
THE *ecological landscaper*

The Newsletter of The Ecological Landscaping Association

Vol. 9, No. 4

Winter 2002-2003

Native plants for winter interest

by Cheryl Lowe

Finding beauty in the winter garden is as much about perception as substance. The absolute purity of fresh snow transforms the landscape. Like icing on a cake, it highlights the graceful form of a tree—the thick, drooping branches of a Catalpa tree, or the broad, dark majesty of an oak. Snow preserves the animal encounters we missed—the squirrel’s leaping stride from tree to excavated cache and back, or the whisper of an owl’s wings as it snatches a hare. Sound, too, becomes

so crisp and clear in the winter, whether it is squeaky snow underfoot on the coldest days or the crack of a breaking icicle. For me, the ultimate pleasure, however, is the silence, the absolute stillness after a fresh snow.

But when I think of the special allure of winter’s light, that now becomes the ultimate joy. The soft, pearl-like quality of winter light alters the landscape, from the surreal shafts of light slicing through the tree canopy’s bare branches, to the long shadows dancing on a wall.

But this is an article about plants. And, as with other aspects of winter, the appeal of plants draws on aesthetic subtleties—softer colors, contrasting shapes, vertical accents, textures of bark, and graceful forms. In snowy winters, like this one here in New England, shrubs and trees are the dancers on the stage. In a snowless winter, the textures and colors of evergreen groundcovers add soft music to the performance. Following on page 3 are a few suggestions to bring some visual magic to your winter scene.

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Aside from making snow angels and snowmen, how else can you enhance your winter landscape experience?

- * **Leave seed heads on flowers.** Both large and small plantings charm the eye when each vegetative citizen sports a frosty conical cap.
- * **Maintain a rock feature or brush pile.** In addition to being habitats for almost every manner of small critter, these forms also produce unique shapes when dressed in white.
- * **Hang high-quality windchimes.** In order to preserve the silence for nature’s sounds, bind the chimes together with a rope most of the time. When you’re ready for a transcendental moment, set them free. Your appreciation will be renewed when you hear the tones only on occasion.
- * **Study the shadow** of an immutable object, such as that from a roof peak or fence pole, and mark where that shadow falls on the winter and summer solstices and spring/autumn equinoxes.
- * **Sketch and take photos.** Why stop when the green goes away? —Joy Buslaff

ELA’s Winter Conference, Feb. 28-March 1. Details on page 11.

"Gramma said when you come on something good, first thing to do is share it with whoever you can find; that way the good spread out where no telling it will go. Which is right."
 —Little Tree in The Education of Little Tree, by Forrest Carter



The Ecological Landscaper

is published by the Ecological Landscaping Association (ELA).

Subscriptions are a benefit of membership in ELA. For more information about ELA, write to:

ELA

60 Thoreau Street, #252
 Concord, MA 01742-2456

Or check our Web site at:
www.ELA-ecolandscapingassn.org
 (Members section password: ecopost)

Talk to us. We welcome your comments, letters, articles, ideas, and opinions. Address all newsletter correspondence, submissions, and address corrections to: Nick Novick, 6 Meadowbrook Lane, Ashland, MA 01721; (508) 881-1517 (phone/fax); e-mail: ELBacktalk@aol.com.

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EDITOR'S TWO CENTS

Baby, it's cold outside (At least for most of us)

Here in the Northeast, we're having a real winter. Snowier and colder than most recent winters, I write this as a projected 20-30 inches of snow is falling around me, adding to the foot-and-a-half or so already on the ground. Evening temperatures this past weekend were around -8°F.

Other parts of the country are equally, if differently aberrant. Parts of the upper Midwest got well into the new year before any snow at all fell, and they still have far less than usual, to the point where state governments are considering aid for businesses that depend on snow. A quarter of the country was in extreme or severe drought as of the end of January.

For those navigating the inevitabilities of the winter landscape, we've put together some information to help you deal with the elements: more than you probably wanted to know about ice melting materials, native plants with endearing and useful qualities for the fall and winter, and how plants can be useful as a living snow fence.

Possible themes for upcoming issues include habitat and plant community gardens and landscapes, and a comparison of different philosophical approaches to landscaping. Let us know if there's something you'd like to see in future issues of *The Ecological Landscaper*. —Nick Novick

Advertising in The Ecological Landscaper — Rates and Information

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

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Until July 2003 (vol. 10, no.2), take advantage of special introductory rates. They will never be this low again!

full page (7½ x 10") . . . \$100/issue; \$360/4-issue run
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 eighth page \$25/issue; \$85/4-issue run
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Rates are for camera-ready copy.

Beginning with vol. 10, no.1, spring 2003, *The Ecological Landscaper* will be published quarterly 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

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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>.

leaf color

The lingering pleasures of late fall color...

Fothergilla gardenii (Fothergilla) — multi-colored leaves hold well into the fall
Helonias bullata (Swamp Pink) — perennial with burgundy-green mounds of leaves
Hamamelis virginiana (Witchhazel) — shrub with bright yellow flowers in November
Zenobia pulverulenta (Dusty Zenobia) — mounding shrub with very late, soft, rose-red fall color

wildlife

Fruits, seed heads, and foliage; food for wildlife, visual delight for us

Aronia arbutifolia (Red Chokeberry) — shrub with long-lasting, dark red berries
Clethra alnifolia (Sweet Pepperbush) — shrub with peppercorn seed heads
Ilex verticillata (Winterberry) and cultivars — shrub with bright red berries
Viburnum alnifolium (Hobblebush) — shrub with golden “eared” buds
Panicum virgatum cv. Heavy Metal (Switchgrass) — grass with airy seed heads and vertical foliage
Schizachyrium scoparium (Little Bluestem) — grass with slender, bronze foliage
Sporobolus heterolepis (Northern Dropseed, Prairie Dropseed) — golden grass forming tight clumps

sculpture

Twigs, buds, and bark

Amelanchier spp. (Shadbush or Serviceberry) — small tree with gray, striped bark
Acer pensylvanicum (Striped Maple) — tree with green, striped bark
Betula nigra (River Birch) cv. Heritage — tree with exfoliating white/pink/salmon bark
Clethra acuminata (Mountain Clethra) — shrub with cinnamon bark and peppercorn seed heads
Cornus sericea (=C. *stolonifera*) (Red-osier Dogwood) — shrub with bright red twigs
Halesia carolina (=H. *tetraptera*) (Carolina Silverbell) — tree with gray, striped bark and lingering tetragonal seedpods
Hydrangea quercifolia (Oak-leaf Hydrangea) — shrub with late burgundy fall foliage, exfoliating bark, and large flower clusters that hold up through the winter
Vaccinium corymbosum (High Bush Blueberry) — shrub with bright red twigs in early March
Fagus grandifolia (American Beech) — younger trees have lingering, golden foliage; smooth, gray bark on all ages

Definition: “=” stands for “also known as.” The first name given is the current preferred nomenclature.

evergreens

Evergreen shrubs and trees—when only green will do

Pieris floribunda (Mountain Pieris) — broad, mounding shrub; happy in shade
Abies concolor (White Fir) — highly adaptable tree with beautiful blue needles
Abies grandis (Grand Fir) — tree with long, horizontal needles
Calocedrus (Libocedrus) decurrens (Incense Cedar) — narrow tree with fragrant foliage
Chamaecyparis nootkatensis (Alaska Cedar) — tree with graceful, weeping habit
Leucothoe fontanesiana (Drooping Leucothoe) and cv. Girard’s Rainbow — mounding, spreading shrub; the latter cultivar with beautiful calico colors
Thuja plicata (Western Red Cedar) — tree with graceful sprays; good substitute for hemlock
Yucca harrimaniae (Spanish Bayonet) — evergreen perennial with strong vertical form

Definition: “cv” stands for “cultivated variety,” which may not share certain benefits of straight species.

Evergreen groundcovers for those snowless winters

Arctostaphylos uva-ursi (Bearberry) — glossy, dark green leaves
Coptis laciniata (Oregon Goldthread) — glossy, lacy, dark green leaves
Carex plataginea (Plantain Sedge) — long, relatively wide leaves
Galax urceolata (Galax) — round leaves with beautiful burgundy winter accents
Hexastylis minor (Wild Ginger) — small, heart-shaped, mottled leaves
Paxistima (Pachystima) canbyi (Pachystima) — burgundy winter highlights
Tiarella cordifolia (Foamflower) — soft, maple-shaped leaves with reddish tints

Cheryl Lowe is the Horticulture Director for the New England Wild Flower Society and a former member of ELA’s board of directors.

Melting ice

by Nick Novick

In regions where winters bring snow and ice, materials to help melt frozen water on paved surfaces are commonly—and, often prolifically—used. These materials are helpful, and even essential to maintaining the safety of paved surfaces, but they can create problems, especially if overused.

Rock salt has been in use as a pavement deicer since the 1940s. By the late 1950s, concern grew over effects of salt use because of damage to roadside sugar maples and contamination of drinking water from wells located near unprotected salt storage areas.

Recently, in an attempt to minimize environmental effects and use materials more efficiently, considerable research has been done on alternative materials. Testing procedures were standardized in 1992 by the Strategic Highway Research Program. Properties evaluated include ice-melting potential, thermodynamic factors,

physicochemical characteristics, deicing performance, etc. Other studies have concentrated on how deicers affect vegetation, water quality, and pavement, especially concrete.

Today, the most commonly used salt for deicing is still sodium chloride (NaCl). Calcium chloride (CaCl) is also used in many areas. Other materials, discussed below, see use in environmentally sensitive areas or where budgets allow. The eastern and north-central sections of the country use over 90 percent of the approximate 8 to 20 million tons of salt used each year in the U.S.

Pluses and minuses

A number of deicing materials are now widely available, and each of them has both desirable and undesirable qualities.

Most materials, especially sodium chloride, have deleterious effects on plants and on seed germination.

Judicious use of deicers, proper plant selection and location, and other tactics can mitigate or eliminate some of these effects. (For more on vegetation effects, see sidebar, “Plants and deicers.”)

The safest material for vegetation, calcium magnesium acetate (CMA), is, unfortunately, also the most expensive. Other materials, such as potassium chloride and ammonium sulfate, can actually act as plant fertilizers, if used in moderate quantities. Sodium chloride is the least expensive product among deicers (\$17 to \$30 per ton), and, hence, the most commonly used. The alternative products range from \$200 to \$700 per ton.

Chloride-containing materials such as calcium chloride, potassium chloride, and sodium chloride can exacerbate concrete degradation (scaling) as it goes through freeze-thaw cycles. Entrained air within the concrete provides spaces for water to move

How salt melts ice; a primer

Rather than saying that salt melts ice, it's more accurate to say that salt lowers the freezing point of water—that is, the temperature at which water freezes (or, going the other direction, at which ice melts). Actually, any foreign substance dissolved in water will lower the freezing point. But let's take a quick spin through some basic chemistry to see how this works. (Chemistry-phobic types can skip this part).

Water molecules—as we all know—contain two hydrogen atoms bonded to a single oxygen atom in a sort of open “V”-shape. The hydrogen ends of the molecule have a slightly positive electric charge, while the oxygen end is negatively charged.

As water gets cooler and cooler (loses energy in the form of heat), the molecules move more and more slowly, and—as the temperature reaches 32°F—begin to assume an orderly crystal structure, with the positively charged parts of the molecules cozying up to the negative parts of adjacent ones. In other words, ice begins to form.

At 32°F, the water/ice system is in equilibrium. As many molecules are moving from the solid crystal of the ice to the liquid water as there are molecules moving from the water onto the surface of the ice. Warmer temperatures shift the equilibrium so that more molecules leave the solid ice and move into the liquid; colder temperatures produce the opposite effect. In other words, in

order for ice to melt, it needs to absorb heat from an outside source where the temperature is higher than 32°F.

Adding foreign molecules to water (dissolving materials such as salt) interferes with the process by which the crystalline ice structure forms, and impedes the water molecules from settling into the pattern at a given temperature. With salt (sodium chloride) dissolved into water, the equilibrium is disturbed as the electrically charged sodium and chlorine ions attract molecules from the liquid water, so that the water molecules form a shell around the ions. As more water molecules connect to the ions, there are fewer water molecules to combine with the ice.

Water molecules in the ice, however, continue to leave the ice as easily as before, thus melting the ice. Since melting requires heat, and the heat comes from the water, the temperature of the water drops as it uses heat to melt the ice. The water gives up energy (in the form of heat) to break the molecular bonds that hold the salt molecules together. In the case of sodium chloride (NaCl), the salt dissociates into separate sodium and chlorine ions (charged atoms). As more salt is added, the temperature of the water will continue to drop as long as the solution still contains ice. With some deicers, such as calcium chloride, heat is produced as the atoms of the deicer dissociate, thus aiding the ice melting process.

The amount of salt dissolved in water affects the freezing point. A 10 percent salt solution freezes at 20°F, and a 20 percent solution freezes at 2°F.

into the structure. Deicing salts reduce the temperature at which water freezes. Their use on concrete helps to maintain a high level of saturation and significantly increases the number of freeze-thaw cycles on the surface. Degradation effects from sodium, calcium, and potassium salts are purely physical.

Despite some reports to the contrary, some experts argue that magnesium is, in fact, detrimental to concrete. Magnesium is carried into the void spaces of the concrete in the water which results from the deicing action. Magnesium ions accumulate and react with the cementing compound in the concrete (calcium-silicate-hydrate) converting it to magnesium-silicate-hydrate, a material without cementing ability. The incorporation of magnesium breaks down the “glue” that binds the aggregate portion of the concrete together.

Many commercial products use a combination of materials, thus combining the advantages—and compensating for the disadvantages—of each. (See the chart at right which lists some of these characteristics.)

For any of these products, over-application only wastes material and increases the potential for environmental damage. Once a certain critical amount has been applied, more material has little or no additional effect on melting. Amounts less than what are required to completely melt ice will still weaken it and loosen it from the pavement, making it easier to remove. Recommended application rates range from .1 lb./sq. yd. for relatively thin layers of existing ice up to .5 lbs./sq. yd. for thicker layers.

Salt tolerance

Plants which grow in conditions where salty soil and/or salt spray are part of the environment (warm, low-

Plants and deicers

Damage to plants from salt occurs mainly in two ways: First, by direct contact with the salt itself, either from the snowmelt containing the deicers or the spray from vehicles traveling on salt-treated roadways. Shoveling or plowing snow containing deicers can concentrate the material in certain locations. Direct contact can cause bud death and twig dieback, and, on evergreens, yellowing or browning of leaves, needle flecking, and dieback.

Salt buildup in soil from repeated, yearly applications is the other path to plant damage. Excessive soil salinity damages roots, disrupting water uptake. Symptoms can include plant wilting even with adequate soil moisture, bluish color cast to foliage, leaf or needle burn at tips or margins, and general stunting. Salt can also inhibit seed germination.

Where salt has been used, flushing the soil with liberal amounts of water after the ground has thawed will help flush accumulated salt through the soil. The amount of water needed depends on a number of factors, including soil type, amount of salt, etc., but something on the order of 2 to 6 inches may be needed. Gypsum incorporated into the soil, or applied in the spring, can help to mitigate some of salt's deleterious effects.

Salt issues can be addressed in the design and planning process. Avoid planting sensitive species near areas where salt may be used, where snow will be plowed, or where melt water may accumulate. During site preparation, prepare soils so they have adequate drainage to allow for spring flushing with water to remove salt. In areas of potential salt damage, install lawns and plants in the spring so they can get well established before exposure to possible damage.

Chemicals to melt ice

Temperatures provided are the lowest practical temperature at which given chemical will effectively melt ice.

ammonium sulfate (NH₄)₂SO₄
20°F (-7°C)

PRO: fertilizer. **CON:** damages concrete.

calcium chloride (CaCl₂)
-20°F (-29°C)

PRO: gives off heat, melts ice quicker than sodium chloride; more effective at lower temps. **CON:** attracts moisture; surfaces become slippery below 0°F; moderate vegetation, soil damage; expensive.

calcium magnesium acetate
(CMA; made from domomitic limestone and acetic acid) formulation of calcium carbonate CaCO₃, magnesium carbonate MgCO₃, and acetic acid CH₃COOH
15°F (-9°C)

PRO: safest for vegetation, soil; little damage to concrete. **CON:** works better to prevent re-icing than as an ice remover; need more it to match salt's effectiveness.

magnesium chloride (made from evaporating and refining sea water)
MgCl₂
5° F (-15° C)

PRO: releases heat; faster acting than sodium chloride; works well as a “pre-icer.” **CON:** like calcium chloride, attracts moisture from air, which can keep pavement wet; expensive.

potassium acetate (CH₃COOK)
15°F (-9°C)

PRO: biodegradable. **CON:** corrosive, but better than sodium chloride.

potassium chloride (naturally occurring material; also called muriate of potash) (KCl)
20°F (-7°C)

PRO: fertilizer (in moderate amounts). **CON:** damages concrete; can burn plants, cause root damage.

sodium chloride (rock salt, halide)
(NaCl)
15°F (-9°C)

PRO: keeps pavement dry; relatively inexpensive. **CON:** corrosive; damages concrete, vegetation, soil; water pollutant.

urea (synthesized from ammonia and carbon dioxide)/NH₂CONH₂
20°F (-7°C)

PRO: fertilizer (in moderate amounts). **CON:** agricultural grade urea is corrosive.

precipitation climates; seaside locales; etc.) have developed adaptations which allow them to tolerate these conditions. Generally, plant community lists for these settings will be a useful guide.

Michael Dirr, in *Dirr's Hardy Trees and Shrubs*, offers the following comments on salt-tolerance:

"The inconsistency in rating the salt tolerance of trees is the result of many factors. No trees are wholly resistant to salt. Different degrees of resistance are apparent in species and cultivars, but rarely is there consensus among plant authorities as to the level of salt tolerance displayed by a particular tree."

The trees and shrubs noted below are taken from Dirr's charts. See the book for more detailed information. Perennials are taken from nursery catalog lists and the "seaside" community plant list in *American Plants for American Gardens*, by Roberts and Rehmman. These aren't comprehensive lists; refer to the sources for more possibilities. ■

Bottom line

- Account for potential salt problems when developing landscape plans and choosing plants.
- Don't rely entirely on deicers for snow and ice removal; use them in conjunction with mechanical means.
- Use deicers sparingly; using more isn't better and can cause problems. Relatively small amounts can loosen ice from paved surface, making mechanical removal easier.
- Consider channels and/or berms to deflect deicer-laden snow melt from planting areas.
- Check out concrete-sealing materials designed to resist deicing chemicals to reduce damage to concrete surfaces.
- In the spring, irrigate salt-contaminated areas to move salt out of the soil; spread gypsum to help mitigate salt effects.
- While they don't melt ice, abrasives, —such as sand, sawdust, or even kitty litter—can provide traction to slippery surfaces.
- Store materials in a water-tight container (such as a sturdy trash barrel) in a location convenient for use.
- Properly constructed and sited snow fences can reduce drifting snow accumulation and reduce needs for plowing and deicing. (See "Living snow fence reduces costs, maintenance," page 7 of this issue.)

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Winter Deicing Agents for the Homeowner, Jay B. Fitzgerald, Donald E. Janssen, Univ. of Nebraska Extension. <<http://chemistry.about.com/gi/dynamic/offsite.htm?site=http://ianrwww.unl.edu/pubs/horticulture/g1121.htm>>

salt tolerance

Some plants cited as having "poor" salt tolerance

TREES: *Acer saccharum*, *Alnus glutinosa*, *Amelanchier laevis*, *Carpinus betulus*, *Carpinus caroliniana*, *Corylus*, *Crataegus*, *Fagus grandiflora*, *Pinus resinosa*, *Pinus strobus*, *Tsuga canadensis*

Some plants cited as having "moderate" to "good" salt tolerance

TREES: *Betula*, *Elaeagnus angustifolia*, *Juniperis virginiana*, *Malus*, *Piceas pungens var. alba*, *Pinus nigra*, *Populus alba*, *Populus tremuloides*, many *Prunus*, many oaks including *Quercus alba*, *Quercus rubra*, *Robinia pseudoacacia*, *Salix*

SHRUBS (distinction made between tolerance to salt in soil and tolerance to salt spray):

Soil tolerant: *Amorpha*, *Caragana*, *Shepherdia*

Spray tolerant: *Hydrangea macrophylla*, *Ilex*, especially *I. glabra*, *I. opaca*, *Ligustrum*, *Lonicera*, *Myrica* (with some soil tolerance), *Sorbaria*, *Viburnum dentatum*

Both: *Elaeagnus*, *Prunus maritima*, *Rhus*, *Rosa rugosa*, *Rosa virginiana*, *Tamarix ramosissima*, *Yucca*

PERENNIALS: *Asclepius tuberosa*, many asters, *Astilbe*, *Baptisia tinctoria*, *Hemerocallis*, *Lespedeza*, *Liatris*, *Lupinus perennis*, *Salvia*, *Solidago*, *Stachys*, *Viola*, numerous sedges, certain fescues

COOL-SEASON TURF GRASSES that demonstrate moderate tolerance are *Lolium perenne* and *Festuca arundinacea*

Living snow fence reduces costs, maintenance

A living snow fence is a designed planting of trees and/or shrubs and native grasses along roads or ditches, or around communities and farmsteads. The plantings create a vegetative barrier that traps and controls blowing and drifting snow.

Many snowdrift problems occur in the same place year after year. This creates huge costs for snow removal, lost productivity for districts, and higher taxes to the public. Living snow fences are low-cost solutions to prevent drifting problems on roads and in communities and reduce the effort spent on snow management each year.

Design elements of living snow fences

Three key elements are involved in the design of living snow fences:

HEIGHT is the first element. It is measured by the tallest row in the planting and affects the drift depth and length. Storage capacity is often manipulated by the barrier height, and the capacity should equal the snow transport, or the amount of moving snow. Storage capacity increases more than four times when the height is doubled.

DENSITY, the second element, relates to how much wind blows through the living snow fence. Density is determined by species (usually shrubs and short trees), the number of rows planted, and plant spacing. It affects windward and leeward snowdrift lengths and heights. Winter density of vegetation must also be considered.

LENGTH, the last design element, relates to the length of area to be protected. Because snow storage capacity is less on the ends of the barrier than in the center, it is necessary to extend the barrier 100 feet beyond the area to be protected.

Benefits of living snow fences

- Controls and prevents snow drift
- Reduces wind speed and improves driver visibility, leading to fewer vehicle accidents and injuries
- Reduces snow removal, equipment, and pavement maintenance costs
- Helps the environment by reducing salt and fuel usage
- Enhances the appearance of roadsides and communities
- Reduces maintenance requirements after plants are established (usually two to three years after planting)
- Creates more livable communities and farms by reducing energy costs up to 20 percent for home heating and reducing feed costs for livestock
- Enhances crop production by 10 percent or more
- Improves wildlife habitat
- Reduces slush and ice accumulations and road closures
- Provides more open, better functioning drainage systems
- Reduces spring flooding and soil erosion

The Minnesota Department of Transportation's living snow fence program

Mn/DOT offers and administers a living snow fence program to volunteer landowners. Through the Mn/DOT program, landowners receive annual compensation for the inconvenience and lost efficiency due to having to farm around a living snow fence. To ensure the fence remains healthy and vigorous, landowners also receive annual compensation for growing and maintaining the fence. The duration of Mn/DOT's living snow fence contract ranges from 10 to a preferable 15 years.

Mn/DOT's District-7A Mankato has tried a new approach using Global Positioning Systems (GPS) to record drifts and design fence placement. They also attempted to "sell" the designs to landowners with a laptop computer and a Powerpoint presentation.

At the fall 2001 state maintenance expo, Steve Kortuem of Mn/DOT Mankato explained that they tried to prioritize their snow trap areas by using the average daily traffic (ADT)

of a road, but found many of the landowners would not cooperate. Next they tried sorting by important corridors and by sites where the whole road could be protected. "We ended up taking anybody who would cooperate, so we had 12 sites spread throughout the district," he said.

One snow fence has worked so far, keeping the road free from drifts. In this case the landowner moved in some 10-foot-high cedar trees. "All the other sites in our district are just small 'liner' grade and 'shrub' grade plants, and we do not expect to get protection from them for a few years," Kortuem said.

Future plans

Plans involve working with the Minnesota Association of Soil and Water Conservation Districts and two U.S. Department of Agriculture units—the Farm Service Agency and Natural Resources Conservation Service—in the Living Snow Fence Partnership Program. The purpose of this program is to coordinate government incentive and cost-sharing programs currently in effect to encourage living snow fence

planting. One program goal is the development and acceptance of a statewide living snow fence plan. ■

Related snow fence facts

From 1984-2001 hazardous driving conditions during the months of November-March resulted in 487 fatalities in Minnesota.

During an average winter season, taxpayers in Minnesota spend approximately \$100 million in snow removal costs, with Mn/DOT expending \$41 million.

According to Standard and Poor's financial information services, economic disruption of having to shut down the highways for one day in Minnesota costs \$66 million in lost wages and \$27 million in lost sales.

The price of snow removal for roads without and with living snow fences has an average cost/benefit ratio of 17:1 respectively.

[Facts reprinted from the Memorandum of Understanding on the Living Snow Fence Partnership Program, Dec. 14, 2001.]

Web references

<www.extension.umn.edu/distribution/naturalresources/DD7277.html>

<www.dot.state.mn.us/newsrels/00/000515snowfence.html>

<www.dot.state.mn.us/newsrels/00/000817snowfence.html>

<www.the-land.com/110901/story4.html>

<www.cts.umn.edu/T2/archive/snowfence.htm>

—This article appeared in the April-June 2002 Technology Exchange Newsletter. It is reprinted with the permission of the MN Local Technical Assistance Program, Center for Transportation Studies, University of Minnesota.

The Ecological Landscaper back issues available

A sampling of the subject matter is given below for each issue.

Cost: **1-4: \$2.50/issue; 5-13: \$2.00/issue; full set (13): \$15.**

Indicate volume and issue number(s) you would like and mail request to ELA, 60 Thoreau Street #252, Concord, MA 01742-2456, attn. TEL back issues. Make checks payable to "Ecological Landscaping Association." Thanks for your order.

VOL. 9, NO. 3, FALL 2002

Water issue: water in the ecosystem; world water supply concerns; water-conserving landscape practices; book reviews (*Handbook of Water Use and Conservation* / Vickers, *The American Woodland Garden* / Darke); rain garden plants; ELA directors' bios, part 2; 20 pages

VOL. 9, NO. 2, SUMMER 2002

Grub control; more sewage sludge concerns; pressure-treated wood; ELA directors' bios, part 1; 12 pages

VOL. 9, NO. 1, SPRING 2002

Lady beetles as a biological control; ELA healthy manual announcement; Winter Conference highlights; sewage sludge concerns; using native plants in landscape design; 16 pages

VOL. 8, NO. 2-3, WINTER 2001-2002

Recycling unneeded computers; seed masting explained; limitations of IPM; invasives news; 12 pages

VOL. 8, NO. 1, WINTER 2001

Changing climate/effects on gardening; remembering conservation icon David Brower; land use practices to protect native plants; book reviews (*Audubon Society Field Guide to New England* / Alden, Cassie); *Measuring, Marking & Layout: A Builder's Guide* / Carroll; *Roadside Use of Native Plants* / Harper-Lore and Wilson); 16 pages

VOL. 7, NO. 2, SUMMER 2000

Elements of natural design; chlorpyrifos restricted; book reviews (*The Landscaping Revolution* / Wasowski; *Energy-Efficient and Environmental Landscaping...* / Moffat, Schiler, et al.); 12 pages

VOL. 7, NO. 1, SPRING 2000

Soil as a living system; regenerating soils with ramial chipped wood; notes from ELA roundtable: lawn care tips;

Winter Conference keynote highlights (Essential elements of ecology for the landscaper / Tom Wessels); the power of words—ecological thinking; 16 pages

VOL. 6, NO. 3, FALL 1999

Sustainable landscapes; mycorrhizal fungi; remembering William Nearing; (Mass.) Children's Protection Act; 16 pages

VOL. 6, NO. 2, SUMMER 1999

Organic nursery production; lawn-less housing development in Florida; weed laws: outdated, but still in place; 16 pages

VOL. 6, NO. 1, WINTER 1999

Natives/exotics discussion, continued: Issues in biological control; native street trees; minority opinion: myth of exotics; resources on natives and invasives; book review (*The Once and Future Forest* / Sauer); coconut coir in potting mixes; under-appreciated natives; 16 pages

VOL. 5, NO. 4, WINTER 1998-99

Exploring the natives/exotics issue: Raulston's exotic/native philosophy scale; the weeds of Halloween; decision-making/evaluation process for exotics; natural landscapes—a little too wild?; 16 pages

VOL. 5, NO. 2, SPRING 1998

Protecting vernal pools; design on your feet; New England ecological garden at Univ. of N.H.; nitrogen uptake by woody plants; book reviews (*Natural Forms*; *A Practical Sourcebook for Landscape Design* / Dubé; *Dirt—The Ecstatic Skin of the Earth* / Logan); national organic standards; 12 pages

VOL. 5, NO. 1, WINTER 1997-98

ELA roundtable notes: constantly creating your business; native shrubs for the winter garden; tools that work; university extension funding issues; 12 pages

"Knowledge is of two kinds. We know a subject ourselves or we know where we can find information upon it."—Samuel Johnson

Integrated Design, Integrated Development

*March conference to focus on economically and ecologically sound design
through broad partnerships and systems thinking*

Integrated Design, Integrated Development is a training session and workshop scheduled for March 21 and 22, 2003, at the New England Center on the UNH-Durham campus. The conference—presented by the NH Environmental Guild, NH Chapter of the American Institute of Architects, Granite State Landscape Architects, Jordan Institute, and the Office of Sustainability Programs at UNH—will bring together architects, civil engineers, landscape architects and contractors, developers, realtors, bankers, and planners to promote better communications among the disciplines and to foster environmentally responsible development.

According to conference co-chairs John Hart of UNH and Paul Leveille of the Society for the Protection of NH Forests, the goal is to discuss the challenges and opportunities in adopting an integrated approach to responsible site planning, building design and construction, and on-going operations and maintenance. Participants will come away with a workable process for integrating design and development across the disciplines, with specific practices for each stage in that process, and with the technical resources and contacts needed to incorporate integrated design into typical projects.

The day program on Friday will consist of LEED training (Leadership in Energy and Environmental Design) by the U.S. Green Building Council. This session is a precursor to the exam for LEED accreditation, undertaken by architects, engineers, developers, and others who are interested in promoting green building. The LEED program has become recognized across the country as an objective approach to evaluate the environmental performance of buildings and sites.

A Friday evening opening banquet will feature keynote speaker John Todd, research professor in the School of Natural Resources and a distinguished lecturer at the University of Vermont. Todd is the founder and president of Ocean Arks International, a non-profit research and

education organization, and president of John Todd Research and Design Inc., a consulting firm. He is the inventor of “living machines” or “ecological engines” for the treatment of wastes, production of foods, generation of fuels, and the restoration of damaged aquatic environments.

The Saturday program will feature several state-of-the-art case studies from the New England region. These will demonstrate successful collaborations among the professions which led to high-quality, economically viable, and ecologically sound developments. The day will be moderated by Kate Hartnett of the NH Minimum Impact Development Partnership.

The keynote presentation will be delivered by David Orr, an entertaining and thought-provoking speaker. He has presented at symposia and conferences across the country, and is widely published in diverse building and environmental journals. Two of Orr’s books, *Earth in Mind* and *Ecological Literacy*, have sold more than 10,000 copies each—bestsellers, by the accounting of academic publishing. Orr chairs the Environmental Studies Program at Oberlin College. At Oberlin he has overseen the design and construction of the Lewis Environmental Studies Center—a building designed to minimize waste, optimize resource use, utilize all precipitation on site, and be a net producer of energy.

The prime sponsor of the “IDID” conference, as of this writing, is Public Service Co. of NH. Several sponsorship opportunities remain for businesses and individuals who would like to demonstrate a commitment to collaborative and ecologically appropriate initiatives. It is a unique opportunity to showcase a business or product to a very select audience of 300 over the two-day conference. For more information contact Carolyn Isaak at the AIANH office at (603)357-2863, <office@aianh.org>. As the program develops, new information will be posted on the conference Web site, <www.aianh.org/Pages/idid.html>.

Winter trivia from the National Weather Service Forecast Office

Find more at <www.erh.noaa.gov/er/lwx/winter/TRIVIA.htm>

At which of the following temperatures does water spontaneously freeze? a) 18°F b) 32°F c) 0°F d) -40°F

Answer: d. Ice always melts at 32°F, but water does not always freeze at 32°F. It must freeze onto something. However, at -40°F, water freezes spontaneously. If you poured a cup of water out of a window with the air temperature outside at -40°F, the water would freeze before it struck the ground.

True or false? It must be 32°F or colder for it to snow.

Answer: False. It has been known to snow with temperatures in the mid 40°s. Temperatures are below 32°F up in the clouds where the snow is forming.

On the average, one inch of rain is equivalent to how many inches of snow? a) 10 inches b) 1 inch c) 5 inches d) a foot

Answer: a. 10 inches of snow melts down to about an inch of liquid rain.

PRESIDENT'S MESSAGE

Consuming education and thinking outside of the box

Many years back, a local clothing store ran a radio ad that ended with the phrase "An educated consumer is our best customer." After hearing it a couple of times I started thinking, if the customer is educated (and most of them are!), then what should the provider of the service or product be? Then it came to me (this was genius)—educated, too!

Because of this "revelation," I find myself hurrying to the mailbox this time of year (lots going on in the New England area from December to April) not only to retrieve the colorful seed and plant catalogs that I have been anticipating, but also to gather up all the newly arrived catalogues, fliers, and brochures announcing the many great opportunities to educate myself. From courses to the latest books on ecology, biology, plant care, lawn care, pruning, as well as a reintroduction to the tried and true "old ways."

As I pore over the titillating and beckoning titles and descriptions of these "courses" and books, I realize that the appeal of many of them is that they challenge me to think outside of the box. One asks, "Are you ready for the drought?"; another makes us consider "What we leave behind," and another makes us laugh: "You Don't Know a Plant

Until You've Killed It." They promise to provide alternatives to the conventional thinking, to encourage me to analyze and not just follow a prescribed set of rules.

This is appealing to me because experience—another great teacher—shows me that every situation has its own unique twists and turns that challenge me to think outside the box and come up with the solution appropriate to that site. (Sometimes the "site" is my office computer and if this isn't a box to think outside of, I don't know what is!)

Then comes the hard part, choosing which one of the many excellent courses and books out there to spend precious time and money on. If I could, I would take advantage of them all, but one conference that I won't miss for the world is the ELA Winter Conference with its new Eco-Marketplace this year. This two-day event is chock-a-block full of presentations and information that are guaranteed to make me think!! It also allows me a chance to meet up with others who are excited to learn and are also willing to share their "tricks of the trade."

There are several other symposia I particularly like to attend or have heard good things about (and I'm certain there are others I don't even

know about). I'd like to get to the New Directions in the American Landscape Symposium, organized by Glen Dryer and Larry Weaner held in Connecticut and Pennsylvania every January; the Millersville (Pa.) Native Plants in the Landscape conference, held in June, and The Cullowhee Native Plants Conference in western North Carolina every July.

For books, a must-read is *The Future of Life* by E.O. (Edward Osborne) Wilson—a real eye-opener. And of course I can't miss the opportunity to encourage you all to purchase and read the first installation of the new ELA "Guide to Healthy Landscapes" due out this spring.

And speaking of spring, soon I'll be hurrying to the window, to check on the progress of spring's return and awaiting the time when I can get outside into the big "classroom" and learn the lessons that Mother Nature has planned for me this year. I hope that I'll be a good student, pay close attention, apply the new knowledge gained from both the inside and outside classrooms, and pass it on.

Happy learning and good luck applying your new knowledge to your work this year!

—Kathy Sargent-O'Neill

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A belated welcome to Joy Buslaff, who joined us as production editor of *The Ecological Landscaper* with the summer 2002 issue. Joy slipped in a brief comment about herself under her book review in the last issue, but she deserves more. In addition to nearly 30 years of publishing experience, she had recently been editor of *Wild Ones Journal*, a newsletter about native plants and natural landscapes.

When she's not busy with her magazine work and fixing up an old, funky schoolhouse now turned home, she's managed to find time to help produce *The Ecological Landscaper*, and at a charitable rate for us, as well.

After working with her for two issues, I can say without hesitation that we're lucky to have her talented and spirited help. Joy's primary task is design and layout, but she also writes, proofreads, digs up story material, and sends entertaining e-mails. And all with a playful (or is that devilish?) sense of humor. What more could an editor ask for?—ed.

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Special magazine offer for ELA members

As part of our ongoing participation in the Orion Society's Grassroots Initiative program, ELA is able to offer our members a special discount on the excellent *Orion* magazine. Published six times a year, Orion offers articles and missives on the overlapping areas of ecology, culture, and just living. Lushly illustrated and finely produced, it can provide information, inspiration, and context which can help inform our work.

Plus, Orion generously rebates part of each subscription back to ELA, so you're also supporting ELA when you subscribe!

Visit the Orion Web site at <www.oriononline.org>. To subscribe, send \$35 (for one year) to Orion Society, 187 Main Street, Great Barrington, MA 01230, or call (888) 909-6568. Be sure to mention that you're a member of ELA (which participates in the Grassroots Initiative).

It's here!

ELA's Winter Conference is upon us: Feb. 28 and March 1. This year's expanded, two-day event with an added Eco-Marketplace offers a bigger educational program, an array of products, services, growers, and companies geared towards ecological landscaping, plus more time to meet fellow professionals, catch up with old friends, and make some new ones.

If you've been putting off registering, it's not too late; walk-ins are welcome. See the conference description below or check the ELA Web site <www.ELA-ecolandscapingassn.org>. Hope to see you all there! (The event will happen, snow or shine.)

Opportunity for informal roundtable at winter conference

"Let's talk (sustainable) business"—An informal roundtable. This invitation is geared especially towards people responsible for landscape businesses at least a year old. Discuss what successes and challenges you faced in 2002, and your goals and issues for 2003. If there is interest, we can talk about developing a formal support network of others in the field. Meet inside Jerry's Restaurant at 6 p.m. on Friday night, and 3:30 p.m. on Saturday after the conference. Look for the sign: "Let's Talk Business" or contact Julie Meyer at <gardensofdelight@attbi.com> (e-mail), or phone (413) 665-7725 for more information or to help facilitate.

2003 Ecological Landscaping Winter Conference and Eco-Marketplace

Building Viable Habitats: Resources for the Ecological Landscape
February 28, March 1, 2003
at the Holiday Inn, Boxborough, Mass.

Keynote presenters will be **Leslie Sauer** of Andropogon Associates, who will discuss ecological landscape management and preservation, and **Dr. Elaine Ingham**, national expert on the soil foodweb, who will explore the complexities of the soil ecosystem and ways to manage its health. Both will also present workshop sessions.

Other scheduled speakers include **Bill Cullina** on native trees for tough sites; **Cheryl Smith** on biorational approaches to managing plant diseases; **Frances Clark** on managing conservation land for habitat; plus, sessions on lawn care, pest management, and more.

There will be expanded opportunities for informal networking sessions to meet and talk to other landscape and horticultural professionals.

The addition of the Eco-Marketplace will feature vendors of products and services related to ecological landscaping and conservation.

Cost is \$125 for Friday only, \$95 for Saturday only, or \$185 for both days. Cost includes program, lunch, continental breakfast, and conference booklet.

IS, MC, MCS, AND MCLP, and pesticide contact hours have been requested.

For more information, contact Nancy Askin, ELA's conference coordinator at (978) 425-0101 or Kathleen Carroll at (413) 545-0895, <kcarroll@umext.umass.edu>. Or, check these Web sites: <www.ELA-ecolandscapingassn.org>, <www.umassgreeninfo.org>, or <www.newfs.org>.

Co-sponsored by the Ecological Landscaping Association; UMass Extension's Landscape, Nursery, and Urban Forestry Program; and the New England Wild Flower Society, the 9th Annual Winter Conference has been expanded to a two-day-long program. Presented by leading experts, the educational sessions will provide information on a broad range of vital topics.



ANNUAL APPEAL

We are very gratified by the response to our annual appeal. As of mid-February, 31 people have contributed a total of \$2,640 to ELA for our new and ongoing projects. As the oldest organization of its kind devoted exclusively to landscaping in harmony with nature, your support is essential to our continued success and growth. Sincere thanks to our generous supporters:

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|--|---|
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| <i>Hasso Ewing, Ewing Landscapes & Gardens</i> | <i>Dori Smith, Gardens for Life</i> |
| <i>Mark Saydah, Whole Earth Landscape and Design</i> | <i>Nina King Lavin, Nina King Lavin Landscape Design</i> |
| <i>Malcolm Wright, Pinegate Gardens</i> | <i>Ryan Marlinghaus, CAL Earthcare Landscaping, Inc.</i> |
| <i>Cheryl Lowe</i> | <i>Ginger Wells-Kay of Garden Artisans</i> |

plus seven anonymous

Volunteer opportunities at

ELA: We currently could use some help with a couple of specific tasks. We are looking for someone experienced with Web page design to maintain and improve the ELA Web site. Time commitment is flexible, but an ongoing involvement would be needed. Residence in the eastern Mass. region would be helpful, but the work could be done from anywhere. Please contact Kathy Sargent O'Neill at <ELAwebmaster@rcn.com>.

We'd also like to find people willing to be regular contributors to the newsletter. Writing articles, book reviews, profiles, and other content; reporting on ELA events; or compiling events listings are some possibilities, depending on your interests. Contact Nick Novick at <ELbacktalk@aol.com>.

Welcome to our new members!

| | | | |
|---|--|--|--|
| <i>Mark Donohoe Riverside Landscaping 90 Bass Ave. Gloucester, MA 01930</i> | <i>Andrew Watkins 40 Allen Coit Rd. Huntington, MA 01050</i> | <i>Janet Powers 10 School Way Bedford, MA 01730</i> | <i>Suzen Perry Natureigns 655 Boston Post Rd #47 Sudbury, MA 01776</i> |
| <i>Steve Wilchinski Bioquatic Supply Corp. 248 Great Rd. Maynard, MA 01754</i> | <i>Ruth Langh Ruth Langh Garden Design 266 Pond St. Hopkinton, MA 01748</i> | <i>Deborah Lee Woodland Trails Wildflower Nursery 32 Ashford Rd. Ashford, CT 06278</i> | <i>Laurie Fitzgerald Waterwise Gardens, Inc. 27 Cushing Ave. Belmont, MA 02478</i> |
| <i>Brian McMahan Natural Tree and Lawn Care PO Box 175 Avon, MA 02322</i> | <i>Graham Claydon Nature's Refuge Landscape Design 123 Great Rd. Shirley, MA 01464</i> | <i>Jean Tufts National Wildlife Federation 11100 Wildlife Center Dr. Reston, VA 20190</i> | <i>Michael Newman SavaTree 15 Lewis St. Lincoln, MA 01773</i> |
| <i>Kaitlyn Serafin Tree Specialists Inc. 140 Washington St. Holliston, MA 01746</i> | <i>Bill Obear Bear Path Farm PO Box 157 Whately, MA 01093</i> | <i>Marty Carson Three Seasons Inc. 936 Dove Island Rd. Newton, NJ 07860</i> | <i>Chawner Hurd Advanced Marine Technologies 49 Hassey St. New Bedford, MA 02740</i> |
| <i>Lindsay Strode Cape Organics Box 684 W. Harwich, MA 02671</i> | <i>Long Hill Reservation Trustees of Reservations 572 Essex St. Beverly, MA 01915</i> | <i>Lisa Wiesner Ladybug Gardening 767 Bedford Rd. Carlisle, MA 01741</i> | <i>Pamela Hart Pamela Hart Landscape Services 18 Donnell St. Cambridge, MA 02138</i> |
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| <i>Clemence Corriveau 19 Walker Lane West Hartford, CT 06117</i> | <i>Ruth Helfeld Mass. Dept. of Environmental Mgmt. 251 Causeway St. Boston, MA 02114</i> | <i>John Larsen Well Water Connection Inc. 4 Rhoda St. Tewksbury, MA 01876</i> | <i>Fred Newcombe PJC & Co. 252 Dodge Rd. Rowley, MA 01969</i> |
| <i>Vincent Webb Hartney-Greymont Inc. 433 Chestnut St. Needham, MA 02492</i> | <i>David Jeffries Groton Technology, Inc. 45 Discovery Way Acton, MA 01720</i> | <i>Tysh McGrail Woodscapes, Inc. PO Box 771 Chepachet, RI 02814</i> | <i>Robert Walsh 6 Osgood Rd. Sterling, MA 01564</i> |

gleanings

Cell phones: mobile convenience, health hazard, or both?

Editor's note: The increasingly frenetic pace and busy schedules that characterize so many of our lives place new demands on communication. When they work, the easy and instant access offered by cellular phones falls somewhere between convenient and indispensable, especially for the landscape professional in the field. The health effects and safety of these devices is uncertain, but studies continue to indicate that concern is not unwarranted. Read and heed.

Italian scientists have raised new health concerns about the safety of using mobile phones.

Research shows that radio waves from phone handsets make cancerous cells grow more aggressively.

When Fiorenzo Marinelli and his colleagues at the National Research Council in Bologna exposed leukemia cells in the laboratory to 48 hours of continuous radio waves, the waves initially killed the cancer cells, but then made the surviving tumor cells replicate more rapidly.

An Australian study found that mice exposed to radiation from handsets over a period of 18 months had twice the chance of developing cancers.

A U.S. study found that learning and short-term memory were impaired after exposure to mobile phone radiation.

Nottingham University recently found that when female nematode worms were exposed to radiation from mobile phones, they produced more stress hormones, more eggs, and grew 10 percent larger than unexposed worms.

The World Health Organization has called for more research into the potential health hazards of mobile phones and has urged people to limit their use of them.

If you have to have one, the following suggestions may make cell phone use safer:

- Keep calls as short as possible.

- Ensure that the antenna is as far as possible from your head. If possible, use a hands-free kit.
- When indoors, always use the phone near a window and hold the handset on the side of your body that faces the window.
- As a rule, use your phone only when it is showing four to five bars of signal strength.
- Avoid handsets with internal antennae, as these tend to expose you to higher levels of radiation.
- Purchase some form of protective device. There are two basic types: barrier devices that attempt to shield or dissipate the radiation from the phone to the head, and those that claim to boost the body's ability to neutralize the radiation.

—from *The Ecologist*, December 2002/
January 2003, <www.theecologist.org>

Cell phone case for landscapers

When you bought your cell phone, the salesperson probably offered you an airtight contract but not an airtight phone case, yet this is just what those of us who work around water, dust, and mud could really use.

"Marine" cases are 100 percent waterproof and will float if you accidentally drop one into your rain barrel. With only about a 5 percent sound loss, you can even dial, speak, and listen through the clear case. Many manufacturers offer similar products. Here's the URL of one online store specializing in waterproof cases: <www.keepitdrycase.com/aqminwatcelp.html>.

Exotic earthworms: ecological concerns

In past issues of The Ecological Landscaper we've cited research on the effects of nonnative earthworms on natural ecosystems. Here's more information on the possible detrimental effects of these critters, so often praised for their role in gardening.
—ed.

Gardeners and farmers tend to view earthworms—any earthworms, regardless of species—as beneficial for soils and plants. But two biologists who are experts on earthworm ecology are

warning that exotic earthworms imported from other continents (in some cases deliberately, in other cases accidentally) could have net negative effects. At the present time, dozens of exotic earthworm species are known to be established in North America, and there are no regulations to prevent importation of additional exotic species (except those that are suspected of carrying disease organisms).

The biologists suggest that some exotic earthworms could out-compete some native earthworms, disrupting native ecosystems. However, they provide little evidence that such damage is significant in either biological or economic terms. Nevertheless, they call for new regulations to reduce importations of exotic earthworms, possibly with exceptions for vermiculture businesses who rely on exotic species.

—Reference: Paul F. Hendrix (Dept. of Crop and Soil Sciences, University of Georgia) and Patrick J. Bohlen, "Exotic Earthworm Invasions in North America: Ecological and Policy Implications," *Bioscience* 52(9), September 2002; as cited in *HortIdeas*, October 2002.

Price increases possible for potting containers

Container suppliers warn that war with Iraq could lead to unprecedented container prices. The price of crude oil, necessary to manufacture plastic pots, has risen from \$16 per barrel six months ago to \$35. A war could raise this price to \$50, said Kleis Hensen, VP at ITML Horticultural Products.

Suppliers advise growers to buy now because prices won't be likely to drop any time soon. Even worse, growers who wait too late to buy may run into shortages. However, one manufacturer spokesperson, Steve Pavelka, Landmark Plastic Corp. COO, said shortages are unlikely. In case of war, other Arab nations would likely increase oil production to account for shortages.

For more information, visit <www.landmarkplastic.com>.

—from: NMPRO e-mail newsletter, 2/11/03

Wisdom of leaving grass clippings confirmed—again

Field trials conducted in Connecticut on a mixture of turfgrasses confirmed the oft-given advice in ecological circles to allow grass clippings to return to the soil, rather than to collect and dispose of them.

Test plots were seeded with a combination of Kentucky bluegrass, creeping red fescue, and perennial ryegrass. Clippings were either removed from or spread evenly over plots from which they were removed, and four rates of nitrogen fertilizer were applied to the plots. The results: returning clippings increased dry matter yields from 30 to 72 percent, nitrogen use efficiency from 53 to 71 percent, and resulted in grass quality equal to or better than that with clippings removed. Nitrogen fertilization rates could be lowered by half or more without diminishing grass quality if clippings were returned.

—Reference: Kelly L. Kopp and Karl Guillard, "Clipping Management and Nitrogen Fertilization of Turfgrass: Growth, Nitrogen Utilization, and Quality," *Crop Science* 42(4), July-Aug. 2002; as cited in *HortIdeas*, November 2002.

Green industry continues growth

A University of Vermont study showed that the green industry in New England has grown 10 percent in the last three years. The nursery/landscape industry contributes \$4 billion to the region's economy, employs 131,000 people (with 36,000 full-time, part-time, and seasonal jobs still unfilled), and accounts for 177,000 acres of agricultural land. "At a time when consumers are spending less on things like restaurant meals and household furnishings, it is very encouraging to see the kind of success the green industry is enjoying," said Jesse O'Brien, president, New England Nursery Assoc., (508) 653-3112.

—from: NMPRO e-mail newsletter, 2/11/03

Colorado expands list

Nineteen plants have been added to Colorado's noxious weed list, including *Elaeagnus angustifolia* (Russian Olive).

Sale of these plants will be banned across the state. Russian olive is established in 8,000 acres of watershed areas, especially at lower elevations, according to the Colo. Dept. of Ag. "Since these regulations are supported by the industry, we believe the impact will be minimal to our nurseries," said Eric Lane, CDA weed coordinator, <www.ag.state.co.us/commissioner/press/2002/NurseryRegs.html>.

—from: NMPRO e-mail newsletter

Hemlock woolly adelgid moves into Midwest

Hemlocks in eastern Ohio are threatened by the hemlock woolly adelgid, an aphid-like pest that sucks sap from young twigs. It has infested 12 states from southern New England to South Carolina, including Ohio neighbors Pennsylvania and West Virginia.

Hemlock is one of the most common species planted and is valuable to the state's nursery industry. An infestation could restrict sales to other states, said Ohio State university entomologist Dan Herms. The pest retards or prevents growth. Look for white sacs that resemble small cotton swabs at the base of needles. Horticultural oil and insecticidal soaps are... effective controls.

—from: NMPRO e-mail newsletter, 9/02

Honey, why is the ficus blue?

Colorado State University researchers are attempting to genetically engineer plants to change color in response to biological, chemical, or viral agents. If successful, the plants would provide an almost-immediate warning that deadly agents had been released, said June Medford, CSU biology professor. The project is funded by Defense Advanced Research Projects Agency; phase one is scheduled to take 18 months. Info: <June.Medford@colostate.edu>.

—from: NMPRO e-mail newsletter, 2/18/03

February 25, 2003

Trees, People, and the Law Seminar with Victor Merullo, 9 a.m.-4 p.m. Sturbridge Host Hotel, Sturbridge, Mass. Sponsored by Arbor Day Foundation. Info: (888) 448-7337.

February 26, 2003

Midwest Ecological Landscaping Association Mini-conference, Triton College, River Gorge, Ill., 3-8 p.m. Dr. Rex Bastian on the soil food web, Kelsay Shaw on issues of woody plant use, and Bill Luenberger on less toxic lawn care. \$20 includes program and dinner. For info or to register, call (773)235-2206; or e-mail <mikenowak@ameritech.net>.

February 27-March 1, 2003

Florida's Final Frontiers: Saving What's Left, Gainesville, Fla. Organized by Univ. of Florida College of Law's Environmental and Land Use Law Society, conference will address water, wildlife and habitat, policy and procedure, and land and development. Info: <www.grove.ufl.edu/~els>; (352)392-2237.

February 27, 2003

Integrated Pest Management Conference, Villanova University, Villanova, Pa. Info: David Suchanic (610)489-4315.

February 28-March 1, 2003

Building Viable Habitats: Resources for the Ecological Landscape, 9th Annual Winter Conference and Eco-Marketplace, Holiday Inn, Boxborough, Mass., cosponsored by ELA, UMass Extension, and the New England Wild Flower Society. Keynote speakers will be Leslie Sauer and Elaine Ingham. In an expanded, two-day format, wide-ranging educational sessions include turfgrass development, native trees and shrubs for "difficult" sites, alternative approaches to disease management, efficient water use, and much more. Also new this year is the Eco-Marketplace featuring products and services useful for environmentally conscientious landscaping. Registration: Friday only \$125; Saturday only \$95; both days \$185. Fee includes educational program, Marketplace, continental breakfast, lunch, conference proceedings, informal

networking opportunities. For registration info contact Cathy Dodd (508)877-7630 x3303.

March 6, 2003

Greening the Community: Planning and Forestry, University of Maryland, College Park, Md., sponsored by Md. Dept of Natural Resources-Forest Service and Univ. of Md. Topics include stormwater management, fire-wise communities, landscape planting near airports, more. \$45 includes program and lunch. Contact Marian Honecny, MD DNR, (410)260-8511; <mhonecny@dnr.state.md.us>.

March 7, 2003

Environmentalism and Design, cosponsored by Institute for Cultural Landscape Studies and the Landscape Design Program of the Arnold Arboretum, is a symposium to examine environmental thinking in landscape design and how to integrate new knowledge about ecological processes and cultural understanding into the design process. \$95, includes program (9 a.m.- 3 p.m. and lunch. Registration deadline Feb. 28. Contact Arnold Arboretum (617)524-1718 x175; <www.arboretum.harvard.edu>.

March 7-8, 2003

Mid-Atlantic Interior Landscape Conference, Penn. State Great Valley Campus. Info: Ken O'Brien (215)723-1730.

March 8-16, 2003

Chicago Flower and Garden Show, Navy Pier, Chicago, Ill. Info: (312)321-0077 or (312)222-5086; <www.chicago.flower.com>.

March 13, 2003

From the Ground Up: Gardening the MELA Way: Midwest Ecological Landscaping Assoc. workshop at the Chicago Flower and Garden Show, 2-4 p.m. Geared to the home gardener, topics include factors in building a healthy soil, plant selection, and earth-friendly pest and disease control. See Chicago Flower and Garden Show, above.

March 13, 2003

2003 Community Tree Conference, Stockbridge Hall, Univ. of Mass., Amherst, Mass., will examine challenges and opportunities surrounding the

preservation of vintage trees. Topics will include financial evaluation; structural problems; pruning, bracing, and cabling; soil amendments; and more. \$50 includes program, coffee break, and parking pass; walk-ins accepted. For program info: Dennis Ryan (413)545-6626; <hdpryan@forwild.umass.edu>. For registration info: Kathleen Carroll (413)545-0895; <kcarroll@umext.umass.edu>.

March 15-23, 2003

New England Flower Show, Bayside Expo & Executive Conference Center, Boston, Mass. Info: (617)933-4984; <www.massshort.org>.

March 18, 2003

Perennial Plant Conference, Univ. of Conn., Storrs, Conn. Info.: Dr. Richard McAvoy (860)486-0626; richard.mcavoy@uconn.edu.

March 21-22, 2003

Integrated Design/Integrated Development, A Conference on Environmentally Responsible Design and Development, sponsored by by AIANH Environmental Guild, GSLA, The Jordan Institute, and the Office of Sustainability programs at UNH. Info: Carolyn Isaak (603)357-2863; <office@aianh.org>. See expanded description on page 9.

March 24-25, 2003

Building Green: Water Reuse in Site Design, Harvard Design School, Cambridge, Mass. Two-day seminar focusing on integrating architectural and landscape techniques of water conservation and innovative reuse that are suitable for individual development sites. Course instructors will be David Del Porto, director of The Ecological Engineering Group; Robert France, associate professor of landscape ecology at Harvard Design School; and Thomas Liptan, landscape architect and environmental specialist for the city of Portland, Ore. \$820 for both days. Info: Harvard Graduate School of Design <www.gsd.harvard.edu/professional/exec_ed/seminars/general.html>.

March 29, 2003

The Great American Lawn: Alternatives and Cost Benefits, Arnold Arboretum, Jamaica Plain, Mass. Part of the ELA roundtable series (this event cosponsored with Arnold Arboretum). Presenters Lisa Vernegaard, an ecologist with Trustees of Reservations and con-

tributing author of *Redesigning the American Lawn* and Tom Akin, assistant grounds superintendent at Arnold Arboretum, will explore reasons for the prevalence of the broad, green carpet, and some alternatives. Contact ELA at (617)436-5838.

April 1, 2003

Fruit Tree Workshops, Belchertown, Mass., sponsored by UMass extension. Two separate workshops: 9 a.m.-noon, fertility, root stocks, siting, etc.; 1-3 p.m., pruning. Info: Kathleen Carroll (413)545-0895.

April 4-6, 2003

Festival of Hummingbirds, Tucson, Ariz. Organized by The Hummingbird Society, this first annual event will host presenters from around the world to raise awareness and understanding of the 16 species of hummingbirds that breed in the U.S. Info: (800)529-3699; <www.hummingbirdsociety.org>.

April 13-16, 2003

Inaugural National Conference on Coastal and Estuarine Habitat Restoration, Baltimore, Md., hosted by Restore America's Estuaries. Topics include best restoration practices, planning, community involvement, funding opportunities, habitat restoration, and more. Info at <www.estuaries.org>, or Rick Bates, (703)524-0248.

May 1-4, 2003

American Wetlands Conference, Minneapolis, Minn., sponsored by Izaak Walton League. Topics include cultural significance of wetlands, regulatory wetland protection, mitigation, restoration, backyard wetlands, rain gardens, and more. Contact IWLA American Wetlands Campaign (800)284-4952; <awm@ilwa.org>.

May 5-7, 2003

Urban Wildlife Management, a national conference sponsored by the National Arbor Day Foundation, Nebraska City, Neb. Topics areas include wildlife and human interactions, deer issues, education, communication, community interactions, and more. \$295 before April 21; \$350 after; includes program, all materials, meals, refreshment breaks. Contact National Arbor Day Foundation (888)448-7337; <www.arborday.org/uwmconference>.

resources

Invasives documentary airs

"Silent invaders: Plants out of Place II" is an upcoming documentary to be aired on the award-winning television series "TECHNO 2100." This program features interviews with a variety of respected plant experts, landowners, and federal agencies working together to manage, control, and prevent the spread of invasive plants (both terrestrial and aquatic) through effective biological, mechanical, and chemical initiatives.

This 30-minute TV special airs Saturday, March 1 at 3:30 p.m. (EST) on CNBC during sponsored programming. It will help raise public awareness of the ecological and economical impact invasive plants are having on our country and will reflect the need for ongoing scientific research and cooperation between agencies and related industries.

Pesticide information

Many people have been confused by discussions of pesticide toxicity and

how the warnings on pesticide labels (and safety claims by pesticide applicators) might relate to the toxicity of a pesticide.

A concise article from *The Journal of Pesticide Reform* on the basics of toxicology can be found at this URL: <www.pesticide.org/ToxicologyABCs.pdf>.

Also, The Toxicology and Environmental Health Information Program of the National Library of Medicine's

Division of Specialized Information Services has new and improved resources. You can type in a chemical name and search for relevant publications. Check out the new features at <www.toxnet.nlm.nih.gov>.

More general information can be found at <sis.nlm.nih.gov/Tox/ToxMain.html>.

(Thanks to Sarah Little of the Massachusetts Pesticide Awareness Collaborative for these references to our attention.)

unclassifieds

REQUEST FOR NATIVE PLANT DONATIONS

Do you have any native plants (heeled in or otherwise available) for donations to the Hitchcock Center for the Environment's Native Plant Sale to be held May 3 in Amherst, Mass.? If you are looking for a good cause and a great tax write-off for all those extras you can't use easily, contact Julie (through the site below) to pick them up. Visit <www.hitchcockcenter.org> to see how your plant donations will benefit the local ecology and community of the Pioneer Valley.

REQUEST FOR SERVICE DONATIONS FROM WESTERN MASS LANDSCAPERS

If you live in Western Massachusetts and would like to donate your landscaping services for a raffle or silent auction at the fundraiser above please get in touch a.s.a.p. Visit <www.hitchcockcenter.org> to learn more about this wonderful community-building event that supports "a greater awareness and understanding of our natural world and... develop(s) environmentally literate citizens."

Contact Julie Meyer at <gardensofdelight@attbi.com> or call (413) 665-7725. Thanks!



The Ecological Landscaper
6 Meadowbrook Lane
Ashland, MA 01721

"Every mile is two in winter."
—George Herbert (1593-1633)