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THE Ecological LANDSCAPER

Roof gardening: the wave of the future?

by Natalie Delvaille

The idea of growing things on a roof has always intrigued me. Can anybody do it? What does it take, and why don't we do it now? After all, the pioneer sodbusters grew grass on their cabin roofs, and Europe has all kinds of roof plantings, both on humble farmhouses and ultra-modern commercial buildings.

So I was glad to see that our ELA winter conference included two talks on the subject: David

Beattie's on the fundamentals of green roof systems, and Robert Herman's

"Planting the Green Roof: Right Plant, Right Place."

Beattie, from Penn State, focused on the environmental, economic and social benefits of roof gardens, and the general types of plants that do best in roof gardens, while Herman, an independent consultant on green roofs, concentrated more on

installation requirements, substrate materials, and particular plants for various depths of substrate.

The good news from each talk is that the long-neglected and misunderstood practice of planting our rooftops is enjoying more and more acceptance in this country. In Europe—and especially Germany—the idea is booming. In some cities like Stuttgart, roof gardens are required on

Editor's note: The popularity of green roofs has been growing in the U.S. as well as elsewhere. This article gives some of the highlights of two presentations on green roofs from this year's ELA winter conference. Additional green roof resources were given in the Spring 2003 issue of The Ecological Landscaper.

all new commercial buildings, primarily as a means of reducing runoff and flooding, and secondarily as a means of saving energy.

A more detailed look at these benefits shows us that eco-roofs mitigate

stormwater runoff by as much as 50%. Acid rain is buffered by the growing medium, and nitrogen and particulate runoff is also low. Roofscapes lengthen the life of a roof to as much as 40 years, and they moderate temperatures to such a degree that commercial building owners can reduce both their air conditioning and heating costs. In one temperature study where the ambient air temperature was 90°F, the temperature of gravel was 119°F, of polypropylene was 145°F, and the temperature of the *Sedum spurium* on the roof garden was 82°F.

The "bad news" is that retrofitting existing buildings (especially residential ones) with roof gardens is not encouraged. Working with a structural engineer is essential in any

Roof continued on page 4

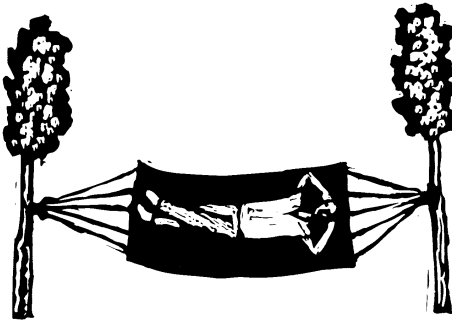
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Editor's two cents

Municipal bans and regulations; painting with too broad a brush?

"If you are a
gardener, you
can always put
'Plant Manager'
on your
résumé."
—anonymous

The trend seems clear in recent years: Towns, counties, and even countries have increasingly been considering or enacting bans and regulations on pesticides and even some fertilizers, both in the U.S. and elsewhere.

Some examples:

- In a ruling resulting from challenges to a local law brought by lawn companies ChemLawn and SprayTech, Canada's Supreme Court, in June of 1991, upheld the right of municipalities to ban "cosmetic" or "aesthetic," residential use of pesticides. The Montreal suburb of Hudson had been the first in Canada to prohibit lawn pesticides. Notably, the high court, for the first time, cited the "Precautionary Principle"—which basically states it's better to be safe than sorry—in its decision. Dozens of cities and towns across Canada have since enacted similar regulations.
- Montreal is in the process of developing and implementing laws to severely restrict pesti-

cides on residential properties. Exceptions are made for swimming pools and decorative ponds, agricultural properties, golf courses, botanical gardens, to control infestations, and for some structural pests.

- In 1996, San Francisco enacted laws severely restricting pesticide use and requiring implementation of IPM programs by city agencies and departments.
- As of September 2003, after finding amounts of the pesticide in water supplies which exceeded permissible limits, Denmark banned the use of glyphosate herbicides in certain situations. Glyphosate (active ingredient in Roundup and other, non-selective herbicides) had been the most-used herbicide by farmers, and its use had doubled in recent years. Denmark has banned or restricted a number of pesticides, and has considered a total pesticide ban.
- "Right-to-know" laws, requiring neighbor or abutter notification of pesticide use—both by



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"Grama 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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professional applicators and homeowners—have been enacted or considered in many places. Some states, such as New York, require notification of all neighboring dwellings within a certain distance of the targeted property; other states such as Wisconsin and Louisiana, have a partially voluntary system, where those wishing to be notified must first sign onto a registry.

- Earlier this year, motivated by a desire to reduce nutrient pollution of surface waters, the Madison, Wis., City Council passed a measure prohibiting the sale of fertilizers with more than a trace of phosphorous, except in certain instances, such as in cases where soils could be shown to be deficient.
- In a related matter, last month Mendocino County, Calif., voters passed Measure H which bans the growing or raising of genetically engineered crops and animals in the county.

As one might expect, commercial lawn care companies and pesticide manufacturers have been fighting these bans. Somewhat disingenuously, they argue that “judicious” use of some materials should be allowed, conveniently forgetting or ignoring the fact that their scheduled application programs are anything but judicious. And it has been the widespread and often unnecessary use of pesticides by these companies which have caused the problems which have led to these bans.

That said—and though it may sound contradictory coming from someone who calls himself an “ecological” landscaper—I’m not sure that blanket bans are the best solution to pesticide misuse problems. Ironically, perhaps, there is an argument to be made for authentically judicious use of some synthetic materials on a case-by-case basis. Bans may prevent such uses or make them so expensive as to be impractical.


Devils may lie in the details of some of these regulations. For example, the exceptions allowed for in some bans don’t seem to include cases where re-establishing native plants is a design priority. That process usually begins with eliminating existing, nonnative vegetation. Although this can be accomplished in a number of ways, a low-impact herbicide is often the most effective and economically efficient way to do it.

Some bans allow “organic” materials, yet organic protocol prohibits some very useful and effective materials with minimal environmental or health impacts. And, there are some problems for which there is no good organic solution.

Do exceptions written into the laws allow for protecting valuable plants from pests such as hemlock wooly adelgid?

Do laws ban all chemicals, regardless of their documented potential to cause health problems? Some newer classes of chemicals are documented to be less likely to cause environmental or health problems. Will the laws be revised to keep up with newly released materials?

Notification laws can add significant time and expense for landscape professionals, even those who only use chemicals carefully, as a last resort, and choose materials with the lowest potential to cause health or environmental problems. Small, conscientious applicators are, arguably, less able to absorb these increased costs than larger, mass-marketed companies.

It’s unfortunate that the long-standing irresponsibility of the large chemical manufacturers and lawncare companies have driven events to this point. Their profit-driven programs which over-apply toxins have resulted in a situation where those who use pesticides in a restrained and careful way are going to have to deal with the consequences of their actions. 

—Nick Novick

Devils may lie
in the details
of some
of these
regulations.

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Roof

continued from page 1

event. The problem, of course, is the weight. A roof must support the weight of the medium or substrate, the plants, and the water at maximum saturation. And most green roofs (usually these are flat in commercial buildings) require elaborate irrigation and drainage systems. Herman suggested that if we try one ourselves, we do so on a garage or upscale garden shed.

"Soil requirements for a roof are stringent. The growing medium must be 80-85% mineral and 15-20% organic matter and have enough organic fertilizer to get started; that is, one pound of nitrogen per thousand square feet. And on average, the medium needs to be porous enough to provide a ratio of 40% water to 20% air. Ideal substrate materials are expanded clay, shale, slate, or pumice/lava. Brand names include Norlite, Permatill, and Stalite.

The depth of the medium determines the intensity with which we can plant the garden. If the building can support only 2-3 inches of substrate, your choice of plants is limited to low-growing sedums of different colors (*Delosperma*, *Sedum album* 'Coral Carpet,' *S. spurium*, and *S. kamtschaticum* have been well tested) with perhaps a scattering of ordinary chives for accent. These all fulfill the ideal requirements for roof garden plants. That is, they must be low-growing, shallow-rooted, cold-hardy, and wind- and drought-tolerant. They must also be resistant to insects and diseases, too, ensuring low maintenance.

Three-to-four-inch depths allow more intensive planting. Testing has shown *Petrorhagia saxifraga* (I knew it years ago as *Tunica saxifraga*), *Campanula rotundifolia*, thyme, oregano, *Allium cernuum*, *Prunella grandiflora*, *Dianthus deltoides*,

and the grass *Bouteloua curtipendula* to be useful.

At 4-5 inches, plants like the shorter achilleas, lavender (except in the north), and prairie dropseed (*Sporobolus heterolepis*) can be added.

Deeper depths (6-12 inches) and intensive care can support a wide variety of perennials, groundcovers, small shrubs, and small trees.

Two plants are warned against: moss, because it (1) dries out and becomes a fire hazard and (2) it allows water to sheet over the top; and clover, because it is extremely invasive and looks bad in winter. And, despite its name, Japanese Roof Iris (*I. tectorum*) thrives only in a cool, shady environment.

Roofs should be planted in spring, using seed (sedum seed is sometimes mixed in hydroseeding), spreading cuttings, planting plugs, spreading preplanted mats, or using containers, and bare-root plants). The roof must be irrigated weekly at the start and then tapered off as soon as possible.

Maintenance can be limited to yearly inspection, weeding, and the application of one pound of slow-release organic nitrogen for every thousand square feet. The nitrogen can be discontinued after five years, at which time the roof system should be self-sustaining.

Sources of plants in varying forms include Emory Knoll Farms in Street, Md.; Pioneer Gardens in Deerfield, Mass.; and North Creek Nurseries in Landenberg, Pa.

Other resources on this topic are extensive. *Roof Gardens: History, Design, and Construction* (WW Norton, 1997) is a comprehensive tool and an excellent introduction. Research is being conducted at Penn State, Michigan State, and North Carolina State universities.

On the Net, a Google search under "roof gardens," "eco-roofs," "greenroofs," and "roofscapes" yielded Web pages for advocacy groups, installation contractors, sellers of green roof products, and construction industry magazines as well as book lists. Of particular interest was a magazine entitled *Environmental Development and Construction* <edcmag.com>.

Some well-known roof gardens in this country include the headquarters of the Gap, the Ford Motor Company in Detroit, and the Church of Latter Day Saints in Salt Lake City. The Queens Botanical Garden in New York and the museum at Foxwoods Casino in Connecticut each have one; and finally, closer to home, the Boston Trade Center, and the Carabbas restaurants, which have intensively planted gardens along their buildings. ☸



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Hold the fertilizer, please; and the mowing and watering ...

Some anti-lawn crusaders have called lawns boring, green carpets, but, recently, people are replacing lawns with actual green carpets, of a sort. Long used for professional playing-field surfaces, more and more, synthetic turf is finding its way into residential yards.

As recent news reports indicate, homeowners are increasingly turning to artificial turf in the arid areas of the West and Southwest, where long-running droughts and water restrictions have made maintaining real lawns difficult and expensive. Some water-strapped municipalities and agencies, such as Anaheim and the Metropolitan Water District of Southern California in Orange County, Calif., are actually encouraging—and even subsidizing—residents to install fake lawns in a pilot program.

One Phoenix-based installer anticipates he will install about 400 synthetic lawns in the coming season,

about four times as many as last year. AstroLawn, a company that manufactures one version of synthetic turf (they also make AstroTurf) anticipates installing its product in 1,800 homes this year. Around 5,000 homes in the U.S. so far have some artificial turf.

The AstroLawn product is made of polyethylene and is installed with a raked-in infill of sand or rubber granules, or a mix of both. It is being promoted not only in arid regions, but also in other parts of the country for sites where real grass does not do well—dense shade, high traffic, etc. At an installed cost of \$6-8 per square yard, it's more expensive to put in than a seed or even a sod lawn, but requires only a fraction of the maintenance of real grass, the manufacturer claims.

The material is porous to water, cleans up fairly easily, and has a projected life of 15-20 years. On the downside, dogs may still try to dig

holes in it, it gets hot in the sun, and it'll remain distinctively green even in the dead of winter. One would also have to wonder about accumulated dirt, organic material, etc. over the long term. What happens when wind-born seeds find their way into the "grass"/dirt matrix? What about mold and moss in wet climates? And what's going to happen to all that plastic when these things start wearing out and need to be taken up and replaced?

Also, some local laws prohibit "artificial" landscaping. Some of these have been challenged by installers and manufacturers. One Colorado resident, having spent \$9,000 for an artificial lawn, later found out that his town prohibited artificial landscaping and that he would have to remove it. 🐾

sources: Chicago Tribune, L.A. Times, AstroLawn, Albuquerque Tribune

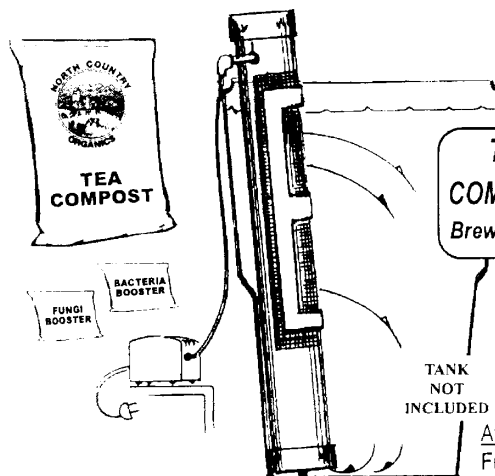
—Nick Novick



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Plant health care

by Robert D. Childs

[editor's note: This is the second part of a discussion of IPM and plant health care methods which began in the last issue of *The Ecological Landscaper*.]

In 1980, Dr. David Nielsen from Ohio State University gave a speech at the annual conference of the International Society of Arboriculture (ISA) on the subject of pest management as it pertained to trees (*Tree Care Industry*, September 1999). In this talk, he initiated the idea of *plant health care* (PHC) to his audience. At first inspection, this appeared to be simply IPM for tree pests. However, it was much more. His distinction between the two was: "Instead of keying on target diseases, insects, and weeds, the idea was to consider trees as the primary target and clients as those who need information." This implied a holistic approach that incorporated much of step #3 [in Bob's IPM article; see Winter 03-04 issue of *TEL*]. Instead of a pest management professional simply visiting a site, recognizing a specific pest problem, and then choosing and implementing the best management strategy, the professional would then obtain information about the planting history, fertilization, irrigation, soil dynamics, and the customer's expectations. This is viewed as a blending of PHC and IPM. Once these issues were clear, the client would then be educated about the situation, what needed to be done now and in the future, and at what level the client would participate toward achieving these goals.

In the book *Pest Management at the Crossroads* by Dr. Charles M. Benbrook (Consumers Union, 1996), the concept of *biointensive* IPM is discussed and described as follows:

"Biointensive IPM is a systems approach to pest management based on an understanding of pest ecology. It begins with steps to accurately diagnose the nature and source of pest problems, and then relies on a range of preventive tactics and biological controls to keep pest populations within acceptable limits. Reduced risk pesticides are used if other tactics have not been adequately effective, as a last resort and with care to minimize risks."

At this point in the discussion, it's important for readers to evaluate the level at which they practice IPM/PHC. In many cases, those who claim to practice IPM/PHC are actually implementing aspects of all four steps of IPM and some of PHC. This is fine and moves pest management in the direction that it needs to go, but it may not be IPM or PHC in the true sense, as defined above.

Over the last quarter century, there has been a fundamental shift in attitude as to how insect pests are to be managed. The old way was to simply broadcast a chemical pesticide into the environment to kill the target pest. There was little regard or understanding that the target area (trees and shrubs) was actually a system (a mini-ecosystem) that was very dynamic with various life forms. One factor that is often overlooked is that whenever one introduces a change in nature (such as a pesticide to remove a pest), nature is going to respond in some fashion and it may not always be in a way that pleases the pest manager.

A classic example of this is when a chemical is applied to a plant to remove a caterpillar pest. This should be successful, but after one to two months the same plant may then develop a raging spider mite outbreak. The reason for this outbreak most likely can be traced back to the chemical used earlier in the season for the caterpillar. Yes, it managed the caterpillar nicely, but it also destroyed the population of predatory mites that were keeping the spider mites in low population numbers. Now that the natural controls were removed, the spider mite

population could explode into great numbers and become economically (aesthetically) important. This is known as creating a "secondary pest outbreak" and is more common than one might think. Therefore, the less that we alter the system in any way, the fewer problems we'll have. However, obtaining a sustainable landscape environment is a major challenge given the wide range of plant material and associated inherent problems.

One aspect of the old approach to managing pests that is still prevalent in many minds today is that of eradication. The definition of this word literally means "to annihilate," "to root out," and "to completely remove all traces." These words are quite enticing when one considers insect pest management. However, one must ask, "Just how affective is eradication as an overall approach to insect pest management?" The answer is, "Not very." Once an insect pest has arrived in a new area and has become established (which may take only a year), it then becomes a challenge to totally remove its presence. Eradication is primarily effective only when the new invasion is detected early and dealt with at that time.

A recent attempt to eradicate a pest is now underway in the U.S. for the Asian longhorned beetle (*Anoplophora glabripennis*) which was first discovered in New York City in August of 1996. It has since been discovered in other areas of New York, including Long Island, as well as in some suburbs of Chicago and now Toronto. This pest from China attacks and kills healthy trees, especially maples. It has the potential to be the most serious pest of deciduous trees in this country in the last century. In-depth investigation at the state and federal levels indicates that this beetle may have been here for as long as 8-10 years prior to discovery. Yet, the main focus of management is eradication. Once infested trees are found, they are then removed. Eradication, in this case, is the only available method for dealing with this potentially highly destructive

pest. Already, thousands of trees have been removed through this effort with millions of dollars having been spent. However, new interceptions of this pest, at shipping ports, have occurred somewhat frequently since its initial discovery in New York in 1996.

Many pest managers view daily pest management situations through the eyes of “control” or “eradication.” This “nuclear bomb” approach has created many problems, as we are all well aware. Ideally, the best strategy is to identify and remove only the pest, which leads to minimal disruption of the system. This allows us to implement a “surgical approach” where, as an analogy, we remove the tumor without having to

remove the organ to which it’s attached. Until recently, insect pest managers didn’t have all the necessary tools to achieve this goal. However, within the last decade, many new and exciting products have emerged (or have been greatly improved in efficacy) that now allow for such implementation; many of these have become available just in the last couple of years. We classify many of them as “bio-rational” pesticides. These compounds achieve several currently desired goals of pest managers and the public because they are very selective by primarily removing just the pest, usually don’t persist in the environment, are much safer to handle and apply when compared to most

chemical pesticides, and they tend to protect beneficial organisms. Some of the more commonly used and effective bio-rational pesticides are horticultural oils, insecticidal soap, NEEM, *Bacillus thuringiensis* (Kurstaki B.t.), entomopathogenic nematodes, and insect growth regulators (IGRs). 🐛

Bob Childs is an entomologist based in the Urban Forestry Diagnostic Lab at the University of Massachusetts, Amherst. In addition to his teaching, he lectures widely to green industry audiences, and presents numerous workshops on landscape pest problems and control strategies, with a focus on IPM. He has also contributed to many publications.

The cicadas are coming! The cicadas are coming!

The emergence phase of one of the periodical cicada species (with a 17-year cycle) will occur in late spring in the eastern U.S. in a number of states from New York to Georgia. Periodical cicadas, unrelated to but often confused with locusts, are harmless to humans and animals, but their egg-laying may cause some plant damage. Numbers as great as 100,000 of the noisy critters (it’s the mating call) were experienced in the last emergence in this area in 1987. Different broods, with different cycles and emergence years, occur throughout the country.

These cicadas usually emerge by the end of May in the mid-Atlantic. At that time, the nymphs crawl out of the soil after 17 years of feeding on small subterranean roots and climb up tree trunks or other vertical objects where they shed their nymphal skin and emerge as adults. Adults live about four to six weeks with the sole purpose to mate and lay eggs. Only the males produce sound—a loud mating call or “song”—which can be heard from early morning to late evening as long as adults are present, usually until July. After mating, the female cicada cuts deep slits in small twigs where she lays her

rows of 24-48 eggs. Adult cicadas die soon after they have mated and laid their eggs. After six weeks, the eggs hatch and the tiny nymphs fall to the ground where they burrow into the soil and spend the next 17 years below ground, starting the whole cycle again.

Cicadas will not significantly affect most large, healthy trees. Small trees, however, can be more seriously damaged by the female egg-laying which can cause browning, breakage, and scarring on affected branches. Property owners and managers can reduce damage to smaller trees by pruning them lightly or not at all the season before emergence. Damaged twigs may be pruned out following cicada activity. Small shade and ornamental trees can be protected by covering them with cheesecloth or finely woven netting to prevent females from laying eggs in the twigs. To avoid potential damage, consider delaying this winter’s pruning of landscape materials until after egg-laying stops next June. In heavily infested areas, commercial growers should be prepared to delay planting new deciduous trees and shrubs until the fall or spring following cicada emergence.

Periodical cicadas occur only in the eastern United States. Their red eyes distinguish them from all other cicadas and their bodies measure slightly over 1.5 inches long. They do not bite or sting. They pose no health threat to people or pets. Periodical cicadas are different from dog-day cicadas, which are larger in size, mostly green with black eyes, and appear each August in small numbers.

Cicadas should not be confused with locusts: they are different species. Locusts are grasshoppers in the order Orthoptera. They have chewing mouthparts and a voracious appetite throughout their lives. Cicadas are in the order Homoptera, and have sucking mouthparts. Cicadas feed only as nymphs underground, on tree roots. They are in the same family as the familiar annual and dog-day cicadas whose songs characterize hot summer days. Other close relatives are aphids, leafhoppers, and mealybugs. 🐛

From Maryland Dept. of Agriculture <www.mdnurserymen.org/press%20release%20dec.%202010.htm>; contains links to more information



Another successful conference!

For an ELA winter conference it was an unusual day—no snow! Despite what might have been an uncertain omen, as well as competing green industry events occurring at the same time, ELA's Winter Conference and Eco-Marketplace produced a good turnout. Attendees braving the sunny, 50° weather were treated to a variety of stimulating and informative presentations, marketplace vendors with a range of services and products, and plenty of opportunity to talk and network.

Thanks to conference coordinator Nancy Askin, marketplace coordinator M.L. Altobelli, their respective committees, our co-sponsors, volunteers, and everyone else who worked so hard to make this event a success!

See notes and quotes below for highlights from some of the presentations. Thanks to Natalie Delvaile, Adaela McLaughlin, Malcolm Wright for their reporting.

Robert Herman's talk focused on choosing and installing green roof plants.

Cheryl Smith, plant health specialist with the UNH Cooperative Extension, discusses some of the major diseases of trees in the northeast.



Diane Syverson, ELA's PR coordinator, answers questions at the ELA table on the marketplace floor.



NOTES AND QUOTES:

Donald Falk *Balancing the Systems*

Don gave a wide-ranging talk which helped elucidate some of the connections, parallels, and philosophical underpinnings shared between projects of different scales—from ecological restoration of larger scope to smaller landscapes.

The reduction of nature to an abstract reflects the often odd relationship of humans to nature.

The early days of ecological restoration looked a lot like agriculture; biological diversity was not a prominent goal of many early efforts.

Key aspects of restoring ecological processes include dispersal, germination, competition, community assembly, disturbance, biogeochemical cycles. Emphasis has shifted from species composition to ecological processes, and functional attributes. Human-mediation in species composition = weeding.

Smaller-scale landscapes provide considerable opportunity to build/support/remediate viable ecologies: In 2000, of all U.S. lands, roughly 8% were permanently protected; 6% were irrevocably urbanized or destroyed; 86% were part of a "semi-natural matrix."

Aspects of sustainable landscapes: preserves rare plants, preserves complex interactions, restores rare or ephemerally unique habitats, restores functioning ecological communities, provides an opportunity to observe/

study process of change close-up.

Awareness of the larger world

and broader events can motivate our individual and collective actions. The current scale of human disturbance is unprecedented. "We are treating the earth as if it were a business in the process of liquidation." (Herman Daly)

If we recognize and acknowledge the value—in economic terms—of ecosystem services, we may be more motivated to protect them. Estimated cost of building industrial systems to provide all the life essentials provided by nature: \$33 trillion! For such things as capturing solar energy, water purification, breakdown of organic "waste," etc.

We are changing the earth more rapidly than we are understanding it. The environment is not a "special interest." Everyone is affected by, and pays for environmental degradation, but the problems are mostly created by developed countries. The ecological footprint (amount of land required to support one person): in most developing countries is less than .5 hectare; in Europe is about 3.5 hectares; in the U.S. is 5 hectares (1 ha. = 2.47 acres); 22% of the world's population lives on less than \$1 per day.

What can be done? Create and maintain an ecological consciousness, individually and community-wide.

Snippets and highlights from ELA's 2004 winter conference

Make our own businesses models for sustainability: reduce waste, increase transportation efficiency, make office space a good habitat for workers, provide technical support for other groups, promote beliefs, help raise ecological awareness of clients and the community, work to make organizations a force for progressive change.

Richard Pais *Planning Before Construction; Ecological Land Planning and Development*

Development is going to happen; it's counterproductive to merely rage against it. Instead, consider the possibilities to enter into/influence the process toward a better end. Opportunities to reduce impacts: shared driveways, minimize road takes, tree protection, minimize house plot clearing.

Most tree damage during construction happens in the first few passes with heavy equipment. Put tree protection up first; make it part of the construction process. Make it well known that violators will be fined. Essential to coordinate the different work processes being done on the site—erosion control, engineers, subcontractors, etc. Helpful to involve the builder—work to develop enthusiasm and emphasize shared benefits such as savings in time, money, and effort (less grading, less extensive utility infrastructure, etc.)

Ecologically well-developed projects have tangible benefits. For business parks and office buildings, employees are happier, more productive and relaxed (nice views from windows), take less sick leave, etc. In residential projects, nearly all responded positively to accommodations for wildlife, most would pay more to live in sustainable neighborhoods, lots sell faster.

USFS study: 60% of kids' unstructured outdoor activities involve some sort of interaction with nature. Create opportunities for experiences and interactions with nature: birds, eggs, bees, turtles, water...get close to life processes.

Among the most endangered general type of habitat is the early successional shrub community. There are often landscape opportunities to create naturally arranged plantings modeled on this community. Get lists of endangered/rare butterflies for your area, plant host plants for these in your projects.

Opportunities for seniors' residences: Create "wellness" landscapes. For some elderly, almost their entire experience of nature may come through a window—consider views from the inside. Plan outside spaces for enhanced social experiences and intimate contacts with plants and dynamic natural processes—consider motion, color, critters, birds, butterflies. Water features can be calming, engaging, therapeutic. —Nick Novick

Rolf Briggs and Dave Ropes ***Managing Tree Systems*** ***through the First 15 Years***

Rolf Briggs led off the presentation with an overview of the proper planting techniques and aftercare of newly installed trees. As we all know by now, planting too deeply is the number one cause of the premature death of newly planted trees. Rolf recommended an "inch to inch" rule for determining the level above grade the trunk flare should be positioned. For example, a two-inch caliper tree should have the flare positioned approximately two inches above grade. This formula allows for the settling of the root ball.

Rolf also discussed the importance of removing any soil that is above the flare and exposing the valleys of the roots. This can be done (carefully) with the combination of a hand cultivator and whisk broom. Any damaged root ends should be pruned off cleanly as well as any roots that are above the flare and any girdling roots.

Aftercare includes mulching with 2-4 inches of organic material, preferably ground tree prunings that have been aged for several months. This type of mulch more closely duplicates the conditions found on the woodland floor. Pure bark mulch is made up of pieces that are fairly uniform in size which tend to mat down and do not allow for great air circulation or water penetration, but the application of any organic mulch is preferable to none.

Dave Ropes followed Rolf with a very informative presentation on the methodology and science behind the proper pruning of trees. He stressed that pruning should be done with forethought since every cut made affects all the other parts of the tree. For example, cutting a terminal branch disrupts the flow of auxins which subsequently interrupt the growth of some of the roots and also stimulates the growth of side buds. There is constant communication between the roots and the stems of trees. Trees are an integrated system, information flows between the leaves, roots, and connective tissue.

Proper pruning begins with the removal of dead, diseased, and crossing branches. The tree should then be pruned for structural health, but no more than 15-20% of the branches should be removed at any one time. Demonstrating on a small tree that Dave brought, he showed how to remove a codominant stem as well as the removal of marginal branches that would enhance the structure of the canopy. When asked when it is the best time to prune (other than when the saw is sharp and the check is in hand), Dave suggested that the only time you really should not prune is while the tree is leafing out. All other times of the year are appro-

priate, but late winter might be preferable since it is easy to see the structure of the tree at that time of the season. —Malcolm Wright

Robert Zimmerman ***Smart Storm the Rainwater*** ***Recovery System***

Robert Zimmerman of the Charles River Watershed Association stated that in Massachusetts, the average home needs around 85,000 gallons of water per year; of this, about 13,000 gallons are used on lawns. Almost every town in Massachusetts experiences water shortages. Yet, around 55,000 gallons of rain are lost annually from the average yard. This lost water can be captured in a Smart Storm rainwater recovery system that consists of partially buried tank storage and a pump to which a garden hose can be attached. Zimmerman also discussed the importance of not mixing pollutants with water that is lost to storm drains. He introduces a drywell system for capturing this water. Rainwater Recovery Co. will sell these systems.

Leo Kenney ***Managing Landscapes*** ***Near Vernal Pools***

Leo Kenney of the Vernal Pool Assoc. discussed the importance of not removing leaf litter around vernal pools and also between the vernal pool and the forest, to help salamanders, frogs, snakes, turtles, and insects utilize the vernal pond. (So, if there are formal plantings around the vernal pool, please don't cut them back until after insects have molted and amphibians have returned to the forest. I would guess by August you could cut back plants, but please verify this!)

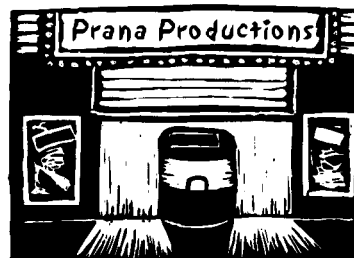
Cheryl Smith ***Understanding the Major*** ***Diseases of New England Trees***

Dr. Cheryl Smith of UNH stated that if anthracnose causes defoliation for 5-6 years in a row, then the tree might be damaged. It is important to prune out diseased parts of plants now, in the dormant season.

—Adaella McLaughlin

Theater event benefits ELA

Many thanks to Prana Productions for their generous donation to ELA in support of the new Guide to Healthy Landscapes. The Holliston, Mass.-based theater group wanted to support a local environmental organization with the ticket sales from their performance of A.R. Guernsey's "Love Letters" and ELA was the lucky recipient. Special thanks to producers Roberta Weiner and Nick Morana as well as thanks and kudos to actors Dawn Anderson and Paul Champlin.



JOIN US TODAY!

Membership Categories

Associate | \$40

For nonprofessionals and others who want to support ELA's mission. Associate members receive the ELA newsletter, mailings, and a copy of the Membership Networking Directory.

Professional | \$75

For both professionals and others who are interested in a greater level of commitment and/or participation in ELA's programs. Professional members receive the ELA newsletter, mailings, and a copy of the Membership Networking Directory. This level also includes a listing in the Membership Networking Directory, if desired; a program discount for one person, when available; and selective publication discounts.

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Sustaining | \$250

All of the above-listed benefits plus program discount for four people, when available; selective publication discounts; and a free 1/4-page ad in the Membership Networking Directory.

ELA's membership year is January through December. Remit half the membership fee if you apply after July 1. Canadian members, please adjust for the currency exchange. ELA is a 501(c)(3) charitable organization. Your membership is tax deductible in accordance with federal regulations. Download a registration form from our website or call (617)436-5838 and a form will be mailed to you.

www.ecolandscaping.org

RATES AND INFORMATION

Advertising in The Ecological Landscaper

Display ads will be priced according to predetermined sizes as below. Line advertisements will run in an "unclassifieds" listing.

RATES (horizontal x vertical)

full page (7½ x 10") \$125/issue; \$425/4-issue run
half page (7½ x 4¾") \$85/issue; \$290/4-issue run
quarter page (3¾ x 4¾") \$50/issue; \$170/4-issue run
eighth page (3¾ x 2¾") \$25/issue; \$85/4-issue run
business card (2 x 3½") \$25/issue; \$85/4-issue run
unclassifieds (line ads, up to 50 words). \$5/issue; \$17/4-issue run
(additional words: \$1/10 words)

TERMS

Rates are for camera-ready copy.

The Ecological Landscaper is published quarterly, approximately at the change of season—December/January, March/April, June/July, and September/October. For an ad to appear in a specific issue, it must arrive by December 15, March 15, June 15, or September 15, for that respective issue. Ads received after those dates will appear in the next issue.

Payment in full must accompany the ad, or the first ad if more than one run is purchased. We do not bill. If an ad was taken out for a multiple-issue run and cancelled before the end of the run, we will issue a pro-rated refund, less a 15 percent service fee. Such cancellations must occur two weeks before the deadline dates noted above to take effect for that issue. Any change(s) made to a multiple-run ad after the ad's first run voids the multiple-run discount.

Advertiser is responsible for final content of their ad. ELA is not responsible for typographic mistakes or errors of content. ELA's liability for errors in printed material is strictly and solely limited to rerunning the correct advertisement in the next issue(s) of the newsletter.

ELA reserves the right to refuse any ad if it feels the ad, product, company, or organization involved is not consistent with the spirit or intent of ELA's mission or purpose, or for any other reason.

ELA makes no claims, warranties, or other declarations as to the effectiveness, reliability, or consequences of—or the results from the use of—any products, services, or procedures described in any ad.

There are currently no tie-ins with advertising in any other ELA publication or venue. This may change in the future.

Send ads and payment to: ELA, attn. newsletter advertising, 60 Thoreau Street, #252, Concord, MA 01742. Checks should be payable to Ecological Landscaping Association.

For general questions about ad policy, contact ELA Newsletter Editor, 6 Meadowbrook Lane, Ashland, MA 01721; phone/fax (508) 881-1517; e-mail: <ELbacktalk@aol.com>.

A SIGN THAT MARKS OUR SITE READS:

On these grounds a sense of history prevails in architecture, artifact, landscape, and wildlife

by Joy Buslaff

Over the past couple decades, my husband and I remodeled our barn-home and then, seven years ago, I started the conversion of our half-acre lawn into a native-plant wilderness. All that labor and learning was mere practice for what we are tackling today: the renovation of my childhood home (a stone school in southeastern Wisconsin) and the landscape that surrounds it.

A year ago Dan and I moved into the 136-year-old building and began “smothering” half of the front yard with black plastic (an agricultural film sold at farm supply stores). A 20x50-foot sheet (4.5mm thick) costs about \$30. We weighted ours with timbers and shipping pallets. If you wanted to disguise the plastic, you could put a layer of woodchips over the top, then sweep off the chips when you’re ready to lift the plastic in the fall.

By denying light to the turf through most of 2003, we effectively killed the grass and weeds. Come autumn, I skimmed off the dead turf with a shovel and set it aside to use in enriching our forthcoming kitchen garden. This action produced a bare-soil surface which I scratched with a rake. Disturbing it more than a fraction of an inch would only have brought more weed seeds to the surface.

We have chosen to sow locally native species, that is, plants whose ancestors grew in our county. In faithfully restoring our building, we have grown sensitive to the value of authenticity and aspire to the same fidelity for our landscape.

We sowed a combination of collected and purchased seeds. The tiniest ones were mixed with damp sand and distributed across the plot. The larger seeds were mixed with damp, coarse sawdust and also cast over the dark soil. The sand and sawdust helped to carry the seed as it was thrown and showed where it had been dispersed. Then the area was raked lightly. If we had had a lawn roller, we would have pressed the seed into the soil with it, but, instead, my husband and I stomped the whole planted surface with our feet.

This year an additional 2,000 square feet of the yard is blanketed by the plastic, and we’ll repeat the planting process this fall. The field and hill and ponds that adjoin our property are owned

by a quarrying and roadbuilding company, and they have given us permission to go on killing and planting beyond our own borders, so the plastic will be used for many seasons—a cheap investment for such an easy-to-use and effective site-preparation tool.

The shoulder along our property was partially regraded last summer by road crews repaving the highway. I sprayed the rest of this area with glyphosate to kill the remaining grass and posted signs to let the crews know we did not want them to seed or sod the area because we would sow our own “no mow” fescues purchased from Prairie Nursery <www.prairienursery.com/catalog/cat_nomow.asp>. This blend requires little or no mowing and stands no more than 8 inches tall.

I chose to use herbicide along the roadway because I knew plastic sheeting would present at least a distraction if not an outright danger to drivers zooming by. Because I want to maintain visibility from our driveway, I would not choose anything taller than turf grass for this strip, which, technically, belongs to the state.

You can monitor our planting and renovation progress by visiting www.quarryschool.com. Click on the computer-and-vase image for landscape scenes and on each of the oval portraits for historic and current architectural photos of the building we’re striving to get on the National Register of Historic Places. 🐛



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This end up

Attention bulb planters: 'California Late' and 'Korean Six Piece' garlic cloves were planted either upright, sideways, inverted, or randomly oriented. The upright-planted 'California Late' emerged earliest, and inverted cloves emerged latest. Also, inversion resulted in much lower yields (37% reduction in total bulb weight for 'California Late'; 53% reduction for 'Korean Six Piece') relative to upright plantings. Also, inversion produced the smallest numbers of bulbs per unit area. Bulbs from plots with inverted cloves generally were misshaped, and it was hard to harvest those bulbs without breaking them from the tops. ("Effect of Clove Orientation on Garlic Bulb Yield in Central Washington," Erik Soensen [Cooperative Extension, Washington State University, 1016 N. 4th Ave., Pasco WA 99301]. Gary Pelter, Roy Vandenburgh, Richard Hamman)

It's "organic," but...

Soybean meal applied as a fertilizer at transplanting time for sweet peppers (at rates of 0.05 or 0.09 pounds per square foot) led to considerable reductions in plant weight (69% and 82%, respectively) and yield (64% and 86%, respectively) relative to controls without soybean meal fertilization. Also, a series of greenhouse experiments showed that soybean meal can inhibit germination of various vegetable seeds, especially those with small seeds, such as spinach, lettuce, carrot, and radish. Inhibition of seed germination by soybean meal was found to be most pronounced if the meal was placed on the surface of the growing medium rather than

mixed with the medium. ("Soybean Meal: Phytotoxic Potential of a Material Used as an Organic Fertilizer," Melissa Pline [Horticultural Science, North Carolina State University, 1221 Duplin Rd., Raleigh, NC 27607] and Jeanine Davis.)

Borer-resistant birches

Betula papyrifera 'Varen' ('Prairie Dream') paper birch and *B. platyphylloides* 'VerDale' ('Prairie Vision') Asian white birch were selected especially for resistance to the bronze birch borer, *Agrilus anxius*, a formidable threat to white-barked birch species. The former has "snow-white," peeling bark, semi-pyramidal to upright form ("becoming broadly oval with age"), and "bright, golden-yellow" leaves in the fall. The latter has "chalky white" bark "with blackish markings," upright, oblong to semi-pyramidal form, and "golden-yellow" leaves in the fall. Both have tolerated "heavy borer pressure for 30 years: and are hardy in U.S.D.A. Zone 3." They may be trained to one trunk or multiple-trunks. ("Introduction of Two New Birch Cultivars with Resistance to Bronze Birch Borer," Dale E. Herman [Dept. of Plant Sciences, N. Dakota State Univ., Loftsgard Hall, 266E, Fargo, ND 58105], Larry J. Chaput, Wenhao Dai)

Plants apparently partial to particular pots

Purple, burnt orange, maize, white, copper, terra cotta, green fiber, mauve, burgundy, thin green plastic, black, thin black plastic, and thin rust-colored plastic pots were tested. Plant height was significantly greater with fiber pots than with other pots; the lowest plant heights were in rust and green pots. Plant diameter and dry weight were significantly greater with white pots than with other pots. ("Effects of Pot Color on Soil Temperature and Root Development on Rhodo-

dendron obtusum Kurume Azalea 'Hot Shot'," Wayne J. McLaurin [Horticulture Dept., University of Georgia, Athens, GA 30602])

The above excerpts from research abstracts were reported in HortIdeas, November 2003. (HortIdeas, 750 Black Lick Rd., Gravel Switch, Ky 40328). The papers presented at the American Society for Horticultural Science 100th Annual International Conference, Oct. 6, 2003, were published in HortScience 38(5), August 2003 (ASHS, 113 S. West St., Ste. 200, Alexandria, VA 22314-2851).

EPA to open inerts department

The Environmental Protection Agency's (EPA) Office of Pesticide programs is planning to open a separate regulatory branch specifically to deal with pesticide inert ingredients within the next year, according to <Pesticide.net>.

For years, EPA has experienced a large backlog of inert materials awaiting approval and is receiving industry pressure to expedite the process so new materials can reach the market. At the same time, the recent implementation of the Food Quality Protection Act requires the agency to reassess tolerances for hundreds of food-use inerts by mid-2006.

According to an agency spokesperson, it could take up to eight months to create the new department.

Inert ingredients have long been a contentious issue among groups working to curtail pesticide use. Inert ingredients, which account for the largest portion of a pesticide product, are not the "active" ingredient by which the product achieves its purpose. The inerts may themselves be toxic, but current law allows these materials to remain undisclosed to the public, as they are considered "trade secrets." Although inert ingredients do require EPA approval, the

required data are much less stringent than for active ingredients. Approval for registration of inerts may be granted even though data are incomplete or inconclusive.

Of the 2,300 substances EPA believes are currently used as inerts, over 1,700 are classified "of unknown toxicity." 209 inerts are considered hazardous air and water pollutants, and/or hazardous waste, 14 have been assessed as extremely hazardous, and 21 are known or suspected carcinogens, according to the Northwest Coalition for Alternatives to Pesticides.

from *Beyond Pesticides* <www.beyond-pesticides.org>

Take two and see me at harvest time

People aren't the only ones to benefit from salicylic acid, the active ingredient in aspirin. Research has shown that spraying this naturally occurring compound onto some plants triggers natural defenses that keep harmful fungi, bacteria, and viruses at bay.

Plants have always had some means to defend themselves; it's just that some don't recognize their microbial attackers in time. Spraying salicylic acid or certain other compounds snaps them to attention and puts their defenses on high alert against future attacks.

Plant scientists first encountered the phenomenon, called *systemic acquired resistance* (SAR), in the 1930s. Plants make salicylic acid, particularly after encountering a pathogen, and use it as a key regulator of SAR and expression of defense genes. But only recently have companies begun marketing salicylic acid and other similar compounds as a way to activate SAR in crops—tomato, spinach, lettuce, and tobacco among them. <www.ars.usda.gov/is/AR/archive/dec03/plant1203.htm>

Saving water in the nursery

Sun City Tree Farm in Ruskin, Fla., received the 2003 Commis-

sioner's Agricultural Environmental Leadership Award for its "exemplary stewardship of the natural resources they are charged with protecting." Owners and brothers J.S. and Eric Tort have developed growing systems that use less water but do not affect tree quality. The farm's permitted water usage has not changed despite growing from 5 to 150 acres, and it uses only 60% of the water permitted. Trees are grown in Smart Pots, which have fabric sides and bottoms, allowing water to be drawn up from the ground.

<www.suncitytrees.com> from NMPRO magazine, February 2004

Budget woes affect state programs

Another symptom of tight state budgets: Beginning with fiscal year 2004, the governor and legislative leaders agreed to eliminate the Connecticut Department of Agriculture as a separate agency and merge it with the Department of Consumer Protection. The move will save around \$500,000 per year by combining some administrative positions and moving the office back to a state-owned building. No departments will be eliminated, but the Conn. Agricultural Experiment Station will see its budget cut approximately by half. Support your state extension!

More info: Conn. Nursery and Landscape Assn. <www.flowersplantsinct.com>, Conn. Farm Bureau <www.cfba.org>

Benefits of drought?

It's not the first thing that comes to mind when thinking about water shortages, but monitoring data from the United States Geological Survey (USGS) from the Chesapeake Bay indicated the drought conditions that prevailed from 1999 to 2002 actually benefitted water quality in the bay. Nitrogen levels trended downward in major, tributary rivers of the Chesapeake, a result of less nutrient being carried off land masses into

surface waters. Some reduction may also have been due to better management practices. On the other hand, reduced flows also increased salinity in the bay, which caused dieback of some freshwater, underwater grasses and also created conditions which favored some shellfish diseases—still no free lunch.

Of course, a better way to improve water quality would be to actually reduce nutrient loads in "normal" flow conditions.

from *Bay Journal*, Alliance for the Chesapeake Bay, November 2003

Okay, hold it—whose cucumber is out of tune? ...adventures in tasty music

The First Viennese Vegetable Orchestra [we're not kidding] consists exclusively of vegetable-based instruments, although, where necessary, additional utensils such as knives or mixers are employed. [Why be confined?]

According to the FVVO's Web site, this instrumentation "creates an autonomous and totally novel type of sound which cannot be achieved with conventional musical instruments. Marinated sound ideas and canned listening habits beg for expansion!"

The nine-person ensemble has been cooking their musical stew since 1988 and performs a mix of their own compositions and existing works, in styles from traditional African pieces to European concert music to experimental electronic music. The veggie and kitchen utensil instruments are amplified with a variety of microphones.

After concerts, the stage is left to the cooks who then work the instruments into a tasty vegetable soup [again, we're not kidding] which the audience and musicians consume together, providing an opportunity to meet and talk with the musicians. A CD is available from the group's Web site.

<www.gemueseorchester.org/anfang_e.htm>



Invasives watch

Massachusetts Invasive Plant Group

The findings from the first phase of evaluations of the Plant Evaluation Subcommittee are now available on the Massachusetts Nursery and Landscape Assn. Web site <www.mnla.com>. Twenty-seven species have been designated as Invasive and eleven species as Likely Invasive. These are the findings that were presented to the group on September 23, 2002, with some revisions included. The most important revision is the inclusion of Black Locust as Invasive.

These findings will be revisited on an annual basis. The Committee will accept requests for re-evaluations, but sufficient data must be submitted to substantiate the need. The re-evaluation of Phase I plants will take place in mid-March of 2004. Requests and data should be submitted to Rena Sumner (r10@aol.com, 413-369-4731).

The committee is now forging ahead with the Phase II evaluations (about 45 species). Information will be released about these findings when they are complete. At least one more phase will follow Phase II.

Another project undertaken is the writing of a strategic plan for addressing the invasive plant problem in Massachusetts. Questions regarding the plan may be addressed to Tim Abbott at The Nature Conservancy at (413)229-0232 x226; tabbott@tnc.org.

ELA board member Don Bishop is ELA's representative to the MIPG.

Invasives Web resource

The National Biological Information Infrastructure has put together a Web site which is a gateway to federal and state efforts to control invasive species. The site offers species profiles, control strategies, extensive data bases, and links to agencies and organizations that

deal with invasive species, both plant and animal. Log onto <www.invasivespecies.gov>.

Sheep Could Help Control Leafy Spurge

Certain sheep that have a healthy appetite for leafy spurge may help control this aggressive perennial that has infested more than 5 million acres of U.S. rangeland, according to Agricultural Research Service scientists.

ARS animal geneticist Brent W. Woodward and rangeland scientist Steven S. Seefeldt, at the agency's U.S. Sheep Experiment Station in Dubois, Idaho, have teamed together to determine why some sheep seem to have a strong preference for leafy spurge. Is this taste for the plant—with its sticky, milky sap—in the animals' genes, or is the dietary inclination something that individual sheep learn through observation?

While cattle and horses generally avoid leafy spurge, some sheep will graze on it. Hoping to take advantage of this tendency, the ARS scientists have recently initiated studies to investigate those sheep's apparent appetite for leafy spurge and other plants with similar chemical profiles.

Finding a genetic component to sheep's preference for leafy spurge wouldn't be surprising, according to Woodward, since scientists are already finding that a genetic code is responsible for taste sensitivities in mammals, including humans.

The researchers' ultimate goal is to selectively breed sheep that will pass along, from generation to generation, an inclination to eat leafy spurge.

Based on initial visual measurements—including the challenging task of conducting sheep bite counts—the scientists found there are two different kinds of eaters. Some sheep consume leafy spurge readily, while others eat it only if forced, over time, due to lack of other forage. <www.ars.usda.gov/is/pr/2004/040121.htm>



Resources

Managing wildlife

The U.S. Department of Agriculture's Wildlife Services Program is available to assist landscapers and grounds managers with wildlife damage management throughout Massachusetts, Connecticut, and Rhode Island. Wildlife Services may provide assistance with obtaining permits and the development of a management plan specific to most grounds managers' needs. For more information, please contact Don Wilda at (413)253-2403, or e-mail at <Donald.J.Wilda@aphis.usda.gov>

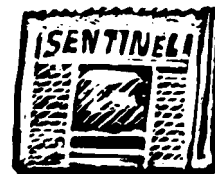
Plants database

The National Plant Data Center (NPCD), an office of the National Resources Conservation Service (NRCS), maintains an extensive database, available on the Internet, of over 43,000 plants. Information listed includes common and scientific names, plant fact sheets, species characteristics, wetland indicator species, invasive species, photos, culturally significant plants, and more.

The database is searchable by a number of criteria, including scientific and common name, genus, family, and state where found. Related information on the site, plus links to other sites, provide users with useful resources for many conservation applications including erosion control, natural resources inventory, nutrient management, wetland delineation, and landscaping. Many downloadable files are available. This is a great site.

Web address: <<http://plants.usda.gov>>
Other contact info: National Plant Data Center, P.O. Box 74490, Baton Rouge, LA, 70874-4490; tel.: (225)775-6280.

Unclassifieds



FROM THE GROUND UP seeks crew member. Woman-owned business providing sophisticated design work, installation services, specialized garden maintenance, and pruning care in Boston area. Focused on unique designs, organic and sustainable landcare, and high-quality work. Mid-March through Nov. with benefits. Be part of dynamic, small company! Call Christie Dustman, owner (617)323-7773.

GARDENING HELP WANTED: Fox Gloves is a small landscape gardening and design firm serving clients in Lexington, Lincoln, Concord, Cambridge, and Newton, Mass. Now in our eleventh year, we provide design, installation, and ecologically sensitive maintenance services for both large and small residential garden properties. Our approach is inspired by creative possibilities and a passion for making memorable places.

We are seeking responsible, strong, and energetic individuals who enjoy being outdoors, with a great interest in gardening, a knowledge of plants, an eye for detail, and a desire to share ideas and learn. Applicants must have their own transportation.

AVAILABLE POSITIONS—Gardeners: 3-4 days/week commitment. Previous gardening experience preferred, but not essential; Gardening Supervisors: 3-4

days/week commitment. Pruning and perennial garden experience required; Designers/Gardeners: 2-3 week commitments every season to design and install seasonal pots.

Interested individuals should call Karen Meyers at FOX GLOVES (781) 862-6927. Please provide your phone and e-mail contact information.

ECOLOGICAL DESIGN and maintenance company in eastern Mass. seeks professional, motivated, self starters for maintenance and installation work. We are looking for both supervisory and general personnel, FT/PT pay commensurate with experience and the amount of available time per week. Experience with ecological or organic gardening practices a plus! Please e-mail resumes to <designerofgreens@verizon.net>. OR fax them to (508) 881-7084. Call (508) 561-0532 if you have any questions.

HELP WANTED: Small design/build landscaping business in Metrowest, Mass. seeks help for 2004 season: part-time bookkeeper/office help, plus general field help. Experience/interest in ecological methods, native plants, etc. helpful. Work includes lawn fertilizing and pest control, installation, some maintenance. Inquire at (508)881-1517; <SmallPlanetLand@aol.com>.

SPECIAL OFFER FOR ELA members this spring. You can receive a FREE PALLET OF ORGANIC FERTILIZER from Heart&Soil. While supplies last, Heart&Soil will offer a free pallet of 25 lb. bags of pHplus for landscapers. pHplus is great for installations and all spring prep work. The product not only raises soil pH quickly and safely, but it's also a natural source of potassium, zinc, and iron. Call Heart&Soil toll free and ask for details on the ELA special offer. Limit one pallet per company, not for resale! Ask for Dan at (866) 999-SOIL (7645).

Reach hundreds of ecologically minded land-care professionals, homeowners, and others! Put your ad in this space for as little as \$5 for up to 50 words (additional words, \$1/10 words). Send your ads to: attn. newsletter unclassifieds, ELA, 60 Thoreau Street #252, Concord, MA 01742.

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Events on the horizon

MAY 2-4, 2004

All Things Organic Conference and Trade Show

McCormick Place, Chicago. Speakers include David Suzuki, Rick Bayless, Sandra Steingraber. <www.atoexpo.com>

MAY 7

On-Site Planting and Pruning Demonstration, session 7 of Organic Lawn and Landscape Care series, Elm Bank Reservation, Wellesley, Mass. Umass Extension (413)545-0896; <www.umassgreeninfo.org>

MAY 14-15

Spring Wildflower Symposium, Wintergreen Nature Foundation, Nellysford, Va. Instructors include C. Colston Burrell, M. Peter Masseo, Desmond Gourley. <www.twnf.org>

MAY 29

Bird habitat stewardship workshop, Colyb Hill Town Forest, Lincoln, Vt., 9 a.m.-noon. Focus on managing properties to maintain or enhance bird habitat. Vermont Family Forest, (802)453-7728; <info@familyforests.org>

JUNE 3-5

Native Plants in the Landscape Conference, Millersville University, Millersville, Pa. Field trips, workshops, native plant and book sale. (717)872-3030; <www.millersvillena-tiveplants.org>

JUNE 5

Wildflower Festival, Rocks Estate, Bethlehem, N.H., 8 a.m.-4 p.m. Identifying wildflowers, birding walk, wild edibles, Native American ethnobotany. (603)444-6228

JUNE 12

30th Annual Plant Sale, Garden in the Woods, Framingham, Mass. Over 11,000 native wildflowers, shrubs, and trees; silent auction, kids' table, staff on hand to answer questions, 10 a.m.-2 p.m. (508)877-7630; <www.newfs.org>

JUNE 12

The Granite Landscape of New Hampshire, Rocks Estate, Bethlehem, N.H., 9 a.m.-11 a.m., with ecologist-author, and one-time ELA conference keynote Tom Wessels. Discussion of geologic features, high-country ecology, and an afternoon hike to Middle Sugarloaf mountain to examine plant communities. (603)224-9945



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"A doctor can bury his mistakes, but an architect can only advise his clients to plant vines."

—Frank Lloyd Wright