JCRaulston Arboretum

AT NC STATE UNIVERSITY

Planning and planting for a better world

Friends of the JC Raulston Arboretum Newsletter

Number 3, Spring 1998

Director's Letter

Spring greetings from the JC Raulston Arboretum! This gardening season is in full swing, and the Arboretum is the place to be. Emergence is the word! Flowers and foliage are emerging everywhere. We had a magnificent late winter and early spring. The *Cornus* mas 'Spring Glow' located in the paradise garden was exquisite this year. The bright yellow flowers are bright and persistent, and the exfoliating bark and attractive habit make it a winner. It's no wonder that JC was so excited about this seedling selection from the field nursery. We are looking to propagate numerous plants this spring in hopes of getting it into the trade. The magnolias were looking fantastic until we had three days in a row of temperatures in the low twenties. There was plenty of damage to open flowers, but the good news is that, overall, everything fared quite well. As I told a local television station during an interview, the plants are much less worried about the cold than we are!

As spring progresses so do many Arboretum projects and programs. Mitzi and Karen are working hard to get the whole Arboretum mulched. With the help of Paul Lineberger, the Horticultural Field Lab Superintendent, and Brad Holland, his assistant, it will be



Students from a Wake Tech Community College Photography Class find plenty to photograph on a February day in the Arboretum.

done soon. Make sure you check out many of the special gardens in the Arboretum. Our volunteer curators are busy planting and preparing those gardens for another season. Many thanks to all our volunteers who work so very hard in the garden. It shows! Another reminder — from April to October, on Sunday's at 2:00 p.m. visitors can join a guided tour of the Arboretum led by one of many volunteer tour guides. If you have never been on a guided tour, it would be a valuable experience. Our guides have a lot of fascinating information to share about the Arboretum.

Make sure you read the newsletter carefully to catch all the many opportunities and announcements. Once again, my special thanks to all our staff who continue to give more

of themselves than is expected to keep things moving forward. I, for one, am thankful for each and every one of them.

Lastly, when you visit the garden I would challenge you to find the *Euscaphis japonicus*. We had a beautiful seven-foot specimen tree in the field nursery, but since last spring not one in the garden. Keith Cote, a graduate student in our department, volunteered to transplant the one in the field nursery into the garden. In between rain storms he managed to get it moved. We tried to pick a place where it will catch every visitor's eye. Good luck and happy gardening!

Bryce Lane Arboretum Director

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Editor's News

The IC Raulston Arboretum was built by volunteers and staff with a passion for plants and creating beautiful gardens. Collectively, they focus the light that illuminates this spot of the earth, thereby attracting attention from all points of the globe. This is not a small thing which is happening at the Arboretum. It is a big thing. It is an important thing. It is the blending of energies, talents and gifts of so many people. Only in the past nine months, since I started work as program coordinator, have I seen the scope of the Arboretum's work. I have come to appreciate all of the various groups that make contributions.

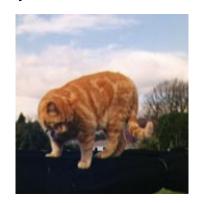
It is my hope that this newsletter will capture the creative, innovative, generous and hard-working spirit that people bring to the Arboretum. Let the light from the Arboretum shine ever brighter! Let its beacon draw those who will add their energies, talents, hopes and dreams into the mix. Let us build on the past 22 years and continue the vision to plan and plant for a better world.

Correction

Illicium mexicanum 'Aztec Fire' was incorrectly reported in the Fall, 1997 Newsletter to have been found by JC. It was discovered by John Fairey and Carl Schoenfeld at the Rancho del Cielo Biosphere Reserve, Mexico. We also incorrectly spelled John Fairey's name. We regret both errors. ■



Volunteers, left to right, Elaine Pace, Bee Weddington, Betsy Lindemuth and Shirley Jones take a well deserved break during a mailing.





It's amazing how many people ask for the Arboretum cats. Milo does a balancing act, and plays soft and fluffy for a young visitor.



Maize takes a pause from grooming (no pun intended).



Who is this mystery worker? Quick! Turn to p. 20 to find out.

A Survey of Chinese Native Plants of Potential Ornamental and Economic Value for the Southeastern United States

Dr. Donglin Zhang (Assistant Professor, Landscape Horticulture, University of Maine, Orono, ME 04469-5722)

F. Todd Lasseigne (Ph.D. Student, Dept. of Horticultural Science, NC State University, Raleigh, NC 27695-7609)

Dr. Michael A. Dirr (Professor, Horticulture Department, University of Georgia, Athens, GA 30602) (Adapted from a poster presentation exhibited at the 1995 Annual Meeting of the American Society for Horticultural Science, Montréal, Canada)

Preface

by Todd Lasseigne

During the fall quarter of 1994, while both Donglin Zhang and I were working on graduate degrees (Ph.D. and M.S. in Horticulture, respectively) at the University of Georgia, Donglin came up with an idea to write a paper on Chinese native plants that he wanted to present at the upcoming American Society for Horticultural Science (A.S.H.S.) meeting in Montréal, Canada, the following summer. At first, I was suspicious, knowing full well that papers of this

sort are not the standard material which A.S.H.S. publishes. Nevertheless, we both thought the idea was a good one, and Donglin discussed it with Dr. Dirr (his Ph.D. advisor/committee chair), who voiced his approval. With that, we were off and running.

Why is an article of this nature important, and why is it being published in the Newsletter of the IC Raulston Arboretum at NC State University? There are several reasons that can justify this. First, the Arboretum's mission is the promotion of "new" landscape plants and the diversification of American landscapes and gardens. IC himself was a fan of many plants that hailed from China, but for various reasons had been neglected by preceding American horticulturists. Secondly, after Donglin and I completed writing and compiling the paper and its accompanying list, we realized that it was unlikely that it would ever be acceptable to A.S.H.S. for publication. So, both during the A.S.H.S. meeting and afterwards, Donglin and I distributed copies of the list of plants to anyone who was interested. IC was one of those people who received it. He remarked to me one day back in the fall of 1996 how "remarkable and important" the list was.

The aim of the following article and accompanying list is to present (bewilder?) you with the absolutely stunning diversity of plants that hail from China. As authors, Donglin and I strived to indicate which plant species had already been introduced into cultivation (into the Western world, not only North America) as accurately as possible, but knew that our knowledge would only approximate the true number. Basically, if any plants were mentioned in Hortus Third, the Hillier Manual, Dirr's Manual, Krussmann, the RHS Index of Gardening, or Bean, we said that they were "introduced" and "culti-

vated." However, this simplistic view does not take into account the fact that some plants perish shortly after being introduced, as was the case with Quercus augustinii, a ring-cupped oak from China which once grew in England at the famous garden at Caerhay's Castle but perished either in a freeze or storm. This example could be repeated several hundred-fold, if not a thousandfold. Plants known to be introduced by nurseries such as Heronswood, Camellia Forest, Woodlanders, and arboreta such as the JC Raulston Arboretum, were also added to our list. The region of China which is highlighted in our list is south-central China, especially Hunan Province, from where Donglin hails and taught forest tree identification several years back. I remember commenting to Donglin when we first started typing the list how ridiculously large some of the generic lists seemed to be. It seemed impossible to me that so many oaks, maples, illiciums, iteas, photinias, callicarpas, and so forth, existed in that one part of China. Why hadn't these plants turned up in England, when I had lived there for nearly one year? I had never seen or heard of these plants, and surely (sarcastically) the British had already collected all of the different tree species from China, I thought!!

In studying the list of plants that Donglin brought to my attention, I have realized just how many of these still await introduction into the United States. Ernest Wilson, during the first decade of this century, had seen many of these plants. (In fact, he named many of them!) I also learned, however, that Wilson and others had actually introduced some of these plants to the northern U.S., for example Boston, but unfortunately the northeastern climate was unsuitable for the plants, and they perished. Why these plants weren't also sent to southern horticultural institutions (if there really were any equipped to handle them) remains unknown to

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me. The "take-home lesson" (as some of my professors might say) is that many of the plants native to China will NEVER be adaptable to the northern and midwestern U.S. Many will also never grow in the southeast. However, invariably, SOME plants from a certain part of China will grow in a certain part of the U.S. What we need to do, as southeastern horticulturists, is to get into cultivation those plants from locations in China that will furnish adaptable ("pre-adapted") plants. It is also extremely likely that by collecting seed of plants already introduced from China, but using populations from more southerly locations in China, we may find that we actually can grow species "X". For example, Sorbus are considered to be "northern" plants; that is, they do not perform well in the southern climate. However, several Sorbus are native in parts of southcentral China, and some even at low elevations. These plants may possess abnormally high (for Sorbus, that is) heat tolerance. If we always looked north for plants, we might have never realized that there were such things as evergreen Hamamelidaceae, the loropetalums and distyliums. We would not currently be growing the ring-cupped oaks, such as Quercus myrsinifolia (itself only the tip of a proverbial iceberg of other evergreen oaks and their relatives).

Furthermore, the Chinese flora (as with our own) is under siege from development, population, and land-use pressures. Many of the plants listed below are, in fact, threatened to some degree. Conservation, in the strict sense, is NOT accomplished by introducing plants into cultivation. But, we would be remiss, at the least, if we did not try to grow some of these plants before they disappear forever. Many of the plants native to China also date back to prehistoric eras, to a time when the Asian flora was linked to our American flora. Thus, sister species

and genera to our American native plants (especially the southeastern plants) abound in China.

The information contained below is, as yet, not readily available in the North American horticultural literature. With the ongoing translation, updating, and publishing of the Flora of China, however, our knowledge of Chinese plants increases daily. In the meantime, only nondescriptive lists such as our compilation are available. (Even lists such as these are difficult to find, nondescriptive as they are.) *Undoubtedly, there are errors or* differences in opinion as to which particular plants constitute a "true species." However, most of the names are correct and accepted by modern taxonomists. As a check, I compared several genera from this list with treatments that have already been published in the English-version Flora of China, such as Styrax, Osmanthus, Callicarpa, Ardisia, and Symplocos. In all cases except Symplocos, only one or two species had been reduced to synonymy with other names already listed. In the case of Symplocos, the entire genus was recently revised by an expert in the group, upon which many of the older species were found to be too narrowly defined, such that many were lumped into variable, more broadly defined species. Ultimately, however, this is only a matter of taxonomic opinion, as someone of expert abilities may ultimately disagree in the future with even this current view of the Symplocos.

Donglin and I hope that you will find inspiration from our article and the list. The age of plant exploration is not over. For the southeastern U.S. at least, it has only begun.

Introduction

China, E.H. Wilson's "Mother of Gardens," remains a vast untouched resource of ornamental

plants to this day. Southeastern gardens and arboreta teem with plants from China, which boasts the most diverse temperate flora in the world, with as much as 30,000 species of plants described. Because of the geographical, climatic, and floristic similarities between China and the southeastern United States, many of the plants native to China are adaptable to the southeast. Based on studies of phytogeography, floristics, history of plant hunting, and performance of plants already introduced into cultivation from China, ≈2000 species of Chinese woody plants are presented for ornamental evaluation. These species represent genera that have not been fully trialed (e.g. Elaeocarpus) or lesser known species of more common genera (e.g. Acer, Quercus), being native to central and southern China. Characterization of these species' geography and climatic preferences in China will allow horticulturists to more accurately predict the species' performance throughout the southeastern United States. Maps of areas already explored in the past (by George Forrest, Ernest H. Wilson, and other contemporary explorers) as well as maps of suggested areas that have not been fully botanized are presented for review.

Similarities in Vegetation

The floristic relationships between eastern Asia and eastern North America have been studied by botanists and geobotanists for over 150 years. The most outstanding feature of these relationships is the large number of genera of predominantly woody flowering plants occurring disjunctly between these two regions. Geographically, both the United States and China are situated over approximately the same range of latitudes in the

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northern hemisphere (see Figure 1). Although the total areas of China (9.6 million km²) and the United States (9.3 million km²) are similar, complex topography and the vast territories involved increase both the diversity of habitats and the variety of climatic types. Dominated by monsoonal winds arising from the differences in the heatabsorbing capacity of the Asian continent versus those of the Pacific Ocean in the southeast and the Indian Ocean in the southwest, the annual rainfall over the greater part of China is highly concentrated within the summer months. Likewise, influenced by the Atlantic Ocean and the Gulf of Mexico, the climate of the southeastern United States is also warm and humid in summer. In addition, the soil types of the southeastern United States and corresponding areas of China are similar. These similarities in diversity of physical environmental factors in China and the United States make it possible to introduce native Chinese woody plants with potential ornamental value to the southeast.

It has been reported that half of our woody ornamental plants originate from China. Generally, Chinese plants were brought to the United States via the following three routes. (1) Before 1700, many Chinese ornamental plants were cultivated in Japan by Buddhist monks and other plant enthusiasts. From Japan, they were later introduced into Europe and the United States. (2) During the eighteenth century, European travellers were enthralled by the mystique and richness of China whose floral treasures seemed endless. Beginning in the latter part of the nineteenth century, China was discovered to be an apparently inexhaustible source of fine plants, many of which thrived in European gardens.

Among the most famous of the "plant hunters" sent to collect these wonders was Robert Fortune (1812-1880), who collected along the east coast cities of China (Guangzhou to Shanghai) and brought back thousands of plants to Europe (*Ilex* cornuta, Dicentra spectabilis, Mahonia bealei and Lonicera fragrantissima, among others). Thus, plants were introduced directly from China into the West. (3) Ernest Henry Wilson (1876-1930) collected in central and western China for more than ten years, earning the nickname "Chinese Wilson". His early collections were sent back to the Veitch Nursery firm in England. His later collections, however, were conducted on behalf of the Arnold Arboretum (Boston, Mass.), beginning the era wherein Chinese ornamental plants were directly introduced into the United States. (Wilson is credited with introducing plants such as Acer griseum, the original Kurume azaleas, Kolkwitzia amabilis, Berberis julianae, and others.) The contributions of Frank N. Meyer, Liberty Hyde Bailey, Joseph J. Rock, and the Sino-American Expedition continued this trend. Plant introductions from China to the West continue to the present day, through the efforts of individuals like Roy Lancaster (Britain) in the 1980s, and a veritable flood of travellers in the 1990s, including individuals such as Dan Hinkley (Heronswood Nursery) and Dr. Clifford Parks (U. of North Carolina, Chapel Hill). Areas already explored are presented in Fig. 2.

Proposed Areas for Exploration

Although thousands of Chinese plants have already been introduced into the United States, there is currently no coordination among Southeastern botanical and horticultural institutions for the intro-

duction of "new" Chinese plants. The Chinese plants that flower in our gardens today are derived almost exclusively from past collections of the Arnold Arboretum, the U.S. National Arboretum, and other northern U.S. and European gardens and nurseries. Many plants (such as those collected by Wilson) that proved to be nonhardy at northeastern United States institutions were often lost or discarded. It is clear that the areas already explored by Europeans and Americans may still be worthy of further investigation by southeastern institutions. It is also clear that expeditions with a southern focus need to be undertaken.

Difficulties in transportation for early collectors rendered remote areas containing rich floras inaccessible. For instance, no collections are recorded from the mountainous areas of Hunan in southern China. With over 1900 woody plant species (25% of all woody plant species in China) and a climate similar to that of the southeastern United States, Hunan Province holds tremendous potential for future plant introductions. As examples, two plants introduced as recently as the 1980s can be highlighted. Both Heptacodium miconioides (discussed below) and Sinocalycanthus chinensis (Chinese sweetshrub) were found in Zhejiang Province. Dan Hinkley, of Heronswood Nursery, considers Sinocalycanthus to be "the most exciting new plant introduced into Western cultivation since Davidia involucrata." Praise indeed! The lesson to learn from this is that unique plants remain to be introduced from China to the West. If plant exploration efforts in China continue to focus on the northern and southwestern provinces, we will miss out on a large portion of the plants from eastern and south-

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eastern China which are, in many cases, better adapted to the south-eastern U.S. climate than plants native to other parts of China.

An accompanying list of ≈1200 "new" plants features those expected to perform well in some part of the southeastern United States based on knowledge of the physical environment in China where these plants occur as well as their affinities to Southeastern taxa. An additional ≈800 taxa already intoduced, but not widely available and from different provenances, are presented concurrently in the list (entitled "Inventory of Selected Woody Plants of China"). Suggested areas worthy of exploration in China are presented in Figure 3.

Economic Value

Early Chinese woody plant introductions have played and continue to play a crucial role for the green industry. Millions of dollars are annually generated from these plants, many of which were introduced nearly 100 years ago. *Ilex* cornuta and Nandina domestica, for instance, have dominated the Southeastern market for many decades, with sales amounting to \$10-15 million annually. Currently, Loropetalum chinense var. rubrum, hailing from southern China, is making inroads into the horticultural marketplace. Pink Chinese loropetalum (also called fringe flower) is desired for its fuchsiapink flowers and colorful evergreen leaves. Other Chinese plants, such as Taxus chinensis and Heptacodium miconioides, may also bring tremendous economic value to the green industry. Chinese yew will be of value as a large, needle-leaved evergreen with outstanding heat tolerance and adaptability to pruning into hedges. Seven-son's

tree has been billed as the potential "crepe myrtle of the North", owing to its superb exfoliating bark and pink calices that are showy in late summer through early fall. These few plants, and many more worth describing, all wait to contribute beauty to our gardens and economic value to our nurseries and landscapes. It is incredulously unreasonable to assume that all Chinese plants with future economic potential have already been introduced.

Conclusions

Chinese woody plants are the garden treasury of the southeastern United States. Zone maps now exist for both the United States and China that equate geographic areas with minimum winter temperature extremes. The use of these zone maps can suggest yet more areas to explore for plants that should perform well as superior garden subjects in the southeastern United States. The results of our survey, hopefully, will enhance a continued interest in the wonderful diversity of the Chinese flora.

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1997 Bedding Plant Trials

by Doug Bailey, Associate Professor Department of Horticultural Science, NC State University

Editor's note: Each year the colorful and educational annual trials are enjoyed by many at the Arboretum. Below is a summary from the summer of 1997, just in time to plan your summer annual plantings.

Over 450 entries of annual and perennial plants were evaluated during the 1997 bedding plant season at test gardens in Raleigh, North Carolina. The trial gardens are used each year to evaluate bedding plants for landscaper and home owner use.

The trial gardens are located at the Horticulture Field Lab, 4301 Beryl Road, in Raleigh. The site is located on latitude 35°47′N, longitude 78°42′W, with an elevation of 400 feet. Transplants were grown in 2.5 inch by 2.2 inch containers, and most were planted in the trial garden on 13 May 1997. A few slower selections were planted when ready. Plant spacing in the trials was 18 inches in-row, and 24 inches between-row. Seven plants of each entry were used to evaluate the performance of the cultivars with the exception of All-America Selections judged entries, which had 14 plants each.

All plants were grown in full sun except for begonias, hypoestes, impatiens, New Guinea impatiens, setcresea, and tuberous begonias; these were grown under 55% shade. When needed, water was applied using overhead irrigation.

Temperatures were cooler than normal during May and June and

very close—slightly above in July and slightly below during August and September—to average for the remainder of the summer season. Looking at the entire five month season, temperatures were moderate and averaged about 1.5% below normal (73 °F average daily temperature).

Rainfall received during the five-month period (15.8 inches) was below our average of 21.2 inches (Table 1 and Figure 2) and much below our record 35.3 inches of rainfall during the 1996 season. May was much dryer than average; June and July rainfall was above average. August and September were well below average for rainfall.

Beds were pretreated with Basamid® for weed control prior to planting. Fertilizer was applied as a preplant incorporation and as dry applications during the bedding plant season. No insecticide applications were made during the evaluation to document major pest problems. No major pests were noted during the 1997 season, however the Japanese beetle population seems to increase every year in the gardens. Plant diseases were less prevalent in 1997 than in 1996 or 1995. The lack of rainfall may have accounted for the reduction in diseases such as Rhizoctonia that sometimes present a problem. The major disease problems included Botrytis blight and bacterial leaf spot on geraniums.

Sources of Seeds and Plants

The following companies graciously sponsored the 1997 trial gardens. The companies are acknowledged in the ratings table and in the listings by the abbreviation that appears to the left of the company name. Appreciation is

also given to Fafard, Inc. and to the North Carolina Commercial Flower Growers' Association for their contributions towards the trials.

- AAS, All-America Selections,
- •BALL, Ball Seed Co.
- •BEN, Ernst Benary of America
- •BG, Bodger Seeds Ltd.
- •BWN, Berylwood Nursery, Inc.
- •DHN, Dæhnfeldt Inc.
- •ECKE, Paul Ecke Ranch
- •FIS, Fischer USA, Inc.
- •GOLD, Goldsmith Seeds, Inc.
- •MI, Henry F. Michell Company
- •NCSU, Department of Horticultural Science, NC State University
- •NOV, Novartis Flower Seeds, Inc.
- •OGL, Oglevee, Ltd.
- •PA, PanAmerican Seed Co.
- •SAK, Sakata Seed America, Inc.

NC State Leaders of the Pack

The following were selected in 1997 on their ability to display attractive landscape color throughout the majority of the bedding plant season. At any one time, other species or entries may have made a better short-term showing, but the "Leaders of the Pack" were selected for consistent, dependable full-season performance as a source of color and beauty in the landscape. The cultivar source is shown in parenthesis.

Ageratum

'Blue Hawaii' (BG)

Begonia (Fibrous)

Mix: 'Partyfun Mix' (BEN)
Pink: 'Super Olympia Pink' (BEN),
'Ambassador Pink' (DHN), 'Victory
Green Leaf Pink' (GOLD)
Red: 'Inferno Red' (DHN),
Rose: 'Eureka Bronze Rose' (NOV),
'Ambassador Rose Blush' (DHN),
'Ambassador Rose' (DHN)
White: 'Eureka Bronze White'

See **Bedding**, next page

Bedding, continued

(NOV), 'Inferno White' (DHN)

Begonia (Tuberous)

'Panorama Scarlet' (BEN)

Celosia

'Prestige Scarlet' (SAK)

Coleus

'Rose Trailer' (NCSU), 'Touchelay' (NCSU), 'Camellia' (NCSU), 'Alabama Sun' (BWN), 'El Brighto' (NCSU), 'Black Trailer' (NCSU)

Dianthus

'Floral Lace Picotee' (BALL), 'Floral Lace Light Pink' (BALL), 'Floral Lace Cherry' (BALL)

Geraniums From Cuttings

Coral: 'Lucille' (OGL)
Orange: 'Lollipop' (OGL)
Pink: 'Gypsy' (OGL), 'Melody'
(OGL)

Red: 'Melody Red' (OGL), 'Sincerely Yours' (OGL), 'Tango' (FIS) Salmon: 'Morning Mist' (OGL), 'Schoene Helena' (FIS)

White: 'Lotus' (FIS)

Geraniums From Seed

Coral: 'Pinto Coral' (NOV) Red: 'Maverick Scarlet' (GOLD)

Impatiens

Blue/Violet: 'Dazzler Violet' (BALL), 'Super Elfin Violet Improved' (PA), 'Accent Violet' (GOLD)

Coral: 'Tempo Coral' (BG) Mix: 'Carnival Mix' (DHN), 'Dazzler Merlot Mix' (BALL), 'Accent Peppermint Mix' (GOLD) Orange: 'Tempo Orange' (BG)

Impatiens, continued

Pink: 'Carnival Pink' (DHN),
'Tempo Watermelon' (BG)
Red: 'Accent Cranberry Punch'
(GOLD), 'Impulse Cranberry'
(NOV), 'Accent Red' (GOLD)
Rose: 'Cajun Carmine' (NOV),
'Super Elfin Rose' (PA), 'Tempo
Rose' (BG), 'Victorian Rose'
(GOLD)

Salmon: 'Impulse Coral' (NOV),

'Accent Salmon' (GOLD) White: 'Pride White' (SAK)

Lavender 'Lady' (AAS)

Marigold

Gold: 'Antigua Gold' (GOLD), 'Bounty Gold' (SAK)

Gold/Red: 'Hero Flame' (BG) Red: '96BP03' (AAS), 'Safari Red' (BG)

Yellow: 'Bonanza Yellow Improved'

(PA)

Narrow-Leaf Zinnia 'Crystal White' (AAS)

New Guinea Impatiens

Blue: 'Paradise Aruba' (ECKE) Orange: 'Paradise Timor' (ECKE) Orange/Red: 'Paradise Antigua' (ECKE), 'Pure Beauty Apollon' (ECKE)

Pink: 'Pure Beauty Jolana' (ECKE) Red: 'Paradise Tarawa' (ECKE) Salmon/White: 'Pure Beauty

Melissa' (ECKE) **Nierembergia**

'Purple Robe' (AAS)

Ornamental Pepper

'Velvet Elvis' (NCSU)

Osteospermum

'Sunscape Daisy Zimba' (ECKE)

Petunia

Blue/Purple: 'Purple Wave' (PA), 'Celebrity Lilac Morn' (BG), 'Plum Crazy Madness' (BALL)

Mix: 'Celebrity Watercolors Mix'

(BG)

Pink: 'Pink Wave' (PA), 'Hurrah Pink' (NOV), 'Fantasy Pink' (GOLD), 'Fantasy Pink Morn' (GOLD), 'Eagle Pink' (SAK) Red: 'Fantasy Crystal Red' (GOLD)

Rose: PrimeTime Rose' (GOLD) White: 'Hurrah White' (NOV), 'White Madness' (BALL)

Yellow: 'Celebrity Chiffon Morn' (BG)

Plectranthus

'Silver' (BWN), 'Variegatus' (NCSU)

Calvia

Blue: 'Signum' (BG)

Purple: 'Salsa Light Purple' (GOLD)

Red: 'Red Vista' (PA)

Red/White: 'Salsa Scarlet Bicolor'

(GOLD)

Rose: 'Salsa Rose' (GOLD) White: 'Salsa White' (GLC) **Sweet Potato**

'Sulfur' (NCSU), 'Pink Frost' (NCSU), 'Blackie' (NCSU)

Verbena

Blue/Purple: 'Imagination' (AAS)

Red: 'Quartz Scarlet' (PA)

Vinca

Blue/Purple: 'Blue Pearl' (PA), 'Grape Cooler' (PA), Heat Wave Grape' (BG)

Pink: 'Orchid Cooler' (PA), 'Blush Cooler' (PA), 'Icy Pink Cooler' (PA)

Rose: 'Rose Cooler' (PA)

Zinnia

'Profusion Orange' (AAS), 'Profusion Cherry' (AAS)

NCSU Exceptional Performance Winners

Each year, the best of the best, those cultivars that exemplify outstanding performance during the trials, will be recognized as "Exceptional Performers". The winners are judged on full-season performance and are recommended as outstanding selections for our region. Growers, retailers and landscapers are encouraged to consider these cultivars first for their color needs. Only six cultivars were selected from over 450 entries in the 1997 trial garden. The seasonal average score and the source of the plants are given for each winner:

1997 Winners

- 1. Begonia, 'Ambassador Rose Blush' (Dæhnfeldt Inc.)
- 2. New Guinea Impatiens, 'Paradise Aruba' (Paul Ecke Ranch)
- 3. Sweet Potato, 'Sulfur' (NC State University)
- 4. Begonia, 'Inferno Red' (Dæhnfeldt Inc.)
- 5. Begonia, 'Eureka Bronze Rose' (Novartis Flower Seeds, Inc.)6. Zinnia, 'Profusion Orange'

(Sakata Seed America, Inc.) ■

Garden News

Japanese Garden Renovations Planned

by Dan Howe Japanese Garden Curator

Renovations to the wall in the Zen Garden at the Arboretum are planned for this spring. The wooden cap on the garden wall has deteriorated over the years, and volunteers are soliciting donations from area lumber companies to replace it and to repair portions of the translucent wall on the other side of the garden. More renovations are in the planning stage for the Japanese Garden, and some of our design-oriented volunteers are beginning to rethink how the Japanese Garden will relate to the new plan for the Arboretum grounds once the Education Center is built.

If you are interested in joining in the demolition of the old wall cap and/or the construction of the new one, if you can donate materials (cedar or cypress) for the new cap, or if you are generally interested in participating in the on-going redesign and maintenance of the Japanese Garden, contact Dan Howe (890-3650 daytime, e-mail howeda@raleigh-nc.org). You will be notified when the work day is scheduled. Thanks are due to volunteers Bob Roth, Beth Webb, Beverly Norwood and Clarence **Boyd** for their hard work getting the Japanese Garden plans off the ground.

The Garden of Winter Delights

by Jonathan Nyberg

In October 1998, Frank Simpson and I took over the duties as curators to the Garden of Winter Delights (formerly known as the Winter Garden). Our goal is to create a beautiful garden while at the same time maintaining collections of selected plants. To fulfill this goal, we are soliciting donations of quantities of plants as well as plants donated for uniqueness. Doris Huneycutt, of Pittsboro, NC recently donated clumps of Helleborus orientalis seedlings. (For those members in Chatham Co., be sure to read Doris's gardening



St. Fiacre, donated by Marion Redd, marks the west entrance to the Garden of Winter Delights. Shown

column in *The Chatham Record.*) Perhaps others will donate more uncommon types that we can display, and maybe even inspire people to grow more varieties of hellebores. Who knows? We may someday have our own hellebore festival. My goodness, just a few years ago you couldn't give away hellebores, and now within the span of eight days in March there were three hellebore festivals that I know of — **Gethsemane Gardens, Pine Knot Farms and Picadilly Farms.**

What accounts for the rise of the hellebore? One theory is the rise of the hosta. Gardens everywhere must be inundated with hostas by now. Well, hostas disappear from sight for 6 months of the year. What do you look at for the other six? Why not hellebores? They are very tough, look great all year, but especially good from December to February. They are long lasting plants that improve greatly with age and varmints don't seem too fond of them. Their main drawback has been the inability to select clones, relying instead on seed strains. However, I've been told that tissue cultured clones are not too far away — so watch your checkbook!

One thing for sure, three hellebore festivals show a greater sophistication and awareness among nursery owners that promotion and marketing generally will sell more plants. This is a very positive move for our industry. At a recent Arboretum seminar, nurseryman David **Johnson** compared the nursery industry with Pepsi and Coke, which are products that may actually be bad for you, but are so heavily promoted that many of us buy them. Contrast this with the plant industry that provides a product with real value but is hesitant to promote itself. So if festivals work to bring people to the nursery, let's have more festivals.

Then again, it might be that hellebores are more common because of a general increase in awareness of the delights of gardening during the winter. More and more people are agreeing with Elizabeth Lawrence, who opens her classic, *A Southern Garden*, with these words:

Perhaps it will seem contrary to begin the garden

See Garden, next page

Garden News



Curator Jonathan Nyberg shows off the fabulous Japanese lantern, donated by Marion Redd and now in the Garden of Winter Delights.

year with winter, but to me it begins with the flowering of the first paper-whites and sweet violets after heavy frost has cut down the last chrysanthemum. We do not have to wait for spring to start the new season. After the slimy stalks of fall flowers have been cleared away, the garden assumes its winter aspect, and winter flowers begin to bloom.

Or, perhaps some gardeners are listening as she chastises them at the beginning of *Gardens in Winter*:

I never did care for fairweather gardeners. Standing behind glass doors, they look out at the cold ground and leafless branches and exclaim, 'How beautiful this must be in spring!'...How beautiful it is now, I want to cry.

In the Triangle there are several advantages to gardening during the winter. There is always plenty of water, therefore no irrigation is necessary. There are no biting, stinging insects or hot, blazing sun. The trunks and branches of deciduous trees are visible and quite attractive. Conifers look their best, and you can usually get a better view into your neighbor's yard. I'll agree there are fewer plants to choose from, but thank God! Who can choose from all those plants that are available from April through October?

At least with winter flowers you can get to know them a little.

Well, here is a list of genera that we want to get to know. If you are a plant-nut that has been smitten by one of the following groups, there exists a great opportunity to become, say, the curator of the *Galanthus* Collection at The JC Raulston Arboretum at NC State University. Now that would look good on a resume! Besides, we need plant-nuts at the Arb. It was built by plant-nuts, and that is the one group we absolutely can't afford to lose. As plant-nuts go, so goes the Arboretum.



Volunteer Mike Nyberg tries to hide behind the *Cornus officinalis* 'Kintoki'

Crocus Iris **Eranthis** Hyacinthus Muscari Narcissus Scilla Arum Carex Sedum Helleborus Hedera Mahonia Corylopsis Cornus or Acer with winter interest Anything contorted or weird

Galanthus

Leucojum

For summer interest, we want to work with *Zephyranthes* and *Habranthus*.

If you want to be involved with the Garden of Winter Delights, there are several possibilities: donation of plants, curator of a collection within the garden, or just plain dirt gardener. We want to thank Emily Brown, Andrew Goodridge, Michael Nyberg, Doris Huneycutt, Mitzi Hole, Karen Jones and Frank Hyman for helping us this past winter.

Oh! We do have a festival to announce. The first annual **Prunus Mume Festival** is going to be held in the Garden of Winter Delights on Sunday, February 7, 1999. So save the date and we'll get you more details later.

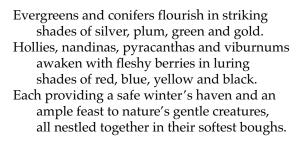


WINTER'S BEAUTY

by Danese Thompson

An unusually balmy January morn, spent spying on nature's magic.

Most consider the winter garden quite forlorn, Yet quiet contemplation will reveal the sensual moods of life.



Naked trees baring their majestic souls, it would seem.

Their true shape and form no longer masked by summer's gleam.

Magnificent trunks embraced by smooth, furrowed, or peeling bark; in subdued shades of light and dark.

Trees swaying and softly moaning in the wind with sumptuous bark pining to be touched, caressed.



Faint sweet scents wafting to the observant nose.

A winter's gift from the honeysuckle, witchhazel, mahonia and apricot.

Their diminutive blossoms of yellow, white, pink and rose;

Their diminutive blossoms of yellow, white, pink and rose; a visual feast amid so many naked branches.

Brazen perennials, once considered beautiful, now seemingly dead.

Tan blades and blonde heads of tall slender grasses, lingering leaves in soft shades of brown.

All rustle and dance in rhythm to the poignant song of the winter's wind.

Jonquil blades shoving up through dark, rich dirt. Buds swelling larger and larger with each passing day. Every plant becoming fertile, awaiting the sweet pollen of its mate.

Mother Earth quivering in rapture, will soon burst forth with the rebirth of spring.





Garden News

Work Day in the Klein-Pringle White Garden

by Harriet Bellerjeau

February 28th was an iffy situation with heavy rains in the morning threatening cancellation of the first of a series of Saturday work days for the Klein-Pringle White Garden. Co-curators Jeff Briggs, Karen Jones and Anne Owens worked with a fine group of volunteers. Thanks to Ed Kluttz they got a new screening fence built and painted. Four magnificient B&B vibernums were planted, donated by John Allen of Shiloh Nursery in Harmony, NC. They also planted two large conifers and moved a lot of mulch. As the first garden visitors see coming through the main entrance, their goal was to bring this special place into tip-top shape for the upcoming summer season. Thanks to the following volunteers who made this day possible: Christy Sporleder, Chris David, Doris Huneycutt, Wayne Friedrich, Tricia Tripp, Louise Binder and Catherine Maxwell. I



Chris David gets it just right.



Jeff Briggs hauls in a giant Mohawk Viburnum for instant impact.





Wayne Friedrich, left, and Doris Huneycutt dig a big hole.





Catherine Maxwell, left, chasing off the papparazzi, or has she forgotten which end of the shovel to use? Christy Sporleder takes a well deserved lunch break.

Development News

Joslin's Create New Public Garden

by Catherine Maxwell

The gardening community is richer today, thanks to the generosity of William and Mary Coker Joslin of Raleigh, who recently donated their four-acre home and gardens to NC State University. The property will serve as an interdisciplinary research, teaching, and outreach laboratory for the departments of horticulture, landscape architecture, botany, plant pathology, and parks and recreation management. The facility will be sustained by an endowment created by the Joslins, and maintained in perpetuity as a part of NC State.

Joan DeBruin, Director of Gift Planning, echoed the thoughts of many who have worked with the Joslins.

"The Joslins epitomize the word philanthropist," she said. "Their goal is to leave things significantly better than the way they found them. This is exhibited by the many civic, cultural and educational institutions they have contributed time and resources to throughout their lives. It is really just a privilege to work with people with so much foresight."

As philanthropists, public servants, and champions of education and the environment, William and Mary Joslin continue a rich heritage that reaches back generations. Mary Coker Joslin's grandfather, James Lide Coker, founded Coker College



Mary Coker Joslin

in 1908. In 1932, her parents, David Robert and May Roper Coker, founded Kalmia Gardens in Hartsville, SC. Her father and grandfather founded the Pedigreed Seed Program. Her father was on the original board of trustees of Brookgreen Gardens. Locally, Mary Joslin's uncle, Dr. W. C. Coker, founded the Coker Arboretum on the campus of the University of North Carolina at Chapel Hill.

Both William and Mary Joslin have a lifelong commitment to public service. They serve on the board of Kalmia Gardens in Hartsville, SC. William Joslin is a former chairman of the board of the NC National Heritage Trust, and is past president of the board of the NC Nature Conservancy. He is also a past chairman of the NC Botanical Garden board. Mrs. Joslin has been a teacher of French at Ravenscroft School and at Saint Augustine's College.

The Joslin's creation and stewardship of their lovely home and garden has spanned four decades. Inspired by a love of the natural beauty of the area, and foreseeing



William Joslin

the trend toward increasing density in development, the Joslins gradually acquired and protected four acres of beautiful land in the heart of Raleigh. The property, located on West Lake Drive near the intersection of Glenwood Avenue and St. Mary's Street, includes a naturalistic stream and ravine garden, woodland, a formal perennial garden, a vegetable garden, a terrace garden and rose arbor, and beautifully landscaped grounds surrounding the home. Numerous species of plants, both native and exotic, comprise an extremely diverse flora. The late JC Raulston visited the home and garden in the summer of 1996, and gave his enthusiastic approval of the gift of the property to the university.

The Joslins will maintain residence and continue to maintain and build the garden. Upon their death, care of the property will become the responsibility of NC State University. The ongoing stewardship of the property will be monitored by an oversight committee composed of representatives from the university real estate office, landscape services, the physical plant, and the academic departments that the facility serves, as well as a representative from the family.

See Joslin, next page

Development News

Joslin, continued

The Joslin Gardens will offer learning opportunities for faculty, undergraduate, and graduate students in a wide range of university curricula. Because of its nature as a residential site, its varied topography, and its maturity, it will augment existing resources within the university.

For the Department of Horticultural Science, the Joslin Gardens will provide myriad benefits. The gardens will be a valuable satellite testing ground for plants introduced by the JC Raulston Arboretum. At the eight-acre arboretum, plants that have been tested must be moved out to leave room for new plants collected for evaluation. In the Joslin's gardens, selected plants can be grown to maturity and observed in a residential setting. This will be a great asset both for ongoing plant evaluation and for students studying a variety of horticultural topics.

For students in plant identification and taxonomy, the gardens will provide a treasure trove of plant diversity and consistently available subjects for study. This becomes increasingly important as urban renewal encroaches on many of the mature specimens in neighborhoods near the university on which faculty have relied for years.

For students in landscape horticulture, the gardens will provide opportunities for design and handson garden development. For students in grounds maintenance classes, the wide variety of landscape styles and microclimates will provide many experiential laboratory opportunities. Perhaps of greatest importance, however, the gardens will serve as a springboard for research and teaching in the

increasingly important field of urban residential horticulture.

Faculty and administrators in the departments of plant pathology, botany, and parks and recreation management have also expressed interest in incorporating the Joslin property in their programs. Of primary interest, however, is the concept of creating a fellowship for a student who will serve as the primary caretaker of the garden.

This fellowship will be available to graduate or undergraduate students with an interest in public garden management or urban horticulture. While serving as the principal groundskeeper for the gardens, the fellow will also pursue studies in such areas as integrated pest management or plant physiology. The fellow will be paid a stipend funded by the endowment, and will be invited to live rent free on site in the downstairs apartment.

"The Joslin's generosity will be a great asset to our university and to the people of North Carolina for generations to come," said Chancellor Larry Monteith. "Vision and foresight such as theirs led to the founding of NC State and have helped produce our outstanding university. We must thank them for keeping the spirit of stewardship alive and for allowing us to join them in the preservation of the wonderful resource they have created."

"When you cease to make a contribution you begin to die."

Eleanor Roosevelt

Bumgardner Legacy Grows

by Catherine Maxwell

Dr. Harvey Bumgardner's interest in horticulture began during his childhood years in King's Mountain, North Carolina. His Grandfather Mabry shared his love for cultivating vegetables, flowers, and roses, including a rose Harvey calls "Papa Mabry" that flourishes in his Oakwood garden today.

In 1945, at age sixteen, Harvey left King's Mountain to attend the University of North Carolina in Chapel Hill, finding a campus bustling with returning veterans. He later enlisted in the Marine Corps before returning to Chapel Hill, then transferred to NC State University. He graduated from State in 1951 in poultry science, and went on to receive his master's and doctoral degrees from the University of Maryland. In 1955, he returned to NC State as a member of the faculty.

As a professor in the Department of Poultry Science at NC State, he made many contributions to the University and to the poultry industry. Perhaps most notably, he was a key participant in the North Carolina Mission to Peru, and served as Chief of the Mission from 1963 to 1969. During his tenure, the International Potato Research Institute in Peru was developed.

It was after he returned to Raleigh, however, that his love for roses was rekindled. A lunchtime discussion with Rebecca Gill inspired him to buy two roses from the Winn-Dixie. They flourished, and next year a dozen more joined them. Today,

See Bumgardner, next page

Development News

Bumgardner, continued

Harvey's Oakwood garden includes some 300 varieties of roses among a host of other plants. An accredited life-judge and an official consulting rosarian, Harvey has won two national awards for his roses.

Not surprisingly, it is by his reputation as a rosarian and volunteer cocurator of the Finley Rose Garden in the Arboretum that the Arboretum community knows him best. The original rosarian at the Arboretum, Harvey began his curatorship with a few plants in the area that is now the mixed shrub border. In 1992, he and groundcover curator Suzanne Edney swapped locations. Harvey worked with students in Will Hooker's and Dick Wilkinson's landscape design classes to create the rose garden as it is today, a wonderful collection of roses, and a gracious garden retreat within the Arboretum. Harvey cocurates the roses with Anne Clapp.

Raleigh also knows him for the roses that he has planted and tended throughout town, especially in historic Oakwood.

"He worked for years at the Mordecai garden sale, and rooted many of the old roses himself," said Pickett Guthrie. "He inspired me to start growing roses twenty years ago, and some of his grandchildren from the Mordaecai sales are still in my garden today. He has such a generous attitude in sharing his knowledge that you might mistake him for an amateur like the rest of us."

Carol Caldwell, NC State's former first lady, agrees.

"I really looked forward to his coming each week to tend my roses," she said. "He knows roses inside out. He gave me such confidence." Harvey's latest gift to the community is one that will live on forever. Through a charitable unitrust, he has established an unrestricted endowment fund for the JC Raulston Arboretum.

"We can never thank Harvey enough, both for his generosity and his vision in making this gift," said Bryce Lane, arboretum director. "JC Raulston taught his students that the difference between a great garden and a great garden that endures is a strong endowment. Harvey's gift will not only help ensure the future of the Arboretum, but will also set an example for the exceptional contribution that an individual can make through estate planning."

Harvey's continuing contributions are best summed up in the words of Carol Caldwell.

"As Raleigh grows, it is harder to feel a sense of community. Harvey has created a community through his work with roses and those who love them. Harvey's work, both in his career on the faculty and as a rosarian, means so much to the Arboretum, to the University, and to the community," she said. "The world is a better place because of him."

Apology

Our sincere apologies go out to **Charlotte Harris**, of **Charlotte's Creative Designs**, who donated an exquisite silver bracelet for the Gala auction, and whose name was inadvertently left out of the auction preview information.



Volunteer News

by Harriet Bellerjeau

New curators

Bill Satterwhite put on another volunteer hat and became our Blue Bird Houses curator last fall. Bill's love of blue birds has taken him all over the area making and putting up homes for these beautiful, feathered friends. The new additions and rearrangement of boxes at the Arboretum are some of the 65 to 70 for which he monitors activity and reports it to the NC Blue Bird Society. We look forward to being on the receiving end of his vast interest and experience. The open fields and meadows are the blue bird's best habitat, and with those that surround the Arboretum. Bill hopes for a successful nesting.

It was a bit ironic shivering under our umbrellas in the wet, looking at the specimen agaves, cactus, dasylirion, nolina's and those marvelous things that prefer the hot, dry climates of our southwestern states, but there they were with James Brantley who is the new curator of the Southwest Garden. This avid gardener brings his experience from gardening in New Mexico and bringing into being his own sixacre garden in NC. He is looking forward to the new season and says that if you are an enthusiast whose interest is Southwest plants, he'd be happy to hear from you.

Retired curators

Lynn Hoyt, Blue Bird Houses and Larry Garver and Linda Jones, Wisteria Garden. Many thanks for sharing your time and talents with the Arboretum.

See Volunteer, next page

Volunteer News

Volunteer, continued

Tour Guides

A special thanks to Vivian Finkelstein for organizing the 1998 tour guide training. Her appeal for new tour guides brought 18 new guides into our seasoned group. With a total of 44, up from last year's number, Fran Johnson is busy at work matching guides to scheduled tours and the Sunday afternoon tours from April through October, ensuring that all tours have a guide. The tours range from groups of 10 and 15 to over 100. The larger groups are divided with each 20 visitors assigned to a guide. You can imagine the logistics involved when 115 seventh graders are coming for a tour.

At the time of this writing in mid-March, booked tours through mid-May indicate 27 scheduled tours alone will serve close to 1,000 visitors! This does not include the regular Sunday tours nor those that have not yet been requested. And the season is yet young.

Appreciation Luncheon

Every year, the Arboretum seizes the opportunity to fete the very core of the Arboretum's heart. Seventy-five volunteers, who normally prefer to remain anonymous, accepted their invitation to be formally recognized, fed and pampered.

These are the volunteers who pull their mail to "save the stamp," who drive from as far as Pittsboro and Knightdale, Durham and Chapel Hill on a regular basis to tend their gardens. They are the guides who give tours with more dedication than a letter carrier. Without grudging, they bag plants in the heat and prepare endless mounds of postcards and newsletters for mailings. They serve the arboretum with an exceptional degree of love and caring. And

we can not say enough words to adequately thank them.

Susan Little, who spoke on behalf of the Arboretum Board, brought these wonderful words from Webster's to describe a Arboretum volunteer. "A volunteer is: growing spontaneously without direct human control or supervision especially from seeds lost from a previous crop."

When donations were asked for to help appreciate the volunteers, no one said no. There were gift certificates from nurseries and eateries, and the NCSU Bookstore. The Arboretum staff nurtured seedlings and provided enough plants for everyone. A JC Raulston Arboretum tee-shirt and sweat-shirt brought looks of envy. But the grandest prize came from **Tony and Michele Avent** at Plant Delights Education Center for \$300 worth of classes throughout the year.

The Department of Horticultural Science, Arboretum board and staff recognizes the following volunteers for their significant contributions during 1997. We want to remember them again by printing the names of those whose hours during the year were 50 and up, and up, and up to over 450!!!

Roseanna Adams, Mary Caldwell, Tom Bumgarner, Laurie Cochran, Mary Edith Alexander, Edith Eddleman, Anne Clapp, Harvey Bumgardner, Genelle Dail, Vivian Finklestein, Carolyn Fagan, Rosemary Kautzky, Amelia Lane, Laurie Cochran, John Schott, Kathleen Tompson, Patricia Highland, Guy Meilleur, Charlotte Presley, Jean Wilkinson, Mary Peters, Glenn Rose, Tina Oberle, Lisa Stroud, Doug Ruhren, Art Kelly, Ann Goebel, Nancy, Donna Maroni and Fran Johnson.

It is my distinct pleasure to work with all of the JC Raulston volunteers. Each of you is a treasure. Every hour is a special gift. The Arboretum is truly a reflection of your many acts of kindness. Thank you!

Other news

The tedious job of final edits and formatting the new Volunteer/Tour Guide Manual were taken on by Linda Quin to whom I give personal thanks. This was no easy task and her patience and attention to detail make this edition a joy to read. There is a copy in the Volunteer Office, Mitzi's Office and at Kilgore Hall. We also thank Dr. Tom Monaco, department head and Vivian Finkelstein for their contributions to editing.

Help Wanted!!!!

We're searching for folks to do mailings. This is a huge job. Mailings to our list of friends are sometimes sent out several times a month, then we'll hit a dry spell with maybe one a month. Come join us for a day or two in the classroom. Snacks and drinks are provided along with the jovial camaraderie of fellow volunteers. It's a great way to get to know others. And we need to give our "regulars" a much deserved break.

We would also like to find photographers to take photos of the Arboretum, its plant materials, and to document workdays and events. The Saturday and Sunday slots are still open for folks who want to work in the volunteer office. Weekend and evening callers are especially needed to contact the many volunteers who work during the day. If you have plant identification or computer mapping skills, our plant recorder needs assistance drawing plants on the computerized maps. Please call Harriet at the arboretum office at 515-3132. For gardening opportunities, see the boxed list of curators on page 36.

Reviews and Previews

by Jonathan Nyberg

Dennis Werner gave a well-attended lecture about the timely topic of variegation. Personally, I believe we are in the 'Age of Variegation,' or so it will be dubbed by future horticultural historians. With more people looking for new plants than ever before in human history, it is becoming clear that the easiest way to find a new plant is to simply find a variegated form of a known plant. Well, Dennis helped us all understand the basis of variegation, what might be going on inside the leaf and how a plant breeder might use that information. Who can eat a **peanut M & M** again without thinking of the L1, L2 and L3 layers? Probably the highest testimony to the quality of his lecture happened the next day when a volunteer came up to me at the Arb and said, "I've never noticed all the different types of variegation before." So, thank you very much Dennis — I have a feeling it won't be your last Friend's lecture!

C. Ritchie Bell enthralled a packed room with his anecdotes, opinions ("go call your lawyer now"), slides and knowledge about native perennials, natural history and social ills. He also generously donated to the Arboretum a set of three videos of Seasonal Wild Flowers, produced with his wife, Anne H. Lindsey. To order these beautiful videos, call 800-942-6516. Thank you, Dr. Bell, for your generosity.

As this goes to press there are still a

few places in **Doug and Edith's Perennial Workshop** on May 14th. I can't even begin to put into words the value of these two, not only to the Arboretum but to the gardening world at large. We are blessed to have such treasures among us. Life is short; come learn from the best!

The **Private Gardens of Asheville** tour is not full yet. If you've been putting off your registration just put down this newsletter, write a check and send it in now. OK, didn't that feel good?

Now, the next thing to do is go to your calendar and mark off Friday evening, November 6, 1998. You've had plenty of notice so you'll have no excuses for not coming to a Education **Center Benefit Lecture and Plant Auction** featuring one of the most distinguished Plantsman of his or any generation, Dr. Michael Dirr, from the University of Georgia. Dr. Dirr is personally donating dozens of plants for the auction. But that's not all, he is also conducting a Propagation **Workshop** at the Arb on Saturday November 7, 1998. The workshop will be geared to those in the nursery industry, but it will be open to everyone.

For those in the business of plants, the National Conference of the American Nursery and Landscape Association is being held this year in conjunction with the already huge Southern Nursery Association show in Atlanta, GA. The Arboretum will be there, too, so make plans to attend this fantastic show and to stop by and say hi to us.

I could, literally I think, go on and on forever. In short, thanks to all those who have made past events so meaningful. Please come out to an Arboretum event soon. Please consult the **Calendar of Events** for details of events mentioned above.

Mystery Solved!

(Continued from page 2)



Arboretum student-worker Lisa Johnson is the face behind the hair.

Pleasure for an hour, a bottle of wine;

Pleasure for a year, marriage;

Pleasure for a lifetime, a garden.

Chinese saying

Travel News

My heart is warm with the friends I make, And better friends I'll not be knowing; Yet there isn't a train I wouldn't take, No matter where it's going.

Edna St. Vincent Millay

1997 Expedition to South Korea

by Tony Avent

Editor's note: This is the second installment of Tony's account of his recent trip to South Korea. See the Winter 1998 Newsletter for installment #1.

Tuesday 9-30-97

Ki-Hun had told us of a nice woodland walk along a river on our way to Chinbu, so off we went. After turning off the paved road, we bounced around, making occasionally "quickie" stops including forging one river in the van until the road abruptly ended. Even along the road, we passed a few scattered gems including a giant Cornus controversa (50' tall) in full fruit, along with big patches of Clerodendron trichotomum. As we passed farm after farm, we were alarmed to see crops rotting in the field. Ki-Hun told us that there was such a glut of food in the market that prices were depressed and the farmers had chosen not to harvest. This is a stark contrast, where only a few miles to the North, their are claims of famine in North Korea.

From here, we walked thru a mile of fields until we entered the forests

along the river. Even in some of the grown-over meadows that we passed, the vegetation was exciting with finds such as *Tripterygium regelii* (a hydrangea look alike) and thousands of *Patrinia scabiosifolia*. Much of the walk was on a worn down path thru the short bamboo, sometimes on flat ground and sometimes on the edge of the cliff. The woods were anchored with *Cornus controversa*, linderas, and a variety of maples.

Our first truly exciting find was the rare *Hanabusaya asiatica*. This wonderful and hard to grow campanula relative was in full flower along moist slopes. The woods were also filled with *Arisaema peninsulae*, although most of the plants had suffered miscarriages (ripe seed heads but no viable seed). Other interesting woodland gems included a variety of terrestrial orchids, veratrums, ferns, and even a asian skunk cabbage, *Symplocarpus nipponicus*, found by Darrell.

Tuesday night, we completed the drive two hours south to the small village of Chinbu, adjacent to our next site, Mt. Odae. This must have been the hardest floors yet, or else my bones were beginning to protrude from my body.

Wednesday 10-1-97

Off we went in the early morning to Mt. Odae, another National Park complete with monastery, monks...the whole bit. We hadn't driven along the road far, when we spied a large patch of trillium and cephalanthera orchids. Each plant of the *Trillium kamtschaticum* had a foliage spread of 2-3'. One of the more dominant ferns was an exact look alike to our native *Osmunda cinnamonea*, which indeed occurs also in Korea.

We made numerous stops along the ridge, either climbing up or down the steep 50-70% slope, to find more

wonderful treasures including a forest of the evergreen *Rhododendron brachycarpum* and the deciduous *Rhododendron schlippenbachii*. I was quite shocked to find the hillside chocked full of military bunkers from a war that still hasn't ended.

Thursday 10-2-97

From the same hotel, we headed southeast to our next stop, the port city of Pohang. Driving along the coastal highway, we watched the squid harvest in full swing. As the squids are returned to land, they are cut open and hung on close lines to dry along the highway...what an aroma. We made a lunch stop after a half day of driving on the shore (Sea of Japan). Instead of preparing sandwiches, we all left Sue at the van as we checked out the coastal flora. I was thrilled to find many of our most popular ornamental grasses all native to one area, Miscanthus sinensis, Pennisetum alopecuroides, Imperata cylindrica, and Calamagrostis brachytricha.

We arrived in Pohang, and immediately went to the post office for our first shipment home. Express mail made everything fairly easy, especially since the post office also provided the require brown paper wrapping and string. After the post office stop, everyone was running low on money, so we walked to the bank several blocks away.

Changing money was easy for everyone except Sue, who tried unsuccessfully to get money with a credit card. Due to a translation problem, we still don't know what the problem was. During this time, Ki-Hun was phoning to make hotel reservations on Ullung Island for the following day.

While everyone was finishing in the bank, I went to check out the familiar "golden arch" sign that I'd

See Travel, next page

Travel News

Travel, continued

seen on the street nearby. After three blocks in every direction, I stumbled into a nice, but well hidden McDonalds. Unfortunately, the menu wasn't in English and "hold the pickles and the lettuce" didn't translate well. I quickly found that pointing to a #3 value meal was just the trick. Upon returning to the bank, I discovered that I wasn't the only one longing for a stomach settling meal, and subsequently escorted Darrell back to the golden arches.

As we wound up back at the van, Ki-Hun had found that all of the hotels were filled on Ullung island (National Holiday) for Friday, so time to change plans (which had become a common occurrence). We would use the next day to visit Mt. Chuwang, just north of our hotel. As we were having trouble distinguishing the odor of the drying squid from ourselves, we thought it best to drop off our laundry, so after dinner we passed our smelly apparel to a professional cleaner.

Friday 10-3-97

We set out for the 1.5 hour drive back north to Chuwang, for the hike to the top of Mt. Chuwang. Along the initial part of the trail was nearly a mile of vendors selling everything from carved statues to roots of many of the native plants. Finally we reached the trail and started upward. The giant sheer rock cliffs were indeed the most spectacular sight so far on the trip. To say the vegetation along the trail was desolate, however might be sort of like calling the Pope Catholic. We quickly decided that to find anything interesting here, we would have to detour from the trail. Cutting off the main trail, we followed the river and were quickly in a wonderfully rich area of Asarum sieboldii, various

polygonatums, disporums, and smilacinas, along with a large population of *Lilium tsingtauense*. This was also one of the only sites that we would find *Arisaema robustum*.

One of the highlights of this mountain was the wonderful sedum, *S. rotundifolium*, which hung vicariously from the faces of the rocks that comprised this giant mountain. The sedum was in full flower, as the attractive bright pink blooms hung down for viewing. The other highlight had to be the one small bank of *Jeffersonia dubia*, discovered by Bleddyn.

This was probably the busiest of the National Parks that we had yet to visit, and certainly one of the most spectacular. The giant sheer cliffs and fabulous waterfalls certainly brought back memories of the Great Basin region of the Pacific Northwest US. The Korean culture has only recently embraced leisure, and Koreans are certainly making the best use of their National Park System. I had begun making informal counts of folks that passed us on the trail and found an average of 35 people per minute passed me on the trail. Groups on the steep, virtually rugged paths were both school kids (all in their school uniforms), old men, couples, as well as lady's days out...complete with makeup and jewelry

Saturday 10-4-97

We departed Pohang around 8:30 a.m. with tickets in hand to catch the ferry to Ullung Island, some 216 km to the east. I was quite surprised at how nice the ferry is, with comfortable seats (by this time, any seats would have been a relief) and a big screen television. This was nothing to our surprise when the movies that they showed were all in American, and subtitled in Korean.

After a smooth and relaxing ride, we arrived at Ullung Island at 130 p.m. The steep volcanic rock cliffs surrounding the island gave way as we rounded the corner to a small depression into which the village had been sandwiched. The port was docked with squid boats, surrounded literally by miles of close line hanging with fresh squid. The families of the fishermen would work frantically killing, cleaning, and hanging the squid before the next shipment arrived.

As we de-ferried, we were scurried away to the military office at the ferry. We were asked our intentions, for identification, and other questions that we didn't cherish. After being told that we needed to fill out special forms, the office clerk gave up when he found that the office had run out of the needed forms. Of course, he promised to "get with us later" which never happened. Most of the islands, such as Ullung are still heavily used as strategic military bases, although I can't imagine we looked like North Koreans.

We made the short walk to our hotel, only to find that the guests that had been there the night before decided to stay, and they had no more rooms. After Ki-Hun and the desk clerk had a heated discussion, we discovered that they would send us to a nearby hotel up the road. We were escorted to the hotel, as our bags followed later by vehicle. The rooms were not bad, although the lack of a sink in the shrunken size bathroom made seed cleaning difficult at best.

Discontent with the room quickly faded as I stuck my head out the window to view steep volcanic cliffs full of *Ligularia tussilaginea* (*Farfugium japonicum*) just coming

See Travel, next page

Travel News

Travel, continued

into flower. Being one of my favorite plants, this was indeed a thrill. While others spent the afternoon investigating the village, Ki-Hun and I hiked up the mountain behind the hotel...I wanted to walk thru the ligularias.

There was no part of the village that even approached flat, and it got steeper the further we walked. Even walking across a farmers field on a 40% slope got me winded. The farmers on this island had gone as far as constructing their own chair lifts to move the produce and other items to and from the mountainous fields.

Arriving at the top, not only the ligularias greeted us, but wonderful trees such as Camellia japonica, Neolitsea sericea and Machilus thunbergii. All along the treacherous walk back down an adjacent valley were fascinating plants including a variety of native artemisias, chrysanthemums, and a giant native stand of *Pennisetum* alopecuroides 'Moudry'. Arriving back at sea level, there was still another few miles to the hotel, but this part of the journey was on a relatively flat boardwalk (that circled the entire island) perched between the cliffs and the sea.

Sunday 10-5-97

We awoke to sunny skies, despite the weather forecast for a day of rain, and departed by bus from Podung to a larger fishing village further along the island, called Chowdung. We arrived just in time to board the ferry (The Chung Mu) for the journey further along the island to a small village called Chonpu (The sheer cliffs don't allow a road all the way around the island). This was the impression of a ferry that I had pictured before

the trip. The small ferry held about 1 vehicle along with 50 people, some in a small cabin, and the rest of us standing on the top deck.

Although we didn't get the promised rain, we did get the wind and associated choppy seas. About halfway thru our journey, and after slowing several times for the rough seas, the boat was hit broadside by a wave that sent the boat well into a 45 degree lurch. I still don't know what the screaming Koreans beside us were yelling, but from the look on their face, this was not supposed to happen. After the rocking subsided, the boat was reoriented and we continued, albeit a bit slower. We finally arrived at Chonpu to catch yet another bus to the village of Chukan. The bus, speeding around the curves on the edge of the cliff wasn't great, but it couldn't compare to the now memorable boat ride.

Our trail upward began by following a steep road up past farm fields. At the first turn off, only 1000' feet up the road the vegetation began to change. The first thing I noticed was Disporum flavens...not just a few plants, but it was everywhere. And best of all, it was covered in fruit. Only a curve further and there were arisaemas...not just a few, but hundreds and many of them were loaded with fruit. This is the only island where many of the Arisaema peninsulae have dramatic silver patterns to the leaves, and sure enough, there they were.

As I was stumbling thru the disporums, I spotted another of our target plants for the trip, the giant hepatica, *H. maxima*. It was hard to imagine that this plant was going to live up to its advance billing, but there it was...18" wide clumps of glossy dark green leaves that were as large as the palm of your hand. While we only found a few plants

at this point, we would soon arrive at areas where it literally carpeted the ground.

Further along the road, as the hepatica thickened, so did the arisaema seed heads and another surprise, *Trillium kamtschaticum*. I'd grow this trillium just for the arisaema like foliage that could span 2-3' in width.

After a refreshing 3.5 hour hike, we arrived in the village of Nari, a small farming village in the center of the island at 1406' (an old volcanic crater). The crops being grown in the village surprised us, including giant fields of platycodon (balloon flower) and codonopsis. After a delicious lunch of cold Spam sandwiches, we were on our way again, for what we had been warned was the most difficult part of the hike.

The climb was gradual and the woods were extremely rich with flora, especially ferns. It wasn't far before I found both *Adiantum pedatum* (maidenhair fern) that appeared identical to our US native, and *Phyllitis scolopendrium* (the popular Hart's tongue fern) growing nearby. The woods were filled both with spectacular *Arisaema peninsulae* specimens as well as hundreds of *Lilium hansonii* specimens (dormant except for seed pods on 3' stems).

Another find that really excited me was a giant clump of ophiopogon. All of the ophiopogon that we had seen on the trip was typically running, but here was a solitary clump, nearly 2' across and 1' tall with narrower than normal foliage. Time will only tell if this is as good as it looked.

Continued in next newsletter

T-Shirt News

Wear a Piece of History: Vintage Arboretum T-shirts

Remember your favorite Arboretum t-shirt? The one you wore to all the events until it got too dirty, then wore completely out in the garden? Or the one you lost at the gym? Time and time again, you've asked us when we were going to reprint the shirts from years past. Well, here's your chance.

To keep the cost of vintage shirts reasonable, however, we need to have advance orders of fifty or more per design. No money will be collected with the initial order. If a minimum order is reached, those ordering that specific shirt will be billed upon receipt of the shirt by mail. If a minimum order is not reached, you will also be notified.

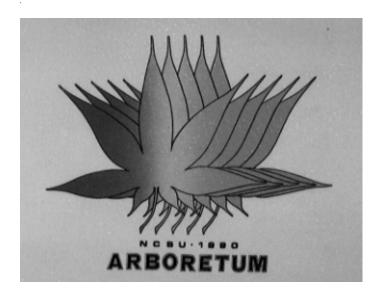
If you placed orders at the Green and Growin' Show or the Volunteer Luncheon, don't worry, we still have your order, but feel free to add to it. The deadline to receive orders is **July 1, 1998**. You should receive your T-shirt or sweatshirt in September. Enormous thanks are due to **Kate Boykin** of **Kate Boykin Photography** for producing the following pictures.

How to order: Cut out or copy these pages. You can also place the order on your own paper, but be sure and indicate the year of the t-shirt. Fill out the mailing information. Indicate under each picture the **quantity**, **size**, **color**, **and whether t-shirt or sweatshirt**. Use additional paper if necessary.

T-shirts — \$20 Sweatshirts — \$30 (includes mailing) **Total order.....**

Mail order to: JC Raulston Arboretum, Vintage T-shirts, Box 7609, NCSU, Raleigh, NC 27695

Name: Address: Phone:



1990 White. State quantity, size, T or Sweat



1991 White. State quantity, size, T or Sweat

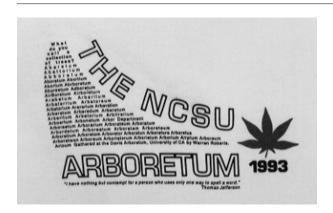
T-Shirt News



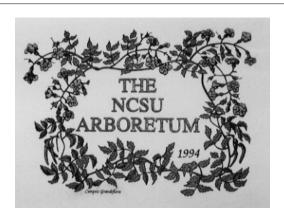
1992 White. State quantity, size, T or Sweat



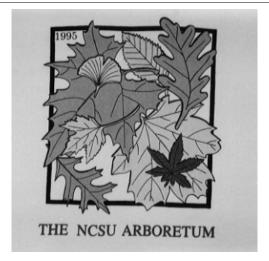
1992 White. State quantity, size, T or Sweat



1993 Peach. State quantity, size, T or Sweat



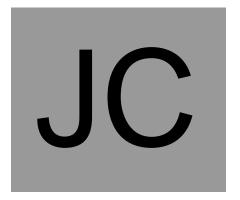
1994 White or Blue. State quantity, size, T or Sweat



1995 Navy Blue. State quantity, size, T or Sweat



1996 Teal or White. State quantity, size, T or Sweat



The dedication below is from the NC State University Horticulture Club Newsletter of 1979.

Dedication

by John Biernbaum

In an effort to recognize a man highly respected by the entire Club and his students, we dedicate this year of growth and experience to Dr. "J.C." Raulston -- a man dedicated to the growth and experience of students.

Dr. Raulston came to N.C. State in 1975. He is presently an associate professor with 20% research and 80% teaching responsibilities. He previously taught at Texas A&M (1973-1975) and the University of Fla. (1969-72). His degrees were earned at Okla. State University (BS 1962) and the University of Md. (MS 1966 and PhD. 1969).

Since coming to State, Dr. Raulston as been actively involved with the Club -- serving as the advisor in 1976-77. He has helped with apple cider and his horticulture show experiences have been invaluable for the Southern Living Show. The Florida trips and other field trips have been important horticulture experiences to the students. Working with the arboretum will provide tools that students will use for many years to come.

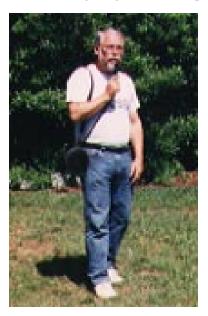
In the classroom, his knowledge is undisputed and his experience is



respected. He has the ability to be demanding without ever being questioned. His experiences throughout the world (travel to 28 countries) seem limitless and most importantly are shared with others; he is a true teacher. This dedication of time and effort is so critical to the student population. No matter how busy, he will make time to talk or help with a problem. Nothing can say it better than the 1978 Outstanding Teacher Award presented to Dr. Raulston -- he ranked as one of the top 12 out of 1200.

Everyone tends to marvel when they hear a list of his accomplishments and activities. Some of us begin to wonder why he does so much. But we end up realizing his total enjoyment of life. Surely a man like J.C. Raulston can sleep well every night, no matter how much he has to do tomorrow, because he has given today the

most he can give. He is a dynamo whose aura of activity and success seems to inspire all those around him. His influence has been crucial to many of us who are at a point where we must decide what we want to accomplish in our lives and to determine our goals and limits. J.C. Raulston is making every day count, filling each moment with activity and learning experiences. This should be one of our goals set before leaving NCSU -- to experience life to its fullest everyday, and we should thank J.C. Raulston for giving us the example.





China, continued from page 6

Inventory of Selected Woody Plants of China

*Refers to plants that are known to be in cultivation, but are not widely available; other nonasterisked plants are not known to be in general cultivation, but may be found in specialist collections or arboreta.

Aceraceae:

*Acer amplum

Acer bicolor *Acer catalpifolium

Acer chingii

Acer cinnamomifolium

*Acer davidii Acer discolor

Acer elegantulum *Acer erianthum

*Acer fabri

*Acer flabellatum

*Acer franchetii

*Acer grosseri

*Acer henryi

Acer kawakamii

Acer kweilinense

*Acer laevigatum

*Acer longipes

Acer lucidum

Acer lungshengense

*Acer maximowiczianum (syn. A. nikoense)

*Acer maximowiczii

Acer metcalfii

Acer miaotaiense

*Acer mono

Acer nayongense *Acer oblongum

Acer olivaceum

*Acer oliverianum

Acer prolificum

*Acer pseudosieboldianum

Acer pubinerve Acer pubipalmatum

Acer robustum

Acer rubronervium

*Acer sinense

Acer sinopurpurascens

Acer tenellum

*Acer tetramerum

*Acer tonkinense

Acer tsinglingense Acer tutcheri

*Acer wilsonii

Acer yangjuechii Dipteronia dveriana *Dipteronia sinensis

Actinidiaceae: *Actinidia arguta Actinidia callosa Actinidia carnosifolia Actinidia chrysantha Actinidia cinerascens Actinidia eriantha Actinidia fortunatii Actinidia fulvicoma Actinidia glaucophylla Actinidia globosa Actinidia henryi *Actinidia kolomikta *Actinidia lanceolata Actinidia latifolia Actinidia liangkwangensis Actinidia macrosperma *Actinidia melanandra Actinidia melliana

*Actinidia polygama *Actinidia purpurea Actinidia rubricaulis Actinidia sabiaefolia

Actinidia sorbifolia Actinidia styracifolia Actinidia tetramera Actinidia trichogyna

Actinidia valvata *Clematoclethra lasioclada *Clematoclethra strigillosa

Alangiaceae: *Alangium chinense Alangium faberi Alangium kurzii

*Alangium platanifolium

Anacardiaceae:

*Choerospondias axillaris *Rhus chinensis

*Rhus hypoleuca *Rhus potaninii

Rhus punjabensis *Toxicodendron vernicifluum

Annonaceae:

Fissistigma oldhamii

Apocynaceae: Alyxia hainanensis

Alyxia levinei Alyxia sinensis Anodendron affine Cleghornia henryi Pottsia grandiflora

Pottsia laxiflora *Trachelospermum asiaticum Trachelospermum axillare Trachelospermum bodinieri

Trachelospermum brevistylum

Trachelospermum cathavenum

Trachelospermum dunnii Trachelospermum gracilipes

Aquifoliaceae: Ilex aculeolata Ilex angulata *Ilex asprella *Ilex bioritsensis Ilex brachyphylla *Ilex buergeri

*Ilex centro-chinensis

Ilex championii Ilex chapaensis Ilex chieniana

Ilex chingiana *Ilex ciliospinosa Ilex confertiflora

*Ilex corallina *Ilex cyrtura

Ilex dasyphylla Ilex editicostata *Ilex elmerrilliana

*Ilex fargesii Ilex ficifolia

Ilex ficoidea Ilex formosana Ilex glomerata

Ilex godajam Ilex hainanensis

*Ilex hanceana Ilex hirsuta Ilex hylonoma

Ilex intermedia *Ilex kengii

Ilex kudingcha Ilex kwangtungensis Ilex litseaefolia

Ilex lohfauensis *Ilex macrocarpa *Ilex macropodum

Ilex melanophylla Ilex memecylifolia *Ilex micrococca

Ilex nitidissima Ilex oligodonta

*Ilex pedunculosa *Ilex pernyi *Ilex pubescens

*Ilex purpurea (syn. I. chinensis)

*Ilex rotunda Ilex sinica Ilex sterrophylla Ilex stewardii

Ilex suaveolens Ilex subficoides Ilex supracostata

Ilex szechwanensis Ilex theicarpa

Ilex tsoi Ilex tutcheri Ilex verisimilis

Ilex viridis *Ilex wilsonii *Ilex yunnanensis

Araliaceae:

Aralia armata *Aralia chinensis *Aralia cordata Aralia dasyphylla Aralia decaisneana Aralia echinocaulis *Aralia foliolosa Aralia henryi

Aralia nudulata Aralia spinifolia *Dendropanax chevalieri

Dendropanax confertus *Dendropanax dentiger Dendropanax ferrugineus Dendropanax parvifloroides

*Dendropanax proteus Dendropanax shinningensis *Eleutherococcus divaricatus Asclepiadaceae: Metaplexis hemsleyana Stephanotis mucronata Telosma cordatum

Berberidaceae:

Eleutherococcus

*Eleutherococcus

*Eleutherococcus

Heteropanax

evodiaefolius

*Eleutherococcus henryi

leucorrhizus

setchuenensis

*Eleutherococcus simonii

Elertherococcus sinensis

*Eleutherococcus trifoliatus *Hedera nepalensis

brevipedicellatus

Hunaniopanax hypoglaucus

*Pseudopanax davidii (syn.

Nothopanax davidii)

Heteropanax chinensis

Heteropanax fragrans

Kalopanax septemlobus

Macropanax rosthornii

Oplopanax elatus

*Schefflera delavayi

Schefflera hypoleuca

Schefflera minutistellata

Aristolochia mollissima

*Schefflera octophylla

Schefflera venulosa

Aristolochiaceae:

mandshuriensis

*Aristolochia

Eleutherococcus gracilistylus

*Eleutherococcus senticosus

*Eleutherococcus sessilifolius

Berberis aemulans *Berberis amurensis *Berberis atrocarpa *Berberis brachypoda Berberis chingii *Berberis circumserrata Berberis dasystachya *Berberis dielsiana *Berberis henryana Berberis impedita Berberis mingetensis Berberis oblanceifolia *Berberis poiretii *Berberis triacanthophora *Berberis virgetorum *Berberis wilsoniae

*Mahonia confusa Mahonia fordii *Mahonia fortunei Mahonia ganpinensis *Mahonia gracilipes *Mahonia japonica

*Mahonia lomariifolia Mahonia schochii Mahonia shenii Mahonia siamensis

Betulaceae:

Alnus cremastogyne *Alnus japonica Alnus trabeculosa *Betula albosinensis Betula austrosinensis *Betula chinensis *Betula costata

*Betula cylindrostachya

*Betula davurica Betula insignis

*Betula luminifera *Betula utilis Carpinus chuniana

*Carpinus cordata Carpinus davidii

Carpinus dayongensis *Carpinus fangiana

*Carpinus fargesiana Carpinus hupeana Carpinus londoniana

*Carpinus polyneura *Carpinus pubescens Carpinus putoensis

Carpinus shimenensis *Carpinus simplicidentata

*Carpinus tschonoskii *Carpinus turczaninowii

*Carpinus viminea *Corylus chinensis Corylus fargesii

*Corylus ferox *Corylus heterophylla

*Corylus mandshurica *Ostrya japonica Ostrya multinervis

Ostrya rehderiana *Ostryopsis davidiana Ostryopsis nobilis

Bignoniaceae:

*Campsis grandiflora *Catalpa bungei

*Catalpa fargesii *Catalpa ovata

Boraginaceae: *Ehretia acuminata

Ehretia dicksonii Ehretia longiflora *Ehretia thyrsiflora

Bretschneideraceae: Bretschneidera sinensis

Buxaceae:

*Buxus bodinieri Buxus harlandii Buxus henryi Buxus megistophylla Buxus myrica *Buxus sinica *Pachysandra axillaris

Pachysandra bodinieri

*Pachysandra stylosa

Calycanthaceae: Chimonanthus caespitosus Chimonanthus

Sarcococca longipetiolata

campanulatus Chimonanthus grammatus *Chimonanthus nitens

*Chimonanthus praecox Chimonanthus salicifolius *Chimonanthus

zhejiangensis *Sinocalycanthus chinensis

Capparaceae: Capparis acutifolia

Capparis koi Capparis membranacea

See **China**, next page

China, continued

Capparis urophylla

Caprifoliaceae: *Abelia biflora *Abelia buddleioides *Abelia chinensis Abelia dielsii *Abelia engleriana Abelia forrestii *Abelia graebneriana *Abelia ionandra Abelia macrotera Abelia parvifolia *Abelia schumannii *Abelia umbellata *Abelia uniflora *Abelia zanderi Diervilla japonica Dipelta elegans *Dipelta floribunda Dipelta ventricosa Dipelta yunnanensis *Heptacodium miconioides *Kolkwitzia amabilis *Leycesteria crocothyrsos *Leycesteria formosa Lonicera acuminata Lonicera affinis *Lonicera chrysantha Lonicera confusa Lonicera ferdinandii Lonicera ferruginea Lonicera gynochlamydea Lonicera harmsii *Lonicera henryi Lonicera hypoglauca Lonicera kungeana Lonicera macrantha Lonicera macranthoides *Lonicera modesta Lonicera nervosa Lonicera nubium

*Viburnum chunii
*Viburnum
cinnamomifolium
Viburnum congestum
*Viburnum cordifolium
*Viburnum cylindricum
*Viburnum dasyanthum
*Viburnum erosum
*Viburnum erubescens
*Viburnum farreri
*Viburnum foetidum

Lonicera pampaininii

Lonicera pekinensis

*Lonicera reticulata

Lonicera tatarinowii

*Sambucus javanica

Sambucus williamsii

*Viburnum calvum

*Viburnum chingii

*Viburnum betulifolium

Viburnum brachybotryum

*Viburnum buddleifolium

*Viburnum burejaeticum

Viburnum chinshanense

Lonicera serreana

*Lonicera similis

Sambucus adnata

*Viburnum grandiflorum Viburnum hanceanum *Viburnum harryanum Viburnum hengshanicum *Viburnum henryi *Viburnum hupehense *Viburnum ichangense *Viburnum lobophyllum Viburnum lutescens Viburnum melanocarpum *Viburnum mongolicum Viburnum oliganthum *Viburnum propinquum *Viburnum schensianum *Viburnum sempervirens *Viburnum setigerum *Viburnum sympodiale Viburnum taiwanianum *Viburnum ternatum Viburnum tubulosum *Viburnum urceolatum *Viburnum utile *Viburnum wilsonii *Weigela japonica

Celastraceae: Celastrus aculeatus *Celastrus angulatus *Celastrus flagellaris *Celastrus gemmatus Celastrus glaucophyllus Celastrus hindsii Celastrus hirsutus Celastrus hookeri *Celastrus hypoleucus Celastrus kusanoi Celastrus oblanceifolius *Celastrus rosthornianus Celastrus stylosus Celastrus vaniotii Dipentodon sinicus Euonymus acanthocarpus Euonymus aculeatus Euonymus angustatus *Euonymus bungeanus *Euonymus carnosus Euonymus centidens *Euonymus chinensis *Euonymus cornutus Euonymus dielsianus Euonymus distichus Euonymus euscaphis Euonymus gibber Euonymus giraldii *Euonymus grandiflorus *Euonymus hamiltonianus *Euonymus hederaceus Euonymus laxiflorus Euonymus lecleri Euonymus longiflorus *Euonymus macropterus *Euonymus myrianthus Euonymus oblongifolius *Euonymus oxyphyllus Euonymus pauciflorus *Euonymus phellomanus Euonymus prezewalskii *Euonymus sanguineus Euonymus subsessilis *Euonymus vagans *Euonymus verrucosoides

*Euonymus wilsonii

Microtropis fokiensis

Microtropis gracilipes

Microtropis obliquinervia

Microtropis biflora

Monimopetalum chinense Perrottetia racemosa <u>Cephalotaxaceae</u>: Amentotaxus argotaenia Amentotaxus formosana Amentotaxus yunnanensis *Cephalotaxus fortunei *Cephalotaxus lanceolata *Cephalotaxus mannii *Cephalotaxus oliveri *Cephalotaxus sinensis *Cephalotaxus wilsoniana

Clethraceae: *Clethra barbinervis Clethra bodinieri Clethra brammeriana *Clethra cavaleriei *Clethra delavavi Clethra esquirolii *Clethra faberi *Clethra fargesii Clethra kaipoensis Clethra magnifica *Clethra monostachya Clethra nanchuanensis Clethra pinfaensis Clethra polyneura Clethra purpurea Clethra sleumeriana Clethra wuyishanica

Clusiaceae:
Garcinia multiflora
Hypericum ascyron
Hypericum attenuatum
Hypericum erectum
Hypericum faberi
*Hypericum forrestii
Hypericum hengshanense
*Hypericum hookerianum
*Hypericum japonicum
Hypericum longistylum
*Hypericum monogynum
*Hypericum perforatum
Hypericum sampsonii
Hypericum seniawinii

Combretaceae: Combertum alfredii Combretum wallichii *Quisqualis indica

<u>Coriariaceae</u>: *Coriaria sinica

Cornaceae: *Aucuba chinensis Aucuba filicauda *Aucuba himalaicus Aucuba obcordata *Aucuba omeiensis *Camptotheca acuminata *Cornus angustata Cornus austrosinensis *Cornus bretschneideri *Cornus capitata *Cornus chinensis *Cornus controversa Cornus gigantea *Cornus hemsleyi Cornus hongkongensis Cornus hupehensis *Cornus macrophylla Cornus melanotricha Cornus oblonga

*Cornus officinalis *Cornus paucinervis *Cornus poliophylla Cornus ulotricha *Cornus walteri *Cornus wilsoniana *Davidia involucrata Diplopanax stachyanthus *Helwingia chinensis Helwingia himalaica *Helwingia japonica Nyssa leptophylla Nyssa shangszeensis Nyssa shweliensis *Nyssa sinensis Nyssa wenshanensis Nyssa yunnanensis Toricellia angulata Toricellia tiliifolia

Cupressaceae: *Calocedrus macrolepis *Chamaecyparis formosensis Cupressus chengiana *Cupressus duclouxiana *Cupressus funebris Cupressus gigantea *Cupressus torulosa *Fokienia hodginsii Juniperus centrasiatica Juniperus convallium *Juniperus formosana Juniperus gaussenii Juniperus komarovii Juniperus pingii Juniperus przewalskii *Juniperus recurva *Juniperus rigida Juniperus saltuaria Juniperus tibetica

Daphniphyllum
angustifolium
Daphniphyllum calycinum
*Daphniphyllum humile
*Daphniphyllum
macropodum
Daphniphyllum oblongum
Daphniphyllum oldhamii
Daphniphyllum paxianum

Daphniphyllaceae:

Ebenaceae:
*Diospyros cathayensis
Diospyros chunii
*Diospyros chunii
*Diospyros eriantha
Diospyros japonica (syn. D.
glaucifolia)
*Diospyros lotus
*Diospyros morrisiana
Diospyros oleifera
*Diospyros rhombifolia
Diospyros tsangii
Diospyros tutcheri

Elaeagnaceae:
Elaeagnus argyi
Elaeagnus cuprea
Elaeagnus difficilis
*Elaeagnus glabra
Elaeagnus gonyanthes
Elaeagnus henryi
Elaeagnus lanceolata
*Elaeagnus macrophylla
Elaeagnus magna

Elaeagnus tutcheri

Elaeocarpaceae:
Elaeocarpus chinensis
*Elaeocarpus decipiens (syn.
E. sylvestris)
Elaeocarpus duclouxii
Elaeocarpus glabripetalum
Elaeocarpus japonicus
Elaeocarpus lanceaefolius
Elaeocarpus limitanea
Elaeocarpus petiolatus
Sloanea hemsleyana
Sloanea hongkongensis
*Sloanea sinensis

Ericaceae: Enkianthus angustifolius *Enkianthus chinensis *Enkianthus deflexus Enkianthus hirtinervus Enkianthus pauciflorus *Enkianthus quinqueflorus Enkianthus serotina *Enkianthus serrulatus Enkianthus sichuanensis Gaultheria leucocarpa *Lyonia formosa *Lyonia ovalifolia *Rhododendron anhweiense *Rhododendron auriculatum Rhododendron bachii Rhododendron brevinerve Rhododendron cavaleriei Rhododendron championae Rhododendron chishinianum Rhododendron chunienii Rhododendron chunii

*Rhododendron concinnum Rhododendron crassimedium *Rhododendron discolor Rhododendron faithae Rhododendron farrerae Rhododendron ginganshanicum Rhododendron hancockii

Rhododendron hancockii Rhododendron haofui Rhododendron huguangense Rhododendron hunanense Rhododendron kiangsiense Rhododendron kwangfuense Rhododendron

kwangtungense
Rhododendron latoucheaea
Rhododendron levinei
Rhododendron liliiflorum
*Rhododendron mariae
*Rhododendron mariesii
Rhododendron minutiflorum
Rhododendron mitriforme
Rhododendron
moulmainense

*Rhododendron oldhamii *Rhododendron ovatum Rhododendron pachyphyllum

pachyphyllum Rhododendron pinetorum Rhododendron

polyraphidoideum Rhododendron polystichum Rhododendron pulchroides *Rhododendron purdomii

See China, next page

Viburnum fordiae

Viburnum formosanum

Viburnum glandulosum

Viburnum glomeratum

China, continued

Rhododendron

qiangyangense Rhododendron rhodanthum Rhododendron rhuyuanense Rhododendron rivulare Rhododendron seniavinii Rhododendron simiarum *Rhododendron simsii Rhododendron stamineum Rhododendron

subflumineum
*Rhododendron
sutchuenense
Rhododendron versicolor
Rhododendron westlandii
*Rhododendron wilsonae
Rhododendron

yangmingshanense
*Vaccinium bracteatum
Vaccinium carlesii
Vaccinium chingii
Vaccinium fimbricalyx
Vaccinium iteophyllum
Vaccinium iteophyllum
Vaccinium japonicum
Vaccinium longicaudatum
Vaccinium lungshengense
*Vaccinium oldhamii
Vaccinium sinicum
*Vaccinium sprengelii
*Vaccinium urceolatum

Euphorbiaceae: Alchornea davidii Alchornea rugosa Alchornea trewioides Andrachne chinensis *Antidesma bunius Antidesma filipes Antidesma japonicum Antidesma microphyllum Antidesma

pseudomicrophyllum *Bischofia polycarpa Croton lachnocarpus Croton tiglium Discocleidion rufescens Glochidion philippinense Glochidion puberum Glochidion wilsonii *Mallotus apelta Mallotus barbatus Mallotus dunnii *Mallotus japonicus Mallotus lianus Mallotus microcarpus Mallotus milliettii Mallotus paxii Mallotus philippinensis Mallotus repandus Mallotus tenuifolius Mercurialis leiocarpa Phyllanthus chekiangensis Phyllanthus flexuosus Phyllanthus glaucus Phyllanthus matsumurae Phyllanthus multiflorus Phyllanthus reticulata Phyllanthus urinaria Phyllanthus ussuriensis Phyllanthus virgatus Sapium atrobadiomaculatum Sapium discolor

*Sapium japonicum Sapium rotundifolium Sauropus grarrettii *Securingega suffruticosa *Vernicia montana

Eupteleaceae:
*Euptelea pleiosperma
*Euptelea polyandra

Fabaceae:

Acacia concina

Acacia pennata

Acacia sinuata Albizia chinensis *Albizia kalkora Albizia macrophylla Bauhinia apertilobata *Bauhinia championii *Bauhinia corymbosa *Bauhinia glauca Bauhinia hupehana Bauhinia kwangtungensis Bauhinia paraglauca *Caesalpinia sepiaria Calophaca sinica Campylotropis giraldii Campylotropis ichangensis *Campylotropis macrocarpa *Caragana arborescens *Caragana jubata Caragana leveillei *Caragana microphylla Caragana pekinensis Caragana rosea *Caragana sinica Caragana stenophylla *Cercis chinensis *Cercis chingii *Cercis chuniana *Cercis gigantea *Cercis racemosa *Cercis yunnanensis Cladrastis lichuanensis *Cladrastis platycarpa *Cladrastis sinensis Cladrastis wilsonii Dalbergia balansae Dalbergia benthamii Dalbergia dyeriana *Dalbergia hancei *Dalbergia hupeana Dalbergia millettii Dalbergia mimosoides Dalbergia rimosa Derris fordii Derris marginata Gleditsia fera Gleditsia heterophylla Gleditsia longoleguminosa Gleditsia melanacantha Gleditsia microcarpa Gleditsia officinalis *Gleditsia sinensis Gleditsia vestita *Gymnocladus chinensis *Indigofera amblyantha Indigofera atropurpurea Indigofera bungeana Indigofera carlesii Indigofera densifructa *Indigofera fortunei *Indigofera hirsuta

Indigofera ichangensis

Indigofera nigrescens

decora)

*Indigofera incarnata (syn. I.

*Indigofera kirilowii *Indigofera pseudotinctoria *Maackia chinensis (syn. M. hupehensis) Maackia tenuifolia Millettia argyraea Millettia cognita Millettia congestiflora Millettia dielsiana Millettia eurybotrya Millettia heterocarpa Millettia kiangsiensis *Millettia nitida Millettia oosperma Millettia pachycarpa Millettia pulchra *Millettia reticulata Millettia sericosema Millettia speciosa Millettia tsui Millettia velutina Mucuna cyclocarpa Mucuna sempervirens Ormosia balansae Ormosia henryi Ormosia hosiei Ormosia microphylla Ormosia nudo Ormosia semicastrata Ormosia sericeolucida Ormosia xylocarpa Pterolobium punctatum Sophora alopecuroides Sophora brachygyna *Sophora davidii (syn. S. viciifolia) *Sophora flavescens Wisteria praecox Wisteria villosa Zenia insignis

Fagaceae: *Castanea henryi *Castanea sequinii Castanopsis carlesii Castanopsis ceratacantha Castanopsis chinensis Castanopsis chingii Castanopsis chunii Castanopsis eyrei Castanopsis fabri Castanopsis fargesii Castanopsis fissa Castanopsis fordii Castanopsis hupehensis Castanopsis hystrix Castanopsis jucunda Castanopsis kawakamii Castanopsis lamontii *Castanopsis sclerophylla Castanopsis tibetana Castanopsis urainan Castanopsis yueluensis *Fagus engleriana Fagus hayatae *Fagus longipetiolata *Fagus lucida Fagus pashanica Lithocarpus amoenus Lithocarpus calophyllus *Lithocarpus chinensis Lithocarpus chrysocomus *Lithocarpus cleistocarpus *Lithocarpus corneus Lithocarpus cucullatus Lithocarpus dictyneura *Lithocarpus edulis

Lithocarpus fordiana *Lithocarpus glaber Lithocarpus haipinii *Lithocarpus hancei *Lithocarpus harlandii *Lithocarpus henryi Lithocarpus iteaphylloides Lithocarpus litseifolius Lithocarpus oleaefolius *Lithocarpus pachyphyllus Lithocarpus paihengii Lithocarpus paniculatus Lithocarpus petelotii Lithocarpus skanianus Lithocarpus synbalanos *Lithocarpus ternaticupulus Lithocarpus truncatus Quercus acrodonta *Quercus aliena Quercus argyalis Quercus argyrotricha Quercus augustinii *Quercus bambusifolia Quercus baronii *Quercus championii *Quercus chenii Quercus chungii Quercus ciliaris Quercus delicatula *Quercus dentata Quercus disciformis Quercus engleriana *Quercus fabri Quercus fangshanensis Quercus fleuryi *Quercus gilva *Quercus glandulifera *Quercus glauca *Quercus gracilis Quercus hopeiensis Quercus hui Quercus jenseniana *Quercus lamellosa Quercus liaotungensis *Quercus mongolica Quercus multinervis *Ouercus myrsinifolia Quercus ningangensis Ouercus nubium Quercus obovatifolia *Quercus oxyodon *Quercus oxyphylla Quercus pachyloma *Quercus phillyraeoides *Quercus salicina Quercus spinosa Quercus stewardiana *Ouercus variabilis Quercus xiangxiensis

Lithocarpus elizabethae

Lithocarpus fenestratus

Lithocarpus floccosus

Lithocarpus eriobotryoides

Flacourtiaceae:

*Carrierea calycina
Homalium cochinchinense
*Idesia polycarpa
*Poliothyrsis sinensis
Xylosma controversum
*Xylosma japonica
Xylosma longifolium

<u>Gnetaceae</u>: Gnetum montanum Gnetum parvifolium Grossulariaceae: *Itea chinensis Itea coriacea Itea glutinosa Itea homalioidea Itea kwangsiensis *Itea oldhamii *Itea szechuanica *Itea yunnanensis Ribes acuminatum Ribes burejense Ribes davidii *Ribes emodense *Ribes fasciculatum Ribes franchetii Ribes glaciale Ribes hunanense Ribes manschuricum Ribes moupinense Ribes pulchellum *Ribes tenue

Hamamelidaceae: Altingia chinensis Altingia gracilipes *Corylopsis multiflora *Corylopsis sinensis *Corylopsis stelligera *Disanthus cercidifolius Distylium buxifolium Distylium chinensis Distylium elaeagnoides Distylium macrophyllum *Distylium myricoides *Distylium racemosum *Exbucklandia populnea Exbucklandia tonkinensis *Fortunearia sinensis *Liquidambar acalycina *Liquidambar formosana *Rhodoleia championii Semiliquidambar cathayensis *Sinowilsonia henryi Sycopsis dunnii *Šycopsis sinensis Sycopsis tutcheri

Hippocastanaceae:
*Aesculus chinensis
Aesculus wangii
*Aesculus wilsonii

Hydrangeaceae: *Decumaria sinensis *Deutzia discolor Deutzia glabrata *Deutzia grandiflora Deutzia hamata *Deutzia ningpoensis *Deutzia parviflora *Deutzia schneideriana *Deutzia setchuenensis *Dichroa febrifuga Dichroa yaoshanensis Hydrangea angustipetala *Hydrangea anomala *Hydrangea aspera *Hydrangea chinensis Hydrangea fulvescens Hydrangea hedyotidea Hydrangea hypoglauca Hydrangea linkweiensis *Hydrangea longipes *Hydrangea rosthornii

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China, continued

Hydrangea stenophylla
*Hydrangea strigosa
*Philadelphus pekinensis
*Philadelphus sericanthus
Pileostegia tomentella
*Pileostegia viburnoides
Schizophragma
choufenianum
*Schizophragma corylifolium
*Schizophragma
integrifolium
Schizophragma molle

<u>Icacinaceae</u>: Nothapodytes pittosporoides

Illiciaceae:
Illicium brevistylum
Illicium difengpi
Illicium dunnianum
*Illicium henryi
Illicium jiadifengpi
*Illicium lanceolatum
Illicium majus
Illicium micranthus
Illicium pachyphyllum
*Illicium simonsii
Illicium symplocifolium
Illicium szechuanensis
Illicium ternstroemioides

Juglandaceae: Annamocarya sinensis Carya cathayensis Carya hunanensis *Cvclocarva paliurus Engelhardia aceriflora Engelhardia chrysolepis Engelhardia fenzelii Engelhardia roxburghiana *Juglans cathayensis *Juglans mandschurica Platycarya longipes *Platycarya strobilacea Pterocarya delavayi *Pterocarya hupehensis *Pterocarya rhoifolia *Pterocarya stenoptera *Pterocarya tonkinensis

Lardizabalaceae:
*Akebia trifoliata
*Decaisnea fargesii
Decaisnea insignis
*Holboellia coriacea
*Holboellia fargesii
*Holboellia grandiflora
*Sinofranchetia chinensis
Stauntonia brachyanthera
Stauntonia chinensis
Stauntonia elliptica
*Stauntonia hexaphylla
Stauntonia leucantha
Stauntonia obovata

Lauraceae:
Actinodaphne cupularis
Actinodaphne koshepangii
*Actinodaphne lancifolia
Actinodaphne locomtei
*Actinodaphne longifolia
(syn. A. acuminata)
Actinodaphne pilosa
Actinodaphne sessilifructa

Beilschmiedia fordii
Beilschmiedia tsangii
Cinnamomum appelianum
Cinnamomum argenteum
Cinnamomum bodinieri
*Cinnamomum burmannii
*Cinnamomum
chekiangensis
*Cinnamomum japonicum
Cinnamomum jensenianum
Cinnamomum micranthum
Cinnamomum

parthenoxylon Cinnamomum pauciflorum Cinnamomum

pedunculatum *Cinnamomum porrectum Cinnamomum rigidissimum Cinnamomum septentrionale Cinnamomum subavenium Cinnamomum tsangii Cinnamomum validinerve Cinnamomum wilsonii *Cryptocarya chinensis Cryptocarya chingii Cryptocarya concinna Cryptocarya densiflora Iteadaphne caudata *Lindera aggregata *Lindera angustifolia *Lindera chienii Lindera chunii Lindera communis *Lindera erythrocarpa Lindera floribunda *Lindera fragrans Lindera fruticosa *Lindera glauca Lindera guangxiensis Lindera kwangtungensis Lindera lungshengensis *Lindera megaphylla Lindera metcalfiana Lindera nacusua Lindera nessiana *Lindera obtusiloba *Lindera praecox (syn. Parabenzoin praecox) Lindera prattii

Lindera nessiana
*Lindera obtusiloba
*Lindera praecox (syn.
Parabenzoin praeco
Lindera prattii
Lindera pulcherrima
*Lindera reflexa
*Lindera rubronervia
*Lindera strychnifolia
*Lindera umbellata
Litsea auriculata
*Litsea cubeba
*Litsea elongata
Litsea eugenioides
Litsea euosma
Litsea globosa
Litsea greenmaniana
Litsea hunanensis

Litsea ichangensis Litsea lancilimba Litsea merrilliana Litsea mollis Litsea pedunculata Litsea pungens Litsea rotundifolia Litsea rubescens Litsea subcoriacea Litsea subcoriacea Litsea vettchiana Litsea verticillata

*Machilus ichangensis

Machilus microcarpa *Machilus thunbergii *Machilus japonica *Machilus yunnanensis Mespilodaphne thouvenotii Neocinnamomum delavayi Neocinnamomum fargesii Neolitsea aurata Neolitsea brevipes Neolitsea cambodiana Neolitsea chuii Neolitsea confertifolia Neolitsea ellipsoides Neolitsea hongkongensis Neolitsea ksiangkweiensis Neolitsea levinei Neolitsea phanerophlebia Neolitsea pinnatinervis Neolitsea pulchella *Neolitsea sericea Neolitsea shingningensis Neolitsea sutchuanensis Neolitsea umbrosa Neolitsea wushanica Neolitsea zeylanica *Nothaphoebe cavaleriei Nothaphoebe fargesii Nothaphoebe konishii Persea calcicola Persea chienkweiensis Persea chinensis Persea daozhenensis Persea decursinervis *Persea grijsii *Persea ichangensis Persea kwangtungensis Persea leptophylla Persea litseifolia Persea longipedicellata Persea oreophila Persea pauhoi Persea phoenicis Persea rehderi Persea salicina Persea velutina Persea versiolora

Loganiaceae: *Buddleja asiatica *Buddleja officinalis *Gelsemium elegans

Phoebe bournei

Phoebe faberi

Phoebe nanmu

Phoebe hui

*Phoebe chekiangensis

Phoebe hunanensis

Phoebe neurantha

*Phoebe sheareri

Phoebe zhennan

*Sassafras tzumu

Sassafras randaiense

Sinosassafras flavinervia

Phoebe neuranthoides

Lythraceae:
Lagerstroemia caudata
*Lagerstroemia
chekiangensis
Lagerstroemia excelsa
Lagerstroemia glabra
*Lagerstroemia limii
*Lagerstroemia subcostata

Magnoliaceae: Alcimandra cathcartii

*Liriodendron chinense Magnolia amoena *Magnolia biondii *Magnolia coco *Magnolia delavayi *Magnolia globosa *Magnolia nitida *Magnolia officinalis Magnolia rostrata *Magnolia sieboldii *Magnolia sinensis *Magnolia sprengeri *Magnolia wilsonii *Magnolia zenii Manglietia aromatica *Manglietia chingii *Manglietia fordiana (?syn. M. yunnanensis?) *Manglietia forrestii Manglietia grandis

Manglietia hookeri

*Manglietia insignis Manglietia megaphylla *Manglietia moto Manglietia patungensis Manglietiastrum sinicum *Michelia champaca Michelia chapensis *Michelia compressa Michelia crassipes *Michelia doltsopa *Michelia floribunda *Michelia foveolata Michelia martinii *Michelia maudiae Michelia mediocris *Michelia platypetala *Michelia skinneriana *Michelia tsoi *Michelia wilsonii *Michelia yunnanensis *Parakmeria lotungensis Parakmeria omeiensis Parakmeria yunnanensis Paramichelia baillonii *Tsoongiodendron odorum

Malvaceae:

*Hibiscus hamabo

*Hibiscus mutabilis

*Hibiscus paramutabilis

*Hibiscus sinosyriacus

*Hibiscus taiwanensis
Urena lobata
Urena procumbens

Melastomataceae: Osbeckia chinensis Osbeckia crinita Osbeckia opiparea

Meliaceae:
*Melia toosendan
Munronia hunanensis
Munronia unifoliolata
Toona ciliata
*Toona sinensis (syn. Cedrela
sinensis)
Toona sureni

Menispermaceae:
*Cocculus orbiculatus
Menispermum dahuricum

<u>Moraceae</u>: Broussonetia kaempferi

*Broussonetia kazinoki Cudrania cochinchinensis Cudrania fruticosa Cudrania pubescens Ficus abelii Ficus chartacea Ficus erecta Ficus formosana Ficus foveolata Ficus gasperiniana Ficus henryi Ficus heteromorpha Ficus hirta *Ficus hispida Ficus langkokensis Ficus martinii Ficus nervosa Ficus pandurata Ficus pyriformis Ficus rectinervia Ficus sarmentosa Ficus tsiangii Ficus variolosa *Ficus virens *Morus cathayana Morus mongolica

Myricaceae: Myrica esculenta *Myrica rubra

Myrsinaceae:

Morus wittiorum

Ardisia alyxiifolia Ardisia brevicaulis Ardisia chinensis Ardisia elegantissima Ardisia faberi Ardisia hanceana *Ardisia lindleyana (syn. A. punctata) Ardisia mamillata Ardisia merrillii *Ardisia primulifolia *Ardisia pusilla Ardisia quinquegona Ardisia sinoaustralis Ardisia thyrsiflora Embelia laeta Embelia parviflora Embelia subcoriacea Embelia undulata Embelia vestita *Maesa hupehensis Maesa insignis *Maesa japonica Maesa montana Maesa perlarius Maesa tenera *Myrsine africana Myrsine elliptica Myrsine seguinii

Myrtaceae:
Syzygium austrosinense
Syzygium buxifolium
Syzygium grijsii
Syzygium hancei
Syzygium handelii
Syzygium howii
Syzygium rehderianum
Syzygium tsoongii

*Myrsine semiserrata

Myrsine stolonifera

See China, next page

China, continued

Schoepfia chinensis Schoepfia jasminodora

Oleaceae: Chionanthus henryanus Chionanthus longiflorus Chionanthus ramiflorus *Chionanthus retusus *Fontanesia fortunei *Forsythia giraldiana Forsythia likiangensis Fraxinus baroniana *Fraxinus bungeana *Fraxinus chinensis Fraxinus ferruginea *Fraxinus floribunda *Fraxinus griffithii Fraxinus hupehensis *Fraxinus mandschurica *Fraxinus paxiana Fraxinus platypoda Fraxinus trifoliata Jasminum lanceolaria *Jasminum sambac Iasminum sinense Jasminum urophyllum *Ligustrum quihoui *Osmanthus armatus Osmanthus attenuatus Osmanthus cooperi *Osmanthus delavayi Osmanthus fordii Osmanthus henryi Osmanthus marginatus Osmanthus matsumuranus Osmanthus minor Osmanthus reticulatus Osmanthus serrulatus Osmanthus wukangensis Osmanthus venosus

Palmae: *Guihaia argyrata Trachycarpus nana *Trachycarpus wagnerianus

*Osmanthus yunnanensis

Pentaphylacaceae: Pentaphylax euryoides

Pinaceae: Abies beshanzuensis Abies chengii *Abies chensiensis Abies delavayi *Abies fabri Abies fanjingshanensis *Abies fargesii *Abies kawakamii *Abies nephrolepis Abies recurvata Abies yuanbaoshanensis Abies ziyuanensis Cathaya argyrophylla Keteleeria calcarea Keteleeria cyclolepis *Keteleeria davidiana *Keteleeria evelyniana Keteleeria fortunei Keteleeria pubescens Larix chinensis *Larix gmelinii

*Larix mastersiana

Larix principis-rupprechtii Larix speciosa *Picea asperata Picea aurantiaca *Picea brachytyla Picea crassifolia Picea likiangensis Picea meveri Picea morrisonicola Picea neoveitchii Picea shrenkiana *Picea wilsonii Pinus amamiana *Pinus armandii *Pinus bungeana Pinus dabeshanensis Pinus densata Pinus finzeliana Pinus gerardiana Pinus henryi Pinus hwangshanensis Pinus kesiya Pinus kwangtungensis *Pinus massoniana Pinus morrisonicola *Pinus tabuliformis *Pinus taiwanensis Pinus wangii *Pinus yunnanensis *Pseudolarix amabilis Pseudotsuga brevifolia Pseudotsuga forrestii Pseudotsuga gaussenii *Pseudotsuga sinensis *Pseutotsuga wilsonii *Tsuga chinensis *Tsuga dumosa *Tsuga formosana *Tsuga forrestii Tsuga longibracteata

Pittosporaceae: *Pittosporum adaphniphylloides Pittosporum brevicalyx Pittosporum densinervatum *Pittosporum glabratum *Pittosporum heterophyllum *Pittosporum illicioides Pittosporum kobuskianum Pittosporum omeiense Pittosporum parvicapsulare Pittosporum pauciflorum Pittosporum podocarpum Pittosporum subulisepalum Pittosporum trigonocarpum *Pittosporum truncatum Pittosporum tubiflorum

Podocarpaceae: Nageia fleuryi *Nageia nagi *Podocarpus chinensis *Podocarpus neriifolius

Polygalaceae: Polygala fallax

Polygonaceae: Atraphaxis manshurica

Proteaceae: Helicia cochinchinensis Helicia reticulata

Ranunculaceae: *Clematis apiifolia Clematis argentilucida *Clematis brevicaudata Clematis chienii *Clematis chinensis Clematis courtoisii Clematis crassifolia Clematis filamentosa Clematis finetiana Clematis ganpiniana *Clematis gouriana *Clematis grata Clematis hancockiana *Clematis henryi Clematis kirilowii *Clematis lasiandra Clematis leschenaultiana *Clematis macropetala *Clematis meveniana Clematis obscura Clematis ochotensis Clematis parviloba *Clematis peterae Clematis pseudotophora Clematis quinquefoliolata Clematis repens Clematis tatarinowii *Clematis uncinata Clematis urophylla

Rhamnaceae: Berchemia barbigera Berchemia floribunda Berchemia huana Berchemia kulingensis Berchemia lineata Berchemia polyphylla *Berchemia racemosa Berchemia sinica Berchemiella wilsonii *Hovenia acerba *Hovenia dulcis Hovenia trichocarpa Paliurus hemsleyanus Paliurus hirsutus Paliurus ramossissimus *Rhamnella franguloides Rhamnus arguta Rhamnus brachypoda Rhamnus bungeana *Rhamnus crenata *Rhamnus davurica Rhamnus dumetorum Rhamnus fulvotincta Rhamnus globosa Rhamnus grandiflora Rhamnus hemsleyana Rhamnus iteinophyllum Rhamnus lamprophylla Rhamnus leptophylla Rhamnus nepalensis Rhamnus obovatis *Rhamnus parvifolia Rhamnus rugulosa Rhamnus schneideri Rhamnus ussuriensis *Rhamnus utilis Rhamnus virgata *Rhamnus wilsonii Sageretia gracilis Sageretia henryi Sageretia lucida Sageretia melliana Sageretia paucicostata

Sageretia subcaudata Sageretia thea

Rhoipteleaceae:

Rhioptelea chiliantha Rosaceae: *Amelanchier asiatica Amelanchier sinica *Chaenomeles cathavensis *Cotoneaster acutifolius *Cotoneaster dielsianus *Cotoneaster foveolatus *Cotoneaster hupehensis *Cotoneaster integerrimus *Cotoneaster melanocarpus *Cotoneaster multiflorus *Cotoneaster obscurus Cotoneaster schantungensis Cotoneaster silvestrii Cotoneaster submultiflorus *Cotoneaster zabelii Crataegus aurantia *Crataegus cuneata *Crataegus hupehensis *Crataegus pinnatifida *Crataegus sanguinea *Crataegus wilsonii Docynia delavayi Docynia indica *Eriobotrva cavaleriei

*Eriobotrya deflexa Eriobotrya fragrans Eriobotrya prinoides *Exochorda giraldii *Exochorda serratifolia *Maddenia hypoleuca Malus asiatica *Malus formosana *Malus halliana Malus honanensis *Malus hupehensis *Malus kansuensis Malus melliana *Malus micromalus *Malus prunifolia *Malus spectabilis *Malus yunnanensis *Neillia affinis Neillia gracilis Neillia rubiflora Neillia serratisepala *Neillia sinensis *Neillia thyrsiflora *Neillia uekii *Photinia beauverdiana *Photinia benthamiana Photinia chishiniana *Photinia davidsoniae *Photinia glomerata Photinia hirsuta Photinia impressivena Photinia lanuginosa Photinia lasiogyna

*Photinia parvifolia

*Photinia prunifolia

*Photinia villosa

Photinia schneideriana

Photinia zhejiangensis

Prunus adenodonta

Prunus clarifolia

*Prunus buergeriana

*Prunus conradinae

*Prunus cyclamina

*Prunus davidiana

*Physocarpus amurensis

Prunus dictyoneura *Prunus dielsiana Prunus droseracea Prunus gracilifolia *Prunus grayana Prunus humulis *Prunus japonica *Prunus mandschurica *Prunus maximowiczii Prunus napaulensis Prunus obtusata Prunus phaeosticta Prunus pogonostyle *Prunus pseudocerasus *Prunus salicina *Prunus scopulorum *Prunus sibirica *Prunus simonii Prunus spinulosa Prunus szechuanica *Prunus tomentosa Prunus undulata Prunus wilsonii Prunus yunnanensis Prunus zippeliana *Pseudocydonia sinensis Pygeum topengii Pygeum wilsonii *Pyracantha atalantioides *Pyracantha crenulata Pyracantha densiflora *Pyracantha fortuneana *Pyracantha koidzumii *Pyrus betulifolia Pyrus bretschneideri Pyrus hopeiensis Pyrus phaeocarpa *Pyrus ussuriensis Pyrus xerophila Rhaphiolepis ferruginea Rhaphiolepis integerrima Rhaphiolepis lanceolata Rhaphiolepis major Rhaphiolepis rugosa Rhaphiolepis salicifolia Rosa cymosa *Rosa helenae *Rosa henrvi *Rosa moyesii *Rosa roxburghii *Rosa rubus *Rosa saturata Rosa sertata *Rosa soulieana Rubus adenophorus *Rubus alceifolius Rubus alnifoliolatus Rubus amabilis Rubus assamensis Rubus aurantiacus *Rubus bambusarum *Rubus biflorus Rubus buergeri *Rubus caesius Rubus chingii *Rubus cockburnianus Rubus corchorifolius Rubus delavayi Rubus ellipticus Rubus erythrocarpus Rubus eucalyptus

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Rubus faberi

*Rubus fockeanus

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Sageretia rugosa

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Rubus formosensis Rubus gongshanensis Rubus grayanus Rubus hanceanus *Rubus henryi Rubus hunanensis *Rubus ichangensis Rubus kawakamii Rubus lambertianus Rubus lasiostylus Rubus leucanthus Rubus lineatus Rubus lobophyllus Rubus lutescens Rubus malifolius Rubus multibracteatus Rubus niveus Rubus oblongus Rubus paniculatus Rubus parvifolius Rubus pectinaris *Rubus phoenicolasius Rubus pinnatisepalus Rubus poliophyllus Rubus potentilloides Rubus ptilocarpus Rubus quinquefoliolatus Rubus reflexus *Rubus rosifolius Rubus rufus Rubus shihae Rubus simplex Rubus stans Rubus subornatus Rubus suzukianus *Rubus taiwanicola *Rubus thibetanus Rubus tsangii Rubus tsangorum Rubus viburnifolius Rubus wangii Rubus wardii Rubus xanthocarpus Rubus xanthoneurus Rubus xichouensis Rubus yiwuanus Rubus yunnanicus Rubus zhaogoshanensis *Sorbaria arborea *Sorbaria kirilowii *Sorbaria sorbifolia *Sorbus aronioides *Sorbus caloneura Sorbus chengii *Sorbus discolor Sorbus dunnii Sorbus epidendron *Sorbus folgneri Sorbus glomerulata Sorbus grandulosa Sorbus hemsleyi Sorbus hunanica *Sorbus keissleri *Sorbus koehneana *Sorbus megalocarpa *Sorbus pallescens *Sorbus pohuashanensis Sorbus rhombifolia *Sorbus wilsoniana Sorbus xanthoneura Sorbus zahlbruckneri Spiraea aquilegifolia *Spiraea arcuata

*Spiraea canescens Spiraea cavaleriei Śpiraea chamaedryfolia *Spiraea chinensis Spiraea dasyantha Spiraea elegans Spiraea formosana *Spiraea fritschiana *Spiraea henryi Spiraea hirsuta *Spiraea mollifolia *Spiraea mongolica (syn. S. gemmata) Spiraea prostrata *Spiraea pubescens Spiraea purpurea *Ŝpiraea salicifolia Spiraea sericea *Ŝpiraea trilobata *Spiraea veitchii Spiraea velutina Spiraea wilsonii

Spiraea yunnanensis

*Stephanandra incisa

Stranvaesia amphileia

*Stranvaesia davidiana

*Stephanandra chinensis

*Stranvaesia amphidoxa

Rubiaceae: *Adina pilulifera Adina polycephala Adina racemosa *Adina rubella *Damnacanthus indicus Damnacanthus labordei Damnacanthus subspinosus *Emmenopterys henryi Lasianthus lancilimbus Leptodermis oblonga *Leptodermis pilosa *Luculia gratissima *Luculia pinceana Morinda officinalis Morinda parvifolia Morinda umbellata Mussaenda esquirolii Mussaenda hirsutula Mussaenda pubescens Randia canthioides Randia cochinchinensis Serissa serissoides Tarenna acutisepala Tarenna attenuata Tarenna depauperata Tarenna lanceolata Tarenna mollissima Tarenna pubinervis Tricalysia dubia Tricalysia fruticosa Tricalysia lutea Tricalysia viridiflora Uncaria rhynchophylla

Rutaceae:
*Citrus ichangensis
*Citrus junos
Clausena dunniana
Evodia austrosinensis
*Evodia baberi
Evodia compacta
*Evodia daniellii
Evodia eutaecarpa
Evodia fargesii
Evodia glauca

Uncaria sinensis

Evodia meliifolia *Orixa japonica Paramignya confertifolia *Phellodendron chinense Phellodendron macrophyllum *Phellodendron wilsonii Skimmia arborescens *Skimmia reevesiana *Toddalia asiatica *Zanthoxylum ailanthoides Zanthoxylum armatum Zanthoxylum austrosinense Zanthoxylum avicennae Zanthoxylum bungeanum Zanthoxylum dissitum Zanthoxylum echinocarpum Zanthoxylum kwangsiense Zanthoxylum macranthum Zanthoxylum micranthum Zanthoxylum molle Zanthoxylum ovalifolium Zanthoxylum podocarpum Zanthoxylum rehetsoides Zanthoxylum scandens *Zanthoxylum schinifolium *Zanthoxylum simulans Zanthoxylum stenophyllum Zanthoxylum stipitatum

Sabiaceae: Meliosma angustifolia *Meliosma beaniana Meliosma buchananifolia Meliosma callicarpifolia *Meliosma dilleniifolia *Meliosma flexuosa Meliosma fordii Meliosma glandulosa Meliosma henryi Meliosma kirkii Meliosma laui *Meliosma myriantha *Meliosma oldhamii *Meliosma parviflora Meliosma paupera Meliosma rhoifolia Meliosma rigida Meliosma simplicifolia Meliosma squamulata *Meliosma veitchiorum Meliosma velutina Meliosma yunnanensis Sabia campanulata Sabia coriacea Sabia discolor Sabia emarginata Sabia japonica Sabia limoniacea Sabia schumanniana Sabia swinhoei Sabia yunnanensis

Salicaceae:
Chosenia arbutifolia
*Populus adenopoda
*Populus cathayana
Populus davidiana
Populus hopeiensis
Populus hsinganica
*Populus lasiocarpa
Populus maximowiczii
Populus nakaii
*Populus purdomii
*Populus simonii
Populus tomentosa

Salix balansaei Salix cantoniensis Salix cathavana *Salix chaenomeloides Salix cheilophila Salix chienii Salix comusii *Salix dasvclados Salix delavayana Salix dichoneura Salix dunnii Salix erioclada *Salix fargesii Salix glandulosa Salix heterochroma Salix hylonoma Salix linearistipularis Salix liouana *Salix magnifica Salix mesnyi Salix nankingensis Salix praticola Salix rosthornii Salix sinica Salix sinopurpurea Salix suchowensis Salix tetrasperma *Salix triandra Salix variegata Salix wallichiana Salix wilsonii

<u>Santalaceae</u>: Pyrularia edulis Pyrularia sinensis

Sapindaceae: Eurycorymbus cavaleriei *Koelreuteria bipinnata *Koelreuteria elegans *Koelreuteria paniculata Sapindus delavayi *Sapindus mukorosii Sapindus rarak *Xanthoceras sorbifolia

<u>Sargentodoxaceae</u>: Sargentodoxa cuneata

Schisandraceae: Kadsura coccinea Kadsura heteroclita Kadsura lancilimba Kadsura longipedunculata Kadsura polysperma Schisandra bicolor *Schisandra chinensis *Schisandra glaucescens Schisandra henryi Schisandra japonica *Schisandra lancifolia *Schisandra propinqua *Schisandra rubriflora *Schisandra sphenanthera Schisandra tuberculata Schisandra viridis

Scrophulariaceae:
Paulownia australis
Paulownia catalpifolia
Paulownia elongata
*Paulownia fargesii
*Paulownia fortunei
*Paulownia kawakamii
Paulownia longifolia
Paulownia rehderiana

Simaroubaceae:
*Ailanthus giraldii
*Ailanthus vilmoriniana
*Picrasma quassioides

Stachyuraceae:
Stachyurus brachystachyus
*Stachyurus chinensis
*Stachyurus himalaicus
Stachyurus oblongifolius
Stachyurus obovatus
*Stachyurus salicifolius
*Stachyurus szechuanensis
*Stachyurus yunnanensis

Staphyleaceae:
*Euscaphis japonica
*Staphylea bumalda
*Staphylea holocarpa
*Tapiscia sinensis
Turpinia arguta
Turpinia cochinchinensis

Sterculiaceae:
Corchoropsis psilocarpa
*Corchoropsis tomentosa
Firmiana major
*Firmiana simplex
Reevesia glaucophylla
Reevesia kwangsiensis
Reevesia longipetiolata
*Reevesia pubescens
Sterculia henryi
Sterculia lanceifolia
Sterculia lanceolata
Sterculia nobilis

Styracaceae:

Alniphyllum fortunei

*Alniphyllum hirsutum

Bruinsmia polysperma *Halesia macgregorii Huodendron biaristatum Huodendron tibeticum Huodendron tomentosum *Melliodendron xylocarpum Parastyrax lacei *Pterostyrax corymbosus Pterostyrax leveillei *Pterostyrax psilophyllus Rehderodendron kwangtungense Rehderodendron kweichowense *Rehderodendron macrocarpum *Sinojackia dolichocarpa Sinojackia henryi *Sinojackia rehderiana *Sinojackia xylocarpa Styrax argentifolius *Styrax calvescens *Styrax chinensis *Styrax confusus *Styrax dasyanthus Styrax faberi Styrax formosanus Styrax grandiflorus *Styrax hemsleyanus Styrax huana Styrax macrocarpus *Styrax odoratissimus Styrax roseus Styrax rugosus

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*Styrax serrulatus Styrax suberifolius Styrax supaii Styrax tonkinensis *Styrax wilsonii Styrax wuyuanensis Styrax zhejiangensis

Symplocaceae: Symplocos adenophylla Symplocos adenopus Symplocos anomala Symplocos austrosinensis Symplocos cochinchinensis Symplocos congesta Symplocos glandulifera Symplocos glauca Symplocos groffii Symplocos heishanensis Symplocos lancifolia *Symplocos paniculata Symplocos pseudobarberina Symplocos ramosissima Symplocos stellaris Symplocos sumuntia Symplocos viridissima Symplocos wikstroemiifolia

Tamaricaceae:
Myricaria bracteata
Myricaria elegans
Myricaria laxiflora
Myricaria panicaulata
Myricaria platyphylla
Myricaria swuamosa
Tamarix aphylla
Tamarix austromongolica
*Tamarix chinensis
Tamarix taklamakanensis

Taxaceae:
*Pseudotaxus chienii
*Taxus chinensis
Taxus fuana
*Taxus mairei
*Taxus wallichiana
*Torreya fargesii
*Torreya grandis
Torreya jackii
Torreya yunnanensis

Taxodiaceae:
*Cryptomeria fortunei
*Cunninghamia konishii
*Cunninghamia
unicanaliculata
*Glyptostrobus pensilis
*Taiwania cryptomerioides
*Taiwania flousiana

<u>Tetracentraceae</u>: *Tetracentron sinense

Theaceae:
Adinandra bockiana
Adinandra glischroloma
*Adinandra millettii
Adinandra nitida
Anneslea fragrans
Camellia acutissima
Camellia assimilis
Camellia brevistyla
Camellia caudata
Camellia chekiangoleosa

Camellia compressa Camellia cordifolia Camellia costaei *Camellia crapnelliana Camellia cryptoneura *Camellia cuspidata Camellia euryoides *Camellia fraterna Camellia furfuracea Camellia gigantocarpa *Camellia granthamiana Camellia grijsii Camellia handelii Camellia lancilimba Camellia microphylla *Camellia oleifera Camellia paratuberculata Camellia parvilimba Camellia parvimuricata *Camellia pitardii Camellia polyodonta Camellia puniceiflora *Camellia reticulata Camellia rhytidocarpa *Camellia rosaeflora Camellia rosthorniana *Camellia salicifolia Camellia shensiensis Camellia subacutissima Camellia subintegra Camellia trichoclada Camellia trigonocarpa *Camellia tsai Camellia tsofuii Camellia tunganica Camellia villosa Camellia viridicalyx Cleyera incornuta Cleyera pachyphylla Eurya acuminatissima Eurya acutisepala Eurva alata Eurva aurea Eurya brevistyla Eurya chinensis Eurva ciliata Eurya distichophylla *Eurya emarginata Eurya glandulosa Eurya hebeclados Eurya impressinervis *Eurya japonica Eurya kweichowensis Eurva lanciformis Eurya loquiana Eurya macartneyi Eurya metcalfiana Eurya muricata Eurva nitida Eurya obtusifolia Eurya palentipila Eurya pseudopolyneura Eurya rubiginosa Eurva saxicola Eurya semiserrulata Eurya stenophylla Eurya tetragonoclada Eurya trichocarpa Eurva weissiae *Gordonia axillaris *Gordonia chrysantha Gordonia kwangsiensis Gordonia szechwanensis *Schima argentea

Schima bambusifolia

Schima grandiperulata

Schima parviflora Schima remoteserrata Schima sinensis *Schima wallichii Stewartia nanlingensis Stewartia oblongifolia *Stewartia pteropetiolata (syn. Hartia sinensis) *Stewartia rostrata Stewartia rubiginosa *Stewartia sinensis Ternstroemia kwangtungensis Ternstroemia luteoflora Ternstroemia nitida Ternstroemia subrotundifolia Tutcheria brachycarpa Tutcheria greeniae Tutcheria hirta

Tutcheria microcarpa

*Tutcheria spectabilis

Tutcheria tenuifolia

<u>Thymelaeaceae</u>: *Daphne acutiloba *Daphne aurantiaca Daphne championi *Daphne genkwa *Daphne longilobata *Edgeworthia papyifera *Edgeworthia chrysantha Wikstroemia alba Wikstroemia canescens Wikstroemia chamaedaphne Wikstroemia glabra *Wikstroemia indica Wikstroemia micrantha Wikstroemia monnula Wikstroemia nutans Wikstroemia pampaninii Wikstroemia pilosa Wikstroemia stenantha *Wikstroemia terniflora

Tiliaceae: Corchorus acutangulus *Corchorus olitorius *Grewia biloba Grewia brachypoda Grewia henryi *Tilia chinensis Tilia endochrysea *Tilia henryana Tilia hupeĥensis Tilia integerrima *Tilia japonica *Tilia mandshurica Tilia membranacea *Tilia migueliana Tilia mofungensis *Tilia mongolica Tilia nobilis Tilia oblongifolia Tilia obscura *Tilia oliveri Tilia omeiensis Tilia paucicostata Tilia populifolia Tilia tuan

Ulmaceae:
*Aphananthe aspera
*Celtis biondii
*Celtis bungeana
Celtis cerasifera
*Celtis choseniana

Celtis julianae *Celtis labilis Celtis retrandra *Celtis sinensis Celtis tetrandra Celtis vandervoetiana *Hemiptelea davidii *Pteroceltis tatarinowii Trema cannabina Trema nitida Trema orientalis Ulmus bergmanniana Ulmus castaneifolia Ulmus chenmoui Ulmus chingii *Ulmus davidiana Ulmus elongata Ulmus gaussenii Ulmus glaucescens *Ulmus laciniata *Ulmus macrocarpa Ulmus szechuanica Zelkova schneideriana *Zelkova sinica

Verbenaceae:

Callicarpa bodinieri

Callicarpa brevipes

Callicarpa candicans *Callicarpa cathayana Callicarpa formosana *Callicarpa giraldii Callicarpa gracilipes *Callicarpa integerrima (syn. C. pedunculata) Callicarpa kochiana *Callicarpa kwangtungensis Callicarpa lingii Callicarpa lobo-apiculata Callicarpa longipes Callicarpa longissima Callicarpa macrophylla Callicarpa membranacea *Callicarpa nudiflora Callicarpa peichieniana *Callicarpa pilosissima Callicarpa rubella Caryopteris aureoglandulosa *Caryopteris divaricata Caryopteris forrestii Caryopteris glutinosa *Carvopteris incana Caryopteris jinshajiangensis *Caryopteris mongholica Caryopteris paniculata Caryopteris terniflora Clerodendrum canescens *Clerodendrum chinense (syn. C. philippinum)
*Clerodendrum colebrookianum *Clerodendrum cyrtophyllum

Clerodendrum fortunatum

*Clerodendrum japonicum

kwangtungense

luteopunctatum

mandarinorum

Clerodendrum lindleyi

Clerodendrum

Clerodendrum

Clerodendrum

Premna cavaleriei

Vitex canescens

Vitex duclouxii

Premna microphylla

*Vitex negundo *Vitex quinata *Vitex rotundifolia Vitex sampsonii *Vitex trifolia Vitex yunnanensis

Vitaceae:

*Ampelopsis aconitifolia
*Ampelopsis bodineri
*Ampelopsis
brevipedunculata
Ampelopsis delavayana
*Ampelopsis humulifolia
*Ampelopsis japonica
Ampelopsis sinica
Cissus assamica
Cissus repens
Parthenocissus austroorientalis
Parthenocissus glaucophy
*Parthenocissus henryana

Parthenocissus glaucophylla *Parthenocissus henryana *Parthenocissus heterophylla *Parthenocissus himalayana Parthenocissus laetivirens *Parthenocissus thomsonii Tetrastigma hemsleyanum Tetrastigma hypoglaucum Tetrastigma obtectum Vitis adenoclada Vitis adstricta *Vitis amurensis Vitis bellula Vitis chunganensis *Vitis davidii Vitis ficifolia Vitis ficifolioides *Vitis flexuosa Vitis pentagona *Vitis piasezkii Vitis pseudoreticulata Vitis quinquangularis Vitis retordii Vitis romanetii Vitis sinocinerea Vitis tsoi Vitis wilsonae

<u>Zygophyllaceae</u>: Nitraria sibirica

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Forsythia — Oleaceae
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Garcinia — Clusiaceae
Gaultheria — Ericaceae
Gelsemium — Loganiaceae
Gleditsia — Fabaceae
Glochidion — Euphorbiaceae
Glyptostrobus — Taxodiaceae
Gnetum — Gnetaceae
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Heptacodium — Caprifoliaceae
Heteropanax — Araliaceae
Hibiscus — Malvaceae
Holboellia — Lardizabalaceae
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Hovenia — Rhamnaceae
Hunaniopanax — Araliaceae
Huodendron — Styracaceae
Hydrangea — Hydrangeaceae
Hypericum — Clusiaceae

Idesia — Flacourtiaceae Ilex — Aquifoliaceae Illicium — Illiciaceae Indigofera — Fabaceae Itea — Grossulariaceae Iteadaphne — Lauraceae

Jasminum — Oleaceae Juglans — Juglandaceae Juniperus — Cupressaceae

Kadsura — Schisandraceae Kalopanax — Araliaceae Keteleeria — Pinaceae Koelreuteria — Sapindaceae Kolkwitzia — Caprifoliaceae

Lagerstroemia — Lythraceae
Larix — Pinaceae
Lasianthus — Rubiaceae
Leptodermis — Rubiaceae
Leptodermis — Caprifoliaceae
Ligustrum — Oleaceae
Lindera — Lauraceae
Liquidambar — Hamamelidaceae
Liriodendron — Magnoliaceae
Lithocarpus — Fagaceae
Litsea — Lauraceae
Lonicera — Caprifoliaceae
Luculia — Rubiaceae
Lyonia — Ericaceae

Maackia — Fabaceae Machilus — Lauraceae Macropanax — Araliaceae Maddenia — Rosaceae Maesa — Myrsinaceae Magnolia — Magnoliaceae Mahonia — Berberidaceae Mallotus — Euphorbiaceae Malus — Rosaceae Manglietia — Magnoliaceae Manglietiastrum — Magnoliaceae Melia — Meliaceae Meliosma — Sabiaceae Melliodendron - StyracaceaeMenispermum — Menispermaceae Mespilodaphne — Lauraceae Metaplexis — Asclepiadaceae Michelia — Magnoliaceae Microtropis — Celastraceae Millettia — Fabaceae Monimopetalum — Celastraceae Morinda — Rubiaceae Morus — Moraceae Mucuna — Fabaceae Munronia — Meliaceae Mussaenda — Rubiaceae Myrica — Myricaceae Myricaria — Tamaricaceae Myrsine — Myrsinaceae

Nageia — Podocarpaceae Neillia — Rosaceae Neocinnamomum — Lauraceae Neolitsea — Lauraceae Nitraria — Zygophyllaceae Nothapodytes — Icacinaceae Nothaphoebe — Lauraceae Nothopanax — see Pseudopanax Nyssa — Cornaceae

Oplopanax — Araliaceae Orixa — Rutaceae Ormosia — Fabaceae Osbeckia — Melastomataceae Osmanthus — Oleaceae Ostrya — Betulaceae Ostryopsis — Betulaceae

Pachysandra — Buxaceae Paliurus — Rhamnaceae Parabenzoin — see Lindera Parakmeria — Magnoliaceae Paramichelia — Magnoliaceae Paramignya — Rutaceae Parastyrax — Styracaceae Parthenocissus — Vitaceae Paulownia — Scrophulariaceae Pentaphylax — Pentaphylacaceae Perrottetia — Celastraceae Persea — Lauraceae Phellodendron — Rutaceae Philadelphus — Hydrangeaceae Phoebe — Lauraceae Photinia — Rosaceae Phyllanthus — Euphorbiaceae Physocarpus — Rosaceae Picea — Pinaceae Picrasma — SimaroubaceaePileostegia — Hydrangeaceae Pinus — Pinaceae Pittosporum — Pittosporaceae Platycarya — Juglandaceae Podocarpus — Podocarpaceae Poliothyrsis — Flacourtiaceae Polygala - Polygalaceae Populus — Salicaceae Pottsia — Apocynaceae

See China, next page

China, continued

Premna — Verbenaceae
Prunus — Rosaceae
Pseudocydonia — Rosaceae
Pseudolarix — Pinaceae
Pseudopanax — Araliaceae
Pseudotaxus — Taxaceae
Pseudotsuga — Pinaceae
Pterocarya — Juglandaceae
Pteroceltis — Ulmaceae
Pterolobium — Fabaceae
Pterostyrax — Styracaceae
Pygeum — Rosaceae
Pyruacantha — Rosaceae
Pyrularia — Santalaceae
Pyrus — Rosaceae

Quercus — Fagaceae Quisqualis — Combretaceae

Randia — Rubiaceae Rapanea — Myrsinaceae Reevesia — Sterculiaceae Rehderodendron — Styracaceae Rhamnella — Rhamnaceae Rhamnus — Rhamnaceae Rhaphiolepis — Rosaceae Rhododendron — Ericaceae Rhodoleia — Hamamelidaceae Rhoiptelea — Rhiopteleaceae Rhus — Anacardiaceae Ribes — Grossulariaceae Rosa — Rosaceae Rubus — Rosaceae

Sabia — Sabiaceae Sageretia — Rhamnaceae Salix — Salicaceae Sambucus — Caprifoliaceae

Sambucus — Caprifoliaceae Sapindus — Sapindaceae Sapium — Euphorbiaceae Sarcococca — Buxaceae

Sargentodoxa — Sargentodoxaceae Sassafras — Lauraceae

Schefflera — Araliaceae Schima — Theaceae Schisandra — Schisandraceae

Schisandra — Schisandraceae Schizophragma — Hydrangeaceae Schoepfia — Olacaceae

Securinega — Euphorbiaceae Semiliquidambar —

Hamamelidaceae Serissa — Rubiaceae Sinocalycanthus — Calycanthaceae

Sinocalycanthus — Calycanthaceae Sinofranchetia — Lardizabalaceae Sinosassafras — Lauraceae Sinowilsonia — Hamamelidaceae

Sinowilsonia — Hamamelidacea Skimmia — Rutaceae Sloanea — Elaeocarpaceae

Sophora — Fabaceae Sorbaria — Rosaceae Sorbus — Rosaceae

Spiraea — Rosaceae Stachyurus — Stachyuraceae Staphylea — Staphyleaceae Stauntonia — Lardizabalaceae Stephanandra — Rosaceae Stephanotis — Asclepiadaceae Sterculia — Sterculiaceae

Stewartia — Theaceae Stranvaesia — Rosaceae Styrax — Styracaceae

Sycopsis — Hamamelidaceae Symplocos — Symplocaceae Syzygium — Myrtaceae

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Taiwania — Taxodiaceae Tamarix — Tamaricaceae Tapiscia — Staphyleaceae Tarenna — Rubiaceae

Taxus — Taxaceae Telosma — Asclepiadaceae Ternstroemia — Theaceae

Tetracentron — Tetracentraceae Tetradium — see Evodia

Tetrastigma — Vitaceae Tilia — Tiliaceae Toddalia — Rutaceae

Toona — Meliaceae
Toricellia — Cornaceae
Torreya — Taxaceae

Toxicodendron — Anacardiaceae Trachelospermum — Apocynaceae

Trachycarpus — Palmae Trema — Ulmaceae Tricalysia — Rubiaceae

Tsoongiodendron — Magnoliaceae

Tsuga — Pinaceae

Turpinia — Staphyleaceae Tutcheria — Theaceae

Ulmus — Ulmaceae Uncaria — Rubiaceae Urena — Malvaceae

Vaccinium — Ericaceae Vernicia — Euphorbiaceae Viburnum — Caprifoliaceae Vitex — Verbenaceae Vitis — Vitaceae

Wikstroemia — Thymelaeaceae Wisteria — Fabaceae

Xanthoceras — Sapindaceae Xylosma — Flacourtiaceae

Zanthoxylum — Rutaceae Zelkova — Ulmaceae Zenia — Fabaceae

Membership Application

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Jonathan Nyberg, Editor

JC Raulston Arboretum Staff

Director	Bryce Lane	515-1189
Development Director	Catherine Maxwell	515-2000
Program Coordinator	Jonathan Nyberg	515-3132
Volunteer Coordinator	Harriet Bellerjeau	515-3132
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Volunteer office		

Volunteer Curators (* indicates help needed)

Butterfly Garden*	Patricia Highland	217-1252
Blue Bird Houses	Lynn Hoyt	362-1301
Blue Conifer Collection*	Guy Meilleur	387-7045
Iris Curator	Catherine Gaertner	380-5172
Japanese Garden*	Dan Howe	848-5462
JC Raulston Archives	Mary & Claude Caldwell	515-3132
Labeling*	Tom Bumgarner	231-7450
Lath House*	Charlotte Presley	851-0555
Magnolia Curator	Pat McCracken	365-7878
Mixed Shrub Border*	Amelia Lane	787-6228
Perennial Borders*	Edith Eddleman	286-7691
	Doug Ruhren	688-0240
Rose Garden	Harvey Bumgardner	832-5426
	Anne Clapp	787-9852
Southwest Garden*	James Brantley	890-3675
Tour Guide Coordinator	Fran Johnson	847-5274
Tour Guide Trainer	Vivian Finkelstein	847-3658
Visitor Center Coordinator*	Bee Weddington	782-7737
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to the Arboretum Board	Anne Clapp	787-9852
Water Garden	Alicia Berry	829-2524
White Garden	Karen Jones	834-6351
Garden of Winter Delights*	Jonathan Nyberg	688-0240
, and the second	Frank Simpson	682-5754
Wisteria Garden* Curator needed	·	

NC State University Horticultural Field Laboratory

Superintendent Paul Lineberger 515-3144