

LID Native Plant List for San Francisco

California Native Plant Society

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Prepared by the Yerba Buena Chapter of the CA Native Plant Society

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Low Impact Design (LID) is a set of innovative design and planning principals that approach urban stormwater management like a natural system. LID seeks to mimic natural watershed processes by designing urban areas to handle stormwater runoff close to its source by promoting slow infiltration, filtration, storage and evaporation instead of rapidly conducting runoff into hard pipe disposal systems. Design elements are incorporated into the landscape increase permeability and infiltration and even store, filter and utilize waste storm water. Techniques such as bioretention, living roofs, permeable hard surfaces, open space, urban forests and rain storage systems are all common components used in Low Impact Design. These techniques can be applied to most urban environments include parks, streetscapes, sidewalks, parking lots and even rooftops.

The following native plant list has been developed by the Yerba Buena Chapter of the California Native Plant Society to assist stormwater engineers, designers, planners and regulators choose appropriate plants in the City of San Francisco for Low Impact Design projects. This list has been specifically designed for selecting plants for bioretention cells and swales along sidewalks, streetscapes and parking lots. Bioretention is a design element that captures urban runoff in a plant – soil infiltration device. The plant – soil based infiltration system is effective at removing stormwater pollutants through a variety of natural physical, biological and chemical processes. Heavy metals such as copper, lead and zinc and nutrients such as nitrogen and phosphorus can be effectively removed with bioretention systems in urban areas. Only plants native to San Francisco County are included in this list; exotics and non-local California native plants have been omitted. The list is organized by the following standard bioretention zones:

Zone 1: Area of periodic or frequent standing or flowing water. Many of these plants can also tolerate seasonally dry periods during wet (foggy) summers in some regions of the City with no additional watering or special care.

Zone 2: Periodically moist or saturated during larger storms.

Zone 3: Dry soils - uplands – infrequently subject to inundation or saturation. Many of these plants are suitable for transition zones with the existing landscape features.

Special Considerations:

Site specific genetics and adaptations. Many of the remnant native plant species of San Francisco have unique adaptations that allow them to be highly successful in this challenging marine environment. Though a species may be common throughout California, the individuals and populations within San Francisco are typically unique with subtle variations in size, color, vigor and genetic code. To protect this unique diversity within San Francisco, only cultivated stock from these same populations should be used in urban Low Impact Design projects. Using only local stock insures that plants will be preadapted to San Francisco's unique climates and be highly vigorous and quick to establish, ultimately leading to more successful and less expensive projects. Local stock will also protect the remnant populations of the same plants throughout the entire City from hybridization and genetic degradation.

Availability and Rarity. As San Francisco is geographically a small area with limited open spaces, many of the plant species included on this list will be relatively uncommon or only found in limited small populations on protected, public trust lands. Furthermore, many of the plants on this list will be unavailable in retail and wholesale horticultural nurseries throughout San Francisco and the Bay Area. To remedy this, the California Native Plant Society pledges to work with stormwater engineers, landscape architects, designers, planners and regulators to assist in developing greater opportunities for integrating these local species into San Francisco's stormwater projects. We will actively pursue opportunities to contract grow species with local non-profits, agency and commercial nurseries within San Francisco to provide the volume of plants necessary for capital projects. The "Availability" column in the species list tables is reflective of the difficulty to find each species that is genetically-local to San Francisco. Some of these species may be very common in the regional nursery trade but nurseries do not produce them within San Francisco.

Placement of Trees. The California Native Plant Society provides only a list of trees appropriate for LID; we have not considered height, spread, rate of growth and root impacts to structures. Urban foresters, landscape architects, certified arborists and engineers should be consulted to select appropriate trees for specific projects.

Invasive Plants and Phytoremediation. Some plant species have been found to be tolerant of mild to medium levels of soil contamination and many of these same species have been found to accelerate the degradation, containment or extraction of specific contaminants. The use of plants to actively manage and/or remove soil contamination is called phytoremediation. Some studies indicate that specific plant species can be effective at degrading or removing hydrocarbons, chlorinated solvents, pesticides and some heavy metals more than other plant species. . Phytoremediation can be an important design component for stormwater management where specific plant species are utilized to remove specific contaminants from the environment. This may be especially helpful when designing stormwater systems for parking lots, manufacturing and industrial areas where a high probability of contamination exists.

A few of these plant species are native to San Francisco and each one is highlighted with an asterisk in the following section's species tables. Many of the more widely recognized phytoremediation species are conversely non-native to San Francisco or California and some of these are known invasive exotic plants. Invasive exotic plants are species known to disrupt local plant communities and ecosystems through excessive reproduction, competition and exclusion. Through these mechanisms of excess, invasive species usurp valuable habitat, eliminate native plant species and provide no ecosystem services for native insects, birds and other wildlife. Any potential virtues of an invasive phytoremedial plant species will never outweigh the ecosystem values of preserving and enhancing San Francisco's native flora and habitats. For this reason, the following plant species should never be included in LID projects in San Francisco:

INVASIVE PLANTS FORBIDDEN IN SAN FRANCISCO LID PROJECTS

NAME	ORIGIN	WEED LIST	COMMENTS
<i>Brassica rapa</i> field mustard	Mediterranean	CalIPC	May hyperaccumulate metals
<i>Cynodon dactylon</i> Bermuda grass	??	CalIPC	May degrade hydrocarbons
<i>Digitalis purpurea</i> foxglove	Mediterranean	CalIPC	May remove Cadmium from soils
<i>Festuca arundinacea</i> giant fescue	Europe/Asia	CalIPC	May help degrade hydrocarbons
<i>Hydrilla verticillata</i> hydrilla	Asia	CDFA/USDA CalIPC	May help accumulate heavy metals
<i>Lolium perenne</i> perennial ryegrass	Europe	CalIPC	May help degrade hydrocarbons
<i>Lotus corniculatus</i>	Mediterranean	CalIPC	May help degrade hydrocarbons

bird's foot trefoil <i>Trifolium pretense</i>	Mediterranean	CalIPC	May help degrade hydrocarbons
red clover <i>Trifolium repens</i>	Mediterranean	CalIPC	May help degrade hydrocarbons; remove PCB's
white clover <i>Vicia sativa</i>	Mediterranean	CalIPC	May help remove heavy metals
vetch			

ZONE 1 – FREQUENT STANDING WATER

Plants in Zone 1 are common riparian, wetland and bog plants capable of surviving in saturated soils throughout the year. Most of these plants are not drought tolerant and require some water throughout the growing season.

TREES

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Alnus rubra</i> red alder	Sun/Partial Shade	30-80 feet	Common	Nitrogen fixer; rapid growing; short lived; needs extensive area for roots
<i>Salix lasiolepis</i> arroyo willow	Full sun	30 feet	Common	Can be easily started from pole cuttings; should not be planted around underground structures
<i>Salix lucida</i> shinning willow	Full sun	30 feet	Common	Can be easily started from pole cuttings; should not be planted around underground structures

SHRUBS

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Cornus sericea</i> creek dogwood	Sun/Partial Shade	4-8 feet	Common	Prefers wet/moist organic soils; excellent wildlife plant; fall color – attractive red stems
<i>Lonicera involucrata</i> twinberry	Shade/Partial Shade	4-8 feet	Common	Needs good drainage; excellent wildlife plants; climber

ZONE 1**EMERGENTS**

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Carex barbarae</i> Santa Barbara sedge	Full Sun		Uncommon/ Custom	Moist soils to drought tolerant; spreading large statured sedge
<i>Carex brevicaulis</i> short stem sedge			Uncommon/ Custom	
<i>Carex subbracteata</i> small bract sedge			Uncommon/ Custom	
<i>Carex tumulicola</i> slender sedge			Uncommon/ Custom	
<i>Cyperus eragrostis</i> tall flat sedge			Uncommon/ Custom	
<i>Juncus balticus</i> Baltic rush	Full Sun		Common	Hardy evergreen perennial; wet soils or drought tolerant
<i>Equisetum arvense</i> common horsetail	Sun/Partial Shade	1-3 feet	Uncommon/ Custom	Wet soils; spreading – weedy; browns when dry
<i>Equisetum hyemale</i> scouring rush	Sun/Partial Shade	1-3 feet	Uncommon/ Custom	Wet soils; spreading – weedy; browns when dry
<i>Juncus effusus</i> bog rush	Sun/Shade	1-2 feet	Common	Hardy evergreen perennial; wet soils or drought tolerant
<i>Juncus lesueurii</i> dune rush	Full Sun	1-2 feet	Common	Sandy soils; spreading; sharp leaves and potentially dangerous
<i>Juncus phaeocephalus</i> brown-headed rush	Full Sun	6 inches	Uncommon/ Custom	Small, spreading ground cover rush
<i>Juncus xiphiodes</i> Iris-leaved rush	Full Sun	6 inches	Uncommon/ Custom	Small, spreading ground cover rush
<i>Mimulus guttatus</i> seep monkeyflower	Sun/Partial Shade	2-6 inches	Common	Yellow blooms year-round; attracts wildlife; self-seeds on wet ground; weedy
<i>Rumex salicifolius</i> willow dock	Full Sun	prostrate - spreading	Uncommon/ Custom	Creeping native dock; looks similar to invasive docks; moist soils
<i>Scirpus microcarpus</i> bulrush	Full Sun	4-8 feet	Uncommon/ Custom	Wet soils; accepts prolonged inundation
<i>Sisyrinchium californicum</i> yellow-eyed grass	Sun/Partial Shade	6 inches	Uncommon/ Custom	Yellow flowers; spreading
<i>Trifolium wormskioldii</i> coast clover	Sun/Partial Shade	4 inches	Uncommon/ Custom	Spreading matt-forming perennial clover; large purple flowers; excellent wildlife plant
<i>Vicia giganteum</i> giant vetch	Sun/Partial Shade	climbing	Uncommon/ Custom	Vigorous summer perennial climbing vine; moist soils; large red flowers and attractive black seedpods; Caution - aggressive spreader

ZONE 2 – PERIODICALLY WET

Plants in Zone 2 are common riparian/upland transitions areas, moist woodlands, seasonal wetlands and upland coastal areas. They are capable of surviving in saturated soils only during winter and early spring. Many of these plant species are summer drought tolerant but could benefit from some year-round moisture. Late summer moisture for many of these species is provided in the form of saturating summer fogs along the immediate coast.

TREES

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Myrica californica</i> Pacific wax myrtle	Sun/Partial Shade	To 30 feet	Common	Small evergreen tree; excellent for screens; semi-drought tolerant
<i>Quercus agrifolia</i> coast live oak	Full Sun	to 60 feet	Common	Large evergreen tree; tolerant and widespread; important for birds/wildlife ; no summer water
<i>Sambucus Mexicana</i> blue elderberry	Full Sun	to 30 feet	Common	Excellent wildlife plant – lots of white flowers>blue berries; messy – unruly form; prune back often

SHRUBS

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Corylus cornuta</i> hazlenut	Shade/Partial Shade	5-8 feet	Common	Moist well drained soils; edible nuts; excellent wildlife plant
<i>Oemleria cerasiformis</i> Indian plum	Sun/Partial Shade	2-4 feet	Uncommon/ Custom	Moist to dry soils; sparse growth habit; slow growing

<i>Physocarpus capitatus</i> ninebark	Sun/Partial Shade	4-10 feet	Uncommon/ Custom	Tolerate flooding but also seasonal drought
<i>Prunus emarginata</i> bitter cherry	Full Sun	3-8 feet	Uncommon/ Custom	Most to dry, well drained soils; attracts wildlife
<i>Symphoricarpos albus</i> snowberry	Sun/Partial Shade	1-4 feet	Common	Wet to dry soils; spreading low shrub; ivory berries in winter; excellent wildlife plant
<i>Ribes sanguineum</i> pink flowering current	Sun/Partial shade	2-6 feet	Common	Wet to dry soils, intense pink blooms in winter
<i>Rosa californica</i> California rose	Sun/Partial shade	2-4 feet	Common	Wet to dry soils; attractive flowers
<i>Rosa gymnocarpa</i> wood rose	Sun/Partial shade	2-4 feet	Common	Wet to dry soils; attractive flowers
<i>Rubus parviflorus</i> thimbleberry	Sun/Partial shade	4-6 feet	Uncommon/ Custom	Moist to dry soils; thick spreading mass
<i>Rubus spectabilis</i> salmonberry	Sun/Partial shade	4-8 feet	Uncommon/ Custom	Prefers moist soils – shade; spreading; showy red flowers
<i>Rubus ursinus</i> California blackberry	Shade/Partial Shade	2 feet - climbing	Common	Moist to dry soils; thick spreading groundcover; can climb/mound

HERBACEOUS PERENNIALS

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Aquilegia formosa</i> Western columbine	Shade/Partial Shade	1-2 feet	Common	Moist soils; tolerant of seasonal flooding; attractive flowers
<i>Aristolochia californica</i> pipevine	Sun/Partial Shade	climbing	Uncommon/ Custom	Moist soils to drought tolerant; slow climber; unusual flowers; attracts pipevine swallowtail butterfly
<i>Aster chilensis</i> common aster	Sun/Partial Shade	1-2 feet	Common	Moist soils to summer drought tolerant; late season purple flowers
<i>Fragaria vesca</i> woodland strawberry	Shade/Partial Shade	6 inches	Common	Moist to dry soils; spreading groundcover; edible berries; attracts wildlife
<i>Fragaria chiloensis</i> beach strawberry	Full Sun	6 inches	Common	Sandy soils; moist to dry; aggressive spreader
<i>Iris douglasiana</i> Pacific iris	Sun/Partial Shade	1-2 feet	Common	Tolerates seasonal flooding and summer drought; impressive blue flowers
<i>Lathyrus vestitus</i> Pacific pea	Sun/Partial Shade	6 inches – climbing	Uncommon/ Custom	Moist to dry soils; attractive flowers in spring

<i>Marah oregana</i> manroot	Sun/Partial Shade	climbing	Uncommon/ Custom	Winter perennial – summer dormant vine, large underground tuber
<i>Potentilla glandulosa</i> sticky cinquefoil	Sun/Partial Shade	6 inches	Uncommon/ Custom	Moist soils –drought tolerant
<i>Ranunculus californica</i> California buttercup	Sun/Partial Shade	6-12 inches	Common	Moist to dry soils
<i>Sisyrinchium bellum</i> blue-eyed grass	Full Sun	6 inches	Common	Moist soils – drought tolerant; attractive blue flowers in spring
<i>Tellima grandiflora</i> fringe cups	Shade/Partial Shade	6-12 inches	Uncommon/ Custom	Moist soils – drought tolerant

GRASSES

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Danthonia californica</i> California oat grass	Full Sun	6-12 inches		Bright green perennial bunchgrass, flat; tolerant of soil compaction
<i>Distichlis spicata</i> salt grass	Full Sun	6-12 inches	Common	Saltmarsh plant; tolerant of salt-marine environments
<i>Festuca californica</i> California fescue	Sun/Partial Shade	1-3 feet		Moist to dry soils; drought tolerant; attractive, large statured grass
<i>Hordeum brachyantherum</i> meadow barley	Full Sun	6-12 inches		Moist soils; common in wet meadows
<i>Leymus triticoides</i> creeping wild rye	Full sun	1-6 feet		Moist soils –drought tolerant; large, spreading grass; vigorous
<i>Phalaris californica</i> California canarygrass	Full sun/Partial shade	1-2 feet		Coastal – sandy or well drained soils; blue-green foliage

ZONE 3 – UPLAND/TRANSITION ZONE

Plants in Zone 3 are common riparian/upland transitions areas, woodlands, shrublands, grasslands and dunes. Many of these plant species are tolerant of some year-round moisture but they can all survive through summer drought.

TREES

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Aesculus californica</i> buckeye	Full Sun	to 60 feet	Common	Large summer deciduous tree; tolerant and widespread; important for birds/wildlife
<i>Heteromeles arbutifolia</i> toyon	Full Sun	to 30 feet	Common	Small tree; winter red berries attract wildlife
<i>Quercus agrifolia</i> coast live oak	Full Sun	to 60 feet	Common	Large evergreen tree; tolerant and widespread; important for birds/wildlife ; no summer water
<i>Quercus chrysolepis</i> canyon live oak	Full Sun	to 35 feet	Uncommon; Locally rare	Small drought tolerant evergreen tree; SF genotype only found at Lake Merced
<i>Prunus ilicifolia</i> holly-leaved cherry	Full Sun	to 30 feet	Common	Small evergreen tree; drought tolerant; berries attract wildlife
<i>Sambucus Mexicana</i> blue elderberry	Full Sun	to 30 feet	Common	Excellent wildlife plant – lots of white flowers>blue berries; messy – unruly form; prune back often

SHRUBS

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Artemisia californica</i> coastal sagebrush	Full Sun	1-4 feet	Common	Well drained soils; attractive grey-green foliage
<i>Baccharis pilularis</i> coyote brush	Full Sun	2-6 feet	Common	Evergreen shrub, SF genotype is spreading, dwarf; widespread and tolerant
<i>Berberis (Mahonia) pinnata</i>	Sun/Partial Shade	1-3 feet	Common	Well drained soils, yellow flowers in late winter/early spring

Oregon grape				
<i>Ceanothus thyrsiflorus</i> blueblossom	Full Sun	6-15 feet	Common	Large evergreen shrub can be pruned as a tree; abundant flowers attract wildlife
<i>Eriogonum latifolium</i> coast buckwheat	Full Sun	1-2 feet	Common	Well drained soils; excellent for sandy areas; nectar-rich flowers
<i>Eriophyllum stachaedifolium</i> lizardtail	Full Sun	3-4 feet	Common	Well drained soils; mounding form; nectar-rich flowers
<i>Garrya elliptica</i> coast silktassle	Full Sun	< 20 feet	Common	Large evergreen shrub, unusual flowers,, slow growing
<i>Holodiscus discolor</i> creambush	Sun/Partial shade	4-6 feet	Common	Deciduous shrub, showy flowers
<i>Mimulus aurantiacus</i> sticky monkeyflower	Full Sun	2-4 feet	Common	Small shrub with abundant spring bloom; excellent for wildlife
<i>Rhamnus californica</i> coffeeberry	Sun/Partial Shade	4-8 feet	Common	Large evergreen shrub; summer flowers and berries attract wildlife
<i>Rhamnus crocea</i> redberry buckthorn	Sun/Partial Shade	2-4 feet	Uncommon	Small evergreen shrub; summer flowers and berries attract wildlife

HERBACEOUS PERENNIALS – ANNUALS

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Acaena pinnatifida</i> CA acaena	Full Sun	1-2 feet	Uncommon/ Custom	Caution: seeds have sharp spines
<i>Achillea millefolium</i> * yarrow	Sun/Partial Shade	1-2 feet	Common	Perennial aromatic native herb; attracts wildlife; can aggressively spread; may help remove Cadmium from soils
<i>Astragalus nuttallii</i> locoweed	Full Sun	prostrate - spreading	Uncommon/ Custom	
<i>Claytonia perfoliata</i> * miner's lettuce	Shade/Partial Shade	6-12 inches	Common	Common, weedy annual; edible; may remove cadmium from soils
<i>Dudleya farinose</i> liveforever	Full Sun	6 inches	Common	Succulent; well drained soils; slow growing
<i>Erysimum franciscanum</i>	Full Sun	1-2 feet	Uncommon/ Custom	Uncommon – locally rare; well drained soils - sand

SF wallflower				
<i>Iris douglasiana</i> Pacific iris	Sun/Partial Shade	1-2 feet	Common	Tolerates seasonal flooding and summer drought; impressive blue flowers
<i>Iris longipetala</i> long-leaved iris	Full Sun	2-3 feet		Drought tolerant
<i>Lotus scoparius</i> deerweed	Full Sun	1-3 feet	Common	Drought tolerant; tolerant and widespread; sparse habit
<i>Scrophularia californica</i> bee plant	Sun/Partial Shade	2-4 feet	Common	Drought tolerant and hardy; flowers attract wildlife
<i>Sidalcea malviflora</i> checkerbloom	Full Sun	6 inches	Common	
<i>Solidago californica</i> * goldenrod	Full Sun	6 inches	Uncommon/ Custom	Attractive late season flowers; drought tolerant; may help remove heavy metals from soils

GRASSES

NAME	EXPOSURE	SIZE	AVAILABILITY	COMMENTS
<i>Agrostis pallens</i> bentgrass	Full Sun	6-12 inches	Common	Rhizomatous grass; matt forming –spreading
<i>Bromus maritimus/carinatus</i> seaside/CA brome	Sun/Partial Shade	1-2 feet	Common	
<i>Calamagrostis nutkaensis</i> Notka reed grass	Full Sun	2-4 feet	Common	Coastal; needs fog precipitation through summer; showy large statured grass
<i>Danthonia californica</i> California oat grass	Full Sun	6-12 inches	Common	Bright green perennial bunchgrass, flat; tolerant of soil compaction
<i>Deschampsia cespitosa</i> tufted hairgrass	Full Sun	6-12 inches	Common	
<i>Elymus glaucus</i> * wild rye	Sun/Partial Shade	1-3 feet	Common	Tolerant and widespread large statured perennial bunchgrass; may help breakdown hydrocarbons in soils
<i>Festuca rubra/idahoensis</i> * red/Idaho fescue	Full Sun	6-12 inches	Common	Similar species red tends to spread vs. Idaho tending to bunch; red may help breakdown hydrocarbons in soils
<i>Koeleria macrantha</i> June grass	Full Sun	6-12 inches	Uncommon	Well drained soils; slow growing bunchgrass

<i>Melica californica</i> California melic	Sun/Partial Shade	6-12 inches		Moist – dry soils; attractive perennial bunchgrass; shade tolerant
<i>Nassella pulchra</i> purple needlegrass	Full Sun	6-12 inches	Common	CA State Grass; classic bunchgrass; extremely drought tolerant
