

## **2. DROUGHT RESISTANT PLANT LIST**

### **For Planting Up To The 3,400-foot elevation**

**Indigenous** means the naturally growing plants of El Dorado County.

**Adaptive** means plants that are not indigenous, but that possess genetic traits that enable them to survive in El Dorado County with minimal or no water supplement. These plants have been proven to grow here.

**Upper Elevations:** “Upper Elevations” as used in this list means the areas between 1,800 and 3,400 feet, which generally encompass the areas east of Garden Valley, Kelsey, Greenwood and Placerville up to Quintette, and Pollock Pines. Trees and shrubs marked (**Upper Elevations**) will get stressed in most situations when you plant them in the lower elevations. Should you want to try them anyway, plant them in fill dirt areas, on the north side of buildings or north facing slopes, or in areas partially protected by the shade of mature trees. When you find such trees and shrubs growing in the lower elevations, look closely at their orientation and microclimate as far as slope, soil, and water conditions, and surrounding plant canopy and then compare it to your conditions before you decide to take the risk.

**“See species list”:** As there are too many species to include on our list, “See species list” refers to our recommended resource books, such as *Sunset Western Garden Book*, *Hortus*, Jepson *Manual of Flowering Plants*, or similar sources that can be used to research specific genus, species, and varieties for drought and high elevation sun tolerance.

**Sunset Western Garden Book ‘Zone 7’** should only be used as a reference for cold tolerance. Many experienced gardeners in El Dorado County have lost their landscape investment by mistakenly planting only to *Sunset’s* Zone 7 guidelines. In El Dorado County, two neighbors side by side can have different soil types and depths, levels of soil compaction, areas of fill dirt, and orientation to the sun. A day of full sun here at our elevations can be destructive to a non-indigenous plant. The following list comes from firsthand experience and observations of successful plant growth. Your results may vary because of poor plant quality due to either genetic inferiority or because you bought a plant with compacted and/or circling, girdling roots that had outgrown its pot. When a plant with root problems matures, it will choke to death or fall over if you plant it without spreading out the roots in a fan shape. Other times the failure could be from variations in soil depth on your property, lack of mulch, the wrong north/south orientation, excessive radiant heat from bare dirt, black top, or concrete, or your planting technique.

**Why Are Some Plants Not Listed?** The intent of this list is to prepare for an inevitable drought. The genetically embedded characteristics of plants that have evolved in other dissimilar environments will not change or re-adapt when planted here. Most trees native to other latitudes suffer as they mature and show signs of stress and failure when planted elsewhere. You will only see a very few exceptions on the list below. Eastern and northern American oaks and maples, birches, ornamental pears, and most fruit trees get sunscald on their trunks from “our” sun here. Maples and mulberries are notorious for failures of root and branch structures as they mature. Locusts send up “volunteer” shoots from their roots. All sycamores are natives of riparian areas and suffer from lack of water and radiant heat from adjacent pavement. They are also susceptible to infestations of a fungus disease called anthracnose and their huge leaves can clog drains. Eucalyptus and Chinese tallow trees suffer dieback from frost. Tupelos cannot take our sun.

Alleppo pines suffer from the heat stress and get branch tip dieback and turpentine beetles as they mature. Coast Redwoods are indigenous to an ocean environment and have adapted to existing entirely on moisture from fog in the summer. They will require large amounts of water and protection from radiant heat and hot wind when they mature.

**Indigenous Propagation Techniques.** Ideally, planting trees and shrubs indigenous to your area will ensure their drought tolerance and viability. Planting seeds or native trees grown from seeds that have been collected within a 500 foot change in elevation from where your property is located will ensure the best chance of survival. When outside of the 500 foot elevation change, even trees of the same species may have different characteristics as the same species within this parameter. This is the same principal the Forest Service uses when distributing their trees for reforestation.

### **Some Things You Can Do To Improve Your Chances of Success:**

- 1. Stockpile topsoil.** Whenever you grade, stockpile your topsoil. Our topsoil is, on average, around 18 inches deep and contains beneficial fungi essential in helping our plants take in water and minerals. Taproots in the foothills are a fallacy. Most roots that pick up all the nutrients are in the top 12 inches of the soil and grow out horizontally past the edge of the dripline or outer most branch tips. Look at road cutbanks, irrigation or foundation trenches, or the percolation test or soil mantle holes for your septic system to see what lies beneath.
- 2. Use the stockpiled soil to make raised beds.** Raised beds conserve water. Make islands of raised beds to concentrate your water in clustered locations and in doing so you will have created fire breaks in between. Use the native rocks you uncovered while grading to hold the soil in.
- 3. Be careful choosing your plants.** Do not be shy about pulling a plant out of its container and looking for circular/girdling roots. Shorter, stouter trees and shrubs with many lower branches will thrive better than tall ones that are lashed to a packing stick. **Five gallon trees will pass up fifteen gallon trees in the long run, both in size and viability.** Planting a fifteen gallon tree that has spent its life rootbound in a container has the same chance for success as getting a person to walk with one foot.
- 4. Remember that a container grown tree is not a natural condition.** A tree needs to blow in the wind in order for it to get the signal to grow stronger. What would happen to your muscles in your arms if they were kept in a cast? They would weaken and atrophy. It is the same principal for a tree that has been taped tightly to a packing stick for purposes of transporting it to its final location. After planting, remove the tape and stick and replace them with two stakes positioned on opposite sides of the trunk outside the branch tips. Use something flexible like plastic tape or old nylons and wrap one piece each in opposite directions around the tree trunk and tie the loose ends to the stake. Tie them tight for about three weeks after planting. After that stretch them so their only purpose is to catch the tree in a storm. Remove them after one year. If the tree falls over it either has a girdling root wrapped around its crown, has been destroyed by a mole or gopher, or you bought a container grown specimen whose structure was so artificially enhanced with fertilizer it could no longer take the environmental pressure. If you were pumped full of steroids when you were developing you would look great for a while, too. Unfortunately, both scenarios go against how plants and people are genetically programmed to develop and cause results that would not normally happen under natural conditions.

**5. Digging the planting hole.** Using metal tools like shovels, backhoes, and mechanical augers will glaze the sides of planting holes and water will not percolate beyond the sides of the hole. You must correct this before you plant or the formerly happy plant or tree will get stuck spinning around in the bowl you've created and topple over or will rot at the root crown. Always use a pick or the point of the shovel to break up and roughen the sides of the hole before planting.

**6. Mulching.** Mulching adds organic matter and nutrients to the soil. Landscape cloth of any kind is not recommended because it prevents this from happening and makes for an artificial, chemical fertilizer-dependant situation. Try to imitate the forest. Any plant you choose that is not a manmade cultivar is indigenous somewhere and in their natural environment they do not live in a hole surrounded by bare dirt. Tree service chipper mulch used as top dressing gives the best and longest lasting protection from radiant heat, keeps the soil at even temperatures, and brings in the earwigs, fungi, and worms that regenerate and aerate the soil for you. Remember that in our county the roots of plants in most situations live in the top 12-18" of soil. The roots at the dripline (tips of the outermost branches) are the ones picking up the water and nutrients. This means as the plant matures you will have to increase the mulched area outward to keep up with that growth.

**7. Watering.** Watering at the trunk will cause the base of the tree to rot. Roots at the dripline are the ones picking up water, so you will need to keep moving the watering points of your drip irrigation outward as the tree matures. In most cases dripline watering becomes impossible because of site constraints and therein lies the reason to choose drought resistant plants at the start.

(If you would like to see photos of any of these trees or plants just use a search engine such as Google.com or similar and select the “Images” section. Enter either the common or botanical name to bring up photos.)

## TREES

### Adaptive Conifers (needle-leafed evergreens)

<i>Cedrus atlantica glauca</i>	blue Atlas cedar
<i>Cedrus atlantica</i>	green Atlas cedar
<i>Cedrus deodora</i>	deodar cedar ( <b>top choice of non-indigenous conifers</b> )
<i>Cedrus libani</i>	cedar of Lebanon
<i>Cupressus arizonica</i>	Arizona cypress
<i>Pinus mugo mugo</i>	Mugo pine
<i>Juniperus deppeana</i>	alligator juniper
<i>Juniperus monosperma</i>	cherrystone juniper
<i>Juniperus osteosperma</i>	Utah Juniper
<i>Juniperus scopulorum</i>	Rocky Mountain juniper
<i>Juniperus virginiana</i>	eastern red cedar
<i>Sequoiadendron giganteum</i>	giant Sequoia
<i>Torreya californica</i>	California nutmeg

### Indigenous Conifers (needle-leafed evergreens)

<i>Calocedrus (Libocedrus) decurrens</i>	incense cedar ( <b>upper elevations</b> )
<i>Pseudotsuga menziesii</i>	Douglas fir ( <b>upper elevations</b> )
<i>Pinus ponderosa</i>	ponderosa pine
<i>Pinus sabiniana gray</i>	foothill pine
<i>Juniperus occidentalis</i>	western juniper
<i>Taxus brevifolia</i>	Pacific yew ( <b>upper elevations</b> )
<i>Tsuga mertensiana</i>	mountain hemlock ( <b>upper elevations</b> )

### Adaptive Broadleafed Evergreens

(Trees that hold their leaves but are not needle bearing trees like pines, firs etc.)

<i>Arbutus unedo</i>	strawberry tree
<i>Quercus ilex</i>	holly oak
<i>Quercus suber</i>	cork oak

### Indigenous Broadleafed Evergreen Trees

(Trees that hold their leaves but are not needle-bearing trees like pines, firs etc.)

<i>Arbutus menziesii</i>	Pacific madrone ( <b>upper elevations</b> )
<i>Lithocarpus densiflorus</i>	tanbark oak ( <b>upper elevations</b> )
<i>Quercus chrysolepis</i>	canyon live oak ( <b>upper elevations</b> )
<i>Quercus durata</i>	leather oak
<i>Quercus wislizenii</i>	interior live oak
<i>Umbellularia californica</i>	California bay laurel ( <b>upper elevations</b> )

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### **Adaptive Broadleafed Deciduous Trees**

(Trees that shed their leaves in winter)

<i>Acer platanoides</i>	Norway maple, 'Crimson King'
<i>Ficus carica</i>	fig
<i>Koelreuteria paniculata</i>	goldenrain tree
<i>Laburnum anagyroides</i>	goldenchain tree
<i>Lagerstroemia indica</i>	crape myrtle
<i>Melia azedarach</i>	chinaberry
<i>Olea euroaepa</i>	olive
<i>Pistachia chinensis</i>	Chinese pistache ( <b>top choice of non-indigenous shade trees</b> )
<i>Prunus cerasifera</i>	purple-leaf plum
<i>Pyrus communis</i>	pear

### **Indigenous Broadleafed Deciduous Trees**

(Trees that shed their leaves in winter)

<i>Acer macrophyllum</i>	bigleaf maple ( <b>upper elevations</b> )
<i>Acer negundo</i> 'californicum'	box elder
<i>Aesculus californica</i> (	California buckeye
<i>Cornus nuttallii</i>	flowering dogwood
<i>Fraxinus latifolia</i>	Oregon ash
<i>Juglans hindsii</i>	California black walnut
<i>Quercus douglasii</i>	blue oak
<i>Quercus kelloggii</i>	California black oak
<i>Quercus lobata</i>	valley oak/California white

## SHRUBS

### Adaptive Low (0'-3') Shrubs

<i>Arctostaphylos</i>	manzanita (See species list)
<i>Baccharis pillularis</i>	dwarf coyote bush
<i>Ceanothus</i>	(See species list)
<i>Correa</i>	Australian fuchsia
<i>Cistus crispus</i>	rockrose
<i>Cotoneaster dammeria</i>	'Coral Beauty', 'Lowfast' bearberry cotoneaster
<i>Cotoneaster horizontalis</i>	rock cotoneaster
<i>Cotoneaster microphyllus</i>	rockspray
<i>Grevillea</i>	(See species list)
<i>Juniperus chinensis</i>	'Armstrong'
<i>Juniperus chinensis</i>	'Mint Julep'
<i>Lavendula</i>	lavender
<i>Rosmarinus officinalis</i>	rosemary (See species list)
<i>Santolina</i>	(See species list)

### Indigenous Low (0'-3') Shrubs

<i>Arctostaphylos nevadensis x viscida</i>	pine-mat manzanita
<i>Mahonia repens</i>	creeping mahonia
<i>Rubus parviflorus</i>	thimbleberry
<i>Symphoricarpus rivularis</i>	creeping snowberry

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### **Adaptive Medium (3'-6') Shrubs**

<i>Calycanthus occidentalis</i>	spice brush
<i>Carpenteria californica</i>	bush anemone
<i>Ceanothus</i>	(See species list)
<i>Cistus rockrose</i>	(See species list)
<i>Convolvulus cneorum</i>	bush morning glory
<i>Cotoneaster</i>	(See species list)
<i>Fallugia paradoxa</i>	Apache plume
<i>Grevillea</i>	(See species list)
<i>Nandina domestica</i>	heavenly bamboo
<i>Lupinus albifrons</i>	silver lupine
<i>Mahonia aquifolia</i>	Oregon grape
<i>Mahonia eomariifolia</i>	Venetian blind mahonia
<i>Phlomis fruticosa</i>	Jerusalem sage or P. sania
<i>Potentilla fruticosa</i>	potentilla
<i>Rhus ovata</i>	sugar bush
<i>Ribes sanguineum</i>	gooseberry
<i>Rosmarinus officinalis</i>	rosemary (See species list).
<i>Salvia</i>	sage (See species list)
<i>Spiraea prunifolia</i>	shoe button bridal wreath
<i>Spiraea densiflora</i>	mountain spiraea
<i>Spiraea douglasii</i>	western spiraea
<i>Styrax officinalis</i> 'californicus'	snowdrop bush

### **Indigenous Medium (3'-6') Shrubs**

<i>Ceanothus cordulatus</i>	snow bush
<i>Ceanothus lemmonii</i>	Lemmon's ceanothus
<i>Ceanothus velutinus</i>	snowbrush
<i>Cercocarpus betuloides</i>	birch-leaf mountain mahogany
<i>Cercocarpus ledifolius</i>	curl-leaf mountain mahogany
<i>Chrysolepis sempervirens</i>	chinquapin
<i>Chrysothamnus nauseosus</i>	rabbit brush
<i>Holodiscus discolor</i>	cream bush
<i>Mahonia nervosa</i>	longleaf mahonia
<i>Mahonia pinnata</i>	holly leaf mahonia
<i>Mimulus aurantiacus</i>	orange bush monkey flower
<i>Lonicera hispidula</i>	pink wild honeysuckle
<i>Lupinus albifrons</i>	silver bush lupine
<i>Pickeringia montana</i>	chaparral pea
<i>Purshia tridentate</i>	bitter brush
<i>Rhamnus crocea ilicifolia</i>	holly-leaf redberry
<i>Rhamnus rubra</i>	red coffeeberry
<i>Rhus trilobata</i>	three-leafed sumac
<i>Ribes cereum</i>	wax currant
<i>Ribes malvaceum</i>	chaparral flowering currant
<i>Ribes roezlii</i>	Sierra gooseberry

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**Adaptive Tall (over 6ft) Shrubs**

<i>Arctostaphylos</i>	(See species list)
<i>Arbutus unundo</i>	strawberry tree
<i>Ceanothus</i>	(See species list)
<i>Chaenomeles</i>	flowering quince
<i>Cotinus coggygria</i>	smoke tree, 'Velvet Cloak', 'Royal Purple' (See species list)
<i>Elaeagnus x ebbingei</i>	silverberry 'Guilt Edge'
<i>Fremontodendron californicum</i>	flannel bush
<i>Garrya fremontii</i>	Fremont's silk-tassel
<i>Photinia serratifolia</i>	Chinese photinia
<i>Rhamnus californica</i>	'Eve Case' coffeeberry
<i>Syringa vulgaris</i>	lilac
<i>Viburnum tinus</i>	robustum

**Indigenous Tall (over 6ft) Shrubs**

<i>Arctostaphylos patula</i>	green-leaf manzanita
<i>Arctostaphylos viscida</i>	white-leaf manzanita
<i>Baccharis pilularis consanguineum</i>	coyote brush
<i>Ceanothus cuneatus</i>	buckbrush
<i>Cercis occidentalis</i>	western redbud
<i>Eriodictyon californicum</i>	yerba santa
<i>Fremontodendron decumbens</i>	Pine Hill flannel bush
<i>Heteromeles arbutifolia</i>	toyon
<i>Philadelphus lewisii</i>	mock orange
<i>Physocarpus capitatus</i>	western ninebark
<i>Rhamnus californica tomentella</i>	coffeeberry

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### **Adaptive Perennials**

<i>Aethionema x warleyense</i>	stonecress
<i>Achillea</i>	yarrow (See species list)
<i>Alyssum montanum</i>	'Basket of Gold'
<i>Artemisia</i>	(See species list)
<i>Callirhoe involucrate</i>	poppy mallow
<i>Centranthus ruber</i>	Jupiter's beard
<i>Eriogonum</i>	wild buckwheat (See species list)
<i>Euphorbia</i>	spurge (See species list)
<i>Gaura lindheimeri</i>	
<i>Helianthemum nummularium</i>	sunrose
<i>Iris</i>	Pacific coast iris
<i>Lavendula</i>	lavender (See species list)
<i>Marrubium rotundifolium</i>	silver edged horehound
<i>Nepeta</i>	catmint
<i>Origanum</i>	ornamental oregano (See species list)
<i>Perovskia</i>	Russian sage
<i>Phlomis</i>	(See species list)
<i>Potentilla</i>	cinquefoil (See species list)
<i>Salvia</i>	sage (See species list)
<i>Stachys</i>	(See species list)
<i>Tanacetum densum amanii</i>	partridge feather
<i>Thymus</i>	thyme (See species list)
<i>Veronia prostrate</i>	Speedwell

### **Indigenous Perennials**

<i>Achillea millefolium</i>	yarrow
<i>Agastache urticifolia</i>	nettle-leaf
<i>Lupinus albicaulis</i>	lupine
<i>Lupinus caudatus</i>	silvery lupine
<i>Monardella odoratissima</i>	coyote mint
<i>Monardella villosa</i>	coyote mint
<i>Penstemon heterophyllus</i>	foothill penstemon
<i>Potenilla glandulosa</i>	sticky cinquefoil

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### **Adaptive Vines**

<i>Lonicera standishii</i>	winter daphne bush honeysuckle
<i>Rosa banksiae</i>	Lady Banks' rose (aggressive growth)

### **Indigenous Vines**

<i>Aristolochia californica</i>	California pipe vine or Dutchman's pipe vine
<i>Clematis lasiantha</i>	chaparral virgin's bower
<i>Lonicera hispidula</i>	pink wild honeysuckle
<i>Lonicera interrupta</i>	chaparral honeysuckle
<i>Vitis californica</i>	California wild grape

### **Adaptive Ground Covers**

<i>Achillea tomentosa</i>	wooly yarrow
<i>Arctostaphylos uva-ursi</i>	Kinnick Kinnick and bearberry.
<i>Armeria maritima</i>	common thrift; 'Sea Pink'
<i>Baccharis pilularis</i>	'Twin Peaks II' dwarf coyote brush
<i>Ceanothus griseus horizontalis</i>	'Yankee Point'
<i>Ceanothus griseus horizontalis</i>	'Carmel Creeper'
<i>Cotoneaster dammeri</i>	bearberry cotoneaster
<i>Cotoneaster horizontalis</i>	rock cotoneaster
<i>Festuca ovina</i>	'Glauca' blue fescue
<i>Juniperus</i>	(See species list).
<i>Mahonia pepens</i>	creeping mahonia
<i>Rosmarinus officinalis 'Prostratus'</i>	dwarf rosemary
<i>Santolina chamaecyparissus</i>	lavender cotton
<i>Sedum</i>	(See species list).
<i>Thymus</i>	thyme (See species list).

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### **Adaptive Ornamental Grasses**

<i>Festuca</i>	fescue (See species list)
<i>Helictotrichon sempervirens</i>	blue oat grass
<i>Miscanthus sinensis</i>	(See species list)
<i>Stipa tenacissima</i>	feather grass

### **Indigenous Ornamental Grasses**

<i>Festuca californica</i>	California fescue
<i>Festuca idahoensis</i>	Idaho fescue
<i>Muhlenbergia rigens</i>	deer grass
<i>Sisyrinchium bellum</i>	blue-eyed grass
<i>Sisyrinchium californicum</i>	yellow-eyed grass
<i>Stipa comata</i>	needle-and-thread
<i>Stipa pulchra</i>	purple needlegrass

### **Succulants/Cacti**

<i>Agave</i>	(See species list)
<i>Crassula</i>	(See species list)
<i>Dasyliirion wheeleri</i>	desert spoon
<i>Sedum</i>	(See species list)
<i>Yucca</i>	(See species list)