

TECHNICAL NOTES

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PLANTS - PLANTING - MAINTENANCE FOR REDUCED FIRE HAZARD

SCS personnel receive frequent requests for listings of adapted plants suitable for erosion control and landscaping use in areas of high fire hazard. The County of Los Angeles, Departments of Arboreta, Botanic Gardens, Forester, and Fire Warden have conducted extensive tests to determine the "fire resisting" value of plants adapted to use in Los Angeles County and presented their findings in a publication, "Fire Retardant Plants for Hillside Areas," September 1970. A number of the plants listed as having "fire retardant" value are hardy to 20°F and below and adapted to much of California. Information following is adapted from the publication for in-Service use.

The authors point out that the most effective fire protection a hillside homeowner can have is a wide zone of bare ground separating his home from adjacent brushland, but that this is often unacceptable for erosion control or aesthetic reasons. Desirable characteristics of plants for minimizing fire hazard include low fuel volume, relative high degree of fire retardance, good root system for erosion control, and acceptable cultural and maintenance requirements. Selection of plants is highly dependent on water availability. Permanent automated irrigation systems broadens the selection of plants and increases their fire retardance. Maintenance to avoid build-up of surface litter provides additional fire insurance.

Fire retardance value of the recommended shrubs and herbaceous perennials are based on: 1. relative high moisture content, and 2. prostrate growth habit. Several plants showing promise in recent tests are not listed because they are not readily available. General maintenance requirements, drought tolerance, and erosion control ratings are included in the following lists. More specific information should be obtained on the requirements of plants selected for use in individual plantings, including such operations as weed control, pruning, removal of litter, and renovation.

References listed include: 1. "Sunset Western Garden Book," 1968, Lane Magazine and Book Company, Menlo Park, CA; 2. "Perry's Ground Cover Guide," 1968, Perry's Plants, Inc., La Puente, CA; 3. "Landscape for Fire Protection," R. G. Maire and J. R. Goodin, University of California, Agricultural Extension Service, Publication AXT-254; 4. "Groundcover Succulents for California," Myron Kimmack, 1966, Lasca Leaves XVI, No. 2, (31-48).

Table 1. Plants with Highest Fire Preventing Potential (Succulents with Moisture Content, 90-96 Percent)

Scientific	PLANT NAME	Common	MATURE HEIGHT	TOLERANCE		EROSTON CONTROL		MAINTENANCE NEEDS
				Drought	Cold	2:1	1:1	
<i>Carpobrotus edulis</i>	Hottentot Fig		12-18 in.	Good	to 20°F	Fair		Medium
<i>Sesuvium portulacastrum</i>	White trailing ice plant		6-8 in.	Very Good	to 20°F	Good	Fair	Medium-Low
<i>Sesuvium portulacastrum</i>	Rosea ice plant		4-6 in.	Good	to 20°F	Good		Medium-Low
<i>Portulaca oleracea</i>	Trailing ice plant		6-12 in.	Good	25-30°F	Good		Medium-Low
<i>Portulaca oleracea</i>	Croceum ice plant		6-12 in.	Good	to 20°F	Good	Fair	Medium-Low
<i>Portulaca oleracea</i>	Yellow trailing ice plant		6-12 in.	Good	to 20°F	Fair		Medium-Low
<i>Portulaca oleracea</i>	Elephant's food		12 in.	Good	25-30°F	Fair		Medium
<i>Portulaca oleracea</i>	Green stonecrop		2-6 in.	Very Good	below 20°F	Fair		Medium-Low
<i>Portulaca oleracea</i>	--		6-12 in.	Very Good	25-30°F	Fair		Medium-Low
<i>Portulaca oleracea</i>	Brown bean		6-8 in.	Very Good	to 20°F	Fair		Medium-Low
<i>Portulaca oleracea</i>	--		12 in.	Good	to 20°F	Fair		Medium-Low

Table 2. Plants with High Fire Preventing Potential (Non-Succulents with Leaf Moisture Content, 80-95 Percent)

Scientific	PLANT NAME	Common	MATURE HEIGHT	TOLERANCE		EROSION CONTROL		MAINTENANCE NEEDS
				Drought	Cold	2:1	SLOPES TO 1:1	
<i>Arctotheca calendula</i>		Cape weed	12-15 in.	Fair	20-30°F	Good	Fair	Medium
<i>Gazania uniflora</i>		Trailing gazania	6-10 in.	Good	to 20°F	Good	Fair	Medium
<i>Astrospermum fruticosum</i>		Trailing South African Daisy	12-18 in.	Very Good	to 20°F	Excellent	Fair	Medium
<i>Delargonium peltatum</i>		Ivy geranium	12 in.	Fair	to 35°F	Good	Fair	Medium-High

Table 3. Plants with Good Fire Preventing Potential (Non-Succulents with Medium-High Leaf Moisture Content of 70-80 Percent)

<i>Jujuga crispa</i>		Giant ajuga	6-9 in.	Poor	below 20°F	Fair	Fair	High
<i>Atriplex semibaccata</i>		Creeping Australian saltbush	12 in.	Excellent	to 20°F	Excellent	Good	Medium
<i>Serastium tomentosum</i>		Snow-in-summer	4-6 in.	Very Good	below 20°F	Good	Fair	Medium-High
<i>Myoporum parvifolium</i>		--	6 in.	Very Good	to 20°F	Excellent	Good	Medium-Low
<i>Santolina chamaecyparissus</i>		Gray lavender cotton	18-24 in.	Excellent	below 20°F	Excellent	Good	High
<i>Santolina virens</i>		Green lavender cotton	18-24 in.	Excellent	below 20°F	Excellent	Good	High
<i>Linca major</i>		Periwinkle	18-24 in.	Fair	below 20°F	Excellent	Good	Medium-Low
<i>Linca minor</i>		Dwarf running myrtle	6-12 in.	Fair	below 20°F	Excellent	Good	Medium-Low

Table 4. Plants with Fair Fire Preventing Potential (Non-Succulents with Medium Leaf Moisture Content of 60-70 Percent)

Scientific	PLANT NAME	Common	MATURE HEIGHT		TOLERANCE		EROSION CONTROL			MAINTENANCE NEEDS
			Drought	Cold	Drought	Cold	2:1	SLOPES TO 1:1	1:1	
<i>Saccharis pilularis</i> 'prostrata'		Dwarf coyote bush	12-24 in.	Excel- lent	below 20°F	Excel- lent	Good	Good	High	
<i>Tedera canariensis</i>		Algerian ivy	12-15 in.	Poor	25-30°F	Excel- lent	Good	Medium		
<i>Tedera helix</i>		English ivy	12 in.	Poor	below 20°F	Excel- lent	Good	Medium		
<i>Telanthemum nummularium</i>		Sunrose	6-8 in.	Very Good	20-30°F	Good	Fair	Medium-Low		
<i>Hypericum calycinum</i>		Aaron's beard	12-15 in.	Good	below 20°F	Good	Fair	Medium-Low		
<i>Teucrium chamaedrys</i>		Germander	8-12 in.	Good	below 20°F	Good	Fair	Medium-Low		
<i>Verbena peruviana</i>		--	4-6 in.	Very Good	below 20°F	Fair	Fair	Medium-Low		

Information brief for plants listed in tables (references used--Sunset Western Garden Book and L. H. Bailey Encyclopedia of Horticulture).

Carpobrotus edulis (also Mesembryanthemum edule) - Hottentot fig

Evergreen, perennial, leaves curved, flowers pale yellow to rose.

Delosperma 'Alba' - White trailing ice plant

Evergreen, dwarf, spreading, roots freely from stems, small fleshy leaves, nice green color, small insignificant white flowers.

Drosanthemum hispidum - Rosea ice plant

Perennial, dwarf, trailing, rooting stems, small dark green leaves closely set on stem and covered with sparkling dots, profuse late spring to early summer flowers, purple, one inch in diameter.

Lampranthus spectabilis - Trailing ice plant

Perennial subshrub, gray-green foliage, profuse set of two-inch diameter flowers pink, rose pink, red or purple as selected.

Melaphora crocea - Croceum ice plant

Perennial, trailing, smooth gray-green foliage, sparse set reddish-yellow flowers during most of year, variety "purpureo" has salmon flowers, blue-green foliage.

Melaphora luteola - Yellow trailing ice plant

Perennial, gray-green foliage, sparse yellow flowers throughout year, not for erosion control.

Portulacaria afra 'variegata' - Elephant's food

South African origin, perennial, thick juicy stem, small green-yellow variegated leaves, seldom blooms.

Sedum brevifolium - Green stonecrop

European or North African origin, perennial, slow spreading, very small tightly packed fleshy "gray-white flushed with red" leaves, flowers white or pale pink, sunburns in extreme heat, need good drainage.

Sedum confusum

Mexico native, perennial, much branched, leaves fleshy, 1-1/2 inches long, late spring yellow flowers in dense clusters.

Sedum rubrotinctum - Brown bean

Perennial, stems sprawling and leaning, leaves look like green jelly beans with brown tips, often bronze red in full sun, flowers reddish yellow, leaves root readily.

Senecio serpens (also *Klenia repens*)

South African origin, perennial, daisy-like whitish flowers unattractive and are removed to maintain foliage quality, somewhat invasive, gray-blue 1-1/2 inch leaves make interesting contrast with dark foliage.

Arctotheca calendula - Cape weed

A trailing perennial recently introduced into Los Angeles area and tested by Los Angeles Arboretum is reported to show considerable promise for critical area planting. Has shown consistent vigorous establishment from rooted rhizomes planted on 18-inch centers and irrigated at one to two week intervals during establishment. Dark green leaves, yellow flowers. Reported tolerant to salt and wet sites.

Gazania uniflora - Trailing Gazania

South African origin, perennial. Silver-gray foliage, white, yellow, orange, or bronze 2-1/2 inch diameter daisy-like flowers, profuse and attractive against foliage.

Osteospermum fruticosum - Trailing South African daisy

South African origin. Perennial, evergreen subshrub. Likes full sun. Trailing, rapid spread from rooting branches. Short, thick medium green leaves. Attractive two-inch flowers, multi-colored, profuse November to March.

Pelargonium peltatum - Ivy geranium

Perennial, trailing. Leaves ivy-like, glassy, bright green, two to three inches across, pointed lobes. Single or double one-inch diameter flowers borne in clusters, white, pink, rose, red, and lavender varieties.

Ajuga crispa (also A. reptans 'crispa') - Giant ajuga

Perennial, trailing, two to four-inch wide dark green leaves form thick carpet, blue flowers on four to six-inch high spikes, full sun to part shade. Avoid poorly drained soils.

Atriplex semibaccata - Creeping Australian saltbush

Australian origin. Perennial. Gray-green leaves, 1/2 to 1-1/2 inches long form dense mat. Deep rooted, vigorous.

Cerastium tomentosum - Snow-in-Summer

Perennial. Dense mats of silver-gray 3/4 inch long leaves. Snowy masses 1/2 inch diameter flowers. Adapted in mild to cold climates of coastal or desert areas. Full sun to light shade. Vigorous, deep rooted. Avoid poorly drained soils.

Myoporum parvifolium

Australian origin, perennial evergreen. Inch-long pale green leaves, trailing stems. Sweet, snow-white blossoms.

Santolina chamaecyparissus - Gray lavender cotton

Perennial, evergreen, woody stems. Dense, rough, finely divided light gray leaves. Aromatic. Full sun, many little round flowers. Best appearance if kept low pruned.

Santolina virens - Green lavender cotton

Perennial, evergreen, woody stems. Narrow, deep green leaves, creamy chartreuse flowers. Faster growth than chamaecyparissus.

Vinca major - Periwinkle

Evergreen, perennial, trailing. Stems root as they spread. Oval, dark-green glossy two-inch long leaves (also white variegated form). Lavender flowers, one to two-inches in diameter. Likes shade.

Vinca minor - Dwarf running myrtle

Like *V. major* in miniature except for narrower leaves and varieties available with white and wine red flowers.

Baccharis pilularis 'prostrata'

Dwarf coyote bush is a California native along coast, Sonoma to Monterey, Counties. Excellent range of soil and climatic adaptation. Thrives in wet sites yet is most dependable ground cover in high desert. Forms dense, bright green mat. Close-set 1/2-inch toothed leaves, many branches. Flowers of no interest. Male plants cleanest and best for landscaping.

Hedera canariensis

Algerian ivy is evergreen, woody perennial. Much used for ground cover in California. Shiny, shallow lobed green leaves, five to eight inches wide. Variegated variety available. Requires more moisture than English ivy. Creeping, rooted branches. Clusters of small green flowers forming black berries.

Hedera helix

English ivy is evergreen, creeping, woody perennial with rooting branches. Leaves two to four inches wide and long, dark, dull green with pale veins and deeply lobed to three to five leaflets. Less vigorous and easier to control than Algerian ivy. Clusters of insignificant green flowers. Black berries.

Helianthemum nummularium - Sunrose

An evergreen, perennial shrublet. Leaves 1/2 to one inch long, gray, pubescent under side or both sides depending on variety. Delightful flower display with many colors available. Flowers one-inch in diameter in single and double forms, April - June. Likes full sun. Requires well-drained soil. Wide climatic adaptation with correct varietal selections.

Hypericum calycinum - Aaron's Beard

Evergreen, perennial shrub, semideciduous where winters are cold. Leaves close to stem to four inches long. Best with part shade in hot summer areas. Competes with tree roots. Wide soil adaptation. Rhizomatous, can be invasive. Clip at two- to three-year intervals for best appearance.

Teucrium chamaedrys - Germander

Perennial, evergreen subshrub with wide climatic adaptation. Likes full sun. Requires well-drained soils. Leaves toothed, 3/4 inch long, dense, dark green. Flowers 3/4 inch diameter in clusters, red-purple or white. Neatest with semi-annual or annual shearing.

Verbeña peruviana

Perennial, spreads rapidly to form flat mat. Small leaves neat, close-set. Flower clusters with white corolla tube, scarlet lobes. Hybrids available with larger leaves and other flower colors. Needs sun and heat to thrive.

Concluding considerations for reduced fire hazard as related to plant use.

Turf - Close-mowed, well maintained turf with clippings removed can form effective fire resistant barriers. Many grasses, on the other hand, when unmowed and permitted to dry out can carry fire rapidly. Grasses that stay green with limited water and form short, dense turfs that tend to smother fire, such as the improved turf bermudas and Zoysia's are preferable in areas of high fire hazard to turf varieties that require more water, grow taller, and form more open stands. Adapted perennial grasses will all tend to rate excellent for erosion control by rating standards used in the preceding tables.

Maintain Access - Avoid crowded plantings that limit access of maintenance and/or fire control equipment.

Mechanical Erosion Control Methods - Contour development, mechanical drops, gravel mulches, diversions, and other mechanical conservation practices all have a place in minimizing need for vegetative erosion control and should be employed to full advantage in areas of high fire hazard. Mineral earth is superior to vegetation for fire control.

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