

Principles of Xeriscape

Steps 3 & 4:

Appropriate use of Turf and Plant Selection

Craig R. Miller
Parks & Open Space Manager
www.cpnmd.org

Appropriate Use of Turf

Healthy, properly maintained turf can reduce stormwater runoff, sediment and pollutant loads, reduce heat island effects and provide other environmental benefits.

Design

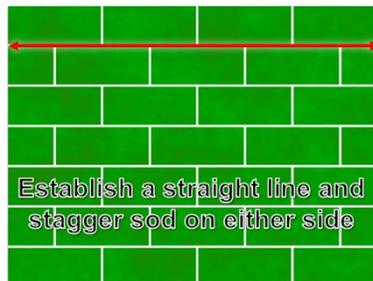
- ❖ Design and allocate appropriate space for turf areas based on desired functional, recreational and/or aesthetic benefits.
- ❖ Select turfgrass species that will best meet the requirements and purposes of the lawn area. Areas that receive wear and tear will require sod-forming species such as Kentucky bluegrass.
- ❖ Areas that are difficult to mow, or are *only for visual appeal*, may be appropriate for slower growing, lower maintenance, lower water requiring species such as buffalograss, Dog Tuff™ grass or blue grama.
- ❖ America is one of the few countries in the world today where bluegrass is used as the primary landscape itself.

In Colorado, this is NOT acceptable!

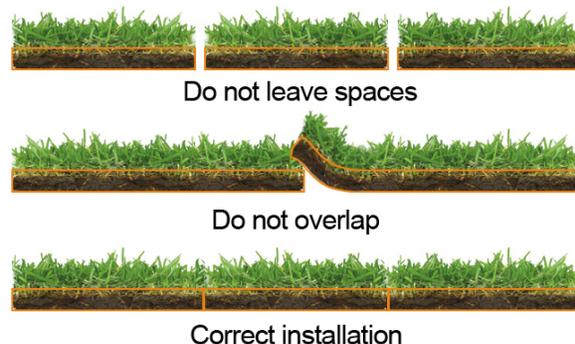
- ❖ Consider turf alternatives for some areas (narrow strips, hard-to-water areas, steep slopes, low-usage areas) such as native or low-water-use plantings, patios, decks, mulches or low-water turfgrasses.
- ❖ If you don't walk on it, you don't need it in bluegrass!
- ❖ When considering lower-water-requiring alternatives to Kentucky bluegrass, base turf selection on the results of a soil analysis. In sandy soils in particular, some alternative species do not perform as well.
- ❖ When possible, avoid placing turf in long narrow areas, on steep slopes, hard-to-maintain corners and isolated islands due to difficult mowing and irrigation challenges. Turf is better suited to larger, relatively flat areas *that will get used!*
- ❖ Good surface drainage can be achieved by sloping the lawn away from buildings (5% grade, which is a drop of 6 inches for the first 10 feet) and properly grading low areas and steep slopes to prevent future trouble spots. Where appropriate, grade to allow water-harvesting techniques.

Installation

- ❖ Although turf can be established from seed or sod, sod provides the additional benefits of quick establishment and the ability to handle heavy rains with less susceptibility to erosion.
- ❖ Prepare the site prior to the arrival of the sod.
 - Remove weeds and debris.
 - Establish a rough grade and eliminate low spots.
 - Spread and rototill a minimum of five to six cubic yards of organics per 1,000 square feet at least six inches deep.
 - Level and rake the installation site until it is smooth.
 - Grade areas along sidewalks and driveways approximately one and one-half inches below top of concrete.
- ❖ Have on site all hoses and sprinklers for the initial watering.
 - Make sure your sprinkler system is performing properly.
 - Understand the operation of the sprinkler clock for proper watering of the new and established lawn.
- ❖ Order sod to be delivered once site is prepared and the sprinkler system is understood and operating properly.
- ❖ Install the sod immediately after delivery.
 - Arrange the rolls so there is a minimum amount of traffic on the prepared soil and the newly installed grass.
- ❖ Lay sod in a horizontal brick pattern.



- ❖ Once an area of approximately 15 feet by 15 feet has been laid, water immediately. The objective is not to let the sod dehydrate.
- ❖ Butt ends and sides of the sod strips making sure there is no overlapping.



- ❖ If you need to butt strips at an angle to one another, overlap them, and cut completely through both strips with a sod knife or sharpened trowel.
- ❖ Fit the sod around obstacles or in smaller places by cutting with a sod knife.
- ❖ Water properly, as follows:
 - Once all the sod is laid, begin watering to build up the sub-soil moisture. This is the most critical time to apply water. Up to one-half inch to one inch of water per day for the first two

to three days may be required. Probe the soil to determine if the moisture has penetrated at least four inches.

- Each day may require more than one application depending upon wind and temperature. The reason for several light applications is to keep the root zone and blades moist, and to minimize runoff.
- Week three is used as a transition period from daily watering with frequent applications per day to an increased number of days between waterings. During this time the grass should be ready for routine maintenance. By the end of the establishment period, the grass should be able to go several days between waterings depending on the season and weather.

- ❖ After the initial three weeks, adjust watering times and sprinkler clocks to conform to any watering restrictions in your area.
- ❖ A Quick Reference Guide is as follows for first 30 days:
 - Week #1: Water 2-3 times per day
 - Week #2: Water 1-2 times per day
 - Week #3: Water every day or every other day
 - Week #4: Water 2-3 times per week to establish your ongoing schedule
- ❖ When starting a lawn from seed, amend the soil in a manner similar to sod.
- ❖ Frequent light waterings are needed to keep the seed bed evenly moist until the seed has germinated. After the grass plants begin to emerge, watering frequency should be reduced.
- ❖ The approximate amount of water that needs to be applied each week for an average, traditional bluegrass lawn is listed below:

Approximate supplemental water to apply to bluegrass turf (inches per week)

May	June	July	Aug	Sept
1.0	1.25	1.5	1.5	1.0

- ❖ *The above data are based on historical averages and should be used as a guideline and not as a substitute for good judgment, reason and common sense.*
- ❖ Under less-than-average rainfall conditions, the amounts shown in the chart can be increased. If there is greater-than normal rainfall, then the amount of supplemental water should be reduced.
- ❖ Measure the water applied by using rain gauges or cans placed on the lawn in areas covered by sprinklers.
- ❖ Become aware of dehydration signs:
 - Stage 1: grass has a purplish tint
 - Stage 2: grass blades turn steel gray and foot prints are left when walked upon
 - Stage 3: grass blades turn straw color
- ❖ Mulch-mowing turfgrass at a height of 2.5 to 3.0 inches helps turfgrass develop deeper root systems. Set your mower even higher if you can. Mulched grass clippings can return roughly 25 to 30 percent of the needed nitrogen that grass requires to be healthy, thereby reducing fertilizer requirements. Avoid throwing grass clippings onto streets and sidewalks to reduce nutrient pollution to surface water bodies.
- ❖ If thatch deeper than ½ inch is present, aerate the lawn with a core-aerator to allow water penetration into the root zone. Minimize thatch development by mowing frequently, avoiding over watering, preventing over fertilization and aerating the lawn.
- ❖ Fertilize the turfgrass at a rate appropriate to the turfgrass species, season and soil conditions. Over-application of fertilizer can result in runoff and leaching. Slow-release fertilizers may reduce the chances of nutrients leaching into groundwater or running off-site.

- ❖ Apply fertilizer timed to the needs of the plants. Cool season grasses such as Kentucky bluegrass need to be fertilized when the growing season is cool. Apply no more than one pound of nitrogen per thousand square feet at each application. Warm season grasses such as buffalograss need less fertilizer and are best fertilized when the temperature is hot. One application about mid-June and another at the beginning of August is usually sufficient.
- ❖ Water the lawn uniformly until the soil is moist to a depth of 4 to 6 inches to encourage deep roots. Frequent, light sprinklings moisten only the surface and may cause shallow-rooted turf and increase weed seed germination.
- ❖ Proper irrigation can minimize the amount of fertilizer and other chemicals that are leached below the root zone of the grass or washed away by runoff. Properly maintain the irrigation system to ensure that the irrigation is being applied at appropriate rates and to the turfgrass, not the sidewalk.
- ❖ Follow a proper maintenance schedule to prevent stress, disease and turf injury.
- ❖ Particularly during recent drought conditions, Kentucky bluegrass has received significant attention as a high-water use plant. However, field studies have shown that bluegrass, with a base of properly prepared soil and proper irrigation, performs well at half of the recommended rate (evapotranspiration or ET) for supplemental irrigation. Therefore, the water use for bluegrass is not so much the grass itself, *but how it is cultivated*.
- ❖ ***Xeriscape is not lawn-less landscaping, but LESS LAWN landscaping.***

Plant Selection

- ❖ Select plants that are well adapted to the climate, topographic and geologic conditions of the site. Native plants and plants with documented lower water requirements should be given priority in landscape design.

Native Plants

Perennials

- Blanket flower (*Gaillardia aristata*)
- Nelson's Larkspur (*Delphinium nelsonii*)

Grasses

- Little Bluestem (*Schizachyrium scoparium*)
- Tufted Hairgrass (*Deschampsia cespitosa*)

Shrubs

- Rabbitbrush (*Chrysothamnus nauseosus*)
- Fernbush (*Chamaebatiara millefolium*)
- Boulder Raspberry (*Oreobatus [Rubus] deliciosus*)
- Creeping Oregon Grape (Holly *Mahonia repens*)

Trees

- Rocky Mountain Maple (*Acer Glabrum*)
- Rocky Mountain Juniper (*Juniperus scopulorum*)

- ❖ Choose plants with lower water requirements for areas with southern and western exposures.
- ❖ Group plants together that have the same water requirements. Plants located within the drip line for large trees and shrubs should have water requirements similar to the trees and shrubs.

Xeric Groundcovers (for under trees)

- Snow-in-Summer (*Cerastium tomentosum*)
- Yellow Ice Plant (*Delosperma nubigenum*)
- Starburst Ice Plant (*Delosperma floribunda*)
- Elfin Thyme (*Thymus serpyllum* 'Elfin')

- ❖ Preserve existing healthy trees - established plants have often developed a root system that is adapted to lower water conditions.
- ❖ Preserving healthy trees means following industry standards to protect canopies, trunk and critical root zones during construction and when modifying the landscape.
- ❖ Remove species that are designated state noxious weeds, especially ornamental species such as purple loosestrife, oxeye daisy, tamarisk, myrtle spurge and yellow toadflax.
- ❖ Determine water requirements for all existing landscape plants and water accordingly.
- ❖ Consider using plants with low water requirements. Information on low water use plants can be obtained from the CPNMD website (www.cpnmd.org).

Xeric Plants

Perennials

- May Night Salvia (*Salvia sylvestris* × 'Mainacht')
- Moonbeam Coreopsis (*Coreopsis verticillata* 'Moonbeam')
- Creeping Phlox (*Phlox subulata*)
- Basket of Gold (*Aurinia saxatilis*)
- Munstead Lavender (*Lavandula angustifolia* 'Munstead')
- Sunset Hyssop (*Agastache rupestris*)

Grasses

- Switchgrass (*Panicum virgatum*)
- Blue Fescue (*Festuca glauca* 'Elijah Blue')
- Dwarf Fountain grass (*Pennisetum alopecuroides* 'Hamel')
- Karley Rose Fountain grass (*Pennisetum orientale* 'Karley Rose')

Evergreen Shrubs

- Mother Lode Juniper (*Juniperus horizontalis* 'Mother Lode')
- Spanish Gold Broom (*Cytisus purgans* 'Spanish Gold')
- Panchito Manzanita (*Arctostaphylos* × *coloradoensis*)

Deciduous Shrubs

- Wayfaring Viburnum (*Viburnum lantana*)
- Miss Kim Lilac (*Syringa patula* 'Miss Kim')
- Beautybush (*Kolkwitzia amabilis*)

Deciduous Trees

- Bigtooth Maple (*Acer grandidentatum*)
- Kentucky Coffeetree (*Gymnocladus dioica*)
- Swamp White Oak (*Quercus bicolor*)

Evergreen Trees

- Bristlecone Pine (*Pinus aristata*)
- Southwestern White Pine (*Pinus strobiformis*)

Ornamental Trees

- Winter King Hawthorn (*Crataegus viridis* 'Winter King')
 - Golden Raintree (*Koelreuteria paniculata*)
- ❖ When selecting plants, consider factors such as the size of the area to be covered, soil type, exposure, steepness of slope, pedestrian traffic, area usage, drainage conditions and maintenance requirements along with aesthetic desires.
 - ❖ A good rule of thumb is to place plants with higher water use in lower-lying drainage areas, near downspouts or in the shade of other plants.
 - ❖ On steep slopes, select plant species that produce dense, fibrous roots to help prevent soil erosion. Maintenance safety issues should also be considered in selecting plants for these areas. For example, mowing may not be safe on steep slopes; therefore, alternatives to manicured turf should be explored.

Regional Considerations

- ❖ In mountain areas, consider length of growing season, soil and exposure before selecting plants. Select these shrubs from northern sources, when possible, and plant these shrubs in the spring. Ground covers in mountain areas may take two to three years to become established.
- ❖ See the Colorado State University Cooperative Extension Yard Gardening Series publications "Ground Cover Plants for Mountain Communities" (no. 7.413) and "Flowers for Mountain Communities" (no. 7.406) by J.R. Feucht, as well as "Trees and Shrubs for Mountain Communities" (no. 7.423) by J. Klett, L. Vickerman and I. Shonle for lists of species appropriate to mountain areas.