A BAY SHORELINE LANDSCAPE GUIDE:

Planting Materials and Methods for San Francisco Bay Shoreline Projects

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INTRODUCTION

This booklet recommends plants that should be used for projects located on the San Francisco Bay shore. The first part lists native marsh plants appropriate for enhancing small wetland areas, i.e., those areas near and below the line of highest tidal action. Planting methods are included. Second is a list of plants suitable for shoreline areas further removed from tidal action but where adverse conditions such as saline soils, strong winds, or limitations on irrigation exist.

This booklet was prepared using published information and a group of technical reviewers who contributed their knowledge and expertise. To them we offer our special thanks.

Comments or suggestions regarding the plant materials described in this booklet would be appreciated. New information will be incorporated into future editions of the Bay Shoreline Plant List.

PART I: PLANT MATERIALS APPROPRIATE FOR MARSH AREAS

In various permits, BCDC has approved small scale marsh enhancement projects. This portion of the booklet lists and describes the plants and planting techniques suitable for such areas.

Several general criteria should be used to develop these small area marsh replacement projects. They include:

- Select native Bay Area marsh plants;
- Plant areas in elevational and spatial patterns found in natural tidal marshes;
- Design projects to replace and enhance the visual qualities of natural vegetation which has been destroyed or degraded; and
- Develop an appropriate maintenance program.

Use of native Bay Area species is of fundamental importance in shoreline landscaping. Exotic plants, especially those related to local species, have demonstrated a propensity to spread beyond their planted areas and outcompete established natives. This can lead to reduced resource value for wildlife and detract from the natural visual quality of the shoreline in areas beyond the development site. Propagation of nonnative species can also lead to unpredictable, expensive management problems, as exemplified in the current Delta water hyacinth invasion and with the spread of iceplant, which can displace some native vegetation.

It is strongly suggested that seeds or other planting materials be obtained from local stock, preferably from mature, healthy populations near the development site. Care should be taken, however, in removing material from existing marshes. No plants should be removed without the permission of the property owners. If a local source is not available, certain nurseries and other sources listed at the end of this section can provide native plants or seeds.

The most critical aspect of a successful marsh plan is planting at the proper elevation. In a natural marsh, plants succeed according to their species-specific affinities for existing exposures to tidal inundation and salinity. When planting a new area, the contractor should place seeds or propagules within the elevation and geographic ranges where they would normally occur. Figure 1 illustrates the marsh "zone," defined by tidal exposure, preferred by typical marsh plants.

In addition to tidal elevations, the landscape designer should be certain that correct soil conditions are provided. A soil acidity range of pH six to eight is required, and most marsh plants tolerate fluctuations from pH four to nine.

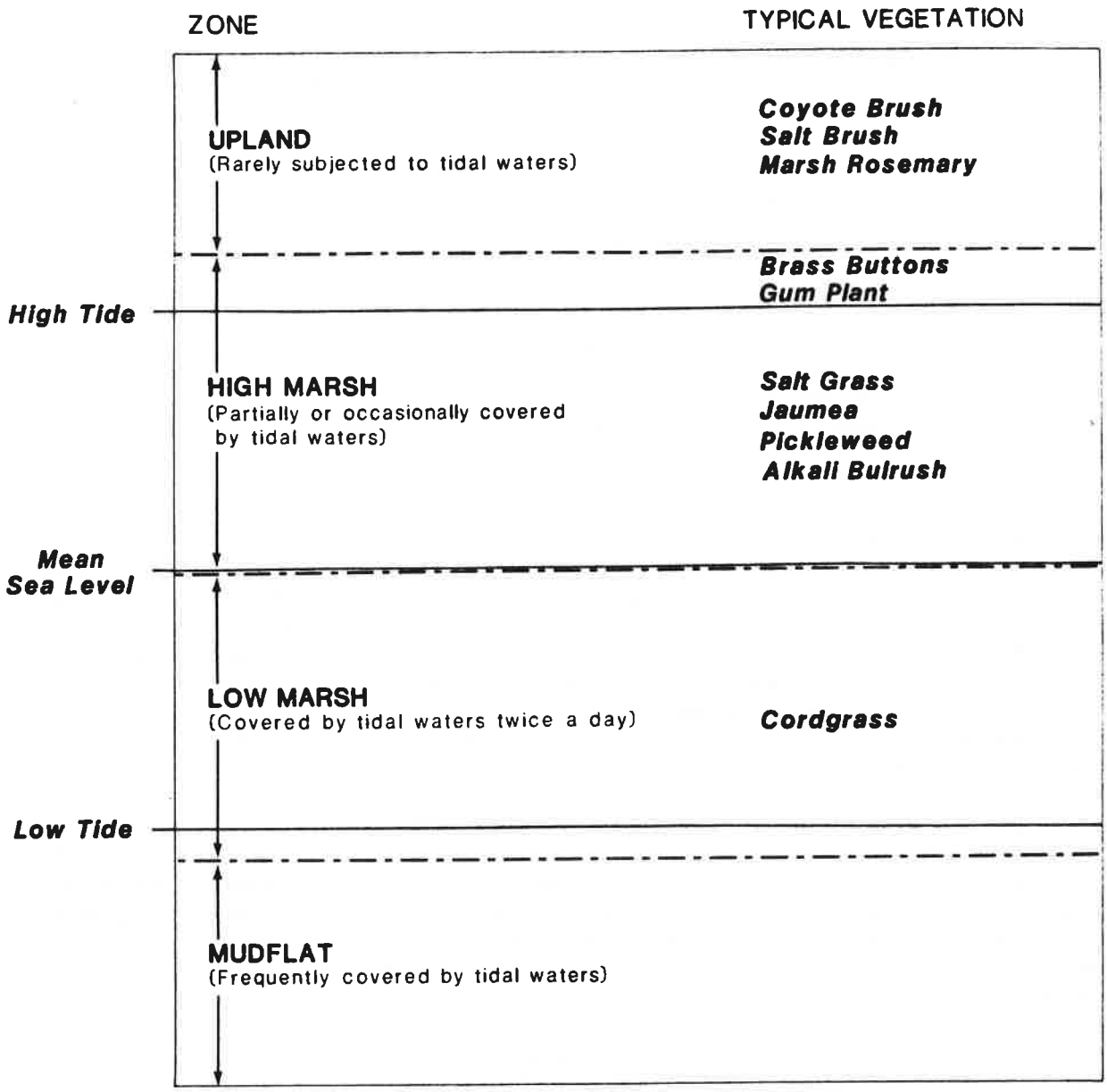

FIGURE 1

Marsh Zones Preferred by Typical Marsh Plants

Native marsh plant landscaping provides a visual compliment to the Bay along the shoreline. Aside from this aesthetic benefit, marsh vegetation planting has considerable practical value. Lower maintenance costs and added soil stablization are bonuses obtained by using plants adapted to shoreline conditions.

Last, without proper maintenance, many marsh restorations fail. Invading species should be discouraged so natural growth patterns of the natives can develop. During early growth phases, the planted area should be protected from trampling and damage from people and dogs. Plants likely to be eaten by wildfowl should be protected with wire netting until established.

The criteria discussed here could be used in a large scale marsh restoration project, but all the factors leading to the successful establishment of a wildlife community, with value comparable to the natural state, are not explored here. Guidelines and further information on marsh restoration are available in the technical report "Enhancement and Restoration of Diked Historic Baylands," by H. T. Harvey et al., 1982, part of the BCDC study of diked historic baylands. Dr. Harvey's work on vegetation supplied much of the basic information for this portion of the guide.

GRINDELIA HUMILIS (Gum Plant)

REQUIREMENTS: Salinity: 20 parts per thousand (ppt). Lower salinity is more favorable for germination.

Tidal Elevation: Upper periphery of marsh.

Wind/Wave Action: Tolerant of moderate to heavy winds.

Moisture: Cannot tolerate much immersion.

DESCRIPTION: Evergreen shrub up to 5 feet high with a 3 to 4 foot spread; hardy. Sticky buds produce attractive yellow flowers in late summer.

PLANTING INSTRUCTIONS: Harvest seeds from nearby plants (gum plant blooms year-round) or obtain from a specialty nursery. Scatter seeds by hand. The best time is late winter to early spring, after rains have diluted the area's salinity. Scatter several times throughout this 3 to 4 month period, to increase chances of successful establishment.

SALICORNIA PACIFICA (Pickleweed)

REQUIREMENTS: Salinity: 30-60 ppt. Tolerant of lower salinities.

Tidal elevation: One foot below MHW to 3 feet above MHW (middle-upper marsh zone).

Wind/Wave Action: Tolerant of calm to moderate forces.

Moisture: Cannot tolerate much immersion. Should not experience inundation more than 60 percent of the tide cycle.

DESCRIPTION: Green to blue-green; narrow, segmented, succulent stems. In autumn sheds rust-shaded, dry segments. Grows to low-lying, fairly dense stands, about 15 inches high. Dodder, a thin, orange, viney parasite will occasionally cover an individual pickleweed plant, but this is no way endangers a planted colony.

PLANTING INSTRUCTIONS: Obtain fragments of mature, plants preferably some that include part of the root system.1/ Plant generously, about 3 feet apart. Planting season is not critical. After the end of the second growing season, fairly dense stands should result. Mature plants will produce seeds and also reproduce vegetatively.

SCIRPUS ACUTUS (Common Tule)

REQUIREMENTS: Salinity: Brackish water, 20 ppt.

Tidal Elevation: Two feet above MLLW to 1 foot above MHW (low to middle marsh zone).

Wind/Wave Action: Tolerant of fairly strong forces.

Moisture: Requires year-round moisture; tolerates prolonged inundation.

DESCRIPTION: Can grow as high as 16 feet. Reduced leaves form sheaths at base of a long, slender, sturdy stalk. Flower/seed cluster at top of stalk is pale brown to reddish brown. Perennial. En masse, the visual affect and function is similar to California bulrush (see below). Unfortunately, this plant sometimes fares too well in optimum conditions and can become a nuisance.

PLANTING INSTRUCTIONS: Same planting method and timing as California bulrush (see below) but might be easier to obtain.

1/ For plant parts, contact East Bay Regional Park District, District Planning and Design Department, Senior Landscape Architects. Alternatively, seeds or fragments can be purchased from sources such as those listed at the end of this booklet.

SCIRPUS CALIFORNICUS (California Bulrush)

REQUIREMENTS: Salinity: Brackish water, about 20 ppt.

Tidal Elevation: One foot below MLLW to MHW (low to lower-middle marsh zones).

Wind/Wave Action: Tolerant of fairly strong forces.

Moisture: Requires moisture all year round; tolerant of prolonged inundation.

DESCRIPTION: A thick-stemmed sedge with reduced, pale leaves. Sturdy stalk grows up to 13 feet high, capped by a reddish-brown, red-bristled seed head. Perennial. Mature stands are fairly dense, and can effectively act as a natural "wall" blocking views and access. This blocking is desirable if an area needs to be isolated from intrusion, but should be avoided where it would interfere with access design. Bulrush helps to check erosion by stablizing lower marsh soils.

PLANTING INSTRUCTIONS: Plant bulrush plugs (each plug includes roots, shoots, and rhizomes) in late winter or early spring. Plant just deep enough to cover roots. Plants will mutiply by means of root outgrowths. If parent source is not available nearby, propagules may be difficult to obtain commercially.

SCIRPUS ROBUSTUS (Alkali Bulrush)

REQUIREMENTS: Salinity: Brackish water, 20 ppt to 15 ppt or less for optimal seed production and germination.

Tidal Elevation: Four feet above MLLW to MHHW (middle marsh zone).

Wind/Wave Action: Calm to moderate forces.

Moisture: With low soil salinity, tolerates considerable tidal submergence.

DESCRIPTION: Green perennial sedges up to 5 feet tall, with long, narrow, pointed leaves and reddish brown to straw colored scales. In late spring to late summer, tiny red-brown flowers form a bushy clump atop the stem. Alkali bulrush is a favored food source for waterfowl. Like California bulrush and common tule, tends to be invasive when not controlled.

PLANTING INSTRUCTIONS: Where low salinity conditions are present, plant seeds, available from specialized nurseries. Seed can also be obtained from commercial rice drying plants, were it is known as "red seed." Plant seeds not more than 1/2 inch deep, using

about 30 pounds of seeds per acre. The planting season is March through May. By mid-summer, seed heads should appear on the new plants.

A more reliable, but more costly method, which does not rely as heaviliy on optimal growing conditions, is to transplant clumps of mature plants, also available from nurseries. Place in soil just deep enough to cover roots, about 2 feet apart. These reproduce by sending off rhizomes--underground tuber-like growths from the roots.

SPARTINA FOLIOSA (Pacific Cordgrass)

REQUIREMENTS: Salinity: Tolerates up to 30 ppt. Growth and germination are promoted if lower salinity is available December through April.

Tidal Elevation: Three feet above MLLW to MHW (lower marsh zone).

Wind/Wave Action: Tolerant of calm to moderate conditions, can tolerate relatively strong forces once established.

Moisture: Tolerates considerable tidal submergence, but not more than 21 hours per day.

DESCRIPTION: A green, reedy, sturdy grass that can grow to over 4 feet high. Once established, can grow rapidly. One of the few plants adaptable to the lower salt marsh zone; can help precipitate turbidity from silty shallow waters; an important food contributor in the Bay wetland ecosystem.

PLANTING INSTRUCTIONS: For calm water, obtain pre-germinated seedlings from a nursery specializing in native plants. Or, if parent seed source is available, harvest seeds as soon as ripe (late September through October, before seed heads burst) and store in salt water at approximately 40 degrees for 2 months. Just prior to germinating, discard any seeds that float--these are not viable. Seedlings should be planted from March to May. Planting is less costly but less reliable than planting sprigs.

If the area to be revegetated will be exposed to strong wave action, "biotic constructs" should be used instead of seedlings.2/ Biotic constructs are mussels embedded with

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2/ This interesting association of plant and animal is an interdependence occuring in nature. It was first successfully cultured as part of a project aimed at breeding mussels for vitamin extraction (Newcombe, C. L., 1978. The Role of Marsh Plants in Shoreline Stabilization. San Francisco Bay Marine Research Center, Inc., Richmond, California.)

cordgrass plugs--several shoots, nodes, and roots in a clump 5 to 10 inches in diameter. Place these side by side and peg into place for anchoring. Where wave forces are moderate, use simple plugs of mature cord grass, in 4 to 6 inch clumps. Plant these 1/2 to 1 meter apart. Bioconstructs and plugs can be planted February to April, and should spread out to healthy, patchy stands within about 18 months.

NOTE: The following marsh plants are commonly found in Bay wetlands but are not as abundant as the previously described species, and have not been the subject of much revegetation study. It is recommended that these be planted as embellishment to the better known populations. Requirements and planting specifications can usually be obtained from specialized nurseries supplying the plants commercially.

Brass buttons and fat hen (described in Part II) are naturalized foreign species that have been introduced to Bay marshes by game managers as waterfowl food. As with the following species, they may be planted amid the basic native groundcover, pickleweed.

FRANKENIA GRANDIFOLIA (Alkali Heath)

Upper marsh-upland transition zone.

Many tiny, rounded, greyish leaves; stem can be woody. In very wet areas can grow to 3 feet high, but is basically a low-lying, shrubby ground cover. Often found in association with pickleweed. Perennial, evergreen. Small, pink flowers.

JAUMEA CARNOSA (Jaumea)

Middle marsh zone.

Less than 1 foot tall, simple stemmed herb with slender, round-tipped, fairly puffy green leaves. Leaves are similar to pickleweed, with which it is sometimes mistaken. In summer, small yellow flowers at tips of stems. Grows in small patches rather than dense stands. Perennial.

LIMONIUM CALIFORNICUM (California Marsh Rosemary)

High marsh zone.

Purple flowered (summer through winter) atop 1 to 2 feet high reddish stems. Sturdy leaves at stem base. Plant singular plants scattered amid other vegetation.

PART II: SHORELINE PLANTS

Landscaping the shoreline of San Francisco Bay can create a variety of problems due to a number of environmental constraints. These can include heavy clay soils, saline soils and water, limited water for irrigation, strong winds, and salt spray.

To assist those landscaping shoreside projects and public access areas, BCDC staff has prepared the following list of groundcovers, shrubs, and trees suitable for these special sites. Many of the plants are Bay Area natives or plants from Australia and New Zealand, which have similar environmental conditions. BCDC recommends the use of native plants; those included here are so labeled.

This list of plants has been compiled from variety of sources, mainly plant lists and handbooks (see References). The East Bay Regional Park District also contributed information on plants that have succeeded in their shoreline parks.

GRASSES

DISTICHLIS SPICATA (Salt Grass)

DESCRIPTION: Naturalized salt marsh plant; hardy grass about 6 inches high; looks like Bermuda Grass.

TOLERANCE: Hardy, plant where salt concentration in the soil drops to 2 percent. Usually grows inland of pickleweed.

PLANTING INSTRUCTIONS: Transplant plugs from native clumps; also grows from rhizomes.

ELEOCHARIS MACROSTACHYA (Common Spikegrass, Wire Grass)

DESCRIPTION: Pale to dark green grass, up to 1-1/2 to 3 feet high; perennial; long rhizomes.

TOLERANCE: Tolerant of saline soils and both drought and moisture; hardy.

GROUND COVERS

ABRONIA (Sand Verbena) - Native

DESCRIPTION: A. latifolia and A. umbellata are creeping ground covers, especially suited to holding sand in gardens; may spread to 3

feet; roundish leaves are 1 to 2 inches long; whole plant is slightly gummy; flowers are yellow (latifolia) or pink (umbellata), bloom in summer, early fall.

TOLERANCE: Tolerant of coastal and beach situations.

PLANTING INSTRUCTIONS: Seeds may be hard to find; but sow plants in flats, pots, or light, well-drained, sandy soil.

COTULA CORONOPIFOLIA (Brass Buttons)

DESCRIPTION: Grows to about 2 inches in height; small yellow flowers that look like daisy centers; very colorful and attractive.

TOLERANCE: Tolerant of saline soils and both drought and moisture.

PLANTING INSTRUCTIONS: Plant plugs about 4 inches apart.

COTULA SQUALIDA (New Zealand Brass Buttons)

DESCRIPTION: Grows to a few inches high; 1 foot wide; leaves are soft, hairy, fernlike and are bronzy green; evergreen perennial. Flowers are about 1/4 inch in diameter, yellow "buttons."

TOLERANCE: Full sun to medium shade; average water.

PLANTING INSTRUCTIONS: Plant divisions of plants.

ERIGERON GLAUCUS (Beach Aster, Seaside Daisy) - Native

DESCRIPTION: Low spreading perennial; grows to 10 inches in height; basal tuft of leaves. Flower is 1 to 1/2 inches wide, colored pale lavender to violet and yellow, occuring throughout summer. Basal leaves in clumps. Stout hairy stems 10 to 12 inches high. Blue green stems and leaves.

TOLERANCE: Tolerates salty wind; common on cliffs and sandy shores. Drought-resistant near coast. Tolerates sun or part shade.

PLANTING INSTRUCTIONS: Plant from either seeds or cuttings; prefer light sandy loam but will grow in rather heavy loam. Seed spring through fall; plant cuttings or commercial plants in fall or early spring.

LIMONIUM CALIFORNICUM (Sea Lavender, California Marsh Rosemary)

(See Description in Part I.)

LIMONIUM PEREZII

DESCRIPTION: Perennial, leaves up to 12 inches long are rich green; summer bloom over a long season; flower clusters may be 3 feet tall and nearly as wide. Flower is purple and white.

TOLERANCE: Grows well on beach; salt and wind tolerant; fire resistant. Not tolerant of frost.

PLANTING INSTRUCTIONS: Nursery-grown seedlings develop quickly.

MYOPERUM PARVIFOLIUM

DESCRIPTION: Evergreen ground cover; 3 to 6 inches high; spreads 4 to 9 feet wide; white summer flowers half inch wide followed by purple berries; bright green leaves densely cover plant; foliage similar to rosemary.

TOLERANCE: Tolerant of saline soil, drought, and wind. Better with some summer water.

PLANTING INSTRUCTIONS: Plant 5 feet apart; will fill in within 6 months; will take root where branches touch the ground; no traffic; brittle. Better with some summer water, full sun.

SHRUBS

ARCTOSTAPHYLOS UVA-URSI (Bearberry, Kinnikinnick) - Native

DESCRIPTION: Evergreen shrub popular as a low ground cover; may eventually spread to 15 feet; bright green, glossy, leather leaves, about 1 inch long, turn red in winter; small bell-shaped flowers in clusters are white or pale pink and appear in early spring; berries are pink or red.

TOLERANCE: Good on hillsides and steep slopes; good near coast.

PLANTING INSTRUCTIONS: For best growth, plant in loose, rapidly draining soil in sunny area; water weekly the first summer, then monthly thereafter in warm areas; when first planted mulch with peat moss or sawdust to keep down weeds.

ATRIPLEX (Saltbush) - Native

DESCRIPTION: Herbaceous plants and shrubs tolerant of seaside conditions, will tolerate flooding by high tides or rain; tolerant of wind, spray, sand, salt and drought; attractive gray or silvery foliage; little or no flowers or fruits. Best to plant in fall, but seeds or cuttings may be planted anytime.

A. canescens (Four-wing Saltbush): Evergreen shrub; densely branched; to 3 to 6 feet high; 4 to 8 feet wide; narrow gray leaves 1/2 to 2 inches long; seeds available; space plants 4 feet apart. Native to arid areas.

A. lentiformis (Quail Bush): Deciduous shrub, densely branched, 3 to 10 feet high; 6 to 12 feet wide; oval bluish-gray leaves, 1/2 to 2 inches long, sometimes spiney, salt-tolerant hedge or windbreak; seed available. Native to alkalai wastes.

A. lentiformis var breweri (Brewer Saltbush): Almost evergreen; hardy; 5 to 7 feet high; 6 to 8 feet wide; plant 4 to 6 feet apart; will grow in reclaimed marine soil. Looks like Quail Bush, but not spiney. Gray foliage.

A. hortensis (Sea Purselane, Garden Orache): Annual, 3 to 4 feet high; red leaves late in summer.

A. rosea (Redscale, Red Saltbush, Red Orache): Annual; 3 to 4 feet high; very attractive, called "Salt Marsh Tiger Lilies".

A. patula var patula (Spear Orache) Annual; 1-1/2 feet high; masses of low gray shrubbery.

A. patula var hastata (Fat Hen, Halberd Leaved Orach) Annual, 1-1/2 feet high; masses of low gray shrubbery.

A. semibaccata (Creeping Saltbush, Australian Saltbush): Evergreen, gray-green ground cover; dense mat of leaves; 1/2 to 1-1/2 inches long inconspicuous white flowers, red-orange fruits (host to the rare Pigmy Blue Butterfly larvae), 1 foot high, 1 to 6 foot spread; exceptionally adaptable to severe drought and adverse soil conditions, including excess salinity. Plant 3 feet apart. May be invasive.

TOLERANCE: Tolerant of drought; fire resistant; wet soil; wind; control erosion; tolerant of salty soils.

PLANTING INSTRUCTIONS: Grows rapidly, regenerates easily from seed.

BACCHARUS PILULARIS (Coyote Brush, Dwarf Chaparral Broom)-Native

DESCRIPTION: Dense ground cover or shrub; dense mat of bright green, small (1/2 inches), closely set toothed leaves; 8 to 24 inches high and up to 6 feet wide; insignificant flowers; females produce cottony seeds; discourages weeds.

TOLERANCE: Very adaptable to climate and soil conditions. Can live in very wet to very dry situations. Part shade to full sun. Drought resistant; fire resistant; deer resistant; wind resistant.

PLANTING INSTRUCTIONS: Plants available in most nurseries; cuttings can be taken especially from male plants. Plant fall or spring. Fast growing. Takes full sun.

CEANOTHUS GRISEUS HOTIZONTALIS - Native

DESCRIPTION: Evergreen shrub, 2-3 feet high and to 36 inches wide; glossy, oval, 2 inch long leaves; pale blue flowers in spring in 1 inch clusters.

TOLERANCE: Tolerant of drought, slopes.

PLANTING INSTRUCTIONS: Water first summer only, very fast grower.

DIPLACUS AURANTIACUS (AKA MIMULUS) (Sticky Monkey Flower) - Native

DESCRIPTION: Shrubby, evergreen perennial; grows to 1 to 4 feet tall; branches form at base of plant; leaves are narrow, glossy and dark green; leaves are sticky; flowers are about 1-1/2 inches long, funnel-shaped and soft orange in color; plants bloom through the summer, if watered may bloom most of the year.

TOLERANCE: Drought tolerant

PLANTING INSTRUCTIONS: Plant seeds or cuttings (rooted in moist sand) in well-drained soil in partial shade.

ERIOGONUM ARBORESCENS (Santa Cruz Island Buckwheat) - Native

DESCRIPTION: Mound-shaped shrub, 3 to 4 feet high and 4 to 5 feet wide; small, narrow, gray-green leaves 1/2 to 1-1/2 inches long; clusters of pink to rose flowers bloom all summer.

TOLERANCE: Drought tolerant; needs no water near coast; wind tolerant; heat tolerant.

PLANTING INSTRUCTIONS: Grows well in full sun and in well-drained, loose, gravelly soil.

FRANKENIA GRANDIFOLIA (Alkalai Heath, Yerba Reuma)

(See Description in Part I.)

GARRYA ELLIPTICA (Coast Silktassel) - Native

DESCRIPTION: Evergreen shrub; grows to 4 to 8 feet; leaves are about 2-1/2 inches long, dark green above and gray and wooly below; leaves have wavy edges; distinctive male and female catkins on separate plants - males are yellowish and 3 to 8 inches long; females are pale green and only 2 to 3-1/2 inches long; female plants have clusters of purple fruit from June to September.

TOLERANCE: Good coastal plant; moderately tolerant of drought, heat, and cold; tolerates summer water.

PLANTING INSTRUCTIONS: Plant in sun or part shade.

GRISELINIA LITTORALIS

DESCRIPTION: Dense, compact, evergreen shrub, native of New Zealand; grows to 10 feet high and to 10 feet wide; leaves are thick, leathery, and lustrous, about 4 inches long; flowers and fruit are insignificant.

TOLERANCE: Tolerant of sun and wind; good beach plant.

PLANTING INSTRUCTIONS: Plant in full sun; water for best growth.

ISOMERIS ABOREA (Bladder Pod)-Native

DESCRIPTION: Mounding evergreen shrub; 3 to 4 feet high; leaves are gray-green; ornamental yellow flowers in dense terminal clusters, appear all year. Fruit is conspicuously inflated leather capsule; Ill-scented if bruised.

TOLERANCE: Not particular as to soil; should not be heavily watered during the summer; very drought resistant.

PLANTING INSTRUCTIONS: Seeds sown in flats or in the open ground during the fall often germinate in a week to 10 days; can be planted on dry slopes and road banks; will grow with no more water than natural rainfall.

LEPTOSPERMUM LAEVIGATUM (Australian Tea Tree)

DESCRIPTION: Evergreen shrub or small tree; small and casual looking; grows to 30 feet high and as wide; 1/2 inch wide white flowers, like tiny roses, along the stem; flowers in spring; oval 1 inch long, dull green to grey green leaves.

TOLERANCE: Tolerant of coastal sites; salt spray; and drought.

PLANTING INSTRUCTIONS: Needs good soil drainage and full sun; needs watering when first planted; subject to chloris in alkaline soils; root troubles if poor drainage; prefers slightly acid soil. (Did not do well at George Miller Park.)

LONICERA INVOLUCRATA var LEDEBOURII (Twinberry Honeysuckle)

DESCRIPTION: Deciduous shrub; 5 to 10 feet tall and as broad; dense foliage; smooth dark green oval leaves 2 to 5 inches long; flowers are tubular, paired, 1/2 to 3/4 inch long; yellow and red colored flowers from March to July; fruit is shiny black twin berries.

TOLERANCE: Not particular as to soil type, may need summer water. Tolerant of wind, spray, sand, and salt.

PLANTING INSTRUCTIONS: May be grown from seeds or cuttings; cuttings of mature wood root easily in sand; plant in moist spots; grows in sun or light shade.

LUPINUS ARBOREUS - (Bush Lupine) Native

DESCRIPTION: Native coastal shrub; grows to 5 to 8 feet; leaves are grouped in bright green, roundish leaflets; flowers are sweet pea shaped in large spikes 4 to 16 inches long; flowers, usually yellow but sometimes lilac, blue, or white, bloom March through June.

TOLERANCE: Drought tolerant; good beach plant.

PLANTING INSTRUCTIONS: Plant from seed in well-drained soil; seeds germinate faster if first soaked in hot water.

RHAMNUS CALIFORNICA - Native

DESCRIPTION: R. Californica (Eve Case): 5 to 6 feet tall and 6 to 7 feet wide; high dense shrub; requires some summer water; propagate from cuttings. Very attractive berry crop. Berries are orange, rose, then black.

R. Californica (Coffeeberry): Evergreen shrub; 6 to 12 feet tall; 3 to 12 feet wide; dusty green foliage with red stems; Tolerant of dry conditions; tolerates full sun to light shade; near ocean tends to be broad and spreading. Berries are orange, rose, then black.

R. Californica (Seaview): Low shrub; to 18 inches in height; spreads 3 to 4 feet wide; neat rounded form. Berries are orange, rose, then black.

TOLERANCE: Tolerant of sun or partial shade; wind resistant.

PLANTING INSTRUCTION: Plant in fall or late winter in reasonably well-drained soil.

RHUS INTEGRIFOLIA (Lemonade Berry)- Native

DESCRIPTION: Rounded evergreen shrub; open, arching form; grows 3 to 10 feet high and as wide; flat, oval to round waxy, dark green leaves 1 to 2-1/2 inches long; cream to rose pannicles in dense clusters; flowers in February and March; attractive sticky red berries; useful in erosion control.

TOLERANCE: Drought resistant; should be watered once a month in the summer. Tolerant of wind, drought, salt, spray, poor soils, and fire-resistant if well-watered. Can be ground cover on rocky slopes exposed to salt laden winds.

PLANTING INSTRUCTIONS: Plant fall through spring; should be watered once a month in the summer; grows well on rocky slopes exposed to salt laden winds; prefers full sun, will tolerate part shade.

SAMBUCUS CALLICARPA (Coast Red Elderberry) - Native

DESCRIPTION: Large deciduous shrub; grows to 8 to 20 feet tall; leaves are 3 to 6 inches long, divided into toothed leaflets; flowers are white and are found in clusters 2 to 5 inches across; small berries are red; may be poisonous.

TOLERANCE: Tolerant of wet conditions if adequate drainage.

PLANTING INSTRUCTIONS: Plant in sun or light shade; requires ample water; to keep dense and shrubby, prune every winter.

SOLANDRA HARTWEGII (Cup of Gold Vine)

DESCRIPTION: Evergreen vine; grows to 40 feet; large broad glossy leaves 4 to 6 inches long; flowers are golden yellow with brownish-purple stripes, 6 to 8 inches across. Blooms February to April.

TOLERANCE: Takes full sun near the coast; tolerant of salt spray directly above the tide line; tolerant of wind and fog; drought tolerant.

PLANTING INSTRUCTIONS: Needs support, or prune to form hedge shape, or use as ground cover.

TREES

NOTE: These trees are commonly available at commercial nurseries. Specific planting instructions should be obtained from the source.

AESCULUS CALIFORNICA (Buckeye)- Native

DESCRIPTION: Deciduous tree; to 10 to 20 feet in grove; to 40 by 40 feet as single specimen; silvery trunk and branches; fragrant showy, pale flowers in long dense clusters at the ends of branches; new leaves are pale green; mature leaves in 3 to 6 inch long leaflets; drops leaves in July under drought conditions; fruit is leathery capsule; seeds are poisonous to humans and livestock. Will drop leaves all summer

TOLERANCE: Tolerant of salt-spray; tolerant of drought; tolerant of wind.

PLANTING INSTRUCTIONS: Plant in winter or spring. Needs lots of room. Performs best in protected swales.

AGONIS FLEXUOSA (Peppermint Tree, Australian Willow Myrtle)

DESCRIPTION: Evergreen; to 25 to 40 feet high; willow-like 6 inch long leaves with copper edge; small white flowers abundant in June; medium fast growth; weeping branches. Leaves smell like peppermint when crushed.

TOLERANCE: Very tolerant of soil types and watering practices; saline and moisture tolerant.

PLANTING INSTRUCTIONS: Plant in area protected from freezing temperatures.

AGONIS JUNIPERINA (Juniper Myrtle)

DESCRIPTION: Evergreen; to 25 to 35 feet; open, finer texture than A. flexuosa; narrow 1/4 to 1/2 inch long leaves; soft green color; fluffy white flower clusters; flowers from summer to November. May be difficult to find in commercial nurseries.

TOLERANCE: Tolerant of saline soil and moisture.

PLANTING INSTRUCTIONS: Plant in area protected from freezing temperatures.

ALNUS OREGONA (Red Alder)

DESCRIPTION: Deciduous tree to 45 to 50 feet, sometimes to 90 feet; small woody cones in winter; light gray, smooth bark; dark green 2 to 4 inch long leaves; greenish yellow catkins (male flowers).

TOLERANCE: Tolerant of brackish, somewhat saline water.

PLANTING INSTRUCTIONS: Grows rapidly; roots are invasive.

CASUARINAS (Beefwood, She-Oak)

DESCRIPTION: Evergreen trees, slight resemblance to pines; woody cone-like fruit; leaves look like long pine needles. May be difficult to find in nurseries.

C. cunninghaniana (River She-Oak, Australian Pine): Evergreen tree to 70 feet; finest texture; dark green branches. Most appropriate in informal situations.

C. equisetifolia (Horsetail Tree): Evergreen 40 to 60 feet; 20 feet wide; pendulous gray-green branches. Most appropriate in informal structions.

C. equisetifolia incan (Coast Oak): Evergreen tree, to 30 feet, silvery gray foliage; pendulous small branches and spreading or erect main branches; very good for swampy sites. Most appropriate in informal situations.

C. glauca (Swamp Oak): Evergreen tree; to 60 feet; similar to C. equisetifolia; grows in coastal swamps.

C. littoralis (Black She Oak): Evergreen to 30 feet; dusky-green foliage; neat form; good for restricted spots; tolerant of poor soil and coastal sites.

C. stricta (Mountain She-Oak, Drooping She-Oak, Coast Beefwood): Evergreen; to 20 to 35 feet; dark green foliage; cones to 1 inch long; fast growing; attractive silouette, form similar to weeping willow; tolerant of coastal sites. (Did well at George Miller Park.)

TOLERANCE: Tolerates drought or moisture, salinity, salt-spray, heat, and wind.

PLANTING INSTRUCTIONS: Fast grower.

CUPRESSUS MACROCARPA (Monterey Cyprus)- Native

DESCRIPTION: Evergreen; conical shape when young; to 40-50 feet; bright green scale-like leaves; at maturity, grey trunk is revealed under the broad spreading crown; golfball sized globular cones; fast growing; needs wind and fog to prevent fungal canker. (Did well at George Miller Park and Martinez Shoreline.)

TOLERANCE: Tolerant of wind, salt, spray, and drought.

PLANTING INSTRUCTIONS: Plant in fall.

EUCALYPTUS

NOTE: There are many species of Eucalyptus which are tolerant of saline conditions, salt-spray and drought conditions. Refer to any common reference. Some nurseries specialize in Eucalyptus and these nurseries can serve as an excellent source of information. Some appropriate species include: E. robusta; E. saligua; E. spathulata; and E. playtypus. (Did well at George Miller Park.)

METROSIDEROS EXCELSA (New Zealand Christmas Tree, Pohutukawa)

DESCRIPTION: Evergreen; grows to 30 feet; glossy to dark green leaves with wooly grey underside; branches heavily from ground up; red flowers in big clusters cover the branches from May to July.

TOLERANCE: Tolerant of wind and salt spray; drought tolerant.

PLANTING INSTRUCTIONS: Needs water through the first two dry seasons; grows slowly in heavy soils; needs staking and pruning to achieve good form.

MYOPERUM INSULARE

DESCRIPTION: Evergreen shrub or tree; grows 20 to 30 feet; dense foliage of long narrow shiney green leaves; multiple trunks; pinkish-white flowers in clusters of 2 to 6 in summer; 2 inch wide fruit is bluish purple. May be difficult to find in commerical nurseries.

TOLERANCE: Drought tolerant. (Did well at George Miller Park and Martinez Shoreline.)

PLANTING INSTRUCTIONS: Keep branches pegged to encourage ground cover form; staking and pruning encourages trunks. Fast growing. Invasive roots.

MYOPERUM LAETUM

DESCRIPTION: Evergreen; grows to 30 feet, to 20 feet wide; dense foliage of long narrow shiney green leaves 3 to 4 inches; multiple trunk. Flowers in clusters of 2 to 6 in summer, 1/2 inch wide, white with purple markings.

TOLERANCE: Not drought tolerant; superb for coastal sites. Tolerant of salt, wind, and spray. Small reddish purple fruit.

PLANTING INSTRUCTIONS: Keep branches pegged to encourage ground cover form; staking and pruning encourages trunks. Fast growing. (Did well at George Miller Park and Martinez Shoreline.)

PINUS CONTORTA (Beach Pine, Shore Pine) - Native

DESCRIPTION: Evergreen tree; grows to 20 to 35 feet, may be dwarfed in windy areas; dense foliage, compact, pyramidal shape; dark green needles 1-1/4 to 2 inches long; cones are 1 to 2 inches long and light yellow.

TOLERANCE: Hardy, not tolerant of hot, dry weather; good in coastal climates and wind.

PLANTING INSTRUCTIONS: Grows well in well-drained soil and in full sun; do not over water; do not fertilize with nitrogen.

PINUS MURICATA (Bishop Pine) - Native

DESCRIPTION: Evergreen tree; grows to 40 or 50 feet; dense foliage; open pyradimal shape when young, rounded in middle life; dark green needles 4 to 6 inches long; brown cones, 2 to 3 inches long, are in groups of 3, 4, or 5.

TOLERANCE: Tolerant of wind and salt air.

PLANTING INSTRUCTIONS: Grows well in well-drained soil and in full sun; do not over water; do not fertilize with nitrogen.

TAMARIX

DESCRIPTION: Deciduous and evergreen appearing trees and shrubs. Can be very invasive.

T. parviflora or T. tetandra: Deciduous; hardy; grows 6 to 15 feet; spring flowering; pink flowers in clusters; reddish bark; prune to maintain graceful effect, limit height and to produce new flowering wood. Fast growing.

T. aphylla (Athel Tree): Appears evergreen; grows 30 to 50 feet; grayish look in late summer due to secretions of salt; white to pinkish very small flowers; tolerant of saline soil, moisture, and drought. Roots are competitive.

T. chineniss (Salt Cedar): Deciduous; grows 6 to 12 feet if pruned, or to 20 to 30 feet; flowers bloom spring through summer; looks best if pruned to the ground in early spring; tiny leaves are very small, pale blue-green; tolerant of saline soils, moisture, and drought. Roots are competitive. May be difficult to find in commercial nurseries.

TOLERANCE: Grows well in saline soils.

PLANTING INSTRUCTIONS: Easy to grow from cuttings set in place and kept moist.

UMBELLULARIA CALIFORNICA (Bay Laurel) - Native

DESCRIPTION: Evergreen tree, although may stay shrublike if planted on windy coastal hillside; tree may grow to 75 feet; to 100 feet wide (in forests); form is rounded; leaves are 3 to 5 inches long, 1 inch wide, with strong aroma when crushed; flowers are tiny and yellow, in clusters; fruit is small, first green, then purple.

TOLERANCE: Tolerant of windy, coastal conditions, tolerant of shade, tolerant of drought.

PLANTING INSTRUCTIONS: Plant in deep soil with ample water for fast growth.

SOURCES OF MARSH AND NATIVE PLANT MATERIALS

Marine Research Center
Western Ecological Services (WESCO)
14 Galli Drive, Suite #4
Novato, California 94947
(415) 883-6425

Saratoga Horticultural Foundation
"Selected California Native Plants
with Commercial Sources, Third Edition."
P. O. Box 308
Saratoga, California 95071
(Catalogs are $4.65 each)

Peter Koos
East Bay Regional Park District,
Planning and Design Department
11500 Skyline Boulevard
Oakland, California 94619
(415) 531-9300

Yerba Buena Nursery
19500 Skyline Boulevard
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(415) 851-1668

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