



Principles of Xeriscape

Step 7 : ***Maintenance***

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Maintaining a Xeriscape

- ❖ A xeriscape requires maintenance just like any other landscape.
- ❖ Maintenance tasks are different, and may consist of:

Weeding

Irrigation repairs/adjustments

Deadheading

Pruning

Fertilizing

Mowing

Irrigation

Turfgrass Irrigation Practices

- ❖ Base the first watering on soil moisture content. Spring is the time of maximum nutrient uptake. Watering too early in the spring cools the soil and reduces nutrient uptake. This stresses the grass and makes it more susceptible to insect and disease problems.
- ❖ Early spring watering can also saturate the soil, reducing the oxygen available to deeper roots, which results in the death of these deep roots. The loss of deep roots increases the grass's susceptibility to drought stress, and increases the need for more frequent waterings.
- ❖ Check the moisture content of the soil with a trowel, shovel or soil probe to a depth of 4 to 6 inches for turf areas and 6 to 8 inches for

trees and shrubs. If the soil is dry, water. If the soil is moist, delay watering.

- ❖ Irrigate according to the requirements of the plants, not on a fixed schedule. Apply only enough irrigation to replace water loss by evapotranspiration (ET).
- ❖ When turfgrass requires water, it will turn blue-gray, not spring back when walked on and prevent the blade of a screwdriver or other such implement from easily penetrating into the soil any deeper than 2 inches.
- ❖ Drought symptoms can appear in patches or over the complete turf area. Watering the complete lawn when only a small area requires water, or watering too frequently, results in shallow roots, increased susceptibility to drought and increased susceptibility to disease.

**When only small areas exhibit drought stress,
water only those areas that need to be irrigated!**

- ❖ Water deeply but only as needed; avoid shallow frequent waterings. Watering a lawn on a frequent, shallow basis results in the death of deep roots, increasing the need to water.
- ❖ In some instances, it may be necessary to water daily or every other day:
 - Sandy soils
 - Shallow soils (poorly prepped)
- ❖ Water at night to reduce water loss from evaporation. Watering during the night (particularly after midnight) reduces problems with turf diseases and reduces the amount of water lost from evaporation, making the irrigation more efficient.
- ❖ The most efficient and ideal time to irrigate turfgrass is between 9 PM and 6 AM. Gardeners not wishing to spend their night hours watering can water during the day, but prior to 9:00 AM. Lawns should not be watered between the hours of 9:00 AM and 9:00 PM.
- ❖ To reduce water loss from evaporation, do not water during windy times. Wind will also divert the water, resulting in some areas getting much more water than others, and leaving dry spots.

Irrigation System Maintenance

- ❖ Check, adjust and repair irrigation equipment on a regular basis, weekly and within 24 hours of mowing, whenever possible. Identify irrigation system leaks and repair them promptly.
- ❖ Spring is a great time to check the irrigation system for consistency, uneven water coverage, and leaks.
 - The “Catch Can” test
 - Plugged heads, improper spacing of sprinkler heads, etc., can be identified and subsequently corrected using this method.
- ❖ The amount of water applied and the depth of water penetration should be rechecked occasionally during the summer months to avoid problems that develop from clogged or twisted heads. Reset or clean heads as necessary.
- ❖ Immediately shut off irrigation systems and adjust whenever irrigation water falls or runs onto hard surfaces such as sidewalks, streets or driveways.
- ❖ Signs of leakage include overgrown or particularly green turf areas, soggy areas around spray heads and above ground hoses, jammed spray heads and torn hoses. In drip systems, leakage problems may be due to damaged tubing from foot traffic or gnawing by animals.
- ❖ Whenever possible, update and retrofit existing irrigation systems to take advantage of new water-saving technology (rain shut-off devices, ET controllers, soil moisture sensors, drip irrigation).
- ❖ Manage the irrigation system to respond to the changing/seasonal requirements for water in the landscape. The most efficient systems match irrigation application to landscape water requirements through effective irrigation scheduling. Whenever possible, irrigation scheduling should incorporate the use of evapotranspiration (ET) and precipitation data.
- ❖ Reset automatic controllers according to the seasonal needs of plants. Controllers should be inspected at least bi-monthly to correct run times.

Turfgrass

Lawn Aeration

- ❖ Aerate the lawn in the **spring** and again in the **fall** to obtain these benefits:

- Improved water penetration into compacted soils and through thatch and mat layers.
 - Compacted soil is loosened, increasing the availability of water and nutrients.
 - Enhanced soil oxygen levels, which stimulates root growth and the activity of thatch-decomposing organisms.
 - Enhanced turfgrass shoot and root development.
 - Reduced water runoff.
 - Increased turf drought tolerance.
- ❖ Check thatch depth occasionally to determine the need for corrective procedures. More than ½" will be problematic.
 - ❖ Make sure aeration plugs are at least 2" to 3" in length for best results (the longer the plug, the better!).
 - ❖ A core-type aerator can remove up to 10% of the thatch in a lawn if enough passes are made to result in 2" spacing between holes
 - ❖ Use core-type aerators to loosen the soil, rather than spike-type aerators, which compact it.
 - ❖ Should you power rake your lawn?
 - This process does little but remove winter-killed grass that will breakdown anyway, but you will not remove the thatch or correct a thatch problem.
 - Gardeners who hand rake or power rake in the spring normally only collect the grass clippings that did not decompose the previous fall.
 - A power rake that is set to cut deep enough to remove thatch can be very injurious and disruptive to the turf.

Turfgrass Maintenance

- ❖ Kentucky bluegrass can be allowed to go dormant without permanent and excessive injury if healthy. Kentucky bluegrass can recover even after nine months without water.
- ❖ Carefully inspect the lawn weekly for disease and pests, correcting problems as they occur.
 - During a year of potential high stress from drought, this becomes even more important.
 - Early detection and control of problems is essential.
- ❖ Weeds always seem to thrive regardless of the conditions and use water intended for other plants.

- Do not allow uncontrolled weeds to overtake the lawn or garden.
 - Apply the proper methods necessary to prevent weed growth such as hand pulling or careful herbicide application.
- ❖ Before moving directly to chemical methods to control weeds, consider the following practices:
- Mechanical: physically remove weeds by hand pulling, digging or cultivation.
 - Cultural: maintain dense stands of desirable plants that will successfully out-compete weeds, or consider using mulches to exclude weeds.
 - Biological: using specific insects and plant pathogens to control weeds is an area of growing research. When such methods are demonstrated to be appropriate and effective, consider their use.

Fertilizer Application

- ❖ A properly fertilized lawn requires less water. Applying more fertilizer than is needed can deplete other nutrients and cause deficiencies.
- Adding excess may adversely affect the availability of other nutrients that were previously in sufficient supply.
 - For example, adding too much phosphorus may result in a deficiency of available iron both within the soil and within plants grown in the soil.
- ❖ Nutrient-stressed plants with deficiencies are more susceptible to insect and disease problems, as well as drought stress.
- ❖ Ideally, conduct a soil test to determine the nutrient needs of your turf by sending a soil sample to a reputable soil-testing laboratory.
- ❖ Generally, for low-maintenance bluegrass lawns (common throughout Colorado), apply one-half pound of N/1,000 sq. ft. (half rate) in the late spring (Memorial Day) and again in early summer (Fourth of July) and apply one pound of actual nitrogen per 1,000 sq. ft. (full rate) in the fall (October).
- 20-10-10 fertilizer contains 20% nitrogen (N)
 - A bag that weighs 25 pounds would contain 5 pounds of N
 - Applied to 5,000 square feet of turf = 1 pound of actual N/1000 sq. ft.
 - Half the bag would provide ½ pound of N/1000 sq. ft.
- ❖ Avoid the use of manure as top-dressing on lawns; applying manure can increase the need to water.

- Gardeners applying manure as a top dressing assume (incorrectly) that this meets the nutrient needs of the turf. Manures are very low in nitrogen with several inches of manure being necessary for each pound of nitrogen needed by the turf.
 - Manures are typically high in salt.
 - Adding salt to a lawn increases the need to apply more water.
- ❖ Fertilizer spreaders
 - Rotary spreaders
 - Drop spreaders

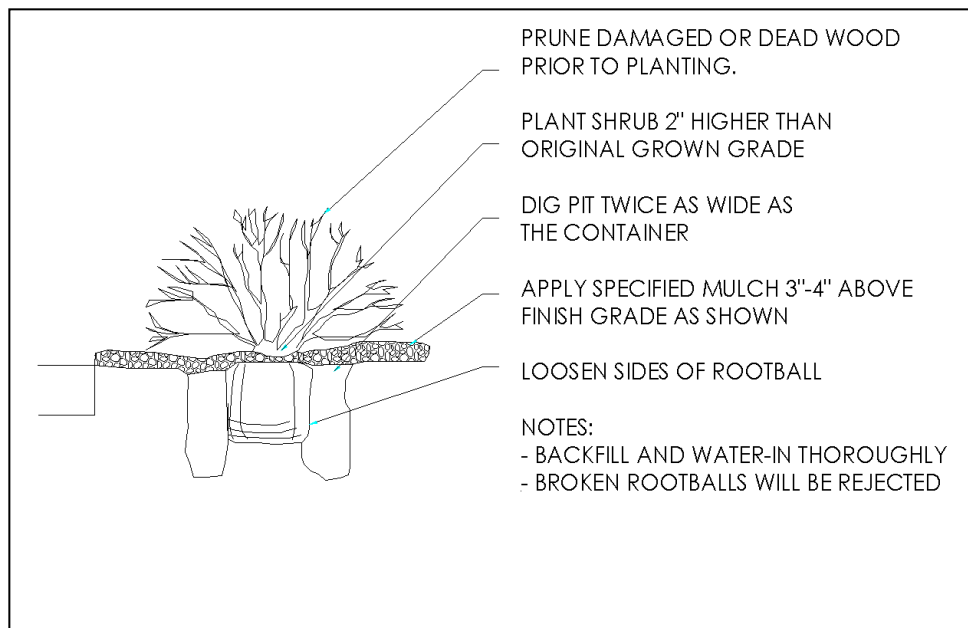
Mowing

- ❖ Mow the lawn no lower than 2 ½ inches (3" to 4" better!).
- ❖ The higher the lawn is mown, the deeper the roots.
- ❖ Sharpen your mower blades regularly!

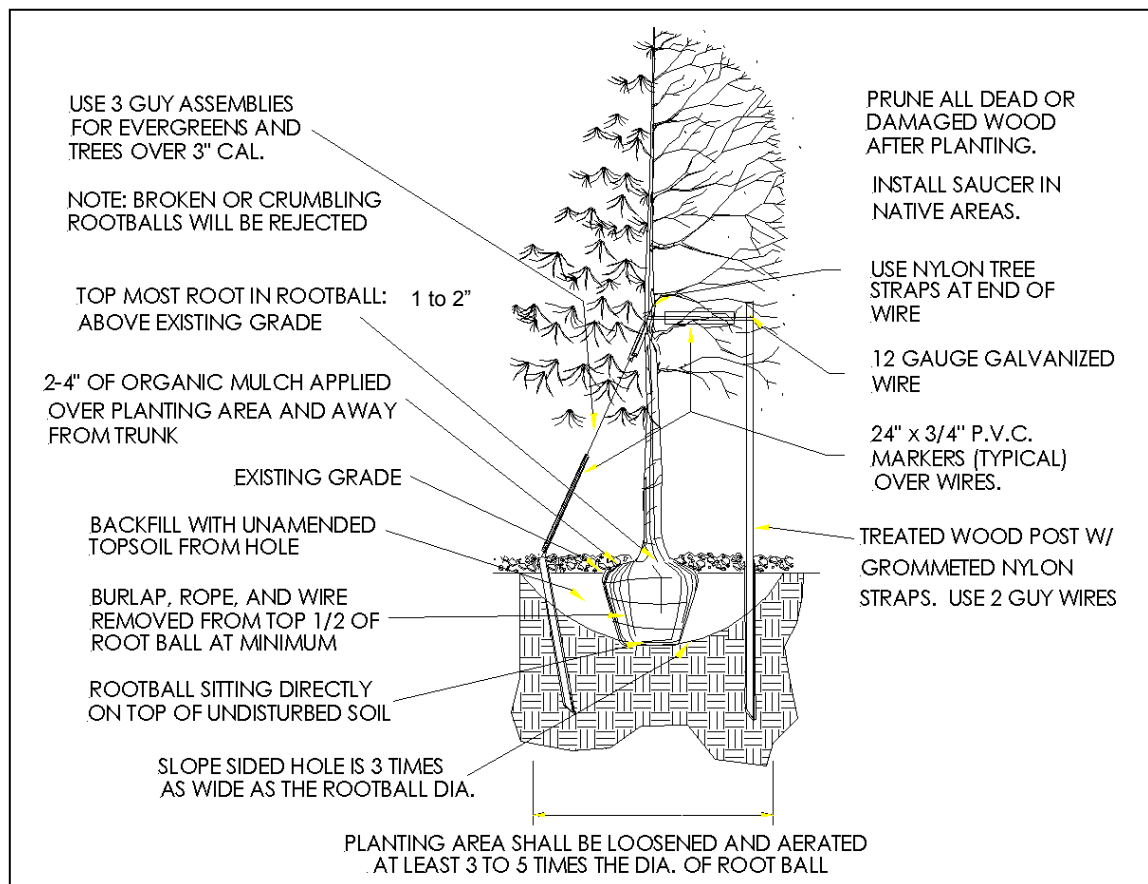
Trees and Shrubs

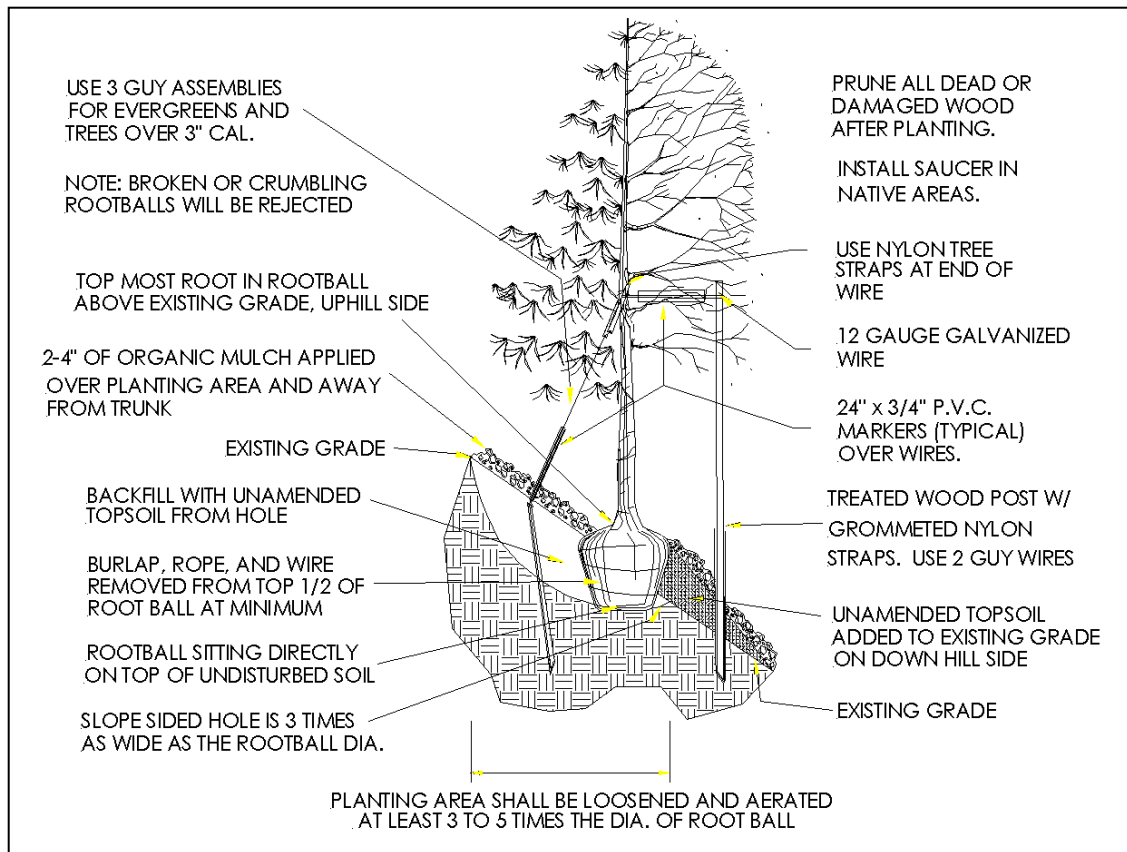
Planting

- ❖ Small shrubs (1 to 5 gallon size) will benefit from being planted in a well prepared soil (minimum 5 cubic yards of organic matter per 1000 square feet). Apply mulch to conserve moisture.
- ❖ Treat larger shrubs and B & B shrubs as you would trees - plant into existing onsite soil with no amendments.



- ❖ Proper tree planting with the top most root in the root ball 1 to 2 inches above grade helps in better establishment and long-term health of a tree. Planting holes should be shallower than the root ball for this to occur.
- ❖ Backfill should consist of existing on-site soil – do not use amendments.
- ❖ Set root ball on undisturbed soil.
- ❖ Cut off bottom 1/3 of wire basket before placing tree in hole, cut off remainder of basket after tree is set in hole, remove basket completely where possible. Remove all nylon ties, twine, rope and burlap as possible. Remove unnecessary packing material.





Watering

- ❖ When planning irrigation for trees, zone them separately from turf because trees adapt better to the site with deep, less frequent waterings.
- ❖ Regular watering of trees is important because moisture stress is a precursor to many diseases and insect problems.
 - Trees may be deceiving in that they may not show stress for several years after drought damage.
 - It is also important to keep in mind that too much water can also cause problems.
- ❖ Trees and other woody plants typically require additional watering for one to two growing seasons to become established (As a rule of thumb, trees require one year per inch of caliper to become established). This includes winter watering for newly planted trees, particularly evergreens when snow is absent.
- ❖ Tree root systems can spread two to three times wider (or more!) than the height of the tree. Most of the tree's absorbing roots are in the top 12 to 18 inches of the soil. Water should be applied within and beyond the dripline, deeply and slowly.

- Apply water so it moistens the critical root zone to a depth of 12 to 18 inches. For evergreens, water should also be applied three to five feet beyond the dripline.
- Watering methods include surface sprinklers, a deep root fork or needle or a soaker hose. Apply water to many locations under the dripline. If a deep root fork or needle is used, insert the device no deeper than six to eight inches into the soil.



- ❖ During prolonged dry periods in the fall and winter (October - March), water trees one to two times per month. Water only when temperatures are above 40 degrees and no snow cover exists.
- ❖ The desired water application rate for trees varies by trunk diameter and irrigation device (See PWSD's "Caring for Trees in Dry Climates" and Tree Watering Schedules).
 - A general rule of thumb for small and medium size trees is to use approximately 10 gallons of water per inch of trunk diameter (measured at knee height) for each watering.
 - The frequency for small trees (1-3") is to water weekly throughout the season.
 - Medium size trees (4-8") will only require watering three times per month throughout the season.
 - Water large trees (10"+) twice per month at a rate of 15 gallons of water per inch of trunk diameter throughout the season. Modify if rain occurs.

Pruning

- ❖ Properly prune young trees to develop structures so they are well suited to the site and their intended landscape function.

- ❖ Prune trees to remove dead, broken, insect infested and diseased branches to maximize plant health and to minimize pest invasion. Do not top trees.
- ❖ Always make proper pruning cuts!
- ❖ Properly prune shrubs to control size and shape; remove dead, diseased, weak or broken branches; maintain natural beauty; or control flowering, fruiting or colored twig effect in certain plants.
- ❖ Prune shrubs to rejuvenate them.
- ❖ Pruning flowering shrubs at the wrong time of year can prevent them from blooming, as you are removing the flower buds at the ends of the branches.
- ❖ Generally, the best time to prune shrubs is immediately after they bloom.

Perennials

Planting

- ❖ Perennials and annuals are best planted in properly prepared soil.
- ❖ Minimum 5 cubic yards of organic matter per 1000 square feet.
- ❖ DO NOT use landscape fabrics around perennials and annuals, as they will inhibit the spread of the plants.
- ❖ DO use mulch around perennials and annuals, if so desired.

Deadheading

- ❖ Not only will deadheading improve the appearance, deadheading also helps the vigor of the plant and increases blooming time.
- ❖ Deadheading simply means removing the faded or dead flower heads from a plant. Like all gardening chores, deadheading is both beneficial and necessary.
- ❖ It lengthens the blooming time of some plants, increases the amount of blooms for others and keeps the garden looking neat and properly cared for.
- ❖ In some cases, deadheading is helpful in reducing the amount of new plants produced from the numerous seeds that are dispersed naturally.
- ❖ Perennials as well as annuals benefit from deadheading.

- ❖ By deadheading, the usual amount of bloom time can be increased, sometimes very dramatically.
 - Coreopsis and delphinium are examples of plants that will rebloom profusely in response to deadheading.
- ❖ Deadheading is usually done by snipping off the flower head with the thumb and forefinger. This technique is fine for small-stemmed plants.
- ❖ When plants have thicker stems (rudbeckia, purple coneflower and daylilies), tugging on the stem may cause damage to the plant. In this case, sharp scissors or pruners should be used. Both instances require a clean cut.
- ❖ Some plants have a fine-textured foliage and produce a countless number of flowers, such as Candy tuft, snow-in-summer and creeping phlox. Deadheading individual blooms would be very time consuming. Using a shearing tool or hedge clippers not only gets rid of the dead flowers, but also keeps the plant compact and shapely.
- ❖ The growth habit of a plant determines where the cut should be made.
- ❖ When a plant has numerous stems, such as salvia or coreopsis, the stem should be cut back to the first leaf or group of leaves.
- ❖ With plants that produce stems with multiple flowers that open at different times, such as daylilies and iris, each bloom can be snipped off when it dies. Then when all the blooms on the stem are gone, the entire stem should be clipped back to the ground.
- ❖ Plants such as coral bells and hosta that produce individual stems of flowers above a clump of leaves should be deadheaded at the lowest part of the stem.

Getting the Garden Ready for Winter

- ❖ Cut back the majority of your perennial plantings in early spring.
 - Dead foliage and seed heads provide winter interest
 - Also protects the crown of the plant over the winter, providing additional insulation.
 - A natural “snow fence” that can capture and direct winter moisture to the roots.

Additional Maintenance Factors to Consider

- ❖ Apply organic mulch within the dripline of trees (or at least 3 foot diameter) at a depth of 4 inches to conserve moisture. Leave a 3 inch space between the mulch and trunk of trees.
- ❖ Freshen mulch in bedding areas as needed to maintain a 4 inch layer (use 2 inches in heavy or poorly drained soils).
- ❖ Practice plant health care (PHC) programs and proper tree maintenance to create healthy trees and landscapes.
- ❖ Many tree species are harmed by herbicides used in the lawn. Trees already stressed by drought can be harmed by a heavy application of herbicide in the root zone.