KBG
KRUCKEBERG BOTANIC GARDEN
news
PUBLISHED BY THE
KRUCKEBERG BOTANIC GARDEN FOUNDATION
January 2003 • No. 3

The Kruckeberg Botanic Garden at Richmond Beach is dedicated to fostering and providing educational, cultural and aesthetic enrichment for all who visit: gardeners, amateur and professional horticulturalists, and young students of the plant world — in all, people of all walks of life.

IN MEMORIAM

Mareen Schultz Kruckeberg

January 10, 1925—January 1, 2003

Horticulturalist, nursery woman, teacher, artist, mother and wife

Please see the obituary in the *Seattle Post-Intelligencer* and *The Seattle Times* of January 4—7. and in *The Herald* of Everett January 4—6.

A memorial service is planned for spring.

Garden Location:
20312 15th Ave NW, Shoreline, WA 98177

Questions, ideas, suggestions?
Please contact KBGF at
(206) 542-4777
kbgf@kruckeberg.org
www.kruckeberg.org
P.O. Box 60035, Shoreline WA 98060-0035

Newsletter produced by Suzanne Koidahl

Art by Mareen Kruckeberg: ***Cyclamen coum*** from the Caucasus Mountains blooms mid-winter regardless of weather.

Oaks in the Kruckeberg Botanic Garden

by Art Kruckeberg

Part 1: Western Native Oaks

Choice among the woody plant collection in the Garden are the oaks, in grand variety. The Oak Family (*Fagaceae*) boasts of a lavish array of species, over 1,000 worldwide. Besides oaks, the family embraces such familiar trees as beeches (*Fagus*) and chestnuts (*Castanea*), as well as Southern Hemisphere beeches (*Nothofagus*). Specimens of all these oak kin can be found in the Garden.

Surpassing all other oak family kin are the oaks proper, in the genus *Quercus*. Oaks number 600 species worldwide, mostly in north temperate regions. This prodigious diversity must make *Quercus* one of the largest of all woody plant groups. The Garden's oak collections can be catalogued in several ways. First is our affection for Pacific Coast and other western natives. Then we admire and grow oaks from other lands. Most are trees, but some are shrubs. Foliage, deciduous or evergreen, is another contrasting trait.

We start with Pacific Coast natives. While Washington has only one, the Garry oak, numbers of oaks increase southward from southern Oregon and become mind-boggling in number and variety throughout California. This range of oak diversity is well represented in the Garden.

Our only native oak, the deciduous Garry oak or Oregon post oak (*Quercus garryana*) is common in the prairie country around Olympia and Tacoma, as well as having some populations east of the Cascades. Our specimens, ever so slow growing, have reached 15 feet in height. It takes on a majestic form in the wild: up to 60 feet tall and intricately branched. We also grow its shrub form, Brewer's oak (*Q. garryana* var. *breweri*), native in southwestern Oregon. A near relative of the Garry oak, native to Utah, is Gambel's oak (*Q. gambelii*). It too is shrubby and, like Garry oak, has round-lobed leaves.

We grow three other deciduous natives of the West. Each is a majestic tree at maturity in California. Our two specimens of California black oak (*Q. kelloggii*) came from acorns found under a grand old specimen in Napa Valley. It is our only western native with sharp-pointed leaf lobes.

The valley oak (*Q. lobata*) is the grandest of all. Massive trunks and broadly open branching epitomize mature specimens of this oak, so often seen in cowboy movies shot in California oak woodlands. Its rounded leaves are like those of Garry oak. Our two specimens have a long way to go to match the 200-year old trees in California valleys.

The foothill or blue oak (*Q. douglasii*) has done quite well in the Garden, even though it is native to the dry hillsides of the Sierras. Blue oak, indeed; its leaves have a bluish-grey cast.

Let's turn now to evergreen oaks of the West. Conventional wisdom would say that proper oaks are all deciduous. But in the arid west, "evergreenness" is a survival tactic adopted by many oak species.

By the time you reach Canyonville, Oregon, on I-5, you will have entered the northern limit of the elegant, evergreen, canyon live-oak (*Q. chrysolepis*). Its smallish evergreen leaves can vary widely: no teeth on the margins, or sharply toothed like holly leaves. Our three specimens show both leaf traits. Canyon live-oak ranges from southern Oregon all the way to Baja California, preferring cool, moist canyons. Its nearest relative is the shrubby huckleberry oak (*Q. vaccinifolia*); it is compact of stature with leaves that are smaller versions of its kin, the canyon live-oak.

KBG
KRUCKEBERG BOTANIC GARDEN

Mark Your Calendar

Thursday, Jan 23	General membership meeting, 7 pm
February 19-23	Northwest Flower & Garden Show
Sunday, March 2	Garden cleanup work party, 12-4 pm
Sunday, April 6	Garden cleanup work party, 12-4 pm

Meetings and Elections

The winter general membership meeting is scheduled for 7 pm on Thursday January 23, 2003, at the Richmond Beach Congregational Church-United Church of Christ. The church is located at the corner of Richmond Beach Rd. and 15th Ave. NW. The speaker will be Robert Van Pelt. His talk is titled "Big Trees: Seattle, the Northwest, and beyond."

Bob Van Pelt is an affiliate faculty member at the College of Forest Resources, University of Washington. His most recent book is "Forest Giants of the Pacific Coast," UW Press 2001. Copies will be available for purchase at the January meeting. Art Kruckeberg'will be available to sign his latest book, "Geology and Plant Life: The Effects of Land Forms and Rock Types on Plant Life." We hope you can join us on January 23.

Regular Board meetings are normally scheduled on the third Tuesday of each month; members are welcome to attend. Call 206-542-4777 or email kbgf@kruckeberg.org for more information.

Oaks in the ... Garden *continued*

Two other shrubby evergreens find places in the Garden. Widespread in California chaparral is the scrub oak (*Q. dumosa*, now

Q. berberidifolia). Our two specimens came from acorns collected in the Vaca Mountains in the central Coast Ranges. Scrub oak's near relative, leather oak (*Q. durata*), is restricted to serpentine (iron-magnesium) soils in central California. Both have small spiny leaves.

Deer (or Sadler's) oak (*Q. sadleriana*) is one of our favorites. Its much-branched, tall shrub stature is enhanced by large, toothed, semi-evergreen leaves having a deeply embossed vein pattern. It is restricted to that botanical paradise, the Klamath-Siskiyou country of southwest Oregon and northwest California.

We have had some success in growing oaks from the arid Southwest. Outstanding among them has been the Chiricahua or silverleaf oak (*Q. hypoleucoides*). Our single small tree, now about 25 feet tall, has long narrow leaves, each with a unique pattern – dark green above and felty white beneath. It is native from southern Arizona to west Texas. Our specimen was from acorns found in the Chiricahua National Monument of southern Arizona. Two Arizona oaks (*Q. arizonica* and *Q. reticulata*) also have done well here.

We end our survey of western oaks in the Garden with two avowed champions, the tanbark oaks in the genus *Lithocarpus*, close kin of *Quercus*. They are champions because their height and girth make them the biggest specimens in our state. [See Robert Van Pelt's "Champion Trees of Washington" (UW Press) for a fascinating, eye-opening look at the biggest trees in Washington.] Our two specimens of the typical tanbark oak (*Lithocarpus densiflorus*) are truly impressive in size. Both are clothed with largish evergreen leaves, broadly oval and leathery in texture and boldly veined. This form is a common tree in southern Oregon and northern California, where it consorts with a rich mix of conifers and broad-leafed trees. The common form of tanbark oak is highly fecund. We get seedlings all over the Garden, no doubt cached by squirrels and jays.

Some years ago a mystery tree was found amongst the tanbark oaks in the western Sierra Nevada. An oak expert determined that it was a rare mutant form of the common tanbark oak, which he named var. *attenuato-dentatus* (narrow and toothed). We were eager to grow it, succeeding from cuttings in the wild. Two of them are now handsome, 50-foot tall trees. In leaf it is so unlike the typical form. The mutant has long narrow leaves with a toothed margin. Since the Kruckeberg Botanic Garden is about the only place in Washington where this form is cultivated, naturally both trees rate as champion specimens.

The third form of tanbark oak is a large, broadly spreading shrub (var. *echinordes*) inhabiting serpentine soils in southwest Oregon. It is a choice addition to the Garden's oak collection.

So it is worth a trip to the Garden just to see these western oaks. We welcome groups to tour the collection. We can only hope that "Sudden Oak Death" does not make it this far north. The disease, as described by Randall Hitchin in this issue, is wreaking havoc to the south of us, especially devastating to tanbark oaks.

Next issue we will look at the many oaks we grow from other lands.

A Perfect Plague? *by Randall Hitchin*

Over the past few years, an increasing number of articles and news releases have appeared, announcing a new and unidentified disease of trees in California. The beginnings of this epidemic were first noted on the forests of the central California coast, sometime between 1993 and 1995. Residents from Marin to Santa Cruz counties began to notice the rapid demise of tan oak (*Lithocarpus densiflorus*) and coast live oak (*Quercus agrifolia*), with entire canopies turning brown in a matter of days, often accompanied by trunks oozing a blood red sap. With its dramatic symptoms, this new and mysterious disease was initially given the name Sudden Oak Death (SOD).

Researchers have now shown that *Phytophthora ramorum*, a previously unknown pathogen, is the cause of this disease. *Phytophthora* species make up a notoriously destructive group of fungus-like pathogens, which includes the species responsible for the great potato famine in Ireland. However, unlike most *Phytophthora* diseases, which attack root tissues, *Phytophthora ramorum* appears to be limited to the above ground portion of plants, affecting only the leaves, shoots and stems or trunks. Nevertheless, it has proven to be a highly destructive pathogen, killing tens of thousands of trees in California. As yet there is little or nothing known about the origin or evolutionary history of this species.

Not only is *Phytophthora ramorum* a virulent pathogen, but it also infects an alarming number of taxonomically diverse species. As of September 2002, there were 17 confirmed hosts of SOD, representing 12 plant families. Some researchers believe that this broad taxonomic diversity suggests that the actual host range is likely to be much larger. To date, the 17 confirmed hosts of SOD include: California black oak (*Quercus kelloggii*), coast live oak (*Quercus agrifolia*), Shreve oak (*Quercus parvula* var. *shrevei*), tan oak (*Lithocarpus densiflorus*), California rhododendron (*Rhododendron macrophyllum*), California bay laurel (*Umbellularia californica*), big leaf maple (*Acer macrophyllum*), madrone (*Arbutus menziesii*), manzanita (*Arctostaphylos* species), huckleberry (*Vaccinium ovatum*), California honeysuckle (*Lonicera hispidula*), toyon (*Heteromeles arbutifolia*), California buckeye (*Aesculus californica*), California coffeeberry (*Rhamnus californica*), coast redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*). In Europe, the pathogen has also been found on Arrow-wood (*Viburnum* x *bodnentense*)

This broad spectrum of host species has a diverse range of responses to the disease. With some hosts, such as tan oak, SOD is capable of killing very large trees. For other hosts, such as California bay laurel, infections appear to be limited to the foliage.

Regardless of the level of impact, each host species will play a role in the extent to which the disease spreads. Sudden Oak Death is known to occur in 12 counties in central California and a small area in southwestern Oregon. The U. S. Department of Agriculture (USDA) has established a federal quarantine that prohibits the movement of known SOD hosts out of areas where this disease is known to occur. The quarantine affects a surprising array of products, including bay laurel wreaths, redwood mulch and Douglas fir Christmas trees. To date, these restrictions do not affect any area of Washington. However, the extent of the threat is uncertain. The USDA has identified a much wider area of the United States as being 'high risk. The areas include much of the Pacific states, Appalachia and parts of the Gulf states.

From the current prospective, this is a new and invading organism. The ways in which it will interact with the North American environment and its species is unknown.

Sadly, dire predictions are not without the precedents of Dutch Elm Disease and American Chestnut Blight. Both of these introduced diseases took several decades to reach their full extent, and each brought drastic changes to the American landscape. Sudden Oak Death is an epidemic in its early stages and only time will tell the breadth of its impact. There are a number of excellent websites dealing with SOD. These include:

http://www.suddenoakdeath.org/
http://camfer.cnr.berkeley.edu/oaks/
http://www.oda.state.or.us/plant/ppd/path/SOD/index.html
http://www.oda.state.or.us/Information/news/sod_news.html
http://cemarin.ucdavis.edu/index2.html
Has especially nice pictures of all the hosts and symptoms.
http://www.na.fs.fed.us/SOD/contacts.htm
Has links to many of the other websites.

Randall Hitchin is Registrar and Collections Manager at the Washington Park Arboretum. He has instructed botany and horticulture classes for the University of Washington, the Northwest Horticultural Society, and as a private contractor. Randall has served as a Director of tKBGF since July 2000.

Volunteer Help

The first Sunday afternoon work party of the season is scheduled for March 2. Did you remember to add this to your list of New Year's resolutions? It's not too late to make another resolution, and we do need the help.

As always, there's a need for volunteers in the other work of the Foundation. We're looking for people who would enjoy being a docent or newsletter coordinator, and we need help with publicity, plant inventory and labeling, grant applications, and workshops and seminars. We hope to start docent training this spring. If you have an interest in any of these areas, please contact us.

Parking

Many readers know the Garden is in a residential neighborhood, the right of way on 15th Ave. is narrow, and parking for visitors is quite limited. When planning a visit for tours or other events, please make carpooling a very high priority. When necessary to reduce parking impact on the neighborhood, we will set special parking arrangements. If you have questions about parking, call us at 206-542-4777. Thanks in advance for your cooperation, and thanks also to KBG neighbors for their patience.

membership

Name _____

Address _____

_____

Phone _____ Fax _____

email _____

How did you hear about the Garden? _____

Membership Categories

_____ $1,000 Oak (Benefactor)
_____ $500 Douglas Fir (Patron)
_____ $250 Red Cedar (Sustaining)
_____ $100 Dogwood (Club)
_____ $50 Dawn Redwood (Contributing)
_____ $35 Madrone (Regular)
_____ $25 Vine Maple (Student/Senior)

Please make tax-deductible checks payable to KBGF and mail to:

Kathie Morino
958 Walnut St.
Edmonds, WA 98020

Membership Renewal

We continue to mail our newsletter to friends whose membership has expired, and to others who have not yet joined. Look in the upper right corner of the mailing label for the expiration date of your membership. Please consider rejoining our effort to preserve this very special place. All personal information is kept strictly private.

Send Us Your Email Address

Please keep us informed by sending an email message to kbgf@kruckeberg.org. All such personal information is kept private.

KBGF T-shirts

Kruckeberg Botanic Garden Foundation T-shirts are available for $15. They come in various sizes, with green lettering on a taupe background. Place an order or inquire by calling 206-542-4777 or emailing kbgf@kruckeberg.org.

New Members

Welcome to the following members who have joined since August:

Barbara and Thomas Archbold
Carol and Mitchell Brittnacher
Janet Charnley and Pat Walker
Randie Clark
Lee Dorigan
The Dunn Gardens
Jana Kauffmann
Suzanne Koidahl
Will Middlebrooks
Nan Haberman
Colin Sandwith
Sandy Sowers

Renewing and Returning Members

Thanks to those members who renewed or rejoined since August:

Gail Adams
Ruth Bachrach
Jerry and Dyani Bartlett
John Dixon
Cheryl Eastberg
David Edelstein and Becky Kelley
Dick and Marjy Fiddler
Judy Griesel
Bob and Kathryn Hauck
David and Susie Johnson
Ruth Kagi
Scott Keeny
Sally and Bill Lider
Edel Hondl Murray
Phyllis Nagel
Linda Jo Pym
Jill Reifschneider
Anina Coder Sill
Laura Zybas

Northwest Flower & Garden Show 2003

The Northwest Flower & Garden Show will be held in Seattle at the Washington State Convention and Trade Center, February 19-23 2003. The Foundation will have a booth at the show for the purpose of informing the public about our work. We will staff the booth with a team of volunteers who will work 4-hour shifts. Volunteers will have free admission and can come early/stay late to enjoy the show. We need your help, and time is short. If you're interested in joining in the fun, please call us at 206-542-4777 or send a message to kbgf@kruckeberg.org.

Readers will be especially interested to know that Art Kruckeberg will speak at the Flower & Garden Show on Thursday at 6:45 pm in the Hood Room. His talk is titled "Blending Natives with Exotics in the Garden."

Please pass this newsletter on to a friend!

Fall Color

As Art Kruckeberg has written previously, fall color in Puget Sound country's native plant life is normally rather bland in contrast with the spectacular fall color of the New England countryside. In 2002, though, we really got our money's worth. If you have wondered about the causes, you'll be interested in the following note by Robert Cleland, Professor of Botany at the University of Washington.

Fall color requires several things. First, the right genes. Secondly, it requires a buildup of sugars within the leaf, which causes the production of the carotenes. And it requires the breakdown of chlorophyll so that the reds and yellows are not masked. The synthesis of sugars requires sunny days. The buildup of sugars requires that the phloem, which would normally transport the sugars to other parts of the plant, be inactivated. This occurs when the plant is subjected to frost or near-frost conditions. The cold is also partly responsible for the loss of chlorophyll (the other factor is the shortening days). This year (2002) we had a few pretty cool nights in Sept, and since then we've had lots of sun. Just the conditions that the East and Midwest normally get in fall, and we get less frequently.

Art has summed it up succinctly: Cool nights and bright autumn days. Let's hope for a repeat performance in 2003.

Garden Tours

The first tour of the spring is scheduled for Saturday April 5. This tour is offered via the Shoreline Parks & Recreation Department. For more information see their quarterly catalog or call 206-546-5041. The fee is $20 per person, of which the City forwards $15 to KBGF. The City of Edmonds also offers tours of the Garden in its Parks, Recreation and Cultural Services catalog, "CRAZE" (Winter-Spring 2003). The first Edmonds-coordinated tour is scheduled for Saturday May 3. For more information call 425-771-0230. Please see our web site for the dates of tours later in the season.

Tours also may be scheduled directly by calling the KBGF voicemail line, 206-542-4777. These tours normally are offered for groups of 6 to 15 persons, by appointment. The fee is $15 per person (fee waived for students). For organizations dedicated to coordinating senior citizen activities, a flat fee of $100 is charged, irrespective of group size. Tours normally start at 10 am and last about two hours.

Web Site

Reminder: our web site is at www.kruckeberg.org.

Worldlink Internet Services donates domain-name hosting for KBGF. and offers the following discounts to KBGF members: Dialup Internet Access at $15/month, DSL at 15% off and All other Worldlink services at 10% off

Worldlink is a local company with over 5,000 subscribers, and we have been pleased with their support and positive attitude. Visit www.w-link.net or call 1-888-361-4638 for more information.

KRUCKEBERG BOTANIC GARDEN FOUNDATION
P.O. Box 60035
Shoreline, WA 98060-0035