A Landscape Guide for Mountain Homes

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OVERVIEW: A Limited Resource

Water is a precious commodity in Southern California. More than 70 percent of California's total precipitation falls in the northern half of the state. Eighty percent of California's water demand is in the south. Southern California largely depends on water imported from Northern California and from the Colorado River.

Where does our water come from?

In Southern California's mountains, our water supply is extremely limited. Our water comes from local lakes and streams, groundwater wells, or imported water supplies. Both local and imported sources can be severely affected by drought and imported water supplies have become increasingly uncertain as a result of demands by other regions. Currently, all mountain communities are facing long-term water shortages that make water conservation increasingly important.

Increased demands on local water resources have caused many residents to realize that preservation of our mountain environment and quality of life depends substantially on how we manage our limited water resources.

Conservation must become a way of life

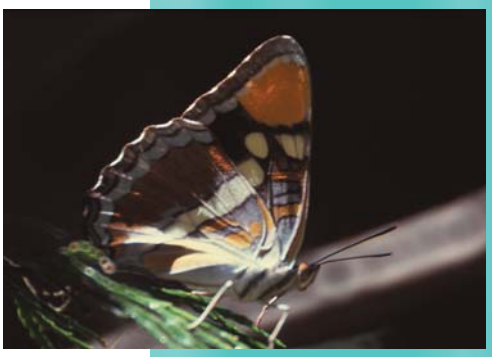
Even while local water agencies are confident that they will be able to meet demand through a combination of new supplies and changing the ways we use our existing resources, water conservation must become a way of life. **Less than half of the water you use is used inside your home. The rest is used outdoors, mostly in watering home landscaping.** Much of this water is wasted due to poor planning, inappropriate plant choices and inefficient watering practices. Most families can reduce water use by simply changing habits and learning to reduce water waste outdoors.

There are many ways to save water outdoors

Everyone has opportunities to save water. We may choose different methods, depending on our individual circumstances.

Here are some ways we can choose to save water on our landscapes:

- Scale back and limit landscaping to creating a defensible space (see Chapter Four: "Defensible Space").
- Reduce or replace lawn areas with alternatives like patios and groundcovers.
- Review, repair and retrofit irrigation systems so they are water efficient.
- Re-landscape with plants that use less water and retrofit or install appropriate irrigation.



Start TODAY

Eliminating water waste is easy and pays off immediately. Chapter Three: "Maintain Your Landscape" shows how good maintenance practices can result in major water use reductions. The ways in which a small change in behavior can make a large difference in water savings are almost endless. For a look at a typical house and how much water can be saved by simple changes, visit the virtual house: www.h2ouse.org.

3 Tips for Saving Water in Your Landscape

Outdoor water use accounts for more than half the water used by an average household. Landscaping in mountain communities uses about 300 gallons/day during the watering season. Use this guide to make immediate water savings.

1. Mulch Around Trees and Shrubs

Mulching discourages weeds and slows evaporation when you water your plants.

2. Keep Your Soil in Shape

Soil amendments can benefit your plants both by providing nutrients and by changing the composition of the soil so it holds water better. Improving your soil needs to be done regularly, including the areas around existing plants and shrubs.

3. Landscape with plants, trees and shrubs that use less water

There are many types of shrubs and trees that use very little water. Choose them for your garden. Consider eliminating your lawn or reducing its size and planting low water use ground cover and shrubs instead.

Seven rules for watering your landscape

Lawns, shrubs, ground covers, and trees all need different amounts of water, applied differently.

Existing trees and shrubs can usually get by with deep watering, applied to their root zones once a week, depending, of course on how much sun they get, the kind of soil you have, and the amount of water your watering system delivers. Make sure they get adequate water in the spring to encourage deep roots and make sure you water trees at their drip lines—the area below the spread of their branches. Build a four to six inch earthen dam around the root zones of both trees and shrubs to hold the water so it soaks in rather than running off. Runoff is prohibited by the water conservation policies of most mountain water agencies.

If you have an existing lawn, consider replacing it with low water use groundcover. If you have a lawn, it generally should be watered no more than twice a week, again depending on the amount of sun and how much water your irrigation system delivers. If it wilts (see number 7 below), then increase water by two minute increments until wilting stops. If you don't have an automatic sprinkler system, use a kitchen timer to help you keep track.

1. Get to know how plants signal for water
Some plants lose their gloss and start to droop a little before wilting. The time to water is when the plants need it. Learn to use your automatic timers so you can adjust watering schedules for cooler, wetter weather.

2. Split your watering time
If water runs off instead of soaking in, split the water time into two sessions to allow the soil to absorb the water. Where soil is sandy, water may percolate below the root zone. Compensate by watering for half the time, twice as often so water stays in the root zone.

3. Train your plants to develop deep roots
Water thoroughly but infrequently. Make sure that plants are deep watered in the spring so they will develop deep roots and need less water in the summer. Deeper roots allow plants to use moisture deep in the ground. Plants will be healthier and stronger.

4. Avoid watering on windy days
When you water on windy days (a breeze stronger than 5 to 7 miles per hour), much of the water evaporates or blows away.

5. Avoid watering in the middle of the day
Many mountain water agencies require that commercial landscape watering be complete by 5:00 a.m. and home landscape watering by 8:00 a.m. Morning is the best time because it helps prevent the growth of fungus. When you water during the cool parts of the day more water soaks in instead of evaporating.

6. Adjust sprinklers to water plants only
Watering driveways, patios or roadways is a waste of water and money and is prohibited by the water conservation policies of most mountain water agencies. Make sure that coverage is even so that you don't have to drown one area in order to get enough water on another.

7. Water your lawn only when it needs it
Test for watering by stepping on the grass. Does it spring back when you raise your foot? If the answer is yes, it doesn't need water. Look at the color of your lawn in the early evening. If it is off-color, light green to yellow, then it needs water. Increase your watering by two minute increments until wilting stops.

8. Turn off your sprinklers when it rains
For residents that can't be home to do this, automatic rain sensors are available at nurseries and irrigation supply stores.

9. Use a timer
It will help you to remember to turn sprinklers off if you do not have an automatic system.

Maintain your watering system

Broken sprinkler heads spew water that doesn't benefit your plants. Risers that are too low can be blocked by neighboring plants. Replace old or worn irrigation fixtures—an emitter or sprinkler with a damaged head or an opening that is worn, even to a very small degree, can increase the amount of water being delivered 4% or more. Hoses, couplings, valves, and faucets that leak not only create large puddles but waste your watering dollars.

CHAPTER ONE: Plan Your Landscape

There are eight basic steps in planning a water-efficient landscape

1. Understanding climate is the first step

Climate determines many factors in planning a landscape. Climate determines which plants will survive in your area and how much water they will need. Short growing seasons, low winter temperatures, shallow soils over rocks, limited rainfall and heavily wooded spaces are factors mountain communities have in common. Generally, the mountains' evapotranspiration rate, or moisture loss from both soils and plants over a year, ranges from 40-49 inches per year to 50-59 inches per year, depending on whether the local area is considered wet or dry. Rainfall ranges from 21 to 60 inches per year. Average rainfall is about 44 inches per year.

Sunset Books, publisher of the Sunset Western Garden Book, defines the higher elevations of our mountain climate as Zone 2 (four to six month growing season, historic lows of -3°F to -34°F) and the balance as Zone 3 (five to seven month growing season, historic lows of 13°F to-24°F). In addition, some of Lake Arrowhead's north shore and communities at lower elevations like Crestline can use plants rated for Zone 4. These designations can be useful when researching plants that will grow in your home landscape.

Local landscape specialists have identified many specific locales whose climate differs enough to affect what will and will not grow. These areas, called microclimates, are important to consider throughout the planning process.

2. Identify any microclimates

There are a variety of factors that can create wetter or drier areas around your home. These areas are called microclimates.

Drier:
- Sunny open areas.
- Windy areas below canyons.
- Steep slopes.
- South and west facing areas.

Wetter
- Shady wooded areas.
- Areas near streams or drainages.
- Sheltered areas.
- North and east facing areas.

Often native vegetation will tell you about the immediate microclimate. Jeffrey pine and manzanita grow in dry areas, for example, and alders, cedars, dogwoods and willows in wet areas. In addition, higher elevations have cooler temperatures and shorter growing seasons.

3. Think about what you want from your landscape

Start by determining what you want the landscape to do for you in terms of practicality, versatility and enjoyment. Consider including room for entertaining or recreation, some space for pets, gardening or privacy. A view may be important. Your children or grandchildren may need a yard for play.

To get the process started, make a list of the things that are important. A rough drawing may help visualize the ideas. Good planning is necessary to avoid costly mistakes and to insure that the end product will meet the needs on your list and be both aesthetically pleasing and water efficient. A typical list might include:

- Patio for summer barbecues.
- Privacy from the roadway.
- Area for growing flowers in summer.
- Space for playing with the kids.
- View into the garden.
- Plants that will attract birds or butterflies.

The "Landscape Guide for Mountain Homes" is designed to provide basic information that will help you develop a water-efficient landscape that meets your goals for recreation, beauty, and maintenance. While most of the Guide deals with the man-made landscape around your home, much of the land that surrounds people's homes is natural. This Guide does not suggest that you landscape natural areas. These natural areas are very important to our mountain environment and quality of life, so we have devoted Chapter Four to fire safety and Chapter Five to the backyard forestry that fall under our responsibility as mountain dwellers.

The Guide is also meant to help you make decisions about your landscape whether you are planning a new landscape or retrofitting an existing landscape to be more water-efficient. There are three phases to having a water efficient landscape:

- **Plan—whether you are planting a brand new yard or retrofitting an existing one, careful planning means success.**
- **Install for success—how you install your irrigation and plant your plants can make a big difference.**
- **Maintain for water efficiency—taking care of your irrigation system and your landscape means both water savings and a great looking yard.**

Unprotected bare hillsides are likely targets for severe erosion problems. In addition, many mountain community homes have steep slope areas. Proper landscaping with plants suited to the condition of the slope and the direction it faces can keep slopes from sliding or eroding.

4. Evaluate your site

The plan for a new home will be different than the plan for an existing home but the principles are the same. Existing homes often have special trees or valued shrubs. These existing items will help to determine where other plants and features will go.

To get started, answer the following questions:

- Where are the sunny spots (south- and west-facing) and where are the shady parts (north- and east-facing) of your site?
- Are there slopes? If so, what direction do they face?
- Are there protected areas or areas exposed to strong winds?
- What kind of soil is there? How deep is it and how fast does it drain?
- Where is it important to have a view?
- What areas need a screen for privacy?
- How much gardening and/or maintenance do you want to do?

5. Make your plan

Take the list of uses that are important to you and the list of site characteristics, combine the two and begin the process of creating a site plan.

Make a drawing that shows:

- The outline of your property with approximate distances.
- The footprint of your house and any other buildings with their approximate sizes.
- The location of any paved areas.
- The location of existing plants and trees.
- The location of slopes.
- The locations of the sunny and shady areas.
- Location of highly exposed and protected areas.
- The direction of north.

This drawing need not be elaborate or exactly to scale. It is meant to serve as a working plan that will help you to visualize the finished product.

Next draw in the areas that are important to you as you defined them above. Use pencil, you may change your mind about where things will go as you work out your plan but for now choose the locations that seem to work best to you. Think about where the doors and windows of your house are when you choose locations. Things you might put on the plan are:

- Places to sit (sunny or shady, flat or sloped?).
- Places to entertain (sunny or shady, close to house doors?).
- Places to play (sunny or shady?).
- Where are the windows in relation to what view you would like.
- Places to garden (sunny, near the patio, front or back door?).

This drawing will help you make sure that important aspects of your landscape aren't forgotten.

6. Choose and locate your plants

The Guide has an entire chapter on plants that will grow in mountain areas and how to choose them, including a plant list (see Chapter Six). A visit to one of the local nurseries will also be beneficial. There are several general principles that are important to think about when selecting and locating plants in your landscape.

The most important concept to remember is *hydrozoning*.

Hydrozoning means grouping plants with like water needs together. The lowest water use plants in one area, the medium water use plants in another. Sun, shade and wind also affect these hydrozones. For example, you might have several different hydrozones in your landscape:

- Low water use plants in a shady area.
- Low water use plants in a sunny area.
- Medium water use plants in a shady area.
- Medium water use plants in a sunny area.
- Low water use plants in a protected area.
- Medium water use plants in a windy area.

Select plants suitable for the zones found in your landscape. Hydrozones will make it possible to design an irrigation system that will be efficient and save water.

Make sure you pay attention to *topography*.

When you add slopes to the equation, you might also add these hydrozones to your plan:

- Slope plantings in a sunny area.
- Slope plantings in a windy area.
- Slope plantings in a shady area.

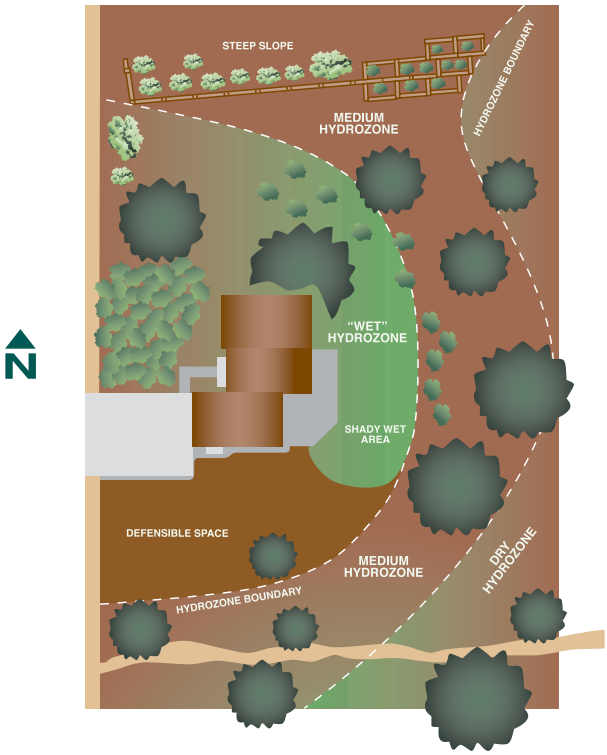
Pay attention to the *soil*.

In heavy clay soil, certain plants will require soil amendments in order to be able to grow. In loose granular soils, you will need to add organic material to hold water and nutrients. All plants will benefit from amending the soils with nutrients and amendments that help the soil retain moisture.

Limit the area designated for lawn.

Consider retrofitting your landscape to eliminate or minimize your lawn. A lawn might be useful as a play area for children but less thirsty shrubs and groundcovers can be used for most other purposes. Use a patio or deck for a resting or entertaining place for adults.

At this point, your drawing should look something like the example shown here.



7. Design your irrigation system

All plants, no matter how drought tolerant they are, need water. The most drought tolerant plants need water only during the first and sometimes during the second season they are being established. After that many can survive on what they get in the form of rain and snow.

Efficient watering means delivering the right amount of water to the right place at the right time. Installing the most water efficient irrigation system possible will save you time and money later. If you are not familiar with the different types of equipment, consult with a nursery or landscape professional.

When planning an irrigation system:

- Each hydrozone should be on a different line or station of your irrigation system.
- Use the right type of equipment to deliver water most efficiently to different types of plants.
- Drip emitters or bubblers are the best choices for trees and shrubs. They apply water at a slow rate directly to the root zone, so less water is lost to evaporation and runoff.
- Various types of emitters and micro spray devices can be used for groundcover. Make sure spray areas overlap properly to avoid dry spots.
- Larger coverage spray heads or rotors are required for lawn areas. They should be spaced so that each spray circle overlaps the one next to it, creating an even pattern to avoid brown spots or overwatering to compensate for dry spots. Use quarter and half circle spray heads to avoid watering walkways, driveways, roads, and non-turf areas.
- Irrigating on slopes can be tricky. Emitters are preferred but require monthly inspections to detect clogging. The freeze/thaw cycle at higher elevations can also damage tubing. Depending on the steepness and the height of slopes, bubblers may work well. In a few cases spray heads may be necessary.
- Match irrigation patterns, frequency of watering, and length of watering cycle to the plant's needs and the soil's ability to absorb the water. This will conserve water by preventing runoff.

Consider Design When You Select Your Plants

Chapter Six offers three plant lists for you to use to choose and locate plants. The first lists California native plants which reflect the feel and appearance of natural wooded areas but which also provide for defensible space and some ornamental values like flowers. These plants generally require the least water, fertilizer, and maintenance. The second is a mixed plant list of moderate water use ornamental and garden-adapted native species that have a more ornamental character than native plants alone. The third list includes more traditional ornamental plants often popular for mountain settings.

If you want to minimize the amount of time you must spend on your landscape, consider beds of uniform types of groundcovers and massed shrubs. This style of massed planting forms patterns that are derived from the color and character of the foliage and flowers. Effects are created by varying height, and focal points are achieved by saving the showiest plantings for concentrated areas.

What About Lawns?

Lawns use the most water of any area in home landscapes. Limit your lawn to areas needed for recreation and play. Many mountain water agencies allow a maximum of 500 square feet of lawn. Also choose grasses that are low to moderate water use and that will grow well in mountain areas such as:

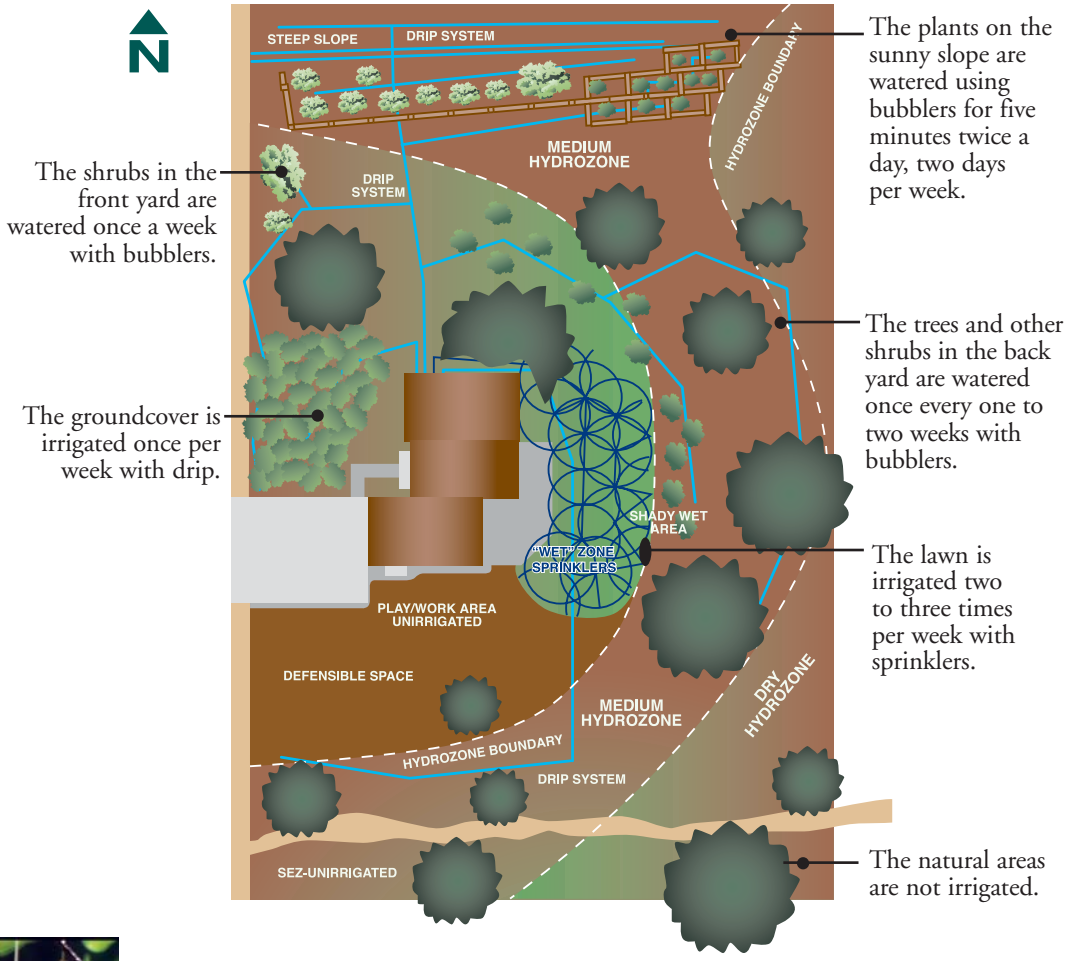
Buffalo Grass
(Buchloe dactyloides)
- Lull sun
- Little water once established
- Gray green in summer, straw colored in winter
- Grows to four inches, little to no mowing

Tall Fescue
(Festuca arundinacea)
- Best in sun
- Green all year
- Mow to two to three inches
- Comes in dwarf varieties
- Tolerates compact soils

Fine Fescue
(Festuca rubra)
- Shade tolerant
- Green all year
- Fairly drought tolerant
- Well drained soils
- Mow to one and a half to two inches,
- Attractive meadow on slopes too steep to mow

- Irrigation systems with automatic timers that allow for separate programming of each hydrozone can be of great assistance in controlling and monitoring the amount of water going to plants. Automatic timers are also easy to change as weather patterns change. Ideally, consult with a landscape professional and choose a system with rain switch and water budget features.

This general example plan has five separate irrigation zones. The watering needs for each are determined by sun, slopes, types of plantings, and soil. While this is just an example, your landscape plan will have similar areas within it.



CHAPTER TWO: Installing Your Landscape

Now that you have planned your water-efficient landscape and selected your plants, it is time to make your plans a reality. The key is to start at the beginning and do things one step at a time. This is the time to consult local nurseries and landscape professionals. Have them look over your plan and your list of plants. They will tell you if the sprinklers, bubblers, and emitters you have selected are right for the plants you have picked. A professional can also give you advice about how to install your landscape. They will carry many of the plants you will want for your landscape.

The following six steps are listed in chronological order. You may want to phase them in over time.

1. Build your hardscape

Build any new structures first. Irrigation pipe may sometimes need to be installed before walkways and driveways are built. Any new walkways, decks, patios, fences or retaining walls should be built before planting begins. This will prevent damage to the irrigation system and plants.

2. Improve your soil

Soils found in most mountain communities contains only a thin layer of organic material and are deficient in plant nutrients. They may be excessively loose, fine grained, or sandy. Lack of organic material may mean that water does not soak in well or that it does not hold the moisture that does soak in. Plants do better in well-prepared soils. If your soil drains too fast (too much sand) or too slow (too much clay), is too acidic, too alkaline, or lacks nutrients, you can improve it with soil amendments. Always blend amendments with the natural soil to the eventual depth of the roots of the plants you intend to plant.

There are two types of soil amendments: non-chemical and chemical. The non-chemical type is mixed into the landscape soil to increase water-holding capacity and improve soil structure. Examples include composts, aged manures, and nursery mixes. In addition to improving the qualities of the soil to promote plant growth, they also add some nutrients.

Chemical amendments, like granular fertilizers, add nutrients to soil or change the soil's chemistry so plants will be healthier. Soils are usually common over a moderately large geographical area. As a result, your local nursery will likely know about the soil in your area.

3. Install your irrigation

Many publications give step by step instructions for installing and assembling irrigation systems. Talk to professionals where you buy your materials or call or write any of the appropriate organizations listed in the resources section of this publication for help.

There are basically two major types of irrigation systems. They are not mutually exclusive but can be used in combination with each other.

Rigid pipe

This type of system is almost always operated by an automatic controller, through a series of valves that turn the various underground lines on and off. Along the lines, various types of sprinklers deliver water. This water delivery is almost always measured in gallons per minute.

Lawns are watered using pop up sprinklers or rotors set in full, half, or quarter circle spray patterns. Low growing shrubs and groundcovers are watered with bubblers that can be set to a trickle or a small spray. Where bubblers can not be placed at the root zones of taller shrubs, spray heads that are elevated on posts or impact sprinkler heads are used. The critical factor is getting the right fixture in the right place delivering the right amount of water.

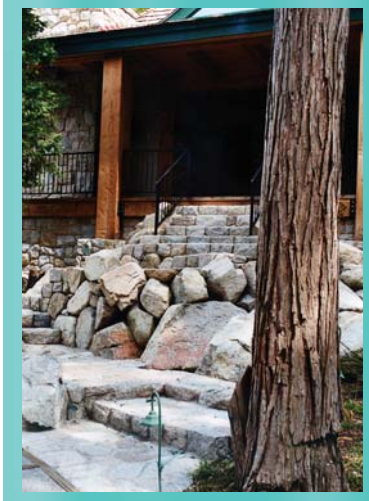
As noted in Chapter One, spray heads should be designed so the spray pattern provides uniformly overlapping coverage. This will avoid dry spots and you won't be tempted to over water just to make sure the dry spots get adequate water. Often rigid pipe/high pressure systems are preferred by homeowners because they require less maintenance once installed and the equipment is more easily able to survive extremes of climate. This type of system can have valves dedicated to drip irrigation.

Drip irrigation

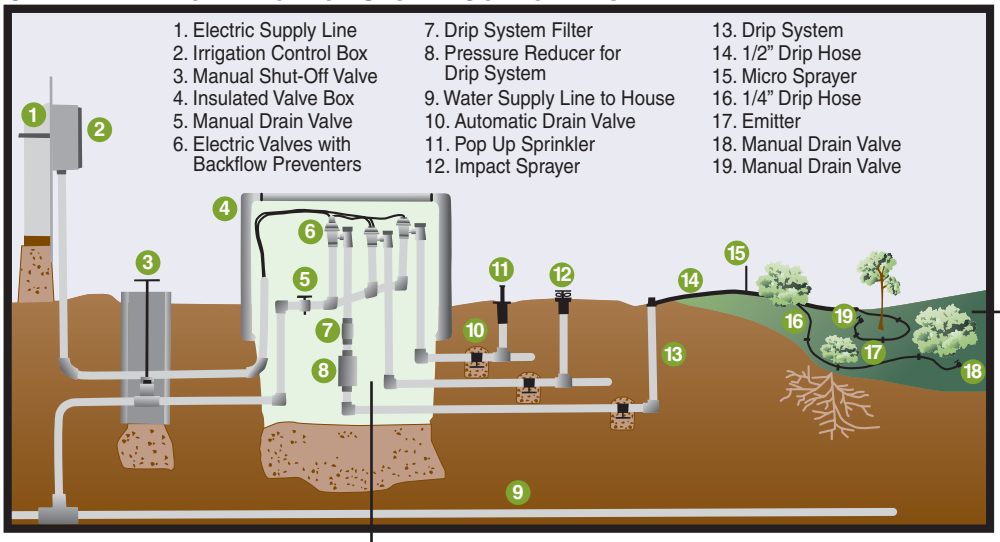
Drip systems are used to water shrubs and trees rather than lawns. They save water by delivering exactly what the plant needs only to the root zone. Emitters deliver water in gallons per hour, ranging from one half to five gallons per hour, so make sure you match emitters to the plants they water.

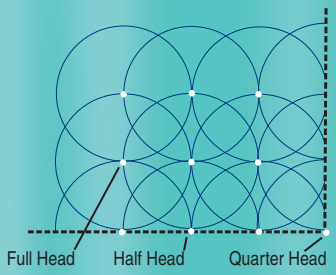
Many drip systems are easily expandable and flexible, allowing you to change locations and fixtures easily. The downside is that they can be damaged by freezing, rodents, or by heavy snows if they are located on slopes. A drip system requires periodic checks for clogged emitters and a thorough annual review and maintenance.

Irrigating on slopes can be tricky. Emitters are preferred but require regular inspections to detect clogging. Bubblers require less maintenance than drip emitters and may be highly effective. Build earthen dams or watering basins around plants on slopes to capture the water they receive, train them to have deep roots and prevent runoff.

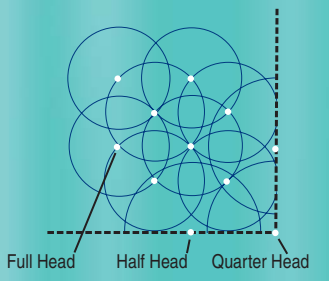


General View of Irrigation System Components

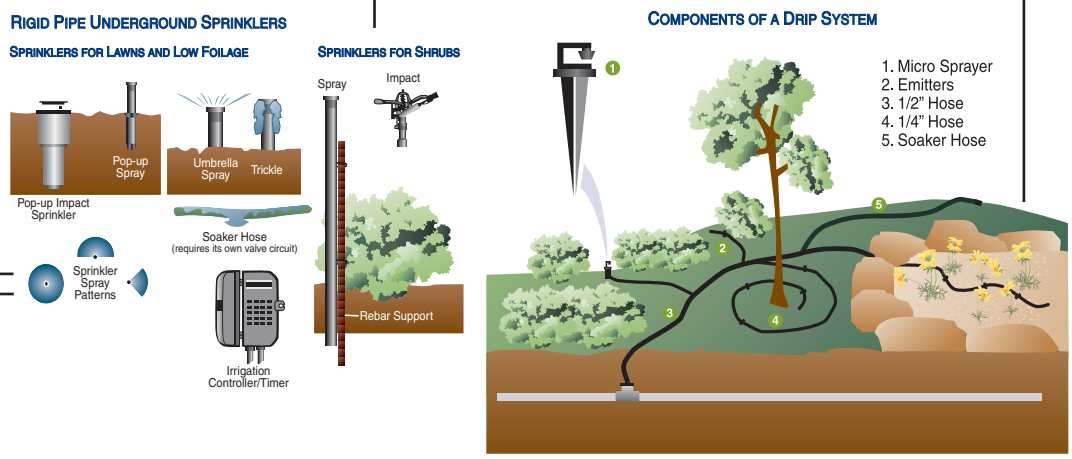




Square Pattern



Triangular or Alternate Pattern



4. Plant your plants

Shrubs and groundcovers:

Plants and shrubs come in all kinds of containers from plastic and peat to no containers at all, called bare root. There are several basic tips for planting, no matter what type of plant you have purchased:

- The hole for the plant should be the same depth and twice as wide as the root ball of the plant.
- Make sure the soil in the hole is moist and the edges of the hole are broken enough to permit the roots to penetrate it. Add some loose backfill soil to the bottom of the hole.
- Water the hole and let it drain.
- When plant roots have been tightly bound by their nursery containers, gently loosen roots at the bottom and sides before planting.
- Plant the plant so the top of the root ball will be even with the soil surface. Take settling of loose soil into account.
- Fill the hole with soil and firm it as you fill.
- Form a watering basin by building a soil ridge around the planting hole. Watering basins make sure the water you apply soaks down around the plant's roots instead of running off.
- Water the new plant slowly and thoroughly. Many gardeners apply a diluted mixture of vitamin B1, available at nurseries, to newly transplanted plants.

Trees:

Proper spacing, planting and maintenance of mountain landscape trees are critical. If you lack experience, seek some advice from a nursery or landscape professional prior to tree planting. In addition, it is very important to consider the positioning and spacing of trees to create defensible space around your home, space that can halt the progress of an approaching fire (see Chapter Four).

If you are planting trees in natural areas on your property, please refer to Chapter Five: "Maintain Natural Areas through Backyard Forestry."

Planting a tree is similar to planting other types of plants but on a larger scale. The same rules apply for digging the hole, dig to twice the width and the same depth as the size of the rootball. Once the hole is dug, build a small mound of soil in the bottom of the hole. The rootball will be set on top of the mound. The correct height for the mound will allow the top of the rootball to be at grade.

Some trees will require staking. If staking is going to be installed, the following tips will help you do it properly:

- Three stakes should be anchored in the hole in which you plant the tree, or if the tree is very small, a minimum of one foot from the trunk.
- Stakes should be spaced evenly to form the shape of a triangle, supporting the trunk on all sides, no matter which way winds blow.
- Make the stakes as short as possible, but high enough to hold the tree upright under calm conditions. The tree's top should return to vertical when the wind stops blowing. Allowing the tree to bend with the wind will help the tree develop a strong trunk.
- Tie the tree at just one level, near the top of the stakes.
- Provide flexible movement at the tying point, not allowing the tree to contact the stakes.
- Remove the stakes as soon as the tree is able to stand on its own.

Snow poses other challenges to newly planted trees and shrubs. Contact your local nursery professional for tips on protection from snow weight and damage.

Lawns:

Many of us who have lived in a city environment are used to having a large green expanse of lawn. Some mountain residents find a lawn out of place in the natural forested setting of our mountain communities. During a serious drought condition, most mountain community water agencies do not permit the installation of any new lawn areas. In periods of regular rainfall, there are often still restrictions on how much lawn is permitted. Check your local agency for turf restrictions. These restrictions may include no new turf at all, limits on turf areas to 500 square feet or less, or limits on turf to 30% or less of landscaped area.

Lawns use twice as much water as other types of landscape plantings. As a result, keep turf areas to a minimum, that is, limit turf to areas that are needed for play or recreation. The use of water conserving groundcovers and shrubs and outdoor recreation alternatives such as patios and decks are encouraged.

A healthy lawn that uses the least amount of water possible relies on training the roots of the grass to grow deep. In this way, the frequency of watering can be reduced and turf will stay green and healthy. For new planting, use sod if possible. Sod uses much less water than planting grass from seed because it is already established.

5. Keep good records

Keep records of the planting dates and particulars of trees and shrubs. Make a map of irrigation pipelines, valves, sprinklers, bubblers, and emitters as you installed them. If you have an automatic watering system, make sure you show the location of the electric wires that serve the valves.

6. The magic of mulching

Mulching—spreading organic material over the ground around trees and shrubs—decreases the amount of water plants need by keeping the soil underneath cool on hot days and by reducing evaporation. In the winter, a layer of mulch can protect plant roots and stems during a severe freeze. In the summer, mulching can help keep weeds in check. Mulch also helps soil remain easy to cultivate, limits erosion, and reduces runoff—important for preserving the water quality of mountain streams and lakes.

Wood or bark chips are suitable mulches. Be careful, however, to keep green pine mulch (mulch made from "live" prunings or trimmings) at least three feet from the base of any pine tree to avoid attracting bark beetles. Other mulches include shredded bark or cocoa, composted lawn clippings, decorative gravel, peat moss, permeable plastic sheeting, or rocks.

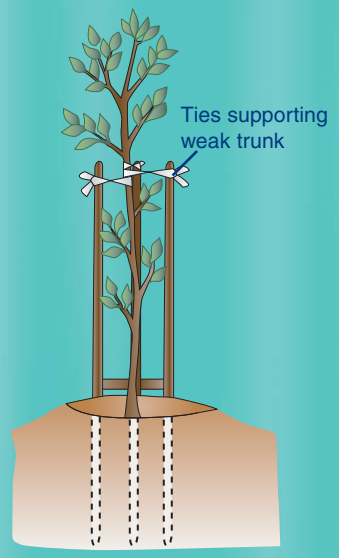
Dark colored mulches work best at keeping sunlight from soil. Apply mulch approximately two inches deep, depending on the specific use, or use a black permeable plastic fabric underlay. Never use solid plastic as an underlay material.

If pine needles are used, limit the depth to between one and two inches, more is a fire hazard and less will not prevent runoff and protect soil. Keep pine needles at least two feet from any structures and remove them if they are under decks.

Mulch should be placed several inches away from tree trunks and should extend several feet outward. For shrubs and flowerbeds, cover the soil surrounding the plant. Re-apply as needed each spring.

Planting From a Container

Staking Young Trees



Water conserving landscapes generally need less maintenance than thirsty landscapes. There is less weeding because of mulching. There is more groundcover and less lawn, so there is less mowing. Healthy plants are more likely to be able to resist pests. Fertilizing once in the spring and once in the fall should be sufficient.

Mulch around trees and shrubs. Mulching discourages weeds and slows evaporation when you water your plants.

CHAPTER THREE: Maintain Your Landscape

Here are nine tips to help you have a water-efficient landscape

Even though the introductory "Seven Rules for Watering your Landscape" on page two includes much of the information given in these nine tips, it bears repeating. Maintenance is the major factor in reducing water use in your landscape.

1. Get to know how plants signal for water

Lawns, shrubs, groundcovers, and trees all need different amounts of water, applied differently. Some plants lose their gloss and start to droop a little before wilting. The time to water is when the plants need it. Learn to use your automatic timers so you can adjust watering schedules for cooler, wetter weather.

2. Stop runoff

Existing trees and shrubs can usually get by with deep watering, applied to their root zones once a week, depending of course, on the amount of sunlight they receive, where they are located, and the amount of water your watering system delivers. Make sure you water trees at their drip lines, the area below the spread of their branches. Build a four to six inch earthen dam around the root zones of both trees and shrubs to hold the water so it soaks in rather than running off. If you have runoff, change your watering practices and times.

If water flows away instead of soaking in, split the watering time into two sessions to allow the soil to absorb the water. Where soil is sandy, water may percolate below the root zone. Compensate by watering for half the time, twice as often, so water stays in the root zone. Use soil amendments to improve the water holding capacity of your soil. Heavy clay soil will absorb more water and sandy soil will hold more water.

3. Train your plants to develop deep roots

Water thoroughly but infrequently. Make sure that plants are deep watered in the spring, so that they will develop deep roots and need less water in the summer. Deeper roots allow plants to use moisture deep in the ground. Plants will be healthier and stronger.

4. Avoid watering on windy days

When you water on windy days (a breeze stronger than 5 to 7 miles per hour), much of the water evaporates or blows away.

5. Avoid watering in the middle of the day

Many mountain water agencies require that commercial landscape watering be complete by 5:00 a.m. and home landscape watering by 8:00 a.m. Morning is the best time because it helps prevent the growth of fungus. When you water during the cool parts of the day more water soaks in instead of evaporating.

6. Adjust sprinklers to water plants only

Watering driveways, patios or roadways is a waste of water and money. Make sure that coverage is even so that you don't have to drown one area in order to get enough water on another.

7. Water your lawn only when it needs it

Most lawns will do adequately during a drought with watering no more than twice a week. If your lawn wilts, then increase water incrementally by two minute intervals until wilting stops. If you don't have an automatic sprinkler system, use a kitchen timer to help you keep track.

Test for wilting by stepping on the grass. Does it spring back when you raise your foot? If the answer is yes, it doesn't need water. Look at the color of your lawn in the early evening. If it is off-color, light green to yellow, then it needs water.

8. Turn off your sprinklers when it rains

For residents that can't be home to do this, automatic rain sensors are available at nurseries and irrigation supply stores.

9. Use a timer

Using a timer will help you to remember to turn sprinklers off if you do not have an automatic system. Consider installing a water efficient automated system.

Maintain your irrigation system

Broken sprinkler heads spew water that doesn't benefit your plants. Risers that are too low or too high don't place the water where it is needed. Clogged drip emitters can starve your plants for water. Hoses, couplings, valves, and faucets that leak not only create large puddles, they also waste your watering dollars.

Take time to examine your irrigation system at least once a month during the watering season. Check for:

- Broken sprinkler heads.
- Clogged sprinkler heads.
- Sunken sprinkler heads.
- Sprinkler heads knocked sideways (off vertical) by animals, play, or garden equipment.
- Mismatched sprinkler heads.
- Clogged emitters in drip irrigation and bubblers.
- Sprinklers that over spray onto driveways and roadways.

Replace old or worn irrigation fixtures—an emitter or sprinkler with a damaged head or an opening that is worn, even to a very small degree, can increase the amount of water being delivered 4% or more.

Brown spots or dying vegetation can be a result of several causes: animal damage, disease, over fertilizing. Brown spots can also be a sign that a part of your irrigation system is not working properly.

Every winter, most mountain communities experience some freezing and thawing. Winterize your irrigation system by draining it prior to the coldest part of the winter, when rain and snow will provide your plants with water. Turn off your automatic timer.

Take care of your plants

Groundcovers:

- Keep weed-free until established. Weeds compete for water and nutrients when groundcover is new but groundcover will generally smother weeds once established.
- Prune to remove dead foliage and to stimulate new growth.
- Fertilize lightly spring and fall.
- Many groundcovers can and should be trimmed back lightly in the early spring and mulch added to the soil in the area to minimize weeds and decrease evaporation.

Shrubs:

- Mulch to reduce weed growth and water loss.
- Rejuvenate soil with soil amendments in areas near plants, taking care not to injure roots.
- Prune to remove dead or diseased wood or old growth or to direct new growth.
- Fertilize lightly in spring and fall.

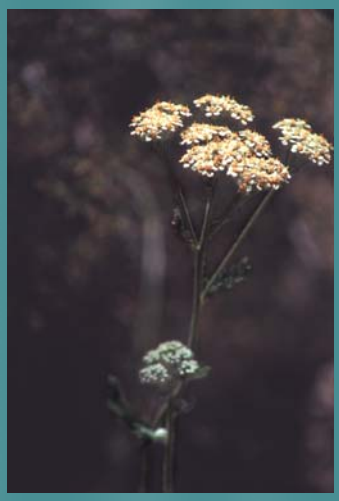
Trees:

- Keep turf grass and other vegetation at least 20 inches away from tree trunks.
- Remove stakes as soon as trees can stand on their own.
- Mulch (start several inches from the trunk) to reduce weed growth and water loss (see page 9).
- Prune deciduous trees in winter months when dormant to remove dead or diseased wood or direct growth.

There are some very good plants that can grow on steep slopes and stabilize them.

Shrubs include bearberry (*Arctostaphylos uva-ursi*),western redbud (*Cercis occidentalis*), cotoneaster (*Cotoneaster*), rockrose (*Cistus*), juniper (*Juniperus*), creeping mahonia (*Mahonia repens*), pyracantha (*Pyracantha*), lavender cotton (*Santolina*) and rosemary (*Rosemarinus*).

Groundcovers include snow in summer (*Cerastium tomentosum*), Japanese honeysuckle (*Lonicera japonica*), Lady Bank's rose (*Rosa banksiae*), and vinca (*Vinca*). See the plant list in Chapter Six.



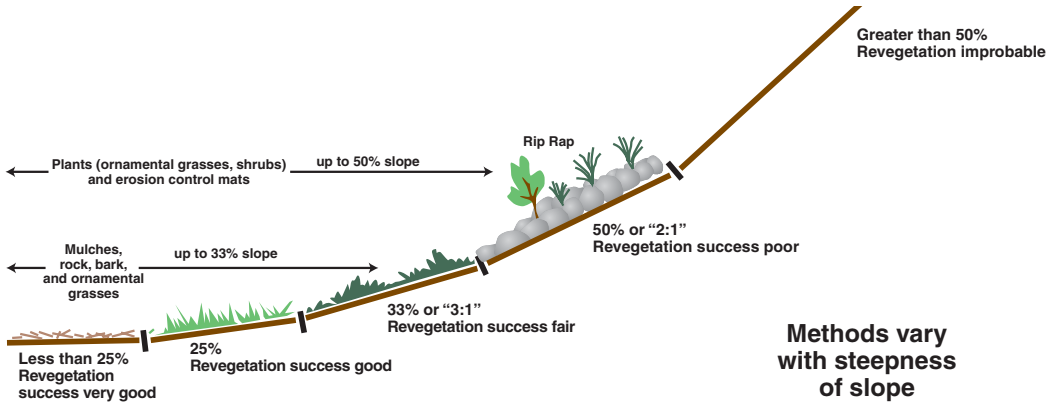
Control erosion and runoff

Mountain communities are environments with steep hillsides. Fire and tree removal create unprotected slopes with little vegetation to hold them in place that can be targets for severe erosion problems. Proper landscaping with plants suited to the condition of the slope and the direction it faces can keep slopes from sliding or eroding.

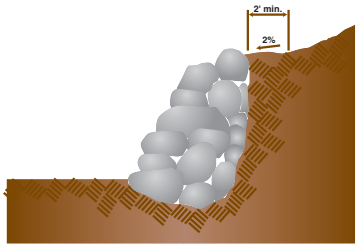
Preventing runoff is equally as important as preventing erosion. If you have water running off slopes when you water or when it rains—you have a runoff problem. A major source of dry season pollution of lakes and streams near urban areas is runoff from landscape watering. This water carries oil and gasoline residue from roadways, fertilizers, pesticides, and other undesirable material as it flows away from our homes and drains into streams and lakes.

Paved driveways are often an important factor in controlling erosion. Paving prevents erosion resulting from snow removal, vehicle traffic in and out of the driveway, and soils unable to absorb moisture because they have been compacted by vehicle weight. Border your driveway with small ditches or swales that capture runoff and return precipitation to your landscape.

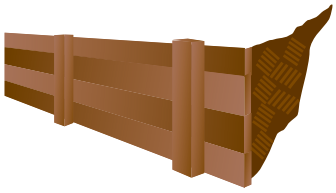
Take a look at your slopes. How steep they are will tell you what methods of erosion and runoff control will work.



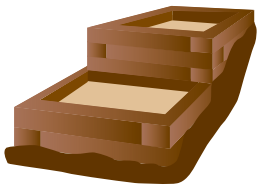
Strategies for Steep Slopes



Rock retaining or breastwall



Wood retaining wall



Terraces

Moderate slopes (less than 33%)

Control runoff using plant materials and mulch. Cover bare soils with mulch of bark chips, pine needles, wood chips, and even stones or river rock. Choose plants for slope stabilization and water using bubblers or drip emitters. Watch the length of time you water and the amount of water delivered. Make sure the plants get only what will soak in.

Slopes between 33% and 50%

Use an erosion control blanket or mats of coconut fiber or jute netting to hold slopes in place until plants can become established. Once established, the plant roots will knit together to hold soils in place and their limbs, leaves and branches will diffuse the force of rain and wind. These steep slopes require irrigation to be applied so there will be no runoff.

Slopes over 50%

Use structures or special techniques for stabilization. Wood retaining walls, interlocking concrete blocks, rock retaining walls, riprap (loose rock) areas, and terracing are among the solutions you can choose from. If you choose wood, make sure the wood is treated with a wood preservative to prevent rotting.

CHAPTER FOUR: Defensible Space— Landscape to Reduce the Wildfire Threat

Create defensible space for fire safety

Most Southern California mountain areas are at risk for wildfire. Evaluate the risk of wildfire in your area and take steps to reduce that risk. If a major wildfire were burning within a mile of your house and strong winds were blowing, would the landscape around your home provide receptive fuel for burning embers or would it tend to be a place where embers drop and go out? Would firefighters have enough open space around all sides of your house to defend it?

Most people realize that homes located in or adjacent to wildland vegetation are at risk for damage from wildfire. However, few people recognize that homes located in urbanized areas are also threatened.

During intense wildfires, burning pinecones, branches and other material can be carried a half-mile or more beyond the fire front. As a result, showers of embers are produced. If these embers land in spots where there are easily ignited fuels such as wood shingle roofs, trash piles and dried grass, new fires can start.

Consequently, homes located in the urbanized portions of mountain communities, blocks away from wildland vegetation, are also at risk.

The 3 R's of defensible space

Use these 3 R's as your guidelines for creating defensible space around your home. Look at the vegetation around your and your neighbors' homes. Work together to create defensible space.

Remove:
- Remove dead vegetation and clear weeds.
- Remove low tree branches.
- Remove ladder fuels.
- Remove firewood piles from near the house.

Reduce:
- Break up dense shrub fields and thick tree cover.
- Prune dead wood from shrubs.
- Reduce the amount of highly flammable native vegetation.

Replace:
- Replace highly flammable plant material with less flammable, low growing species within 30 feet to 100 feet of your house, check your fire agency for local regulations.

Improve fire safety without creating bare ground, which leads to erosion and water quality degradation. It is also important to follow any local regulations when creating defensible space. For example, the Arrowhead Woods Architectural Committee (AWAC) and the County of San Bernardino both have regulations pertaining to fuel reduction requirements (see the sidebar on page 16 for the AWAC requirements).

How to create effective defensible space

Make the areas closest to your house lean, clean and green—reduce the amounts of fuel, clean away dead or high risk vegetation, and keep the areas closest to your home well-maintained, green and healthy.

Many people find defensible space fits their other landscape objectives as well. The area closest to the house is where you entertain guests, eat outside in good weather, or enjoy a lawn or flower garden. A paved driveway and deck or patio is usually in this area. If they're constructed of nonflammable material, they'll meet the criteria for defensible space.

Many homes are located adjacent to forests or brush fields or on steep vegetated slopes, which are areas of high wildfire hazard. They need both the lean, clean and green zone (the first 30 to 100 feet) and outer defenses as well. The remainder of this chapter gives detailed instructions on how to create effective defensible space in these high hazard areas.

Step One: Determine your defensible space

Three factors will influence how much defensible space you'll need for your property. Highly flammable wildland vegetation (grass, shrubs or trees) growing on or adjacent to your property, will mean you'll need more defensible space. You'll also need more if there are steep adjacent slopes. Calculate your needed defensible space using the chart on the next page.

If the recommended distance goes beyond the property boundaries, contact the adjacent property owner, and work cooperatively to create defensible space. The effectiveness of defensible space increases when property owners work together. Do not implement defensible space practices on neighboring properties without first securing permission. The County Assessor's office can provide assistance if the owners of adjacent parcels are unknown.Once the recommended distance is determined, temporarily mark the outer boundary with strips of cloth tied to trees or shrubs. The land located within this designated boundary is the defensible space you need.

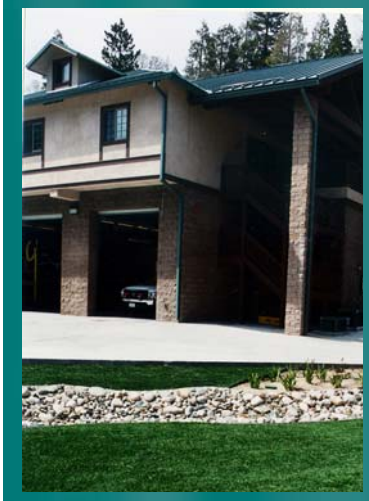
What is Defensible Space?

The term defensible space is used to describe an area of reduced wildfire threat around a home. You can modify your landscape to create defensible space by altering vegetation to increase its moisture content, decrease overall fuel volume, and altering the arrangement and height of plant material. It is also important to ensure adequate space for firefighters to operate safely. These practices can make the difference between a structure surviving a wildfire or being destroyed. Often, the area where you create defensible space is simply your own backyard.

Factors affecting how easy it will be to create your own defensible space are:

- **The size of your property.**
- **Types of vegetation.**
- **Accessibility.**
- **Slopes and steepness.**

In some instances, a homeowner may already have an effective defensible space in place and need to perform only minimal additional work in order to contribute substantially to protecting a home from wildfire.



Recommended Defensible Space Distances			
Wildland Vegetation Type	Flat to Gently Sloping 0-20%	Moderately Steep 21-40%	Very Steep 41+%
	Distance Requirements		
Grasses, Weeds	30 feet	100 feet	100 feet
Shrubby Undergrowth	100 feet	200 feet	200 feet
Forested Areas (Pine Needle Understory)	30 feet	100 feet	200 feet

IF YOU LIVE IN AN URBAN AREA WITH PLANTED LANDSCAPE,
USE THE "GRASSES, WEEDS" CATEGORY ABOVE TO CALCULATE YOUR DEFENSIBLE SPACE.
IN SOME MOUNTAIN AREAS, 100 FEET OF DEFENSIBLE SPACE MAY BE REQUIRED. CHECK YOUR LOCAL JURISDICTION.

Step Two: Make a list of what you need to do and do it

Clean Up

Look around, is there any dead vegetation in your defensible space zone?

Dead vegetation includes dead trees and shrubs, dead branches lying on the ground or still attached to plants, dried grass and flowers, dropped leaves and needles, and firewood. Dead vegetation should be removed from the defensible space area. Two important exceptions are pine needles covering bare soil and downed trees embedded in the ground.

Pine needles are good cover for bare soil but should be kept to a thickness of between one and two inches—more is a hazard and less promotes erosion. Be careful not to remove the duff area, the dark brown zone beneath the needles where the needles have begun to decompose. Remove all pine needles under decks and within two feet of any structure. Leave fallen trees embedded in the ground but remove their exposed branches.

Break up the canopy

Within your defensible space area is there a dense, continuous cover of shrubs or tree canopies? Sometimes wildland plants grow as an uninterrupted layer of vegetation as opposed to patchy or widely spaced plants. The more continuous and dense the vegetation, the greater the threat of wildfire. If the branches of neighboring trees or shrubs touch without large openings between them, break them up. There are two types of dense, continuous vegetation that homeowners are likely to encounter in mountain areas, brush fields and crowded stands of coniferous trees.

Brush fields

Create a separation between shrubs based on shrub height and steepness of slope. The separation between individual or small groups of shrubs on flat to gently sloping terrain should be twice the height of remaining shrubs.

For example, if the shrub height is four feet, then the recommended separation should be eight feet (2 x 4-foot shrub height = 8-foot separation). Separation is measured from the edge of the canopy of one shrub to another, not from trunk to trunk. The separation between shrub canopies should increase as the steepness of slope increases (see page 15).

Crowded stands of trees

In many mountain areas, coniferous trees occur in dense, overcrowded stands where their branches are touching or interwoven. These conditions contribute to the risk of an uncontrollable and possibly catastrophic crown fire (wildfire burning through the tree canopies, independent of the understory vegetation). To address this problem, create a separation between trees within the defensible space area. This is typically accomplished through tree removal or thinning of the stands.

Make sure there are no ladder fuels within your defensible space

Sometimes plants serve like rungs of a ladder, they can carry flames from fuels burning at ground level, such as dead grass and weeds, to taller fuels such as shrubs, which ignite still taller fuels such as tree branches.

The ladder fuel problem can be remedied by raising the height of the upper fuel layer by removing lower tree branches or reducing the height of lower fuel layers by pruning or removing tall shrubs or small trees (see the defensible space diagram).

Within the defensible space area, a vertical separation between fuel layers of at least three times the height of the lower fuel layer is recommended. If a shrub growing adjacent to a pine tree were three feet high, the right separation would be nine feet (3 feet x 3 = 9 feet). You could remove the lower tree branches or reduce the height of the shrub, or both.

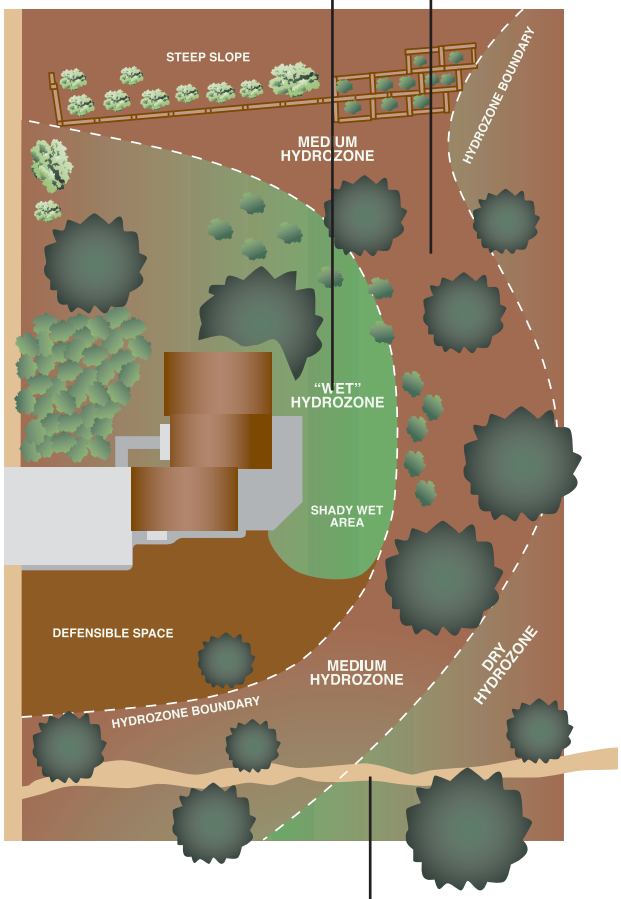
Landscaping in Wildfire-Prone Areas

Zone 1: "Defensible Space"

30'to 100' min. on level ground depending on local regulations 200' on slopes of 40°.

Zone 2: The Mid-Zone

30'-70' min. on level ground.



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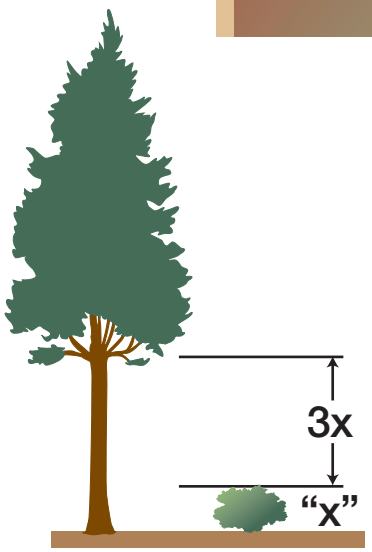
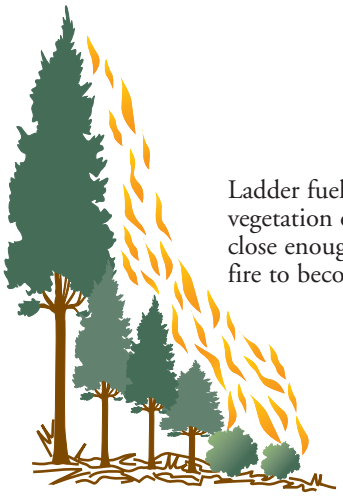
Zone 3: Outermost Zone

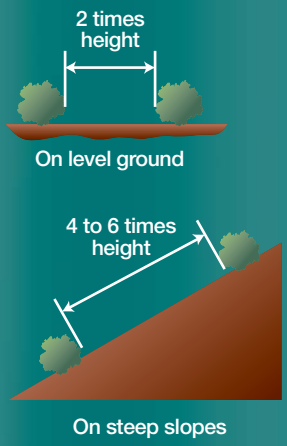
Outer perimeter no closer than 70'-100' from house on level ground (200' is better).



Removal of ladder fuels should provide a separation of three times the height of the lower fuel layer.

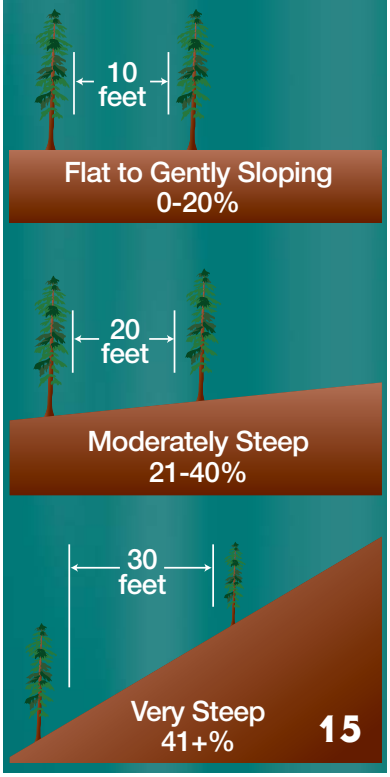


Ladder fuels are created when vegetation of different heights is close enough to allow a surface fire to become a crown fire.



Maintain adequate space between ornamental or wild shrubs.

The recommended separation distance between tree canopies within the defensible space area varies from 10 to 30 feet depending on slope.



Public agencies and some local homeowners associations have fuel reduction requirements. Below are those for the Arrowhead Woods Architectural Committee (AWAC):

AWAC Fuel Reduction Requirements

Within 10 feet of roads and driveways, and areas within 100 feet of any structure, or to property lines, whichever is less:

- Thin shrubs to spacing of eight to 12 feet between individual plants or groups of two or three plants.
- Thin trees less that measure one foot or less in diameter at a height 4.5 feet above the ground to a 12 to 16-foot spacing between individual trunks (except for birch alder, aspen, oak, and dogwood species). Removing live trees more than six inches diameter requires AWAC approval.
- Remove trees with a mature height greater than 20 feet under power lines.
- Raise tree canopies. Trees taller than 45 feet should have branches trimmed back to the trunk if any portion is less than 12 to 15 feet above the ground. A tree less than 45 feet should be trimmed up one-third of its height. Branches should be trimmed to the trunk. Trim complete branches with any part less than 10 feet from chimney openings. Any tree trimming requires AWAC approval.
- Remove all dead burnable fuels, ground debris, dead trees, dead branches in shrubs, grass four inches and higher, pine needles/leaves deeper than two inches. Do not remove the naturally occurring "duff." Duff is a layer of partially and fully decomposed organic material lying below the raw pine needles or leaves and immediately above the mineral soil. Stack cut logs or firewood 30 feet from any structure.
- Reforesting your property. Do not overplant. Identify where mature trees best fit. Only select trees zoned for this climate. Properly spaced trees will grow fuller and healthier. A "healthy" acre of land should have about 40 various sized trees.
- Chip all generated litter or haul to the transfer station within one week. Hire a licensed pesticide applicator to spray green pine or fir logs or trimmed pine and fir tree trunks. Spread a thin layer of sporax on the tops of all cut pine, cedar, and fir stumps within two hours of cutting.

Exceptions to this practice are:

- Removal of lower tree branches should not exceed half of the tree's total height.
- Lower tree branches should be removed to at least seven feet in height when no understory vegetation is present.
- Lower branches on shrubs taller than three feet should be removed to provide at least 12 inches of separation from the ground.

Step Three: Choose plants for defensible space areas

Once you have accomplished the steps above, you may want to go further and plant to enhance your defensible space. This can be fundamental to the effectiveness of the defensible space you are creating. In addition to choosing plants to meet needs such as providing shade, adding color, and controlling erosion—you can choose plants rated as having a low fire hazard.

Unfortunately, there are no fireproof plants. Any plant can burn during extreme fire conditions. There are, however, important differences in flammability. Some plants are more difficult to ignite, burn more slowly, produce less heat, and have shorter flame length.

Plants that have the following characteristics are likely to be more fire resistant:

High moisture content:

These plants are more difficult to ignite and burn more slowly. Green, healthy and actively growing herbaceous plants (grasses, groundcovers and flowers) have a much greater moisture content than woody plants (shrubs and trees).

When dried out, however, herbaceous plants possess much lower moisture content than woody plants. If kept green throughout the fire season by irrigation, grasses and flowers are usually more desirable than woody plants in the defensible space area. Mow them down when they dry out.

Low growing habit:

Plants that grow close to the ground usually produce shorter flames and have less fuel than taller plants. Select plants that grow to a height of less than 18 inches at maturity, or plants that can be readily maintained at this height by pruning.

Low fuel volume:

Plant species produce highly variable volumes of fuel. Select plants that produce small amounts of vegetation and have stems and branches less than half inch in diameter.

Desirable chemical content:

Avoid selecting plants with resinous, oily or waxy plant parts such as juniper, manzanita, sagebrush, and arborvitae. These evergreen plants possess an undesirable chemical content that increases their flammability. Where fire hazard ratings for landscape plants were available, they are listed in the plant list in Chapter Six.

Step Four: Maintain for fire safety

Again—lean, clean and green—should be your watchwords. Keep your landscape lean by reducing, removing or replacing the most flammable vegetation within your defensible zone. Keep it clean—make sure there is no accumulation of dead vegetation or other flammable debris. Keep it green—make sure plants are healthy and green during the fire season.

Creating a defensible space should not be viewed as a one shot effort. Maintaining an effective defensible space is an ongoing process. The manner in which plants are maintained is just as important as plant selection. For example, plants identified as having a lower fire risk than others can be a hazard without proper irrigation, pruning and removal of dead leaves and branches. Likewise, the risk associated with high-hazard plants can be reduced through appropriate cultural practices.

Step Five: Integrate defensible space and water quality protection

When creating a defensible space around your home be aware of water quality concerns. If misapplied, defensible space practices can encourage erosion. Incorporate the following erosion control concepts into your defensible space plan:

- Don't remove all vegetation from the defensible space zone.
- If plant removal results in patches of exposed soil, revegetate with appropriate plants.
- When breaking up dense, continuous brush fields on steep slopes, create groups or islands of shrubs staggered horizontally across the slope to prevent runoff.
- Pine needles should be removed to a thickness of between one and two inches —more is a hazard and less promotes erosion.
- When removing vegetation, leave the roots to hold the soil, especially on slopes try to minimize soil disturbance.

CHAPTER FIVE: Maintain Natural Areas through Backyard Forestry

The forest in many Southern California mountain areas has been changed by both fire and as a result of bark beetle attacks on aging drought-stressed trees. This situation was worsened because the forest was overcrowded. The result of these changes is that the character of the forest we know and love will change from one dominated by pine trees to one dominated by firs, cedars, and oaks in many areas. While reaction to the loss of so many trees may be to want to replant, it is important to stop and understand that the character of the forest we create today will be the forest for future generations.

We must avoid the mistake of overcrowding, or too many trees in too little space. We should also strive to maintain a natural forest character, apart from the garden areas around our homes where ornamentals are suitable. Reforesting should be limited to species that will not need supplemental water or fertilizer to thrive.

The edges of our mountain communities blend into the edges of the forest. What we do in the urban part of the forest has an effect on the forest as a whole. Before making decisions about whether and what to replant, consider the following:

- Are there still enough trees on my property?
- Do the trees have enough room to grow to maturity?
- Are there trees too close to buildings, driveways, and roads?
- Where should I plant new trees?
- When I consider defensible space, how would new trees fit in? (See Chapter Four)

Maintain your native vegetation

One of the reasons people live in mountain communities is the scenic beauty. Lakes, slopes, seasonal changes and ecosystems make this one of the most beautiful places in the world. Native plants including trees, shrubs, wildflowers and grasses, are a major part of this inherent beauty.

Beyond the importance of native vegetation for beauty, native plants are also critical to the habitat of animals that live in the mountains. Native vegetation lessens the impact of human activities. Buildings, roads, traffic and people can affect the forest ecosystem in negative ways. When we choose to maintain native vegetation on our properties, in addition to the gardens and defensible areas we create around our homes, we reduce human impact on the ecosystem.

The value of native vegetation to the ecosystem is paralleled in many ways by its economic value to human residents. A forested landscape with a diverse complement of native plants makes property attractive and desirable, protecting property value.

How much native vegetation do you have on your property? If you have recently built a new home, are there plants in areas not disturbed by vehicles or equipment during construction? Are there trees, shrubs, or other plants that appear to be in their natural state? This is your native vegetation.

How healthy is your native vegetation? Has it been damaged by human activities or pests? If so, you can care for it so it remains a viable part of your landscape.

Check the health of your native vegetation

Basic growth requirements for plants are sunlight, water, nutrients and space. When all of these are available, plants are usually healthy. To tell if a plant's needs are being met, look at the plant's appearance. Leaf color, leaf size and the amount of foliage are good indicators of plant health.

Normal foliage color of mountain natives varies among species, from pale yellow-green to deep forest-green to blue-green. Compare the plants on your property with the same species on similar sites. Lighter, yellowish color often means a root problem, drought, soil compaction, poor nutrition or disease.

Browning or reddening of plant foliage in patches is often a sign of insects, foliage disease or a broken branch. Widespread or complete color change of a tree is often a sign of damage to the growing layer just under the bark, the result of heat, drought, fungus, or insects feeding in this layer.

Healthy plants have fuller, or thicker, foliage than stressed plants. A plant with thinning foliage is under stress. Unless the stress is identified and eliminated, the plant continues to decline, or it succumbs to secondary problems like insects or disease.

Recommendations for healthy vegetation

Maintenance practices like watering, fertilizing and staking are typically not necessary for most mountain area native plants. In fact, they can harm plants that aren't used to them. What's important is to prevent damaging native plants, directly by physical contact, or indirectly by altering their growing site.

Avoid physical damage

Physical damage is the most obvious and easiest to avoid. Avoid striking plants with vehicles, including snow removal equipment. Plan ahead and locate driveways away from vegetation. You can also damage trees by using them as utility poles or fence or signposts.

Although not visible, most of a plant lies below the ground. A plant's root system is often as wide as the crown of the plant. Any ground disturbing work under the crown may damage or injure the root system. Keep this in mind when digging or excavating. Trenches and slope cuts should be located well outside a plant's drip line to avoid damage to the root system.

Roots are susceptible to damage indirectly from soil erosion, soil compaction or addition of new soil on top of the old. These activities make it difficult for roots to grow; they're deprived of necessary air and water.

Bark beetles and other pests

Bark beetles occur naturally in our mountain area and are a natural part of the forest ecosystem. They enter trees through the bark and breed in this area, eventually killing the tree.

There are no effective pesticides that can be applied from aircraft, as beetles must come into contact with the chemical when entering or leaving the trunk bark. Widespread control by clearing stands of trees adjacent to infected areas is not feasible because beetles can fly as much as eight miles in a single flight. An infested tree will begin to show brown needles and often have globs of sap on the trunk. The natural breakdown of insecticides requires that the trees be retreated every six to eight weeks during summer and fall.

Pesticides Astro®, Dragnet®, and Sevin® are licensed for use against bark beetles in California and have been shown effective against western pine beetles. The trunk and large branches must be thoroughly treated as high up as possible.

There are other native inhabitants, such as parasitic dwarf mistletoe and root-decay fungi that make a living at the expense of local trees. In wild forest areas, these organisms serve important ecological functions. However, when they do their work in home landscapes where individual plants have high value, they can become pests and may require control to protect plants.

Application of pest control chemicals and fungicides must be done with care and often only can be done by licensed professionals. They should be used only as a part of an integrated approach to plant health. A preferred approach is to plant pest resistant species and create a healthy environment for plants with appropriate watering, fertilizing, and pruning. Remove weeds by mowing or hoeing. Encourage natural pest predators such as birds and ladybugs.

Contact your local state forestry office or licensed pest control applicator for control recommendations if you suspect a forest pest affects your trees.

Fertilizing

Unlike plants in the landscaped area of your property, native vegetation rarely needs fertilization. Native vegetation gets its nutrients from the natural forest mulch that covers the soil and slowly decomposes, releasing nutrients. Often it is better to maintain a one to two inch layer of needles or leaves in the landscape than it is to apply manufactured fertilizers. Fertilize plants only when they need it and with great care to ensure that no fertilizer escapes in runoff. New native plants may benefit from fertilization if the soil has been disturbed or in nutrient poor soils when you are trying to get a young plant established.

Prune for health and safety

The best time to prune conifers is late fall, winter, or early spring. Prune only to create a defensible zone (see Chapter Four); to remove dead, damaged, or diseased branches; to eliminate limbs in walkways; or to provide for fire safety. If a young conifer has a forked top, prune out one of the two tops or leader.

Deciduous trees are pruned in the fall after a few hard frosts or in early spring before buds show evidence of swelling. Prune broken limbs whenever they are found. Do not leave long branch stubs, they will not heal and will leave trees open to infectious diseases.

General pruning tips

- Do not top trees or leave flat tops.
- Do not cut into the branch collar. The branch collar determines the angle of the cut.
- Do not leave stubs.
- Do not paint or seal wounds or cuts.

Avoid using chipped "green" prunings or trimmings as mulch closer than three feet to any pine tree.

Thin trees as necessary

Trees suffer when light, water, nutrients and growing space is limited or there are too many trees sharing the resources. Overcrowding weakens trees and makes them susceptible to insects and disease. These reasons plus the need to create defensible space make removal of trees growing too close together desirable. Using the guidelines described below, select trees for removal that are deformed, have a thin crown or dead top, or show evidence of disease, insect damage or mechanical damage.

When thinning these smaller trees, consider the following:

- Young, vigorous trees grow fastest and with best form if they have 12 to 16 feet of growing space around them.
- Trees are best located at least 10 feet from buildings and pavement.
- Trees growing beneath other trees often cannot develop well, so removal should be considered.
- Trees under power lines should be removed if they will reach a mature height taller than 20 feet.
- Mature trees thrive with 18 to 24 feet of growing space around them.

Keeping a mix of plant species with varying age on your property lessens the chances of severe insect or disease problems. Species diversity also provides better habitat for wildlife. Sometimes open spaces create more growing area for weeds. Make sure these are cleared to fire safe standards.

Replanting natural areas

If you decide to plant new trees in the forested area on your property, remember a tree will eventually require a distance of 18 to 24 feet from other trees, measuring from trunk to trunk. This will provide it with enough room to grow without undue competition from other trees for water, nutrients and light.

Replacement trees may be planted closer together, 12 to 16 feet, if you are committed to thinning them as they grow larger. This closer spacing will allow for unexpected loss and keep invasive brush at bay. Thin trees less than one foot in diameter to ever increasing spacing. Continue this practice until trees in maturing stands are spaced a minimum of 18 to 24 feet apart. Always avoid planting trees within 10 feet of pavement or structures.

The primary reason to replant conifers on your property is to replace an aesthetic wildland forest environment where tree removal has degraded this landscape value. When planting to reforest try to plant to assure pleasing timbered vistas and choose species that will blend well with surviving native stands.

Trees recommended by the California Department of Forestry and Fire Protection for reforesting efforts include:

Conifers:

- White fir *(Abies concolor)*
- California incense cedar *(Calocedrus decurrens)*
- Coulter pine *(Pinus coulteri)*
- Jeffrey pine *(Pinus jeffreyi)*
- Sugar pine *(Pinus lambertiana)*
- Ponderosa pine *(Pinus ponderosa)*
- Bigcone Douglas fir *(Pseudotsuga macrocarpa)*

Broadleaf:

- Pacific dogwood *(Cornus nuttalli)*
- California black oak *(Quercus kelloggi)*
- Canyon live oak *(Quercus chrysolepsis)*
- Interior live oak *(Quercus wislizenii)*

Suitable Only Above 7,000 feet:

- Western juniper *(Juniperus occidentalis)*
- Pinyon pine *(Pinus monophylla)*

ABOUT PINES:

Some mountain residents may be surprised, in light of the 2003—2005 bark beetle infestation, to see the California Department of Forestry and Fire Protection recommend pines in the list on the left. Pines have been included for two reasons:

First: the recommendation to plant pines is based on the assumption that you will be raising native trees from seedlings, perhaps in pots for the first few years. Bark beetles will not attack these young trees (trunks less than two inches in diameter) and by the time the trees are beginning to mature, the 2003—2005 infestation will have subsided. Bark beetles are a natural part of the forest environment and will never vanish entirely. The infestation was a result of a combination of factors, including the overcrowded number of trees and a prolonged drought.

Second: native species listed to the left, including the pines, are the trees best suited to this climate and ecosystem. They are also the trees best suited to resist all native insects and diseases, not just bark beetles. They will also provide the best habitat and food source for native wildlife. If non-native trees are used to replace native trees in areas of high mortality, the fundamental make up of the mixed conifer forest that currently covers the mountains will be changed. It will be changed not only for the relatively short period of our lifetimes, but as many trees live hundreds of years, it will be changed for generations to come.

CHAPTER SIX: Plant List

The list is organized into three sections. The first section presents California native plants that can be useful when your landscaping goal is to reflect the character of the forest around your home.

The second list includes native species and plants from other dry climates that are widely adapted for gardens and that generally require less water and care than traditional ornamental species. Combine plants from this list with native species to achieve more diversity in your landscape.

The third section presents highly ornamental plants popular with mountain area gardeners. These plants generally require more water, fertilizer, and ongoing care than native species.

This plant list was developed with input from the public, water agencies, mountain area landscape professionals, the Arrowhead Woods Architectural Committee, the California Department of Forestry and Fire Protection, and horticulturists with experience in water conserving landscapes.

There is no such thing as the perfect tree or plant, any of those listed here will have advocates and detractors. The list is a work in progress and is intended to assist homeowners with making good choices. Consult with local nursery professionals for an even greater selection of the plants appropriate for our local environment.

NATIVE

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Flowers, Vines, and Groundcover							
Aquilegia spp	columbine	D, P	6-48” tall		M	L	generally available, lacy foliage, beautiful pastel flowers, will re-seed, replace every three years
Aquillegia Formosa	red columbine	D,P	1-2’ tall/ 2’ spread		L	U	nodding red and yellow flowers with stout straight spurs, seeds attract small birds
Armeria maritima	sea pink, common thrift	E, P	6-12” tall/ to 1’ spread		M	L	generally available, white-pink flowers
Asclepias fascularis	narrow-leafed milkweed	D,P	3-4’ tall/ 3-4’spread		L	U	to 7200’, blooms summer, attracts butterflies
Aster spp	true aster	D, P	6-36” tall		M	L	many varieties, showy flowers,
Clematis lasiantha	pipestem clematis	D, P	climber		L	U	to 6600’, showy white flowers, plume seed head in summer divide yearly
Dichelostemma capitatum	wild hyacinth	D,P	3’ tall/ 2’ spread	Any	L	U	to 12500’, showy dark green bunch grass with yellow flowers
Dudleya ssp.	live-forever	P	1’ tall/ 1’ spread		L	U	abramsii, cymosa to over 8500’, saxosa to 6,600’, succu-lent with large open rosette of thick leaves, long flower stems
Epilobium latifolium	hummingbird trumpet	P	2’ tall/ 3’ spread		L	U	to 9000’, woody, bright red trumpet shaped flowers attract hummingbirds

Character:
E: Evergreen
D: Deciduous
A: Annual
B: Biennial
P: Perennial

Fire Hazard:
L: Low
M: Medium
H: High
U: Unknown

H_2O:
VL: Very low moisture zone
L: Low moisture zone
M: Medium moisture zone
H: High moisture zone

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Eriophyllum confertiflorum	golden yarrow	D,P	2' tall/ 3' spread		L	U	to 8000', grey foliage, bright orange-yellow flowers
Frageria californica	woodland strawberry	P,E	1' tall/ 3' spread		L,M	U	evergreen creeping groundcover, showy white flowers, tasty berries
Heuchera sanguinea	alumroot, coral bells	P	1.5-2.5' tall		M	L	generally available
Iris douglasiana	Douglas iris	P	1' tall/ 2' spread	Any	L	U	to 8000', clumping habit, white to purple flowers, border
Lilium humboldtii	Humboldt lily	D,P	5' tall/ 1' spread		L	U	tall grass, broad leaves, large flowers and seed heads
Linum lewisii	Lewis flax	D, P			M	L	generally available
Mahonia repens	creeping barberry	E	4-8" tall/ 1-3' spread		L	L	to 7000', generally available, bristle-tipped leaves, yellow flowers, blue berries
Mimulus cardinalis	scarlet monkeyflower	D,P	1-4' tall/ 4' spread	Any	L	U	dark green shrub with narrow leaves, crimson to brick red flowers
Monardella odoratissima	mountain pennyroyal	D,P	1' tall/ 3' spread		L	U	to 10200', trailing fragrant, profuse rose/purple flowers, attracts butterflies
Muhlenbergia rigens	deer grass	E, P	2-3' tall/ 2-3' spread		L		to 7100' generally available, holds green color in summer
Oenothera elata	yellow evening Primrose	D,B	1'-4' tall/ 1' spread	Any	L	U	to 9000', tall yellow flowering stalks
Penstemon centranthifolius	scarlet bugler	D,P	1-2' tall/ 1' spread		L	U	to 6500', showy scarlet flowers, narrow gray-green leaves
Penstemon grennellii	Grinnell's penstemon	D,P	2' tall/ 3' spread		L	U	to 9500', large pale lavender flowers, lime green leaves
Penstemon heterophyllus	foothill penstemon	D	1-1.5' tall/ 1-2' spread		L	L	to 5500', generally available, spike-like clusters of rosy lavender to gentian blue flowers, sometimes called Blue Bedder penstemon
Potentilla glandulosa	bush cinquefoil	P	2' tall/ 3' spread	Any	L	U	to 8000', small cream to yellow flowers
Salvia sonomensis	creeping sage	E	9-12" tall/ 3-4' spread		L		generally available, violet blue flowers, will grow on slopes, in rock gardens, light pruning
Salvia apiana	white sage	P	3-5' tall/ 3-5' spread	Any		U	lower elevations, aromatic, lavender-white flowers
Salvia dorii	blue sage	P	1-3' tall/ 2-4' spread	Any	L	U	to 8500', long stems of 1" blue flowers, needs good drainage
Salvia mellifera	black sage	P, E	3-6' tall/ 3-5' spread	Any	L	U	tightly packed whorls of whitish to lavendar flowers that attract butterflies, bees, good for dry slopes
Salvia pachyphylla	sage	P	3' tall/ 3-5' spread	Any	L	U	to 8200', purple-blue flowers
Solidago californica	California goldenrod	P	1-2' tall/ 3' spread		L	U	to 7500', low, spreading showy golden yellow flowers
Sphaeralcea ambigua rugosa	apricot mallow	D, P	1.5-3' tall/ 1.5-3' spread		L		to 8000' generally available, yellow stems, light gray green leaves, apricot-colored flowers
Shrubs							
Amelanchier alnifolia	western serviceberry	D	15-30' tall		M	U	generally available, flowers, fall color, many species and cultivars available
Amorpha californica	false indigo	D	4-9' tall/ 3-6' spread		M		slender shrub, heavily-scented foliage, spreading root system, red-purple flower clusters
Apocynum androsaemifolium	spreading dogbane		8-16" tall/ 1-3' spread		L		light green leaves, pink flowers, perennial herb dies back to ground
Apocynum pumilum	mountain dogbane		6-12" tall/ 1-2' spread		L		to 7000', light green leaves, pink flowers, perennial herb dies back to ground
Arctostaphylos 'Emerald Carpet'	manzanita	E	9-14" tall/ to 6' spread		VL	L	generally available, small pink flowers
Arctostaphylos densiflora 'Howard McMinn'	manzanita	E	5-6' tall/ 6-7' spread		L	M	generally available, white or pink flowers
Arctostaphylos glandulosa	eastwood manzanita	E	4-8' tall/ 4-8' spread		L	H	to 7200', smooth red brown bark, gray-green leaves, white flowers, edible red berries, excellent erosion control

Lodgepole Pine (*Pinus murrayana*)

Iris douglasiana

Mimulus cardinalis

Penstemon centranthifolius

Salvia apiana

Salvia spp

Arctostaphylos densiflora 'Howard McMinn'

NATIVE

Arctostaphylos pungens

Arctostaphylos uva-ursi

Atriplex canescens

Cercocarpus betuloides

Ceanothus prostratus

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Arctostaphylos patula	greenleaf manzanita	E	3-6' tall/ 5-10' spread	☼	L	H	to 11000' bright green foliage, red-brown branches, pinkish flowers
Arctostaphylos pringlei drupacea	pink-bracted manzanita	E	6-12' tall/ 5-10' spread	☼	L	H	to 7900',red-brown bark, gray-green leaves, pink flowers, edible red fruit attracts wildlife
Arctostaphylos pungens	Mexican manzanita	E	6-9' tall/ 6-8' spread	☼	L	H	to 7400', erect, bright to dull green foliage, red-brown bark, white flowers
Arctostaphylos uva-ursi	bearberry, kinnikinnick	E	6-12" tall/ 1-15' spread	◐	L	M	to 10500'generally available, excellent,slow to establish, bright green leaves, white-pink flowers
Atriplex canescens	four-wing saltbush	E	3-6' tall/ 4-8' spread	☼	L	VL	to 7600',generally available, space 4' apart, good in clipped and unclipped hedges, fire retardant, narrow gray leaves, use in mass plantings
Atriplex hymenelytra	desert holly	E	1-3' tall/ 1-3' spread	☼	VL	L	generally available, whitish bark with silver, deeply toothed leaves, Christmas holly look only white, much used for decoration, short-lived
Atriplex lentiformis	quail bush	D	3-10' tall/ 6-12' spread	☼	L		generally available, densely branches, oval bluish gray leaves, useful hedge where salt tolerant plant needed
Atriplex lentiformis breweri	Brewer saltbush	E/D	5-7' tall/ 6-8' spread	☼	L	VL	generally available, space plants four to six feet apart, can be hedge sheared, fire retardant, like quail bush but no spines
Brickellia californica	California brickellbush		1.5-3' tall/ 1.5-3' spread	☼	L		to 8000' somewhat straggly, aromatic, yellowish-white flowers good erosion control
Ceanothus cordulatus	snow bush, mountain whitehorn	E	3-6' tall/ 6-8' spread	☼	L	U	small gray-green leaves, stiff white branches, white flower clusters, no water after first year, lives to 10 years
Ceanothus cuneatus	common buckbrush	E	3-10' tall/ 3-10' spread	☼	L	U	to 6000', rigid branches, small gray-green leaves, white flowers, no water after first year, lives to 10 years
Ceanothus greggii perplexans	cupleaf ceanothus	E	3-6' tall/ 3-6' spread	☼	L	U	to 7600', generally available, erect, rigidly-branched, gray bark, thick yellow-green leaves, white flowers, no water after first year, lives to 10 years
Ceanothus pinetorum	kern ceanothus	E	6-48" tall/ 2-12' spread	☼	L	U	above 5400', rooting red-brown branches, dark green leaves, whitish blue flowers, no water after first year, lives to 10 years
Ceanothus prostratus	squaw carpet	E	6-12" tall/ 3-8' spread	◐	L	M	to 6600', excellent groundcover, thick light green leaves, blue flowers, no water after first year, lives to 10 years
Ceanothus 'Sierra Blue'	ceanothus	P,E	8-15' tall/ 10' spread	☼	L	U	light blue flowers, rapid growth
Ceanothus thyrsiflorus	blue blossom	E	6-21' tall/ 8-30' spread	☼	L		generally available, light to dark blue flower spikes, no water after first year, lives to 10 years
Cercis occidentalis	western redbud	D	6-15' tall/ 4-10' spread	◐	VL		to 5000', generally available, showy magenta-pink flowers preceed light green leaves, multi-trunked small tree or shrub
Cercocarpus betuloides	birch-leaf mountain mahogany	E	6-21' tall/ 6-21' spread	☼	VL	M	to 8200', generally available, spreading branches, small leaves, showy feathery white seeds
Cercocarpus ledifolius	curl-leaf mountain mahogany	E	6-27' tall/ 6-27' spread	☼	L	H	4000'-9200', red-brown furrowed bark, leathery narrow leaves, showy feathery white seeds
Chamaebataria millefolium	fern bush, desert sweet	D	1.5-6' tall/ 1.5-6' spread	☼	L		fragrant fern-like foliage, white flowers, Sierra native
Chrysolepis castanopsis sempervirens	bush chinquapin	E	1-8' tall/ 3-12' spread	☼	L	H	above 6000', low spreading round-topped shrub, yellow-green foliage

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M: Medium
H: High
U: Unknown

H_2O:
VL: Very low moisture zone
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botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Chrysothamnus nauseosus	(rubber) rabbitbrush	D	1-1.5' tall/ 1-2' spread	☼	L	H	above 6000', white branches, bright green narrow leaves, yellow flowers in fall, deep penetrating roots
Chrysothamnus viscidiflorus	sticky rabbitbrush	D	1-2.5' tall/ 1-3' spread	☼	L		above 6000',white branches,sticky green leaves, fall yellow flowers
Corylus cornuta californica	western hazelnut	D	5-12' tall	◐	M		below 7000', small spreading multi-trunked shrub, bright yellow leaves in fall, small tasty nuts
Dendromecon rigida	bush poppy	P,E	3'-10' tall/ 8' spread	☼	L	U	yellow flowers, needs drainage
Ericameria cuneata	compact goldenbush	P	1' tall/ 2-3' spread	◐	L	U	to 9000', tiny deep green leaves, yellow disk-like flowers
Eriodictyon trichocalyx	yerba santa		2-7' tall/ 2-7' spread	☼	L		aromatic sticky dark green leaves, white flowers, invasive roots
Eriogonum fasciculatum polyfolium	California buckwheat	E	8-20" tall/ 1-2' spread	☼	L	H	to 7000', gray-green leaves, white flowers, widespread species, mountain source recommended
Eriogonum umbellatum	sulfur-flowered buckwheat	E	8-24" tall/ 1-1.5' spread	☼	L	U	generally available, cushion plant, gray foliage, showy yellow flowers
Eriogonum wrightii subscaposum	Wright's buckwheat	P	4-10" tall/ 1-1.5' spread	☼	L	U	mat plant, dense small gray leaves, pink flowers, mountain source recommended
Eriophyllum lanatum obovatum	woolly sunflower		8-16" tall/ 6-18in spread	☼	L		white-haired leaves, showy yellow flowers
Euphorbia palmeri	wood spurge		4-14" tall/ 6-12" spread	☼	L		soft medium green leaves, inconspicuous flowers
Fallugia paradoxa	apache plume	E/D	3-8' tall	☼			to 6600',generally available, flowers like single white roses
Fremontodendron californicum	flannel bush	E	4-12' tall/ 6-15' spread	☼	VL	H	to 7500', generally available, spreading branches, very showy yellow flowers, bristly seed capsules
Garrya fremontii	fremontsilk tassel	E	4-8' tall/ 4-8' spread	◐	L	H	generally available, can eventually reach tree-like proportions, dark green leaves with undulating margins, long yellow or purple catkin-like flowers
Garrya flavescens	pale tasselbush, ashy silktassel	E	4-9' tall/ 4-9' spread	☼	L	H	stiff, gray-green leaves, long silky catkins
Heteromeles arbutifolia	toyon	E	6-25' tall	☼	VL	M	low elevations, thick leathery glossy green leaves, dark red winter berries attract birds
Holodiscus microphyllus	ocean spray	D	1-6' tall/ 2-8' spread	☼	L		above 5500', generally available, spreading branches, white flower clusters
Juniperus californica	California juniper	E	3-12' tall/ 3-10' spread	☼	L	H	to 5000', generally available, fine scale-like bright green foliage, blue to brown-red berries
Juniperus osteosperma	Utah juniper	E	9-18' tall/ 8-15' spread	☼	L	H	fine scale-like light yellow green foliage, red-brown berries
Mahonia aquifolium	Oregon grape	E	3-6' tall/ 3-6' spread	☼	M	L	to 7000', generally available, glossy spine-tipped dark green leaves, purplish, bronzy winter leaves, yellow flowers, blue fruit, native to northern California, Oregon state flower
Mahonia nervosa	longleaf mahonia, dwarf Oregon grape	E	to 2' tall	●	M	U	spreads by underground stems, leaves cluster at stem tips, makes good cover, low barrier planting, yellow flowers in upright clusters April-June, blue berries
Penstemon spectabilis	showy penstemon	E	2-4' tall/ 2-4' spread	◐	L	L	to 7900', generally available, likes disturbed sites, lavender-purple and blue flowers
Prunus ilicifolia	hollyleaf cherry	E	15-20' tall	☼	M	H	to 9500', generally available, deep green rigid, twisted leaves with spines on margins, showy creamy white flowers in spring, good for hedges, erosion control
Purshia glandulosa	antelope bush, bitterbrush	E	2-8' tall/ 2-8' spread	☼	L	H	to 10000',much branched dark green small-leaved shrub, creamy yellow flowers

Chrysothamnus nauseosus

Eriogonum fasciculatum polyfolium

Fremontodendron californicum

Garrya elliptica

Juniperus californica

Mahonia aquifolium

NATIVE

Rhamnus or californica

Ribes aureum

Rosa californica

Sambucus caerulea

Arbutus menziesii

Calocedrus decurrens

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Rhamnus californica	coffeeberry	E	3-15' tall/ 3-15' spread		L	U	generally available, spreading or upright, large berries green to red to black when ripe, many cultivars, size and spread vary
Rhamnus crocea	redberry, holly leaf buckthorn	E	2-5' tall		M		generally available, leaves glossy dark to pale green above often finely toothed, tan to golden below, small bright red fruit in fall
Rhus trilobata	basket sumac	D,P	3-5' tall/ 4' spread		L	U	creamy flower clusters, hardy, brilliant yellow to red fall color
Ribes alpinum	alpine currant	D	4-5' tall			U	generally available, attractive berries, good hedge plant
Ribes aureum	golden currant	D	3-6' tall		L	U	to 9800', generally available, attractive berries, small bright yellow spicy fragrant flowers
Ribes nevadense	mountain pink	D			M	U	
Ribes roezlii	Sierra gooseberry	D	1-4' tall/ 1-4' spread		L	U	to 9200', spiny branches, purplish flowers, purple berries
Rosa californica	California wild rose	P	3-6' tall/ 5' spread	Any	L	U	single pink fragrant flowers
Rubus leucodermis	western raspberry	D	3-6' tall/ 5-10' spread		L	L	some erect, some sprawling, rooting prickly stems, white flowers, red-purple or black edible berries
Sambucus caerulea	blue elderberry	D	4-10' tall		M	U	clusters of blue to black berries in fall, usually covered with whitish powder, used in jams and jellies
Solanum xantii	purple nightshade	D,P	1-2' tall/ 3' spread		L	U	purple flowers, good accent, long season
Symphoricarpos albus	common snowberry	D	2-6' tall		M	U	pink flowers in May-June, white berries from late summer through winter
Symphoricarpos mollis	creeping snowberry	D	1-1.5' tall/ 1-4' spread		M	U	low trailing plant, soft medium green leaves, pink flowers, white berries
Trichostema parishii	Parish's (mountain) blue curls	E	2-5' tall/ 2-5' spread		L		to 6000', yellow green narrow leaves, spikes of blue flowers with pink wool on stems
Zauschneria californica	California fuschia	E/D, A	6-24" tall/ 6-24" spread		L	L	generally available, trailing branches, gray green leaves, scarlet flowers, best from mountain source, attracts birds
Trees							
*Abies concolor**	white fir	E	60-200' tall		M	H	to 10000', large, very symmetrical tree, slower growing in California gardens, bluish green
Acer circinatum	vine maple	D	5-35' tall		M	L	in shade can become sprawling and vine-like with spectacular fall color, can be espaliered, single trunked small tree in full sun
Acer macrophyllum	big leaf maple	D,P	10-40' tall/ 20' spread		M	U	multi-branch trunk, fast growing, good fall color
Acer negundo spp. Californicum	Box elder	D, P	20' tall/ 15' spread	Any	L	U	compound leaves, round headed shade tree
Alnus rhombifolia	white alder	D	50-90' tall/ to 40' spread		H	L	to 5000', generally available, tall light gray trunk, open rounded crown, small persistent cones attractive in winter, seeks water, plant away from sewer lines
Arbutus menziesii	madrone	E	20-100' tall		L		to 5000', generally available, smooth reddish brown bark that peels in strips, white to pink flow ers at branch tips in spring, red and orange berries, broad round head of foliage
*Calocedrus decurrens**	California Incense-cedar	E			M	H	to 8200' generally available
*Cornus nuttallii**	pacific dogwood, western dogwood	D	15-50' tall/ to 20' spread		M		to 6500', gray-barked branches, leaves green above, grayish green beneath, decorative red to orange red fruit in buttonlike clusters, white flower bracts, do not injure bark, reacts unfavorably to routine garden watering, fertilizing, pruning

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Cupressus arizonica	Cuyamaca cypress	P, E	20-40' tall/ 25' spread		L	U	fine symmetrical form, good wind break
*Juniperus occidentalis***	western juniper	E	75-100' tall		L	H	above 7000', generally available, red bark, fine scalelike leaves
Lithocarpus densiflorus	tanoak, tanbark oak	E	40-50' tall		L	M	low elevations, generally available
*Pinus coulteri**	coulter pine	E	40-80' tall		L	H	to 6000', generally available, large spread, long needles, large sharp heavy cones (hazardous)
Pinus edulis	Pinyon pine	P, E	10-20' tall/ 20' spread		L	U	slow growing, stately conifer, higher elevations
*Pinus jeffreyi**	Jeffrey pine	E	70-120' tall		L	H	above 6000', vanilla-like bark odor, appears similar to ponderosa pine
*Pinus lambertiana**	sugar pine	E	to 200' tall		M	H	avoid currants and goose berries nearby as they are hosts to white pine blister rust
*Pinus monophylla***	singleleaf pinyon pine	E	10-25' tall		L	H	above 7000', generally available, edible nuts, wildlife value, good for harsh sites, rock gardens
Pinus monticola	western white	E	60' tall/ 20' wide		M	H	pyramidal with spreading drooping branches
*Pinus murrayana***	lodgepole pine	E	45-120' tall		M	H	above 7000', cornflake-like bark, high elevation sites, lower on north slopes with cold air drainage
*Pinus ponderosa**	ponderosa pine	E	50-150' tall		L	H	handsome orange-brown bark in plates, useful in groves, shelter belts
Populus tremuloides	quaking aspen	D	20-60' tall		M	L	invasive in lawns, trunk and limbs smooth, pale gray green to whitish, dainty, light green, round leaves that flutter and quake in slightest air movement, brilliant golden yellow fall color, needs moist soil
*Pseudotsuga macrocarpa**	big cone spruce	E	to 60' tall		M	H	to 6000', generally available, 4 to 7 1/2 inches
*Quercus chrysolepis**	canyon live oak	E	20-60' tall		VL	U	to 6500', generally available, short trunk, spreading branches, egg-shaped acorns
*Quercus kelloggii**	California black oak	D	30-80' tall		L	H	generally available, long-lived hardy shade tree, stout spreading branches, susceptible to interior rot, attacked by fruit tree leaf roller
*Quercus wislizenii**	interior live oak	E	30-75' tall		L		short trunk, broad rounded crown, long pointed acorns
Sequoiadendron giganteum	big tree, giant sequoia	E	150-300' tall		M		generally available, trunk to 30 feet, fine foliage texture, not locally native but grows well
Umbellularia californica	California bay, Oregon myrtle	E	to 75' tall/ to 100' spread		L	M	to 5000', generally available, deep green-deep yellow green leaves aromatic when crushed, can be used as a substitute for bay leaf in cooking, typically grow only to 25 feet in gardens, often multitrunked

**** suitable for reforesting***
***** suitable for reforesting (Big Bear only)***

Cupressus arizonica

Pinus coulteri

Pinus monophylla

Pinus ponderosa

Umbellularia californica

Character:
E: Evergreen
D: Deciduous
A: Annual
B: Biennial
P: Perennial

Fire Hazard:
L: Low
M: Medium
H: High
U: Unknown

H_2O:
VL: Very low moisture zone
L: Low moisture zone
M: Medium moisture zone
H: High moisture zone

MIXED

Achillea spp

Cerastium tomentosum

Festuca ovina glauca

Amelanchier utahensis

Artemisia spp

Character:
E: Evergreen
D: Deciduous
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Fire Hazard:
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M: Medium
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U: Unknown

H_2O:
VL: Very low moisture zone
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botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Flowers, Vines, and Groundcover							
Achillea spp	yarrow	E	6-48" tall/ to 2' spread		L	L	generally available, many varieties, foliage gray-green to dark green, small to very large flowers, white, yellow, pinks
Ajuga reptans	carpet bugle	E, P	6-18" tall/ 6-18" spread		M		generally available, many varieties, showy flowers in spring, dark green mat of lustrous leaves
Cerastium tomentosum	snow-in-summer	E, P	6-9" tall/ 2-3' spread		M		generally available, silvery gray foliage, snowy white masses of flowers in summer, can look shabby in cold winters, revives quickly in spring
Festuca ovina glauca	blue fescue	E, P	4-10" tall		L	L	generally available, tufted clumping grass
Helianthemum nummularium	sunrose	E, P	6-8" tall/ 2-3' spread		L	M	generally available, good in rock gardens, many types with different flower colors
Linum perenne	blue flax	D, P	to 2' tall			L	escapes, most vigorous blue-flowered flax with stems to 2 ft., usually leafless below, branching clusters of light blue flowers, profuse from May-Sept., flowers close in shade or late in the day, self-sows freely
Lupinus polyphyllus	lupine	D, P	1.5-4' tall		M	L	blue, purple or red flowers
Lupinus spp	lupines	D	varies		M	L	generally available, many natives available for higher elevations, for cultivars check cold tolerance
Parthenocissus quinquefolia	Virginia creeper	P, D	vine	Any	M		generally available, big, vigorous, clings or runs over ground, fence, trellis, good ground cover on slopes, can control erosion
Parthenocissus tricuspidata	Boston ivy	P	vine	Any	M		generally available, glossy leaves variable in shape, fast, dense, even wall cover
Rosmarinus officinalis 'Prostratus'	dwarf rosemary	E	1-2' tall/ 4-8' spread		L	M	generally available, pale lavender flowers
Verbena rigida	verbena	E/D, P/A	1-1.5' tall/ 3-4' spread		L		generally available, lilac to purple flowers in summer
Vinca spp	periwinkle	E, P	2-2.5' wide	Any	M		generally available, used as ground covers, pattern plantings, rough slopes and unused areas, can be extremely invasive in sheltered & forested areas, out-competing native & cultivated plants, shades of blue or white flowers, variegated foliage
Shrubs							
Amelanchier utahensis	Utah serviceberry	D	3-15' tall/ 3-10' spread		M	U	to 7000', small gray-green leaves, white flowers, yellow-orange fruit attracts wildlife
Artemisia stellerana	beach wormwood, old woman, dusty miller	E	1-2.5' tall/ 2-2.5' spread		L	L	woolly whitish leaves, yellow flowers
Artemisia tridentata	great basin (big) sagebrush	E	1.5-9' tall/ 1.5-9' spread		L	H	generally available, gray-green aromatic foliage, prominent shrub of Great Basin desert
Berberis thunbergii & Cultivars	Japanese barberry	D	4-6' tall		L		generally available, new foliage marbled bronzy red and pinkish white, deepening to rose and bronze, colors best in full sun or lightest shade
Buddleia davidii	common butterfly bush	D	3-10' tall		L	U	generally available, small fragrant flowers attract butterflies, cut back in spring
Cistus ladanifer	crimson-spot rockrose	E	3-5' tall/ 3-5' spread		VL	M	generally available, large 3" wide white flowers with red spots, dark green leaves with lighter green beneath, useful in big rock gardens, erosion control, fire resistant, can be left unwatered once established
Cistus salviifolius	sage leaf rockrose	E	to 2' tall/ to 6' spread		VL	M	generally available, small light gray green leaves, white 1 1/2" flowers with yellow spots, very profuse, good bank or ground cover, fire resistant, can be left unwatered once established

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Cistus villosus	rockrose	E	3-5' tall/ 3-5' spread		VL	L	generally available, oval 1-3" long leaves densely covered with down, large purplish pink flowers, fire resistant, can be left unwatered once established
Cotoneaster spp	cotoneaster	E/D	3-20' tall		L	L	generally available, many varieties, range from ground covers to small shrubs, to tall-growing shrubs, spring bloom, flowers white or pinkish
Gaillardia grandiflora	blanket flower	D, A	2-4' tall/ 2-3' spread		L	L	generally available, large yellow to orange blooms June through frost, can be planted on slopes for erosion control
Hypericum 'Hidcote' (H. patulum 'Hidcote')	St. Johnswort		to 4' tall		M	H	best in mild, moist areas, most kinds stand some drought but are better with water, flowers yellow, blooms all summer
Hypericum 'Rowallane'	St. Johnswort	E	3-6' tall			H	best in mild, moist areas, most kinds stand some drought but are better with water, flowers bright yellow
Hypericum beanii (H. patulum henryi)	Henry St. Johnswort	E	to 4' tall		M	H	generally available, best in mild, moist areas, most kinds stand some drought but are better with water, flowers brilliant golden yellow
Hypericum calycinum	Aaron's beard, creeping St. Johnswort	E	to 1' tall		M	M	generally available, best in mild, moist areas, stand some drought but are better with water, leaves green in sun, yellow green in shade, flowers bright yellow, takes poor soil, will control erosion on hillsides, can invade unless confined
Hypericum coris	St. Johnswort	E	6-12" tall			H	generally available, best in mild, moist areas, most kinds stand some drought but are better with water, flowers yellow
Hypericum kouytchense	St. Johnswort		1.5-2' tall/ 2-3' spread			H	generally available, best in mild, moist areas, most kinds stand some drought but are better with water, wide, pointed oval leaves, flowers golden yellow
Hypericum moseranum	gold flower	E	to 3' tall		M	H	best in mild, moist areas, most kinds stand some drought but are better with water, leaves blue green beneath, flowers golden yellow
Kniphofia uvaria	red hot poker	E/D	2-6' tall/ to 2' spread		L	L	generally available, many hybrids, yellow to orange flower stalks, cut back ragged foliage in fall
Lilac spp	lilac	D	3-20' tall/ to 20' spread		M	U	generally available, many varieties, flowers blue, purple, violet or white
Photinia fraseri	fraser photina	E	to 10' tall/ to 10' spread		M		generally available, white flowers attractive to birds
Prunus glandulosa	(pink) dwarf flowering almond	D	to 6' tall/ to 6' spread		M	L	pink or white flowers appear before leaves
Pyracantha spp	firethorn	E	varies		L		generally available, variety of landscape uses, most have thorns, glossy green leaves, oval or rounded at ends, clustered flowers are fragrant, dull creamy white, fruit vary in color, size, season, and duration, keep away from lawn sprinklers
Rosa banksiae	Lady Banks' rose, banksia rose	D/E	climber		L	M	leaves are divided into 3-5 leaflets, rich glossy green, stems are relatively free of thorns, showy yellow or white flowers
Rosmarinus officinalis 'Tuscan Blue'	rosemary	E	2-6' tall		L	H	generally available, rigid upright branches to 6' tall grow directly from base of plant, leaves are rich green, flowers blue violet
Santolina chamaecyparissus	gray lavender cotton	E	1-2' tall/ 2-3' spread		L		generally available, gray leaves, yellow flowers, clip back to one foot yearly
Santolina virens	green lavender cotton	E	1-2' tall/ 2-3' spread		L	M	generally available, deep green leaves with bright yellow flowers

Cotoneaster spp

Pyracantha spp

Rosa banksiae

Rosmarinus officinalis 'Prostratus'

Rosmarinus officinalis 'Tuscan Blue'

Santolina chamaecyparissus

MIXED

Cedrus atlantica

Cedrus deodara

Pinus brutia

Pinus eldarica

Prunus virginiana

Delphinium belladonna

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Spiraea bumalda 'Anthony Waterer'	dwarf red spiraea	D	2-3' tall		M	U	generally available, rounded, dense, narrow oval leaves 1-4" long, with maroon tinge, flowers bright carmine in flat-topped clusters, prune late winter, early spring
Spiraea bumalda 'Goldflame'	goldflame spiraea	D	3-4' tall		M	U	generally available, new leaves bronze, turning yellow as they expand, flowers rosy red, prune late winter, early spring
Spiraea douglasii	western spiraea	D	4-8' tall		M	U	suckering shrub with 1.5-3" leaves of dark green, velvety white beneath, useful in large-scale native plantings near creeks, flowers pale pink to deep rose in dense, steeped, 8" long clusters at ends of branches
Viburnum rhytidophyllum	leatherleaf viburnum	E	6-15' tall		M	U	generally available, narrow, upright, leaves narrowish, deep green and wrinkled above, densely fuzzy underneath, flowers off-white in clusters, fruit scarlet, turning black
Yucca glauca	small soapweed	E	to 2.5' tall/ to 3' spread	☀	L	L	generally available, stemless or short stemmed, leaves 1-2.5" long, summer flowers greenish white in tall narrow clusters
Trees							
Cedrus atlantica	atlas cedar	E	60' tall	☀	M	H	generally available
Cedrus deodara	deodar cedar	E	80' tall	☀	L	H	generally available
Cedrus libani	cedar of Lebanon	E	80' tall	☀	M	H	
Celtis occidentalis	common hackberry	D	to 50' tall/ to 50' spread	☀	L		generally available, deep rooting
Celtis reticulata	western hackberry	D	25-30' tall/ 25-30' spread	☀	L		generally available, worthwhile ornamental tree, with somewhat pendulous branches, strongly veined oval leaves with toothed margins, tiny red or brown berries eaten by birds
Pinus albicaulis	whitebark	E	20-40' tall	☀	M	H	low growing, prostrate to semi upright
Pinus brutia (Pinus halepensis brutia)	calabrian pine	E	30-80' tall	☀	L	H	classic pine shape, takes heat, wind, poor soil
Pinus eldarica	eldarica pine	E	30-80' tall	☀	L	H	generally available
Prunus lauroceracus	English laurel	E	to 30' tall/ to 30' spread	☀	M		generally available, leaves leathery, glossy dark green, flowers creamy white, small black fruit, fast-growing and greedy, difficult to garden under or around
Prunus virginiana	chokecherry	D	20-25' tall	☀	M	L	
Pseudotsuga menziesii	Douglas fir	E	70-250' tall	☀	M	H	generally available, pyramidal when young, dark green to blue green needles 3", reddish brown cones with three-pointed bracts, pretty spring growth

ORNAMENTAL

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Flowers, Vines, and Groundcover							
Alcea rosea (Althaea rosea)	hollyhock	B/P	to 9' tall	☀	M		generally available, big, rough, roundish heart shaped leaves more or less lobed, single, semi-double, or double flowers in white, pink, rose, red, purple, creamy yellow, apricot
Campsis radicans (Bignonia radicans)	common trumpet creeper	D	to 40' tall	☀	L		generally available, orange-scarlet trumpet shaped flowers
Delphinium belladonna		P	3-4' tall	☀	M		sturdy, bushy, deeply cut leaves, short stems, airy flower clusters
Delphinium elatum	candle delphinium, candle larkspur	P	3-6' tall	☀	M		Siberian species with small dark or dull purple flowers

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Delphinium grandiflorum (D. Chinese)	Chinese or bouquet delphinium	P	to 1' tall		M	L	short-lived, bushy, branching
Digitalis ferruginea	rusty foxglove	B/P	to 6' tall		M	L	very leafy stems, leaves deeply veined, flowers long, yellowish, netted with rusty red, in long dense spikes
Digitalis grandiflora	yellow foxglove	B/P	2-3' tall		M	L	hairy tooth leaves wrap around stem, large flowers, yellowish marked with brown
Digitalis mertonensis	foxglove	P	2-3' tall		M	L	spikes of odd yet attractive coppery rose
Digitalis purpurea	common foxglove	B/P	4'+ tall		M	L	clumps of large, woolly light green leaves, stem leaves short stalked, becoming smaller toward top of plant, leaves are source of digitalis, valued but highly poisonous medicinal drug, flowers pendulous, purple
Hemerocallis cultivars	daylily	E/D	1-6' tall/ 1-2' spread		M	L	generally available, many types and sizes with many different flower colors
Lonicera japonica 'Halliana'	Hall's Japanese honeysuckle	E	to 15' tall		M	H	generally available, sweet fragrant white flowers
Lotus argophyllus	silver-leaved lotus		1-3" tall/ 6-36" spread		L	L	to 7000', small silver-satiny leaves run along ground, small yellow with brown flowers
Lupinus Russell Hybrids	Russell lupines	D	4-5' tall		M	L	generally available, flowers of many colors, dwarf varieties available, striking border
Oenothera berlandieri	Mexican evening primrose	E, P	to 1' tall/ 2-3' spread		L	L	generally available, pink flowers
Phlox divaricata	phlox, wild or wild sweet Williams	P	to 1' tall		M	L	generally available, flowers bluish to pinkish-blue to white, good in rock gardens
Rosa hybrids	rose	D, P	varies		M		generally available, some varieties including Lady Banks rose and Cecile Brunner rose can use very little water, many roses will tolerate low to moderate water once established, need winter protection where temperatures are below 10°F regularly
Wisteria sinensis	Chinese wisteria	D, P	vine		M		generally available, can be trained into a big shrub or multi-stemmed small weeping tree, prune every winter
Shrubs							
Limonium latifolium	sea lavender, statice	D	to 2.5' tall/ 1-3' spread		L	L	generally available, bluish to white or pink flowers
Miscanthus sinensis	maiden grass, eulalia	D	3-4' tall/ 3-4' spread		M	H	generally available, flowers silver color
Prunus cerasifera 'Thundercloud'	purple-leaf plum	D	to 20' tall/ to 20' spread		M	U	generally available, dark coppery leaves, flowers light pink to white, sometimes sets good crop of red fruit
Rhododendron spp	azalea	E/D	varies		M		generally available
Rhododendron spp	rhododendron	E/D	varies		M		generally available
Viburnum carlcephalum	fragrant snowball	D	8-10' tall/ 4-5' spread		M	U	leaves dull grayish green, downy beneath, flowers long-lasting, waxy white, fragrant, no fruit, showy as common snowball but has added fragrance
Viburnum macrocephalum macrocephalum (V. m. 'Sterile')	Chinese snowball	E	12-20' tall		M	U	broad, rounded habit, leaves oval to oblong, dull green, big rounded flower clusters are composed of sterile flowers, no fruit, spectacular bloom clusters
Viburnum opulus	European cranberry bush	D	10-20' tall		L	U	lobed, maple shaped dark green leaves, turn red in fall, flower clusters white, rimmed with sterile white flowers in lace cap effect, large red, showy fruit

ORNAMENTAL

Hemerocallis cultivars

Lonicera japonica 'Halliana'

Lupinus spp

Oenothera berlandieri

Wisteria spp

Character:
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D: Deciduous
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B: Biennial
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Fire Hazard:
L: Low
M: Medium
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U: Unknown

H_2O:
VL: Very low moisture zone
L: Low moisture zone
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ORNAMENTAL

Acer platanoides

Albizia julibrissin

Betula pendula

Gleditsia triacanthos

Koelreuteria paniculata

Prunus persica

botanical name	common name	character	height/ spread	light	H_2O	fire hazard	comments
Viburnum opulus 'Roseum' (V. o. 'Sterile')	common snowball	D	10-15' tall		L	U	composed entirely of sterile flower clusters that resemble snowballs, no fruit
Viburnum plicatum plicatum (V. tomentosum 'Sterile')	Japanese snowball	D	to 15' tall/ to 15' spread		M	U	oval, dark green, strongly veined leaves, turn purplish red in fall, snowball clusters of white sterile flowers, borne in opposite rows along horizontal branches
Viburnum plicatum tomentosum	doublefile viburnum	D	to 15' tall/ to 15' spread		M	U	flat flower clusters edged with sterile flowers in lace cap effect, fruit red, showy, not always profuse
Trees							
Acer palmatum	Japanese maple	D	to 20' tall		M		generally available, many stemmed, delicate, fall color
Acer platanoides	Norway maple	D	16-60' tall/ 20-60' spread		M		generally available, many varieties and sizes, showy clusters of greenish yellow spring flowers
Acer saccharum	sugar maple	D	to 60' tall/ to 60' spread		M		generally available, 'green mountain' is most drought resistant variety, all have spectacular fall color
Albizia julibrissin	silk tree, mimosa	D	to 40' tall/ to 60' spread		L		generally available, pink fluffy flowers
Betula albosinensis	birch	D	to 100' tall		H		grown for beautiful pinkish brown to coppery bark covered with gray powdery bloom
Betula jacquemontii	birch	D	to 60' tall		H		tall, narrow tree with brilliant white bark
Betula nigra	river birch, red birch	D	50-90' tall		H		generally available, pyramidal form, young bark pinkish, very smooth and shining, older trees flake and curl in cinnamon brown to blackish sheets, diamond shaped leaves are bright glossy green above, silvery below, needs ample moisture
Betula occidentalis (B. fontinalis)	birch	D	12-15' tall		H	U	bark smooth, shiny, cinnamon brown, leaves turn pale clear yellow in fall, it likes moisture but needs good drainage as well
Betula papyrifera	canoe birch, paper birch	D	to 100' tall		H	U	generally available, trunk creamy white, bark peels in papery layers
Betula pendula	European white birch	D	30-40' tall/ to 20' spread		H		generally available, frequently planted deciduous tree, delicate and lacy, bark on young trees is golden brown, on trunk and main limbs becomes white, marked with black clefts, oldest bark at base is blackish gray, rich green diamond shaped glossy leaves
Ginkgo biloba	maidenhair tree	D	35-80' tall		M	U	generally available, bi-lobed leaves, avoid female trees as fruit smells
Gleditsia triacanthos	honey locust	D	35-70' tall		L		generally available
Koelreuteria paniculata	goldenrain tree	D	20-35' tall/ 10-40' spread		M		generally available, yellow flower
Laburnum spp	goldenchain tree	D, P	varies		M	U	generally available, bark green, leaves bright green, flowers yellow, sweet pea shaped, in hanging clusters
Picea pungens	Colorado spruce	E	80-100' tall		M	H	very stiff, regular, horizontal branches forming broad pyramid, foliage varies in seedlings from dark green through all shades of blue green to steely blue
Picea pungens 'Glauca'	Colorado blue spruce	E	varies		M		positive gray blue color
Prunus persica	peach	D	15-25' tall/ 15-25' spread		M		generally available
Prunus persica nucipersica	nectarine	D	15-25' tall/ 15-25' spread		M		generally available
Prunus spp (edible)	apricot	D	4-6' tall/ 6-8' spread		M		generally available
Prunus spp (edible)	cherry	D	20-35' tall		M	L	generally available
Prunus spp (edible)	plum	D	15-20' tall		M		generally available
Prunus spp (edible)	prune	D			L		generally available

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Local Resources

Local resources are always better able to help you. They know the local climate, soils, growing conditions. The nurseries are also committed to stocking drought-tolerant and horticulturally adapted native plants.

Landscape Guide for Mountain Homes Participants:

Aaron Scullin
Consulting Arborist, Inc.
P.O. Box 3341
Running Springs, CA 92382
(909) 867-3827

Heap's Peak Arboretum
Rim of the World
Interperative Association
Highway 18
P.O. Box 1958
Lake Arrowhead, CA 92352

Agua Fria Hardware & Nursery
26890 Hwy 189
Blue Jay, CA 92317
(909) 337-2114

David D. Davis & Associates
Irrigation Consultants • Planning • Water Management
P.O. Box 5037
Crestline, CA 92325-5037
(909) 338-4372

Carl Hausmann Landscape Construction
Licensed Landscape Contractor
#C-27-241123
P.O. Box 715
Lake Arrowhead, CA 92352
(909) 337-8043

Mountain View Landscaping
Licensed Landscape Contractor
#511979C27
P.O. Box 486
Cedar Glen, CA 92321
(909) 337-7456

Village Nursery & Landscaping
Licensed Landscape Contractor
#278088 C29 & C27
26415 Hwy 18
Rim Forest, CA (ZIP)
Landscaping: (909) 337-5410
Nursery: (909) 337-1688

Other Local Resources:

Arrowhead Gardens
Landscaping and Nursery
Licensed Landscape Contractor
#331952 C27
181 N. St. Hwy 173
Cedar Glen, CA 92321
(909) 337-6241

Butcher's Block and Building Materials
41860 Big Bear Boulevard
Big Bear Lake, CA 92315
(909) 866-5761

Cedar Glen Trading Post
28946 Hook Creek Road
P.O. Box 669
Cedar Glen, CA 92321
(909) 337-3310

John Cousino Landscaping
Licensed Landscape Contractor
#656981 C27
(909) 867-4483

Deer Lick Lumber
32770 Hilltop Boulevard
Running Springs, CA 92382
(909) 867-2262

Eminger's Mountain Nursery
41223 Big Bear Boulevard
Big Bear Lake, CA 92315
(909) 878-3381

Hunter's Nursery and Garden Center
42132 Fox Farm Road
Big Bear Lake, CA 92315
(909) 866-2547

JHAS Incorporated
Landscape Architects
P.O. Box 346
Skyforest, CA 92385-0346
(866) 879-9762

La Rosa Hardware and Supply
217 West Big Bear Boulevard
Big Bear City, CA 92314
(909) 585-2737

Lake Drive Hardware
23895 Lake Drive
P.O. Box 3305
Crestline, CA 92325
(909) 338-1617

Lenoch Mountainscapes
P.O. Box 133326
Big Bear Lake, CA 92315
(909) 584-2545

NativeScapes
P.O. Box 1684
Big Bear City, CA 92314
(909) 878-0050

R.A.C. Landscaping
P.O. Box 121224
Big Bear City, CA 92314
(909) 866-1446

Riffenburgh Lumber Company Incorporated
42800 Big Bear Boulevard
Big Bear Lake, CA 92315
(909) 866-4675

Rim Forest Lumber
26491 Pine Avenue
P.O. Box 108
Rim Forest, CA 92378
(909) 337-6262

Skyline Landscaping
Bernie Kerkvliet
Landscape Contractor
#C-27-338084
P.O. Box 471
Cedar Glen, CA 92321
(909) 337-5862

Stalcup Landscape Innovations, Inc.
P.O. Box 888
Big Bear Lake, CA 92315
(909) 866-9696

Steve's Nursery
556 1/2 Springy Path
Crestline, CA 92325
(909) 338-3888

TSL Landscape and Maintenance
P.O. Box 2325
Big Bear, CA 92314
(909) 585-2334

Additional Native Plant Resources:

If you are interested in adding native plants to your garden that are not easily available, these resources will be able to help you.

California Native Plant Society
1722 J Street, Suite 17
Sacramento, CA 95814
Phone: (916) 447-2677
Fax: (916) 447-2727
www.cnps.org

Mockingbird Nurseries, Inc.
1670 Jackson Street
Riverside, CA 92504
Open to public by appt. only
Mon-Fri: 7:30 a.m.-4 p.m.
(951) 780-3571

Rancho Santa Ana Botanic Garden
1500 N. College Avenue
Claremont, CA 93013
(909) 625-8767

Tree of Life Nursery
33201 Ortega Highway
San Juan Capistrano, CA 92693
Phone: (949) 728-0685
Fax: (949) 728-0509
Round House/Public Hours:
Friday: year-round
Saturdays: Feb, Mar, Apr, Oct, Nov-9:00 a.m. to 4:00 p.m.
www.treeoflifenursery.com

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