Because land doesn't come with a manual. . .

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THE ecological landscaper

The Newsletter of the Ecological Landscaping Association Vol. 13 , No. 3 Winter 2007

Creating Sustainable Landscapes: Recognizing and Managing

This March brings the 13th annual Winter Conference and Eco-Marketplace of the Ecological Landscaping Association. What does it take to sustain a landscape, a community? Energy, air, water, soil, nutrients, biodiversity, toxicity control, and the inhabitants are key. Recognizing the limits of resources, dynamics of ecosystems, and managing those elements create sustainability.

A Misguided Zap

• Stephen Meyer

Mosquitoes are the intended target. But would you care if you killed the last firefly?

Over the next century, researchers say, about half the animal and plant species alive today will effectively disappear. Through countless daily choices and actions, you and I as individuals are unwittingly driving this massive transformation in biodiversity, handicapping the assemblage of organisms and genetic traits that will define life on Earth for the next several million years. Just look outside.

Bug zappers are ubiquitous in the local war against mosquitoes. One bug zapper will kill more than 10,000 flying insects in a summer, but body counts reveal that fewer than a couple dozen of these will be mosquitoes or other biting insects. Instead, harmless bugs of all kinds, including rare and endangered ones, are fried. Another 10 percent of the fatalities are, ironically, mosquito predators. (Could the drawings of smiling mosquitoes that often adorn bug-zapper ads actually be endorsements?)

For about $3,000, you can quash those mosquito grins by encircling your property with a phalanx of sprayers that pop up once or twice daily to dispense clouds of pyrethroid insecticides, an approach just catching on in Massachusetts. (Government mosquito spraying programs raise many issues that deserve an article of their own.) Pyrethroids are indeed deadly to mosquitoes. But they also kill every other insect that might fly nearby and are deadly to fish, tadpoles, frogs, toads, and salamanders. Where bug zappers, when properly used, threaten primarily nighttime creatures, this system extends the carnage to bees, butterflies, and other daytime flying insects.

Rounding out the homeowners' campaign are weekend applications of

ELA Newsletter Gets More Ecological

We are happy to announce a long-awaited, ecological improvement in the distribution of our newsletter. Beginning in 2007, we will be distributing the Winter issue in print while the Spring, Summer, and Fall issues will be distributed electronically. This will help ELA with reduced printing and mailing costs and is the right move ecologically. Please make sure to let us know if your email address changes so that you don't miss an issue of The Ecological Landscaper.

In lieu of the electronic newsletter, we are offering a special-order, printed newsletter for $20 per year. Please mail your order for a printed newsletter and your check to ELA or call us at (617) 436-5838 for more information.

If you haven't renewed your membership yet, please send your 2007 Membership renewals in soon – and remember to include your email address!

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

herbicides and pesticides to lawns, gardens, and planting boxes. Unfortunately, much of the deadly residue from these products ends up as stormwater runoff bleeding into streams, wetlands, and ponds. Here, juvenile and mature insects, fish, and amphibians are poisoned. The effects may take decades to become apparent. Sometimes, they even seem natural: Tadpoles lose their instinct to avoid predators after exposure to non-lethal levels of these substances.

What does this have to do with the ongoing biodiversity collapse? Ascountless millions of harmless insects perish year after year, variations in the genetic codes they carry will vanish - limiting future evolutionary possibilities. Dwindling reproductive opportunities will see many species of bees, butterflies, moths, and aquatic flies disappear. Eagles, protected by law, will be plentiful; fireflies, extinct.

And that's just the beginning. Insects form the foundation of intricate food webs. Spring peepers, perch, and warblers all consume flying insects in abundance. As we shred these food webs, we doom such wonderful animals to a precarious existence, if not extirpation.

Innumerable species of plants depend on bugs for pollination. Without robust flying insect populations, the seed base for future plant generations will wither. Some plant species will lose critical evolutionary options. Some will become rare. Those uniquely dependent on specific pollinators will go locally extinct. Evolution "designed" the exquisite lady-slipper orchid gracing our woodlands to be pollinated by bumblebees.

Then, too, plant seeds and fruits make up essential strands of food webs. Dependent animal populations will decline as these foods become scarce and competition intensifies (unless they learn to eat trash).

Ultimately, with all this happening simultaneously, local ecosystems will become impoverished, and many will stop functioning altogether. The global biodiversity collapse underway is unstoppable. Yet we can influence how it plays out in our own backyards. Obviously we should protect ourselves from insect-borne disease. But our solutions must be effective, and we must thoroughly examine the consequences. This means becoming more aware of the diversity of life sharing space with us and how our individual actions matter. It would be a shame if fireflies, spring peepers, and lady-slippers become mere museum displays to our grandchildren.

Stephen M. Meyer, author of the forthcoming The End of the Wild, and political science professor at MIT, recently passed away from cancer. We are honored to present this article in his memory, reprinted from

Collateral Damage.
Photo by Gerald J. Lenhard.

Minding the Basis: Soil

• Jeff Lowenfels

My own introduction to sustainability occurred at the tender age of five when my grandfather and I buried fish that were too bony to eat under some rose bushes to "feed the plants." They flourished.

It was a great lesson, but I've found dead fish really don't help convince customers or neighbors and friends to practice sustainable landscaping. What works are very simple and, where possible, demonstrable explanations. As an author and newspaper columnist I have had lots of experience. The best convincer, in my experience, is a good biological microscope

ELA Welcomes 2007 and Wishes You A Happy New Year

Help Us in the New Year ...Renew Now!

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and a few electron microscope photos of soil microbes so folks can see the soil bacteria, fungi, protozoa and nematodes that are the base of the soil's food web. Most gardeners are oblivious to soil microbes except in the negative, pathogenic sense. Seeing is believing. The internet is a great resource for informing clients about soil microbes.

Most folks know salt 'sucks' the water out of cells. What gardener doesn't relish putting salt on a slug for this reason? You have to tell gardeners (and if you have a scope, show them) that garden chemicals produce salts that pull water from microbes' cells, killing them. The results? Soil loses structure because it is the slime produced by bacteria that stick soil molecules together which in turn are tied into bigger aggregates by fungal hyphae resulting in pore spaces through which air and water and microbiology flow. These are the same microbes that create soil fertility.

Next, talk about worms. Everyone has seen one and knows worm castings are beneficial to plants. But few know that worms live on microbial protozoa (remind them of the paramecium and amoebae they studied in high school), not organic matter. No microbes means you won't have worms. No worms means no burrows and thus no reservoirs for air or water and no organic matter (on which the edible protozoa live) pulled underground to be decayed.

A real eye-opener is to introduce potential customers and friends to the facts of mycorrhizal fungi. Ninety-five percent of plants on earth associate with them yet few of your customers will have heard of them. All it takes is an explanation of their root protecting and extending role while looking at an electron microscope picture of a root tip with thousands of its associated mycorrhizal fungi. This is what the salts kill and this is what compaction kills. There are plenty of terrific pictures available through search engines and stock photo groups.

Self-sustaining soils contain 12 to 14 feet of fungal hyphae per teaspoon. Actually show customers some of it. It is easy if you activate the fungi in a sample of soil. Mix a handful of baby oatmeal with a cup of soil in a container, lightly covered and then placed in the dark on a germinating mat for three or four days until the soil is covered with long, white, Santa Claus beard hairs which are fungal mycelium. You will have an easy time explaining the prevalence of fungi, their soil building skills and how organic microbe foods replace chemical fertilizers in our way of growing things. Sometimes it takes a bit of showmanship to get a client to commit.

And finally, always point out one obvious fact: No one ever fertilizes the Redwoods. How did they got so big and live so long? It is because they are growing in soils that contain organisms that feed the trees: the bacteria and fungi that live in the rhizosphere of roots, thriving off of the trees' exudates and sloughed-off root tip cells and in turn are consumed by protozoa and nematodes. Microbial communities create plant-usable nutrients and beneficial metabolites, located right where they are needed. A sustainable system if ever there was one.

There is more to living soil than fits in one newsletter. Come to the ELA Winter Conference and Eco-Marketplace and find out more about how to sustain the basis of your landscape.

Jeff Lowenfels is author of the groundbreaking Teaming With Microbes: A Gardener's Guides to the Soil Food Web (Timber Press); hear him speak at the above conference in Springlfield, MA March 3, 2007.

Euphorbia corollata, flowering spurge. Photo by Thomas Smarr.

Going Native: the Sustainable Choice

• Scott LaFleur and Tom Smarr

A sustainable landscape preserves and protects nature's balance. To develop a sustainable landscape requires a well-planned design that addresses all aspects of environmental processes. All facets that involve the livability of a community such as energy, materials, buildings, water, air, and site must be incorporated into a holistic planning approach. Plants are an integral part of the sustainable landscape as long as the species used are well-suited to the existing light, moisture, and soil conditions. Such plant choices require low input of labor, fertilizers, herbicides, insecticides, and fungicides to thrive.

We feel strongly that a successful sustainable landscape incorporates native plants into the design. "Native" is broadly defined as a plant having occurred before European settlement in North America. To gain full sustainable benefit of using natives in the landscape one should choose plants found regionally. There are many distinct habitats and climatic environments found throughout country. By understanding the endemic plants in these communities we can better understand how best to place them in the different growing conditions of designed landscapes. Some species will tolerate a range of landscape condition possibilities while others are more specific. In New England we enjoy the adaptability of the native highbush blueberry shrub (*Vaccinium corymbosum*) that grows in wetland like conditions, but will also tolerate average garden soils. One can also choose the lowbush blueberry (*Vaccinium angustifolium*) for mountainous or drier conditions. American witch hazel (*Hamamelis virginiana*) is a champion of versatility, growing well from wet to semi-dry, sunny to half-shade.

Chelone glabra, white turtleheads. Photo by Thomas Smarr.

Native plants are essential to sustainable landscapes, but need not be exclusively used. Plants that are exotic or not native to a local region may fill a need (such as food crops), but often offer nothing in the way of food or habitat for key wildlife species. Any plants chosen for a specific site need to be evaluated for overall impact on the immediate and surrounding landscape. Although a plant may perform wonderfully in a specific garden, it may seed excessively or spread vegetatively and cause havoc in surrounding gardens and natural areas. The actions taken to battle the spread of invasive plants cost billions of dollars in resources, labor, and result in the loss of economically valuable native plants. By limiting biodiversity and creating dysfunction in ecosystems, invasive plants cause even greater ecological losses.

The choice of native plants as has an immediate positive impact on the environment and embraces the regional cultural identity that has been so readily lost in conventional garden design. Large suburban neighborhoods displace healthy native habitats with vast stretches of lawn, dotted with handful of plants that are heavily dependent on water, fertilizer, chemicals, and gasoline for machine-based maintenance. This is not a sustainable practice. Creating "regional style" landscapes can foster a diversity of habitats for plants, animals, and human experiences. Not only are these "local" plants pre-adapted to grow without high inputs of energy, they also are part of the local food web and provide nectar for insects, shelter for birds, and food for wildlife. Thus, growing native plants enhances the existing local biodiversity. By being sustainable we participate in the conservation of flora and fauna of our region.

Over the past couple of years we have been working with entomology enthusiasts in our area to raise endangered native Baltimore Checkerspot Butterflies. Although these voracious caterpillars damage our white turtlehead plants (*Chelone glabra*), they recovers after the beautiful butterflies emerge. In return for temporary blemishes to a handful of plants, we get to

enjoy the full breadth of our natural wonders. The Baltimore Checkerspot is adapted to feed on the moisture-loving turtlehead and arrow wood (*Viburnum dentatum*), whose toxins help protect them from predation. Draining every wet piece of land for building is an obvious threat to species survival. Replanting those areas with gardens lacking native plants is a more subtle threat. So often, the loss of just one species causes a cascade of species losses. Simply leaving the soil unchanged and selecting native plants appropriate to that spot avoids the losses and brings huge benefits. For so many, it's the wildlife that shares our back yards that make a house a home.

The choice to design a sustainable landscape in our own yards does not mean we must have a wild and untamed landscape. Native plant species, when planted, sited, and maintained properly, have a stately and refined appearance. In fact, you may already be gardening with some native species. There is nothing more refined than a nicely clipped hedge of American holly (*Ilex opaca*), a driveway alleé' of sourwood (*Oxydendron arboreum*), or the addition of white foamy flowering spurge (*Euphorbia corollata*) to the cottage perennial boarder. Clumps of blazing stars (*Liatris* spp.) brighten many mailbox plantings in our very suburban location, and are well-suited to the hot and dry roadside. Some of the stateliest shade trees species such our native oaks and maples range widely across the country, each with their own unique and interesting features of growth, branching habits, and seasonal color.

Color is need not be compromised when you choose native plants. People are amazed when they discover that wild pinks (*Spigelia marilandica*) are a northeastern native, astonished by the powerful color of purple love grass (*Eragrostis spectablis*), often dismissed as a roadside weed, and mystified by the four-sided, egg-shaped fruits of the silverbell tree (*Halesia tetraptera*). Cultivars can also be fun, providing many choices in foliage and flowers. Foam flower (*Tiarella* 'Black Snow Flake') has intricate dark variegated leaves and Carolina spice bush (*Calycanthus* 'Athens') has apple-green flowers and amazing strong apple fragrance. Both are as refined as any exotic selection.

Other benefits can also be achieved by using native flora. By reducing lawn with a mosaic of groundcovers, grass-like sedges, native short fescues, or other perennial favorites, an immense amount of energy is conserved. We should select plants that have root forms which hold soil and prevent erosion. Garden spaces can be more efficient at capturing rain water and preventing runoff. Turn problem sites into designing opportunities by transforming low wet spots into rain gardens or dry hot spots into arid/rock

Visit the Marketplace of the Future

"Exploring Terra-Firma: Creating Sustainable Landscapes and Healthy Communities" is the motto of this year's Winter Conference and Eco-Marketplace. Come see what the future holds in ecologically-sound products and services. Among the vendors will be:

– **Bradfield Organics™**, part of the Land O' Lakes Purina Feed family, which offers OMRI-listed organic lawn, tomato, pasture, and veggie fertilizers, plus corn gluten weed suppressant. Their website offers monthly yard tips and a link to SafeLawns organization.

– **New Moon Nursery** in Kennet Square, PA, offering a superb list of native perennials, including grasses, aquatics, and ferns.

– 'From the water to the woods,' visit their sister **Octoraro Nursery** for trees and shrubs.

– **North Country Organics®**, founded in 1983, pursues its sustainability mission with OMRI-listed natural pest control, blended and custom organic fertilizers, compost, bio-stimulants, seed, and other products from their base in Bradford, VT. They also offer quality soil testing services.

– **Plant Health Alternatives** provides professional services for stressed and declining trees and other plants using their Tree Centrics™ system, saving trees 'from the inside out.' Under the aegis of the foundation, Center for Holistic Tree Care, this Morris Plains, NJ outfit also holds classes and gives presentations.

– PJC & Co. will appear as distributor for Renaissance®All-Natural Fertilizers' OMRI-listed, soybean-based, and available in 2 lawn formulas, balanced garden, plus a weed-and-feed formula. Based in Minnetonka, MN, they have custom blending and technical support, and you can review a report by Iowa State University on Renaissance products on their website.

– **Summer Hill Nursery** started in 1957 in Madison, CT. Their wide-ranging list of both classic and new trees, shrubs, and perennials has many cultivars and a strong native plant contingency.

– **Well Water Connection, Inc.** provides innovative solutions to water-related problems, from their base in Tewksbury, MA. They combine well-managed, custom-designed water well projects working with your irrigation and landscape professional for superior results.

gardens. Minimizing soil disturbance during construction will maintain can allow the local soil life web to continue healthy the nutrient cycling that is essential for the prosperity of plants. Constant use of fertilizers and pesticides creates a sterile soil, devoid of the microbes upon which all plants rely for survival. Thus a completely service-dependent and non-sustainable landscape is created. Try organic care and composting.

The hand that we extend in creating sustainable landscapes right outside our doors will create that connection with the living environment which is so quickly being lost to the virtual reality that our urban and suburban lives have become. Although, we can not solve all of the environmental damage being done, we do have the power to make holistic decisions in our landscape that are ecologically responsible. Selecting regional plants will keep the unique character of your particular cultural place alive and vibrant, as well as answering the needs of local wildlife. Encouraging diversity will promote a balanced and healthy environment for us and our wildlife neighbors. Preserving healthy soil maintains natural protections against pests and diseases. All This can be done while never compromising on the style, mood, and feeling we are trying to convey in our garden. To sustain ourselves we must sustain our habitats. To sustain our habitats we must work within the environment and live to become a part of the ecosystem, not an impediment.

Phlox divaricata, spreading woodland phlox, and Tiarella collina, clumping foamflower. Photo by Thomas Smarr.

Scott LaFleur, Senior Horticulturist, and Tom Smarr, Director of Horticulture, are at Garden in the Woods, the Botanic Garden of the New England Wild Flower Society. You can find our more about native plant horticulture at www.newfs.org.

Helping the Ecosystem Through Mushroom Cultivation

• Paul Stamets

Mushroom growing isn't just a rapidly expanding agribusiness; it's also a significant tool for the restoration, replenishment and remediation of Earth's overburdened ecosphere. Like most people, we at Fungi Perfecti are concerned about the depletion of resources, loss of habitat and release of toxic substances into the environment. We'd like to show you some of the many ways in which the cultivation of mushrooms can help to tip the scales in Nature's favor, thereby benefiting all the inhabitants of Planet Earth.

Covering most all landmasses on the planet are filamentous communities of living cells from a kingdom barely explored. More than 8 miles of these cells, called mycelia, can permeate a cubic inch of soil. Fungal mats are now known as the largest biological entities on the planet, with some individuals covering more than 20,000 acres. Growing outwards at one quarter to two inches per day, the momentum of mycelial mass from a single mushroom species staggers the imagination. These silent mycelial tsunamis affect all biological systems upon which they are dependent. As they mature and die back, panoply of other fungi quickly come into play. Every ounce of soil does not host just one species, but literally thousands of species of fungi. Of the estimated 1–2 million species of fungi—about 150,000 species being mushrooms—we have catalogued only about 50,000, of which 14,000 have been identified with a species name. The genetic diversity of fungi is vast by design, and apparently crucial for life to continue.

Nearly all plants have joined with saprophytic and mycorrhizal fungi in symbiosis. Mycorrhizal fungi surround and penetrate the roots of grasses, shrubs and trees, expanding the absorption zone by 10 to 100 fold, aiding in their quest for water and increasing the moisture-holding capacity of soils. This close alliance also forestalls blights and is essential for longevity of the forest ecosystem.

Los Angeles, Mexico City, Bangkok and most cities are biological anomalies: they exist only from the subsidies of resources being from drawn from afar. Yet, much could be done with the massive importation of raw material into urban environments. Instead most of the imported materials eventually are diverted into toxic landfills, returning virtually nothing to the carbon bank from which they were drawn. The current practice of garbage dumps is an

ecological travesty. Good soil components are mixed in with plastics, heavy metals and chemical poisons.

The most progressive communities encourage composting of their refuse, a good first step, but this is far short of the potential that could be realized by making the public mycologically astute. Hope lies in making a concerted effort to aid the fungi in their natural role. "Where to begin?" is simpler to answer than trying to comprehend the enormity of the task at hand. Simply employ the skills of fungi and join with them in healing the scars of the planet. Not an ethereal task, any kindergarten student can make a significant contribution with the simplest guidance.

Armillaria species forming a fairy ring. Related honey mushrooms, once thought to be tree-killers, have been shown to be secondary saprophytes, consuming carbs of already-dead roots. Photo by James Cachat.

Mycoremediation

From a piece of tissue the size of one tenth of your little fingernail, what we call a clone, cells can be grown exponentially into millions of pounds of mushrooms in as little as several months. More than 10% of the growing medium or "substrate" can be converted into a protein- and vitamin-rich food. Not only are these mushrooms nutritious, they have demonstrated abilities in enhancing the human immune system, and they produce a slew of natural antibiotics. Yet it is the residual mycelium in that substrate that holds the greatest potential for ecological rehabilitation. Mycelia can serve as unparalleled biological filters. When I first moved to my property, I installed an outdoor mushroom bed in a gulch leading to a saltwater beach where clams and oysters were being commercially cultivated. An inspection showed that the outflow of water from my property was jeopardizing the quality of my neighbor's shellfish with the bacteria count close to the legal limit. The following year, after the mushroom beds were colonized with mycelium, the coliform count had decreased to nearly undetectable levels. This led to the term I have coined "mycofiltration", the use of fungal mats as biological filters.

Mycelium produces extracellular enzymes and acids that break down recalcitrant molecules such as lignin and cellulose, the two primary components of woody plants. By circumstance, these same enzymes are superb at breaking apart hydrocarbons, the base structure common to oils, petroleum products, pesticides, PCBs, and many other pollutants. For the past four years I have been working with Battelle Laboratories, a non-profit foundation and a major player in the bioremediation industry. The marine science laboratory of Battelle in Sequim, Washington became interested, as their mandate is to improve the health of the marine ecosystem. Under the stewardship of Dr. Jack Word, we began a series of experiments employing the strains from my mushroom gene library, many of which were secured through collecting specimens while hiking in the old growth forests of the Olympic and Cascade mountains. We now have applied for a patent utilizing mycelial mats for bioremediation, a process we have termed "mycoremediation".

The first significant study showed that a strain of Oyster mushrooms could break down heavy oil. A trial project at a vehicle storage center controlled by the Washington State Dept. of Transportation (WSDOT) enlisted the techniques from several, competing bioremediation groups. The soil was blackened with oil and reeked of aromatic hydrocarbons.

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2007 Annual Winter Conference Schedule

THURSDAY, MARCH 1 9:00 AM-3:30 PM — PRE-CONFERENCE

5:30 PM MassMutual Center – Dinner & Keynote :

Dr. Elaine Ingham, *Soil Foodweb: The Common Denominator in the Landscape*

FRIDAY, MARCH 2 9:00 AM -5:30 PM — WINTER CONFERENCE & ECO-MARKETPLACE

TRACK I – PEST MANAGEMENT

9-10:30 am
Weeds Management in Ornamental Gardens:
James McSweeney, Hilltown Tree & Garden

11-Noon
Arborist's Guide to Common Wood Decay Fungi:
Dr. Christopher Luley, Urban Forestry LLC

2:30-3:30 pm
Managing Invasive Plants:
Ted Elliman, New England Wild Flower Society

4-5:00 pm
Coming to Your Neighborhood Soon: Insects to Watch Out For: Dennis Souto, USDA Forest Service

TRACK II – ECOLOGICAL LAWN CARE

9-10:30 am
Holistic Lawn Care: Dr. Parwinder Grewal, Ohio State University

11-Noon
Solving Common Turfgrass Disease Problems: M. Bess Dicklow, UMass Extension Plant Diagnostic Lab

2-3:30 pm
Ecological Golf Course Maintenance: Jeff Carlson, Vineyard Golf Club

4-5:30 pm
Lawn Alternatives: Design, Installation & Maintenance: Laura Eisener, Laura D. Eisener Landscape Design

TRACK III – PERMACULTURE

9-10:30 am
Ecological Design Process & Permaculture Practice:
David Jacke, Dynamics Ecological Design;
Jono Neiger, Regenerative Design

11-12:30 pm
Gardening in the Forest:
David Jacke, Dynamics Ecological Design

2-3:30 pm
Beautiful & Useful Plants for Healthy Ecosystems:
David Jacke, Dynamics Ecological Deisgn;
Jono Niger, Regenerative Deisgn

4-5:30 pm
Establishing and Maintaining Eden: Jono Neiger, Regenerative Design; David Jacks, Dynamics Ecological Design

TRACK IV – WOODY ORNAMENTALS

9-10:30 am
Compost Tea for Tree Health:
Dr. Elaine Ingham, Soil Foodweb, Inc.

11-Noon
Sustainable Trees & Shrubs:
Roberta Clark, UMass Extension

2:30-3:30 pm
Advanced Tree Health Care:
Dr. Christopher Luley, Urban Forestry, LLC

4-5:30 pm
Remineralizing the Landscape:
Joanna Campe, Dan Kittridge, Remineralize the Earth

Day ends 5:30 at MMC, 6:30 at the Shertaon Springfield Monarch Place – Dinner & Keynote :

Paul Stamets, *Fungi Perfecti, LLC – How Mushrooms Can Save the World*

SATURDAY, MARCH 3 9:00 AM-2:30 PM — WINTER CONFERENCE & ECO-MARKETPLACE

TRACK I – HEALTHY COMMUNITIES

9-10:00 am
Sustainable Landscape Design:
Walter Cudnohufsky, Walter Cudnohufsky Associates

11-12:30 pm
Sustainable Communities: Bradley Grove Hyson, Apeiron Institute for Environmental Living

2:30-3:30 pm
Invasive Plants & Alternative Choices:
Rosanne Sherry, RI Master Gardeners Program

TRACK II – WATER

9-10:30 am
Stormwater Management:
Michael F. Clark, Norfolk Ram Group

11-12:30 pm
Landscaping to Improve Water Quality:
Caitlin Chafee, RI Coastal Management Council

2-3:30 pm
Raingardens:
Michael F. Clark, Norfolk Ram Group

TRACK III – GENERAL INTEREST

9-10 am Uncommon Fruits: Lee Reich, Author
10:30-12:30 pm Building Garden Soil: Jeff Lowenfels, Author
2-3:30 pm Ecological Lawns: Chip Osborne, Osborne Organics

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We inoculated one berm with mushroom spawn while other technicians employed a variety of methods, ranging from bacteria to chemical agents. After 4 weeks, the tarps were pulled back from each test pile. The first piles employing the other techniques were unremarkable. Oyster mushrooms up to 12 inches in diameter had formed across our pile. Analyses showed that more than 95% of many of the PAH (polycyclic aromatic hydrocarbons) were destroyed, reduced to non-toxic components, and the mushrooms were also free of any petroleum products.

In this series of experiments, our group made two other significant discoveries. One involved a mushroom from the old growth forest that produced an army of crystalline entities advancing in front of the growing mycelium, disintegrating when they encountered E. coli, sending a chemical signal back to the mother mycelium that, in turn, generated what appears to be a customized macro-crystal which attracted the motile bacteria by the thousands, summarily stunning them. The advancing mycelium then consumed the E. coli, effectively eliminating them from the environment. We believe that buffer zones around streams work primarily because of the mycelium resident in the first few inches of soil. Buffers with multi-canopied trees and shrubs combined with grasses, and the debris fall-out they provide, afford a mycologically rich zone, filtering out run-off from adjacent farms, highways and suburban zones.

Mycofiltration is a natural fit to John Todd's "Living Machine®" use of estuary ecosystems to break down toxic wastes. The marriage of upland use of mushroom mycelium with estuary environments could solve—in the short term—some of the greatest challenges threatening our ecosystem, and truly give meaning to the word "sustainability". We are currently moving towards unifying these two friendly technologies in the creation of a new paradigm for the 21st century. However, we need help.

What our team has discovered given our elementary research is that the fungal genome has far greater potential in treating a wide variety of environmental and health concerns than we could have conceived. Although we have looked at just a few of the mushroom species resident in the Old Growth, clearly these ancestral strains of mushrooms have survived millennia due to their inherent ability to adapt. These adaptive mechanisms are the very foundation of ecological stability and vitality in an increasingly more rapidly changing environment. Mushrooms are "smart" fungi.

Psilocybe azurescens. Other species of this genus have been used in extreme forest restoration, their mycelia allowing for trees to thrive while a soil base is still being re-created, also managed by the fungus. Photo by Paul Stamets.

Adapted from "Earth's Natural Internet," published in the Fall 1999 issue of the Whole Earth Magazine , by Paul Stamets, pioneer mycologist, author, and keynote speaker at the ELA 13th Annual Winter Conference. To learn more about mushrooms, mycoremediation, and Paul Stamets, visit www.fungi.com.

What's a great way to get involved with ELA and support us on a fundamental level?

Meet people on the cutting edge of landscape and design while helping the ELA to make the Winter Conference and Eco-Marketplace a great experience,

Volunteer with us!

Contact: nancyaskin@ispwest.com

Please help us support you! By Sponsoring the ELA or exhibiting at the Eco-Marketplace, your organization will show itself to be on the cutting edge, raising its profile as a company at the forefront of environmental awareness!

Our annual **Winter Conference & Marketplace** (incl. Pre-Conference) is a three-day event that promotes awareness of sustainable landscaping methods and materials with seminars, demos and a marketplace full of products and services!

Our **Roundtables** complement and reinforce the theme of the Winter Conference in more intimate settings, with Q & A, discussion, and refreshments!

Other **outreach** programs include a brochure on ecological landscaping (including tips on selecting an ecological landscaper); a national journal; and a movement towards a truly national organization with regional chapters!

Our **membership** is an exciting niche market that uses cutting edge methodology!

If you are interested in underwriting a project or becoming a sponsor of ELA, contact designerofgreens@verizon.net, subject: ELA.

If you would like to exhibit at the Eco-Marketplace contact M.L. Altobelli at 978-874-1373.

Animal Planet Catches the Wave

For those who need good news to begin the New Year, ecological landscaping is making headway in mainstream America. Item: 'Backyard Habitat,' a new feature on the Animal Planet channel of Discovery network,

aired an episode Thanksgiving week that documented the creation of a sustainable suburban landscape.

The quarter-acre design in suburban Illinois converted much of a simple square of lawn to beds of mostly native trees, shrubs and perennials. Although focused on robins, favorites of the couple's two boys, the backyard habitat provided an assortment of berries and shelter, using plant species that require little tending or feeding. The flat roof of their one-car garage was also converted to a green roof, again focusing on native plants. The hosts cautioned homeowners to obtain qualified professional design and installation assistance with green roofs and presented the satisfied couple with an award from the National Wildlife Federation for backyard habitat creation.

A side trip featured the offices of the City of Chicago and the building's new green roof gardens, inspired by a trip to exemplary German cities such as Stuttgart. This program is targeted toward young couples and their children, promising good things for the future of our home and community landscapes.

announcements

International Tree Failure Database Workshop January 13, 2007 (snow date January 20) 9 am to 1 pm at Holdsworth Hall, UMass Amherst: Have you ever wished you had more information on the common defects that make trees more likely to fail in a storm, and be able to use this information with clients? The **International Tree Failure Database (ITFD)** compiles reports on tree failures nationwide. **Dr. Brian Kane** teaches how to identify defects and how to submit reports online. Participants will receive a username & password to submit reports online. Registration is $75 (includes coffee, bagels, and parking). **ISA, MCA, SAF, and ASLA credits** have been requested. For more information, contact the Landscape, Nursery, & Urban Forestry Program at (413)545-0895 or eweeks@umext.umass.edu.

Massachusetts Tree Wardens and Foresters Association (MTWFA) 94th Annual Conference – January 10-11, 2007 Host Hotel and Conference Center, Sturbridge, MA. The MTWFA is now accepting applications to exhibit at the conference in January. Please visit the MTWFA web site at www.masstreewardens.org Exhibitor reservations can be made by contacting info@masstreewardens.org or contact Karen Doherty at 413-315-3454.

New England Grows opens its doors this year Tuesday through Thursday, **February 6th-8th, 2007**. The latest and greatest in garden and landscape will be on display with cutting-edge seminars each day. It all happens at **Boston Convention & Exhibition Center**, Boston, Massachusetts. See us at Booth 776 and get to know the face of ELA.

For seminar schedules, directions and more, visit www.NEGrows.org.

Chrysemys picta picta, Eastern painted turtles, survive to delight another generation of children, an unmeasured benefit of clean water. Photo by James Cachat.

ECOLOGICAL LANDSCAPING ASSOCIATION'S

2007 WINTER CONFERENCE & ECO-MARKETPLACE

SUSTAINABLE LANDSCAPES: CREATING HEALTHY COMMUNITIES

March 1-3, 2007
Mass Mutual Center, Springfield, MA

ELA presents: a full day Pre-Conference intensive with Dr. Elaine Ingham, Soil Food web on March 1, 2007 and our 13th Annual Winter Conference & Eco-Marketplace on March 2 & 3, 2007. This premier event includes 25 workshops presented by pre-eminent educators, writers, and practitioners in the field of ecological landscaping today. With over 30 exhibitors and live demonstrations, the Eco-Marketplace showcases landscape techniques, information, products and services needed to create and manage healthy communities. Further information is available at www.ecolandscaping.org or call (617) 436-5838.

The following Sponsor's commitment has made possible a superb program for the ELA 13th Annual Winter Conference and Eco-Marketplace
We hope you will visit their booths and partake of their expertise in your quest for a green future

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The Ecological Landscaping Association would like to thank the following for their generous help in sustaining our mission through the Annual Appeal:

Robert Levite

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Lucia Droby & Rick Burns

Thank you as well to our many valued ELA supporters who wish to remain anonymous.

unclassifieds

WELL WATER CONNECTION, INC. Well Water Connection, Inc. provides practical, cost-effective, and environmentally conscious solutions to water-related problems experienced by green industry professionals and their clients. Our unique approach combines professional project management with water, well, pump, filtration, and stain removal services. For immediate service or more information, contact John Larsen at (978) 640-6900 or jlarsen@wellwaterconnection.com.

gleanings

At the end of September, the **Silvio O. Conte National Fish and Wildlife Refuge** (52 Avenue A Turners Falls, MA 01376, 413 863 0209) published its compilation of ***Informational Resources on Invasive Plants***. This guide contains information and resources on every aspect of invasive plants and controlling them. Regional, state, and national plant initiatives are spelled out. Identification and management are explained. Monitoring and alternatives are discussed. Also included are projects such the **Invasive Plant Atlas of New England (IPANE), New England Wild Flower Society's** conservation programs, and more. This is a basic for anyone dealing with invasive plants.

NATIVE ALTERNATIVES TO INVASIVE PLANTS

Brooklyn Botanic Garden's has published this double issue in its acclaimed All Region Guide series. In this new handbook, "plant professionals and home gardeners alike will discover hundreds of spectacular native plants for every region, specially chosen as alternatives to the invasive species that are degrading the continent's natural habitats."

The Brooklyn Botanic Garden reports that the book includes information on: native trees, shrubs, vines, herbaceous plants, and grasses organized by plant type for easy reference, easy-to-identify alternatives to the worst invasive plants used in horticulture, "Attributes at a Glance" box highlighting each plant's most attractive features, native plant Q&A, and hands-on growing tips.

Visit this site for ordering information: http://www.bbg.org/abo/pressroom/gardenpubs/2006/2006native.html

ENVIRONMENTAL LEAGUE OF MASSACHUSETTS RELEASES REPORT "STATE OF THE ENVIRONMENT 2006"

This report discusses the current status of the environment in regard to public health, the economy, quality of life and natural systems in Massachusetts. It has a brief section on invasive species that concludes that although much good work is being done to inventory, plan for control, and ban invasive plant species, we need to do more to collect data to describe the trends and devise strategies to prevent introduction, halt the spread and control existing populations while protecting endangered species. To download a PDF version of the report, go to: http://www.environmentalleague.org/SOER.html For a hard copy call ELM at 617-742-2553 or email Nancy Goodman at: ngoodman@environmentalleague.org

ECO-LANDSCAPING NEWSWORTHY 'MINIS'

- 8th Annual Organic Turf Trade Show, Tuesday, February 27th 8-4 PM. Old Bethpage Village, Bethpage, NY. For more information visit: www.neighborhood-network.org
- UMASS 2007 Garden Calendars available ($11). For more information visit: www.umassgardencalendar.org
- The new issue of MNLA Nursery News is available. Includes: education opportunities, insurance info, design award info.

For more information visit: www.mnla.com

FARMERS SAY MEGA-DAIRIES MILK THE ORGANIC SYSTEM

The organic food business has grown from a health-conscious movement to a multi-billion dollar business. Americans now spend $2 billion on organic milk alone.

For milk to be labeled organic, the USDA says that cows must be raised on pesticide-free feed, without hormones. But it doesn't regulate how much time the cows must spend out in pasture.

As organic mega-dairies with thousands of cows sprout up across the country, small-dairy farmers complain that some so-called "organic" cows don't get enough meadow time. They say the huge dairy operations are taking advantage of the system at the expense of the smaller farms that built the organic movement into a lucrative industry. By Jeff Brady of NPR. Reprinted from All Things Considered, May 7, 2006.

HUMAN DEVELOPMENT REPORT 2006 – BEYOND SCARCITY: POWER, POVERTY AND THE GLOBAL WATER CRISIS

The 2006 Human Development Report, launched on 9 November 2006 in Johannesburg, recognizes the crucial role that water plays in creating this enabling environment. Without access to a sustainable clean water supply and sanitation, the report asserts, achieving the eight Millennium Development Goals will not be possible. The human development costs of this crisis are staggering and are disproportionately borne by the poor: 1.8 million children die each year from diarrhea that could be prevented with access to clean water and sanitation; 443 million school days are lost each year to water-related illnesses; and almost 50% of all people in developing countries are suffering at any given time from a health problem caused by a lack of water and sanitation.

The report outlines four foundations for success in overcoming this crisis. First, it urges governments to implement practical actions to make water a human right; at a minimum every citizen should be entitled

to at least 20 liters of clean water per day. Second, given the great human development costs associated with lack of clean water and sanitation, the report advocates that national governments prepare national plans for accelerating progress in water and sanitation and enhancing equity; governments should aim to spend a minimum of 1% of GDP on water. Third, the report recommends reinforcing national commitments with increased international aid; an extra USD 3.6-4 billion dollars annually is needed. Finally, the Global Action Plan set out in the Report provides the roadmap to be followed, not only in providing more funds but in building capacity, leveraging resources, and measuring the progress made against the targets set.

Collaborated on this highlight were Noha Gaber, Shelley McMillan and Emmanuel Habumuremyi Guides, dgWater. For more information on the Human Development report, please see the link below. http://hdr.undp.org/hdr2006. Reprinted from Development Gateway Foundation: http://topics.development.org/water.

EPA BANS PESTICIDE BLAMED FOR BIRD DEATHS
August 4, 2006

The Environmental Protection Agency is banning the use of carbofuran, a pesticide that has killed millions of birds and other wildlife. Environmentalists are thrilled. But a company that manufactures the chemical under the name Furadan says the pesticide's threat is exaggerated.

EPA ORDERS PHASE-OUT OF CHERRY ORCHARD PESTICIDE
June 13, 2006

The Environmental Protection Agency has ordered that a pesticide widely used in American cherry orchards be phased out of use. EPA officials say the pesticide hurts the environment and can trigger nausea, diarrhea and headaches among orchard workers. Farmworkers are celebrating the ban as a victory, but say they are frustrated that it will take four years to implement.

By Elizabeth Shogren of NPR. Reprinted from Morning Edition, and Day to Day, August 4th and June 13th, 2006.

January and February Roundtables – TBA. Please visit www.ecolandscaping.org or call (617)436-5838 for recorded information in January.

ECOLOGICAL LANDSCAPING ASSOCIATION'S

2007 PRE-CONFERENCE, ANNUAL WINTER CONFERENCE & ECO-MARKETPLACE

Exploring Terra Firma: Creating Sustainable Landscapes & Healthy Communities

THURSDAY, MARCH 1 – SATURDAY, MARCH 3
Co-Hosts: Ecological Landscaping Assoc., New England Wild Flower Society, and University of Rhode Island Cooperative Extension Education Center
General Info: www.ecolandscaping.org or call ELA at 617-436-5838
Registration Info: Lana Reed at 508-877-7630 x3303
Exhibitor Info: M.L. Altobelli at 978-874-1373

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