H-957 (Revised)

Xeriscape Plant Selections and Ideas

Ronald C. Smith
Horticulturist

Rose Larson
Landscape Architect

"Xeriscaping" is a term North Dakotans should become more familiar with. A xeriscape is a landscape which uses plants that have low water requirements, making them able to withstand extended periods of drought. Xeric landscapes are a conscious attempt to develop plantings which are compatible with the environment.

Foundation plantings of shrubs and trees located randomly in the lawn and expanses of green, lush turf, all requiring vast amounts of water to be sustained, are not compatible with dry seasons in North Dakota. Plantings of this type originated in the eastern United States where rainfall averages 30 inches or more per year, with a fairly regular distribution pattern over the growing season. This usually allows plants to survive and, in most cases, thrive.

Xeric landscaping will require a change in styles as well as plant materials. Going "native" in plant selections is often thought to be synonymous with "drought resistant." Native plant establishment is often one of opportunity or timing; when the seeds make contact with the soil, whether adequate moisture is available, what the competition is, and whether there are herbivores. With these factors to consider, xeric landscaping should not be undertaken without proper planning, plant selection, and placement. For design ideas and principles, refer to NDSU Extension Service publication H-958, "Landscape Ideas for North Dakota Homeowners."

The purpose of this publication is to provide a list of some plant materials which the North Dakota property owner may wish to consider to move toward more xeric, or less water demanding, landscape plants.

Grasses

Agropyron cristatum (Crested wheatgrass). Used as a turfgrass, mowed at 3"; select cultivars 'Fairway', 'Ruff', and 'Ephrium'. Sow at 5 pounds/1000 square feet. A cool season grass requiring supplemental water during extended drought or heat periods to maintain color.

Andropogon gerardii (Big bluestem). Native to the tallgrass prairie region of the central U.S. It grows 6 to 7 feet at maturity, and spreads by rhizomes. An attractive plant for background gardens, prairie restoration, or simply for ornamental appreciation.

Bouteloua curtipendula (Sideoats grama). Used as an ornamental ground cover, 12 to 24 inches tall. Makes an attractive "meadow" with attractive flower (orange-red) and seed show along stem. Slowly invasive.

Bouteloua gracilis (Blue grama). Used as a turf or clump ornamental grass. Mow to 3 inches, otherwise, height ranges from 6 to 24 inches. Sow 2 to 3 pounds/1000 square feet, and at least 8 weeks before the first frost date. Often a companion of buffalograss turf.

Buchloe dactyloides (Buffalograss). Used as a turf, mow at 3 inches, or unmowed at about 4.5 inches. Difficult to establish from seed. Plug planting more effective, 12 to 18 inches apart, and interseeded with blue grama to form sod in one growing season. Greens up after last spring frost, and goes dormant after first fall frost.

NDSU
Extension Service
North Dakota State University
Fargo, North Dakota 58105

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Xeric Plant Listing

	Size	Use
Trees and Shrubs		
Acer ginnala (Amur maple)	15' - 20'	Small specimen; screen
Aesculus glabra (Ohio Buckeye)	25' - 35'	Shade, specimen, screen
Amelanchier alnifolia (Serviceberry)	10' - 12'	Specimen, attracts wildlife
Atriplex canescens (Fourwing saltbush)	1' - 6'	Park median, ground cover
Caragana arborescens (Siberian peashrub)	6' - 12'	Border screen, spring flowers
Celtis occidentalis (Hackberry)	50' - 60'	Shade, windbreak
Elaeagnus angustifolia (Russian olive)	15' - 25'	Accent, or screen
Fraxinus pennsylvanica (Green ash)	40' - 60'	Shade, specimen
Gymnocladus dioica (Ky. Coffeetree)	40' - 60'	Shade, specimen
Juniperus spp. (Junipers)	Variable	Ground cover, windbreaks
Lonicera maackii (Amur honeysuckle)	10' - 12'	Border or screen
Lonicera x 'Freedom' (Freedom ")	5' - 8'	Border or screen
Prunus tomentosa (Nanking Cherry)	5' - 10'	Hedge or border
Prunus virginiana (Chokecherry)	15' - 25'	Mass planting, suckers
Picea pungens (Colorado spruce)	30' - 60'	Specimen, windbreak
Pinus ponderosa (Ponderosa pine)	50' - 60'	Focal point, windbreak
Pinus mugo (Mugo pine)	3' - 20'	Specimen or mass planting
Potentilla fruticosa (Bush cinquefoil)	1' - 4'	Long seasonal color
Quercus macrocarpa (Bur oak)	40' - 65'	Shade, specimen
Rhus glabra (Smooth sumac)	10' -15'	Naturalizing, red fall color
Rhus trilobata (Lemonade sumac)	4' - 8'	Good for bank stabilization
Syringa vulgaris (Common lilac)	8' -20'	Shrub border or specimen
Syringa villosa (Late lilac)	6' -12'	Shrub border or specimen
Yucca glauca (soapwood)	1' - 7'	Accent, specimen, grouping
Perennial Flowers		
Achillea species (Yarrow)	2" -3'	Rock garden to massing
Agastache cana (Wild hyssop)	2' - 3'	Rose purple flowers
Anacyclus depressus (Atlas Daisy)	3" - 5"	Rock garden, silver foliage
Campanula rotundifolia (Bluebell)	6" - 24"	Naturalizer, rock gardens
Gaillardia aristata (Blanketflower)	2' - 3'	Groundcover, border planting
Iris hybrids (Iris)	1' - 3'	Accent, borders, massing
Peroviskia atriplicifolia (Russian sage)	3' - 5'	Accent, border, screening
Sedum spectabile (Showy stonecrop)	18" - 24"	Border, rock garden
Annual Flowers		
Coreopsis tinctoria (Coreopsis)	18" - 40"	Bright naturalizer
Cosmos bipinnatus (Cosmos)	2' - 4'	Flower beds, self-sows
Eschscholzia californica (California poppy)	12"	Naturalizing, borders
Gomphrena globosa (Globe amaranth)	10" - 20"	Containers, borders
Portulaca grandiflora (Moss rose)	4" - 6"	Ground cover, rock garden
Tropaeolum majus 'Alaska' (Nasturtium)	6" - 12"	Hanging baskets, massing
Zinnia angustifolia (Narrowleaf zinnia)	12" - 18"	Summer ground cover

Calamagrostis acutiflora 'Karl Foerster'(Karl Foerster Feather Reed Grass). Grown as an ornamental bunch grass, getting 3 to 5 feet in height, forming a dense clump. Attractive year round, with feathery inflorescence purple in color, turning light tan in late summer, remaining into winter.

Festuca ovina glauca (Blue Fescue). Ornamental perennial clump grass, creating a series of mounds of blue-gray shapes that contrast nicely with just about any other color in the garden. Flower is insignificant. Does not spread.

Miscanthus sinensis 'Purpurascens' (Red Flame miscanthus). An attractive, clump forming grass that ranges from 3 to 4 feet in height. Bright green leaves turn reddish in autumn, produces attractive bronze seed heads. May need supplemental water during extended periods of drought.

Phalaris arundinacea 'Picta' (Ribbongrass). An invasive grass that if contained to a limited area, will do the job of covering the ground. Striped foliage attractive; tolerates partial shade.

Note: Turf grasses like Kentucky blue and fine fescue **may** become more xeric with proper cultivar selection (common types like 'Park', 'Kenblue', 'Ram I', and 'South Dakota Common') and proper maintenance. This would include high mowing – at 3 inches – and controlling of water application to no more than one inch per week (about 6800 gallons/10,000 square feet) when there is no intermittent rainfall.

Wildflowers

Wildflower plantings have been trialed for years in North Dakota, and have been found to be a xeric, nearly care free alternative to bedding plants, where a less formal and more natural appearance is desired. A regional mix will provide color from April through to fall frost.

Many seed companies have regionalized wildflower mixes that are laced with annuals to provide color the first year of planting, with some re-seeding each year until the perennials become aggressive and limit their space for growing. It is not within the scope of this publication to discuss wildflowers extensively, but the xeric gardener should be cautioned to not attempt establishment where rhizomatous grasses or weeds are dominant (like quack-grass or Canada thistle!). Be sure of a complete kill of these pests with Roundup or a similar product before sowing any wildflower seed.

Once established after the first year, wildflower plantings need only to be mowed once a year, in the late fall before the snow flies, or in early spring before new growth begins. The former is prefered.

Drought tolerance is not simply a function of genetic capability. Many of these species, if watered frequently, will not prove to be drought tolerant if water is suddenly withheld. Plants previously subjected to water stress suffer less from drought than plants not previously stressed. Nurserymen realize this and "harden" their transplants to
the field or landscape for better survival by decreasing the frequency of watering and exposing the plants to full sun.

If the homeowner cannot make a commitment to keep water supplied to the plants throughout the growing season, then early season water reductions should be practiced.

It should be noted that some of the plants are considered borderline tolerant. That is, some have successfully been established in certain regions of the state without showing enviromental injury. Check to see if a species you are considering has been successfully grown in your area before making a large investment.

The Importance of Mulching to Conserve Water

There is a wide variety of products to use for mulching purposes. The organic mulches include peat moss, manure, compost, leaf mold, and sawdust. They all have the advantages of saving or conserving moisture, slowly providing nutrients, changing the chemistry of the soil, changing the physical structure, and fairly low cost. They need to be added on a regular (annual at least) basis because of microbial breakdown.

Some inorganic mulches such as plastic sheeting, sand, vermiculite and perlite add no nutrients, are subject to movement by the wind and moving water, and are generally unaffected by microbial action.

Generally, the mulches work best on vegetable and flower plantings, shrub beds and some trees, but could actually be detrimental to native plantings. Mulches should not be placed against the trunks of trees, but set back a few inches to keep rodents from feeding on the bark during the winter.

Remember that material that is too "fresh" – that is, not weathered, will tie up nitrifying microorganisms during the initial process and may cause nitrogen deficiency to the plants they are placed around. If a nitrogen deficiency occurs, the addition of some water soluble nitrogen fertilizer to the mulch will correct the problem.

Zonal Planting Concepts

In the truly arid parts of the country, such as Arizona, eastern Colorado and west Texas, the Xeriscape concepts are practiced via zoning around the house. With this concept, the high water requiring plants are planted close to the house, often given the term "oasis zone" (zone #1). The moderate, or regular watering zone (zone #2), would contain plant materials that, after establishment, would require only occasional watering during extended droughty periods.

The "no water zone" (zone #3) could have some native or adapted plant species that have acclimated to the usual preciptation patterns of the particular region. Here, plants would need water for the first year (usually through a drip irrigation system) to become established, then allowed to go it entirely on their own.

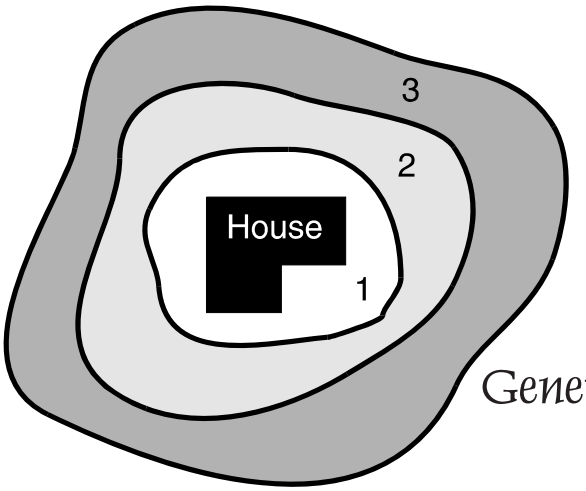
With the three zones clearly defined, it is obvious that three entirely different classes of plant materials will be needed. This takes careful thought in planning and planting to avoid a hodgepodge design.

Key

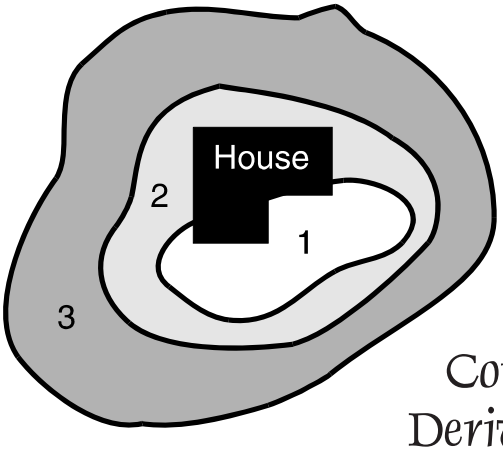
1 – highest water use areas

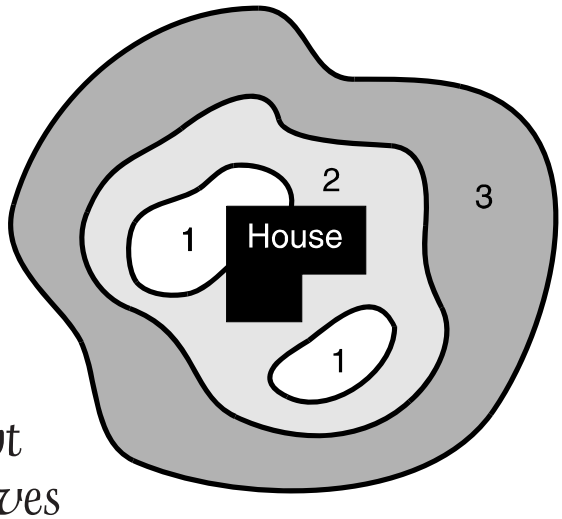
2 – moderate water use areas (three to four waterings per year)

3 – lowest water use areas



General Concept





Concept Derivatives

For more information on this and other topics, see: www.ag.ndsu.edu

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