

DURHAM MASTER GARDENER NEWSLETTER July 2011

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CM: Ramblings

We're fortunate in Durham to have a number of local farmers' markets within easy access. The Durham market is open Wednesday afternoons and Saturday mornings throughout the late spring and summer. Various vendors have everything on display from artisanal cheeses to the usual greens and other vegetables, to fresh eggs from free-range hens, to bison cuts, to seedling plants and flowers. It's a great place to shop because everything is guaranteed fresh and grown/raised within a few miles' radius. Carrboro also has a long-standing market that is open on Saturday mornings, and smaller markets from Ferrington Village to Weaver Street open at least once a week. In short, there is no shortage of locations where we can buy the freshest produce, locally and sustainably grown. Which means that there are reasonable



alternatives to shopping at the neighborhood supermarket. True, the times and locations of the local markets are not always easily convenient, and the prices don't always compare favorably with various supermarkets, for example, but if you're serious about being as "green" as possible about your greens, they're worth the trouble.

As far as pricing is concerned, shopping at the local "BigMart" is a better deal, but, if you consider the labor needed to harvest things that grow close to the ground, plus transport times (the farther the field, the less the freshness), the prices at the local market are not out of line. Besides, if you pick your own English peas or cucumbers, you realize quickly that stoop labor is hard on the back; so, paying someone else a premium for doing the work isn't a bad deal.

The ultimate in local markets is the Eastern NC Farmers' Market off of Lake Wheeler Road in south Raleigh. The market isn't limited to growers east of Raleigh, but is open to growers across the state. There is a waiting list of vendors wanting access to the market, though, and since there are state markets in Greensboro and Asheville, many growers opt for those venues. The variety and sheer mass at the Raleigh location are huge. Everything from apples to zucchini is available during the growing season, and in the lower building, the open-sided one, vendors are restricted to NC produce only.

The abundance of fresh produce is amazing. Stand after stand offering tomatoes, squash, greens, all sorts of peppers, eggplant, peaches, strawberries, etc., etc., line both sides of the main aisle. So, when recently shopping at the Raleigh market, I was wondering about the surplus. It's quickly apparent that there is no way that the entire amount of produce available every day can be consumed immediately. Given the perishable nature of fresh vegetables, the question is: what happens to the excess?

To follow up on this, I talked with the manager of the Raleigh market and learned some interesting things. Some market items, for example nursery plants, can simply be recycled, and saved for another week/season. Many of the plant vendors are under contract with large nursery chains, and are allowed to sell at market as a sort of perk from the contractor. Fresh vegetables, though, have a "sell-by" date, so there are three options for produce not sold within its freshest period. First, growers take home what they didn't sell to use as feed supplement for livestock or to compost. Second, and most important, the Interfaith Food Shuttle comes into the market twice each day to take gleanings for use by organizations such as Meals on Wheels, or various charitable kitchens that prepare meals for the needy. Finally, for those veggies beyond hope, the Raleigh market contracts with a firm that composts all the leavings. So, almost nothing goes to waste, most being recycled in one way or another. (For those interested, there is an old Pete Seeger song that has the theme of planting, harvesting, eating and recycling).

The manager of the Durham farmers' market told me that the same arrangement is in effect. A local couple has taken on the responsibility for collecting the gleanings from the Saturday market and taking them to the Urban Ministries. There, everything that can be used in meals is utilized. Leftovers that can't be used in time are composted. Nothing is wasted.

The point being, while it may be more convenient to buy produce at chain supermarkets, and while the prices may be a little lower there, shopping at local farmers' markets has some clear advantages: freshness, support for local growers and the assurance that "leftovers" will be well-used. If you can't grow enough for your own needs—and most of us can't—then shop locally as much as possible.

On another note

Work on the EMGV Demonstration Garden is going along well. A workday on June 3 accomplished a lot of weeding of existing beds, and plans for future development of the garden. Problems to be resolved include how to deal with the shaded area underneath the crabapple tree; which bulbs to replant in order to produce a spring bloom, and where; what to do with the iris underneath the apple tree; and what to do with the sun-dependent lawn area on the north side. Suggestions are welcome.

If you aren't volunteering in some area, do it! The EMGV program depends on volunteers to carry out its mission. Remember, the MGCV certification doesn't advertise us as "experts," but as interested gardeners willing to help. Spending time in the office, or in the demonstration garden, the speakers' bureau or any other way provides an opportunity to learn something. After all, that's what it's all about.

Vines—and Some Other Climbers

Vines scare me. When I moved here in 1992 my front yard consisted of English ivy, my backyard nourished Japanese wisteria, while my side yard consisted of Chinese honeysuckle. There were scatterings of poison ivy in the English ivy—in fact the only horrible vine I didn't seem to own was kudzu. Over the years we worked to get my garden practically vine-free—and now I am contemplating covering part of my gorgeous year-old fence with some vines.

Vines have a lot going against them as most of them are exuberant growers, climbing up and over trees accompanied with a feeling that it's hard to stop a vine once it gets going. With additional carbon dioxide floating around, vines are flourishing. Poison ivy is getting more virulent, English ivy is thriving, along with kudzu, Japanese wisteria, and Chinese honeysuckle. According to *The New York Times*, lianas are increasing in the tropical forests, preventing trees from absorbing carbon.¹ Because tropical forests store one-third of the terrestrial carbon, the thriving lianas are a cause for worry: the weight of a large liana interwoven around a tree can cause the tree to fall, the lianas grab up the available soil nutrients and water, thereby stunting the tree, and lianas cannot store the amount of carbon trees do.

However, a bare fence has caused me to change some of my thinking about vines and other climbing plants. Bobby Mottern at Sarah P. Duke Gardens first sparked my latent interest in vines in his class on good landscape plants for the spring. Then I suddenly noticed *Armitage's Vines and Climbers* while "Almanac Gardener" featured a segment on growing vines. Suddenly, vines were everywhere. Bobby's list of good vines to grow consists of:

- ***Bignonia capreolata***—this vine quickly reaches a height of 15-20 feet, is a fast grower so will grow higher, and has long tubular flowers, which attract hummingbirds. Blooming in April, the flowers are mildly fragrant. This evergreen native does not attract deer, needs sun, well-draining soil [WDS] and twines around a tree or support. Because the blooms appear mostly at the top this is a good vine to train to grow sideways along a fence. Armitage recommends cutting the vine back by two-thirds at

¹ Fountain, Henry. "A Tree Hugger, With a Twist," *The New York Times* (May 24, 2011), p. 1. This article is also available at: <http://www.nytimes.com/2011/05/24/science/24vine.html?scp=1&sq=a%20tree%20hugger.%20with%20a%20twist&st=cse>.

the end of the growing season.² Found in many old Southern gardens, this vine is relatively disease free. ‘Tangerine Beauty’, ‘Dragon Lady’, and ‘Helen Fredel’ are three popular cultivars.

- ***Clematis armandii***—this evergreen Clematis will reach a height of 20 feet, has clusters of fragrant white flowers and blooms before the other Clematis cultivars. It grows in part shade, must have richly amended well drained soil. This non-native is deer candy and be warned as the deer will eat it down to its nub. As a general rule, Clematis wants a warm head and cool feet so consider placing a couple of large rocks around the base to achieve this. Armitage recommends ‘Apple Blossom’ and ‘Snowdrift’, adding that *C. armandii* “is a terrific plant, providing months of satisfaction” [62].
- ***Clematis x jackmanii***—this deciduous Clematis grows in full sun to part shade, has larger flowers than *C. armandii* and blooms in May and June. It grows slower than *C. armandii*, blooms on old wood so should be pruned right after bloom time. Depending upon the cultivar—and there are many—the flower color is varied, with many colors to choose from. There are some pest problems associated with this Clematis.
- ***Gelsemium sempervirens***—Carolina Jessamine is an aggressive non-invasive native vine that has fragrant yellow flowers appearing in late winter to early spring. This evergreen native is poisonous so deer leave it alone. It will take full sun to part shade, well drained soil, but will tolerate periodic flooding. *G. rankinii* produces non-fragrant blooms in April and will bloom again in the fall. Armitage recommends these vines, stating that they are easy to grow and trouble-free [98]. The state flower of South Carolina, Carolina Jessamine is sometimes confused with jasmine but the two plants are completely unrelated. Originally it was named *Bignonia sempervirens*.
- ***Jasminum polyanthum***—This is the true Jasmine.³ A member of the olive family, we have to treat it like an annual because it will not survive frost. Armitage says that if he bought just one jasmine it would be *J. x stephanense*, which is cold hardy in Zone 7. The pale pink flowers are quite fragrant with bloom time being late spring into summer. Mulch heavily and expect a great deal of dieback [123-4].
- ***Lonicera sempervirens***—our native Coral Honeysuckle reaches a height of 20 feet, unlike its oriental cousins is not aggressive, and has long tubular flowers that hummingbirds find so attractive. The flowers appear in April and May but will rebloom throughout the growing season. The flowers are void of fragrance, the evergreen leaves are somewhat sparse but deer will leave it alone. Armitage calls this one the best of our native honeysuckles [130]. Bobby says that one popular cultivar, ‘John Clayton’, is prone to powdery mildew and recommends sticking with those cultivars that produce red flowers as they are mildew resistant.
- ***Wisteria frutescens***—native to the Southeast, this Wisteria will reach a height of 30 feet. The flowers of this deciduous vine have shorter, more compact flowers than those of its oriental cousins—this was one of the main reasons gardeners mistakenly choose to plant *W. sinensis* and *W. floribunda* instead. It also blooms later, usually in mid-May. It requires full sun and WDS. Armitage calls it an “exuberant grower” that will cover half your house within five years; unlike the oriental Wisterias, however, it won’t cover your neighbor’s house as well [203]. ‘Amethyst Falls’ is the most popular cultivar. ‘Alba’ bears white flowers. One word of caution: Wisteria is a relative to kudzu.

“Almanac Gardener” recommended some good annual vines:

² Armitage, Allan M. *Armitage’s Vines and Climbers: A Gardener’s Guide to the Best Vertical Plants* (Timber Press, Portland, OR, 2010), p. 43. Future references will be in brackets [].

³ *J. polyanthum* was not on Bobby Mottern’s list.

- ***Ipomoea quamoclit***—the Cypress Vine Morning Glory has fern-like leaves with scarlet flowers that attract hummingbirds. However, be warned: this annual is a vigorous self-seeder. Plant one and you'll never have to plant another one ever again. 'Alba' produces white flowers.
- ***Thunbergia alata***—the Black-eyed Susan Vine is an annual vine that flowers throughout the summer and fall. According to Armitage it will "grow up any structure," looks fabulous in a hanging basket, and requires full sun [189]. Reseeding does not appear to be a problem.
- ***Lablab purpureus***—the Hyacinth Bean Vine produces fragrant lavender flowers that in turn become cool purple beans four inches long. This member of the bean family produces its own nitrogen so don't waste your fertilizer on it. This is a twining annual that will grow easily from seed. Normally it will reach a height of fifteen feet [125-6].
- ***Mandevilla***—all the Mandevillas (*M. boliviensis*, *M. splendens*, *M. laxa*, etc.) are annuals for us. They will grow to about twelve feet high, need sun, and produce large flowers in many colors, depending upon the cultivar. "Almanac Gardener" recommended bringing it inside for the winter but Armitage states that these plants are magnets for aphids and spider mites—especially indoors [130].
- ***Passiflora***—there are over 500 species, most native to South America, and most are annuals. However there are some native to North America and are hardy in our Zone 7. *Passiflora caerulea*, while native to Brazil and Argentina, is hardy for us, will grow twenty feet in one season. *P. incarnata* is a native that produces purple flowers while 'Alba' produces white ones. *P. incarnata* can handle shadier conditions than other members of the family.
- ***Clematis ternifolia***—known colloquially as Sweet Autumn Clematis, is very handsome but Armitage advises letting it grow in your neighbor's garden as this Japanese native borders on being invasive. On the plus side it is easy to grow and undemanding; on the minus side, it seeds everywhere [69].

Both Bobby and Armitage list climbing roses within their vine lists. Okay, they aren't vines but climbing roses grow up and can inhabit the same places vines do. The climbing roses listed require no spraying. There are many climbing roses so the following merely represent a sampling of those climbers that require no spraying.

- ***Rosa banksiae***—native to China, Lady Banks' Rose is beloved to many people. Armitage states it's his favorite species rose. Thornless, this rose will exuberantly grow to twenty feet. *R. banksiae lutea* has yellow flowers while *R. banksiae alba plena* has white. The latter is the famous Tombstone Rose that now covers 8000 square feet with some canes being over 100 feet long.⁴ The white one is exceptionally fragrant and the yellow one is one of two candidates for the historic yellow rose of Texas.⁵ Both are profuse bloomers. Sebastian at The Unique Plant cuts his *R. banksiae* back severely after it has bloomed in the early spring whereas others do not. The choice it seems is up to you. This rose, now considered a Zone 7 rose, will not survive temperatures below 15°. Winter mulching is suggested for our area.

The history of Lady Banks and her rambler rose is interesting. The botanist Robert Brown found the white one, *R. banksiae alba plena*, in 1759 in China and named it after the wife of a "gifted amateur rosarian," Sir Joseph Banks.⁶ Mary Gee moved with her husband from Scotland to Tombstone, AZ in 1884. Missing greenery, she asked her parents for rootings from a Lady Banks rose that bloomed in

⁴ To see the Tombstone Rose, go to: <http://tourcochisecounty.wordpress.com/2010/04/29/tombstones-rose-tree-in-full-bloom/>.

⁵ Shoup, G. Michael. *Roses in the Southern Garden* (Antique Rose Emporium, Brenham, TX, 2000), p. 17. The other candidate is 'Harrison's Yellow'. Both of these roses were available to the pioneers in Texas.

⁶ Antique Rose Emporium. *The Guide to Antique Roses* (The Antique Rose Emporium, Brenham, TX, 2009), p. 76.

their front yard. She planted it and it has flourished: blooming 126 times, its girth in its main trunk measured 95 inches. Today, it is considered the largest rose in the world.

- **Rosa ‘New Dawn’**—a sport of ‘Dr. W. Van Fleet’, ‘New Dawn’, available to gardeners since 1930, was the first rose ever patented. Now designated as an Earth-Kind® rose, its canes can reach a length of 20 feet. A heavy spring bloomer, it blooms lightly in the summer, and moderately in the fall. This rose is cold hardy through Zone 5.
- **Rosa ‘Mermaid’**—Popular in England, this rose grows well in the South. One word of caution: it is very thorny. The 5-inch fragrant white blossoms bear yellow stamens. This remontant rose is quite vigorous.
- **Rosa ‘Peggy Martin’**—If you want a climbing rose, ‘Peggy Martin’ has much to recommend it. Thornless, remontant, vigorous: what more could you ask for? Peggy Martin, “a mainstay in the New Orleans Old Garden Rose Society,” lives outside New Orleans. When Hurricane Katrina hit the area, Peggy lost not only her home, but also her parents’ home, and her husband’s fishing boat. Her garden lay beneath twenty feet of seawater for two weeks. When the water receded, the only two survivors in her garden were ‘Peggy Martin’ and a crinum.⁷ ‘Peggy Martin’ subsequently added a new name, “The Katrina Rose.” Those commercial growers who sell ‘Peggy Martin’ pledge to donate \$1.00 to the Garden Restoration Fund. ‘Peggy Martin’ is classified as a Found Rose.
- **Rose ‘Climbing Cécile Brunner’**—This climber tends to make it on everyone’s top ten climbing roses list. A polyantha⁸, this rose is also known as the “sweetheart rose.” Cécile Brunner was the daughter of a famous rose grower in Switzerland. Her climbing rose is almost thornless, producing clusters of fragrant pink roses on canes that can reach a length of twenty feet.

A New Plant: *Buddleia* ‘Blue Chip’

I have never been a big fan of *Buddleia* as I think it’s a sloppy plant. There is a lot to like about *Buddleia*: it attracts butterflies and hummingbirds and it’s drought tolerant but it can look so unkempt and it’s weedy—so weedy in fact Oregon has declared it an outlaw plant. However, hope is on the horizon. Dr. Denny Werner, plant breeder and Professor of Horticulture Science at NC State University, as well as the former Director of the JC Raulston Arboretum developed ‘Blue Chip’ *Buddleia* three years ago. Proven Winners has recently selected ‘Blue Chip’ *Buddleia*, as one of its proven winners. For a *Buddleia* it could be described as being almost tidy.

Compact enough to grow in a container, this *Buddleia* is not weedy, it’s a profuse bloomer, putting out fragrant blue-purple flowers, and it is even sold in Oregon under the label of “summer lilac.”⁹ On top of all these virtues is another important one: it is deer resistant and it requires no deadheading. Reaching a height of 24-30 inches, this plant tolerates an early spring haircut back to 12 inches.

⁷ Welch, William C. & Grant, Greg. *Heirloom Gardening in the South* (Texas A & M University Press, College Station, TX, 2011), pp. 444-6.

⁸ As with many old garden roses, it’s classification is mixed: some rosarians call it a polyantha while others insist it’s a China rose.

⁹ Oregon forbids any sale of *Buddleia* so in order to comply with the law garden centers came up with the name “Summer Lilac.”

For you *Buddleia* fans, this is the issue from the mating of *B.* 'Nanho Purple' and *B.* 'Honeycomb'.¹⁰ Truly, this might be a *Buddleia* I could learn to love.

Editor: Karen is a member of the class of 2012. As an assignment, some of the members wrote an article for the Newsletter. This is one of them:

KL: Herbs

a great addition to the North Carolina garden

Herbs are among the plants every North Carolina gardener should grow. They require little maintenance, and they can be grown in the vegetable garden, in the flower garden, or in a container.

The basic guidelines are simple:

- Plant herbs in average garden soil with organic matter added to improve texture and drainage.
- Avoid planting in wet areas.
- Plant in an area that receives at least 6 hours of direct sun daily.
- Use balanced fertilizers sparingly.

Several herbs are best grown from seed. Coriander, dill and fennel fall into this category. Other herbs—mint, rosemary, and tarragon—should be purchased as plants or propagated by cuttings.

Once you have established your herbs, don't be shy about harvesting portions during the growing season as you can harvest up to 75% of the growth at one time. Harvest herbs for flavor before they flower, and harvest herbs grown for seed when the seedpods change from green to grey and before they open. Harvest herb flowers just before the flowers open.

Perennial herbs can be clipped until late August, but avoid pruning after that because it will stimulate new growth and make your plants less winter hardy. Annual herbs can be harvested until first frost.

When you harvest herbs at the end of the season, you will probably have more than you can use. Options for preserving herbs for use during the late fall, winter, and early spring include:

- Freezing—Rinse herbs quickly in cold water, shake off excess water, and chop coarsely. Add to water filled ice cube trays, freeze, and transfer to plastic bags. Herbs can also be spread on a cookie sheet to freeze and then transferred to a large plastic bag.
- Drying—Rinse herbs, shake off the excess water, and dry on a paper towel. Tie the stems together and hang upside down in a warm, dry, airy place out of the sun. You can also spread herbs on a window screen to dry, or use a microwave, conventional oven, or dehydrator. If you store your herbs in containers in a cool, dry place away from sunlight, moisture and heat, they can last for up to a year.

¹⁰ www.plantdelights.com/Buddleia-Blue-Chip-PP-19991-Perennial-Butterfly-Bush/productinfo/8543/

- Collecting seeds—Follow the instructions for drying and suspend the herbs inside a paper bag with holes punched in the sides to increase air flow. Collect the seeds when the herbs are dry and store in rigid, lightproof container.

If you are not growing herbs now, pick a few to add to your garden or to plant in a container. For more information about growing a specific herb, consult the publications and books listed below.

For more information

The North Carolina Cooperative Extension Agency and their peer organizations around the country provide detailed information on growing, harvesting and preserving herbs in publications that can be found here:

- <http://www.ces.ncsu.edu/depts/hort/consumer/hortinternet/herbs.html>

This document lists herbs by their common names and includes descriptions, growing requirements, and uses of over 50 herbs:

- http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/herbs/common_names.html

These three books provide detailed information about specific herbs.

- Adams, William D. and Thomas R. LeRoy. *The Southern Kitchen Garden: vegetables, fruits, herbs and flowers essential for the Southern cook*. Taylor Trade Publishing, 2007.
- McVicar, Jekka. *Complete Herb Book*. Firefly Books, 2008.
- Tucker, Arthur O. and Thomas DeBaggio, *The Encyclopedia of Herbs*. Timber Press. 2009.

Tidbits

Georganne Sebastian: I have a new method for keeping chiggers, ticks, and mosquitoes off me while hiking and gardening, which I learned from a former Eagle Scout. I mix equal parts of a medicated foot powder and sulfur and put it in an old sock. Tie the top and shake the powder on shoes, socks, pant bottoms, and arms. This really works. Keep the mixture in a zip lock bag. Georganne adds that it's the sulfur that discourages these pest so if you don't have—or like—the medicated foot powder, use talcum powder instead. She also cautions to apply the mixture outside to avoid any inside mess.

Crinum

A group of EMGVs made the trek out to Jim Massey's Holly Hill Daylily Farm (Jim was profiled in the May 2006 Newsletter). Along with daylilies, Jim also offers a wide assortment of crinums for sale. A member of the amaryllis family, the crinum bulb is the largest of all bulbs—in fact crinums were referred to as amaryllis in old gardening books.

Native to South Africa, the crinums used in horticulture became popular in the South in the early 1900s. Florida nurseries were the first to sell them. We do have a native crinum, *C. americanum*, but it grows

only in wetlands. For the garden Americans preferred *C. bulbispermum*¹¹ and it is from this crinum that all our cultivars have arisen. Many of these hybrids are now classified as *C. x herbertii* after Dean William Herbert who, as an ardent fan of the Amaryllis family, began hybridizing crinums in England. Other hybridizers got into the act and today most of the crinums in the upper South are classified as *C. x powellii*, which are relatively cold hardy.

Crinums are worth searching for because they have a lot to offer in our gardens. Deer won't touch them for one thing. For another, this is a plant that thrives on neglect after its first year. Some crinums like 'Super Ellen' are quite dramatic with their six-foot long leaves, while others such as 'Ellen Bosanquet' are only two feet tall. The amaryllis-like blooms last for a long time.

There are a couple of rules to follow when establishing crinums in your garden. Plant them in full sun, plant them in a spot where you can leave them for eternity, and do not cut off their foliage until spring. If transplanted, crinums can turn into dreadful sulkers, refusing to bloom for one or two years. The decaying foliage looks dreadful in the winter but prevents our winter rains from entering the bulb. The soil should be well draining because the bulb does not want to sit in water where it will rot. Digging up crinums is an arduous task as a mature bulb can weigh up to eighteen pounds.

Just follow these simple rules and you'll have a bulb that will outlast us all as it's not unusual to find 100-year old crinums in old Southern gardens.

Other members of the Amaryllis family do well in our gardens. Breeders have also bred crinums back to the hardy amaryllis to create the new *Amarcrinum* with 'Fred Howard' being available at commercial nurseries.

Good accent plants are the hardy amaryllises, *Hippeastrum x johnsonii*. Originally red with white stripes there are now ten or more hybrids that do well in our area. Plant them in March and you will be awarded with flowers in May that last a good four weeks. The scapes are shorter than those on the forced bulbs available during the winter. They will increase in size so each year you'll get more and more flowers. It doesn't hurt to give them extra mulch in late autumn. As with all members of the Amaryllis family they are poisonous so deer leave them alone.

Sudden Oak Death

There's a new pathogen in the United States that we should be aware of as NCSU is taking its potential threat very seriously. Caused by the pathogen *Phytophthora ramorum*¹², Sudden Oak Death [SOD] was first observed in Europe in 2001. Today the pathogen exists in California, Oregon, Washington, and Western Canada. Despite its name, SOD does not just attack oaks but also affects forty other species that we are aware of.

In the 1990s oak trees were dying in larger than normal numbers in Marin County, California. By 2000 scientists had identified the culprit as a species of *Phytophthora*, a "fungus-like water mold of unknown

¹¹ Once referred to as *C. capense*, *C. longifolium*, and *Amaryllis longifolia*. Welch & Grant, p. 225.

¹² Pronounced Fi-TOFF-thor-ra according to the NCSU website.

origin.” Horticulturalists identified the same symptoms—leaf blight, stem cankers, and tip dieback—on nursery-grown European rhododendrons and viburnums.¹³ By 2001 the pathogen had appeared in Oregon.

P. ramorum manifests itself in two ways: (1) in trees the pathogen produces bleeding cankers that will eventually kill the tree; (2) on camellias, rhododendrons, pieris, viburnums, and lilacs, the disease primarily causes dieback and leaf spots. The “nonlethal foliar infection ... leads to spore production and transmission of the pathogen to other hosts.”¹⁴ Today, “hundreds of thousands” of coast live oak, tanoak, and California black oak trees have succumbed to SOD in California. California nurseries have had problems with the pathogen and in 2004 the pathogen was discovered on infected camellias, which the large nursery Monrovia had sent out all over the country. Suddenly there was a moratorium on all camellias from Monrovia and local nurseries in North Carolina began selling locally raised camellias.

In Europe fifteen countries now harbor the pathogen, which is also “widely dispersed through the nursery trade.” There it primarily preys on rhododendrons, viburnums, and pieris but it is also affecting mature landscape trees including red oak, beech, and horse chestnut [4]. So far European white oaks remain unaffected.

To date eastern forests in the US have been free of *P. ramorum*. When Monrovia shipped—unknowingly—infected camellias throughout the US, there was great concern as this pathogen has the potential to cost the nursery industry millions of dollars.

What exactly is *Phytophthora ramorum*? It’s an Oomycete¹⁵, a water mold that, while resembling a fungus, is closer to marine algae than fungi. While most *Phytophthora* attack roots, *P. ramorum* attacks the plant parts above ground. In forests the pathogen spreads via water, especially wind-driven rain. The pathogenic spores will wash down to the understory shrubs, such as rhododendrons and pieris. Wind also carries the spores to other trees: “Half of newly infected trees are found within about 300 feet of previously infected trees, a pattern consistent with wind and rain dispersal” [6].

Diseased leaves fall to the ground allowing the spores to infect the soil. Diseased leaves appear to produce more spores than do the bark and wood of oaks so “[u]nderstory plants may play a very important role in how the disease is maintained and spread within a given site” [6]. If they are in close proximity to infected trees, conifers, especially *Abies* species, are susceptible to SOD.

While no instance of SOD has occurred in North Carolina, NC Department of Agriculture is taking its threat quite seriously, especially as we know infected camellias reached the state between March 2003-March 2004 from Monrovia. The best way to prevent *P. ramorum* from entering our state is to know where your plant material comes from. If the plant material originates from California, Oregon, or Europe it is important that those nurseries have undergone inspection. So far Oregon nurseries have

¹³ Goheen, E.M, Hansen, E., Kanaskie, A., Osterbauer, N., Parke, J., Pscheidt, J., & Chastagner, G. “Sudden Oak Death and *Phytophthora ramorum*, (Oregon State University Extension Service, April 2006), p. 2. Future references will be in brackets[].

¹⁴ Lundmark, Cathy. “Fighting Forest Blights,” *BioScience*, Vol. 57, No. 10 (November 2007), p. 912.

¹⁵ According to Wikipedia, an Oomycete is a “filamentous, microscopic, absorptive organism that reproduces both sexually and asexually.” They “include some of the most notorious pathogens of plants.” Often referred to as “water molds,” they cause disease not only in plants but also in fish. The *Phytophthora* group was responsible for the Irish potato famine.

remained free of the pathogen and the California Department of Food and Agriculture lists inspected nurseries and those nurseries found to harbor the pathogen.

Is *P. ramorum* a new pathogen? Until the 1990s it was unknown but scientists suspect it may have been in California for a long time, only to become aggressive due to changes in the environment such a global warming or fire suppression.¹⁶ Another hypothesis is that this is a *Phytophthora* hybrid. Because the oak and tanoak forests in California and Oregon provide food and shelter for wildlife, the death of these trees in large numbers has the potential to affect wildlife. It also affects the microbial community: for example, a particular mycorrhizal species depends upon tanoak roots today; if the tanoaks die, will the mycorrhizal species die or will it be able to shift to another host species?¹⁷

Two eastern oaks scientists know are susceptible to *P. ramorum*: the northern red oak, *Quercus rubra*, and the pin oak, *Quercus palustris*. We also know that *Rhododendron catawbiense*, native to the East Coast, can be infected by the pathogen. “Prevention of the spread of *P. ramorum* to areas outside the known zone of infestation is considered a high priority. This requires coordination between government agencies, private industries, and the public.”¹⁸ For more information go to: www.suddenoakdeath.org.

Georganne Sebastian sent the following handout from a lecture she attended. It’s an interesting list and I, for one, didn’t realize some of these plants were enticing to butterflies. Both Michelle and Georganne raved about Professor Dole’s presentation at the State Conference. According to Michelle, Professor Dole is the leading authority on cut flowers in the United States.

Plants for a Butterfly Garden

Bringing Butterflies Into Your Yard

John M. Dole, North Carolina State University

Nectar Plants:

Butterfly bush ‘Bonnie’ and other cultivars – *Buddleja* hybrids

Butterfly bush ‘Blue Chip’ – *Buddleja* hybrid

Butterfly bush ‘Miss Ruby’ – *Buddleja* hybrid

Buttonbush – *Cephalanthus occidentalis*

Purple coneflower ‘Magnus’ – *Echinacea purpurea*

Pale coneflower – *Echinacea pallida*

Yellow coneflower – *Echinacea paradoxa*

Coneflower ‘Meadowbright Mango’ – *Echinacea* hybrid

Coneflower ‘Sunrise’ – *Echinacea* hybrid

Coneflower ‘Tiki Torch’ – *Echinacea* hybrid

Coneflower ‘Ruby Star’ – *Echinacea purpurea*

Coneflower ‘Merlot’ – *Echinacea purpurea*

Coneflower ‘Primadonna’ – *Echinacea purpurea*

¹⁶ Rizzo, David M. and Garbelotto, Matteo. “Sudden Oak Death: Endangering California and Oregon Forest Ecosystems,” *Frontiers in Ecology and the Environment*, Vol. 1, No. 4 (May, 2003), p. 199.

¹⁷ *Ibid.*, p. 202.

¹⁸ *Ibid.*, p. 203.

Eupatorium candidum
 Chocolate white snakeroot – *Eupatorium rugosum*
Eupatorium ‘Gateway’
 Joe-pye-weed – *Eupatorium fistulosum*
 Perennial ageratum – *Conoclinium coelestinum*
 Zinnia ‘Sungold’
 Zinnia ‘Swizzle Cherry and Ivory’
 Zinnia ‘Benary Lime’
 Zinnia ‘Uproar Rose’
 Zinnia ‘Zowie Yellow Flame’
 Zinnia ‘Profusion Orange’

Nectar and Host Plants:

Butterfly weed – *Asclepias tuberosa*
 Tropical milkweed – *Asclepias curassavica*
 Redbud ‘Traveller’ – *Cercis canadensis texensis*
 White redbud – *Cercis canadensis alba*
 Redbud ‘Hearts of Gold’ – *Cercis canadensis*
 Redbud ‘Merlot’ – *Cercis canadensis*
 Redbud ‘Ruby Falls’ – *Cercis canadensis*
 Redbud ‘Silver Cloud’ – *Cercis canadensis*
 Mexican redbud – *Cercis canadensis Mexicana*

Host Plants:

Flowering dogwood – *Cornus florida*
 Flowering dogwood ‘Rubra’ – *Cornus florida rubra*
 Magic flowering dogwood – *Cornus florida urbiniana*
 Variegated flowering dogwood – *Cornus florida* ‘Golden Nugget’
 Flowering dogwood – *Cornus florida* ‘Autumn Gold’
 Inland sea oats – *Chasmanthium latifolium*
 Bluestem ‘Silver Sunrise’ – *Andropogon hybrid*
 Passionvine – *Passiflora caerulea*
 Scarlet passionvine – *Passiflora coccinea*
 Pawpaw – *Asimina triloba* (‘PA-Golden’, ‘Overleese’, ‘NC-1’, ‘Sunflower’, ‘Shenandoah’)
 Sassafras – *Sassafras albidum*
 Tulip tree ‘Ardis’ – *Liriodendron tulipifera*

Favorite Plants for a Small Butterfly Garden

Dwarf butterfly bush
 Zinnias, pentas, gomphrena or lantana
 Perennial trailing verbena
 Butterfly weed or perennial asters
 Dill, parsley, or fennel

Medium-size Butterfly Garden

Coneflower
 Eupatorium

Liatris
Violets (shade) or pansies (sun)
Pipevine or passionvine

Large Butterfly Garden

Redbud
American holly
Flowering dogwood
Pawpaw
Sassafras
Grasses (sun) or cane (shade)

Wet Butterfly Garden

Buttonbush
Eupatorium
Pickerel weed
Swamp milkweed
Northern sea oats

Resources

Butterflies of the Carolinas, Jared C. Daniels

Butterflies through Binoculars, The East, Jeffrey Glassberg

Butterflies of North Carolina, 18th Approximation, Harry LeGrand and Thomas Howard

<http://149.168.1.196/nbnc/index.html>

www.duke.edu/~cwcook

www.rlephoto.com/_start.htm

www.duke.edu/~jspippen/nature.htm

www.carolinabutterflysociety.org