

Restoring Native Plants and Landscapes

A Guide for Residents of Southwestern Ponderosa Pine Forests



Much of the richness and beauty of ponderosa pine forests lies in the diverse flowers, shrubs, and grasses of the forest floor.



Gardening in the upland Southwest is a challenge. Extreme temperature swings, a short frost-free growing season, and water limitations are just a few of the hurdles to maintaining a traditional yard in this region. Native grasses, flowers, and shrubs can help shape a lovely yard in these difficult growing conditions, but cultivating them carries its own challenges. Use the tips in this brochure to boost your chances of success.

Why native plants?

Native plants have evolved in and adapted to the specific habitat conditions where they live. Water supplies are limited in most of the Southwest, so it's a great benefit that many species native to the region can survive with little water. Growing them can save you money and stretch scarce municipal and regional water supplies. Native plants also tend to be adapted to the region's short growing seasons, intense sunlight, wind, and dramatic temperature swings. As a result, native plants often require less maintenance than nonnative species.

Native plants are a natural for wildlife. Trees, grasses, flowers, and shrubs provide a variety of food and shelter sources for birds, mammals, and pollinating insects. A native yard planted close to a natural forest or grassland area can become a habitat extension for its wildlife—and if your yard is a green island in a town or city, it can still attract passing butterflies, birds, and other mobile animals.

Finally, a yard creatively landscaped with native plants is easier on the eyes than any turfgrass monoculture. Cultivated with care, native gardens are diverse, colorful, and vibrant—and an important part of the restoration of the landscape as a whole.

A natural combination: Native plants and healthy ponderosa pines

Throughout the twentieth century, people disrupted the natural forest fire regime in much of the West by preventing fires. As a result, forests grew dense with thickets of small, highly flammable trees. These thickets can act as "fuel ladders" that carry fire into tree crowns,

where it can spread quickly and burn destructively. In order to reduce fire danger, many homeowners and municipalities have been thinning pine trees near homes and other buildings, as wider spaces between pines can interrupt a crown fire's spread. For ideas on thinning, see our brochure *Forest Restoration for Homeowners*.

Thinning can also make remaining trees healthier by reducing competition for water and other nutrients. Furthermore, thinning trees allows more sunlight to reach the ground—thereby allowing plants such as grasses, wildflowers, and shrubs to grow. Reducing fire danger goes hand-in-hand with having a yard that's both beautiful and inviting for wildlife.

Understanding your site

In the upland Southwest, elevation, topography, and variation in soil types and water availability combine to form a sometimes bewildering array of "microclimates." As a result, a native tree or shrub that grows well in a neighbor's yard may not thrive in yours. Making careful choices about what to plant can greatly increase your chances of success in raising native species. Use the following guide as a rough outline to what may grow successfully in your yard, but remember that local variations can be great. A sunny, south-facing yard at 7,500 feet may support the same plants as a piñon-juniper woodland, while plants that typically grow much higher in the mountains may thrive on a shady, north-facing slope at 6,500 feet.

The piñon-juniper zone: 5,500 to 7,000 feet

At the lower edge of ponderosa pine forest, yards between 5,500 and 7,000 feet often support plants of the relatively hot, dry piñon-juniper zone, particularly on south and east-facing slopes. Shrubby cliffrose, Apache plume, and banana yucca do well here. Good ground cover plants to try are western creeper, prairie sage, and many-headed groundsel. Rice grass, a native bunchgrass whose pale stems arch gracefully under beautiful seed heads, thrives in sandy, well-drained soils; blue and side-oats grama do well here too. The dark pink to purple flowers of the showy four o'clock or the flashy red or pink of penstemons will add flair to a piñon-juniper zone yard.

The ponderosa pine zone: 7,000 to 8,000 feet

Ponderosa pines and Gambel oaks dominate this zone. Three-leaf sumac, mountain mahogany, Woods' rose, and New Mexico locust are good shrubs for yards in this zone, and mountain lover will do well at moist locations. Native grasses to try include blue grama, junegrass, Arizona or sheep fescue, muttongrass, and little bluestem. Yarrow, golden and red columbine, coral bells, buckwheats, penstemons, and other native flowers bloom beautifully and attract pollinators.



Blue grama
(*Bouteloua gracilis*)

Mixed conifer zone: 8,000 feet and higher

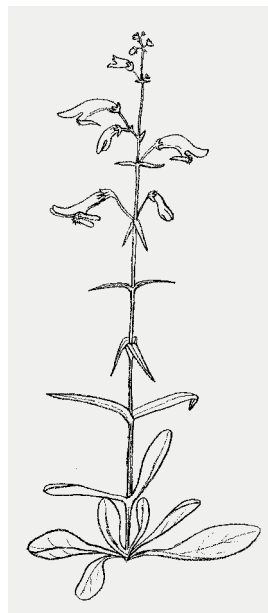
Cold temperatures and a short growing season make for challenging gardening at high elevations. Try trees adapted to colder microclimates, such as

aspens and spruces, or shrubs such as shrubby cinquefoil, mountain lover, and snowberry. Wild strawberry and creeping barberry are good options for ground cover, while Canada goldenrod, Canada violets, and prairie smoke are a few of the native flowers that withstand colder temperatures.

Specific plants for specific purposes

Consider planting particular varieties so that your yard can meet your particular needs. Here are a few examples; look for more in the books and Web sites included at the end of this guide.

- For color and wildlife action, plant penstemons. They have showy flowers—mainly red, blue, or purple—and different species grow well at a wide range of elevations. They're sure attractants for hummingbirds, bees, and colorful butterflies.
- Provide wild fruits for wildlife. Currants, gooseberries, serviceberries, chokecherries, and barberries are all native shrubs with abundant sweet fruits eagerly sought by birds and other wildlife.
- Use good scents. Plant sagebrush, wild roses, banana yucca, Palmer's penstemon, and such native mints as beebalm and hyssop for blooms or foliage to tantalize your sense of smell.
- For year-round visual variety, use plants that look attractive when they've dried. Squirreltail and other grasses, and such wildflowers as pearly everlasting and coneflowers, add flair to a garden during winter and drought.
- Create visual screening or wind protection. Try shrubs like three-leaf sumac, chokecherries, New Mexico locust, chamisa, or Apache plume. All have dense foliage.
- Keep fire resistance in mind. Plant fire-resistant vegetation, such as low grasses, succulents, and deciduous shrubs, near your house, and keep them trimmed and well watered. Avoid flammable evergreens such as junipers. Increasing vegetation density is acceptable as you plant further away from the house. For more about fire resistance, see our brochure *Forest Restoration for Homeowners*.



Scarlet bugler
(*Penstemon barbatus*)

Landscaping at high altitude

Patience is key—growing native plants in the mountains takes time. But the results are worth it in beauty and long-term water savings. Here are some tips that can help.

- After thinning pine trees, see what grows naturally. Native plants may be hidden among downed pine needles or present only as seeds. Increased light and water after thinning will help them grow.
- Plant trees and shrubs. Invest in some container-grown plants with established root systems. They're more expensive, but they'll greatly speed the establishment of a yard. Give them about two years, with appropriate watering, to establish root systems and begin providing shade. This will provide protection for grasses and wildflowers.
- If cost is a factor, start with "bare-root" versions of trees and shrubs like currants, chokecherries, or aspens. Buy them from a nursery in spring, and then place them in containers in protected areas while their roots develop. Plant them during the summer monsoon season.

- Find out what seeds need. Some require specialized treatment—such as cold storage in winter—in order to germinate. Ask your seed supplier or visit www.nativeplantnetwork.org/network for details.
- Plant native grass and flower seeds around the time of summer monsoon, or in fall. Keep the seeds just covered with moist soil and a thin layer of pine needle mulch. You may need to mist the soil on rain-free summer days. New seedlings should not be allowed to dry out.
- Broadcast seeds to cover a fairly large area. This works best for grasses and low-growing, ground cover plants. Seeds are also a good option for rural properties with limited water supplies.
- Keep soil moist in grass-planting areas until plants are established. Perennials should also be watered regularly until established.
- Water established plants as needed. Deep watering once every two weeks during dry parts of May and June, and once monthly during dry fall and winter months, may be necessary.

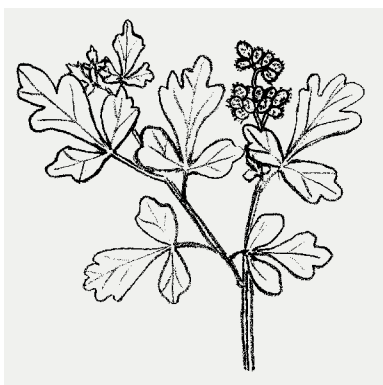
Where to find native plants and seeds

Native plants and seeds are increasingly available in regional nurseries. But you can also collect some native seeds in the wild. If you do, stay close to home—locally collected seeds are probably well adapted to your particular habitat conditions, and they won't alter the local gene pool. Remember that collecting can deplete wild plant populations. Collect seed only from common, widespread species. Don't collect a majority of the seeds from a single plant or in a given area, and avoid collecting more than you'll use. Be aware that it's illegal to collect seeds and plants in national parks and on some other public lands. Non-commercial collecting of wild seed may be legal without a permit, but check with the appropriate land management agency first. On private land, of course, check with the landowner.

Controlling weed invasions

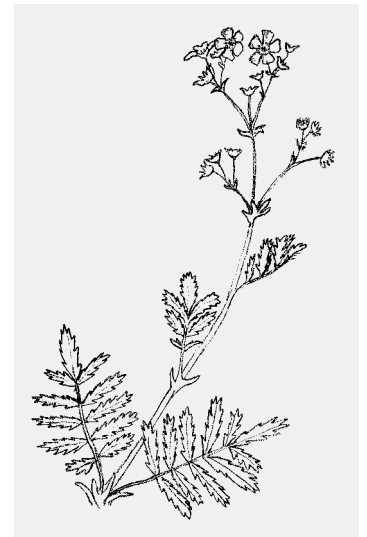
Thinning trees or otherwise preparing a yard for planting can disturb the soil, and disturbed soils are ideal growth sites for such weeds as cheeseweed, bindweed, nonnative thistles, cheatgrass, salsify, and knapweed. All of these plants tend to grow quickly in early spring, and flower just as quickly—thereby setting the crop for the following year. To control them, it's best to attack weed invasions early, and be persistent—getting rid of the invaders and transitioning to native plants could take several years. These methods will help control them:

- Mow and bag flower heads as soon as annual weeds begin to bloom. Getting them before they set seed helps prevent further spreading. To kill the seeds, burn them or let the closed trash bags bake in the sun.



Three-leaf sumac
(*Rhus trilobata*)

- Remove weeds mechanically whenever possible. Dig them up or pull them, taking care to get the roots. Avoid synthetic herbicides, which can be harmful to the soil and the entire ecological system. Use gloves, as some species, such as knapweed, contain potentially harmful chemicals.
- Use corn gluten to inhibit seed germination. You can buy this natural substance from garden-supply stores, and apply it in spring to areas where weeds have been removed. It keeps weed seeds from sprouting and dissipates in about three months, in time to allow planting of native species during the summer monsoon season.
- Consider herbicides. Careful and targeted use may be warranted if you cannot control noxious weeds manually.
- Don't clear and plant large swaths all at the same time. Invasive weeds thrive in disturbed areas. Instead, prepare one small, manageable section at a time. Take your time, and be patient. It may take years to establish a yard with native plants, but their diversity and vitality will be well worth the effort.
- Encourage natives. The best defense against noxious weeds is a healthy cover of native plants.



Woolly cinquefoil
(*Potentilla hippiana*)

Where to go for help

- Read what the experts have to say. See *Native Plants for High-Elevation Western Gardens* (Fulcrum Press, 2003) or *Beyond the Ponderosa: Successful Landscape Trees for Higher Elevations in the Southwest* (Flagstaff Community Tree Board, 1998) for landscaping ideas.
- Ask a specialist. Ask for help at a regional botanic garden or arboretum, or contact your state's native plant society or cooperative extension service.
- Browse plants on the Web. A number of nurseries and nonprofit organizations maintain good Web sites about southwestern plants.
- Buy natives. Check out www.hort.usu.edu/natives/nurseries/Alpha.html for a list of native plant nurseries in your area, but make sure to ask whether the environment the plants came from is similar to yours.
- Landscape for wildlife. For tips, see www.nwf.org/backyardwildlifehabitat.
- Get to know your local weeds. Visit www.weedcenter.org or www.usgs.nau.edu/SWEPIC/ for guides to identification and control of noxious plants.
- Think Firewise. Visit <http://ag.arizona.edu/firewise/index.html> to learn more about making your house and yard fire-safe.
- Contact us. Visit NAU's Ecological Restoration Institute (www.eri.nau.edu; 928-523-7182) for information about forest ecology and restoration, or The Arboretum at Flagstaff (www.thearb.org; 928-774-1442) for more about native plants.

Suggested native plants for the upland Southwest

Trees

Gambel oak (*Quercus gambelii*)
Quaking aspen (*Populus tremuloides*)
New Mexico locust (*Robinia neomexicana*)
Box elder (*Acer negundo*)
Rocky Mountain maple (*Acer glabrum*)

Shrubs

Buffaloberry (*Shepherdia* spp.)
Snowberries (*Symphoricarpos* spp.)
Utah serviceberry (*Amelanchier utahensis*)
Three-leaf sumac (*Rhus trilobata*)
Wild roses (*Rosa* spp.)
Golden currant (*Ribes aureum*)
Fendler's buckbrush (*Ceanothus fendleri*)

Grasses

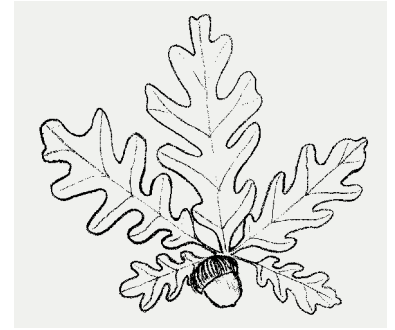
Blue grama (*Bouteloua gracilis*)
Arizona fescue (*Festuca arizonica*)
Indian ricegrass (*Achnatherum hymenoides*)
Western wheatgrass (*Pascopyrum smithii*)
Mountain muhly (*Muhlenbergia montana*)
Muttongrass (*Poa fendleriana*)
Prairie junegrass (*Koeleria macrantha*)
Little bluestem (*Schizachyrium scoparium*)

Wildflowers

Beebalm (*Monarda menthaefolia*)
Silvery lupine (*Lupinus argenteus*)
Blue flax (*Linum lewisii*)
Penstemons or beardtongues (*Penstemon* spp.)
Coneflowers (*Echinacea*, *Ratibida*, and *Rudbeckia* spp.)

Ground Covers

Creeping barberry (*Mahonia repens*)
Cinquefoil (*Potentilla* spp.)
Kinnikinnick (*Arctostaphylos uva-ursi*)
Prairie smoke (*Geum triflorum*)
Alum root (*Heuchera* spp.)
Pussytoes (*Antennaria* spp.)



Gambel oak
(*Quercus gambelii*)

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