Turf Grass Alternatives

ABOUT THIS LIST:

This list is provided as a public service and is not to be considered an endorsement of plant material, products, companies, or services, nor is this information a substitute for the exercise of sound judgment. Availability of plants from retail or wholesale nurseries and/or growers may vary, depending on the time of year (seasonal availability).

This list contains some turf species for use in the Sacramento region that can require lower amounts of water compared to the cool-season grasses traditionally used for lawns. It is not inclusive of all species that may be appropriate.

Plant photos from the internet can be viewed by clicking on the Common Name of each plant.

It is recommended that the species be evaluated to determine whether it is appropriate for the intended use/function and site conditions. Some species are at their best as meadow-like plantings (soft, flowing, clumping, casual in appearance with infrequent mowing, if any) where foot traffic and play or sports activities are limited. Other species can be more accepting of mowing and varying degrees of foot traffic and play or sports activities. Please refer to the column titled "Foot Traffic / Wear" for this information relative to a specific species.

Refer to growers' recommendations for site preparation and installation, establishment, water requirements, mowing, nutrient needs, pest management, etc.

To use water efficiently and effectively, sprinkler bodies with precision-type or rotary-type nozzles should be used, or existing sprinklers should be retrofitted with precision- or rotary-type nozzles so that water is delivered at a slower rate that can infiltrate into the soil to avoid water runoff.

Botanical Name	Common Name	Water-use Classification per WUCOLS IV for Region 2 &/or from Grower	Sun	Foot Traffic / Wear	Description	Availability & Resources	Links
Agrostis pallens	Native Bentgrass™, Seashore Bent Grass, Dune Bent Grass	Low, 50% less water than traditional cool-season turfgrass species	Full Sun, Partial Shade, Dry Shade	Tolerates low-impact foot traffic	CA native; drought tolerant; evergreen to summer semi-deciduous; medium leaf/blade texture; withstands low mowing heights (1-1/2" to 2") for appearance of a traditional lawn; strong sod mat provides effective weed barrier; uniform growth with excellent wear recovery due to ability to self-repair, spreads by underground stems.	California Native Plant Society (CNPS) Elderberry Farms; grown by Hedgerow Farms & sold at Elderberry Farms, two annual sales, spring and fall; can order plugs online from Hedgerow Farms, they will ship; at Delta Bluegrass Company's website, can locate local distributors; commonly available.	**CNPS Elderberry Farms,** https://www.sacvalleycnps.org/index.php?option=com_content&view=article&id=4&Itemid=110 / **Calscape.org,** http://calscape.org/Agrostis-pallens-(Thingrass)?srchcr=sc5b5e51cc1908e / **Delta Bluegrass Company,** http://www.deltabluegrass.com/sod-products/california-native-sod, http://www.deltabluegrass.com/where-to-buy / **Hedgerow Farms,** https://www.hedgerowfarms.com/
Festuca spp., Poa pratensis	Bolero Plus™ Dwarf Fescue, Bluegrass Mixture	Moderate, refer to TWCA & A-List certifications	Full Sun	High, residential, wear recovery very good	Certified by the Turfgrass Water Conservation Alliance (TWCA) & Alliance for Low Input Sustainable Turf A-List for drought tolerance & deep roots; fine bluegrass-like texture; improved drought & heat tolerance; enhanced coverage, uniform growth; dark blue-green winter color.	At Delta Bluegrass Company's website, can locate local distributors.	**Delta Bluegrass Company,** www.deltabluegrass.com / Locate local distributor, http://www.deltabluegrass.com/where-to-buy
Bouteloua gracilis	Blue Grama	Low per WUCOLS	Full Sun, Part Shade	Moderate foot traffic	CA native; drought tolerant; fully winter dormant, green to greyish color; heat & cold tolerant; can be grown from seed or plugs.	At Delta Bluegrass Company's website; can locate local distributors; Devil Mountain Growers, wholesale only, 4" and #1 containers; commonly available.	**Devil Mountain Growers,** https://store.devilmountainnursery.com/inet/storefront/store.php?mode=showproductdetail&product=&product=13806

Botanical Name	Common Name	Water-use Classification per WUCOLS IV for Region 2 &/or from Grower	Sun	Foot Traffic / Wear	Description	Availability & Resources	Links
Buchloe dactyloides 'UC Verde'	UC Verde Buffalograss	Requires as little as ¼ the amount of water as traditional, cool-season turf species	Full Sun	Tough & durable	Warm-season turfgrass; looks its best during the summer; dormant to semi-dormant in winter; straw-green color; drought tolerant; nearly pollen free; height peaks at 4-6" tall; depending on preference, mow every 2-3 weeks; for a more natural look mow less frequently, but at least once per year; disease & insect resistant; dense habit at maturity, helps to reduce weed growth.	Plugs available from UC Verde® Buffalo Grass & Florasource, Ltd. For more information refer to Field Trials - "Alternative Turf Species for Reducing Water Use and Mowing", UC Cooperative Extension, Sacramento County, http://cesacramento.ucdavis.edu/files/77830.pdf.	**Florasource, Ltd.,** www.florasourceltd.com / **Plug calculator by Seedland®** to calculate number of plugs needed for the installation, http://www.lawnplugs.com/info/howmanyplugs.html/
Carex pansa	Sand Dune Sedge, California Meadow Sedge	Moderate per WUCOLS	Full Sun, Part Shade	May not tolerate foot traffic well	CA native; evergreen, appropriate for sandy soils.	Order plugs online from Hedgerow Farms; Devil Mountain Growers, wholesale only, 4" & #1 containers; commonly available; can have better establishment when plugs are used rather than seed.	**Devil Mountain Growers** https://store.devilmountainnursery.com/inet/storefront/store.php?mode=showproductdetail&product=&product=13912 / **CalScape.org** http://calscape.org/Carex-pansa-(Sand-Dune-Sedge)?srchcr=sc5b5e5e09b933f / https://www.hedgerowfarms.com / **Hedgerow Farms** https://www.hedgerowfarms.com/
Carex praegracilis	Clustered Field Sedge, California Field Sedge	Moderate per WUCOLS	Full Sun, Part Shade	Moderate foot traffic	CA native; evergreen spreads by underground stems; mowing every 4-6 weeks encourages shoot growth.	Grown by Hedgerow Farms & sold at CNPS Elderberry Farms, two annual sales in the spring and fall; can order plugs online from Hedgerow Farms, they will ship; Devil Mountain Growers, wholesale only, 4" & #1 containers; commonly available; can have better establishment when plugs are used rather than seed.	**CNPS Elderberry Farms,** https://store.devilmountainnursery.com/inet/storefront/store.php?mode=showproductdetail&product=&product=13913 / **Calscape.org,** http://calscape.org/Carex-praegracilis-(Clustered-Field-Sedge)?srchcr=sc5b5e524c8caff / **Hedgerow Farms,** https://www.hedgerowfarms.com/
Deschampsia elongata, Festuca rubra, Koleria macrantha, Blend	Delta Grassland Mix™	Low	Prefers Partial Shade, Tolerates Full Sun	Tolerates foot traffic, moderate wear resistance	CA native, narrow, fine-leaved texture, emerald green color; tuft forming, clumping grass.	At Delta Bluegrass Company's website, can locate local distributors.	**Delta Bluegrass Company,** http://www.deltabluegrass.com/sod-products/california-native-sod
Festuca arundinacea, Poa pratensis, Blend	90/10 Tall Fescue (Penn RK4, Rebel XLR, Firecracker SLS Tall Fescue and Ridgeline Kentucky Bluegrass)	Moderate, refer to TWCA & A-List certifications	Sun, Partial Shade	High, residential, wear recovery very good	Certified by the Turfgrass Water Conservation Alliance (TWCA) & Alliance for Low Input Sustainable Turf A-List for drought tolerance & deep roots; cool season grass, stays green year round; adapts to partial shade; salt & heat tolerant, improved disease resistance; mowing height 1-1/2 to 2", can mow higher to reduce stress; water needs can depend upon tolerance for varying shades of green.	At Delta Bluegrass Company's website, can locate local distributors.	**Delta Bluegrass Company,** www.deltabluegrass.com / Locate local distributor, http://www.deltabluegrass.com/where-to-buy
Festuca idahoensis, Festuca rubra, Festuca occidentalis, Blend	Native Mow Free™	Low, 50% less water than traditional turfgrass; drought tolerant, per grower	Full sun; up to 50% shade tolerance	Clumpy, not for sports activities	CA natives; fine leaf blade texture; can be maintained as a turf lawn or left unmowed for a meadow-like appearance; provides erosion control on slopes.	At Delta Bluegrass Company's website, can locate local distributors.	**Delta Bluegrass Company,** http://www.deltabluegrass.com/sod-products/california-native-sod

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						"Turf Wars - Battle Thirsty Lawns & Weekly Mowing with New Species", Chuck Ingels, UC Cooperative Extension, Sacramento County, Harvest Day.	http://ccag-eh.ucanr.edu/files/241507.pdf
						Field Trials - "Alternative Turf Species for Reducing Water Use and Mowing", UC Cooperative Extension, Sacramento County.	http://cesacramento.ucdavis.edu/files/77830.pdf
						Inland Valley Garden Planner, Chino Basic Water Conservation District.	https://inlandvalleygardenplanner.org/lists/lawn-alternatives/
						Los Angeles County Arboretum & Botanic Garden	https://www.arboretum.org/crescentfarm/lawn-alternatives/
						Plug calculator, by Seedland® - To calculate number of plugs needed for the installation area for species such as UC Verde Buffalograss	http://www.lawnplugs.com/info/howmanyplugs.html

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This list contains some common very low, low, and moderate water-use plants appropriate for the Sacramento region that can be used in place of traditional lawns. It is not inclusive of all plants that may be appropriate.

Plant photos from the internet can be viewed by clicking on the Common Name of each plant.

To use water efficiently and effectively, install dripline with built-in emitters on the soil surface in a grid pattern with even spacing between lines for uniform watering. If overhead watering with sprinklers is to be used, sprinkler heads with precision-type or rotary-type nozzles should be used, or existing sprinklers should be retrofitted with precision- or rotary-type nozzles so that water is delivered at a slower rate that can soak into the soil to avoid water runoff. When deciding upon which method of irrigation to use, please consider the specific species of plant, especially because some plants may not tolerate overhead watering. For more information, refer to Drip Irrigation in the Definitions of Terms & Symbols at the end of this document.

Consult with local plant retailers, growers, horticulturists, landscape professionals, manufacturers, and/or refer to gardening reference books and other reliable resources to learn more to help you select the plants best suited for the intended use and site conditions, as well as to determine the most efficient method for watering them.

Please refer to the Definitions of Terms & Symbols section at the end of this plant list for more information.

Genus	Species	Variety / Cultivar / Hybrid	Common Name	Water Use	Plant Type	Exposure	"Sunset Western" Climate Zone	Mature Size Tall (T) / Wide (W)	Mature Plant Coverage Value (Sq. Ft.)	Bloom Color / Season / Considerations / If tolerant of foot traffic, it will be noted.							
											Uses / Benefits						
Achillea	*tomentosa*		Woolly Yarrow	L	Evergreen	FS	1 to 24	1' T / 1.5' W	2	Yellow / Spring, Summer / Perennial / Mat of fuzzy olive-green leaves; prefers well-drained soil.	Y		Y			Y	Y
Ajuga	*reptans*		Carpet Bugle	M	Evergreen	FS/PS	A2, A3, 1-24	6" T / 1.5' W	2	Blue / Spring, Summer / Perennial Groundcover / Prefers well-drained soil; spreads by runners.			Y				Y
Ajuga	*reptans*	'Catlin's Giant'	Catlin's Giant Ajuga	M	Evergreen	FS/PS	A2, A3, 1-24	4-9" T / 1-2' W	2	Blue / Spring / Perennial Groundcover / Bronzy-green leaves; prefers well-drained soils.			Y				Y
Arctostaphylos		'Emerald Carpet'	Emerald Carpet Manzanita	M	Evergreen	FS	6-9, 14-24	10-16" T / 5' W	20	White / Winter, Spring / Groundcover / Slow growing, forms dense, low-mounding carpet; prefers acidic soils; pruning not necessary.	Y	Y	Y			Y	Y
Arctostaphylos	*uva-ursi*		Bearberry, Kinnikinnick	M	Evergreen	FS/PS	A1-A3, 1-9, 14-24	6"-12" T / 15' W	177	White, Pink / Winter / Groundcover / Flat, rooting as it spreads; prefers acidic soils; pruning not necessary.	Y	Y	Y			Y	Y
Baccharis	*pilularis*	'Pigeon Point'	Pigeon Point Coyote Brush	L	Evergreen	FS	5-11, 14-24	18-24" / 10-12' W	95	White Insignificant / Fall / Groundcover / Male flowers, no fluffy seed heads; best in well-drained soils, tolerant of sandy and clay soils.	Y	Y					Y
Carex	*divulsa*		European Gray Sedge	L	Evergreen	FS/PS	2B-9, 11-24	1-1.5' T / 2 W	3	Green to Brown / Winter, Spring / Grass-like Perennial / Forms dense mounds; excellent for woodland garden style; after spring flowering, remove brown flowers to prevent reseeding.	Y				Y		Y

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Cerastium	*tomentosum*		Snow-in-Summer	M	Evergreen	FS/PS	A1, A2, 1-24	6-8" T / 2-3' W	5	White / Spring, Summer / Perennial Groundcover / Will tolerate some foot traffic; dense mat of silver leaves & white flowers; relatively short lived; can prune or mow after blooming to maintain neat habit.	Y		Y	Y			Y
Chamaemelum	*nobile*		Creeping Chamomile	M	Evergreen	FS/PS	2 to 24	3-12" T / 1' W	1	Yellow, White / Summer / Perennial / Can mow or shear occasionally, light foot traffic; allergenic flowers.	Y		Y				
Chamaemelum	*nobile*	'Treneague'	Treneague Chamomile, Roman Chammomile	M	Evergreen	FS/PS	2 to 24	3-12" T / 1' W	1	No flowers / Perennial / Light green foliage; low mat; no need to mow; moderate foot traffic.	Y		Y				
Coprosma	x *kirkii*		Creeping Coprosma, Prostrate Mirror Plant	L	Evergreen	FS/PS	14-24, H1, H2	1-3' T / 3-6' W	16	No flowers / Groundcover / Small, shiny yellow-green leaves; pruning not necessary, so useful on slopes.	Y		Y			Y	Y
Cotoneaster	*dammeri*	'Lowfast'	Bearberry Cotoneaster	L	Evergreen	FS/PS	2 to 24	1' T / 8-12' W	79	White / Spring / Groundcover / Bright green leaves; trailing stems root as they touch soil; dense; bright red fruit; pruning not necessary.	Y		Y				Y
Delosperma	*cooperi*		Cooper's Ice Plant	L	Evergreen to Semi-evergreen	FS/PS	2 to 24	3" T / 1.5' W	2	Purple / Spring, Summer, Fall / Groundcover / Winter leaves flushed with purple, sometimes turning gray-purple.	Y			Y			Y
Dymondia	*margaretae*		Dymondia, Silver Carpet	L	Evergreen	FS/PS	9b-11, 15-24	2-3" T / 20" Spreading	2	Yellow / Summer / Perennial / Spreads by underground stems; other than weeding, maintenance free; light foot traffic.	Y		Y			Y	
Festuca	*californica*		California Fescue	M	Evergreen	PS	4-9, 14-24	2-3' T / 1-2' W	2	Green, Purple, Yellow / Spring, Summer / Clumping Perennial Grass / Rake annually to remove old leaf blades; natural, meadow look rather than lawn.	Y	Y	Y	Y		Y	
Festuca	*glauca*	'Beyond Blue' PPAF23307	Beyond Blue Fescue	L	Evergreen	PS	1 to 24	1' T / 1.5' W	2	Insignificant, Tan / Late Spring, Early Summer / Clumping Ornamental Grass / Holds blue color through summer.	Y		Y				Y
Festuca	*rubra*	'Molate', 'Point Molate'	Creeping Red Fescue, Molate Red Fescue	M	Evergreen	FS/PS	A2, A3, 1-10, 14-24	12-18" T / W	1	Greenish-tan / Spring, Summer / Perennial Grass / Blue-green color; left unmowed gives meadow-like appearance; useful on slopes; spreads by underground stems; tolerates clay soil.	Y	Y	Y				Y
Fragaria	*vesca*		Woodland Strawberry, Alpine Strawberry	M	Herbaceous	FS/PS	2B-9, 14-24, H2	1' T / 3' W	7	White / Winter, Spring, Summer / Perennial Groundcover / Tolerates clay soil; small red berries.		Y	Y				Y

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Hypericum	*calycinum*		Aaron's Beard, Creeping St. Johnswort	M	Evergreen to Semi-evergreen	FS/PS	2B-24	1' T / 3-4' W	10	Yellow / Spring, Summer / Groundcover / Spreads assertively by runners; blooms less in shade.	Y		Y				Y
Juniperus	*horizontalis*	'Blue Chip'	Blue Chip Juniper	L	Evergreen	FS	1 to 24	1' T / 6-8' W	38	Groundcover Conifer / Avoid Juniper blight by keeping foliage dry, do not over fertilize, prune only to remove dead or infected stems.	Y		Y			Y	
Juniperus	*procumbens*	'Nana'	Dwarf Japanese Garden Juniper	L	Evergreen	FS/PS	1 to 24	1' T / 4-6' W	16	Groundcover Conifer / Winter foliage has purple tinge; for natural shape, do not prune; has improved pest resistance.	Y		Y			Y	
Liriope	*muscari*		Lilyturf	M	Evergreen	PS	2B-10, 14-24, H1, H2	1-1.5' T / 2' W	3	Purplish / Summer / Perennial Groundcover / Berry-like black fruit follow flowers; little to no foot traffic.			Y				Y
Myoporum	*parvifolium*		Myoporum	L	Evergreen	FS	8, 9, 12-24	3-6" T / 9' W	64	White / Summer / Groundcover / Give ample room to spread; along walkways, cut back rather than shearing; good for slopes; consider Myoporum p. 'Burgundy Carpet' & 'Putah Creek' for resistance to thrips.	Y		Y			Y	Y
Ophiopogon	*japonicus*		Mondo Grass	M	Evergreen	PS/SH	5-9, 14-24, H1, H2	6-8" T / 1' W	1	Lilac / Summer / Grass-like Perennial/ Small, blue berries; divide clumps every 2-3 years; spreads by underground stems; for small-scale areas.							
Phyla (Lippia)	*nodiflora*		Kurapia	L	Evergreen	FS	8 to 24	2" T / 2' W, Spreading	3	Light lavender-Pink / Spring, Summer, Fall / Groundcover / Dense, flat growth; does not require mowing; does not produce seeds; spreads by runners; may need edging to retain within area of coverage; excellent for erosion control & on slopes due to extensive root system; attracts bees but flowers are sterile; if grown in part shade, plant will grow taller & will not be as compact.	Y						Y
Rosmarinus	*officinalis*	'Huntington Carpet'	Huntington Carpet Rosemary	L	Evergreen	FS	4-24, H1, H2	1-2' T / 6-8' W	38	Blue / Year-round / Groundcover / Spreads quickly yet center stays dense (not woody); pruning not necessary, so useful on slopes.	Y		Y			Y	Y
Rubus	*pentalobus (rolfei, calycinoides)*	'Emerald Carpet'	Creeping Rubus	M	Evergreen	FS/PS	4-6, 14-17	1' T / 5' W	20	White / Spring / Groundcover / Bright green leaves; trailing stems root as they touch the soil; dense; bright red fruit.							Y

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Ruschia	*lineolata*	'Nana' PPAF	Dwarf Carpet of Stars	L	Evergreen	FS/PS	7-9, 14 (as low as 20 degrees)	1-2" T / 1' W	1	White & Pink / Late Winter, Early Spring / Perennial, Succulent Groundcover / Faster plant establishment in spring, summer; proper watering of plugs required for establishment, follow grower's recommendations; forms tight, thick mat; no mowing; tolerates foot traffic, but not smooth to bare feet.	Y						Y
Salvia		'Bee's Bliss'	Bee's Bliss Sage	L	Evergreen	FS	7-9, 14-24	1-2' T / 6-8' W	38	Lavender-blue / Spring / Groundcover / Foliage gray-green, grayer in summer; flower stems will wither, no need to prune.	Y	Y	Y				Y
Sarcococca	*hookeriana humilis*		Sweet Sarcococca	M	Evergreen	PS/SH	3-9, 14-24	1.5' T / 8' W	50	White / Spring / Groundcover / Spreads by underground stems; fragrant flowers; glossy blue-black fruit; for shade gardens.	Y		Y				
Sedum	*album*		White Stone Crop	L	Evergreen	FS/PS	1 to 24	2-6" T / 1.5' W	2	White / Summer / Succulent / No foot traffic; creeping; leaves red-tinted in winter; broken pieces root themselves.							Y
Sedum	*rupestre*	'Angelina'	Golden Sedum	L	Evergreen	FS/PS	2 to 24	1' T / 1-2' W	2	Yellow / Summer / Succulent, Herbaceous Perennial / Lime-green to yellow foliage spring & summer, orange-red in fall; occasional to no foot traffic.	Y		Y				Y
Stipa (Nasella)	*pulcra*		Purple Needlegrass	VL	Deciduous to Semi-Evergreen	FS	5-9, 11, 14-24	3' T / 1.5' W	2	Purple-tinged, Cream / Late Winter, Spring / Perennial Grass/ Became California State Grass in 2004; grows well on clay & serpentine soils; best used for meadow or grassland look, erosion control; helps suppress invasive plant species per California Native Plant Society; reseeds easily; will stay green longer with supplemental water; can be cut back after flowering or in early summer in fire-prone areas.	Y						
Thymus	x *citriodorus*		Lemon Thyme	M	Evergreen	FS/PS	1 to 24	6-12" T / 2' W	3	Pale Lilac / Spring, Summer / Perennial Groundcover / Lemon-scented leaves; useful in kitchen garden; forms low mounds; locate retailers of Stepables® online, many options.	Y		Y				
Thymus	*polytrichus (praecox)*	*britannicus (arcticus)*	Mother-of-Thyme	L	Evergreen	FS/PS	A2, A3, 1-24	1-3" T / 1-3' W	3	Pink, White / Spring, Summer / Perennial Groundcover / Low, mat-forming habit; pleasing fragrance when crushed.	Y		Y				Y

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Thymus	*serpyllum (pseudolanu-ginosus)*		Woolly Thyme	M	Evergreen	FS/PS	A2, A3, 1-24	2-3" T / 3' W	7	Pink / Summer / Perennial Groundcover / Dusty gray foliage; good drainage needed.	Y		Y				Y
Thymus	*vulgaris*		Common Thyme	M	Herbaceous	FS	1 to 24	1' T / 2' W	3	Purple / Spring, Summer / Perennial / Useful in kitchen garden; aromatic leaves.	Y		Y				
Trachelospermum	*asiaticum*		Asian Jasmine	M	Evergreen	FS/PS	6 to 24	1-2' T / 10-12' W	95	Yellowish-White / Spring, Summer / Groundcover / Spreads assertively by runners; blooms less in shade; dense groundcover, leaves smaller than *T. jasminoides* .							
Trachelospermum	*jasminoides*		Star Jasmine	M	Evergreen	FS/PS	8-24, H1, H2	1-2' T / 10-20' T	177	White / Spring, Summer / Groundcover / Sweetly fragrant flowers, attractive to bees; leaves deep green, larger than *T. asiaticum*.						Y	
Vinca	*minor*		Dwarf Periwinkle	M	Evergreen	FS/PS	1 to 24	4-6" T / 1.5 W	2	Lavender-blue / Spring / Herbaceous Perennial Groundcover / Small	Y		Y				Y

DEFINITIONS OF TERMS & SYMBOLS

Water Use

Water-use classifications apply to established plants, not to newly installed plants.	Plant water-use classifications were obtained from *WUCOLS IV, Water Use Classification of Landscape Species* , California Department of Water Resources, University of California Division of Agriculture and Natural Resources, California Center for Urban Horticulture, 2014, www.ucanr.edu/sites/WUCOLS. The Sacramento region is Region 2, the Central Valley, in WUCOLS IV.
	Plant cultivars and hybrids, with some exceptions, may not have been included in *WUCOLS IV* because it was presumed that many cultivars have the same water-use classification as the species.
	VL - The abbreviation for **Very Low**. Plants in the VL water-use classification, such as Purple Needlegrass, *Stipa pulcra,* generally require no supplemental irrigation except during times of below average rainfall.
	L - The abbreviation for **Low** water-use classification, such as Bee's Bliss Sage, *Salvia* 'Bee's Bliss'. Plants in this category are considered to be water conserving because they perform well with relatively small amounts of supplemental water.
	M - The **Moderate** water-use classification is for plants, such as California Fescue, *Festuca californica,* and indicates that these plants need lesser amounts of water than high water-use plants, which are not included in this Plant List.
	Plant Establishment - When plants and trees are first installed, they need a period of time to become established in their new environment. Proper plant establishment requires careful and proper planting, as well as careful watering and monitoring. Frequency of watering will vary based upon plant type, soil type, season, sun exposure, and root depth. Planting in the fall takes advantage of seasonal rains and cooler temperatures, reducing or eliminating the need to apply supplemental water. When planting in the spring, or during an unusually dry fall and winter (rainy season), plants may require supplemental water.
	Please note that even drought-tolerant and low-water-use plants require a thorough soaking when first planted, and all newly installed plants need the soil to be kept evenly moist. The root ball of newly installed plants and the surrounding native soil should both receive water, in part, to encourage roots to grow into the native soil. For plants other than trees (e.g., shrubs, groundcovers, perennials, etc.), keep the root ball moist, but not soggy, during the first three months after planting. After the first three months, start to water less frequently, but more deeply. Then gradually, over a period of approximately 1 to 1-1/2 years, reduce the water frequency (or stated another way, increase the amount of time between watering) based on the water-use classification for that specific species. Keep in mind, that some California native plants, once established, do not want supplemental irrigation during summer months. Refer to the California Native Plant Society website at www.cnps.org for more information about California natives.
	Young trees will require regular, weekly watering during warm, dry months and until the rainy season begins. The root ball of newly installed trees and the surrounding native soil should both receive water. Before watering, check soil moisture with a probe, screwdriver, or moisture meter about 8 to 12 inches down into the soil. If soil feels moist and sticky, wait several more days before watering. If soil feels dry and crumbly, then water deeply. When watering, the objective is to apply water slowly and deeply so that the entire root ball receives water. According to the Sacramento Tree Foundation, www.sactree.org, young trees need about 10 to 15 gallons of water per week for the first 3 years. Refer to Drip Irrigation section below for more information.
	Consult with nurseries, growers, landscape professionals, horticulturists, and/or gardening reference books and other reliable resources to understand species-specific requirements, including planting, watering, and caring for young and established plants.
	Drip Irrigation - To use water efficiently and effectively, install irrigation dripline with built-in emitters on the soil surface in a grid pattern with even spacing between lines for uniform watering. Avoid having one single point-source emitter per plant. If point-source emitters are used, install two or more emitters per plant, depending on the size of the root ball, and place them halfway between the dripline of the young tree's or plant's canopy and the stem/trunk. The emitters are not to be next to or in contact with the stem/trunk. This will provide moisture to the root ball and the native soil with the objective of having widespread, uniform soil moisture to drive roots out from the root ball and deeper into the native soil.
	For established trees, install irrigation dripline in a circular pattern around the drip line of the tree (this is the edge of the tree's canopy), so the soil is wet from the drip line in toward the trunk to about halfway between the trunk and the drip line, and out from the drip line approximately the same distance. As trees mature, install additional rings of irrigation dripline out beyond the canopy, with equal spacing between the driplines. For established and mature plants and trees, monthly or at least seasonally, examine soil moisture and site conditions to determine the need and frequency for supplemental water, adjusting the number and placement of drip emitters and the irrigation schedule.
	Hydrozones - A **hydrozone** is an area of the landscape where all the factors that influence the watering regime are similar. Hydrozones divide a landscape's irrigation system based upon individual plant water needs and sun requirements, plant height, and planting density (e.g., whether the hydrozone is full of mature plants and/or plants that cover the ground surface completely, or whether it has immature and/or sparsely placed plants).
	Factors that determine hydrozones include infiltration rate of water into the soil, soil type, slope, sun exposure, and water needs of the plants. (Infiltration rate is the rate at which water can be applied to the soil without causing runoff.)
	Each hydrozone should be served by its own valve or control zone separate from other hydrozones, and use only one type of emission device (e.g., sprinklers or drip emitters) throughout that zone. Plants in that zone will be irrigated according to the same schedule, using the same irrigation method. For example, plants irrigated by sprinklers with multi-stream, rotary-type or precision-type nozzles will be on a separate schedule and valve from plants irrigated by drip emitters.

	Hydrozoning is a key component of a water-efficient irrigation system and landscape and is defined as the practice of grouping or clustering plants with the same water requirements. Through the practice of hydrozoning, it is possible to conserve water, improve efficiency, and avoid overwatering and underwatering through the customization of irrigation schedules for each hydrozone's needs.			
Exposure (Sun)				
Descriptions apply to established plants, not to newly installed plants.	In addition to grouping plants according to their water-use classification into hydrozones, plants within each zone need to have the same solar (sun) requirement.			
	For example, plants that have low water-use requirements and prefer full sun should be grouped together and irrigated on the same valve or zone (a valve separate from other zones). Plants with moderate water-use requirements that prefer part sun should be grouped together and irrigated on a separate valve or zone.			
	FS - Abbreviation for **Full Sun**. Plants in this category require direct sunlight for most of the day. Some plants in this category, such as Bee's Bliss Salvia, *Salvia* 'Bee's Bliss, can tolerate harsh conditions. Examples of harsh conditions are reflective heat from buildings and heat that is given off dark surfaces, such as asphalt.			
	FS/PS - Abbreviation for **Full Sun or Part Shade**. Plants in this category will do well in direct sunlight for most of the day or shade for part of the day. Plants may tolerate exposure to hot afternoon sun, but many prefer some afternoon shade, especially in areas with hot summers, such as the Sacramento region.			
	PS - Plants in the **Part Shade** category prefer dappled shade. Plants will tolerate sun exposure in the morning but must be protected from hot afternoon sun.			
	PS/SH - Plants will do well in dappled shade or full shade and will tolerate some sun exposure in the morning but must be protected from hot afternoon sun.			
	SH - Plants in this category require full **Shade**. Plants will do best if they never receive direct sun exposure, especially during hot summer months.			
Uses / Benefits				
Descriptions apply to established plants, not to newly installed plants.		Y		When known, the letter "Y" in a column indicates that, Yes, this plant may be appropriate for the following use or benefit: Drought Tolerant, CA Native, Deer Resistant, UC Davis Arboretum All-Star, suitable for Rain Gardens, Salt Tolerant/Tolerant of Recycled Water, and/or Fire Resistant. Refer to the Credits and Resources section for more information and consult with nursery and/or landscape professionals, gardening reference books, and other reliable resources to understand the unique uses and benefits of each species, and suitability to your specific site's conditions.
				Drought Tolerant - Once established, drought-tolerant plants can survive on natural precipitation with infrequent watering, or they may be able to withstand dry periods or repeated periods of drought, and recover from repeated wilting. The term "Drought Tolerant" does not mean that the plant is necessarily a low water-use plant, such as Emerald Carpet Manzanita, *Arctostaphylos* 'Emerald Carpet', which is a moderate water-use plant, yet it is drought tolerant. Under drought conditions, drought-tolerant plants may survive but not thrive and, especially during these conditions, continue to provide water for trees to sustain them.
				California Native - Plants with this symbol are suitable to this region's climate and conditions and/or native to this region.
				Deer Resistant - Be advised that no plant is "deer proof", and deer in different areas may have different tastes, and tastes can vary from year to year. Some deer-resistant plants may require protection until they become established.
				UC Davis Arboretum All-Stars - Plants that have been tested and are recommended for California gardens.
				Rain Garden - This symbol represents that the plant is appropriate for use in a Rain Garden.
				Salt Tolerant / Tolerant of Recycled Water - Refer to additional information provided below.
				Fire-Resistant Plants - A fire-safe landscape uses fire-resistant plants that are strategically placed to resist the spread of fire. There are no "fire-proof" plants. Plant selection, arrangement, spacing, and maintenance are critical. Fire-resistant plants, generally, have tissue with high moisture content, grow close to the ground, produce less litter, and/or have low sap or resin content. Plants are less likely to burn when they have open growth forms, have no dead or dry wood or plant material, and are watered properly to keep them hydrated. For specific guidelines, refer to your state, county, or local fire-safety jurisdictions, agencies, and organizations.

	Use of Recycled Water for Landscape Plants - Landscape plants respond differently to salt concentrations in irrigation water depending on the method of irrigation used, such as drip irrigation for soil surface application or sprinkler irrigation (overhead spray). Historically in California and for most landscape plantings, sprinkler irrigation was preferred over drip because it could require less maintenance and be less vulnerable to damage, although sprinkler irrigation could also waste a great deal of water due to improper scheduling, over watering, and water runoff. With current-day advances in irrigation technology and increased regulations for landscape water use, efficiency, and conservation, now is the time to usher California into a new age of environmental stewardship and practices. Such practices include the use of alternative water sources for irrigating landscapes, such as recycled water as opposed to the use of potable water.
	Plants irrigated with a sprinkler system are subject to injury, not only from salts in the soil, but also from salts absorbed directly through wetted leaves, making drip irrigation preferable when recycled water is being used. In addition, management of sprinkler irrigation can affect the degree of leaf injury caused by salt deposits. Infrequent, heavy irrigation should be applied rather than frequent, light irrigation. Irrigating using recycled water should be done at night or early in the morning. Using drip irrigation will prevent contact of recycled water with the foliage of salt sensitive shrubs and groundcovers.
	Soil salinity also increases between irrigations with the evaporation of soil water. Plant growth closely responds to the change of salt concentrations in the root zone. Therefore, the tolerance of plants to soil salinity is related to salinity integrated over time and is affected by the salt concentration in the root zone where roots absorb most of the water. Modification of soil physical properties and improvement of management practices can reduce salt accumulation in the root zone and, therefore, improve plant growth.

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