Stretching nomenclature: the provision of names in a fecund family

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Aspects of naming hybrid orchids

• Most plant names are typified, description based units: genus, species, variety, Group, cultivar

• Only hybrids named using parentage based, non-typifyable, non-described categories:

• Nothogenus, or hybrid genus, a condensed formula representing the parental genera involved

• Grex, greges. Collective name applied to all individuals of a hybrid progeny
The grex

- Grex, greges, or grexes.
- Literally ‘a flock’ of sheep
- Element in words like gregarious, congregate
- In current usage grex refers to all individuals of a hybrid progeny
- In the past it might refer to a ‘flock’ of related species
- ‘Look at that gregarious group of greges’
Michel Gandoger 1850-1926, French botanist, “One of the greatest splitters ever” – TL-1. Also one of the earliest users of the term *grex*.

- Discussions of Gandoger’s names has focused on his use of ‘micro’-species within species which is invalid under the ICN.
Gandoger’s use of grex did not imply hybrid origin, it was more akin to our use of species complex or lineage.

He published about 150,000 such microspecies which mostly have been ignored since.

His use of grex has not been thoroughly investigated.

If his concept of grex was a cluster of related species this could change the interpretation of his microspecies – might they be valid after all?
Current use of the term grex

- William T. Stearn drafted the first ICNCP in 1953
- Coined the term ‘cultivar’
- Late 1950s, he formally introduced the collective term **grex** to apply to the progeny of a particular hybrid.
- Subsequently it was used extensively for orchid hybrids, and hybrids in other plant groups.
Other use of the grex concept

- Moldenke published many overlooked grex names, such as these examples from Nov 1954 in *Rosa* and *x Prunygdalus*.

These names including the nothogenus are omitted from IPNI.

Since other names published in this paper are included in IPNI, this reflects prevailing editorial policy for *Index Kewensis* at the time.
PREFACE

Shortly before his death, Mr. Darwin informed me of his intention to devote a considerable sum in aid or furtherance of some work of utility to biological science; and to provide for its completion, should this not be accomplished during his lifetime. He further informed me that the difficulties he had experienced in accurately designating the many plants which he had studied, and ascertaining their native countries, had suggested to him the compilation of an Index to the Names and Authorities of all known Flowering Plants and their Countries, as a work of supreme importance to Students of Systematic and Geographical Botany, and to Horticulturists, and as a fitting mode of fulfilling his intentions.

I have only to add that, at his request, I undertook to direct and supervise such a work; and that it is being carried out at the Herbarium of the Royal Gardens, Kew, with the aid of the staff of that establishment.

Jos. D. Hooker

Royal Gardens, Kew: July, 1893.
**Cattleya** in Index Kewensis Suppl. 1

- *flaveola*, Reichb. f. l. c. (1888) ii. 473. — Hab, ?

  - *Harrisii* ×, Hort. l. c. (1887) i. 104. — Hybr. artef.
  - *Juno* ×, L. Barron, l. c. (1895) ii. 118. — Hybr. artef.


- *Kimbballiana*, L. Lind. et Rodig. in Lindenia, ii. (1886) 85 t. 89. — Venez.


- *Lindeni*, Hort. Lind. ex Journ. of Hort. xxi. (1890) 491 fig. 64 = gigas, Lind. et André.


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**CAUCALIS**, Linn. (Umbellif.) — Ind. Kew. i. 462.


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**CAULANTHUS**, S. Wats. (Crucif.). — Ind. Kew. i. 462.

**CAULINIA**, Moench = *Kennedya*, Vent. (Legumin.).
Index Kewensis now IPNI
**A Quiet Retreat.**

Science in this country, when not associated with business, is poorly rewarded. The delights of its pursuit are considered a sufficient compensation for the expenditure of time, with midnight and other requisites. It is, however, gratifying when we find an exception, and specially gratifying is it to find that a man so highly honoured for his work, wherever the English language is spoken, as Sir Richard Owen should have, by the favour of the Queen, been put in possession of a residence (fig 1, p. 9) which makes him the center of a large garden—a veritable garden of delight. Its plan is simple, consisting merely of a large lawn surrounded by herbaceous borders, to state, that I consider the article which appeared in the Gardeners' Chronicle of May 3, 1890, from Mr. J. A. Gammie, with reference to the natural conditions under which the Cymbidium eburnum and other Orchids are found in India, an extremely opportune and suggestive one; and I most cordially agree with the Editor's footnote, that the thanks of all Orchid growers are due to Mr. Gammie, and in the hope that others similarly placed will favour us with their observations on plants as they grow in nature. This, I venture to think, if pursued with care and persistency, might in time become a great factor in increasing our knowledge with regard to the proper mode of cultivating many exotic plants under artificial circumstances.

Mr. Gammie's remark, that "many plants appear to have accommodating constitutions, and are found growing equally well at widely different altitudes,"—which means, of course, widely different temperatures—is a fact which is beyond dispute; but as this fact does not come very strikingly, perhaps, under the notice of the English gardener in connection with the flora of his own country, it is somewhat hard of belief; and hence, it seems, the very great value to be attached both to Mr. Gammie's communication and the Editor's footnote.

When an Orchid or any other plant is found not to affect a wide range of altitude, then, when this is known, its artificial cultivation becomes, comparatively speaking, a matter of ease; but when it is proved that a certain plant is found in a natural state, growing at widely different altitudes, and consequently in widely different temperatures, say, as widely different as the stove and the greenhouse, then perhaps it should be the aim of the English gardener to cultivate the plant in the much lower temperature.

As a plant that seems equally at home under vastly diverse conditions, I may instance the Pteris longifolia. This Fern I have seen growing on the inside of the walls of deep wells at Calicut and Cananore on the Malabar Coast, within 50 yards of the sea; on the Poomoor Ghant, Nilgiri Hills, at an elevation of 4000 feet; and on the K consa Mountains, Nilgiri Range, at an elevation of 6500 feet above sea-level, the difference in the mean annual temperature between the highest and lowest localities being, probably, not less than 36°. Another plant, Gloriosa superba, was a common creeper on the Coffee estates in the Wynad district of Malabar, and was frequently found covering the Coffee bushes.
Botanical Certificates were awarded to Xerophyllum asphodeloides, two plants, of which from the open border, each bearing three spikes of bloom, from Mr. Howes, gr. to Lord Walsingham, Merton Hall, Norfolk; to Aërides Sanderiana, Epidendrum Randii, Cypripedium Volonteanum, Oncidium Roraimensis, and O. crispum Rothschildianum, Bate-mannæ Wallisii; Cattleya Mossææ, Measureseanum, Odontoglossum Bleui splendens, Phaius Humboldtii and P. Humboldtii alba, Phœnix Rœbelenii, and Cattleya Brymeriana, from Mr. F. Sander, St. Albans; to Cattleya Mossææ decora, Bertolonia Souvenir de Gand, and Arisema filiformis, from Mr. B. S. Williams, Victoria Nurseries, Holloway; to Odontoglossum Galeottianum, from J. Slatter, Esq., Whitefield, Manchester; to Cypripedium Aylings, from Mr. E. Ayling, gr. to J. Hollington, Esq., Forty Hill, Enfield; to Saxifraga McNabiana, from Messrs. J. Laing & Sons, Stanstead Park Nurseries, Forest Hill, S.E.; to Cattleya Mendelii Hackbridgensis and C. Mendelii Alfred Smee, from A. H. Smee, Esq., Wallington, Surrey; to Cattleya Mossææ Reineckiana pallida, from Messrs. H. Low & Co., Upper Clapton; and to Cypripedium californicum, a small-flowered species, nearly or quite hardy. Floral Certificates were awarded to the following...
THE Index Kewensis is so well-known that it is unnecessary to justify the publication of this first supplement for the decennial period of 1886-1895. There is one thing to be explained — the reason of the delay in its completion. It is a matter of conscience for the author of these lines to absolve Mr B. Daydon Jackson from all responsibility on this point. Shortly after the printing of this volume had begun in Brussels, the state of his own sight, already critical, became so much worse as to cause fear of total blindness. The completion of the work thus only became possible by printing with disheartening slowness, and the correction of proofs during many years, has only been accomplished at the cost of actual suffering.

These circumstances have been the cause of errors which otherwise would not have occurred. The undersigned therefore begs that these defects may not be attributed to his co-author, Mr B. Daydon Jackson, and he relies on the indulgence of all those to whom this work will be of service.

Th. DURAND.

Brussels, June 1906.
**Cattleya hackbridgensis** auct., *Gard. Chron.*, III, 1890(2): 8 (1890).
This name is a synonym.

**Accepted Name:** *Cattleya mendelii* Dombrain, *Fl. Mag. (London)*, n.s., 1: t. 32 (1872).

**Family:** Orchidaceae

**Original Compiler:** R. Govaerts
Homonyms - species and Latin form
grex epithets


- Cattleya Milleri (1) grex = C. Brymeriana (1896) x C. [L.] tenebrosa. Sir Jas. Miller 1909

- Cattleya Milleri (2) grex = C. gaskelliana x C. maxima. Sir Jas. Miller 1909

- See Taxon 59(4): 1276 (2010) for the committee decision. These grex names not validly published under the ICN.

- There is currently no mechanism to prevent establishment of botanical names that conflict with earlier grex epithets.

This grex name published with sufficient description to interact with botanical names:


Imposed limits on grex nomenclature

• Insistence by OHRAG that grex parents must be at species rank or another grex. Assumption: grex = species
• This created nomenclatural problems in 3 areas:
  • Change of rank in previously accepted grex parent, e.g. species becomes a subspecies.
  • No collective name available for grexes with infraspecific parents
  • No rank co-ordination possible with grex x natural hybrid backcrosses
Grexes below specific rank

• *Paphiopedilum godefroyae* x *Paph. adductum*

Possible infraspecific hybrids
- *P. godefroyae* v. *leucochilum* x *P. godefroyae* v. *godefroyae*
- *P. adductum* v. *anitum* x *P. adductum* v. *adductum*

Possible interspecific varietal hybrids:
- *P. godefroyae* v. *godefroyae* x *P. adductum* v. *adductum*
- *P. godefroyae* v. *leucochilum* x *P. adductum* v. *adductum*
- *P. godefroyae* v. *godefroyae* x *P. adductum* v. *anitum*
- *P. godefroyae* v. *leucochilum* x *P. adductum* v. *anitum*

*var. leucochilum* and *var. anitum* have both been recognised at specific rank, and still are by some authors. Consequently the possible hybrids are named grexes when their parents become species and disappear (become nameless) when the parents become varieties. This calls for a sub-grex category...
Collective name for infra-grex units

- ICNCP commission approached to request a sub-grex – i.e. parentage based unit
- They responded by raising the grex above the rank of Group, so that grexes could contain Groups – i.e. description based unit
- +ve: Now it is possible to name new infra grex Groups
- But only by description based units.
- -ve: Impractical – no rapid change of rank possible, cf. comb. nov.
  Laborious description publication - but data usually unavailable.

‘The largest room in the world is the room for improvement.’
Making the grex widely available?

• IUBS Code Commission, meeting in Beijing in 2013, had a formal proposal to extend the use of grex to all other plants and this initially met with a positive response.

• Problems in simply applying the current orchid-centric rules on grex formation to other plants, together with a wide degree of variation in the way a number of other user groups would like to use grex (or have been using a grex-like unit already).

• Specify remit for grex use for each group of plants in ICNCP?

• Bromeliads
  Brugmansia
  Orchids
  Nepenthes
  Saxifraga etc.

• What rank is a grex?
Grex and nothospecies relationship

• A grex and a nothospecies with the same parentage are not equivalent units.
• Nothospecies includes all backcrosses.
• Each backcross is a separate grex.
• Consequently a grex and a nothospecies can no longer share the same epithet.
• A grex representing a backcross is below species rank.
Example of naming in a natural hybrid (ICN Art. H4)
What is the relationship of names from ICN and ICNCP?
Relationship of natural to artificial hybrid names
more accurately: relationship of ICN names to ICNCP names
ICNCP response

• Art 23.5 Note 2. ‘The progeny of a cross between a grex and a nothospecies of the same parentage may not form a new grex.’

• Modified in forthcoming edition to allow crosses between elements of a natural hybrid and grexes, provided they are not crosses between the equivalent units. *C. x dolosa* v. *dolosa* x *C. Heathii* gx is not a grex, but could become a Group within either parent.
Thoughts on the grex

ICNCP: A sub-grex, parentage based unit could be useful, or a rankless grex?
ICNCP: How to make grex available for all plants? Some possibilities

1. Specify grex limits for each plant group?

2. Grex in orchids already a multirank taxonomic unit?

3. Is the grex rankless?
   Could it work as a free floating unit?
Hybrid generic names are condensed formulae

- Not typifyable, no description, a statement of parentage.
- 1776 J.G.Kölreuter (1733-1806) published *Lychni-Cucubalus* for *Cucubalus* × *Lychnis*
- 1872 Maxwell T. Masters, editor Gardeners’ Chronicle, x *Philageria* for *Lapageria* × *Philesia*
- Oct 1897 x *Sophrolaeliocattleya* Hurst, first trigeneric hybrid
- Early 1900’s x *Brassolaeliocattlonitis* 4 genera
- 1950 Stockholm Botanical Congress adopts – *ara* termination in ICBN.
Hybrid Generic Synonyms

• Nothogenera are only exact equivalents (synonyms) under special circumstances – when one component is replaced by an exact (coextensive) equivalent.

• $x$ Zygocolax is a synonym of $x$ Zygopabstia because $Pabstia$ is coextensive with $Colax$ (It is a replacement name)

Usually it is not that simple.
Goodyera R. Br.
maximowicziana Makino - 5
repens (L.) R. Br. - 1, 2, 3, 4, 5, 6
schlechtendaliana Reichenh. fil. - 5

Gymnadenia R. Br.
abalda (L.) Rich. subsp. straminea (Fcrn.) B. Ljtnant = Leucorchis straminea
alpina (Tuzc ex Reichb. fil.) Czva. (G. conopsea (L.) R. Br. var. alpina Tuzc. ex Reichb. fil. G. conopsea subsp. alpina (Tuzc. ex Reichb. fil.) Jand. ex Sco) - 1
pectinifera (Cham. & Schlch.) Miyabe & Kudo = Platantia pectinifera
canopsea (L.) R. Br. - 1, 2, 3, 4, 5
subsp. alpina (Tuzc. ex Reichb. fil.) Jand. ex Sco = G. alpina
subsp. densiflora (Wahlenb.) K. Richt. = G. densiflora
var. alpina (Tuzc. ex Reichb. fil. = G. alpina
cucullata (L.) Rich. = Nostocrella cucullata
densiflora (Wahlenb.) A. Dietr. (Orchis densiflora Wahlenb., Gymnadenia canopsea (L.) R. Br. subsp. densiflora (Wahlenb.) K. Richt. - 1, 2
subsp. densifl. (Wahlenb.) K. Richt. = G. densiflora
subsp. alpina (Tuzc. ex Reichb. fil.) Jand. ex Sco = G. conopsea
subsp. densiflora (Wahlenb.) K. Richt. = G. densiflora
x intermedia Pers., = G. conopsea (L.) R. Br. x G. odoratissima (L.) Rich. - 1
x Habenaria Rolfe = x Dactylorhizum

Habenaria Wild.
dianthides Nevski = H. radiata
lineariololia Maxim. - 5
radiata (Tumb.) Spreng. (H. dianthides Nevski) - 5
graminea Fcrn. = Leucorchis straminea
yezoensis Hara - 5

Hammarbya O. Kentze (Malaxis sensu Nevski)
pseudosa (L.) O. Kentze (Malaxis pseudosa (L.) Sw.) - 1, 3, 4, 5

Herminium Hill
monorchis (L.) R. Br. - 1, 2, 3, 4, 5, 6

Himantoglossum Koch
caprinum (Rich.) C. Koch (H. hircinum (L.) Koch subsp. caprinum (Rich.) K. Richt., H. hircinum subsp. caprinum (Rich.) H. Sundemann, comb. superfl.) - 1, 2
formosum (Stev.) C. Koch - 2
hircinum (L.) Koch subsp. caprinum (Rich.) K. Richt. = H. caprinum
subsp. caprinum (Rich.) H. Sundemann = H. caprinum

Hypochlachorchis auct. = Clematula
variabilis Blume = Cremastra variabilis

Leucorchis E. Mey. (Pseudorchis Seguler, 1901, specif. unio. nom.)
albida (L.) E. Mey. (Pseudorchis albida (L.) A. & D. Love) - 1, 3
subsp. straminea (Fcrn.) A. Love = L. straminea
straminea (Fcrn.) A. Love (Habenaria straminea Fcrn.)
Gymnadenia albida (L.) Rich. subsp. straminea (Fcrn., B. Ljtnant, Leucorchis albida (L.) E. Mey. subsp. straminea (Fcrn.) A. Love, Pseudorchis albida (L.) A. & D. Love subsp. straminea (Fcrn.) A. & D. Love)

Limnorchis Rydb. = Platanthera convallariifolia (Fisch. ex Lindl.) Rydb. = Platanthera convallariifolia
dilatata (Druh.) Rydb. = Platanthera dilatata
holostoma (Maxim.) Nevski = Platanthera holostoma

Limodorum Bochm.
abortivum (L.) Sw. - 1, 2

Liparis Rich.
aviculata auct. = L. kumokuri
japonica (Miq.) Maxim. - 5
ramerii Franck. & Savat. - 5
kumokuri F. Max. (L. aviculata auct.) - 5
lueselli (L.) Rich. - 1, 3, 6
makinoana Seibl. & Schlechter - 5
sachalinensis Nakai - 5

Listera R. Br.
brevifilis Nevski = L. nipponica
cavalieroides (Sw.) Thott. (Epipactis cavalieroides Sw.)
cordata (L.) R. Br. - 1, 2, 3, 4, 5
var. nipponica (Makino) Hiroe = L. nipponica
major Nakai = L. pirei
nippionica Makino (L. brevifilis Nevski, L. cordata (L.) R. Br. var. nipponica (Makino) Hiroe) - 5
ovata (L.) R. Br. - 1, 2, 3, 4, 5
pinetorum Lindl. (L. major Nakai, L. savatieri Maxim. ex Kom., L. yatabei Makino) - 4, 5
savatieri Maxim. ex Kom. = L. pirei
yatabei Makino = L. pirei

Lysideia Rydb.
nevisi Aver. - 6
obliqua (Pursh) Britt. & Rydb. subsp. obovata (Tursch.) Tolm. = L. obovata
oligantha (Tursch.) Nevski (L. obliqua (Pursh) Britt. & Rydb. subsp. obovata (Tursch.) Tolm., Platanthera obovata (Pursh) Lindl. subsp. oligantha (Tursch.) Tolm., P. oligantha Tursch.) - 4, 5

Malaxis sensu Nevski = Hammarbya
pseudosa (L.) Sw. = Hammarbya pseudosa

Malaxis Soland. ex Sw. (Microstylis auct.)
monophylls (L.) Sw. (Microstylis monophyllus (L.) Lindl.) - 1, 3, 4, 5
Components: *Brassavola x Cattleya x Laelia*

Following GO 4 revision hybrids formerly in Blc are now scattered amongst these nothogenera.

Why nothogenera (or any formulaic names) are not typifiable

Suppose Blc was typified on its first hybrid – following GO4 revision that would be in *Brassocattleya*. Where would the rest of Bc and Blc go?
Numbers of hybrid genera published in most hybridised families
Orchids excluded
Numbers of nothogeneric names published in the most hybridized families.
Concluding suggestions on naming hybrids

• ICNCP: A sub-grex, parentage based unit would be useful.
• ICNCP: Make grex available for all plants.
• ICN: prohibition on species and nothospecies epithets that replicate Latin grex epithets. ICNCP Reciprocal prohibition already in place.
• ICN: conservation for nothogenera, some well known names do not have date priority, x Brassolaeliocattleya vs. x Brasscatlaelia
• ICN/ICNCP: transfer naming of nothogenera to ICNCP? At least for 3 or more component genera. Dactylorhiza x (Anacamptis x Gymnadenia)
• Do we need separate codes - could ICN/ICNCP be combined or better integrated?
Finis ....