



## ***Gardening Guide for High-Desert Urban Landscapes of Great Basin Regions in Nevada and Utah***

Heidi Kratsch, Horticulture Specialist, University of Nevada Cooperative Extension

Rick Heflebower, Horticulture Agent, Utah State University

### ***Select adapted plants***

Some Great Basin urban areas in Utah and Nevada exhibit climatic conditions that make it difficult for all but the toughest landscape plants to thrive without providing supplemental water. These areas are found at elevations from 4,000 feet to 6,000 feet in USDA cold-hardiness zones 6 and 7. Soils are often poor and gravelly, containing less than 1 percent organic matter. Soil pH ranges from 6.5 to over 7.5, and some areas have salinity levels that exceed the limits of tolerance for many plants. Precipitation is less than 10 inches per year, and drying winds are persistent much of the time. Many plants under these conditions lose water rapidly due to evaporation from leaf surfaces and from the soil. Rocky, poor soils with little organic matter have little capacity to hold water, causing further stress to landscape plants. Selecting plants that are adapted to such a climate will improve plant survival and achieve aesthetic and functional goals for the landscape.

The list of plants at the end of this publication is a good start for plant selection but is not meant to be all-inclusive. It is simply a compilation of our favorites that have proven successful in our region. A variety of grasses, flowers, shrubs and trees are included to fit many situations. Plants that live more than one growing season are rated for their tolerance to cold using USDA hardiness zones. The plants included in this list are adapted to USDA hardiness zones 6a-7b (-10 degrees to 10

degrees F). To find your zone, refer to the interactive map at

<http://planthardiness.ars.usda.gov/PHZMWeb/>.

### ***Start with a plan***

For year-long landscape interest, create a plan that considers bloom timing and color, including fall color. Be sure to plant so that you have something attractive in your landscape during every season. For example, blanketflower blooms all summer long, but in late fall, the flowers give way to attractive persistent seedheads that lend interest through the winter.

Consider wind direction when determining your landscape plan. Wind may be persistent from the south or southwest during the spring and summer months. Winter wind comes from the north when storms approach. It may be helpful in some locations to provide natural windbreaks such as rocks and trees to offer protection where needed.

Do not overplant your landscape. This is a common mistake made by both homeowners and landscape professionals. It is often done so the landscape achieves a filled-in look right from the start. Unfortunately, plants quickly outgrow their designated spots and have to compete with one another for water and nutrients to survive. Overplanted trees and shrubs may begin to intrude into pedestrian areas or cause damage to property. If you do go for the mature look early, be prepared to

remove some plants after a few years to make space for the remaining plants, so they continue to thrive and look attractive as they mature. Place plants in the landscape with wildfire defensible space in mind. Most of the plants on this list are not highly combustible, but any plant can burn if it is not kept well irrigated, properly maintained and free of dead material. The most combustible plants are dry ornamental grasses and evergreen woody plants, such as juniper. Keep these plants at least 30 feet from your home. Shrubs and trees that lose their leaves in the fall can be placed 10 feet to 30 feet from the home if spaced appropriately. Avoid planting anything but flowers, succulents or turfgrass within the first 5 feet of your home.

### ***Amend your soils***

Soils in our region are mostly rocky and fast-draining, but some areas may be clayey, which interferes with water infiltration and drainage. Amending your soil prior to planting with a high quality source of organic matter, such as compost, will improve your soil. Well-rotted animal manure is also good, as long as the animals that produced it were fed weed-free forage. Amend soils to a depth of 4 inches to 6 inches prior to planting flowers. Alternately, you can apply compost or manure during the season prior to planting, so it will work itself naturally into your soil. Do not add organic matter to a tree or shrub planting hole unless the soil is very poor. If so, mix one part organic matter to two parts native soil into a wide planting hole, so the roots will grow into the native soil.

### ***Water your plants for drought resistance***

Water your landscape plants deeply and on a less frequent basis than your lawn. Deep watering encourages deep rooting, which means your plants will be more resistant to hot, dry conditions and/or reduced soil moisture.

Ornamental grass and flower roots reach 12 inches to 18 inches into the soil; shrub and tree roots reach 18 inches to 24 inches. Make sure your irrigation system or your hose remains on your plants long enough to get water to those depths. Set your irrigation system to water twice weekly for ornamental grasses and perennials, and only once every week or two for established shrubs or trees. You may have to irrigate in cycles to prevent run-off.

We have selected plants for this publication that have low water requirements. However, more frequent irrigation is essential for the first year or two to allow plants to become established. You can back off on irrigation frequency as plants mature and establish deep roots. Drip irrigation is suggested as it is the most efficient way to deep-water individual plants and results in less water waste and fewer weeds.

Design your irrigation system to meet the water needs of your plants at their maximum mature size. This makes it easy to size up your system as your plants grow by adding more emitters or replacing them with higher output emitters. You should also pull emitters away from the trunks of trees and shrubs. If you plan to water only during the plant-establishment period, or only during the hottest summer months, your plants will likely reach only the low to middle range of their size capacity.

Finally, do not forget to water your plants during the winter if there is no measurable rain or snow cover. This is especially important for plants with evergreen leaves because they continue to lose water during the winter months. Even though your irrigation system should be drained and winterized by this time, you can apply water once every two to three weeks with a hose or bucket during the warmest part of the day and when soils are not frozen.

## Our Favorite Plants List

| Scientific Name                   | Common Name           | Type             | Mature Size<br>(H x W) | Salt<br>Tolerance | Bloom / Fruit                        |
|-----------------------------------|-----------------------|------------------|------------------------|-------------------|--------------------------------------|
| <i>Miscanthus sinensis</i> *      | Maidenhair grass      | Grass            | 60"x36"                |                   | Featherlike copper plumes            |
| <i>Schizachyrium scoparium</i> *  | Little bluestem       | Grass            | 30"x24"                |                   | Bluish stems red in fall             |
| <i>Sporobolus airoides</i> *      | Alkali sacaton        | Grass            | 24"x18"                | Yes               | Inflorescence of yellow spikes       |
|                                   |                       |                  |                        |                   |                                      |
| <i>Achillea tomentosa</i>         | Yarrow                | Perennial        | 12"x18"                | Yes               | White, red, yellow (summer)          |
| <i>Berlandiera lyrata</i>         | Chocolate flower      | Perennial        | 18"x18"                | Yes               | Yellow (spring / summer)             |
| <i>Calylophus lavandulifolius</i> | Lavenderleaf primrose | Perennial        | 6"x24"                 |                   | Yellow (spring / summer)             |
| <i>Centranthus ruber</i>          | Jupiter's beard       | Perennial        | 24"x36"                |                   | Red (summer)                         |
| <i>Delosperma ashtonii</i>        | Ice plant             | Perennial        | 2"x18"                 | Yes               | Purple (summer)                      |
| <i>Epilobium canum</i>            | California fuchsia    | Perennial        | 18"x24"                |                   | Orange (summer / fall)               |
| <i>Gaillardia species</i>         | Blanketflower         | Annual/Perennial | 12"x18"                | Yes               | Orange, red, yellow (summer)         |
| <i>Gaura lindheimeri</i>          | Whirling butterflies  | Perennial        | 36"x24"                |                   | White, pink (early summer-fall)      |
| <i>Lavandula angustifolia</i>     | Lavender              | Perennial        | 24"x18"                |                   | Blue, lavender (summer)              |
| <i>Linum perenne</i>              | Flax                  | Perennial        | 24"x18"                |                   | Blue (spring / summer)               |
| <i>Oenothera macrocarpa</i>       | Evening-primrose      | Perennial        | 12"x18"                | Yes               | Yellow (spring / summer)             |
| <i>Penstemon species</i>          | Penstemon             | Perennial        | variable               |                   | Varied depending on species          |
| <i>Portulaca grandiflora</i>      | Moss rose             | Annual           | 8"x12"                 | Yes               | Mixed color (summer)                 |
| <i>Sedum aizoon</i>               | Stonecrop             | Perennial        | 12"x12"                | Yes               | Yellow, orange (summer)              |
| <i>Sphaeralcea species</i>        | Globemallow           | Perennial        | variable               |                   | Orange (spring / summer)             |
| <i>Tetraneuris acaulis</i>        | Angelita daisy        | Perennial        | 12"x12"                |                   | Yellow (spring / summer)             |
| <i>Yucca harrimaniae</i>          | Spanish bayonet       | Perennial        | 36"x24"                | Yes               | White (spring)                       |
|                                   |                       |                  |                        |                   |                                      |
| <i>Amorpha canescens</i>          | Leadplant             | Shrub            | 36"x30"                | Yes               | Purple (summer)                      |
| <i>Artemisia frigida</i> *        | Fringed sage          | Shrub            | 12"x12"                |                   | Yellow (August)                      |
| <i>Atriplex canescens</i>         | Fourwing saltbush     | Shrub            | 48"x72"                | Yes               | Fruits tan 4-winged bracts (fall)    |
| <i>Caragana pygmaea</i>           | Pygmy peashrub        | Shrub            | 30"x48"                | Yes               | Yellow (spring)                      |
| <i>Caryopteris x clandonensis</i> | Blue mist             | Shrub            | 30"x48"                |                   | Blue (late summer)                   |
| <i>Cercocarpus intricatus</i>     | Littleleaf mahogany   | Shrub            | 48"x48"                |                   | Red, tiny (late spring)              |
| <i>Chamaebatiaria millefolium</i> | Fernbush              | Shrub            | 60"x48"                | Yes               | White (mid-late summer)              |
| <i>Krascheninnikovia lanata</i>   | Winterfat             | Shrub            | 24"x30"                | Yes               | White (spring)                       |
| <i>Petrophytum caespitosum</i>    | Rock spirea           | Shrub            | 6"x24"                 |                   | White (summer)                       |
| <i>Rosa rugosa</i>                | Rugosa rose           | Shrub            | 72"x72"                | Yes               | White, yellow, pink, purple (summer) |
| <i>Salvia dorrii</i>              | Dorr sage             | Shrub            | 30"x36"                |                   | Blue (late spring-early summer)      |
| <i>Shepherdia argentea</i>        | Silver buffaloberry   | Shrub            | 12'x10'                | Yes               | Pale yellow (June)                   |
|                                   |                       |                  |                        |                   |                                      |
| <i>Acer ginnala</i>               | Amur maple            | Tree             | 20'x20'                | Yes               | Winged seeds, fall color             |
| <i>Acer glabrum</i>               | Rocky Mountain maple  | Tree             | 30'x24'                |                   | Multi-stemmed, fall color            |
| <i>Calocedrus decurrens</i> *     | Incense-cedar         | Tree             | 70'x25'                |                   | Produces seed cones                  |
| <i>Celtis occidentalis</i>        | Common hackberry      | Tree             | 60'x40'                |                   | Orange-red fruits                    |
| <i>Koeleruteria paniculata</i>    | Goldenraintree        | Tree             | 40'x30'                |                   | Clusters of yellow flowers (July)    |
| <i>Platanus x acerifolia</i>      | London planetree      | Tree             | 75'x60'                | Yes               | Fruit balls drop seed in winter      |
| <i>Quercus macrocarpa</i>         | Bur oak               | Tree             | 60'x40'                |                   | Acorns with fringed cap              |
| <i>Quercus robur</i>              | English oak           | Tree             | 60'x40'                | Yes               | Produces 1"-long acorns              |

\*All plants could become a wildfire hazard if allowed to dry out. Ornamental grasses should be cut back at the end of the season. Evergreen plants should not be placed within 30 feet of your home.

|                                                                                                     | ORNAMENTAL GRASSES                                                              |                                                                                                           |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| A clump of Miscanthus sinensis* grass with tall, feathery, reddish-brown panicles on green foliage. | A clump of Schizachyrium scoparium* grass with long, thin, blue-green blades.   | A clump of Sporobolus airoides* grass with long, thin, green blades and feathery, reddish-brown panicles. |
| <i>Miscanthus sinensis*</i>                                                                         | <i>Schizachyrium scoparium*</i>                                                 | <i>Sporobolus airoides*</i>                                                                               |
| ANNUAL AND PERENNIAL FLOWERS                                                                        |                                                                                 |                                                                                                           |
| A cluster of Achillea tomentosa flowers with bright yellow, daisy-like blooms.                      | A cluster of Berlandiera lyrata flowers with bright yellow, daisy-like blooms.  | A cluster of Calylophus lavandulifolius flowers with bright yellow, daisy-like blooms.                    |
| <i>Achillea tomentosa</i>                                                                           | <i>Berlandiera lyrata</i>                                                       | <i>Calylophus lavandulifolius</i>                                                                         |
| A cluster of Centranthus ruber flowers with bright pink, daisy-like blooms.                         | A cluster of Delosperma ashtonii flowers with bright purple, daisy-like blooms. | A cluster of Epilobium canum flowers with bright red, daisy-like blooms.                                  |
| <i>Centranthus ruber</i>                                                                            | <i>Delosperma ashtonii</i>                                                      | <i>Epilobium canum</i>                                                                                    |



*Gaillardia species*



*Gaura lindheimeri*



*Lavandula angustifolia*



*Linum perenne*



*Oenothera macrocarpa*



*Penstemon species*



*Portulaca grandiflora*



*Sedum aizoon*



*Sedum species*



*Sphaeralcea species*



*Tetraneuris acaulis*



*Yucca harrimaniae*

|                                                                                                                              | SHRUBS                                                                                                                     |                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|  <p><i>Amorpha canescens</i></p>            |  <p><i>Artemisia frigida*</i></p>         |  <p><i>Atriplex canescens</i></p>        |
|  <p><i>Caragana pygmaea</i></p>             |  <p><i>Caryopteris x clandonensis</i></p> |  <p><i>Cercocarpus intricatus</i></p>    |
|  <p><i>Chamaebatiaria millefolium</i></p> |  <p><i>Krascheninnikovia lanata</i></p> |  <p><i>Petrophytum caespitosum</i></p> |
|  <p><i>Rosa rugosa</i></p>                |  <p><i>Salvia dorrii</i></p>            |  <p><i>Shepherdia argentea</i></p>     |

|                                                                                                                               | TREES                                                                                                                                    |                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|  <p><i>Acer ginnala</i><br/>(fall color)</p> |  <p><i>Acer glabrum</i><br/>(fall color)</p>           |  <p><i>Calocedrus decurrens</i>*</p>                  |
|  <p><i>Celtis occidentalis</i></p>          |  <p><i>Koelreuteria paniculata</i><br/>(in bloom)</p> |  <p><i>Platanus x acerifolia</i><br/>'Bloodgood'</p> |
|  <p><i>Quercus macrocarpa</i></p>          |  <p><i>Quercus robur</i></p>                          |                                                                                                                                          |

\* All plants could become a wildfire hazard if allowed to dry out. Ornamental grasses should be cut back at the end of the season. Evergreen plants should not be placed within 30 feet of your home.

**References:**

- City of Reno Urban Forestry Commission. (2011). City of Reno Approved Street Tree Species List. Reno, NV.
- Dirr, M.A. (1998). Manual of Woody Landscape Plants. Champaign, IL: Stipes Publishing.
- Kratsch H.A. (Ed.). (2011). Water-Efficient Landscaping in the Intermountain West. Logan, UT: Utah State University Press.
- Kratsch, H., & Skelly, J.A. (2011). Designing Landscapes for Northern Nevada's Arid Landscapes. University of Nevada Cooperative Extension Special Publication 11-15.
- Love, S., Noble, K., Parkinson, S. (2009). Gardening Strategies for Short-Season, High-Altitude Zones. University of Idaho Extension Bulletin 859.
- Mee, W., Barnes, J., Kjelgren, R., Sutton, R., Cerny, T., & Johnson, C. (2003). Water Wise Native Plants for Intermountain Landscapes. Logan, UT: Utah State University Press.
- Skelly, J.A., & Smith, E. (2007). Choosing the Right Plants for Northern Nevada's High Fire Hazard Areas. University of Nevada Cooperative Extension Bulletin 07-01.

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, sexual orientation, or genetic information in any program or activity it conducts. The University of Nevada employs only United States citizens and aliens lawfully authorized to work in the United States.