roseis numero (58 –)91–107(–145).

Deciduous trees, often two-stemmed, with pyramidal or columnar crown (widest at the top). The highest trees are more than 20m high. Buds are

glabrous. Leaf blades are 20–45cm long and 10–22cm wide, elliptic to ovate, tapering to rounded or rarely bilobed, the margin entire. Flowers white, 16–25cm in diameter, held erect at the ends of branches, usually with 11, 12 (–15) tepals (outer 3 brownish-pink), reddish filaments and pink stigmas. Fruits have (58–)91–107(–145) follicles and (92–)113–148(–159) stamen scars.

Typus: Czech Republic, Central Bohemia, Praha, Průhonice: cultivated tree (tree identification no. 015/A-005/16) in NE part of the Průhonice Park at the village of Průhonice. Alt. ca. 300 m a. s. l.; 49° 59.9' N, 14° 33.4' E, June 2004, leg.: Jan Štěpánek & Jiří Jakl (holo **PRA**, iso **PRC**).

Etymology. The species epithet is derived from the name of Průhonice, the village near Praha (Prague City). In Průhonice Park the first hybridisation of *Magnolia obovata* and *M. tripetala* was realised and the hybrids are still growing there. The name *Magnolia* × *pruhoniciana* was first suggested by Jiří Burda and is first mentioned in the literature by Jakl (2004).

Comparison with parent species

Magnolia obovata: A large, often impressive forest tree to 30m tall, with a narrow to broadly rounded crown. Leaves large (up to 60cm long), oblong-ovate, tapering to cuneate bases and acute apices, with whitish undersides. Flowers white, powerfully fragrant. Seed cones scarlet at dehiscence.

Magnolia tripetala: A small single or multi-stemmed tree to 10m tall. Leaves large (up to 60cm long), obovate-lanceolate, tapering to cuneate bases and acute apices, medium to dark green. Flowers with an unpleasant odour. Seed cones bright pink to rose-red.

Other characters, of value to distinguish the parent species, are: colour and pilosity of petiole of young leaf (*M. obovata* – often reddish, without trichomes, *M. tripetala* – green, often with trichomes); colour of adaxial leaf blade area (*M. obovata* – matt green, *M. tripetala* – light green, later pale between main nerves); seed characteristic (*M. tripetala* – conspicuous grooves on seeds and with shorter and wider seeds); length of stylar beaks on follicles (*M. obovata* – long, *M. tripetala* – reduced); size of fruit aggregates (*M. obovata* – longer and with a stout peduncle); length of leaves and petals (*M. tripetala* – elongated).

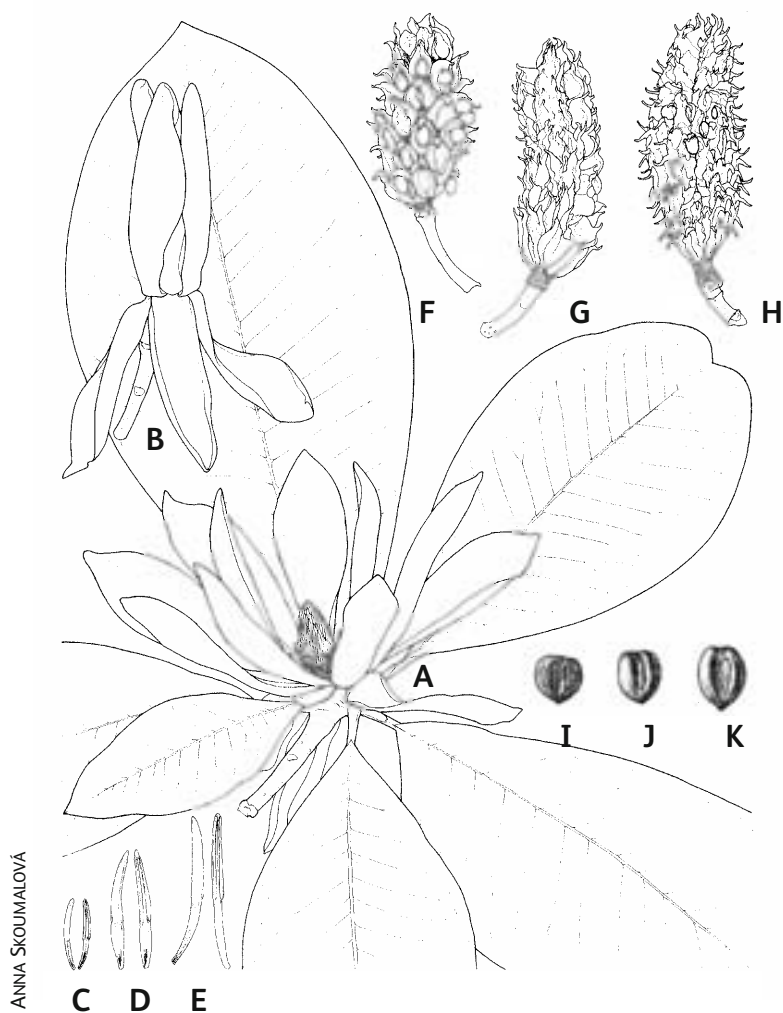


Fig. 3. *Magnolia* × *pruhoniana* (illustration by Anna Skoumalová) A. Habit with flower in male phase and leaves. B. Flower in transition stage. D. Stamens, ventral and profile view (C. *M. tripetala*, E. *M. obovata*). G. Fruits. (F. *M. tripetala*, G. *M. obovata*). J. Seeds. (I. *M. tripetala*, K. *M. obovata*).

Key to species of section *Rhytidospermum*¹ (big-leaf umbrella magnolias)

- 1a. Leaf blades cordate to auriculate at base **2**
- 1b. Leaf blades cuneate to rounded at base **3**
- 2a. Lower surfaces of the blades, stipules, carpels and follicles pubescent
..... **macrophylla** (incl. *M. ashei*, *M. dealbata*)
- 2b. Lower surfaces of the blades, stipules, carpels and follicles glabrous
..... **fraseri** (incl. *M. pyramidata*)
- 3a. Ripe carpels with long beaks, up to 8mm long, buds and leaves with
reddish brown pubescence **rostrata**
- 3b. Ripe carpels with short beaks, usually less than 5 mm long,
indumentum, if present, not reddish brown **4**
- 4a. Bilobed leaves absent; flowers with an offensive odour, carpels
whitish during anthesis, with (24–)51–63(–79) follicles and (65–)76–
89(–114) stamen scars in fruits, fruit aggregates to 10cm long; small
trees of open habit to 12m **tripetala**
- 4b. Bilobed leaves often present or rare, flowers pleasantly fragrant,
carpels purple or pink, fruit aggregates over 10cm long; with more
stamen scars and follicles; widely branching trees to 20(–30)m **5**
- 5a. Leaf blades mostly elliptic-obovate, sometimes deeply emarginate
at apex; young branches yellowish or yellowish grey; fruit aggregates
with the lowermost follicles convex, not decurrent along the floral
axis **officinalis** (incl. *M. biloba*)
- 5b. Leaf blades mostly oblong-ovate, bilobed leaves present but
rare; young branches purplish or silvery; fruit aggregates with the
lowermost follicles concave, decurrent along the floral axis, or varied
according to seed content **6**
- 6a. Leaf blades mostly oblong-obovate*, with acute to rounded apices,
young branches purplish or silvery; with (108–)130–163(–209)
follicles and (143–)169–195(–214) stamen scars in fruits, fruit
aggregates with the lowermost follicles concave, decurrent along
the floral axis **obovata**
- 6b. Leaf blades rarely bilobed at apex*; carpels pink during anthesis, with
(58–)91–107(–145) follicles and (92–)113–148(–159) stamen scars
in fruits; fruit aggregates around 12.5cm long, shape of the lower
follicles dependent on the seed content of fruits **× pruhoniana**

¹ *sensu* Dandy (1950), Spongberg (1974) and Spongberg in Hunt (1998).

*Cultivated *M. obovata* and *M. × pruhoniciiana* in the Czech Republic sometimes also have bilobed leaves but this character is a feature of *M. officinalis* (even though there are no hybrids of *M. officinalis* and *M. obovata* in Central Europe).

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