Deer Resistant Plants

Some suggestions: (Researched by J. Knopf, for Rocky Mountain Xeriscape Deer Resistant Plants 1989)

1. *Big Western Sage	*Arternisia tridentata*
2. Southern Sage	*A. arbortanum*
3. Rocky Mtn Maple	*Acer glabrum*
4. Four-wing Saltbush	*Atriplex canescens*
5. Leadplant	*Amorpha canescens*
6. Dwarf Leadplant	*A. nana*
7. Quince	*Chaenomeles* spp.
8. Bluemist Spirea	*Caryopteris incana*
9. Rabbitbush	*Chrysothamnus* spp.
10. Fernbush	*Chamaebatiaria millefolium*
11. Winged Euonymus	*Euonymus alatus*
12. Apache Plume	*Fallugia paradoxa*
13. Rose-of Sharon	*Hibiscus syriacus*
14. Rock Spirea	*Holodiscus dumosus*
15. Tatarian Honeysuckle	*Lonicera tatarica*
16. Mountain Ninebark	*Physocarpus monogynus*
17. Potentilla	*Potentilla* spp.
18. Wild Plum	*Prunus americana*
19. *Chokecherry	*P. virginiana*
20. Nanking Cherry	*P. tomentosum*
21. Gambel's Oak	*Quercus gambelii*
22. Fragrant Sumac	*Rhus trilobata*
23. Alpine Currant	*Ribes alpinum*
24. *Golden Currant	*R. aureum*
25. Austrian Copper Rose	*Rosa foetida "bicolor"*
26. Persian Yellow Rose	*R.f. "Persiana"*
27. Boulder Raspberry	*Rubus deliciosus*
28. Silver Buffaloberry	*Sheperdia argentea*
29. Anthony Waterer Spirea	*Spiraea "Anthony Waterer"*
30. Van Houtte Spirea	*S. Van Houttei*
31. Hancock Coralberry	*Symphoricarpos X "Hancock"*
32. Snowberry	*S. albus*
33. Lilacs	*Syringra* spp.
34. Honeylocust	*Gleditsia triacanthos* var.
35. Common Hackberry	*Celtis occidentalis*

76. Delphinium	*Delphinium* spp.
77. *Wild Geranium	*Geranium* spp.
78. *Spinach	*Spinacia oleracea*
79. *Penstemons	*Penstemon* spp.
80. *Grapes	*Vitis* spp.
81. Cowania	*Cowania neo-mexicana*
82. Purple Prairie Clover	*Dalea purpurea*
83. Echinops	*Echinops* spp.
84. Prairie Zinnia	*Prairie grandiflora*
85. Mertensias	*Mertensia* spp.
86. Snow drops	*Galanthus* spp.
87. Dotted Gayfeather	*Liatris punctata*
88. *Basket-of-gold	*Alyssurn saxatile*
89. *Russian Sage	*Perovskia atriplicifolia*
90. Oregano	*Origanum* spp.
91. Lily of the Valley	*Convallaria majalis*
92. Peony	*Paeonia* spp.
93. Daylily	*Hemerocallis* spp.
94. Purple Cone Flower	*Echinacea purpurea*
95. Chocolate Flower	*Beriandiera lyrata*

Note: Deer will eat a wide variety of plants and will eat even these suggested varieties if weather, food conditions, overpopulation, etc. become adverse. Those marked with a * deer generally will eat.

TREES & SHRUBS

Large Deciduous Trees

no. 7.419

by J.E. Klett and C. Wilson [1]

Everyone enjoys the beauty a shade tree provides. Trees also reduce harsh winds, moderate temperature extremes, and offset poor air quality.

Quick Facts...

Trees provide shade, beauty and protection from harsh winter.

Trees help moderate temperature extremes and offset poor air quality.

Plant trees on the basis of space available, soil conditions, proximity to irrigation lines and water requirements.

Plant trees prone to storm breakage away from buildings, walks, driveways and utility lines.

How to Select a Tree

To select a tree, consider the following factors.

Available space. The location you choose for each tree should have enough space to allow for growth without severe pruning. Check for obstructions of buildings, overhead utility lines and tall fences. If lateral space is limited, select a tree that has a narrow, upright growth habit. Refer to height, branch spread and shape in the tree list shown in Table 1. If overhead lines are near, you may want to choose small trees. (See fact sheet 7.418, *Small Deciduous Trees*.)

Soil conditions. Most trees perform best in well-drained soil. If you have compacted soil that is hard to work, loosen the soil and mix in organic material to a depth of at least 12 inches before planting your tree.

Irrigation lines. If you have an underground irrigation system, plant trees to allow for the tree trunk and basal root flare to expand without encroaching on an irrigation pipe. Otherwise, tree roots may eventually compress the pipe and shut off the irrigation line.

Growth rates vs. brittleness. As a general rule, fast-growing trees tend to be brittle and can be damaged by limb breakage in storms. Plant these trees away from buildings, sidewalks, driveways and utility lines.

Water requirements. Trees vary in water requirements. Do not plant trees that have low water needs in heavily irrigated lawn areas or at the bottom of slopes. Plant trees with high water requirements in locations where supplemental watering is possible and desired. In dry years, fall and winter watering is critical to the health of trees. Trees under drought stress are more susceptible to insect and diseases. For details, see 7.211, *Fall and Winter Watering*. For details on watering after planting, see 7.226, *Care of Young Transplanted Trees*.

Large Trees for Shade

Table 1 includes trees that will exceed 30 feet in height when fully grown. These trees should not be placed under or near power lines or other overhead structures. Use one-half of branch spread (diameter) indicated below to determine distance from structures.

Description of Tree Shapes

The following tree shapes describe the general outline of the trees in the accompanying tree list. Use this chart in combination with height and branch spread to determine proper location of trees and ensure adequate clearance from obstacles.

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Putting Knowledge to Work

Table 1, continued: Large deciduous trees for shade.

Plant Name	Mature Size (H x W)	Tree Shape	Growth Rate[1]	Soil Moisture[2]	Aesthetic Value and Cultural Hints
Betula pendula 'Gracilis' Cutleaf weeping birch	50 x 30	weeping	m	H	Yellow fall color. Plant where soil stays cool and moist. Avoid south and west exposures. White bark. Fall and winter watering important.
Carpinus betulus 'Fastigiata' Columnar hornbeam	35 x 15	narrow, columnar	s	H	Dark green foliage much like elm. Plant where soil stays cool. Avoid south or west exposures. Muscle-like trunk. Air pollution tolerant.
Catalpa speciosa Northern catalpa	50 x 25	narrow, upright	s	M	Showy, white, orchid-like flowers in early summer. Bean-like pods often remain on trees all winter. Large heart-shaped leaves.
Celtis occidentalis Common hackberry	55 x 50	broad, spreading	s-m	L	Adapts to most soils. Yellow fall color. Warty bark. Drought and wind tolerant. Small red to purple fruit.
Cladrastris kentukea (lutea) American yellowwood	35 x 35	round	m	M	Fragrant white flowers in late spring followed by 4 inch seed pods. Tolerant of most soils.
Fraxinus americana American ash	60 x 50	elliptical	m	M	Yellow to purple fall color.
'Autumn purple'	50 x 50	round	m	M	Yellow/red-purple fall color. Seedless.
Fraxinus mandshurica 'Mancana'	45 x 25	oval	m	M	Pointed, dark brown buds. Yellow fall color. Seedless.
Fraxinus pennsylvanica Green ash	50 x 30	round	m	M	Yellow fall color. Adapts to wide range of soils. May have seeds.
Marshalls Seedless	50 x 35	elliptical	m	M	Yellow fall color. Street tree. Seedless.
'Patmore'	50 x 30	elliptical	m	M	One of the hardiest. Seedless.
'Summit'	50 x 25	upright	m	M	Female will produce seed. Yellow fall color.
Fraxinus nigra 'Fall Gold' Black ash	45 x 20	upright	m	M	Hardy, seedless, golden yellow fall color.
Gleditsia triacanthos inermis Thornless honeylocust	65 x 40	variable	m	M	Seedling selection. Not always thornless.
'Imperial'	40 x 40	rounded	m	M	Foliage is fern-like and bright green. Thornless. May produce pods.
'Shademaster'	50 x 40	broad, spreading	m	M-F	Dark green, ferny foliage. Podless and thornless. Upright branches.
'Skyline'	45 x 40	broad, conical	m	M	Dark green foliage. Uniform upright branching. Thornless and essentially podless.
'Sunburst'	35 x 35	variable	m	M	Yellow-tipped foliage. May be more prone to diseases. Podless and thornless.
Gymnocladus dioica Kentucky coffeetree	50 x 40	variable	s	L	May be male or female. Female has leathery seed pods. Interesting winter form.
Phellodendron amurense Amur corktree	35 x 30	rounded	m	M	Corky fissured bark. Male trees avoid fruit odor. Tolerates pollution and drought.
Populus x acuminata Lanceleaf cottonwood	50 x 40	elliptical	f	H	Yellow fall color. Shiny, spear-shaped leaves.
Populus alba Silver (white) poplar	75 x 60	broad, spreading	f	H	Leaves green above and silvery white below. Greenish-white bark. Suckers from roots.
'Pyramidalis' Bolleana (white) poplar	45 x 15	narrow, columnar	f	H	Good for fast screen planting. Short-lived due to diseases. Silvery, lobed, maple-like leaves.
Populus angustifolia Narrowleaf cottonwood	55 x 40	columnar	f	H	Yellow fall color. Root suckers, thus should be used where it can spread in groves.
Populus deltoides 'Siouxland' 'Siouxland' Cottonwood	75 x 40	elliptical	f	H	Cottonless. Easily transplanted.
Populus nigra 'Italica' Lombardy poplar	60 x 15	narrow, columnar	f	H	Use as temporary screen planting. Due to diseases, shorter lived than Upright European aspen.
Populus sargentii Plains cottonwood	80 x 50	rounded	f	H	Native of the plains along rivers. Cottonless (male) selections available. Triangular leaves.
Populus tremula 'Erecta' Upright European aspen	40 x 15	upright	f	H	Use as screen planting. More disease-resistant and longer-lived than Lombardy. Yellow/orange-red fall color
Quercus bicolor Swamp white oak	50 x 45	upright, spreading	m	M	Adapts to clay soils and irrigated lawns. Fall color usually yellow.
Quercus macrocarpa Bur Oak	60 x 50	broad, spreading	s	L	Tolerates alkaline soils and drought. Flaky bark. Corky ridged twigs. Fringed cap on acorn.

YARD

Xeriscaping: Ground Cover Plants no. 7.230

by J.R. Feucht [1]

Quick Facts...

Ground covers are good alternatives where turfgrasses are impractical.

Suitable places for ground covers include narrow strips between sidewalks or structures and steep slopes where mowing is not practical.

Consider ground covers other than grasses on hot, dry exposures, as well as for dense shade beneath trees and shrubs.

Improve soils before planting ground covers.

Ground cover plants are good alternatives to turfgrasses in some locations. They provide a variety of textures and color, help reduce soil erosion, and can serve as a transition between turf areas and shrub or flower borders. Consider ground cover plants for areas where watering and mowing are difficult, that require extra maintenance, or that are unsuitable for grass due to exposure, such as:

- narrow strips between sidewalks and curbs or buildings;
- steep slopes that are impractical to mow;
- hot, dry areas along south and west exposures of walls or fences; and
- deeply shaded areas beneath trees or shrubs, along north sides of walls and fences, and in foundation plantings in front of low windows.

Ground covers also can enhance the beauty of shrub borders and can break up the monotony of areas previously covered with decorative gravel.

Soils and Exposure

The key to successful ground cover establishment is good soil conditions. Most ground covers spread by offshoots or runners and are more apt to fill in quickly where the soil has good aeration, drainage and organic content. Heavy clay soils are not suitable even for plants that can survive in poor soils.

Pay attention to exposure. Most xeric ground covers do best in full sun, but a few thrive better in at least partial shade. Tables 1 and 2 indicate those for shade or sun along with some comments on their qualities as a ground cover.

Weed Control

Prior to planting ground covers, make sure that existing weeds are hoed, pulled or chemically controlled. Perennial weeds can be especially troublesome later if not eliminated prior to planting. Glyphosate (Roundup or Kleenup) controls most weeds if applied to weedy vegetation a few weeks prior to planting. This chemical does not leave a harmful residue in the soil, allowing planting in treated areas a week after spraying.

Weeds also can be discouraged by using weed barrier fabrics available in many garden centers. Anchor fabric edges with U-shaped wire pins about 6 inches long. Plant through slits cut into the barrier. Put a decorative mulch on top of the fabric. Avoid using plastic film for a weed barrier. Plastic films prevent weeds, but they also tend to suffocate plant roots.

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Table 2: Ground cover plants for shade.

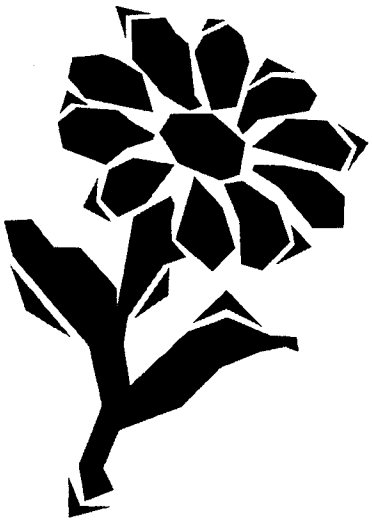
Plant Name	Height (in)	Remarks
Aegopodium podagraria 'variegatum' Bishop's weed	10-12	Variegated, green and white foliage; aggressive.
Arctostaphylos uva-ursi Kinnikinnick	4-6	Evergreen; red, edible berries; use beneath established evergreens in acid soils.
Campanula carpatica Carpathian harebell	6-14	Can be aggressive; blue or white flowers.
Convallaria majalis Lily-of-the-valley	6-10	Fragrant, white flowers in May-June; inedible, red berries; aggressive.
Galium odorata Sweet woodruff	6-8	Very aggressive; one of the best covers under shrubs; white, fragrant flowers in May-June.
Lonicera japonica 'Halliana' Hall's Japanese honeysuckle	6-12	Will also grow in full sun, but forms denser mats in shade.
Mahonia repens Creeping Oregon grape	6-12	Evergreen; yellow flowers in spring; holly-like foliage.
Penstemon caespitosus Creeping or mat penstemon	1-2	Very prostrate mat of tiny narrow leaves; flowers in May-June; purplish.
P. strictus Rocky Mountain penstemon	1-2	Blue flowers in June-July.
Vinca minor Periwinkle	4-6	Semievergreen; white or purple flowers in spring.

Other Xeriscaping Fact Sheets

For more information on xeriscaping and plant selection, see these Cooperative Extension fact sheets:

- 7.228, *Xeriscaping: Creative Landscaping.*
- 7.229, *Xeriscaping: Trees and Shrubs.*
- 7.231, *Xeriscaping: Garden Flowers.*
- 7.234, *Xeriscaping: Retrofit Your Yard.*

[1]*J.R. Feucht, Colorado State University Cooperative Extension landscape plants specialist and professor (retired), horticulture.*
Prepared in cooperation with the Technical Advisory Committee for Xeriscape Front Range, an affiliate of the National Xeriscape Council, Inc. Reviewed by D.E. Whiting, Cooperative Extension ornamental horticulture specialist, horticulture and landscape architecture.



FLOWERS

Xeriscaping: Garden Flowers no. 7.231

by J.R. Feucht and J.E. Klett [1]

Garden flowers provide showy, colorful displays in a xeriscape garden. Xeriscape (zer-i-skap) is a water-conserving landscape. Annuals and perennials can be integrated with shrub borders and groups of trees, or they may be planted in their own beds along fences, walls, walks and patios.

Quick Facts...

A xeriscape is a water-conserving landscape design.

Flowers add color to xeriscape yards and gardens.

Improve soils before planting most flowers.

Soil improvement is easier if only annual flowers are used for the first year or two.

Plant flowers according to site exposure.

Spring-flowering bulbs are drought-evaders and make good flowers for a xeriscape.

Soil Conditions

Before selecting garden flowers, check your soil. Most flowers do poorly in heavy clay, due to lack of oxygen to their roots. Sandy soils may have poor water-holding capacity and be low in available minerals. If either extreme is true in your yard, **do not plant perennial flowers the first year or two.**

Improve the soil with sphagnum peat or compost, available in bales or bags at garden centers. Incorporate 1 cubic foot of sphagnum or compost per 8- by 10-foot area to a depth of 9 inches. Plant only annuals so it will be easier to cultivate and incorporate additional organic matter in the fall, after the plants are killed by frost. Add more sphagnum or compost each year until the soil is easily worked and does not compact. Perennial flowers may then be planted.

Garden Exposure

Select plants that are compatible with the exposure. For north sides of structures or among shrubs, choose plants that tolerate less sun. For example, perennials for a shaded spot might include canterbury bells, primrose and violets. Such plants usually need cool, more consistently moist soils than most garden flowers. They can, nevertheless, be useful in the shaded parts of a xeriscape. Add organic mulches such as wood chips to reduce watering frequency.

Bulbs

Most bulbs do best in full sun, but they must have well-drained soils. Spring-flowering bulbs are well-suited for xeriscape plantings because they are drought-evaders. That is, they grow in the cooler, more moist spring and fall seasons and lie dormant underground during the hot summer months.

Use tulips, grape hyacinths, hyacinths, daffodils and crocus for naturalizing a xeriscape. In fall, plant spring-blooming bulbs in the areas you want them. For more information on bulbs, refer to fact sheets 7.410, *Fall-Planted Bulbs and Corms*, and 7.411, *Spring-Planted Bulbs and Corms*.

Annuals

Almost all annuals commonly sold do well in xeriscape gardens with some soil preparation and no more than one good watering a week (1 to 2 inches). For hot, dry exposures, the most reliable include marigolds, zinnias, cockscomb, sweet alyssum and bachelor's button. Where soils are shaded and cooler, use annuals such as lobelia, pansy and forget-me-not.

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Table 2, continued: Perennials for sunny spots.

Plant Name	Flower Color	Flowering Time	Height (ft)	Remarks
Hemerocallis spp. Daylily	Yellow, red, orange	June-July	2 to 2 1/2	Spreads to large clumps.
**Iris* hybrids Bearded iris	Various	May-June	1/2 to 3	Easy to grow.
**Lavandula angustifolia* Lavender	Lavender	July-Aug.	1	Fragrant; shrub-like.
Leucanthemum x superbum Shasta daisy	White	July-Aug.	2 to 2 1/2	Useful with shrubs.
**Liatris scariosa* Gayfeather	Lavender	July-Sept.	1 to 2	Showy in late summer.
**Linum perenne* Blue flax	Blue	May-Sept.	1 1/2	Almost shrub-like.
Lupinus polyphyllus Lupine	Various	June-Aug.	2 1/2 to 3	Good accent with shrubs.
Monarda didyma Beebalm	Red, pink, violet, white	June-July	2 to 3	Best in mass plantings.
Paeonia hybrids Peony	White, pink, red	May-June	2 to 2 1/2	Tolerates some shade.
**Papaver nudicaule* Iceland poppy	Orange, red, white, pink	April-June	1	Good edging plant.
**P. orientale* Oriental poppy	Orange, salmon, red	May-June	1 1/2 to 2	Aggressive creeper.
**Penstemon* spp. Penstemon	Red, white, blue	June-July	2 to 3	Many varieties.
Phlox paniculata Garden phlox	White, lavender, pink	May-July	1 to 1 1/2	Easy to grow.
**Rudbeckia hirta* Black-eyed Susan	Yellow	July	2 to 3	Needs space.
**Rudbeckia laciniata 'Hortensiana'* Golden glow	Yellow	July-Sept.	5 to 6	Tall, late summer flower.
**Scabiosa caucasia* Pincushion flower	Lavender	May-Aug.	1 to 1 1/2	Fern-like foliage.
**Sedum* spp. Sedum, stonecrop	Various	May-Sept.	1/2 to 1	Many varieties; succulent foliage.
Veronica spicata Veronica	Purple	May-June	2 to 4	Aggressive creeper.
Viola cornuta Horned violet, viola	Various	May-Sept.	1/2	Shade or sun.
**Zinnia grandiflora* Paperflower	Yellow	June-Sept.	1/2	Long-lasting bloom.

*Most drought-enduring.

Rock Gardens

Rock gardens can be an attractive addition to a xeriscape garden. Put them in logical areas such as steep, sunny slopes, rather than as mounds in the middle of a yard. Strive for a natural look and avoid a "rock pile" look or "garden of rock" look. For more information on rock gardens and the plants to use, refer to 7.401, *Rock Garden Plants.*

[1] *J.R. Feucht, Colorado State University Cooperative Extension landscape plants specialist and professor (retired); and J.E. Klett, Cooperative Extension horticulture specialist and professor; horticulture and landscape architecture. Prepared in cooperation with the Technical Advisory Committee for Xeriscape Front Range, an affiliate of the National Xeriscape Council, Inc.*

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TREES & SHRUBS

Xeriscaping: Trees and Shrubs no. 7.229

by J.R. Feucht [1]

Selecting woody plants for a reduced-water landscape or xeriscape (zer-i-skap) requires careful consideration. Woody plants such as trees and shrubs are a major component in the landscape and a long-term investment. In addition to aesthetics and function, look at soil, drainage patterns, exposure to heat and wind, and how the site is irrigated.

Quick Facts...

Xeriscaping offers an opportunity to select plants compatible with local conditions.

When selecting woody plants, consider soils, drainage, exposure and irrigation method.

Plant trees and shrubs in areas separate from irrigated lawns.

Water xeric trees and shrubs just as much as other plants until established, usually two years.

Once established, gradually reduce watering frequency.

Frequent shallow watering promotes shallow roots and defeats the purpose of xeriscaping.

Aesthetics and Function

Colorado landscapes require plants that can adapt to a drier climate than many cultivated landscape plants. Xeriscaping offers an opportunity to select plants that are more compatible with local conditions and able to thrive when other landscape plants cannot. In recognition of our local environment, it often is more practical to select plants that can tolerate drought. We can enjoy a landscape that reflects its surroundings better than the New England landscapes we too often try to establish and maintain at great effort. Many people consider it a challenge to use locally adapted plants to develop a creative landscape that represents a unique Colorado style.

With careful selection, you can blend plants of varying colors, textures and densities into an attractive, lower-maintenance landscape. Xeric plants offer a wide range of foliage density, color and texture, as well as plant forms, with which to work. Some, like rabbitbrush and apache plume, have small leaves, imparting a fine texture. Others, like sage, have grayish or silvery foliage. Still others, like yucca, may be spiny and stiff-looking. These plants may not look quite like the plants you may be used to. With proper planning, you can create a more interesting landscape than your neighbor's without sacrificing the comfort and beauty of your yard. Conserving water by substituting plastic and gravel for plants will not add enjoyment to your landscape or value to your home.

Use xeric plants for the same functions as more traditional types. Pines and upright junipers, for example, make excellent screen plantings under low irrigation. Spruce is best used in heavily irrigated sites or low, moist areas. Xeric plants also are excellent for mass plantings on steep banks, particularly on hot south and west exposures.

Shade trees for the patio and south exposures of the house might be hackberry, honeylocust or Burr oak rather than silver maple, weeping birch, aspen or cottonwood.

Trees and shrubs are best planted in beds or islands separate from the lawn unless the lawn also is a low-water type.

Soils, Drainage and Exposure

Before selecting plants, evaluate the site's soil, drainage and exposure. Consider all three factors together, because each affects the others. If the soil is a heavy clay, it will have poor internal drainage even on a slope. The same soil on

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Table 2: Shrubs for xeriscapes.

Plant name	Height Spread (ft)	Comments
Amorpha canescens	2-3	Silvery-gray foliage; purple flowers in summer; *A. fruticosa* has greener foliage and grows to 10 feet tall.
Leadplant	3-4	
Artemisia spp.	variable	Many hardy forms; gray-green to silvery foliage; some are evergreen.
Sage		
Atriplex canescens	2-6	Gray-green leaves; doubtfully hardy in northeast Colorado; tolerates very high salts.
Saltbush	4-5	
Berberis thunbergii	3-6	Purple-leaved and dwarf forms available; shade tolerant.
Barberry (Japanese)	3-5	
Caragana spp.	3-15	Several forms available. Dwarf: *C. microphyllus* and *C. pygmaea*; tall: *C. arborescens.*
Peashrub	5-10	
Ceanothus fendleri	1-2	Gray-green foliage; spiny, low-growing; well-drained soils only.
Ceanothus (fendler)	3-5	
Cercocarpus spp.	10-15	Two types: *C. montanus* is deciduous, *C. ledifolius* is evergreen; both are stiffly upright shrubs.
Mountain mahogany	8-20	
Chrysothamnus spp.	2-5	Greenish to white stems; yellow flowers in summer; tolerates salty soils.
Rabbitbrush	3-4	
Colutea arborescens	4-6	Yellow, sweet-pea-like flowers in early summer; bladdery pods into fall and winter.
Bladder-senna	4-6	
Cotoneaster spp.	0.5-10	A highly variable group; most have shiny, small leaves; berries are red or black; *C. acutifolia* is common.
Cotoneaster		
Cowania mexicana	10-15	Stiffly upright shrub or small tree; fragrant, white flowers; semievergreen; well-drained soils only.
Cliff rose	5-10	
Fallugia paradoxa	3-5	Graceful, arching stems; large, showy flowers; plumy seed heads.
Apache plume	5-6	
Fendlera rupicola	5-6	White to rose-pink flowers; arching shrub.
Cliff fendlerbush	5-6	
Forestiera neomexicana	10-15	Male shrub has showy, yellow flowers in spring; female has black berries; use for screen plantings.
New Mexican privet	10-15	
Hippophae rhamnoides	3-5	Grayish foliage; female plants have attractive, red-orange fruit.
Sea buckthorn	6-8	
Holodiscus dumosus	3-8	Graceful, arching shrub; creamy white flowers; well-drained soils only.
Rock spirea	8-10	
Juniperus spp.	0.5-10	Available in various heights, foliage colors and foliage textures; requires good drainage. Pfitzers, 'Tammy' and Buffalo varieties are commonly used.
Juniper		
Potentilla fruticosa	1-4	Showy, white to yellow flowers in summer; needs full sun for best flowers.
Cinquefoil (potentilla)		
Prunus besseyi	3-4	Fragrant, white flowers; edible, black fruit; well-drained soils only.
Sand cherry	4-5	
Rhus glabra cismontana	4-6	Spreads by root suckers; red, velvety fruit; scarlet fall color.
Sumac (smooth)		
Rhus trilobata	3-6	Glossy, dark green leaves; showy, red, velvety fruit.
Sumac (threeleaf)	8-10	
Shepherdia argentea	10-15	Silvery leaves; scarlet fruit.
Buffaloberry (silver)	8-10	
Yucca spp.	0.5-3	Sword-like foliage; showy spikes of creamy white-tinged pink flowers; *Y. baccata* has large, broad, green leaves; *Y. glauca* has bluish leaves; *Y. harrimaniae* is dwarf.
Yucca	1-3	

Some Selections

While not a complete list, the trees and shrubs in Tables 1 and 2 are suited to a xeriscape. Some may be uncommon in many nurseries but available from wholesale suppliers. They can be ordered through your local nursery.

[1] *J.R. Feucht, former Colorado State University Cooperative Extension landscape plants specialist and professor, horticulture. Prepared in cooperation with the Technical Advisory Committee for Xeriscape Front Range, an affiliate of the National Xeriscape Council, Inc. Revised by D.E. Whiting, Cooperative Extension ornamental horticulture specialist, horticulture and landscape architecture.*

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Table 1: Trees for xeriscapes.

Plant name	Height/ Spread (ft)	Comments
Acer grandidentatum	25-30	Slow growth rate; red-yellow fall color.
Bigtooth maple (Wasatch maple)	20-25	
Ailanthus altissima	40-50	Red-fruited form *erythrocarpa* is attractive.
Tree-of-heaven	35-40	
Catalpa speciosa	40-50	Showy, white flowers in early summer; cigar-like pods into fall.
Western catalpa	20-30	
Celtis occidentalis	25-45	Normally an upright, vase-shaped tree; attractive, corky bark.
Common hackberry	30-40	
Fraxinus pennsylvanica lanceolata	40-45	Glossy, dark-green leaves.
Green ash	35-40	
Gleditsia triancanthos inermis	30-60	Several varieties available; avoid 'Sunburst' variety in nonirrigated sites.
Thornless honeylocust	25-50	
Gymnocladus dioicus	50-70	Slow growth; thick pods on female tree; flowers of male are fragrant.
Kentucky coffeetree	35-50	
Juniperus monosperma	20-25	Among the most drought-enduring evergreens.
Oneseed juniper	15-20	
Juniperus scopulorum	25-30	Numerous varieties available.
Rocky Mountain juniper	15-20	
Koelreuteria paniculata	20-35	Yellow flowers in July; lantern-like pods in late summer; salt-tolerant. May not be
Goldenrain tree	10-25	hardy north of Fort Collins.
Pinus aristata	15-40	Dark green, dense foliage; must have good drainage.
Bristlecone pine	15-25	
Pinus edulis	15-25	Must have good drainage.
Pinyon pine	15-20	
Pinus ponderosa	45-50	Must have good drainage.
Ponderosa pine	35-40	
Quercus gambelii	5-15	Spreads by root sprouts; often shrubby.
Gambel oak	10-15	
Quercus macrocarpa	70-80	Stately, long-lived; adapts to alkaline soil.
Burr oak	50-80	
Robinia neomexicana	10-20	Fragrant, pink flowers in June; often shrubby; spreads from root sprouts.
New Mexican locust	10-20	
Sophora japonica	40-60	Does well in alkaline, saline soils; cream-colored flowers in early summer.
Japanese pagoda tree	45-70	
Ulmus pumila	50-60	Brittle tree; use only away from buildings; locally called "Chinese elm."
Siberian elm	45-50	

a south or west exposure will dry quickly, shrink and crack, requiring slow but relatively frequent watering. Dense clay soils are low in oxygen and do not lend themselves well to plant growth. Most xeric plants, while tolerating low water, cannot function well in soils low in oxygen. The better a soil is prepared through addition of organic amendments prior to planting, the better the plants will do.

In very heavy soils where improvement of subsoil drainage is not feasible, it usually is best to plant trees and shrubs on berms (mounds) of well-drained, loamy soil brought to the site. Berms should be at least 24 inches high.

Select shade-tolerant plants for north exposures. There are fewer of these than species for full sun because most xeric plants thrive best in sunny exposures. Those that do tolerate shade generally require more water. This can be somewhat offset by using organic mulches such as wood chips.

Establishment of Plants

Regardless of how drought-enduring a plant may be, relatively frequent watering is needed until the plant is established. Most woody plants take at least two growing seasons to establish, depending on how well the soil has been prepared. Once plants are established, gradually reduce watering. Avoid frequent, shallow watering, however, because this tends to encourage shallow roots and thus defeats the goal of xeriscaping.

Table 1: Perennial plants for shady spots.

Plant Name	Flower Color	Flowering Time	Height (ft)	Remarks
Aconitum napellus Monkshood	Purple	June-Sept.	3 to 4	Use in dense shade.
Anchusa azurea Anchusa (Italian bugloss)	Deep blue	June-July	3 to 5	Tall accent.
Aquilegia spp. Columbine	White, blue, pink, yellow	May-June	1 to 2	Use with shrubs.
Campanula medium Canterbury bells	Pink, purple, white	June-July	3	Tall accent.
Campanula spp. Harebell	Blue, white	June-Oct.	1	Useful edging.
Dicentra spectabilis Bleeding heart	Deep pink	April-June	1 1/2	Use with shrubs, north sides.
Dictamnus albus Gas plant	White, pink	June-July	2 to 3	Use with shrubs.
Iberis sempervirens Candytuft	White	April-June	1	Foliage evergreen.
Lobelia cardinalis Cardinal flower	Bright red	July-Sept.	2	Use in dense shade.
Physostegia virginiana Dragonhead (false)	Lavender, white	Aug.-Sept.	3 to 3 1/2	Aggressive creeper.
Primula spp. Primrose	Yellow, red, blue	April-May	1/2	Showy spring flowers.
Thermopsis rhombifolia Golden banner, false lupine	Yellow	May	1 to 2	Aggressive creeper.
Viola cornuta Horned violet, viola	Various	May-Sept.	1/2	Shade or sun.
Viola odorata Sweet violet	White, purple	April-May	1/2	Aggressive creeper.

Table 2: Perennials for sunny spots.

Plant Name	Flower Color	Flowering Time	Height (ft)	Remarks
**Achillea* spp. Yarrow	Yellow, white, pink	July-Sept.	1 to 3	Adapts to very poor soils; fern-like, aromatic foliage.
**Armeria maritima* Thrift	Pink	May-Aug.	1	Grass-like foliage.
**Asclepias tuberosa* Butterfly weed	Orange	July-Aug.	1 to 1 1/2	Grows in poor soils; very deep-rooted.
Aster novae-angliae Aster (New England)	Purple, white	Sept.	3 to 5	Showy for fall.
Aurinia saxatilis Basket-of-gold	Yellow	April	1	Reseeds readily.
*Cactus (various plant groups) Cactus	Various	May-Aug.	Various	Use in sandy soils.
**Centaurea cyanus* Cornflower	Blue, white	May-Sept.	2	Border plant, cut flower.
**Coreopsis lanceolata* Coreopsis	Yellow	June-Aug.	3	Easy to grow in most soils.
Delphinium hybrids Delphinium	White, purple, blue	June-July	4 to 6	Tall accent; may need staking.
Dendranthema coccineum Painted daisy	White, pink	May-July	2 to 3	Showy, cut flower.
Dianthus barbatus Sweet William	White, pink, red	May	2	Aggressive biennial.
**Echinacea purpurea* Purple coneflower	Yellow, purple	Aug.-Sept.	4 to 6	For tall background.
**Eriogonum umbellatum* Sulphur flower	Yellow	May-June	1/2	Grows in poor soils.
**Gaillardia aristata* Gaillardia, blanket flower	Red-orange	June-Sept.	2	One of the best for xeriscapes.
Gypsophila paniculata Baby's breath	White	July-Sept.	2 1/2	Lacy, bush-like.

Table 1: Ground cover plants for full sun.

Plant Name	Height (in)	Remarks
Achillea tomentosa Woolly yarrow	2-4	Grayish foliage in low mats.
Antennaria spp. Pussytoes	1-2	Persistent gray-green foliage in dense mats; excellent for rocky slopes.
Artemisia spp. Sage	10-15	Silvery foliage; *A. schmidtiana* (silver mound sage) most common.
Atriplex corrugata Mat saltbush	4-6	Evergreen; foliage greenish-white; for salty soils.
Centaurea montana (perennial bachelor button) Mountain bluet	15-18	Grayish foliage; blue flowers.
Cerastium tomentosum Snow-in-summer	6	Gray foliage; white flowers; very aggressive.
Cytisus decumbens Creeping broom	4-8	Green stems with tiny leaves; yellow, pea-like flowers in May.
Delosperma nubigenum Yellow ice plant	1-2	Succulent, light-green foliage; yellow flowers.
Duchesnea indica Mock strawberry	4-6	Aggressive creeper; looks much like strawberry; yellow flowers; inedible, red fruit.
Eriogonum umbellatum Sulphur flower	3-6	Showy flower stalk to 8 inches tall; foliage in low mat.
Euphorbia epithymoides (*polychroma*) Cushion spurge	12-18	Mounds of foliage that change from reddish to green in spring, then scarlet in fall.
Euphorbia marginata Snow-on-the-mountain	4-8	Green and white foliage; very aggressive.
Festuca ovina glauca Blue fescue	6-8	Tufts of grayish, grassy foliage.
Juniperus horizontalis Creeping juniper	4-10	Perhaps the best year-round cover; many clones and foliage hues available.
Some common clones include:		
'Bar Harbor'	10	Blue-green; purplish winter color.
'Blue Chip'	10	Bluish foliage year-round.
'Hughes'	10	Silvery-blue; distinct radial branching.
'Webberi'	4	Very low mat; fine texture.
'Wiltoni' ('Blue Rug')	4	Very low; silver-blue; purplish tinge in winter.
Penstemon pinifolius Pineleaf penstemon	6-10	Has needle-like leaves and orange-red flowers; takes heat well.
Phlox subulata Moss pink or creeping phlox	6-8	Reddish, white or lavender flowers; moss-like foliage.
Polygonum affine Himalayan border jewel	12-18	Red, showy flowers late in season; excellent ground cover for dry areas.
Potentilla verna Creeping potentilla	1/2-1	Very low mat with yellow, showy flowers; aggressive.
Ranunculus repens Creeping buttercup	1-2	Yellow, showy flowers on creeping runners up to 2 feet long.
Santolina chamaecyparissus Lavender-cotton	10-12	Blue-gray, persistent foliage in dense mats.
Sedum spp. Stonecrop (sedum)	1-15	Many forms available; not usually competitive with weeds.
Sempervivum spp. Houseleek, hen and chicks	2-4	Forms dense, evergreen mats; grows in very poor soils.
Thymus serpyllum Mother-of-thyme	3-6	Low, mat-forming herb with tiny leaves; purple flowers; related species, woolly thyme, has gray-green foliage.
Veronica prostrata Prostrate speedwell	1-2	Dark green foliage; deep blue flowers in short spikes.

Table 1, continued: Large deciduous trees for shade.

Plant Name	Mature Size (H x W)	Tree Shape	Growth Rate[1]	Soil Moisture[2]	Aesthetic Value and Cultural Hints
Quercus robur English oak	50 x 40	rounded	m	M	Broad, stout, spreading branches. Glossy, dark green leaves that turn brown and persist into winter.
'Fastigata'	45 x 15	columnar	m	M	Narrow form for small spaces. Brown fall color.
Quercus rubra Red oak	40 x 50	broad, spreading	m	M	Often broader than tall. Fall color usually maroon-red. Avoid very alkaline soils.
Salix alba 'Tristis' Niobe weeping willow	50 x 50	rounded, weeping	f	H	Yellow fall color, brittle twigs. Best sited near water.
Salix matsudana 'Navajo' Navajo globe willow	35 x 35	globe	f	H	Formal globe shape. Brilliant green foliage in spring. May suffer freeze injury in some areas. Widely used on Western Slope.
Sophora japonica Japanese pagodatree	50 x 40	rounded	m	M	Creamy flowers in midsummer. Pinched, pea-like pods in fall. Olive green twigs.
Tilla americana American linden	60 x 50	broad, conical	m	M	Large heart-shaped leaves. Fragrant flowers in early summer. Yellow fall color. May sucker near base.
'Redmond' Redmond linden	45 x 25	conical	m-f	M	Striking reddish bark/twigs in winter.
Tilla cordata Littleleaf linden	45 x 30	conical	m	M	Dense foliage. May sucker near base. Creamy-yellow fragrant flowers. Attracts bees.
'Greenspire'	45 x 25	conical to oval	m	M	Neat formal appearance. Glossy, dark green leaves. Cinnamon colored bark. Yellow fall color.
'Glenleven'	45 x 30	open, conical	m	M	Vigorus, open habit.

[1]Growth rate: s = slow, m = moderate, f = fast

[2]Soil moisture: H = heavy water needs; more than normal lawn watering. M = moderate water needs; normal lawn watering. L = low water needs; can withstand drought.

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Columnar. Sides more or less parallel, much more tall than broad.

Weeping. Branches tend to weep downward.

Broad spreading. A wide vase shape.

Round or globe. About as broad as tall.

Upright spreading. A narrow vase shape.

Conical. Cone-shaped. Broad at base, tapering to a narrow top.

Elliptical. More tall than broad, widest branching at or near the middle.

Table 1: Large deciduous trees for shade.

Plant Name	Mature Size (H x W)	Tree Shape	Growth Rate[1]	Soil Moisture[2]	Aesthetic Value and Cultural Hints
Acer x *freemanii* Freeman maple	45 x 35	rounded	m-f	M	Hybrid of Silver and Red maple.
'Autum Blaze'	45 x 35	rounded	m-f	M	Orange-red fall color. Similar iron chlorois problems to Silver maple.
Acer plantanoides Norway maple	50 x 40	rounded	m	M	Dark green, dense foliage. Yellow fall color, subject to leaf scorch in dry conditions and limited rooting situations.
'Columnare'	50 x 20	narrow, columnar	m-f	M	Good for tight, narrow locations. Street tree.
'Deborah'	50 x 40	rounded	m	M	Red foliage changes to green in summer. Straight leader.
'Emerald Queen'	50 x 40	rounded	m	M	Dark green foliage with dense branching habit.
'Fairview'	50 x 30	columnar	m	M	New growth deep red-purple maturing to bronze-red
'Royal Red'	40 x 30	rounded	m	M	Dark, glossy red foliage all summer. Similar to Crimson King but more cold hardy.
'Schwedleri'	50 x 40	rounded	m	M	Red foliage in spring changing to bronze and dark green in summer. Street tree.
Acer rubrum Red maple	45 x 40	conical	f	H	Red flowers in early spring. Red fall color. Avoid very alkaline soils.
'Northwood'	45 x 35	rounded	m	H	Hardiest red maple. Red-orange fall color. Avoid very alkaline soils.
'Red Sunset'	45 x 40	broad, conical	f	H	Red flowers in early spring. Red fall color. Avoid very alkaline soils.
Acer saccharinum Silver maple	65 x 50	variable	f	H	Bright green foliage with silvery undersides. Tends to be brittle. Yellow fall color. Avoid very alkaline soils.
'Skinner'	50 x 40	rounded	f	H	Deeply cut, feathery leaves. Branches tend to weep in graceful arch. Yellow fall color. Avoid very alkaline soils.
Acer saccharum Sugar maple	40 x 35	oval	s	H	Red-orange fall color. Prefers improved well-drained soils.
'Green Mountain'	40 x 35	oval	s-m	H	Thick waxy leaves resist scorch and retain summer color. Tolerates dry soils. Red-orange fall color.
'Legacy'	45 x 45	oval	s-m	H	Fast growing for a Sugar maple. Thick leaves resist scorch. Red-orange fall color.
Aesculus glabra Ohio buckeye	35 x 20	broad, rounded	m	M	Red-orange-yellow fall color. Cream colored flowers in terminal clusters in spring. Nut-like fruit.
Aesculus hippocastanum Horsechestnut	60 x 45	broad, conical	s	M	Large clusters of white flowers in late spring. Spiny fruit. Best used in large, open lawn areas.
Betula papyrifera Paper birch	40 x 25	elliptical	m	H	Yellow fall color. Peeling bark. Plant in cool, moist sites. Fall and winter watering important.

ANNUALS GENERALLY CONSIDERED DEER RESISTANT

Ageratum (Flossflower)	***Ageratum houstonianum***
Bachelor Button	***Centaurea cyanus***
Calendula (Pot Marigold)	***Calendula officinalis***
California Poppy	***Eschscholzia californica***
Cosmos	***Cosmos bipinnatus***
Cupflower	***Nierembergia caerulea***
Firecracker plant	***Cuphea ignea***
Heliotrope	***Heliotropium arborescens***
Larkspur	***Consolida ajacis***
Lobelia	***Lobelia erinus***
Love-in-a-Mist	***Nigella demascena***
Marigold	***Tagetes spp..***
Snapdragon	***Antirrhinum majus***
Spiderflower	***Cleome hassleriana***
Sunflower	***Helianthus annuus***
Verbena	***Verbena x hybrida***
Zinnia	***Zinnia spp.***

36. Russian Olive (seeds eaten)	*Elaeagnus angustifolia*
37. Concolor Fir	*Abies concolor*
38. Colorado Spruce	*Picea pungens*
39. Lodgepole Pine	*Pinus contorta*
40. Douglas Fir	*Pseudotsuga taxifolia*
41. Pinon Pine	*Pinus edulis*
42. Common Juniper	*Juniperus communis*
43. Oregon Hollygrape	*Mahonia aquifolium*
44. Creeping Mahonia	*M. repens*
45. Pyracantha	*Pyracantha* spp.
46. *Redtwig Dogwood	*Comus stolonifera*
47. Curl-leaf Mtn. Mahogany	*Cercocarpus ledifolius*
48. Ligusticifolia Clematis	*Clematis ligusticifolia*
49. Tangutica Clematis	*C. tangutica*
50. Oriental Clematis	*C. orientalis*
51. Virginia Creeper	*Parthenocisus quinquefolia*
52. Sweet Autumn Clematis	*Clematis paniculata*
53. English Ivy	*Hedera helix*
54. Yarrows	*Achillea* spp.
55. Marjoram	*Marjoram* spp.
56. Lavender	*Lavandula* spp.
57. Thyme	*Thymus* spp.
58. Santolina	*Santolina* spp.
59. *Mints	*Mentha* spp.
60. *Iris	*Iris* spp.
61. *Daffodils	*Narcissus* spp.
62. Rhubard	*Rheum* spp.
63. Shasta Daisy	*Chrysanthemum* spp.
64. *Flax	*Linum* spp.
65. Goldenrod	*Solidago* spp.
66. Salvia (cooking sage)	*Salvia* spp.
67. Poker Plant	*Kniphofia* spp.
68. Yucca (flowers eaten)	*Yucca* spp.
69. Prickly Pear	*Opuntia* spp.
70. Mexican Hat Cone Flower	*Ratibida columnifera*
71. * Sedum	*Sedum* spp.
72. Euphorbia	*Euphorbia* spp.
73. Snow-in-summer	*Cerastium tomentosurn*
74. Golden Banner	*Thermopsis* spp.
75. Saponaria	*Saponaria* spp.