Trying to Define Sustainable Landscapes

Justin Everson, Nebraska Statewide Arboretum, Inc.

Ask a dozen people to define sustainable landscapes and you’ll likely get a dozen different answers. I know because, in a very unscientific survey, I asked several friends and relatives to describe what they thought a sustainable community or home landscape was. The people I asked ranged widely in age and philosophies—and were certainly not all tree-huggers. Their responses were revealing and often humorous.

A nurseryman from the Panhandle clearly sees a day in the not-too-distant future when the cost and scarcity of potable water will force a new way of landscaping that requires significantly less irrigation. A couple from suburban Omaha wants desperately to create a more natural landscape, but feels pressured to continue to blend into their highly manicured neighborhood. They hope to see a day when native plantings and a bit of wildlife are more accepted in affluent neighborhoods.

A neighbor who takes great pride in keeping his lawn lush, green and tightly cropped rather enjoys the effort and says he wouldn’t mind mowing every day. He even offered to come mow my yard. A nine-year-old nephew is most interested in exploring the wet drainage way near his home for frogs, turtles and bugs—especially anything he can scare his sister with.

A brother from the Panhandle hopes people will return to growing more of their own food and start creating landscapes that better celebrate the subtle beauty of the western high plains.

A young woman and avid reader advocates for trails and pedestrian-oriented landscapes that offer diverse experiences. A couple who is very conservative in their political beliefs is working hard to change that vision. They are only for prairie-hugging liberals. Almost everyone regards the so-cio-economic status, seems to recognize that we need to live more sustainably, to conserve fuel, reduce and recycle waste, cut down on pollution, conserve water, etc. The debate about sustainability seems to lie more in the details of how to achieve these common goals, rather than whether the goals themselves are valid.

This leads us to the topic at hand: sustainability of community landscapes. Three common themes seem to emerge. First, community landscapes should generally help conserve natural resources, especially water. And third, our planted landscapes should benefit the natural world around us. With these basic goals in mind, there are several topics and recommendations that deserve greater discussion and consideration as we strive for sustainability.

Water Use. Statistics show that municipal water use in Nebraska can increase by more than 200 percent during the growing season, with the bulk of this increase going to landscape irrigation. In Lincoln, there are days when more than 50 million gallons of water are pumped from the Platte River to meet this demand. Almost everyone agrees that water will not remain cheap and plentiful forever. Indeed, in recent years, both the Platte and Republican Rivers ran dry during the summer. Presently the state of Nebraska is embroiled in several highly emotional and expensive water-related issues, including a lawsuit filed by the state of Kansas over the lack of flow from the Republican River. It seems very obvious that we need to reduce the amount of irrigation used to maintain our planted landscapes.

The Nebraska Statewide Arboretum’s Next 30 Years—Sustainable Landscapes and You

Dick Meyers, NSA, Inc. Board President

What do the Nebraska Statewide Arboretum, sustainable landscapes, and you have in common? The future. If you’ve been a long-time member of the Arboretum, you know that our mission as an organization has evolved over time. We started out 30 years ago as an organization devoted primarily to the expansion of tree species diversity in communities across the state. NSA’s unique vision of affiliate arboretum sites that spanned the diverse soil and climate landscape of the state was a vision focused initially on expanding tree species diversity through testing, demonstration, and education. It was and remains an innovative vision.

But the organization’s leadership early on recognized that vision was too narrow. The organization’s mission was expanded in a major way with the implementation of the Green Space Stewardship Initiative—a partnership between the Nebraska Statewide Arboretum and the Peter Kiewit Foundation. That partnership initiated a program of community landscapes of the no-longer-distant future. It has challenged agricultural irrigators, municipal water systems and urban homeowners alike to find ways to conserve the most precious substance in our state and on the planet—clean water. Those of us living at ground zero of the drought have seen firsthand how poorly prepared we are to create the sustainable landscapes of the no-longer-distant future. By “we” I mean garden center operators, landscape designers, landscape managers, and master gardeners, as well as the state’s homeowners. Specifically, this collective we does not know the

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Perennial Perseverance

Karma Larsen, Nebraska Statewide Arboretum, Inc.

In asking gardeners about sustainable perennial beds, I turned up a spadeful of worms! “Gardens are incredibly complicated,” said Ellyn Castle, curator of the Nebraska State Botanical Garden, “even in the smallest, most protected environment, one plant grows and shades another, one is blooming while another is dying back. A good gardener is aware of all those changes and keeps the focus on plants that are in their prime, cutting back and filling in as needed.” “Bloom-proof” is the word John Royster, landscape architect for Big Muddy Workshop, used for hostas, peonies, daylilies and roses—plants that remain in place and slowly expand over time. Still, he said “there’s no such thing as a no-maintenance plant or landscape.”

Steve Nosal believes it’s the gardener and not the garden that makes the difference, “what makes a garden long-lived is the dedication of the gardener to keep it going.” Nosal has overseen Lincoln parks for several decades and has come to define a perennial as a plant that survives 3-7 years rather than 10-15 years.

10-20-30 Years and Counting

For sustainability, it’s hard to beat garden columnist Jan Riggenbach’s front yard in Iowa’s loss hills: “It’s requiring no mowing and no hoeing, my front yard attracts major interest with a minor plant—Vinca minor, that is. This lush, dark-green groundcover has virtually maintained itself for 30 years, providing four seasons of flowing foliage while concealing a spectacular springtime surprise: It’s underplanted with hundreds of slow-to-establish perennials that are there for the long haul and never need dividing. A few of my long-time favorites—gas plant, Baptisia, baby’s breath and prairie dropseed—have sailed through all kinds of conditions, including both drought and heavy rains, year in and year out.”

Gary Zimmer, curator of Gilman Park Arboretum in Pierce, cares for several perennial gardens planted 13 years ago: “Some things are very sustainable and others definitely are not! In the xeriscape garden, shrubs shunted out blanketflower, thax, prairie coneflower and blue false scutum and a combination of May Night salvias, yarrow, false indigos, prairie dropseed. Blaze little bluestem and Indiangrass looks even better than in its second and third year. In the wildflower and ornamental grass garden, Indiangrass and maidengrass overtook everything but snowdrops, sedge, obedience plant, poppy, goldenrod and goldenrod. And Magnus coneflower took over the entrance garden, but Goldsturm Rudbeckia, balloonflower, Fireworks goldenrod, candytuft and Blue Wonder catmint look better every year.”

In Lincoln, Master Gardener Kit Drumm wrote: “We have several beds with ornamental grasses that have been in at least 10 years: Korean feather and Karl Forster reed grass, Miscanthus, Hameln Pennisetum, little bluestem, switchgrass and blue oat grass—which works well against rocks and with Rudbeckia and Echinacea. Other long-lasting perennials include: catmint, Joe-pye weed, butterfly milkweed, perennial geraniums, pasque flower, lily, iris, aster, Salvia, Heuchera, Boltonia and Coreopsis. For shrubs, Hydrangea and shrub roses are long-lived, as are the grape and Clematis vines that hide lattice under our deck (Dick Campbell’s idea). And most of my 10-20 year-old groundcovers are still going strong: Vinca; Pyracantha; Epimedium; Ajuga; plumago; sweet woodruff; Lamium; Ceratostigma and thyme.”

Another Lincoln gardener, Linda Hilligass, said her recommendations for long-lived shade plants include: hosta, Epimedium, variegated Solomon’s seal, meadowsweet and a variety of ferns. For sun, Hilligass has roses that “trace back to a rose brought over by my great-grandmother when she immigrated to the U.S. from Germany” and peonies from another great-grandmother. She also recommends Siberian irises, “the tall bearded ones have to be divided every three or four years, but Siberians just go on and on,” catalpa, among veronica and Alyssum (“Good luck killing them!”)

In Omaha, the peony display at Joslyn Castle dates back to the early 1900s and the rose garden at Memorial Park’s Rose Garden celebrated its 50th anniversary this year. Omaha Rose Society President Anita Eckley said the perennial plantings around the Presbyterian church and old bank in Bellevue are 10-15 years old. These historic landscapes include daylilies, coneflowers, peonies, columbine, salvia, malva, Russian sage, Joe pye weed, hibiscus, bee balm, garden phlox and self-seeding cosmos and cleome. While looking to old gardens to see what grows best, Eckley said, the focus in Omaha is on new gardens under the Gifford Park Association, Dundee-Memorial Park Association and Men’s Garden Club.

Garden Heroes

From South Dakota, garden writer Cathie Draine wrote: “Any plants that manage to stay alive for a decade or keep a semblance of the original planting here in South Dakota are TRUE GARDEN HEROES to me!”

Draine uses long-lived groundcovers to protect exposed, rocky slopes. For keeping grasses out, she recommends lamb’s ear, prairie smoke, sedum and Queen Charlotte viburnum—“a perfectly shaped violet as lovely in form as a prize-winning African violet.” She has high praise for her 20-year-old planting of Karl Foerster reed grass, loves Mongolian Gold shrub clematis and leadplant and finds the species Penstemons—strictus, Arbutus, and hieracium—“wonderful for words.” Along with perennial geraniums, pasque flower and buttercup, they’ve been in place in her yard for 10 years or more.

It’s obvious there are some very old plants still going strong in gardens throughout the Great Plains. On the other hand, gardeners said, it can be helpful to have just enough temperamental, short-lived ones to make space for that next new plant on the wish list!

Editor’s Note: Not what we do but why we do it

Karma Larsen, Nebraska Statewide Arboretum, Inc.

Every evening in mid-August, a barn spider spins its web on our arbor. With a flashlight I could watch the meticulous process, watch the glimmering filament move from abdomen to leg to existing structure. Thanks to Charlotte, the whole world slowed down and fell into place for a few minutes every night.

We decided to do this publication on sustainable landscapes several months ago and I’ve been mentally wrestling with it ever since. I knew all the problems, knew it was too big, full of conundrums, knew that what was sustainable to one person wasn’t to another. I knew it couldn’t be rightly looked at without question, without change, without being willing to give something up.

One of the primary questions sustainability poses is one of ownership, since that ultimately guides any decisions about a particular resource. Here at NSA, we’ve had to consider the sustainability of our own organization. We’ve also had to rethink ownership. We work with a lot of communities and many different individuals and organizations, so the issue of ownership gets a little blurry.

But one of the essential things sustainability reveals is that we truly own “almost” nothing and, more importantly, it reminds us that the value of all the things we cannot own—fresh air, sunlight, woodlands, prairie—are worth more than any words can express or any dollar amount can begin to reflect.

If we do our work well, the true “owners” of the work we do will be the generations to come who walk beneath the trees we planted, stop to pay attention to a flower they had never seen before, bring their children to a public garden they remember from their own childhood. If those of us in environmental organizations do our work well, no organization or individual will own any of it, but all of us will have had the privilege of holding that fragile filament in our hand for one brief moment before we pass it on.
The Turfgrass Lawn. When it comes to the landscape, the elephant in the room is the grass lawn. With the single most intensively managed component of the landscape and receives the bulk of all inputs: labor, water, fertilizer and pesticides. The Great Plains municipal water systems are often designed at three to four times the basic flow needed to supply drinking—primarily to keep our lawns green. Add to this the millions of pounds of fertilizer and pesticides applied to lawns along with the near constant mowing and it is clear that landscape sustainability will be derived in large part through changes in how the lawn is managed. Lawn is vital to the functional integrity of landscapes but we can minimize our lawns and choose lower-input turfgrasses—and researchers have developed new cultivars and management strategies to help us do just that.

Stormwater Management. Until recently, management of stormwater was an afterthought in the design of most landscapes. Landscapes were designed and graded to push stormwater as quickly as possible to nearby drainageways and streams—leading to drainage and plantings, manufacturing plants and shopping malls, to our landscapes. These manufacturing plants and shopping malls, to our landscapes. These

- Rain gardens help filter and decrease stormwater. Top: Staff from the Nebraska Statewide Arboretum and NSK install a rain garden behind the restaurant. Bottom: Newly-installed rain garden will help manage parking lot runoff near NSA display gardens.


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**Tips for Sustainable Landscapes**

**Water conservation**
- Don’t overwater! Use drip irrigation if possible, and carefully monitor any irrigation systems used. Frequently, shallow watering makes plants susceptible to wind, drought and temperature extremes and results in shallow roots that are vulnerable in dry periods.
- Reduce the amount of impermeable surfaces by using plants, porous paving or other permeable surfaces for driveways, sidewalks and patios.
- Water early in the day to prevent moisture loss and avoid disease problems.
- Use rain gardens, bioretention cells, swales, vegetated filter strips, permeable surfaces, green roofs, underground tanks or rain barrels to conserve water wherever feasible.
- Redirect downsputs away from pavement and onto planted areas.
- Protect slopes with groundcovers.

**Landscape Plants**
- Group woody plant materials. Trees are used to growing close together and protecting one another from extreme weather. You can create the same environment by massing plants together in large mulched areas to provide better growing conditions, protect from mowers blight and minimize irrigation.
- Right tree, right place, right way. For maximum growth and vigor, select a good quality tree to match your site, avoid utility lines and plant it at the correct depth.
- Regularly inspect trees for potential insect and disease problems.
- Use 3” of mulch on planting beds to conserve water, decrease temperature fluctuations, reduce weeds and increase organic matter. For trees, keep mulch away from the trunk and mulch to the dripline.
- Only fertilize for known deficiencies. Excess nitrogen encourages top growth at the expense of root health.
- To minimize maintenance, use shrubs that look best unpruned.
- Compost garden waste and use it on-site to improve soil and save on disposal fees and transportation costs.
- Carefully prune trees while still young to develop good branch structure.

**Sustainability—Think Grandchildren**

Bill Atchisowd, Animal Scientist, Gardener and Grandfather

For years, even decades, I have been frustrated by talk of sustainability. The word seemed like jargon with a wide range of meanings. A colleague used to say the word was not the thing. To think about sustainability, I think we need to look beyond the word, beyond the jargon.

In this era of short-term gratification and short-term economic strategies, sustainability reminds us to take a longer look, to think about what things will be like for our grandchildren and their grandchildren. What will planet earth be like at the end of this century?

It is apparent to me that many in our community, state and nation are working toward sustainability. I see rain barrels to retain water and reduce soil erosion; hybrid cars to reduce gasoline use; bicycles to save gas and car miles; reusable grocery bags; neighborhood recycling centers; urban gardens; farmers’ markets; energy-saving appliances… the list is endless. Each entry in the list has its own name, its own following, its own impact, and its own vocabulary. Hence, the confusion about the word sustainability; or is it “green,” the new word for some parts of sustainability?

Most of the efforts are interrelated. Efforts to save fossil fuels, for instance, usually also have an impact on air and soil. Reducing soil erosion serves as an example of the whole relationship and it’s basic to meeting current and future food needs. Corn farmers have increasingly turned to minimum- and no-tillage systems that save fuel, reduce erosion, increase the amount of organic matter in the soil, increase moisture-retention and sequester more carbon. The effect an individual homeowner can have on soil erosion is miniscule compared to that of farmers. Yet collectively, the efforts of city dwellers to reduce runoff from rain and melting snow, grow their own vegetables, plant shade trees, and buy locally grown produce can offer the same benefits. Many small steps together can lead to large strides.

Many of the efforts toward sustainability that I see and practice involve small reductions in the standard of living. Small, fuel-efficient cars are not as comfortable as larger, heavier vehicles, and if operated in ways to maximize fuel-efficiency, increase travel time. Though the resulting lettuce, tomatoes, peas and eggplant are delicious, raising vegetables in my backyard takes time and work. Composting rather than sending household waste to the landfill takes time and effort. My buffalo grass lawn is not as green as many lawns in the neighborhood, particularly in winter and early spring, but it requires little mowing and no water or fertilizer to maintain a dense sod.

I’ve decided not to worry about the word sustainability, but to live better rather than larger, and to think in terms of my grandchildren and even farther ahead to what the world will be like for their grandchildren.

**Resources**

- Nebraguide 1405A “Landscape Sustainability” by Steven Rodie and Anne Stroth
- Bringing Nature Home, Tough Tallamy
- City Sprouts “sustain communities through gardening,” omahansprouts.org
- Green Omaha Coalition, green Omaha coalition.org
- Joslyn Institute for Sustainable Communities, www.ecopheres.com
- Nebraska Environmental Trust, www.nebraskatrust.org
- Nebraska Rural Initiative, ruralinitiative.nebraska.edu
- Omaha by Design, www.omahabaydesign.org
- Sustainable Sites Initiative, www.sustainablesites.org
- Sustainable Urban Landscape Information Resources: www.unl.edu/communities, www.lincolngreenbydesign.org, hardscaping—wood, brick, stone, materials.  Trees are used to provide shade and create milder microclimate.

**Sustainable development— “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”  (World Commission on Environment and Development)**