

taking cues from Nature

ARTICLE AND PHOTOGRAPHS
BY KAREN BUSSOLINI

Pennsylvania-based landscape designer Larry Weaner blends ecology and horticulture to create sustainable native landscapes.

FOLLOWING IN the footsteps of pioneering 20th-century practitioners such as Jens Jensen in the Midwest, modern ecological designers seek to create landscapes that are pleasing and useful to people while functioning in much the same way as natural plant communities.

Yet designers who strive to work in partnership with nature face an uphill battle. Sara Stein, in her groundbreaking 1993 book *Noah's Garden: Restoring the Ecology of Our Own Backyards*, described how traditional gardening and landscaping practices had devastating ecological



Landscape designer Larry Weaner

consequences to the land in rural and suburban areas. The question of how to mend this fractured and depleted patchwork landscape is being deliberated by a diverse community of plant scientists, wildlife biologists, entomologists, propagators, land-care professionals, restoration ecologists and home gardeners.

Many have found a supportive community of like-minded individuals through the New Directions in the American Landscape (NDAL) symposium, an annual event initiated by Pennsylvania landscape designer Larry Weaner in 1992. Many of Weaner's col-



At this property, landscape designer Larry Weaner encouraged white meadowsweet (*Spiraea alba* var. *latifolia*), a low-maintenance, thicket-forming native shrub, to develop a dense colony around a birch grove, crowding out aggressive wild blackberries and other invasive woody weeds. Mowing lets the shrubs spread into a pre-determined zone but no further.

leagues view him as an influential and visionary thinker in the still-evolving field of ecological landscape design.

“Larry Weaner’s work as a designer and as an educator, through the conferences he has supported, place him in a unique group of people who have raised the awareness of the fact it is possible to create, restore, and manage landscapes that are at the same time ecologically sound and experientially rich,” says Darrel Morrison, a noted landscape architect and former professor at the University of Georgia. “His approach, while centered in the Northeast, has implications for landscape design in a much broader geographic area.”

Doug Tallamy, a professor of wildlife ecology at the University of Delaware in Newark and author of *Bringing Nature Home* (Timber Press, 2009) is a regular speaker at the NDAL symposium. “Larry was ahead of the curve, but the curve has caught up with him because we now realize the function of plants,” says Tallamy. “They’re not just ornamental, they have an ecological role that has to play out in our landscapes. People once thought that natives weren’t good for landscaping. Larry’s major contribution

is that he is showing people they are.”

BLENDING ECOLOGY AND HORTICULTURE

Weaner has one foot firmly planted in the world of horticulture and one in the science of ecology. Working primarily on the East Coast on properties both large and small, he creates artful self-sustaining communities of native plants in partnership with nature. He is particularly well known for creating designed meadows (for a sidebar on tips for creating meadows, see the web special linked to this article on the AHS website).

He traces his interest in sustainability to a summer job working with Philadelphia-based landscape designer Eugene Varady. One day, Varady posed the question, “Do you think what we do is good for the environment?” They talked about how planting things seemed like it had to be good and how it did sometimes feed the birds, but then again they did use herbicides and pesticides, which probably weren’t so good. Weaner has been asking questions, questioning the obvious, observing nature, and tracking down relevant research ever since.

After earning a degree in ornamental horticulture, Weaner began designing

landscapes that were loose and informal with lots of curvy lines. Billing himself as a “natural” landscape designer, he tried to recreate the sense of mystery and discovery he experienced as a child in a patch of woods in his Philadelphia neighborhood. But he slowly came to the realization that the gardens were static compositions that took a lot of work to keep from changing, while nature was endlessly fascinating because it constantly changed.

Taking a three-day course on establishing native meadows with legendary landscape architects A.E. Bye and Ted Browning at Harvard Graduate School of Design made him realize that a naturalistic style wasn’t necessarily like nature at all—and certainly wasn’t self-sustaining in the same way as naturally occurring plant communities. “[Bye and Browning] taught me that things happen in nature for a reason,” says Weaner. “A meadow isn’t just a place with pretty plants and no straight lines. Its patterns, processes, and interactions make it what it is. If you want to plant a meadow and don’t understand the underlying ecology, it’s not going to happen.” Weaner also studied the work of ecologists Frank Egler and William Nier-



In this Connecticut meadow, different plant communities are separated by a mowed path. On the left is a wet swale planted with false sunflower (*Heliopsis helianthoides*); on the drier side to the right is cutleaf coneflower (*Rudbeckia laciniata*) and gray coneflower (*Ratibida pinnata*).



In this Weaner landscape, eastern columbine (*Aquilegia canadensis*) and alumroot (*Heuchera villosa*), formed self-sustaining colonies alongside the limestone foundation of the house.

ing. “What I learned,” he says, “is they weren’t planting and arranging every plant like gardeners do, they were setting a process in motion.”

WHAT IS NATURAL DESIGN?

Weaner’s research, observation, and practical experience have combined to inform his design philosophy. He describes natural landscape design as having a positive influence on the surrounding environment and he invokes the Hippocratic oath, “first, do no harm.” In Weaner’s definition, what constitutes a natural landscape is dependent on a number of factors.

To start, it provides wildlife habitat through use of native plants. “There has been an attitude that if you throw greenery out there, or if it has berries, you’re doing something for wildlife,” says Weaner. “But wildlife has needs that are more

specific. Native wildlife evolved with native plants and needs them to survive.” And many plants depend upon specific animals or insects to spread their seeds.

Another important consideration is conserving water by using drought tolerant plants and rainscaping techniques to reduce runoff from gardens and hardscapes. This theme of resource conservation also applies to reducing air and water pollution caused by use of lawn mowers and synthetic fertilizers and pesticides.

Preserving a sense of place is also significant for Weaner. He strives to create aesthetic and ecological continuity with the surrounding regional plant communities and geographic features.

Another of Weaner’s goals is to provide an environment where people become closer to nature and experience it over time rather than as static plant vignettes. Plants

New Directions in the American Landscape Symposium

Now co-sponsored by the Connecticut College Arboretum and the Morris Arboretum, the annual two-day symposium is held each year in winter.

For more information, visit the symposium website (www.ndal.org).

move around; something is always changing, and there are always surprises.

In the end, one of the key goals for Weaner is to create a landscape that, over time, requires less maintenance than a conventional landscape. This means people with busy lives can spend more time enjoying their garden and less time taking care of it. “I’ve never had a client ask me to design a high-maintenance landscape,” quips Weaner.

GARDENS, RECONSIDERED

Accomplishing these goals requires changing the way we think about gardens. A garden designer, Weaner says, would look at a property and say, “What do I want this place to be?” A restoration ecologist, on the other hand, would ask, “What does nature want this place to be?” Weaner sees his job as blending the two approaches, creating a sustainable foundation with an ornamental overlay. “It is critical to look at the inclinations of the site, to see what is already there, to understand where the plant communities want to go and what the clients want,” he says. “The point isn’t to create a couple pockets of natives, it is to create an entire property that has an overall positive effect on the surrounding landscape.”

As Weaner puts it, “Nature is too big for us to handle, so we can’t treat it like a garden.” If so, how do we learn how plants grow in the wild and apply that understanding to a garden setting?

First, we need more information on the plant’s habitat (dry rocky uplands, coastal plains, oak-hickory forest, etc.), how it grows in community, and its role in the process of succession. Second, we need to understand whether it is widely adaptable or requires specific conditions, its relative competitiveness, and how all these factors play out in space and over time so plants can be chosen for their function, rather



Filling niches in time and space in a foundation planting, golden ragwort (*Senecio aureus*) and alumroot cultivars 'Autumn Bride' and 'Atropurpurea' co-exist under leggy native shrubs and taller pink turtlehead (*Chelone lyonii*), which fills in later.

than just for ornamental qualities.

Weaner cites the example of eastern columbine (*Aquilegia canadensis*), a short-lived perennial native to eastern North America. In ecological terms, it is an early successional plant that quickly colonizes disturbed areas, especially in rocky limestone soils, where it is soon replaced by more competitive plants. Weaner put a drift of columbine in a Harrisburg, Pennsylvania, border with slower-growing, longer-lived, more-competitive perennials. It bloomed prolifically the first year, in patches the next, and then petered out. But it reappeared in splendor along with *Heuchera villosa*, another lime and gravel-loving plant, between the house's limestone wall and a path of stepping stones set in gravel. Aided by frequent disturbance from scuffing feet, the two plants formed a dense, self-perpetuating colony that sends seed out to any receptive niche.

On a property where excavation for a new house was about to start, Weaner noticed that there were patches of native grasses on rolling hillsides off to one side. This told him that the site, much of which had been highly disturbed, was inclined toward being grassland. So, rather than re-

grading, bringing in topsoil, killing off the native grasses and planting lawn everywhere, as is so often done, he created a small lawn and incorporated large areas of designed meadows beyond. These sweeps of grassland required very little input and could take care of themselves while supporting wildlife and reducing runoff.

In a Connecticut woodland, Weaner saw that desirable woodland natives Pennsylvania sedge (*Carex pensylvanica*), Canada mayflower (*Maianthemum canadense*), and hay-scented fern (*Dennstaedtia punctilobula*) didn't exceed 15 inches, while the

flower stalks of unwanted garlic mustard towered above them. Trimming everything except native tree and shrub seedlings taller than 18 inches prevented the invasive garlic mustard from setting seed, depleted its resources, gave the desirable plants light, and reduced competition so they could reproduce on their own.

Recognizing that people do want some colorful plants around their homes, Weaner often uses native cultivars and plants that fill complementary niches in space or over time, but don't necessarily grow together in the wild, for aesthetic effect near the house in garden beds and foundation plantings.

Resources

The Ladybird Johnson Wildflower Center, www.wildflower.org.

The USDA Plants Database, <http://plants.usda.gov>.

Native Trees, Shrubs and Vines for Rural and Urban America by Gary Hightshoe. John Wiley, Inc., New York, New York, 1988.

Bringing Nature Home by Doug Tallamy. Timber Press, Portland, Oregon. 2009.

RETHINKING GARDENING TECHNIQUES

Farther away from homes, plant communities are more literally copied from nature. Weaner suggests thinking in terms of ecological zones—fern glades, grasslands, woodlands, shrubby thickets, rocky outcrops and other habitats and plant communities found in nature—rather than artificial themes such as “the white garden,” “the perennial garden,” or “the herb garden.” Establishing and maintaining these plant communities re-



In this south-facing woodland, invasive garlic mustard was eliminated by encouraging native perennials such as Canada mayflower and hay-scented fern to form thick colonies.

quires making good selections and then stacking the deck to favor desirable plants. It also involves re-thinking some standard gardening practices such as:

Amending the soil. Our tendency as gardeners is to amend poor soil on a sunny, gravelly hillside, but those conditions are perfect for little bluestem grass and butterfly weed and probably too dry for weeds. Improving the soil would give competitive advantage to the weeds. Instead, Weaner says, select plants suited to the soil that is already there and they will thrive.

Cultivating and weeding. Disturbing the soil encourages weeds by exposing seeds in the soil to sunlight, where they can germinate in bare soil without competition. Once a dense native groundcover is established, it will decrease weeds by shading out seedlings. Weaner recommends cutting weeds at the base instead, and painting the stubs of invasive woody plants with

herbicide or torching them. Weeding in nature is done by competition from other plants, plants that are dominant because they are in the right habitat.

Mulching. Rather than putting down mulch, rely on ground-covering plants that overlap and leave no empty space.

Spring planting. Native meadow grasses and flowers are warm-season, heat-adapted plants. If you wait until July to seed a meadow, you bypass the season when cool-season weeds are most competitive and give an advantage to the natives.

Fertilizing. Plants adapted to the site have the advantage and don't need fertilizer. Weeds, out of their element, make better use of it. Weaner firmly believes that fertilizing favors weeds.

Watering. Once established, plants selected for their suitability to the prevailing soil and climate don't need to be watered. As with fertilizing, watering benefits weeds

more than the well-adapted natives.

Weaner says much of the information needed to make good decisions on plant selection and placement is found not in horticultural books, but in field guides and other references on regional plant communities. He also advises gardeners to observe plant communities in nearby natural areas. Local nature centers, botanical gardens, and arboreta that have displays based on habitat—such as the Crosby Arboretum in Mississippi and the Santa Barbara Botanical Garden in California—are treasure troves of information because they explain what we may have seen in nature, but don't know how to interpret or put to use.

Although specific plants adapted to ecological niches vary tremendously throughout the country, the underlying principles are often predictable. Even a small property offers opportunities to use acquired knowledge to save time and effort. One example Weaner cites is Culver's root (*Veronicastrum virginicum*), which requires staking in a standard garden setting, but stands tall in a wet meadow—even a tiny one, such as a rain garden—when supported by a community of tall grasses.

“We have a responsibility to treat the land as more than our personal paint canvas,” says Weaner. “The landscape designer should be part artist and part repairman, creating beauty based on ecology. It's a partnership between the planned and what nature dictates.”

WIDENING THE CIRCLE

Through the NDAL symposia and other educational forums, Weaner is sharing his insights and experience with gardeners, horticulturists, landscape architects, and nurseryowners. “The work Larry does acquaints the traditional nursery industry with native plants and is making inroads with traditional gardeners,” says Robert Grese, an associate professor of landscape architecture at the University of Michigan in Ann Arbor and director of the university's Nichols Arboretum. “Most importantly, Larry sees the big picture when it comes to handling long-term maintenance issues and is training people how to care for native landscapes over the long term.”

Photographer, writer, and lecturer Karen Bussolini gardens in Connecticut.