ETF News

www.eugenetreefoundation.org

Newsletter of the Eugene Tree Foundation

Tree Pollen and What's in It for You!

By Erik Burke

The seasonal round of pollination connects us to the ecology of our local bioregion, brings us subtle as well as spectacular beauty, and provides such simple pleasures as bicycling in mid-winter along streets sprinkled with the yellow pollen cones of incense-cedar. We also get to enjoy the subtle color of white alder catkins over the Willamette River and the curious male flowers of Oregon ash. In early April, we can admire the profuse and edible flower clusters of bigleaf maple and, a little later in spring, look for the more subtle flowers of Oregon white oak. On our way to work, we can enjoy the lovely blossoms of Pacific dogwood, the striking pyramidal flower clusters of horsechestnut, or the stunning flowers of catalpa.

Pollen catkins of Oregon white oak

Many people, however, suffer from allergies to pollen, which can affect their perceptions of trees. Since the 1950s, allergy rates in the U.S. have risen from less than 5% of the population to more than 30% today! The trees we plant in our cities are one of the causes of this significant increase. Many people are concerned about trees as contributors to allergies and asthma, and the labeling of trees for their allergenic potential is beginning now in the nursery trade, as are municipal ordinances regulating tree species based on their allergenic potential. Spearheading this movement is Thomas Ogren—author of *Allergy-Free Gardening*—who recently had an opinion piece in The New York Times and was featured on National Public Radio. Ogren developed OPALS (Ogren Plant-Allergy Scale) which is used by the USDA and others to rate the allergenic potential of plants, and he argues that much of the rapid rise in allergy rates is related to our use of ornamental trees and other plants.

Pollination is a process of sexual reproduction in which pollen grains are transferred from the anthers of staminate (or "male") flowers to the stigmas of pistillate (or "female") flowers, leading to fertilization and the production of seeds. Sexual reproduction increases genetic variability and helps trees tap into the creativity of evolution to adapt to local landscapes.

Many trees have *unisexual* flowers. Some of these trees—such as ginkgo, cottonwood, and Oregon ash—are *dioecious*; that is, male and female flowers are borne on separate trees. *Monoecious* trees, on the other hand, produce their unisexual flowers—both male and female—on the same tree. Most tree species in our area with unisexual flowers—including alders, elms, oaks, pines, and coast redwood—are monoecious. The male trees of dioecious species, however, cause the most problems with pollen allergies, followed by monoecious trees. Trees with *bisexual* flowers (such as apple trees)—where both male and female parts occur in the same flower— typically cause few or no allergy problems.

The primary agents for transporting pollen from male to female flowers are wind and insects. Wind-pollinated trees—such as oaks, ashes, pines, and alders—account for almost all the tree pollen recorded in local counts and most local allergy issues. These trees usually have inconspicuous flowers and produce large quantities of small, light, dry, and buoyant pollen grains that are easily transported over large distances. Such pollen has been collected hundreds of miles from land over the ocean and at altitudes of over 10,000 feet.

Insect-pollinated trees, on the other hand, have pollen that is comparatively heavy, sticky, and rich in protein that is attractive to insects. Allergies from insect-pollinated trees are rare and pollen from such trees rarely appears in local pollen counts.

The annual progression of pollen in the south-

Continued on page 2

Spring, 2010; Vol. 13, No. 2

Mission Statement:

To enhance community livability for present and future generations through the collaborative stewardship of Eugene's diverse and vibrant natural landscape

EUGENE TREE FOUNDATION
P.O. Box 12265
Eugene, Oregon 97440
Voice Mail: (541) 284-9854
www.eugenetreefoundation.org

President's Column

It's been an eventful year so far for ETF. We wrapped up another great planting season in April. Also in April, ETF gained Ashley Shaw as our first intern from Lane Community College. Ashley has accomplished a lot already, and will be helping with several projects during summer term. In early May, ETF got its first office space in the Roberts Building at 11th and Lincoln. I'm excited for ETF to finally have all its supplies and materials in one place and to have a base of operations from which to build the organization.

Scott Fogarty, executive director of Portland's Friends of Trees (FOT), met with ETF's board of directors to talk about what it would mean to form a Friends of Trees chapter in the Eugene/Springfield area. Friends of Trees is respected nationally for its excellent neighborhood and greenspace planting programs, its successful fundraising model, and its solid organization. This is a time of great opportunity and potential for ETF to expand to meet the need for community tree planting and stewardship in the Eugene/Springfield area. Joining with FOT will help ETF succeed in meeting its goal of building a strong and sustainable local organization.

I'm very excited to try out FOT's neighborhood planting approach in Eugene next planting season. ETF staff will be attending trainings with FOT this summer and fall and we plan to start a pilot program next winter and spring. If you are interested in getting involved in your neighborhood as a coordinator or volunteer, please let us know.

We will soon be sending announcements for our summer tree walks and work parties. Hope you can join us for one.

Thanks for all your support!

Erik Berke

Continued from page 1

Tree Pollen and What's in It for You!

ern Willamette Valley begins in late December, peaks in April, and continues into June. January through April, trees account for over 90% of all pollen grains counted. In May, the tree-pollen proportion drops to about 55% and then plummets further to around 5% of the total pollen in June, as trees finish producing pollen and grasses begin. In late summer, weeds are the main source of pollen; and in fall, mold spores dominate. From late July to late December, however, our region has little pollen in the air.

A "tree pollen calendar" for the Eugene area looks like this:

January coast redwood, incense-cedar, and hazelnut (or filbert)

February alder and elm

March European hornbeam, Port-Orford-cedar, cottonwood

April sweetgum, Douglas-fir, London plane-tree, pine, and oak

May pine, oak, and walnut

June walnut, pecan, and linden

In 2009, peak tree-pollen counts—the number of pollen grains per cubic meter of air sampled—ranged from 1083 in late March (from European hornbeam—which is quite abundant downtown, where the pollen-counting station is located) to 5 in mid-June (from pecan).

The birch family—or *Betulaceae*, which includes birch, hazelnut, and hornbeam— causes the most tree-related allergy problems here in the southern Willamette Valley, as measured by reactions on skin sensitivity tests. Local residents also have significant reactions to plants in the cypress family—or *Cupressaceae*, which includes ornamental junipers, western redcedar, incense-cedar, and Port-Orford-cedar. Smaller allergenic responses are found locally to bigleaf maple, walnut, cottonwood, ash, and oak.

Overall, however, tree pollen is a minor contributor to allergy issues in our area compared to grass pollen. Eugene is often rated the worst city for allergies in the United States during the grass-pollen peak in the first half of June. For the rest of the year, allergies are mild here compared to weed- and tree-pollen allergies elsewhere in the United States.

Bigleaf maple flowers

A future article will describe opportunities to change our tree selection and land use practices to reduce allergenic pollen and improve the health of

Continued on page 3

Tree Grafting

By Alby Thoumsin

Every spring, I'm asked why the occasional flowering cherry tree has two colors of blossoms—usually white and pink.

As curious as it looks, the answer is very simple: the pink-flowering cultivar (or "cultivated variety") was grafted onto a white-flowered cherry species and a few *suckers*—if arising at ground level, or *water-sprouts* if arising somewhere higher on the tree—have "escaped" from below the graft line, transforming the tree into what looks like an enormous vanilla-raspberry ice-cream cone!

The technique of grafting trees is so old that nobody really knows when it began. The Greeks and Romans were practicing grafting as early as the 5th century B.C., working mostly with fruit trees and using cleft grafts where a shoot is inserted into a split branch. Followers of Hippocrates in 424 B.C. even wrote a manual on grafting that was understandable to anyone able to read.

The 15th and 16th centuries saw an explosion of new species arriving on European shores as mariners brought them back, along with their other cargo from distant ports. Gardeners and botanists were of course eager to use their skills on these new tree species and cultivars, but it took another two hundred years to see a real improvement in grafting as 18th century botanists began to understand plant biology; by the 1800s, some of them had mastered more than 100 grafting techniques. Today, grafting is so important to horticulture that the nursery industry couldn't function without it, and it has evolved to the point where semi- and fully-automatic robots have been created to accelerate the process.

Grafting is simple. As long as you graft species of the same genus together—for example, apple and crabapple are both of the genus *Malus*—anyone can graft a tree. Just pick a small branch from a tree you like that belongs to a friend, and graft it onto an adult tree on your own property. Many of us have seen fruit trees with two, three, or sometimes five different cultivars grafted onto them and, as they grow, some of the cultivars grow more vigorously than the others, making the tree lopsided!

The new branch is called the *scion*, and it is grafted onto the *rootstock*. The base of the scion is cut at an angle and then inserted in a small split section of the rootstock. The scion is affixed to the rootstock with beeswax, tape, raffia, or aluminum foil. (Our ancestors used mud, hair, and willow bark!)

If done properly and at the right time—in early spring—the cambium layers of the scion and rootstock will join and resume cell propagation, thus keeping the scion alive and growing.

Rootstocks are selected for their hardiness, adaptability to various soil types, and resistance to diseases. In the case of cherry trees, wild species like the mazzard cherry (*Prunus avium*) are often chosen. Wild species also have a reputation for vigorous growth, creating the situation described above when suckers from the rootstock grow through and overtake the slower-growing scion branches. When two different colors of blossoms are visible, it is easy to detect the "imposter" and fix the problem by pruning off the suckers; but it might not be noticed immediately if the scion were to have white flowers as well. If left alone, the more vigorous suckers will eventually "bully" the scion and choke it out, so it is imperative to remove suckers as soon as they appear.

My tip this time? Sharp knives are crucial for proper grafting, but watch your fingers!

Until next time!

Alby Thoumsin is a certified arborist.

Continued from page 2

our urban forest. Certainly, we could plant fewer birch trees and shrub junipers, and limit the use of male tree cultivars. Some of the best possible trees to grow—that is, those with the least allergenic pollen—include our native Douglas-fir, ponderosa pine, madrone, and Douglas hawthorn.

Immature pollen catkins of pin oak

Although some trees cause problems at certain times of the year for some people, it's no reason to become a dendrophobe or tree-hater. Trees are our friends! Yes, they do produce pollen, but they also provide many benefits for all of us—including allergy and asthma sufferers. Trees clean the air of pollen (!), particulates, and many pollutants—all of which land on their leaves instead of in our lungs, and are later washed to the ground by rain. Children living on tree-lined streets tend to have lower rates of allergy and asthma and they play outside more often. And trees provide a host of benefits and "ecological services" to people and ecosystems.

By better evaluating our choice of ornamental trees—based at least in part on their allergenic potential—we can create a healthier urban forest while reducing allergy issues for the segment of our population that must suffer every year during the pollination season.

Data in this article are from the pollen-counting station—at the northwest corner of East 15th Avenue and Oak Street in downtown Eugene—that is maintained by Dr. Kraig Jacobson MD and staff at Oregon Allergy Associates. The author expresses his gratitude to Dr. Jacobson and Judy Moran—a registered nurse at Oregon Allergy Associates—for their generous help.

EUGENE TREE FOUNDATION
P.O. Box 12265
Eugene, Oregon 97440

RETURN SERVICE REQUESTED

NONPROFIT ORG.
US POSTAGE
PAID
EUGENE, OR
PERMIT NO. 335

EUGENE TREE FOUNDATION

Goldenchain Tree

By Whitey Lueck

A relatively little-known, spring-flowering tree that grows perfectly well in the Eugene area is the goldenchain tree (*Laburnum x watereri*). As the X in its botanical name indicates, it is a horticultural hybrid of two other laburnum species—*Laburnum alpinum* and *Laburnum anagyroides*—so it exists only in cultivation and never in the wild. The parents of this hybrid are both native to Europe, and are themselves attractive plants, but they are even less seldom planted than the hybrid.

It is a small tree of upright habit and oval form that is showiest in mid-spring when the canopy is festooned with long, pendulous clusters of bright yellow, pea-like flowers set against a backdrop of the tree's fresh green foliage. The flower clusters very much resemble—except in color—those of wisteria, to which it is related.

Although the British refer to all goldenchain species as *laburnums*, American horticulturists call the trees goldenchain trees. This can create some confusion because there is another tree that blooms here later in the season—typically the first half of July—that is called the goldenrain tree (*Koelreuteria paniculata*). The latter has very large clusters of tiny yellow flowers that resemble a "golden *rain*" as they fall from the tree—and afterward lie on the ground beneath the tree. (For best results, you need a little imagination!)

Goldenchain trees have compound leaves comprised of three leaflets. The trees thrive best if provided with well-drained soil and plenty of sun. They bloom every year, but some years—referred to as "good laburnum years" in Britain—they seem to truly out-do themselves.

Letters to the Editor *Write to us at www.eugenetreefoundation.org, or at P. O. Box 12265, Eugene, Oregon 97440.*