Genus Magnolia: A Taxonomic and Hybridizing Diagram

by Bill Seidl

During the winter of 1982-83, I expressed to Harold Hopkins an interest in magnolia hybridizing involving some far-out combinations. Thinking that it would be helpful for me to study it, he mailed a copy of a taxonomic diagram by Philip Seitner that appeared in the AMS Newsletter, July 1968. With the Seitner chart before me, I began to reread all my old newsletters and journals accumulated since 1975 when I joined the AMS. Since I do not have any formal education in botany or horticulture, and no other literature on magnolia taxonomy, frequent referral to the chart helped me to discover a fuller, more enriching understanding of all those articles by McDaniel and others. So much more hybridizing has taken place since 1968 that I found myself taking up pencil and paper and making my own version of the chart, including all the new hybrid combinations, whether or not the resulting seedlings have been named and introduced. I sent a rough draft to Harold and he encouraged me to make a finished draft for reproduction in the Journal.

Concerning taxonomic classifications, the apparent difference between the two subgenera is that the members of Subgenus Magnolia open their flowers after the plants are fully leafed out, whereas those in Subgenus Yulania flower before the leaves unfold or, as in Section Tulipastrum, concurrent with the developing leaves. A less apparent difference is that the stamens in Subgenus Magnolia dehisce introrsely (facing toward the center of the flower) and in Subgenus Yulania, laterally. Tropical species are not listed except for *M. coco* which was listed because it is a Type species, i.e., typical or most representative of the section to which it belongs. Unlisted tropical species number 13 in Section Theorhodon, 9 in Gwillimia, and 5 in Maingola. (These figures are from the Seitner chart; some later literature indicates these figures as 17, 15, and 13 respectively.)

The taxonomists have made some recent changes and most are reflected in the chart. Some names are so embedded in the literature that I think they should be considered legitimate by virtue of "squatter's rights." Therefore I've retained the names *liliflora* and *denudata*, also the grex names *loebneri, proctoriana,* and *kewensis* despite not giving species-status to *stellata*. I've underlined the six American species that the "lumpers" acknowledge and treated the other species that the "splitters" acknowledge as subspecies or varieties.

Grex names have been given to certain hybrid combinations. I've assumed that the grex names *thompsoniana, highdownensis, kewensis, and watsonii* are also used as clonal names for the first progeny of that particular cross to distinguish them from other siblings that later appear and receive cultivar names.

The reason for numbering the species in Subgenus Magnolia and lettering those in Subgenus Yulania was for the purpose of making a different kind of chart where opposite each species one could list, by number or letter, every other species with which it has been successfully combined. By using both numbers and letters one could see at a glance where intersubgeneric crosses

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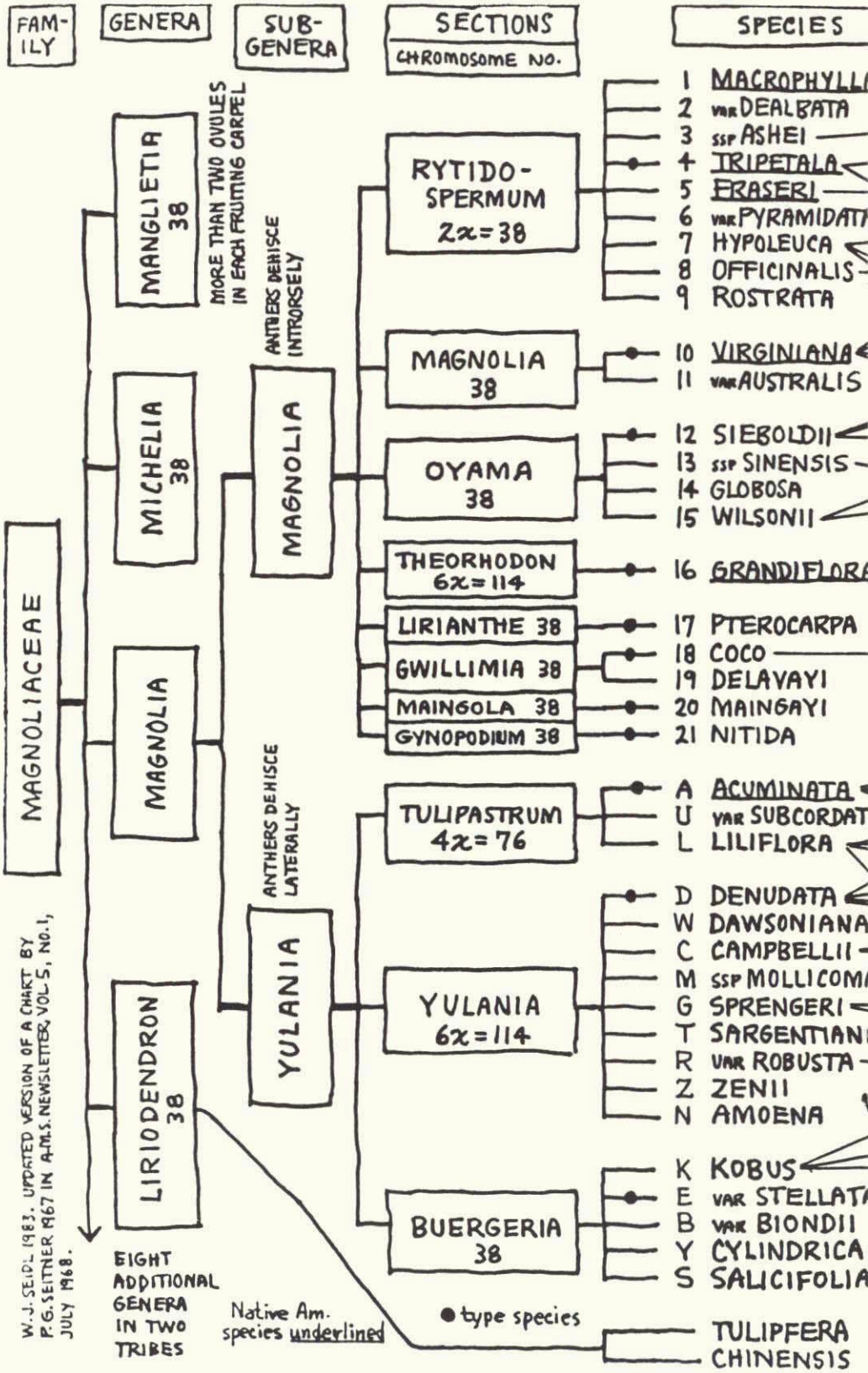
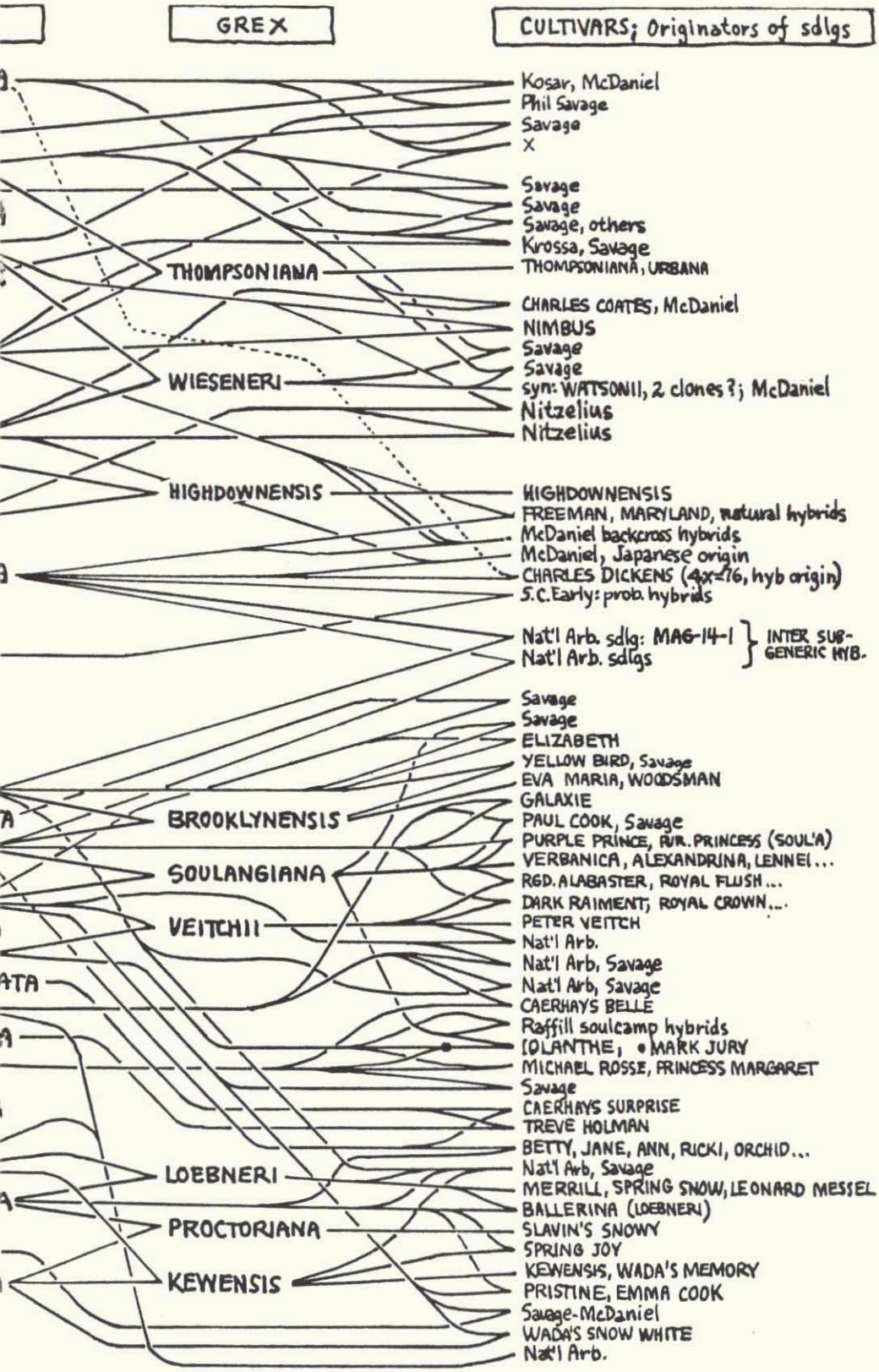

FAMILY
GENERA
SUB-GENERA
SECTIONS
CHROMOSOME NO.
SPECIES
MAGNOLIACEAE
MANGLIETIA 38
MICHELIA 38
MAGNOLIA
LIRIODENDRON 38
MORE THAN TWO OVULES IN EACH FRUITING CARPEL
ANTHERS DEHISCE INTRORSELY
ANTHERS DEHISCE LATERALLY
MAGNOLIA
YULANIA
RYTIDO-SPERMUM 2x=38
MAGNOLIA 38
OYAMA 38
THEORHODON 6x=114
LIRIANTHE 38
GWILLIMIA 38
MAINGOLA 38
GYNOPODIUM 38
TULIPASTRUM 4x=76
YULANIA 6x=114
BUERGERIA 38
1 MACROPHYLLA
2 VAR DEALBATA
3 SSP ASHEI
4 TRIPETALA
5 FRASERI
6 VAR PYRAMIDATA
7 HYPOLEUCA
8 OFFICINALIS
9 ROSTRATA
10 VIRGINIANA
11 VAR AUSTRALIS
12 SIEBOLDII
13 SSP SINENSIS
14 GLOBOSA
15 WILSONII
16 GRANDIFLORA
17 PTEROCARPA
18 COCO
19 DELAVAYI
20 MAINGAYI
21 NITIDA
A ACUMINATA
U VAR SUBCORDATA
L LILIFLORA
D DENUDATA
W DAWSONIANA
C CAMPBELLII
M SSP MOLLICOMA
G SPRENGERI
T SARGENTIANA
R VAR ROBUSTA
Z ZENII
N AMOENA
K KOBUS
E VAR STELLATA
B VAR BIONDII
Y CYLINDRICA
S SALICIFOLIA
TULIPFERA
CHINENSIS
EIGHT ADDITIONAL GENERA IN TWO TRIBES
Native Am. species underlined
● type species
W.J. SEIDL 1983. UPDATED VERSION OF A CHART BY P.G. SEITNER 1967 IN A.M.S. NEWSLETTER, VOL 5, NO. 1, JULY 1968.


GREX
CULTIVARS; Originators of sdlgs
Kosar, McDaniel
Phil Savage
Savage
X
Savage
Savage
Savage, others
Krossa, Savage
THOMPSONIANA
THOMPSONIANA, URBANA
CHARLES COATES, McDaniel
NIMBUS
Savage
Savage
WIESENERI
syn: WATSONII, 2 clones?; McDaniel
Nitzelius
Nitzelius
HIGHDOWNENSIS
HIGHDOWNENSIS
FREEMAN, MARYLAND, natural hybrids
McDaniel backcross hybrids
McDaniel, Japanese origin
CHARLES DICKENS (4x=76, hyb origin)
S.C. Early: prob. hybrids
Nat'l Arb. sdlg: MAG-14-1
Nat'l Arb. sdlgs
INTER SUB-GENERIC HYB.
Savage
Savage
ELIZABETH
YELLOW BIRD, Savage
EVA MARIA, WOODSMAN
GALAXIE
BROOKLYNENSIS
PAUL COOK, Savage
PURPLE PRINCE, PUR. PRINCESS (SOUL'A)
SOULANGIANA
VERBANICA, ALEXANDRINA, LENNEI...
RGD. ALABASTER, ROYAL FLUSH...
DARK RAIMENT; ROYAL CROWN...
VEITCHII
PETER VEITCH
Nat'l Arb.
Nat'l Arb, Savage
Nat'l Arb, Savage
CAERHAYS BELLE
Raffill soulcamp hybrids
IOLANTHE, • MARK JURY
MICHAEL ROSSE, PRINCESS MARGARET
Savage
CAERHAYS SURPRISE
TREVE HOLMAN
BETTY, JANE, ANN, RICKI, ORCHID...
LOEBNERI
Nat'l Arb, Savage
MERRILL, SPRING SNOW, LEONARD MESSEL
BALLERINA (LOEBNERI)
PROCTORIANA
SLAVIN'S SNOWY
SPRING JOY
KEWENSIS
KEWENSIS, WADA'S MEMORY
PRISTINE, EMMA COOK
Savage-McDaniel
WADA'S SNOW WHITE
Nat'l Arb.

were accomplished.

Species cultivars are not listed, only hybrids. The chart does not show which way a cross was made, i.e., which parent was the seed parent and which the pollen. All that was attempted was that the reader see which species are in the ancestry of the listed hybrids. Thus 'Yellowbird' is derived from *acuminata* and *liliflora*, 'Paul Cook' from *sprengeri, liliflora,* and *denudata*, etc.

The purpose of the chart is to provide a reference in better understanding the taxonomic language in numerous articles and to serve as both a guide and an inspiration to hybridizers. By seeing the extent of successful hybrid crosses already made, one should realize that preconceived notions about the futility of a certain cross may be the biggest obstacle to the success of the cross. With enough preparation, care, and patience many an "impossible" cross can be accomplished. Compared to hybridizing within other ornamentals, e.g., tall bearded iris and daylilies, magnolia hybridizing is in its infancy. Many hybrid combinations not now on this chart are not there simply because they haven't yet been tried, or tried with too casual an attitude: "This cross probably won't work so I won't waste a lot of time on it." In peonies, for centuries, breeders in China, Japan, Europe, and America tried crossing herbaceous varieties with the tree varieties with no success, but since the 1950s this "impossible" cross has been successfully made several dozen times. Also in peonies, "sterile" triploids (diploid × tetraploid parents) have occasionally produced seeds giving rise to fertile tetraploid progeny. An analogous situation in magnolias would be to pollinate the triploid Kosar-DeVos hybrids ('Betty', 'Jane', 'Ann', etc.) with *kobus-stellata* pollen. An unreduced gamete from the K-D hybrid combined with a normal, reduced haploid gamete from the pollen parent would yield tetraploid progeny. In daylilies, colchicine-treated diploid seedlings have given rise to a whole new race of tetraploids and a new area of hybridizing. The same steps might well be repeated with magnolias.

In studying the chart one will readily see that the most hybridizing activity has been in Subgenus Yulania, lesser activity in Subgenus Magnolia, and very little in intersubgeneric breeding, the only one being between *grandiflora* and the two Tulipastrum species. It would be both wrong and discouraging to assume intersubgeneric hybrids are scarce because of some inherent incompatibility between the two subgenera. Rather, the scarcity may result more from a scarcity of people having the ambition to overcome the barriers between the two groups: availability of the right parent plants and different bloom periods. By freezing and storage of pollen, use of the AMS pollen bank, pollen exchange on a direct one-to-one basis, trading of scions and grafting or budding onto established plants, wintering over grafted, potted plants in an unheated garage — all these methods can assure one of having the right pollen for the right seed parent at the right time.

Some interesting combinations to consider:

(1) species *virginiana* and those of Section Oyama, both parents diploid and in the same subgenera.

(2) *grandiflora* and species of Section Yulania, both parents hexaploid.

(3) Buergeria species and Oyama species or *virginiana*, both parents diploid.

(4) *acuminata* and anything in Subgenus Magnolia, including the tetraploid *grandiflora* hybrid 'Charles Dickens.'

While it's good to have hybridizing goals, I think some "far out" combinations should be made just to