Understanding man-made plants: what do we need to do cultivated plant taxonomy?

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man-made plants, cultivated plants

DEFINITIONS

taxonomy

Scientific study of the diversity and variations of organisms, as well as the various relationship existing between them (Heywood 1976).
crops, fruits & vegetables: less than 100 genera
(25 in international treaty on plant genetics resources for food and agriculture)

ornamentals: more than 1800 genera

man-made plants, cultivated plants

20 000 to 30 000 people with taxonomic qualification worldwide,
5 000 to 7 000 professionals
(ETI database, Haas & Hauser 2005)
man-made plants, cultivated plants

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« PROCESS »


Groupe « Systématique et Taxinomie » 2008. Réflexion stratégique de la commission scientifique de l’IFB

A "Taxonomist" is someone who...
1) describes species
2) revises taxa
3) works code compliant
4) has an academic education in taxonomy
5) has comprehensive knowledge of a taxon
6) can identify a group of organisms
7) is paid for taxonomic work
8) is member of a systematic society

These are only a few possible criteria. Not all of them apply to all circumstances. There are amateur-taxonomists who make valuable contributions to taxonomic work and unfortunately not all educated taxonomists are being paid for their work.

GTI Global Taxonomic initiative
http://www.gti-kontaktstelle.de
cultivated plants
taxonomy

Scientific study of the diversity and variations of *man-made plants*, as well as the various relationship existing between them

+ Naming
+ Classifying

with a strong historical context
cultivated plants
taxonomy

Bibliography
names

Pyrus communis.
dulcis.
cydonia.
Malus sylvestris.
sibirica.
pumila.
coronaria, 2 var.
Mespilus oxia cantha.
ead. floce duplici.
ead. flor. simplici roseo.
ead. fructu luteo.
azarolus.
aronia.
maxima.
coccinea.
pyrifolia.
viridis.
corallina.
latifolia.


more and more molecular data but not only

Living collection

A.Cadic.
We need: A) sources of information

very dispersed literature or almost absent
We need: A) sources of information

rarely preserved literature
We got: databases, registrars

Mansfeld’s World Database of Agricultural and Horticultural Crops
http://mansfeld.ipk-gatersleben.de/

Naamlijst van houtige gewassen en vaste planten
www.internationalplantnames.com/

RHS Horticultural Database
http://apps.rhs.org.uk/horticulturaldatabase/

CPVO Variety Finder
https://cpvoextranet.cpvo.europa.eu/

Vég&base®
http://www.vegebase.plante-et-cite.fr

ICRA - International Cultivar Registration Authorities
http://www.ishs.org/nomenclature-and-cultivar-registration/icra

PLUTO database
https://www3.wipo.int/pluto/fr/
We got: databases, registrars

- **Mansfeld’s World Database of Agricultural and Horticultural Crops**
  - > 80,000 cultivars names + trade designations

- **CPVO Variety Finder**
  - 800,000 cultivars names
  - 130,000 species names
  - 1,650,000 species names
  - 700,000 Cultivars names protected, duplicated

- **GRIN Taxonomy**
  - 140,000 species + cultivars names

- **RHS Horticultural Database**
  - 200,000 cultivars names

- **Vég&base®**
  - Outil d’aide au choix des végétaux pour la conception et la gestion des espaces verts

- **ICRA - International Cultivar Registration Authorities**
  - >730,000 cultivars names
We got: databases, registrars

<table>
<thead>
<tr>
<th>genus</th>
<th>PLUTO</th>
<th>OCVV</th>
<th>Naamlist (2010)</th>
<th>RHS</th>
<th>ICRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abelia</td>
<td>75</td>
<td>120</td>
<td>52 (34)</td>
<td>109</td>
<td>(68cv +13)</td>
</tr>
<tr>
<td>Buxus</td>
<td>31</td>
<td>295</td>
<td>&gt;200 (161)</td>
<td>235</td>
<td>1043</td>
</tr>
<tr>
<td>Bougainvillea</td>
<td>210</td>
<td>421</td>
<td>&gt;230 (145)</td>
<td>289</td>
<td>323</td>
</tr>
<tr>
<td>Cytisus</td>
<td>12</td>
<td>94</td>
<td>&gt;150 (125)</td>
<td>196</td>
<td>(178)</td>
</tr>
</tbody>
</table>

Need for more links? (not speaking of trade names ... )
We got: databases, registrars

Two journals, two years, > 450 binomials, 3700 infraspecific names


A DIVULGATION OF IGNORED OR FORGOTTEN BINOMIALS

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ABSTRACT

A review of two works published in 1874 and 1875 (Gardeners’ Chronicle and Revue Horticole) lead to a number of names (mainly binomials) for vascular plants (861) not reported in the International Plant Nomenclature Index (461) or for which an earlier place of publication was found for the same name (400). Given the results from this small sampling, and because more of the horticultural literature is becoming available online, a major effort should be made to review these long ignored works for their scientific plant names. Four new generic names (Acanthorrhiza, Brassica-napus, Eremospatha, and Polyanthus) were noted along with one name at the rank of tribe (Adenostyleae). One species, Jonquilla odorata Raf. (1838), and one genus, Phylogyne Salisb. ex Haw. (1819), are lectotypified.

Need for more “digging” works
What is cultivated in your country?

We got: databases, registrars

Need for more compilations, horticultural floras
We need: B) collections

Living collections:
- not common (taxonomic/aesthetic)
- duration (research/private)
- access ?
- information preserved for each individual

Westonbird arboretum, UK
We need: B) collections

Herbarium specimens:
- rare
- not checked
- missing
- dead (colour, biology)
- restricted information

Viburnum tinus var. virgatum Aiton
We got: errors

Denomination: 'Sutwihug'
Trade name: Cloud Nine Nimbus
Botanical Name: Sutera diffusa
Applicant/Holder: Syngenta Seeds B.V.

Sutwihug    Danova906    Suttis 98

All = Sutera cordata
We got: original genotypes

We got: only a small subset of material

*Rosa x alba*: 191 selections during 19th century, 15 in collections by 1902

*Rosa « Lawrence »*: 39 selections during 19th century, 11 in collections by 1902

*Rosa « Noisettes »*: 344 selections during 19th century, 54 in collections by 1902

Even worst for seed propagated material
We need: C) careful comparison

Cytisus racemosus Marnock 1837
We need: C) careful comparison

400 variables, 7 amorces
Indice de Dice, Hierarchical clustering, UPGMA

2 groups:
- G053 = G019
- G040 = G033
We need: C) careful comparison

G053 – from nursery D
*Cytisus* (Scoparius Group) ‘Red Favorite’

G019 – from nursery A
*Cytisus* (Scoparius Group) ‘Roter Favorit’

G040 – from nursery C
*Cytisus* (Scoparius Group) ‘Roter Favorit’

G033 – from nursery B
*Cytisus* (Scoparius Group) ‘Roter Favorit’
We got:
Plant trials, DHS testing, monographs

Colorado State University plant trials

Cornell University
We got: only few, dispersed and specialized work
Finally, the historical context
Finally, the historical context

Hypothetical history

Finally, the historical context

Naming in a reticulate history
Finally, the historical context

What are classifications for?

Finally, the historical context

What are classifications for?

<table>
<thead>
<tr>
<th>Height from 0 to 1 foot</th>
<th>From 1 foot to 2 feet</th>
<th>From 2 feet to 3 feet</th>
<th>From 3 feet to 5 feet</th>
<th>From 5 feet to 8 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RED.</strong></td>
<td><strong>RED.</strong></td>
<td><strong>RED.</strong></td>
<td><strong>RED.</strong></td>
<td><strong>RED.</strong></td>
</tr>
<tr>
<td>Rosa spinosissima rubra</td>
<td>Rosa spinulifera rubra</td>
<td>Rosa spinulifera rubra</td>
<td>Rosa spinulifera rubra</td>
<td>Rosa spinulifera rubra</td>
</tr>
<tr>
<td><strong>WHITE.</strong></td>
<td><strong>WHITE.</strong></td>
<td><strong>WHITE.</strong></td>
<td><strong>WHITE.</strong></td>
<td><strong>WHITE.</strong></td>
</tr>
<tr>
<td>Rosa spinosissima alba stricta</td>
<td>Rosa spinosissima alba stricta</td>
<td>Rosa spinosissima alba stricta</td>
<td>Rosa spinosissima alba stricta</td>
<td>Rosa spinosissima alba stricta</td>
</tr>
<tr>
<td><strong>PURPLE.</strong></td>
<td><strong>PURPLE.</strong></td>
<td><strong>PURPLE.</strong></td>
<td><strong>PURPLE.</strong></td>
<td><strong>PURPLE.</strong></td>
</tr>
<tr>
<td><strong>VARIEGATED.</strong></td>
<td><strong>VARIEGATED.</strong></td>
<td><strong>VARIEGATED.</strong></td>
<td><strong>VARIEGATED.</strong></td>
<td><strong>VARIEGATED.</strong></td>
</tr>
</tbody>
</table>

**DIVISION I.**

**SUMMER ROSES.**

- **Group 1.**
  - Section 1.
  - 1. The Scotch Rose
  - 2. The Austrian Briar
  - 3. The Double Yellow
  - **Section 2.**
  - 4. The Sweet Briar
  - **Section 3.**
  - 5. The Alba Rose
  - 6. The Damask
  - **Section 4.**
  - 7. The Provence
  - 8. The Pompon Provence
  - 9. The Moss
  - 10. The Pompon Moss
  - 11. The French
  - 12. The Hybrid French
  - 13. The Hybrid Chinese
  - 14. The Hybrid Noisette
  - 15. The Hybrid Bourbon
  - **Section 5.**
  - 16. The Prairie
  - 17. The Ayrshire
  - 18. The Sempervirens
  - **Section 6.**
  - 19. The Boursault
  - **Section 7.**
  - 20. The Multiflora
  - **Section 8.**
  - 21. The Polyantha
  - **Section 9.**
  - 22. The Banksian

**DIVISION II.**

**AUTUMNAL ROSES.**

- **Group 9.**
  - Section 10.
  - 23. The Berberry-leaved
  - **Section 11.**
  - 24. The Perpetual Scotch
  - 25. The Perpetual Moss
  - 26. The Macartney
  - **Section 12.**
  - 27. The Clinophylla
  - **Section 13.**
  - 28. The Microphylla
  - 29. The Rugosa
  - **Section 14.**
  - 30. The Hybrid Perpetual
  - 31. The Bourbon Perpetual
  - 32. The Rose de Rosomano
  - 33. The Bourbon
  - 34. The Chinese
  - 35. The Crimson Chinese
  - 36. The Fairy
  - 37. The Tea-scented
  - 38. The Climbing Tea-scented
  - 39. The Hybrid Tea-scented
  - **Section 15.**
  - 40. The Musk
  - 41. The Noisette
  - 42. The Noisette Perpetual
  - **Section 16.**
  - 43. The Ayrshire Perpetual
  - 44. The Polyantha Perpetual

Finally, the historical context

What are classifications for?

OLD GARDEN ROSES
- Alba (A)
- Ayrshire (Ayr)
- Bourbon & Climbing Bourbon (B)
- Boursault (Bsl)
- Centifolia (C)
- China & Climbing China (Ch)
- Damask (D)
- Hybrid Bracteata (HBr)
- Hybrid Eglanteria (HEg)
- Hybrid Foetida (Hft)
- Hybrid Gallica (HGal)
- Hybrid Multiflora (HMulti)
- Hybrid Perpetual & Climbing Hybrid Perpetual
- Hybrid Sempervirens (HSem)
- Hybrid Setigera (HSet)
- Hybrid Spinosisissima (HSpn)
- Miscellaneous Old Garden Roses (Misc.OGR)
- Moss & Climbing Moss (M)
- Noisette (N)
- Portland (P)
- Tea & Climbing Tea (T)

MODERN ROSES
- Floribunda & Climbing Floribunda (F)
- Grandiflora & Climbing Floribunda (Gr)
- Hybrid Kordesii (HKor)
- Hybrid Moyesii (HMo)
- Hybrid Musk (HMus)
- Hybrid Rugosa (HRg)
- Hybrid Tea & Climbing Hybrid Tea
- Hybrid Wichurana (HWich)
- Large-Flowered Climber (LCl)
- Miniature & Climbing Miniature (Min)
- Mini-Flora (MFl)
- Polyantha & Climbing Polyantha (Pol)
- Shrub (S)

ABOUT CLIMBING SPORTS: Some varieties develop "sports" or variations or mutations of the original variety, exhibiting climbing characteristics. (Sports can also exhibit changes in color.)

- Rose varieties that we know as "Ramblers" are usually classed as Wichurana.
- Other climbers have a natural tendency to put out long canes. Those varieties are not "sports," but are classed as Large Flowered Climbers.

Wellan M. s.d. So many roses .. So little time
Summary

collections

descriptions

compilation

confrontation

organizing
classifying

monographs

indexes

Publications

Botanical gardens

Nurseries

Research, DHS, Selection

Herbaria

Naming

History

Usage
Now, try to sort something like this …

Thanks for your attention