

2006 Annual Research Report

A SPECIAL EDITION OF *LANDSCAPE PLANT NEWS*, VOLUME 17, NUMBER 3



Landscape Plant Development Center

A national, non-profit research institute dedicated to developing durable plants

BOARD OF DIRECTORS

Sid Harkema, President
Fruit Basket Flowerland
Jenison, Michigan

Wayne Mezitt, Vice
President
Weston Nurseries
Hopkinton, Massachusetts

Don Selinger, Treasurer
Woodbury, Minnesota

Jodi Patterson, Secretary
J. Frank Schmidt & Son Co.
Boring, Oregon

Mike Arnold
Texas A&M University
College Station, Texas

Dan Bailey
Bailey Nurseries, Inc.
St. Paul, Minnesota

Jim Berry
J. Berry Nursery
Grand Saline, Texas

Dwight Hughes, Jr.
Dwight Hughes Nursery
Cedar Rapids, Iowa

Lockie Markusen
Edina, Minnesota

Thomas Ranney
North Carolina State
University
Fletcher, North Carolina

Wilbert Ronald
Jeffries Nurseries Ltd.
Portage la Prairie
Manitoba, Canada

Jim Wilson
Columbia, Missouri

STAFF

Harold Pellett,
Executive Director

Stacy Lynn Bettison,
General Counsel, Director
of Communications
& Development

Sarah Doane, Oregon
Research Station Manager
Teri Line, Administrator

Peter Podaras, Plant
Breeder

Leslie Yost, Horticulturist/
Publicist

Landscape Plant Development Center

P.O. Box 444, Mound, MN
55364
(952) 443-1505 phone
(952) 474-9440 fax
info@landscapecenter.org
www.landscapecenter.org

The Landscape Plant Development Center
is a national, non-profit research institute
that develops durable plants that are
tolerant of environmental and biological
stresses. The Center has assembled a
nationwide network of respected leaders
in the nursery industry and the research,
academic and arboreta communities to
assist in and support the Center's research.
This network, the only one of its kind,
ensures that the Center efficiently and
economically develops new plant material.

TABLE OF CONTENTS

3	Research Progress Report
7	Selecting for Alkalinity, Salinity, and Drought Tolerance in <i>Taxodium</i>
8	Oregon Research Station
9	Center Receives Land Grant to Establish Minnesota Research Station
10	The Center's Plant Introductions
12	Contributions to the Landscape Plant Development Center, 2005–2006
13	Donor Profile: Bob Engstrom A Leader in Land Conservation
14	Our New Website

2006 Research Progress Report

Ornamental Pears

The Center continues to focus its breeding research on pear trees because of their small size and their potential for different forms and tolerance to different environmental extremes. The pear also has beautiful foliage, excellent fall color and delivers showy flowers early in the season.

Currently, nine research cooperators at universities and arboreta across the country are evaluating the Center's second-generation pear hybrids. In addition, in 2003, the Center planted asexually propagated selections in Georgia, Pennsylvania, North Carolina, New York, Michigan, Minnesota, Iowa, Texas, Kansas, Oklahoma, Idaho, California, and Washington. One of the significant features the Center is looking for in these pear selections is resistance to fireblight.

Notable developments in 2006 include:

- A cool, wet Oregon spring in 2005 produced ideal conditions for rust disease resulting in heavy infestation of most of the pear plants. As a result, the Center has identified plants that have excellent resistance to rust disease.
- The Center is receiving excellent feedback from cooperators on performance of selections sent out previously for evaluation. A couple of selections have been made in Arizona of plants that are resistant to high soil pH. These were propagated in late summer 2005 for further evaluation.
- Some of the dwarf selections may have potential for use as dwarfing rootstocks for fruiting pear varieties. The Center initiated efforts to explore the potential of some of its dwarf selections to be used as dwarfing rootstocks for fruiting pear varieties by budding dwarf selections onto seedling rootstocks.

- In the spring, J. Frank Schmidt & Son Company sold a limited number of Silver Ball™ Pear, the Center's first tree introduction.

Acer and Carpinus

The Center's *Acer* and *Carpinus* breeding programs are carried out in cooperation with the Morton Arboretum. Dr. Susan Wiegrefe made the initial crosses and utilized plants growing at the Morton, Morris, Arnold and Holden Arboreta. Currently F1 populations of these genera are growing at the Morton Arboretum and at the Center's research station in Oregon. Some maple hybrids are also growing at the Washington State University's Puyallup Experiment Station.

Notable developments in 2006 include:

- Crosses made in 2004 between selected F1 hybrids are currently being grown at the Morton Arboretum.
- Open pollinated seed was collected in fall of 2005 and sown in a seedbed at Bailey Nurseries, Inc. in Minnesota. Seedlings will be left this winter (2006–2007) to provide an early selection for winter hardiness. The Center will transplant any surviving plants to its Minnesota Research Station in the spring.
- The Center also planted approximately 75 seedlings at the Minnesota Research Station this past spring.
- Some of the F1 hybrids of *Carpinus* have very nice plant form and excellent foliage qualities. The Center is selecting from these hybrids and will propagate the selections for further evaluation. Many of the F1 hybrids are now flowering and seed will be collected in fall of 2006 for growing the F2 population.

Research Progress Report continued on page 4

The Center has identified hybrid pear trees that have excellent resistance to rust disease.



Center's pear selections growing at the Washington State University–Puyallup station (April 2006)



Weigela selection



Low-growing Weigela selection



Oak (*Quercus*) hybrid

*Donahue's
Greenhouse has
been licensed to
grow 'Center Star'
Clematis.*

Clematis

The Center has made excellent progress in developing non-vining cultivars of *Clematis*. The Center's hybrids between *Clematis integrifolia* and *C. hexapetala* appear very promising. Flowers are blue in color and upright facing. We also have many hybrids between *C. integrifolia* and *C. recta* that have smaller, upfacing flowers. In addition, the Center has hybrids between *C. integrifolia* and several of the large, flowered vine cultivars.

Notable developments in 2006 include:

- Plants resulting from crosses made in 2003 between *C. integrifolia* and large flowered, vine cultivars and between *C. integrifolia rosea* and *C. hexapetala* are now being grown at the Oregon Research Station.
- Plants from 2002 crosses that are now growing in a field planting at the Oregon Research Station flowered in this past

year. Many of these appear to be vining in form but are likely to be shorter than many of the current vine cultivars. One early selection is quite short and could be used effectively in a perennial garden supported by a tomato cage.

- Donahue's Greenhouse, which specializes in *Clematis* production, has been licensed to grow 'Center Star,' the Center's patented selection of *C. integrifolia* x *C. hexapetala*. 'Center Star' combines the blue flower color from the female parent and the upfacing flowers of the male parent. Flowers are 1 1/2 to 2" in diameter and the foliage is a dark, glossy green.
- The Center's hybrids of *C. integrifolia rosea* with *C. hexapetala* and large flowered vining cultivars are now growing at our Oregon Station. Our goal with these hybrids is to extend the flowering color range.

Improving Native Plants

In 2003–2004, the Center collected native woody plants in Iowa, Michigan and Minnesota in cooperation with Dr. Robert Schutzi of Michigan State University and Dr. Mark Widrechner of North Central Regional Plant Introduction Station. The Center is growing these plants to select superior individual plants to be used in breeding. The Center is also using Ethyl Methane Sulfonate (EMS), a chemical mutagen, to develop dwarf varieties of selected plants.

Notable developments in 2006 include:

- The Center has developed a cross between *Cornus sericea* 'Cardinal' and *C. s.* 'Isanti' to develop a compact variety with brighter winter twig color. The Center also selected compact plants from open pollinated seedlings of *C. sericea* 'Cardinal' treated with EMS. These exciting selections are now being propagated for further evaluation.



Carpinus hybrid selections, including a weeping selection



Viburnum selection



Mountain Ash selection

- The Center's first patented shrub introduction, 'Center Glow', is a hybrid between *Physocarpus opulifolius* Diabolo™ and *P. o.* 'Dart's Gold' and has significantly brighter leaf color than Diabolo™. 'Center Glow' was commercially available in limited quantities in 2006 and will be available in greater quantities in 2007.
- The Center continues to work with seedlings from crosses between 'Center Glow' and its siblings. The seedlings exhibit a broad range of leaf color (from green-yellow to bronze) and a number of plants have rosy red leaf color at maturity. The Center is also propagating and evaluating a dwarf selection from seedlings treated with EMS.

Developing Sterile Cultivars by Ploidy Manipulation

The Center is working to develop sterile cultivars by modifying ploidy levels in cooperation with Dr. Tom Ranney at North

Carolina State University, Mountain Horticultural Research Center. We are treating plants with oryzalin to produce tetraploids. These will then be crossed with diploid plants to produce triploids, which are most frequently sterile.

Notable developments in 2006 include:

- Tetraploids of crabapple, *Acer platanoides* and *Acer ginnala* have been verified by flow cytometry from plants treated with oryzalin.
- The Center continues to observe hybrids resulting from wide crosses to identify sterile plants. Several of the Center's selected pear hybrids appear to be sterile. In addition, some of the Center's *Buddleia* cultivars appear to be sterile or of low fertility, and the Center anticipates several sterile selections with excellent ornamental traits.
- Pollen of selected hybrids was sent to Dr. Ranney to use in crosses with tetraploid *Pyrus calleryana* that he has induced.

- In our cooperative breeding program with North Dakota State University, Dr. David Dai has successfully established plants in tissue culture. He has developed a satisfactory protocol for gene transformation with *Buddleia*, and the Center is positioned to introduce genes that result in sterility and dwarfness. Dr. Dai continues to work on protocol for transformation with other species.

The Center's Breeding Program at Cornell University

In 2003, the Center began a breeding program at Cornell to expand and enhance the breeding of landscape plants. Peter Podaras, the Center's plant breeder at Cornell, is making crosses in many different genera.

Notable developments in 2006:

- The Center made numerous cross in many different plant species in 2006.

Research Progress Report continued on page 6

The Center anticipates several sterile Buddleia selections with excellent ornamental traits.

Some of the Center's F2 plants of Diervilla x Weigela appear much like Diervilla, but foliage is an attractive mottled color of yellow, orange and red.

The Center focused on crossing *Buddleia* and *Weigela* on advanced generations growing in the greenhouse and on *Quercus* in the field. There was excellent nut production of many interspecific crosses from the 1700+ cross combinations made in spring of 2005. Plants from these crosses are now growing. Many additional crosses were made in 2006 using *Quercus bicolor*, *Q. macrocarpa*, *Q. muhlenbergii* and F1 hybrids primarily as the female parents and many different species as male parents.

- Plants resulting from interspecific crosses of the following species made in 2003 and 2004 are now growing in the field: *Asclepias*, *Baptisia*, *Betula*, *Buddleia*, *Calycanthus*, *Cornus*, *Diervilla*, *Hypericum*, *Quercus*, *Platanus*, *Sambucus*, and *Weigela*.
- The Center continues to work to develop *Buddleia* cultivars that are cold-hardy, dwarf and sterile. The Center's recent crosses will produce plants of the 6th and 7th generation. Many of our selections include plants with different plant forms, flower color, foliage color, degrees of sterility and potential cold hardiness. The Center is considering the potential of some selections to be used as annuals in northern climates where *Buddleia* is not reliably hardy.
- We continue to explore potential for intergeneric hybridization between closely related genera. Based on the previous success of hybridization of *Aronia* with *Chaenomeles*, Peter attempted crosses between *Sorbus*, *Amelanchier*, and *Pyrus* with *Chaenomeles* in spring of 2006. Fruit developed from the crosses, and hopefully the embryos matured without abortion. Some F2 plants of *Diervilla* x

Weigela appear much like *Diervilla*, but foliage is an attractive mottled color of yellow, orange and red and flowers are pink in color.

- Hybridization efforts with other genera in 2006 include: *Sambucus*, *Syringa*, *Rhododendron*, interspecific crosses of *Acer* primarily in the trifoliolate and palmata sections and intergeneric crosses between *Stewartia* and *Camellia*.

Cooperative Breeding Research with North Dakota State University

The Center began a cooperative effort with Dr. Dai at North Dakota State University (NDSU) in 2005 to utilize biotechnological approaches for landscape plant improvement. NDSU has excellent facilities for tissue culture and related research activities, and the Center provides funding for a research technician to work on the project. The goal of this breeding program is to develop new landscape plants by use of various biotechnology approaches including in vitro mutation breeding, ploidy manipulation, and genetic transformation.

Notable developments in 2006:

- Since the Center and NDSU began the breeding program, tissue cultures of 15 landscape plant species have been established.
- Three (3) species—dogwood, ninebark, and forsythia—have been selected for in vitro chromosome doubling and chemical mutation. Colchicine and EMS are used for chromosome doubling and in vitro mutation, respectively. We are optimizing treatment conditions (chemical concentration and treatment time) for each species. Approximately 100 treated dogwood plants are growing in the greenhouse.



***Buddleia* selection**

Cooperative Plant Testing Program with The Blake School

In 2005, the Center established a cooperative effort with The Blake School, a private school in Hopkins, Minnesota, to evaluate the performance of certain pear and mountain ash selections. The project was part of a family community service activity, and over 40 trees were planted on campus by students, staff and parents. In addition, many families planted trees in their home landscapes. Students are evaluating trees planted on school grounds as part of the 6th grade science curriculum and families that planted trees at their homes provide yearly evaluation information.

Selecting for Alkalinity, Salinity and Drought Tolerance in *Taxodium*

GEOFFREY C. DENNY, ALMA SOLIS-PEREZ, DONITA L. BRYAN AND MICHAEL A. ARNOLD

T*axodium distichum* (L.) Rich., commonly known as baldcypress, is a widely adaptable tree species that is very well-suited for urban environments. It is tolerant of sites with poor soil aeration due to waterlogging or soil compaction, as well as dry sites (Arnold, 2002; Dirr, 1998; Harlow et al., 1991). Baldcypress is also somewhat tolerant of soil salts (Arnold, 2002; Harlow et al., 1991). However, most commercially available *Taxodium* are not very tolerant of alkaline soil conditions (Arnold, 2002; Dirr, 1998).

Geoff Denny's Ph.D. studies at Texas A&M University in the Department of Horticultural Sciences have been undertaken to investigate improved adaptability of baldcypress as an urban tree. By identifying populations of the tree that have enhanced drought, salt, or alkalinity tolerance we hope to be able to make recommendations for seed collection sites so these superior characteristics can be utilized by producers and consumers. This type of variation, called provenance variation, is especially useful in seed propagated species like baldcypress. Along with provenance variation, *T. distichum* has two distinct naturally occurring varieties that are recognized taxonomically in addition to the species type. These taxa are regarded by some authorities as separate species, but are treated in our work as varieties of baldcypress. Pondcypress, *Taxodium distichum* (L.) Rich. var. *imbricarium* (Nutt.) Croom (syn. *Taxodium acedens* A.T. de Brongniart)

Michael A. Arnold is a Professor of Landscape Horticulture at Texas A&M University. Geoffrey C. Denny, Alma Solis-Perez, Donita L. Bryan are graduate research and teaching associates at Texas A&M University.



Taxodium

has erect foliage reminiscent of juniper-like awl-shaped needles, a narrow erect crown, and tends to be found naturally growing in water or very wet sites (Arnold, 2002; Harlow et al., 1991). Montezuma cypress, *Taxodium distichum* (L.) Rich. var. *mexicanum* Gordon (syn. *Taxodium mucronatum* M. Teuore) is found in the extreme western and southern portions of the species range, including only a small portion of south Texas within the U.S. Montezuma cypress is evergreen to semi-evergreen, exhibits a more irregularly conical to

rounded crown, particularly in youth, and frequently occurs in semi-arid to arid regions where high pH soils are more common (Arnold, 2002).

Geoffrey Denny sampled seed of populations from the highlands of central Mexico, near the southern most part of the species' range, and from northwestern Mexico in the Sierra Madre Occidental, the western part of the species' range. Seed from northeastern

Literature Cited

- Arnold, M.A. 2002. *Landscape Plants For Texas And Environs*, Sec. Ed. Stipes Publ. L.L.C., Champaign, IL. p. 1088.
- Dirr, M.A. 1998. *Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses*, 5th Ed. Stipes Publishing Co., Champaign, IL. p. 1187.
- Harlow, W.M., E.S. Harrar, J.W. Hardin, and F.M. White. 1991. *Textbook of Dendrology*, 7th Ed. McGraw-Hill, Inc., New York, NY. pp. 499.

Taxodium continued on page 8

Taxodium continued from page 7

Mexico and the lower Rio Grande valley of Texas were also obtained, as well as seed from potential intermediate populations on the limestone soils of the central Texas Hill Country. Coastal populations in Louisiana, Mississippi, Alabama, and Florida were sampled along with populations from several sites inland in the Deep South. These collections encompassed all three varieties of *T. distichum*.

Seedlings from these different regions were grown in a container nursery in College Station, Texas, and then planted out at three different field sites in Texas in an attempt to evaluate the landscape performance of the seedlings in different environments. There are 15 populations being evaluated at Dallas in north-central Texas and Overton in north-east Texas. In the south-central site in College Station, 23 populations are in the field trial.

Additionally, the 15 populations under evaluation in Dallas and Overton are also being evaluated in a greenhouse drought screening experiment. An initial alkalinity screening of eight promising populations in containers under controlled conditions is also underway. Finally, an initial salt screening of four populations is being conducted in College Station. Cooperative studies are in the planning stages with Dr. Creech's group, at Stephen F. Austin State University, working on salt tolerance of *Taxodium* for a coastal field trial.

Our initial results indicate that western populations hold promise for drought tolerance, while the most dramatic differences were found in apparent tolerance to alkaline clay soils at the Dallas site. Within a year or two of field planting, large differences in growth and development of chlorosis occurred on this high pH soil. Young plants within a few feet of each other varied from exhibiting vigorous growth and showing no signs of foliar



Marked differences in foliar chlorosis in populations of *Taxodium* developed during the second growing season (2005) in the blackland clay at the Dallas field plots.

chlorosis to stunted growth with yellow-green to nearly white foliage. These differences appeared to be related to population distributions in the species' native range. Across all three field sites, there were populations with wide variations in growth rates, crown shapes, summer foliage color, fall color development, and propensity to a deciduous or semi-evergreen character. Once longer term data are collected and more controlled studies are completed, it should be possible to identify both seedling populations for improved adaptability and clonal selections for enhanced ornamental and physiological traits. We would like to acknowledge the Landscape Plant Development Center and the J. Frank Schmidt Family Charitable Foundation for providing seed money for this project.

Tree selections at the Center's Oregon Research Station



Oregon Research Station

The Center continues to expand activities and improve its capabilities at the Oregon Research Station. The Center's poly greenhouse, constructed in 2004, is being heavily utilized for propagation of selected plants. Peter Podaras, the Center's plant breeder at Cornell University, has been sending cuttings from many selections, and our station manager, Sarah Doane, is propagating them. The Center has also expanded the container area and soon will need to expand it again. The potting shed has been a significant asset in facilitating our propagation of selected plants.

The Center is also increasing the size of its field plots every year. Though the Center discards and removes many undesirable seedlings year after year, the size of field plots are ever expanding as our breeding programs continue and

broaden. The Center also evaluates and discards less desirable plants while those plants are growing in containers prior to field planting.

The 2006 growing season in Oregon was hotter and drier than normal and this taxed our irrigation capacity. We intend to expand the irrigation lines prior to the 2007 growing season to provide for our expanding field plantings.

As usual, there are always some exciting new plants that catch our eye. We have identified a number of promising selections of several genera that we have or will propagate during the coming year. A variegated *Diervilla sessilifolia* (shown lower left on the cover) is a good example of one selection that we feel has great potential. We are also collecting open pollinated seed of a number of plants to grow out the F2 populations.

Center Receives Land Grant to Establish Minnesota Research Station

This past spring, the Landscape Plant Development Center received a land donation of 6.75 acres in Lake Elmo, Minnesota to establish its Minnesota Research Station. The land was a generous gift by Robert and Phyllis Engstrom of The Robert Engstrom Companies in Minneapolis, Minnesota.

Robert Engstrom Companies are residential community developers that emphasize preservation of the natural environment in their developments. The land the Center received is within The Fields of St. Croix, a 226-acre development that clusters the homes on 40 percent of the land and maintains 60 percent in open spaces through a permanent easement.

Robert Engstrom, President of the Robert Engstrom Companies, has received several state and national awards for his development skills and commitment to good land stewardship. (See *Donor Profile, Bob Engstrom*, page 13.)

The Center planted a variety of selections this spring:

- Pear selections that have been propagated for the Center by Bailey Nurseries, Inc. and J. Frank Schmidt & Son. Co.;
- Second generation Japanese maple hybrids;
- Several selections of *Buddleia* and *Weigela*.

The Minnesota Research Station will be the Center's primary cold climate growing facility for second generation hybrids. Based on the growing performance of the hybrids, the Center will select individual plants that combine good cold hardiness with superior aesthetic qualities of species that often are not quite hardy enough for northern climates.



Members of the Kenny Neighborhood Garden Club touring the plantings at the Center's new Minnesota Research Station.

The Minnesota Research Station will also provide a site for evaluating cold hardiness of plants selected from the Center's cooperative breeding program at Cornell University, from hybrid populations growing at the Center's Oregon Research Station and plants selected by our research partners in other geographic regions. In addition, the Center will propagate many additional selections in the coming year for evaluation of cold hardiness at the Minnesota Research Station.

The Minnesota Research Station will be the Center's primary cold climate growing facility for second generation hybrids.

***Buddleia* selections growing at the Minnesota Research Station.**



The Center's Plant Introductions



Center Glow™ Ninebark

Physocarpus opulifolius 'Center Glow' Plant Patent No. 16,894 is the Landscape Plant Development Center's first shrub introduction. It is a hybrid between 'Diabolo' and 'Darts Gold.'

'Center Glow' foliage provides a medley of color in the landscape during the entire growing season. Newly emerging leaves are rosy red in color with a bright yellow-green base. As leaves mature, they darken and turn deep burgundy. Flower buds are light pink, opening to clusters of white flowers that contrast nicely with the rich foliage. After the bloom is complete, the developing seed heads are bright red in color becoming tan then brown as they mature.

In the landscape: 'Center Glow' responds well to vigorous renewal pruning and can be cut back severely to keep it more compact. The striking foliage provides dra-

matic contrast in the landscape and complements annuals, perennials, or smaller growing shrubs to develop appealing plant compositions in mass planting beds. It is useful in the landscape as a border, as a background for perennial or annual flower beds or in foundation plantings for larger buildings.

Hardiness: Zone 3

Habit and growth rate: Plants grow to 8–10' in height and 6–8' wide. The plants are rapid growers and new shoots can be cut and used in floral arrangements.

Culture: Full sun. Prefers well-drained soil.



'Center Glow' foliage provides a medley of color in the landscape during the entire growing season.





Center Star™ Clematis

Clematis 'Center Star' Plant Patent No. 17,010 is a new herbaceous perennial. It is a hybrid between *Clematis integrifolia* and *C. hexapetala*. 'Center Star' is sterile and has an extended flowering period, providing an abundance of blue flowers for six to eight weeks in the summer.

In the landscape: 'Center Star' is a non-vining plant that provides significant color to the perennial garden. The 2" upfacing blue flowers blanket the plant for up to two months beginning in early summer. 'Center Star' retains its dark green glossy foliage throughout the growing season. To retain an upright form, stems may need support. Whether adding a burst of blue in the perennial garden or hanging over a retaining wall, 'Center Star' is a significant addition to any landscape.

Hardiness: Hardy to Zone 4.

Habit and growth rate: Plants grow to 30–36".

Culture: Full sun to light shade.

Silver Ball™ Pear

Silver Ball™ Pear is the Landscape Plant Development Center's first tree introduction. It has a dense, wide-spreading rounded crown, with silver-green foliage. Its petite leaves have a fine texture.

In the landscape: The plant makes an excellent specimen small tree that serves well as a focal point in the landscape. The small, white flowers open in the spring after foliage emerges. The 1/2" fruit are light brown in color and remain on the tree until eaten by birds. The tree's dense mound coupled with its silvery green color make this tree an eye-catching addition to the landscape.

Hardiness: Zone 4b.

Habit and growth rate: 12–15' in height with an equal spread.

Culture: Full sun.



Contributions to the Landscape Plant Development Center, 2005–2006

The Landscape Plant Development Center is a grateful recipient of research grants and contributions from the following organizations and individuals in the past 12 months.

\$20,000 – 49,999

Bailey Nurseries, Inc.
Horticultural Research Institute
Oregon Department of Agriculture

\$10,000 – 19,999

Margaret & Gordon Bailey Foundation
Rod & Marcia Bailey
J. Frank Schmidt Family Charitable Trust
Minnesota Nursery & Landscape Association
The Stanley Smith Horticultural Trust

\$5,000 – 9,999

Greenleaf Nursery Co.
The Hubbard Broadcasting Foundation
Idaho Nursery & Florists Association
Lake Minnetonka Garden Club
Harold & Shelby Pellett
Van Sloun Foundation

\$2,000 – 4,999

Dale & Ruth Bachman
St. Paul Garden Club

\$500 – 1,999

Beaver Creek Nursery, Inc.
California Association of Nurserymen
Stewart Corn
Patricia Glassing
Sid & Betty Harkema
Lockie Markusen



Container plantings at Oregon Research Station

Michigan Nursery & Landscape Assoc.
Midwest Groundcovers
Nelson, Tietz & Hoye, Inc.
Ford J. & Catherine T. Nicholson
Plant Development Services, Inc.
Robert & Norma Schutzki
Don Selinger
Speer & Sons Nursery, Inc.
Willard Witte
Wayzata Garden Club

\$100 – 499

Anonymous Fund, Mpls Foundation
Robert Baker, Inc.
Ball Ornamentals
Nina Bassuk
Biological Patent Services, LLC
Braun Nursery Limited
J. C. Brenton
Broken Arrow Nursery
J. Carlson Growers, Inc.
Carlton Plants

Cobble Creek Nursery
Betty Jayne Dahlberg
Michael Dirr
Donahue's Greenhouse
Joan R. Duddingston
Robert Dudziak
Robert Engstrom Companies
Flora Scapes, Inc.
Helen Hartfiel
Elizabeth Hawn
Michael Hayman
Heins Valley Creek Nursery
Heisel Springhill Nursery, Inc.
Heritage Seedlings, Inc.
Marge Hols
Dwight Hughes Nursery
Richard Isaacson
Jeffries Nurseries, LTD
Johnson's Nursery, Inc.
Mary Keating
Kevin Kobielus
Lake Owasso Garden Club
Lake Superior Garden Center
Landscape Service, Inc.

Donald Leavenworth
Lee Nursery, Inc.
Thomas Line
Herman Losely and Son, Inc.
Tim and Karen McCauley
McKay Nursery
Katherine Meehan & Dr. Emmett Carpel
Mead Nurseries
David Michener
Lonn Moe
Monrovia Growers
Joyce Nellis
Suzette Nordstrom
Otten Brothers Nurseries
C.W. Eliot Paine
Ted & Eloise Pfeiff
George Pinyuh
W & E Radtke Perennial Nursery
Redwood Falls Nursery, Inc.
Ann Rieff Garden Design
Robinson Nursery
Jennifer Ryan
Scarff's Nursery, Inc.
Patricia Schleuning
E.F. Schwegler Company
Spring Meadow Nursery, Inc.
Mary and Richard Stanley
Bert Swanson
Swarthmore College
Karen Tanino
Charles Tubesing
Tuckahoe Nurseries, Inc.
The Wall Companies
George Ware
West Virginia Nursery & Landscape Assoc.
Western Forest Genetic Assoc.
Weston Nurseries, Inc.
Helen Whitney
Mark Widrlechner
Jim Wilson

Windy Hill Farm
Renata Winsor

\$25 – 99

Ames Garden Club
Jeanette & Russell Alberg
Arnold Arboretum
Stacy Lynn Bettison
R. Michael Bowman
Lorraine Brasket
Yvonne Bublitz
City of Ramsey Garden Club
Concord Nurseries, Inc.
Ryan Contreras
Cornell University
Stanley Crist
David Davis
Rebecca Davis
Caroline DeWilde
Del's Garden Center
Tom Dilatush
Sarah & Sam Doane
Jean Feitshans
Field & Flower Garden Club
Florence Finnicum
Ken Forner
Garden Club of Downers Grove
Garden Literature Press
Wes Gray
Dan Guhanick
Ed Hasselkus
Elizabeth Hawn
Heard Gardens Ltd
Albert & Susan Hendley
Gordon Herbst
Dale Herman
C.M. Hobbs & Son, Inc.
Don Hollingsworth Nursery
Rita Hummel
IQDHO
Johnson's Florist & Garden Centers
Laura Jull

DONOR PROFILE

Bob Engstrom: A Leader in Land Conservation

Robert Engstrom and Robert Engstrom Companies are leaders in the world of conservation design—a process that develops land in a manner that respects the site’s natural and cultural features. Bob and his companies have received several state and national awards for their development skills and commitment to good stewardship of the land that Engstrom and his companies develop. In 2004, Bob was named “Champion of Open Space” by the organization Embrace Open Space, the only developer to ever receive this recognition. In the June 2004 issue of *Urban Land*, he was featured in the Community Builders Profile sponsored by the J.C. Nichols Prize for Visionaries in Urban Development.

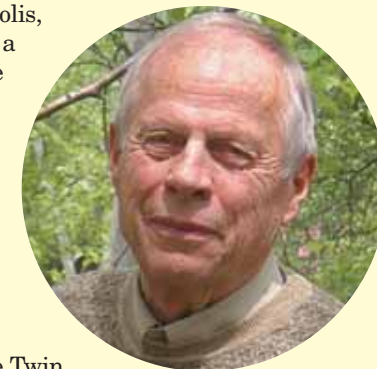
Bob and Phyllis Engstrom are residents of southwest Minneapolis, Minnesota. Bob is a long-time member the Urban Land Institute, a 32,000-member research and education organization. He was Vice President of ULI, and Chairman of the Education, Membership and District Council committees. From 1997-1999, he served as chairman of the ULI Inner City Forum. He is the author of ULI’s publication, *The Planning and Design of Townhouses and Condominiums*. He is one of seven Life Trustee Members elected by the ULI.

Presently Bob serves as a member of the ULI Sustainable Development Council, a ULI District Council Counselor, and a member of the ULI Minnesota District Council Executive Committee. He is also a member of the Builders Association of the Twin Cities Public Policy Committee, and he serves on the board of directors for The Sensible Land Use Coalition. Beyond conservation development, Bob serves on the board of Minnesota Thunder PLUS, a nonprofit organization working with inner city youth of Minneapolis, St. Paul, and the first ring suburbs. Bob is also an active member of Hope Presbyterian Church in Richfield.

The Fields of St. Croix in Lake Elmo is the first conservation community in Minnesota. It utilizes innovative approaches to land use:

- A constructed wetlands wastewater system that provides central collection and environmentally compatible on-site treatment;
- The preservation and restoration of a historic Civil War-era barn owned by the community association and used as a community center and gathering place;
- Energy-efficient homes built according to advanced energy standards and the Premiere Homes Program of Xcel Energy, the local utility;
- Forty-five acres of restored prairie featuring native plants indigenous to the area;
- Architectural standards for designs that ensure architectural integrity and encourage Rural, Craftsman, and Prairie-style homes;
- A storm water management design that provides for on-site retention, evaporation, and percolation;
- The preservation of a wooded slope that constitutes a wildlife habitat.

To read more about The Fields of St. Croix development, other developments by the Robert Engstrom Companies and recognition received by Bob Engstrom, visit www.engstromco.com.



Bob Engstrom

Thank you

The Center thanks those who have provided generous in-kind support:

- American Horticultural Society
- Bailey Nurseries, Inc.
- Steve & Sherry Bieberich, Sunshine Nursery & Arboretum
- Sam Doane
- Joan Duddingston
- Robert Engstrom & Engstrom Companies
- Eric Hammond, Heritage Seedlings
- Dr. Rita Hummel, Washington State University
- Charlie Kieth
- Panagiotis Kelaidis, Denver Botanic Garden
- Mark Krautman, Heritage Seedlings
- Dr. James R. Manhart, Texas A&M University
- Bob McCartney, Woodlanders, Inc.
- Linda, Robert and Christopher Parlett
- Gregory A. Payton, The Dawes Arboretum
- Bob Peck
- Bob Riley, Washington State University
- J. Frank Schmidt & Son. Co.
- Mary Stanley
- Dr. Bert Swanson, Swanson’s Nursery Consulting Inc.
- Dr. Robert Schutzki, Michigan State University

Marianne Kaufman
Klyn Nurseries, Inc.
Knecht’s Nurseries & Landscaping, Inc.
Christina Kunz
John & Colles Larkin Management Recruiters
Marshalls Riverbank Farms, LTD
Master Gardeners of Sullivan County
Glenn & Patricia Mayer
A. McGill & Son
Janet Meakin Poor
Peter & Susan Moe
Montana Association of Nurserymen
Mountain Shadow Nursery
North Dakota Soil Conservation District
Richard Olsen
Paul Ovrom
Gary Pellett
Pine Country Nursery
Bradway & Sandra Phillips
Thomas Pinney Jr.
Pleasant Run Nursery
Peter Podaras
Powell Gardens, Inc.
Marianna Quartararo
Richard Rodich
Edgar & June Rogier
Nancy Rose
Per Harald Salvesen
Ursula Schuch
Donna Schumann
Lawrence Slavicek
Jaclyn Smith
Starhill Forest
Ken Vogel
Rose Marie Wilke-Hassman
Mary Yee
Leslie Yost



Our New Website

This past year the Center launched a brand new website at www.landscapecenter.org

The website is chock full of information about the Center's history, leadership, breeding focus, and current breeding programs. The site features the Center's Oregon Research Station and provides information about the timeline and steps of the breeding process. The site also includes:

- **Donor Spotlight**, which profiles the Center's significant donors;
- **Breeding Programs**, which feature each of the plants we work with (along with lots of pictures) and provides a detailed description of the Center's goals for each plant;
- **Support pages**, which allow donors to make secured contributions to the Center using their credit card.

Please visit www.landscapecenter.com soon! Click on "Send to a Friend" and introduce others to the Center's work of developing new stress tolerant landscape plants.

The Center Needs a New Truck or Trailer

The Center's pickup truck, generously donated by Carlton Plants in 2000, no longer runs and must be replaced. The truck is essential for the Center's ability to haul debris to the dump and pick up larger items that do not fit into a car. In the alternative, a trailer that can be hitched to the back of a car would help fill the Center's needs. But we need your help! If you have a truck or trailer that you can donate to the Center, please call Stacy Lynn Bettison at 952.443.1505.

How is our research funded?

100% of the Center's operating budget comes from private donations and research grants. This means that your support is critical to the Center's ability to continue its breeding programs and plant research. The more we increase our overall support from people like you, the more we are able to expand our plantings and the scope of our research.

Bottom line? Your financial support means that the Center can more quickly develop new, superior landscape plants that enrich our communities.

You can donate to the Center by completing the form below or by going on-line to www.landscapecenter.org.

Thank you for supporting the Landscape Plant Development Center.

Contact us:
952.443.1505 phone
952.474.9440 fax
info@landscapecenter.org
www.landscapecenter.org

"The greatest service which can be rendered any country is to add a useful plant to its culture."

THOMAS JEFFERSON

Please support the Center's work with a contribution today!

Complete and mail
this form to:

Landscape Plant
Development Center
PO Box 444
Mound, MN 55364

Individuals

- \$30
 \$60
 \$150
 \$500
 \$1,000
 Other _____

Institutions/
Nurseries

- \$200
 \$500
 \$1000
 \$2,500
 \$5,000
 Other _____

NAME

ADDRESS

BILLING ADDRESS (if different from above – for credit card users only)

EMAIL ADDRESS

PHONE

Payment method:

- My check is enclosed
 I prefer to charge my contribution to my: Visa Mastercard

CARD #

EXP. DATE

LAST 3 DIGITS ON BACK OF CARD

NAME ON CARD

SIGNATURE



Landscape Plant Development Center

P.O. Box 444, Mound MN 55364

(952) 443-1505 phone

(952) 474-9440 fax

info@landscapecenter.org

www.landscapecenter.org

Nonprofit Org.
US Postage
PAID
Permit #191
Mound MN