

# THE *ecological landscaper*

The Newsletter of the Ecological Landscaping Association

Vol. 13, No. 1

Summer 2006

## Trees: “The wonder is that we can see these trees and not wonder more.”

*Ralph Waldo Emerson*

**With due respect, contrary to Mr. Emerson’s quote, many of us do think about trees. And because we wonder, this issue contains articles and information from folks who not only think about trees but share their findings with us. Hope you are inspired to wonder more.**

### TREES, A CHALLENGE OF PERSPECTIVE

• **Rolf Schilling**

It’s all about competition. Or is it? For most of the past two centuries, we have been given a picture of forests as realms of fierce competition, and have looked upon human interference as constructive refereeing. Partly as a result, landscaping practices have traditionally treated trees as individuals and plants in general in isolated terms. Every sort of attempt has been made to protect trees from shrubs, herbaceous plants, insects, everything. “There’s a fungus among us,” goes the dark refrain.

Ecological and biochemical research in tree biology and plant communities has yielded endless new

understanding and insight. We now realize that there are a number of symbioses in arboreal life processes and that trees normally, not by exception, depend on multiple other organisms of their own and diverse species for sustained health. Where biologists tended to study one species, they now study communities. There is much to learn, but the emerging picture of trees suggests that we could better view them as we do coral reefs than as stand-alone specimens in a lawn or clumps in a parking island.

While the heady parts of science may seem remote to daily landscape practices, there is much that can be put to use. Treating the health of trees as isolated individuals is a practice that misunderstands the life functions of trees and the plant community. The tree growing wild in disassociation with fungi, shrubs, herbs, lichens, mosses, insects and other herbivores, their predators, and other trees is rare indeed. Not viewing trees as part

of an integral community has many hazards. Pesky fungi can simply be hit with some heavy metals. Spray larvae with toxic alkaloids. Slow growth can be pushed with nitrogen, slow blooms with phosphorus. All these things seem practicable, with discretion, because the tree is thought to be viable on its own. The track records of human intercession against pests is very disappointing, and often includes devastation of non-target species while the pest continues to thrive.

There is little evidence from nature that trees remain healthy on their own. What appears in all the research is close interdependence between trees and most or all the life forms that inhabit their native communities. What is also becoming apparent is that the removal of an organism from a community creates extended chains of disruptions that can lead to the disappearance of many other organisms. The picture is one where symbiosis – organisms mutually benefiting from

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"*Gramma said when you come on something good, first thing to do is share it with whoever you can find; that way the good spread out where no telling it will go. Which is right.*"

—Little Tree in The Education of

Little Tree, by Forrest Carter



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[Note: Rolf's email address will appear in the Fall issue of the ELA Newsletter.]

Send all other ELA business, including address changes, to the Concord address listed above.

The ELA board meets throughout the year in various locations in eastern Massachusetts. All members are welcome. Contact us for specific dates and locations.

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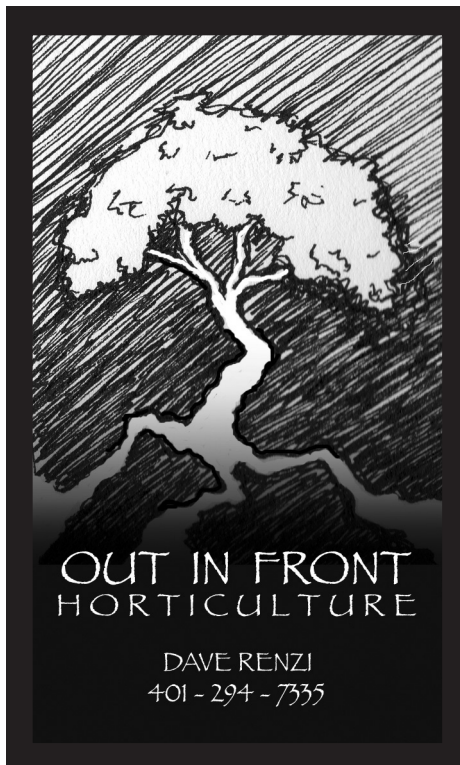
their interdependence – becomes the dominant force. Symbiosis occurs on intra- and interspecific levels, within the same species and between organisms of different species, genus, order, and kingdom.

Current events in the IPM life of a landscape professional provide plenty of case examples pointing toward the importance of understanding trees as community organisms, and the dangers of tampering. In the case of gypsy moth infestation of oaks, economic loss has driven research on many levels in this pest-host relationship. Oaks often fuse roots in an extended group, and this is accomplished with mycorrhizal fungi as an intermediary sharing chemical messengers, defense toxins, and nutrients this way. Through this means and through volatile terpenes, oaks are able to signal the onset of a devastating infestation. Unaffected oaks are able to withdraw nutrients into their roots and thus cheat, and reduce the breeding success of the gypsy moths. On the other hand, human intercession with *Bacillus thuringiensis* (Bt), while a natural pathogen from the moth's native range, has devastated our native silk moths, like Luna and Cercropia, along with pesticides and introduced fungi. Then there are unresolved questions such as how nitrogen fertilizer and resulting excess tender growth (with low toxin concentrations) affects browsing selection by deer and ovipositing insects.

Birches and other members of Betulaceae, maples, willows and poplars are all known to engage in root fusion, and some are even known to fuse roots with trees outside their own genus. We know that stands of sumac, aspen and beech tend to be clonal, one organism really. Root fusion in forest trees, sharing nutrients and defenses, questions whether we should view trees as individuals. As we see borers and miners wreak havoc on white birches in landscape plantings, these are contrasted by healthy and numerous white birches

lighting up the hillsides of the northern states. Root fusion, pest-parasitoid life cycles, and fungal symbioses may all have a role in the final explanation as to why we see this. Furious pursuit of Sudden Oak Death in California has produced the observation that impact is greatest in forest edges and in disrupted groves. The *Phytophthora* genus of fungus has a nefarious history of creating destruction where humans have recently changed the landscape. Fungi in general suggest that an empty niche is the devil's playground.

Pines and their use of resins, the complex of terpenes some of which create that wonderful piney smell, provide an object lesson on the inferior nature of human insect control. Pines are very diverse in the mixture of terpenes their resins contain, even in the same species and the same stand. Under intense herbivory from beetles, the pines retain their chemical diversity. The result is that the beetles cannot successfully adapt to any one array of chemical defenses. In addition, monoterpenes are released heavily into the air immediately as pines endure damage to their needles, and this creates a localized cloud of ozone and organic nitrates toxic to beetles. It is produced 'on demand.' The same cannot be said for any human treatment product. The range of actions on beetles of pine sap is astounding. Sap resins are a mix of simple and complex terpenes that have very distinct effects on insects and animals that feed on them. It has been shown that one pinene repels beetles while another in the same mix attracts. Also, other elements of the same mix interfere with beetle pheromones, and others are directly toxic. Pines alter the mixture in response to infestations that form complex cycles over the life of the pest. Similar interactions have been studied with Scolytid beetles, spruce budworms (*Choristoneura* spp.), and sawflies of *Rhyacionia* and *Neodiprion*. Despite well-funded research driven by the value of commercial timber, the



host-pest cycles remain incompletely explained. Interceding at any point of this game can prevent the pines from completing their management of the pest life cycle. In other words, spraying can, and likely often does, backfire, as in the case when caterpillars are sprayed only to produce an outbreak of mobile spider mites because their more local predatory mites are gone.

Trees draw on soil bacteria and fungi for food, as well as defense. Predatory fungi hunt nematodes and others have a limiting effect on potentially pathogenic organisms. Parasitoids that control potential arthropod pests have life cycles that require a few too many species other than the tree of interest. Parasitoids often have their own parasites. A fungus that controls one pathogen may itself become pathogenic at another point in its life cycle. In this sense, a diverse community of species where all are held in check and balance by their interactions with a host of other species deserves consideration as the model for landscapers and gardeners to pursue.

The applications of the tree-as-community model are difficult to

exhaust. In the general sense, using as many members of a naturally-occurring community as is practicable is a plan for success. In the more particular sense, thorny and/or toxic small shrubs provide a good encouragement for deer to move on past your highly edible large shrub or tree. Another shrub provides nitrogen-fixing ability, root resins that are toxic to a pathogenic fungus, or late winter protection from sun scald. In the clear sense, some trees can share chemical defenses with other species through their roots, or confuse the reproduction cycle of pests with leaf resins. In the intuitive sense, plants that share a wild community share a long list of more subtle interactions which sustain that community.

Planting by community requires change in how we sell, design and plant landscapes. Predesign attention to each plant's long-term ideal conditions, interactions with agents of control, and manual methods of infestation control (not all are laborious/disgusting) become paramount. The notion of single focal plants needs to go, or specimens need to be nearly foolproof. Initial, successional, and replacement plant material costs can be higher (I found little data for comparison). Place this possibility against the cost of fertilizer, pesticides, higher maintenance hours, still the cost of replacements, and impact on family/community health.

However you look at trees and their relationship to other plants, successful long-term health relies on understanding their connectedness. While we know important pieces of a pest-host-parasitoid cycles, we have yet to exhibit in practice that understanding. Putting the pieces of what we know together, it becomes less useful to view an organism as a pest, host, or parasite. If we allow new insights to inform landscape practices, we can move toward preserving and recreating self-sustaining landscapes. Plantings that present naturally-occurring communities as

completely as possible may become the trend of long-term success.

*Rolf Schilling worked in biochemistry before entering into garden design/installation in the Metro New York area. More recently, he has gardened in the Berkshires and is Horticulturist at New England Wild Flower Society in Framingham, MA.*

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## LEARNING ABOUT TREES

• Henry Homeyer

One of the workshops at ELA's 2006 Winter Conference & Eco-Marketplace, "Strengthening the Weakened Tree" gave me some new ways of looking at trees. Rolf Briggs and Dave Ropes, of Tree Specialists ([www.treespecialists.com](http://www.treespecialists.com)) in Holliston, MA, are certified arborists who conducted this workshop on good practices for pruning, planting and caring for trees to optimize tree health and structure.

From them I learned that roots and branches are directly connected. This is to say, this particular root connects to that particular branch. If you prune off a big branch, or if a big root is damaged, one affects the other. That explains why, when I damaged a large above-ground root with a lawnmower, a big limb on the tree went into decline and died some years later. And shame on me for my carelessness! I'd never really thought about it, but I guess I'd always assumed that the roots brought the "tree" water and nutrients,

and branches tapped into the trunk for their supply. Not so. The phloem and xylem – the pipes, if you will – go from below ground to a particular part of the tree.

I also gained a new perspective on watersprouts. I had understood that these pencil-like sprouts on fruit trees, the ones that shoot straight up on larger branches, were a stress response. Apparently, in summer, photosynthesis stops when temperatures are too high; the stomata (the pores on the underneath side of leaves) shut down to minimize water loss. The interior of the tree, shaded by outer canopy, stays cooler, and photosynthesis continues. Watersprouts grow to provide the tree with a way to continue producing food by photosynthesis in hot times. In past springs, I've usually removed all the watersprouts that had grown the year before. I considered them clutter, and knew that left on their own they would grow into large branches that fill the interior of the tree with too much growth. Ropes explained that leaving a few watersprouts is a good thing. It reduces the number of new

sprouts that appear each summer, and these vertical branches can be trained and pruned to develop into branches that aren't reaching straight up or causing problems.

These arborists also emphasized that it is critical to plant trees at the proper depth. I raised the question of how to deal with trees that have been living in a pot at the garden center for a year or more and have had their trunk flare covered with 3-4 inches of soil. Small adventitious roots often grow out of the trunk (the portion that should be above ground) making it difficult to remove the soil and find the trunk flare. Briggs and Ropes reported it would be better to plant the tree high in the hole, and let it extend its primary roots the first year. It can be stressful for a young tree to have its roots removed, even roots that ultimately shouldn't be there. Let the tree get used to its new home for a year, then remove the excess soil, snip off the adventitious roots (growing above the flare) and re-grade the soil the second year.

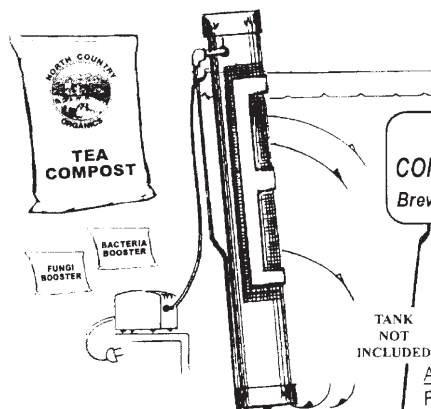
Briggs and Ropes also made the



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good point that whatever we do to help a tree should mimic what nature would do. Don't just water the rootball with a hose – water with a sprinkler that mimics rain. Don't add 3-4 inches of heavy bark mulch. Add a light layer of mulch similar to what would fall in the forest: leaves and bits of ground branches are ideal. Sometimes this type of mulch is available free from electric companies- just ask a crew working by the side of the road. Don't add fertilizer. As mulch breaks down, it will enrich the soil.

Among other things, I also learned which months are best for pruning fruit trees. Next year, when I do prune, I'll leave some of those water sprouts.

*Henry Homeyer is the VT/NH associate editor of People, Places and Plants magazine and the author of "Notes from the Garden: Reflections and Observations of an Organic Gardener." His next book, The New Hampshire Gardener's Companion, is due out in November.*

## BIOLOGICAL CONTROL OF THE WINTER MOTH (*Operophtera brumata*)

Releasing parasitic organisms to stop insect outbreaks has become common practice for landscapers seeking alternatives to pesticide use and is known in the trade as a biological control. We sometimes see it used on a larger scale, when regional land managers employ it because it is either more economical or more effective than conventional practices. Whether it is used in small single-property applications or large regional ones, the same issues and concerns come into play. Accurate data and a good means of monitoring the outbreak are required. The organism released to control the pest insect must not have the potential to attack other types of non-target insects. The organism must be released in sufficient quantities to make an impact on the outbreak.

Originally reported on the South Shore and Cape Cod regions of Mas-

sachusetts, a "new" insect outbreak was first thought to be an infestation of the native fall cankerworms (*Alsophila pomataria*). These outbreaks usually crash from natural causes after about three years, so specialists did not think there was a problem. However, the South Shore defoliation continued and spread. Finally, scientists at the University of Connecticut and Cornell identified the pest as a new arrival of the Winter Moth (*Operophtera brumata*), a European native. It is so named because the adult moths emerge from their cocoons to mate in late November and December. Their offspring hatch in the Spring. The tiny green inchworms start out devouring oaks, maples, ash, fruit trees, and blueberry bushes. Once these are consumed almost any leaves or flowers are fair game.

Although the females are flightless, the Winter Moth manages to spread. "It's in the coastal towns from Gloucester to Boston and pretty much throughout southeastern Massachusetts, and most of the Cape out as far as Eastham," said Robert Childs, an entomologist at the University of Massachusetts Extension's *Landscape, Nursery and Urban Forestry Program*. He is one of a team of scientists, along with colleague Joseph Elkinton, trying to control these foreign insects on a large-regional scale. For a region that still remembers previous devastating outbreaks of the gypsy moth (*Lymantria dispar*), such as in 1981 when a record 12.9 million acres of vegetation were defoliated, the stakes are high.

The insect has no natural enemies in New England. However, in the two other outbreaks recorded in North America (Pacific Northwest in the 1970s; Nova Scotia in the 1950s) a European-native predator of the winter moth was found to provide effective control. This is a tachinid fly called *Cyzenis albicans*. In Nova Scotia, where several thousand were released nearly 50 years ago, it has provided an

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effective and permanent solution to the problem. Experience has shown it to be very host-specific in parasitizing moth larva, making it safe for non-target insects. Now the race is on to produce enough of the flies to release into severely affected areas.

Using a quarantine facility at the USDA labs in Cape Cod's Otis Air National Guard Base, Elkinton is leading efforts to raise thousands of them. In June, 2005, an initial release of several hundred flies was made at Wompatuck State Park in Hingham, a coastal town just south of Boston. An ambitious collecting trip in Nova Scotia was then conducted and additional material for propagating more than 800 flies was sent from British Columbia. In May, 2006, a second release was made in Wenham, a town to the north of Boston. Responding to pleas by Elkinton for state funding to help ramp up production, a \$150,000 earmark was placed in a recent legislative bill. Unfortunately, although the bill had bipartisan sponsorship, it was vetoed in June by the governor, who mistakenly perceived it as "unnecessary and wasteful spending by a Democratic-dominated legislature." In a remarkably rapid response, the

legislature passed a veto-override in the final hours of their session at the end of July.

Unfortunately, the moths have a big head start. It took the tachinid fly 5 years after its release in Nova Scotia to multiply enough to catch up with the Winter Moth population. An estimated several million trees in Massachusetts are infested. Until fly populations expand, trees that have been defoliated for several years are in danger. They face decline and even death without extra help. (Canadian research found that many trees die after four consecutive years of complete defoliation, though this will vary with the tree condition and species.)

Alternative control methods are limited at best. The Winter moth offspring usually hatch around April 20<sup>th</sup> and are active for only about three or four weeks. They burrow inside swelling leaf buds, where sprays cannot reach them. The leaves then open in tatters. After that, the caterpillars are “free feeders”; they spread by “ballooning” to other tree on their own silken ropes looking for new food sources. Around May 20<sup>th</sup>, they will drop to the ground and burrow into the top layer of soil, where they will become dormant pupae until emerging as adult moths between Thanksgiving and New Year’s. They do not eat anything then. The males just flutter around and mate with the flightless females, who climb trees, lay eggs, and die. Although it’s possible to “trap” females as they climb up the trunks, widespread control by this means is impractical.

The best hope is a successful biological control for this outbreak. ELA will report on the Winter Moth status in future newsletter issues. Stay tuned...

*Extrapolated from several UMass Fact Sheets written by: Robert D. Childs, Entomology Depart., UMass, Amherst; Deborah C. Swanson, Plymouth County Extension & UMass Extension; and Dr. Joseph Elkinton – Plant, Soil & Insect Science Depart., UMass, Amherst. [visit <http://www.umass-greeninfo.org> for full reading.]*

**SAVE THESE DATES! March 1-3, 2007 Ecological Landscaping Association's  
2007 Winter Conference & Eco-Marketplace**  
“Sustainable Landscapes: Creating Healthy Communities”

**NEW FORMAT**

- \* Thursday, March 1: Pre-Conference Workshop with Dr. Elaine Ingham
- \* Friday, March 2: Four Educational Tracks, demonstration workshops, live exhibit displays, and the 4th Annual Eco-Marketplace
- \* Saturday, March 3: Three Educational Tracks, demonstration workshops, live exhibit displays, and the 4th Annual Eco-Marketplace

**NEW LOCATION** MassMutual Center, Springfield, Massachusetts – a spacious, easy to reach, state-of-the art facility.

**BEST OF THE REST** Great speakers, cutting-edge topics and a chance to network with like-minded individuals!

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Visit [www.ecolandscaping.org](http://www.ecolandscaping.org) for updated vendor and attendee information starting October 2006 and look for more information in the Fall and Winter Issues of ELA's member quarterly newsletter the 'Ecological Landscaper'. See you there!

## ELA NEWS

### Welcome to New ELA Board Members

We are delighted to have four strong additions to the ELA Board: John Larsen, Karen Dominguez-Brann, Sandy Vorce, and Joanna Campe.

John is president of Well Water Connection of Tewksbury, Massachusetts, a full-service water, well design, and project management firm specializing in irrigation wells, pump systems and stain-removal systems for green industry professionals and their clients. John is a member of MACLP, Irrigation Association of New England, National Ground Water Association, and the American Ground Water Trust. John brings great energy to the ELA Board.

Karen Dominguez-Brann is the Marketing Director of Team KDB, a marketing and PR firm located in Maine and specializing in targeted and niche marketing to help clients better promote their businesses. Karen is also marketing director for Maine Summer Company, a home and lifestyle company. Previously Karen lived in Los Angeles, CA and owned Foxglove Design, a home and garden design firm that practiced and promoted organic, earth friendly designs. Karen is very excited to be a part of ELA.

Sandy currently works for a Mass Audubon wildlife sanctuary in a variety of roles including Assistant Property Manager and Teacher Naturalist. She is also a technology consultant, offering business planning services and advice on topics from web development to electronic communication. With over 25 years experience and a passion for ecological stewardship, Sandy is enthused to be involved in such a vital and essential organization as ELA.

Joanna Campe is the president of Remineralize the Earth in Northampton, Massachusetts. Remineralize the Earth is a non-profit, educational organization that encourages soil remineralization through the cooperation of individuals, organizations, companies, and government bodies. Joanna has been actively working toward the remineralizing effort for almost 20 years. She has been consulted by gardeners, farmers, scientists and policy makers around the world; non-profits and government organizations such as the USDA and the DOE; stone and aggregate companies; the National Aggregate and Stone Associations; the International Center for Aggregate Research (ICAR); and the Aggregates Foundation for Technology, Research, and Education (AFTRE). Joanna brings great interest and passion to contribute to the ELA mission.

Join us in welcoming John, Karen, Sandy, and Joanna!

### ELA's Annual Meeting Recap

ELA recently marked another year of environmental education and stewardship at the summer Annual Meeting. This gathering provides an opportunity to conduct the annual business meeting, report on the annual ballot results, and to thank the many volunteers that have contributed to the ELA efforts throughout the year with an appreciation potluck dinner.

Thanks to Andrea Knowles and Kathy Sargent-O'Neill for helping to organize this year's Annual Meeting at the Wolbach Farm in Sudbury, Massachusetts, the permanent home of the Sudbury Valley Trustees, [www.sudburyvalleytrustees.org](http://www.sudburyvalleytrustees.org). This 54-acre property along the Sudbury River is a great place for a nature walk, to volunteer, or to rent for gatherings.

## 2006 Ballot Results

The slate of officers for the upcoming year is: Chris O'Brien, President; Dennis Collins, Vice-President; Sue Storer, Treasurer; Owen Wormser, Secretary. Incumbent Board members elected to serve additional terms are: Cathy Rooney, M.L. Altobelli, Bruce Wening, and Nancy Askin. Newly elected to the Board are: John Larsen, Karen Dominguez-Brann, Sandy Vorce, and Joanna Campe. Board members serving existing terms are: Dave Anderson, Donald Bishop, William Jewell, Andrea Knowles, Robert Levite, and Kathy Sargent-O'Neill.

As prior Vice-President, Robert Levite, is not able to assume the role of President for the ELA year 2006-2007, a one-year extension of Chris O'Brien's presidency was approved. This extension will allow the new Vice-president, Dennis Collins, a year of training, and will ensure continuity of strong leadership for the organization.

## General News:

The new EPA landscaping publication "Green Scaping: The Easy Way to a Greener and Healthier Yard" is hot off the press and may be of interest. Print it off the web, <http://www.epa.gov/oppfead1/Publications/catalog/greenscaping.pdf>.

## ELA Welcomes a New Editor

We're delighted to announce that Rolf Schilling has signed on as Editor of the "Ecological Landscaper." Mr Schilling is a horticulturist with the New England Wild Flower Society at their premier site Garden in the Woods ([www.newfs.org](http://www.newfs.org)).

He's studied at the New York Botanical Garden and at Columbia University earning a Masters in Biochemistry. Besides Garden in the Woods, he has worked at the Berkshire Botanical Garden and brings many years of practical experience in landscape design, installation, and maintenance gained in his own business and while working for others.

We look forward to reading more cutting-edge information and original articles (see page one) by Rolf and sharing in his wondering about things ecological.

To contact Rolf, you may write him at 180 Hemenway Road, Framingham, MA 01701 or call him at 508-877-3452. [Note: Rolf's email address will appear in the Fall issue of the ELA Newsletter.]

**ELA friend and supporter, Bob Childs, Entomology Department, UMass, Amherst is undergoing chemotherapy. Please take a minute to send notes or cards of encouragement and support to cheer him on. Address: Bardswell Ferry Rd., Conway, MA 01341. Thanks!**

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## other events

**Association of Natural Bio-Control Producers Annual Meeting.** September 29 - October 02, 2006, Tahoe City, CA, USA. Contact: ANBP, 2230 Martin Dr., Tustin Ranch, CA 92782, USA. Mailto: [excedir@anbp.org](mailto:excedir@anbp.org). F/Ph: 714-544-8295.

**16th Annual Perennial Plant Symposium: When Human Nature Embraces Mother Nature.** September 28th or 29th, 2006 (Registration Deadline: Sept. 21, 2006) Chicago Botanic Garden, Glencoe, Illinois. For further information visit [www.chicagobotanic.org/symposia](http://www.chicagobotanic.org/symposia).

**Invasive plant symposium "Working Together for the Landscape of Tomorrow."** October 12, 2006, Mountainside Resort in Wallingford, CT. For further information visit [www.hort.uconn.edu/cipwg](http://www.hort.uconn.edu/cipwg) or contact Donna Ellis 860-486-6448.

**The 2006 Janet Meakin Poor Symposium Urban Ecology "Celebrating 10 Years of Chicago**

**Wilderness."** October 20, 2006, Chicago Botanic Garden, Glencoe, Illinois. For further information visit [www.chicagobotanic.org/symposia](http://www.chicagobotanic.org/symposia).

**Planting Peace: An Evening with Nobel Peace Laureate, Dr. Wangari Maathai.** October 24, 2006. Faneuil Hall, Boston, MA at 7:00 pm. For further information visit [www.bostonforest.org](http://www.bostonforest.org) - email [classic.pr@verizon.net](mailto:classic.pr@verizon.net), or call 508-698-6810 for sponsorship and ticket information.

## ELA events

**Roundtable: Harnessing Microclimates in the Landscape.** Ben Falk, Landscape Designer, Whole Systems Design. Offered in collaboration with the Arnold Arboretum of Harvard University. Nov. 3, 2006, 9:00am-4:00pm, Hunnewell Building, Arnold Arboretum, Jamaica Plain, MA. Fee \$75 member, \$90 non-member.

## announcement

November 3, 2006, "Turning a New Leaf" a conference and eco-marketplace on sustainable landscaping. Held at Unitarian Universalist Church in Bethesda, Maryland (located near Routes 495 and 270).

Sponsored by the Chesapeake Conservation Landscaping Council and co-sponsored by ELA, ASLA-Maryland Chapter, IAI-Mid-Atlantic Chapter, and several other organizations.

The full day's agenda and registration information is available by

August 1st at [www.chesapeakelandscape.org](http://www.chesapeakelandscape.org) For additional information: Carol Jelich 410-634-2847 x 40 or Sylvan Kaufman, 410-634-2847 x 24.

## gleanings

ELA's publication "Discover Ecological Landscaping" was

written up in the March 2006 issue of *The Avant Gardener* newsletter, a unique monthly horticultural news service. This 8-page booklet, created by ELA board member Andrea Knowles and committee members Brian LeSuer and Mary Whitney, is full of partial tips and resource references and whets our landscaping appetites. Congratulations to the committee and to ELA.

If you don't now subscribe to the *Avant Gardener*, see what Ann Raver, Garden Editor of the *New York Times* says " - My two all-time-favorite newsletters for fast-breaking news on the latest research in the plant world are *The Avant Gardener* and *HortIdeas*." *The New York Times*, December 10, 1995. To subscribe send a check to: The Horticultural Data Processors Box 489, New York, NY 10028 in the amount of \$24 per year or \$30 per year outside of the USA.

## gleanings – con't

### PEST ALERT

Pine Shoot Beetle Quarantine in MA, CT, and RI (May 8, 2006), issued by the North American Plant Protection Organization: "...the USDA Animal Plant Health Inspection Service is quarantining the States of Massachusetts, Connecticut and Rhode Island for Pine Shoot Beetle (PSB), *Tomicus piniperda*. This action is in response to recent trapping of PSB in Berkshire County, Massachusetts, and is necessary to prevent the dissemination of PSB to other non-quarantined areas of the United States.

It has been detected in 16 states (MN, WI, IL, IN, MI, OH, PA, WV, VA, MD, NJ, NY, VT, NH, ME, and MA). For more information visit the project website (<http://www.massnrc.org/pests>).



### DON'T FEED NEW TREES

The first year a tree or shrub seedling is transplanted into the garden is crucial to its survival. Many factors can influence its health and growth during this period, and one that is being increasingly examined is the treatment it received in the nursery where it was originally started.

To promote rapid growth to salable size, nurseries commonly apply large amounts of fertilizer. This is also believed to increase

"nutrient loading", to continue growth when nutrient uptake may be limited by root damage during transplanting. However, recent research is indicating that high fertilizer rates can reduce the plant's resistance to stresses such as drought and pests.

In a cooperative project of the University of Idaho-Moscow and the Ohio Agricultural Research and Development Center in Wooster, Ohio, rooted cuttings of a flowering crabapple were given three rates of fertilizer. After transplanting, the trees which had received the highest rates of nitrogen grew faster, but they also had the lowest concentrations of phenolics (defense compounds) in their leaves and were susceptible to injury by the gypsy moth, eastern tent caterpillar and white-marked tussock moth. The also showed decrease drought tolerance.

The researchers report that within a year, the plants had acclimated to the garden environment and the effects of nursery production practices were no longer seen.

Proper planting – a hole as deep but twice as wide at the root ball, NO fertilizer or amendments, weekly watering and an organic mulch – will promote successful establishment.

Reprinted from the April, 2006 issue of "The Avant Gardener" horticultural news service. Thomas Powell, Editor & Publisher. Box 489, New York, NY 10058.



### RESEARCH

Natural infection of tanoak seedling roots by **Sudden Oak Death** (*Phytophthora ramorum*)

*Phytophthora ramorum*, cause of Sudden Oak Death and ramorum blight, is believed to infect only the above ground parts of trees.

Tanoak (*Lithocarpus densiflorus*) seedlings and saplings with unusual symptoms were collected from three *P. ramorum*-infested sites in Humboldt Co., California: two in a coast redwood forest with an under story of tanoak, California bay laurel, madrone, and evergreen huckleberry, and one in a Douglas-fir/tanoak-madrone forest also containing redwood.

Lower leaves of the tanoak were necrotic or had dark discoloration of the midveins and petioles, while upper leaves appeared healthy. Roots and below ground stems were either asymptomatic, had internal discoloration of the vascular system, or had root lesions. *P. ramorum* was detected with PCR and isolated from taproots several cm below ground level. The pathogen was also recovered from below ground stems, above ground stems, and symptomatic leaves. Infected tissues were viewed with SEM and light microscopy to visualize *P. ramorum* structures.

This is the first report that *P. ramorum* can be recovered from roots of naturally occurring forest vegetation.

Parke, J.L.; Bienapfl, J.; Oh, E.; Rizzo, D.; Hansen, E.; Buckles, G.; Lee, C.; Valachovic, Y. *Phytopathology* 96:S90.



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