Flora of the
Bolsa Chica Ecological Reserve











Researched and compiled for the Bolsa Chica Conservancy
by Ian McGregor, Eric Paquette, and Dave Pryor, 2016
and by Louann Murray, Ph.D., 2007

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CalFlora; www.calflora.org

California Invasive Plant Council; www.CalEPPC.org

CalPhotos; http://elib.cs.berkeley.edu/photos/floral

Flora of the Bolsa Chica Marsh, Bob Muns; http://tchester.org/plants/muns/coast/bolsa_chica_marsh.html

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Listing Guide for Federal Noxious Weeds; https://www.aphis.usda.gov/plant_health/plant_pest_info/weeds/downloads/listingguide.pdf

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Introduction to Bolsa Chica's plant communities and habitats

1. Area covered

The Bolsa Chica is a remnant wetland of a once-vast salt marsh that was fed by year-round fresh water streams. The remaining habitat is divided into various geo-political entities that include:
(1) the original 300-acre Bolsa Chica Ecological Reserve, which is managed by the California Department of Fish and Wildlife,
(2) the new additions to the Ecological Reserve, which include the newly restored full-tidal basin, associated salt pans, muted-tidal basins, the eucalyptus groves on Bolsa Mesa, the pocket marsh below those groves, the lower bench of Bolsa Mesa, Warner Pond, and
(3) Harriett M. Wieder Regional Park, a four-acre county park with a nicely restored strip of native plants surrounding a children's playground and grassy lawn; it sits on 106 acres of Huntington Mesa that is mostly degraded grassland and coastal sage scrub.

The areas covered in this guide are essentially the areas of the Ecological Reserve and Harriett M. Wieder Regional Park to which the public has access.

2. Scope, organization and purpose of this plant guide

This guide to Bolsa Chica's plant life includes about 275 species, ranging from the most invasive in California to the most rare and endangered. It primarily builds off the 2007 version of this guide created by Louann Murray, Ph.D., which in turn was heavily based on Bob Muns' 1999 list of 201 species in Bolsa Chica.

The book is organized by habitats / plant communities. Plants within a habitat are listed alphabetically by scientific name. Each species occupies a one-page spread in the book, with:
(1) one or more pictures of the plant,
(2) Latin (scientific) name,
(3) common name,
(4) plant family to which it belongs,
(5) growth and identification characteristics,
(6) months during which the plant flowers,
(7) the nativity (native status in California) of the plant, and
(8) its location at Bolsa Chica.

There are several purposes for this guide. First, it is designed to help members of the public become more familiar with the plants of Bolsa Chica. It can be used by naturalists and educators to gain a more in-depth knowledge about these plants, and the chapter on non-native plants can be utilized as a tool in habitat restoration. The guide also represents a wealth of information for the botanical community, and it is hoped this compendium will be of service to both this and the Bolsa Chica community for years to come.

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3. Concept of plant communities and ecotones

Plants grow together in specific groupings or communities, also called plant assemblages. Climate, soil and topography influence which plants will grow in what places. California has about 30-50 different plant communities; lists vary from one scientist/author to another.

Other factors that can influence which plants are found in a given assemblage include the animals that are present, actions of humans, competition with non-native plants, and length of time since the last disturbance by flood or fire.

Some plant communities are named for a dominant species, such as oak woodlands or coastal sage scrub, or while others named for habitat types, such as freshwater marsh and coastal sand dune.

The edge or boundary of a given plant community is called an ecotone. It is an area where the plants of one community mix with the plants of another, such as at a wetland/dune interface or upper saltmarsh/coastal sage scrub interface. Ecotones are generally more biologically diverse because they contain the plants of more than one community or assemblage and thus draw more birds and animals.

4. Effect of climate, soil, and topography

Climate is not the same thing as weather. Weather refers to short-term atmospheric conditions, and occurs over days or weeks. Climate refers to weather over the long term, such as years or decades, and includes moisture and temperature.

A Mediterranean climate means that winters are mild and wet, and summers are dry. This rare climate type occurs only along the western margins of major landmasses, and at specific latitudes between 30 and 40 degrees latitude. Only five regions in the world have a climate like this: (1) Southern California, (2) Central Chile, (3) the Cape Region of South Africa, (4) Southwestern and Southern Australia, and (5) the Mediterranean.

Rainfall varies considerably between different habitats in southern California from about:

- 12 to 15 inches along the coast
- 20 inches in the foothills
- 35 inches in the mountains,
- 10 inches or less in the deserts.

The presence of the Pacific Ocean also influences our climate. The great mass of water moderates temperature fluctuations near the coast, influences wind patterns across the Los Angeles and Orange County basin, and provides a source of fog that raises humidity near the coast. This fog helps compensate for low rainfall.

Southern California has a wide variety of soil types. These soil types range from sandy beaches to rich forest duff. Soils in Orange County may be formed from metamorphic granite,

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sedimentary sandstone and shale, volcanic basalt, and occasionally from limestone.

Topography refers to the configuration of natural features of the landscape, and includes changes in elevation. The topography of Orange County varies from sea level at Bolsa Chica to a mile high on Santiago Peak. These changes in elevation contribute to differences in rainfall, as clouds lose their moisture as they rise.

All of these factors have contributed to the evolution of a wide variety of plant communities in southern California, each associated with a particular microclimate and affected by:

(1) elevation or topography,
(2) soil type and depth,
(3) temperature, and
(4) moisture.

Bolsa Chica lies within the Southern California floristic province, which extends from Point Conception, which lies just North of Santa Barbara, going South to Baja California. Due to its varied topography and soils and its unusual Mediterranean climate, Southern California has a large variety of different native habitats and many endemic species. Indeed, it is one of 24 biodiversity hot spots in the world.

5. Main plant communities at Bolsa Chica

Salt Marsh



Most of Bolsa Chica is coastal salt marsh. The coastal salt marsh habitat is characterized by flooding of low-lying areas at high tide by salt water from the sea. The plants (and animals) that live in this habitat are adapted to varying degrees to withstand these large variations in salinity and submergence.

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The coastal salt marsh habitat can be subdivided into different zones.

The Sub-tidal Zone, which is always submerged, has eelgrass and marine algae such as sea lettuce (*Ulva spp.*) and tubeweed (*Enteromorpha spp.*).

The Lower Marsh Zone is submerged most of the time. Cordgrass is found in this zone. The lower marsh zone also has sea lettuce and *Enteromorpha*.

The Mid Marsh Zone is submerged only part of the time. The pickleweed (*Salicornia spp.*) that grows here is covered only by the highest tides. These plants store salt in their tissues, so they can continue to move water into their tissues even though they are rooted in saline soil. In the fall, the tips of the plant are loaded with salt. These tips turn red, die and fall back into the soil or water, preventing salt buildup in the pickleweed plant. Saltwort (*Batis maritima*) is often found growing with the pickleweed.

The Upper Marsh Zone is rarely submerged, but the soils have a high salt content. Plants found here include saltgrass (*Distichlis spicata*), spiny rush, (*Juncus acutus ssp. leopoldii*), seablite (*Suaeda taxifolia*), and alkali heath (*Frankenia salina*), plus a different pickleweed called glasswort, (*Arthrocnemum subterminale*).

Coastal salt marshes are detritus-based ecosystems. This means that dead plants and animals are at the base of the food pyramid, and that the decomposer community is of utmost importance in this ecosystem. When cordgrass and marine algae die and decompose, they make a great contribution to the salt marsh ecosystem, adding energy and nutrients to the decomposer community.



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Coastal Strand/ Sand Dune



Soils in this habitat are sandy with little organic matter. Conditions are harsh with salt spray and stiff afternoon breezes that dry out plants. Winds can shift dunes with the seasons, moving them Southward during winter storms and Northward during summer storms.

Water percolates quickly through porous sand, but if plants put their roots down too deeply in pursuit of water, they encounter seawater with high salinity. Life on the dunes is rough for plants. They have adapted to these harsh conditions by forming low-growing, spreading mats. Examples are silver beach bur (*Ambrosia chamissonis*), beach evening-primrose (*Camissoniopsis cheiranthifolia*) and sand-verbena (*Abronia umbellata* and *A. maritima*).

At Bolsa Chica, sand dune habitat is found along Pacific Coast Highway on the West side of the reserve, and in the back Bolsa. The tern nesting islands are additional dune habitat.

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Coastal Sage Scrub



Coastal sage scrub is an assemblage of plants that are found on dry slopes, usually near the coast to an elevation of below 3000 ft. Coastal sage scrub habitats are found between the coastal strand and chaparral zones, although many plants of the coastal sage scrub community can be found interspersed with chaparral.

Conditions in this habitat are cooler and drier than in chaparral. However, the fog along the coast provides enough moisture and keeps temperatures cool enough to prevent this region from being a desert.

Many of the plants of this community lose their leaves during droughts, and are highly fragrant. Some of the plants found in this community include California sagebrush, (*Artemisia californica*), white sage (*Salvia apiana*), and black sage (*Salvia mellifera*). Other plants in this community are California brittlebush (*Encelia californica*), California buckwheat (*Eriogonum fasciculatum*), coyote brush (*Baccharis pilularis ssp. consanguinea*), and bladderpod (*Peritoma arborea*). Prickly-pear cactus (*Opuntia littoralis*) is also found in this community.

At Bolsa Chica, the coast sage scrub community was severely impacted during the Rancho era when cattle grazed here, and essentially eliminated during the pioneer days when farming destroyed native habitats. Remnant coastal sage communities can be found on the steep slopes of Bolsa Mesa, and consist mainly of prickly pear cactus with a few scattered coastal cholla, bladderpods and CA brittlebush. Most of the sage scrub habitat that is present on Bolsa Mesa has been planted since 1995 or planted on Huntington Mesa at the Harriett Wieder Park since 2000.

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Freshwater wetland



Freshwater wetlands, marshes and ponds are very much reduced in Southern California due to development.

Marshes in Southern California often dry up during the long dry season, or become quite restricted, so plants growing there must be tolerant of dry soils at least part of the year. Rushes, bulrushes (tules), and sedges are common, and cattails are often found in the shallower water near the margins. Mulefat is found around the margins of the more alkaline marshes.

Bolsa Chica has probably lost even more freshwater wetlands than saltwater. Freeman Creek and Wintersburg Creek once flowed year-round, with marshes that extended miles inland. Now the freshwater marshes at Bolsa Chica are restricted to four places:
(1) a brackish runoff pond at the end of Springdale Road
(2) a swale and cattail marsh fed by runoff from the Seacliff Golf Course
(3) a very small marsh about 5 ft x 15 ft at the South end of Bolsa Chica by PCH that is fed by runoff from PCH
(4) brackish water upstream in Wintersburg Flood Control Channel

All of these freshwater wetlands are highly degraded and contain varying degrees of pollutants. Only the marsh fed by runoff from the Seacliff Golf Course supports a significant stand of cattails and bulrushes.

There appears to be an additional source of fresh water at Bolsa Chica that is very puzzling. Along the western boundary of the saltmarsh, a narrow strip of cattails, bulrushes and sedges separates the dunes from the saltmarsh in isolated spots. Some people have speculated that there may be a series of freshwater springs running along the edge of the saltmarsh along Inner Bolsa Bay between the bay and PCH.

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Woodland



Woodland habitat is the main habitat (natural and irrigated) in Bolsa Chica in which there are native trees. These plants require more water than plants of the dry scrublands, and often have large leaves. The present woodland habitat in Bolsa Chica includes strips of riparian habitat whose water is supplied mostly by urban runoff.

At lower elevations, the dominant trees are western sycamore, California bay laurel, mulefat, and willows such as black, red, sandbar, and arroyo willows. At middle elevations, white alder, big-leaf maple, and black or Fremont cottonwoods are added to the plant palette.

Riparian habitat is rapidly disappearing in Southern California due to stream channelization for flood control and development. As with all other habitats, when this habitat is destroyed, the birds and animals that rely upon it are also lost.

At Bolsa Chica, there is a small strip of riparian woodland that grows in the runoff swale that carries water from the Seacliff Golf Course down Huntington Mesa and into Bolsa Chica. Arroyo willows grow in this channel, and a few Black willows grow in the freshwater wetlands below. However, this “woodland” lacks a native understory. Sycamores, which grow along streams naturally, have been planted on Huntington Mesa in Wieder Park, where they appear to be thriving. Sycamores may be a good alternative to the aging non-native eucalyptus trees that grow on Bolsa Chica Mesa.

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Grassland



The grassland habitat at Bolsa Chica is, contrary to first thought, representative of the intrusion of invasive species instead of a historical habitat vestige. In the reserve, the nonnative and invasive grasses (namely *Bromus sp.* [bromes], *Avena sp.* [wild oat], and *Hordeum sp.* [barley]) mainly colonize the lower and upper mesas within the coastal sage scrub. They are almost all annuals and thus contribute to the wash of green the reserve becomes for a few weeks in the spring of each year. Once the summer months begin and the rains end, they then add to the brown and lifeless appearance of the landscape.

Many restoration initiatives have been focused on the resurgence of native grasses to the area, including the upper reaches of the Brightwater mitigation plan and the lower mesa. While this has proven to be somewhat of an issue due to herbivory, some installed species have been surviving past the first year, such as *Layia platyglossa* (tidy tips), *Lupinus bicolor* (bicolored lupine), *Muhlenbergia rigens* (Deergrass) and *Stipa sp.* (needle grass).

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6. Restoration

Restoration History

The hydrology of Bolsa Chica was affected at the end of the 1800s when the Bolsa Chica Gun Club constructed a dam with flap gates that shut off tidal flow to Inner Bolsa Bay at the northern edge of the reserve. Without the flushing action of storm flows, the ocean inlet silted closed. Farms upstream flooded out and farmers demonstrated in protest.

To solve the problem, gun club members hired a local farmer, Tom Talbert, to plow a channel connecting Bolsa Bay with Anaheim Bay around 1900. That channel can still be seen today under Warner Bridge.

In the 1940s, the Bolsa Lowlands were dried out to facilitate oil extraction. Oil drilling, farming, military activities and accidental introduction of invasive non-native plant species drastically altered plant life at Bolsa Chica.

Restoration began at Bolsa Chica in 1970s after the landowner Signal Landmark deeded the property to the State of California. In 1978, the Department of Fish and Wildlife re-contoured Inner Bolsa Bay and opened it to tidal flushing. At the same time, they scooped dirt out of two upland areas and connected them to the channel under Warner Bridge with 10" culverts. However, seawater reached the two new wetland cells near Warner and PCH only at the highest tides and plant life languished.

In 1990, the Bolsa Chica Conservancy began removing non-native iceplant (*Mesembryanthemum sp.*) from the dune habitat along PCH from Warner to South of the South parking lot. After removal of iceplant, saltgrass (*Distichlis spicata*) expanded while threatened Wandering Skipper butterflies returned to the area.

In 1994, the Bolsa Chica Conservancy installed a temporary interpretive center on the northern edge of the reserve at Warner and PCH and began restoring wetland vegetation around Little Mesa. The Conservancy removed non-native plants and installed habitat-appropriate native plants, leaving certain areas that appeared to have a healthy seed bank of native plants. This strategy worked, resulting in the natural re-establishment of alkali health (*Frankenia salina*) and the rare southern tarplant (*Centromadia parryii ssp. australis*) in the areas where non-natives were removed.

Around 1995, the Bolsa Chica Stewards began planting coastal sage scrub on Bolsa Mesa. The plantings thrived and attract many birds and lizards.

In 2000, mitigation funding allowed for the replacement of the 10" culverts that fed East and West Cells near Warner and PCH with 12" culverts that were set 2' lower in the ground. This brought more saltwater into the wetland cells. The increased water enhanced growth of pickleweed, saltwort, and shoregrass (*Distichlis littoralis*), and improved the habitat for Belding's

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Savannah Sparrow, which began feeding in the cells. In addition, a large concrete foundation was removed and a third wetland cell was created on Little Mesa.

Since this restoration, tiger beetles have taken up residence in the mudflats, especially in West Cell, in increasingly large numbers. Some species of tiger beetles are threatened.



In the year 2000, the county of Orange landscaped a children's playground in Harriett M. Wieder Regional Park on Huntington Mesa with native sage scrub plants around the perimeter. They planted sycamores in a non-native grass lawn and opened the park to the public in 2004.

Expansion of the Bolsa Chica Ecological Reserve occurred with purchase of the Bolsa Chica Lowlands (due East of the current ecological reserve) in 1997 and purchase of the lower bench of Bolsa Chica Mesa in 2005. Major hydrologic restoration efforts in the Bolsa Lowlands were completed in August 2006, opening up nearly 600 acres to full tidal flushing. Complete tidal restoration of Outer Bolsa Bay was achieved soon after this opening.

Restoration and Exotic Pest Plants

The biggest restoration issue on the dunes is the presence of iceplant, while a variety of non-natives grow in other upland areas. A main effort of native plant restoration on the dunes and uplands usually involves removal of non-native plants. This is not an issue in the salt marsh because the presence of seawater kills non-native species. In the uplands and on the dunes, invasive species can overpower and crowd out less aggressive native species.

The strategy followed by the Bolsa Chica Conservancy in their work on the dunes and Little Mesa has been to remove the most noxious invasive species first, followed by attacking less invasive species and then by planting in areas between existing native plants while allowing native species of plants to naturally re-establish themselves.

Since 2014 over 5,000 volunteers have assisted in the removal of non-native plant species such

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as russian thistle (*Salsola tragus*), crystalline iceplant (*Mesembryanthemum crystallinum*), annual grasses (*Bromus sp.*), and slender-leaved iceplant (*Mesembryanthemum nodiflorum*) from the Bolsa Chica Ecological Reserve. With the continued help in the removal of numerous tons of non-native invasive species, it is hoped the habitat value of Bolsa Chica will increase for the local flora and fauna.

Although some natives were planted along the dune/wetland interface where non-native trees had grown, the Conservancy's studies from iceplant removal in the 1990s showed that the sand dunes will repopulate with native plants if there is a sufficient seed bank. Because the strip of land bordering East, West and Southwest Cells was primarily soil instead of sand, these areas were planted with coastal sage scrub above the marsh line. This strip of plantings provides a n s for birds using the salt marsh.





Future Directions for Restoration - Harriett Wieder

The purpose of this project is to restore native habitats that support wildlife by removing invasive nonnative plants, and planting California native plants to increase plant species diversity and native plant coverage within approximately 9.5-acres of the Harriett Wieder Regional Park. The Restoration Project will provide significant benefits to regionally-important biological resources, as well as a number of non-biological benefits including enhanced public access and open space viewshed preservation. It will also restore native habitat providing a beneficial buffer to existing wildlife. Removal of invasive species, particularly Black mustard (*Brassica nigra*), Russian thistle (*Salsola tragus*), Tocalote (*Centaurea melitensis*), White horehound (*Marrubium vulgare*), Wild radish (*Raphanus sativus*), Iceplant (*Carpobrotus sp.*) and Sweet fennel (*Foeniculum vulgare*) will assist in the restoration of native habitat.

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Descriptions and Intro for Plant Guide Content

Although the plant guide was compiled by the Bolsa Conservancy, it is important to recognize that the presence of a Master list is indicative of trans-agency collaboration and cooperation, namely between the Conservancy (BCC), the Bolsa Chica Land Trust (BCLT), and the Department of Fish and Wildlife (DFW). Further information has been obtained from historical (8+ year-old) sources from Bob Muns (1999) and BCC's previous plant guide, compiled by Louann Murray, Ph.D. (2007). These lists are intended for educational purposes, are inherently apolitical and unbiased, and represent the fullest extent of knowledge as has been verified at their most recent revisions.

Due to the dynamic characteristic of weather systems, climate, flora-fauna migration, and human activity, the plants contained in this guide and their descriptions can and will never be set in stone. In a sense, this guide is a snapshot of a living botanical document, for the ultimate purpose remains that these lists be periodically updated in order to have the most accurate data available. Doing so allows BCC to make the best decisions possible for restoration, education, and management goals.

Organization

- The Plant Guide organization follows the set-up of Murray's original guide closely, with some additions. After introductory statements, plants are shown via habitats found in the Bolsa Chica Ecological Reserve in alphabetical order by scientific name. Each plant covers one page and has individualized descriptions, including…

Scientific name
Common name
Family
Characteristics
Flowering period
Nativity
Location in Bolsa Chica

Methods and Standardization

Plants:

- Each plant has the following elements that make up its page. The methods for acquiring each point of information are described below.

1. Scientific name

The recorded scientific name was first obtained from The Jepson Manual 2012 (print). If a discrepancy was noticed when looking at the plant pictures on CalFlora, then the scientific name from CalFlora was used for more recent accuracy. If, upon using CalFlora, the plant was listed as having been "formerly ____", that name was also added. Sometimes, the information used in Wildflowers of Orange County and the Santa Ana Mountains (Allen and Roberts), and/or Flora of the Santa Ana River and Environs (Clarke) was consulted to double check items, but these two books were never used as the final source. It is suggested for future updates the

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scientific names be obtained directly from the Jepson eFlora (online) to ensure the names are accurate to the most recent revisions.

2. Former name

The former names are included for those plants whose scientific names have changed recently, in order to avoid confusion. These names were taken mainly from CalFlora, but for further updates it is suggested to use the Jepson eFlora as a starting point.

3. Common name

The common name was first obtained from the printed Jepson 2012. If the Jepson did not have a common name listed, then the name was taken from CalFlora. Should there have been more than one common name from either the Jepson or CalFlora, then those alternatives were listed as well. It is suggested for future updates to go to the Jepson eFlora first.

4. Family

The family was obtained from The Jepson Manual 2012 (print) and then double-checked with CalFlora when looking at plant pictures.

5. Characteristics

All characteristics listed are from the printed Jepson 2012. Focus is given to major identifiable parts of the plant, including but not limited to Perennial or Annual, stem features (and measurements), Leaf features and measurements, Inflorescence description/measurements (if necessary), flower description and measurements (if necessary), other easily identifiable or conspicuous features. Where obscure vocabulary words were used, efforts were made to include short definitions for some of the plants.

6. Relative Abundance

In determining abundance in the surveyed areas, a simplistic, yet dual approach is taken. First of all, relative abundance refers to how common the plants are in their respective habitats, as opposed to the entire reserve. Plants are labeled depending on how many of the different locations in Bolsa Chica (see Location below) they occur: “Few” = 0-25%, or fewer than 4 locations; “Common” = 25-75%, or between 4 and 11 of the locations; and “Abundant” = 75%-100%, or between 12 and 16 of the locations.

After quantifying the abundance in this manner, the labels are then compared to what has been seen during surveys and changes are made if need be. For example, a plant may show up in 5 locations (Common) within a habitat, but only has one or two individuals in each location. This plant would then be re-labeled as “Few”. Conversely, a plant may be quantified as “Few” but in reality has completely spread throughout those few locations, which would result in it being re-labeled as “Common” or “Abundant.”

Plants that are historic, whose location is unknown, or that are present on inaccessible lands are not given abundance qualifiers. Abundance is listed next to the plant locations.

7. Flowering period

This was taken solely from the printed Jepson Manual 2012.

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8. Nativity

This was firstly obtained from CalFlora. If something was unclear, the printed Jepson was consulted. The nativity for the purpose of this guide is defined as the plant's relationship to being a California-native or not. If it is not a California native, then it is listed as either a nonnative (naturalized or planted) or an invasive (limited, moderate, or high). The threatened and nonnative classifications were all taken from CalFlora, and the definitions for these classifications are from the California Native Plant Society (threatened classifications), the California Invasive Plant Council (invasive classifications), and the US Department of Agriculture (quarantine pest and noxious weed classifications). Use of "naturalized" is taken directly from CalFlora, whereas the "neither invasive nor naturalized" was utilized if CalFlora only labeled the plant as being not native to California, with no further elaboration. The hierarchy of classifications plus their definitions is described below.

Toxic and poisonous plants received their toxicity notice directly from the printed Jepson 2012.

9. Location in Bolsa Chica

In order to determine the locations of the plants, the entirety of the publicly-available trails in the reserve were surveyed at varying intervals over the course of several months and seasons. If the plant could not be identified in the field, either many pictures and/or a sample were taken to be studied more in the office. Depending on the time of survey, the information used in the field to correctly identify the flora came from The Jepson Manual 2012, Wildflowers of Orange County and the Santa Ana Mountains (Allen and Roberts), Flora of the Santa Ana River and Environs (Clarke), lists from the Bolsa Chica Land Trust and the Department of Fish and Wildlife, and the original plant guide from the Bolsa Chica Conservancy (Murray 2007).

Areas not extensively surveyed, due to lack of public accessibility, include the fenced-in lower mesa, the Department of Fish and Wildlife seasonal pond land coinciding with oil operations, the fenced-in portion of Brightwater (east of lower mesa but below the Brightwater trail), and most of the riparian environment near Harriett-Wieder due to the density of vegetation. Plant locations in the lower mesa and the seasonal pond lands come from the Bolsa Chica Land Trust and the CA Department of Fish and Wildlife. This inability to complete an exhaustive survey of the entire reserve gives even more credence to the use of this guide as a snapshot in time, and to the reliance of the plant lists as living documents.

Despite the presence of a list of species in inaccessible locations (along with a historical list), there are still some plants included in the guide whose location is "unknown." This is because many were recorded at Bolsa Chica in the very recent past but haven't been seen in current surveys, and there is sufficient reason to believe that the plants are indeed still in the reserve. These "unknown"-location plants will be assessed in future surveys, and if they continue to not be seen, they will be moved to the "Historical/Inaccessible" lists and not be given a location.

Pictures:

All pictures are used legally. Most of the photos were taken directly within the Bolsa Chica Ecological Reserve by Bolsa Chica Conservancy staff, but some are from outside. These are appropriately labeled with their location and photographer. All photos are also labeled with the season in which they were taken to show seasonality (or lack thereof) from different species.

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Location

A = Aquatic/water
B = Brightwater Trail
C = around interpretive center
H = Harriet-Weider
L = Loop Trail
R = Rabbit Island
S = South parking lot
T = Tide Gates
W = trail along Warner
M = main trail (interpretive center to tide gates)
Nt = between tide gates and Warner along PCH (PCH north)
P = Pocket Loop Trail and Brightwater Connector (short trail and lower trail from flood control bridge up to Brightwater)
St = between south parking lot and tide gates along PCH (PCH south)
Sx = South of the south parking lot along PCH up until the oil lands
Y = patch of planting along sidewalk of Huntington Harbour Yacht Club, north of the interpretive center across the street
Lower mesa = fenced-off mesa bordered by M (BCLT)

** *A visual of the locations can be found after this section* **

Hierarchy

- The nativity of plants at Bolsa Chica straddles many levels, which are described in detail in the paragraphs below. In order from most native (protected, endangered) to least native (high invasiveness), the levels are as follows:

Native-1B.1, Native-1B.2, Native-3, Native-4.2, Native-Endemic, Native, Non-native – Neither invasive nor naturalized, Non-native – Naturalized, Invasive-Low, Invasive-Moderate, Invasive-High

Endangered Species Ranking, California (California Native Plant Society [CNPS])

CNPS Ranking is the combination of a Rare Plant Rank (1A, 2B…) with a Threat Rank (0.1, 0.2, 0.3)

- example of plant rating for *Suaeda esteroa* (Estuary Seablite) is 1B.2

1A = plants presumed extirpated in CA and either rare or extinct elsewhere
1B = plants rare, threatened, or endangered in CA and elsewhere
2A = plants presumed extirpated in CA, but common elsewhere
2B = plants rare, threatened, or endangered in CA, but common elsewhere
3 = plants about which more information is needed
4 = plants of limited distribution; watch list

0.1 = seriously threatened in CA (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2 = moderately threatened in CA (20-80% of occurrences threatened / moderate degree and immediacy of threat)
0.3 = not very threatened in CA (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

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Endemic = The species historically evolved, has remained in, and is native to California. It was never introduced from another area, and does not occur naturally anywhere else on Earth.

** Most of the native species at Bolsa Chica are confined to western North America; outside of this region these species do not naturally occur.

Non-native Species Ranking, California (California Invasive Plant Council [Cal-IPC])
Species are either demarcated with a Cal-IPC category, or "naturalized" if the plant has become established without becoming invasive

***** All invasive species are inherently naturalized *****

- The Cal-IPC inventory categorizes "invasive non-native plants that threaten wildlands" according to the following definitions. It does not include plants found solely in areas of human-caused disturbance such as roadsides and cultivated agricultural fields.

Wildlands – public and private lands that support native ecosystems, including some working landscapes such as grazed rangeland and active timberland

Non-native plants – species introduced to California after European contact and as a direct or indirect result of human activity

Invasive non-native plants that threaten wildlands – plants that both
1) are not native to, yet can spread into, wildland ecosystems, and
2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes

High
- These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate
- These species have substantial and apparent – but generally not severe – ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited
- These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude distribution is generally limited, but these species may be locally persistent and problematic.

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Non-native Species Ranking, Federal (US Department of Agriculture [USDA])

- Federal listing of invasive species that cause particularly detrimental economic and environmental effects are, after an extensive review process, are labeled as the following by the Animal and Plant Health Inspection Service (APHIS) under the USDA.

Quarantine Pest: A pest of potential economic importance [includes environmental impact] to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled.

Noxious Weed: the next step up from quarantine pest. For all intents and purposes, it means, "really bad".

Once a plant has been labeled as a quarantine pest and is deemed to be high risk or medium-high risk, it undergoes further scrutiny and review (both national and international). After an extensive process involving a number of stakeholders, the plant is only listed as a noxious weed if it passes all levels of review.

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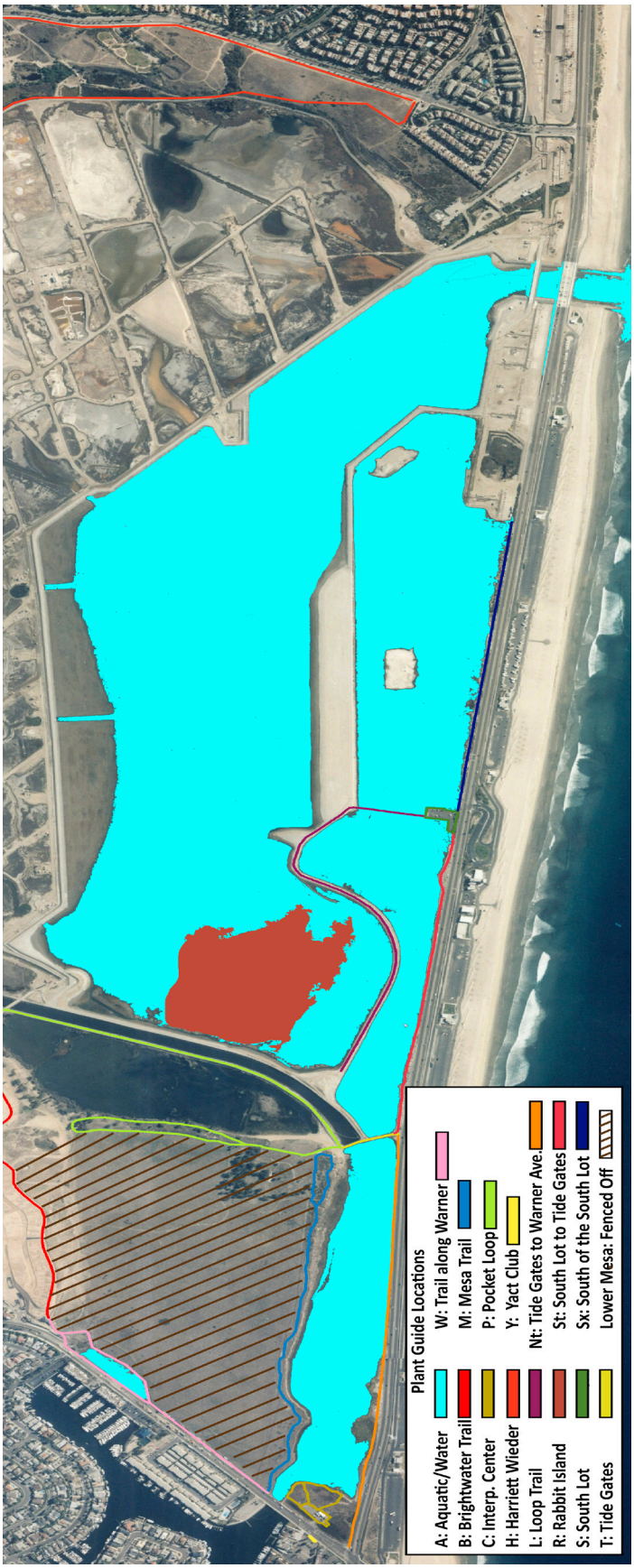

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BCC Plants by Family

- The following is a companion to the other lists in this guide. It is recognized that scientific names change more often than we'd like, sometimes resulting in the movement of species from one genus and family to another. All efforts have been made to have this list be as accurate as possible, but keep in mind its accuracy is limited to its most recent revision.

- Qualifiers of the third column are based on pages xii - xv.

* = Historic or Inaccessible to public
§ = Monocots; Unmarked = eudicots

Aizoaceae – Fig-Marigold or Iceplant family

Carpobrotus edulis	Iceplant; Hottentot fig	High
*Carpobrotus chilensis**	Sea Fig	Moderate
Malephora crocea	Finger mescomb; coppery mesembryanthemum	Naturalized
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembryanthemum nodiflorum	Slender-leaf iceplant	Naturalized
*Sesuvium verrucosum**	Western sea purslane	
Tetragonia tetragonioides	New Zealand Spinach	Limited

§ Agavaceae – Century plant family

Agave americana	American century plant	Naturalized

Amaranthaceae – Amaranth family

Amaranthus albus	Pigweed amaranth; tumble-weed	Naturalized
*Amaranthus deflexus**	Large fruited amaranth	Naturalized

Anacardiaceae – Sumac or Cashew family

Malosma laurina	Laurel sumac	
Rhus integrifolia	Lemonade berry	
Schinus terebinthifolius	Brazilian pepper tree	Limited
Toxicodendron diversilobum	Poison-oak	

Apiaceae – Carrot family

Apium graveolens	Wild celery	Naturalized
Conium maculatum	Poison-hemlock	Moderate

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*Cyclospermum leptophyllum**	Marsh parsley	Naturalized
Foeniculum vulgare	Sweet fennel	High

Araliaceae – Ginseng family

Hydrocotyle verticillata	Whorled marsh pennywort	

§ **Arecaceae** – Palm family

Phoenix canariensis	Canary Island Date Palm	Limited
*Washingtonia filifera**	California fan palm	
Washingtonia robusta	Washington fan palm	Moderate (Alert)

§ **Asphodelaceae** – Asphodel family

Aloe maculata	Soap aloe	Neither invasive nor naturalized

Asteraceae – Sunflower family

Achillea millefolium	Yarrow	
*Acroptilon repens**	Russian knapweed	Moderate
*Amblyopappus pusillus**	Dwarf coastweed; Pineapple weed	
Ambrosia chamissonis	Silver beach bur	
Ambrosia psilostachya	Western ragweed	
Artemisia californica	California sagebrush	
Artemisia douglasiana	Douglas' sagewort	
*Baccharis glutinosa**	Douglas / Marsh baccharis	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Baccharis salicina	Willow baccharis	
*Bidens pilosa**	Hairy beggarticks	Naturalized
Centaurea melitensis	Maltese starthistle	Moderate
Centaurea solstitialis	Yellow starthistle	High
Centromadia parryi ssp. australis	Southern tarplant	1B.1
Cirsium vulgare	Bull thistle	Moderate
Corethrogyne filaginifolia	Sand-aster	
Cotula australis	Australian brassbuttons	Naturalized
Cotula coronopifolia	Common brassbuttons	Limited
Deinandra fasciculata	Slender tarweed	

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Dimorphotheca fruticosa	Trailing African daisy	Neither invasive nor naturalized
Encelia californica	California brittlebush	
*Encelia farinosa**	Brittlebush	
*Erigeron bonariensis**	Flax-leaved horseweed	Naturalized
*Erigeron canadensis**	Canada horseweed	
*Euthamia occidentalis**	Western goldenrod	
*Gazania linearis**	Treasure flower	Moderate (Alert)
Glebionis coronaria	Crown daisy	Moderate
Hedypnois cretica	Cretanweed	Naturalized
Helminthotheca echioides	Bristly Ox-Tongue	Limited
Heterotheca grandiflora	Telegraph weed	
*Hypochaeris glabra**	Hypochaeris glabra*	Limited
Isocoma menziesii	Coast goldenbush	
Jaumea carnosa	Jaumea; Salty Susan	
*Laennecia coulteri**	Coulter's horseweed	
Lasthenia californica ssp. californica	California goldenfields	
*Lasthenia glabrata**	Yellow-rayed goldenfields	Endemic
Layia platyglossa	Coastal tidytips	
Pluchea odorata	Marsh fleabane	
*Pseudognaphalium biolettii**	Two-color rabbit tobacco	
Pseudognaphalium californicum	Ladies' tobacco; green everlasting	
Pseudognaphalium luteoalbum	Jersey cudweed	Naturalized
*Pseudognaphalium microcephalum**	Wright's cudweed	
Pseudognaphalium stramineum	Cottonbatting plant	
Pulicaria paludosa	Spanish false fleabane	Naturalized
Senecio vulgaris	Common groundsel	Naturalized
Silybum marianum	Milk thistle	Limited
Sonchus asper ssp. asper	Prickly sow thistle	Naturalized
Sonchus oleraceus	Common sow thistle	Naturalized
*Stephanomeria virgata**	Rod wirelettuce	
*Symphyotrichum subulatum**	Eastern annual saltmarsh aster	
Xanthium strumarium	Cocklebur	

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Bataceae – Saltwort family

Batis maritima	Saltwort	

Boraginaceae – Borage or Waterleaf family

Amsinckia intermedia	Common fiddleneck	
*Amsinckia spectabilis**	Seaside fiddleneck	
*Cryptantha clevelandii**	Cleveland's / Common cryptantha	
Heliotropium curassavicum var. oculatum	Seaside, Salt, or Alkali heliotrope	
Nemophila menziesii	Baby blue eyes	
*Phacelia distans**	Common phacelia	

Brassicaceae – Mustard family

Brassica nigra	Black mustard	Moderate
Brassica rapa	Field / Common mustard	Limited
Brassica tournefortii	Sahara mustard	High
Cakile maritima	European sea rocket	Limited
*Capsella bursa-pastoris**	Shepherd's purse	Naturalized
Hirschfeldia incana	Mediterranean hoary mustard	Moderate
*Lepidium didymum**	Lesser swine cress	Naturalized
Lepidium lasiocarpum ssp. lasiocarpum	Shaggyfruit pepperweed	
*Lepidium latifolium**	Broad-leaved peppergrass	High
Lepidium nitidum	Shining peppergrass	
*Lepidium oblongum**	Veiny peppergrass	
*Lobularia maritima**	Sweet alyssum	Limited
Matthiola incana	Tenweeks / Purple stock	Naturalized
Raphanus sativus	Wild radish	Limited
Sisymbrium irio	London rocket	Moderate

Cactaceae – Cactus family

Cylindropuntia prolifera	Coastal cholla	
*Opuntia ficus-indica**	Mission/tuna cactus	Naturalized
Opuntia littoralis	Coastal prickly pear	

Caryophyllaceae – Pink family

Herniaria hirsuta var. cinerea	Hairy rupturewort	Naturalized
*Polycarpon depressum**	California allseed/manyseed	

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Polycarpon tetraphyllum var. tetraphyllum	Four-leaved allseed	Naturalized
*Silene gallica**	Common catchfly	Naturalized
Spergularia bocconi	Boccone's sand spurry	Naturalized
Spergularia marina	Salt marsh sand spurry	

Chenopodiaceae – Goosefoot family

Arthrocnemum subterminale	Parish's glasswort	
Atriplex canescens	4-wing saltbush	
Atriplex lentiformis ssp. breweri	Coast qailbush; Big saltbush	
Atriplex prostrata	Fat-hen	Naturalized
Atriplex semibaccata	Australian saltbush	Moderate
Atriplex suberecta	Peregrine / Sprawling saltbush	Naturalized
Atriplex watsonii	Watson's saltbush	
Bassia hyssopifolia	Fivehook/fivehorn bassia	Limited
*Beta vulgaris**	Common beet	Naturalized
Chenopodium album	Lamb's quarter; White goosefoot	Naturalized
Chenopodium californicum	California goosefoot; Pigweed	
*Chenopodium macrospermum**	Largeseed goosefoot	Naturalized
Chenopodium murale	Nettle leaf goosefoot	Naturalized
*Dysphania ambrosioides**	Mexican tea	Naturalized
*Dysphania multifida**	Cut-leaved goosefoot	Naturalized
Extriplex californica	California orach	
Salicornia bigelovii	Bigelow's pickleweed	
*Salicornia depressa**	Virginia glasswort	
Salicornia pacifica	Pickleweed; Pacific swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
*Suaeda californica**	California seablite	
Suaeda esteroa	Estuary seablite	1B.2
Suaeda taxifolia	Seablite; seepweed	4.2

Cleomaceae – Spiderflower family

Peritoma arborea	Bladderpod	Endemic

Convolvulaceae – Morning-glory family

Calystegia soldanella	Beach morning glory	
Convolvulus arvensis	Orchard morning glory	Naturalized
Cressa truxillensis	Alkali weed	

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Cuscuta salina	Salt marsh dodder	

Crassulaceae – Stonecrop family

Crassula connata	(Sand) Pigmy weed	

Cucurbitaceae – Gourd family

*Marah macrocarpa**	Chilicothe	

§ Cyperaceae – Sedge family

*Bolboschoenus robustus**	Sturdy bulrush	
Carex spissa	San Diego sedge	
*Isolepis cernua**	Low bulrush	
Schoenoplectus acutus	Hardstem bulrush	
*Schoenoplectus americanus**	Chairmaker's bulrush	
Schoenoplectus californicus	Bulrush; tule	

Euphorbiaceae – Spurge family

Euphorbia maculata	Spotted spurge	Naturalized
*Euphorbia prostrata**	Prostrate sandmat	Naturalized
Ricinus communis	Castor bean	Limited

Fabaceae – Legume family

Acmispon glaber	Deerweed	
*Acmispon strigosus**	Strigose lotus	
Astragalus trichopodus	Southern CA locoweed; Milkvetch	Endemic
Lupinus bicolor	Bicolored lupine	
Medicago polymorpha	Bur clover	Limited
Medicago sativa	Alfalfa	Naturalized
Melilotus albus	White sweetclover	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized

Fagaceae – Oak family

Quercus agrifolia	Coast live oak	
Quercus ilex	Holly oak	Neither invasive nor naturalized

Frankeniaceae – Frankenia family

Frankenia salina	Alkali heath	

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Geraniaceae – Geranium family

Erodium botrys	Broad leaf filaree	Naturalized
Erodium brachycarpum	Foothill/Shortstemmed filaree	Naturalized
Erodium cicutarium	Red-stemmed filaree	Limited
Erodium moschatum	White-stemmed filaree	Naturalized

§ Iridaceae – Iris family

Sisyrinchium bellum	Western blue-eyed grass	

§ Juncaceae – Rush family

Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Juncus balticus	Baltic / Wire rush	
*Juncus bufonius**	(Common) Toad rush	

Lamiaceae – Mint family

Marrubium vulgare	White horehound	Limited
Salvia apiana	White sage	
*Salvia clevelandii**	Cleveland sage	
Salvia leucophylla	Purple sage	Endemic
Salvia mellifera	Black sage	

Lythraceae – Loosestrife family

*Lythrum hyssopifolia**	Hyssop loosestrife	Limited

Malvaceae – Mallow family

Malva nicaeensis	Bull mallow	Naturalized
Malva parviflora	Cheeseweed mallow	Naturalized
*Malva sylvestris**	High mallow	Naturalized
Malvella leprosa	Alkali mallow	

Molluginaceae – Carpet-weed family

Claytonia perfoliata	Miner's lettuce	

Myrsinaceae – Myrsine family

Lysimachia arvensis	Scarlet pimpernel	Naturalized

Myrtaceae – Myrtle family

Eucalyptus globulus	Blue gum	Limited
*Melaleuca nesophila**	Bottlebrush	Naturalized

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Nyctaginaceae – Four o'clock family

Abronia maritima	Red sand-verbena	4.2
Abronia umbellata	Pink sand-verbena	
Mirabilis laevis var. crassifolia	California four o'clock	

Oleaceae – Olive family

Olea europea	Olive	Limited

Onagraceae – Evening-Primrose family

Camissoniopsis cheiranthifolia	Beach evening-primrose	
*Camissoniopsis lewisii**	Lewis' evening-primrose	3
*Camissoniopsis micrantha**	Spencer primrose	
Camissoniopsis robusta	Robust sun-cup	
*Oenothera elata**	(Hooker's) Evening-primrose	
*Oenothera laciniata**	Cutleaf primrose; Southern evening-primrose	Naturalized

Orobanchaceae – Broomrape family

*Castilleja exserta**	(Purple) Owl's clover	

Oxalidaceae – Oxalis family

Oxalis pes-caprae	Bermuda buttercup	Moderate

Papaveraceae – Poppy family

Eschscholzia californica	California poppy	

§ Poaceae – Grass family

Aristida purpurea	Purple three awn	
*Arundo donax**	Giant reed	High
Avena barbata	Slender/Slim oat	Moderate
*Avena fatua**	Wild oat	Moderate
Avena sativa	Common/cultivated oat	Naturalized
*Brachypodium distachyon**	(Purple) False brome	Moderate
*Bromus catharticus**	Rescue grass	Naturalized
Bromus diandrus	Ripgut brome	Moderate
Bromus hordeaceus	Soft brome / chess	Limited
Bromus madritensis ssp. rubens	Red / foxtail brome	High
*Cortaderia jubata**	Pampas grass	High
Cortaderia selloana	Uruguyan pampas grass	High

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Cynodon dactylon	Bermuda grass	Moderate
Distichlis littoralis	Shoregrass	
Distichlis spicata	Saltgrass	
Ehrharta erecta	Panic/Upright veldtgrass	Moderate
Festuca myuros	Rattail sixweeks grass	Moderate
Festuca perennis	Italian rye grass	Moderate
*Hordeum intercedens**	Bobtail, Little, or Vernal barley	3.2
Hordeum murinum ssp. leporinum	Hare barley	Moderate
*Lamarckia aurea**	Goldentop grass	Naturalized
Muhlenbergia rigens	Deergrass	
Parapholis incurva	(Curved) Sickle grass	Naturalized
*Paspalum dilatatum**	Dallis grass	Naturalized
Pennisetum clandestinum	Kikuyu grass	Limited; Noxious weed
Pennisetum setaceum	(Crimson) Fountaingrass	Moderate
*Poa annua**	Annual bluegrass	Naturalized
Polypogon monspeliensis	Annual beardgrass; Rabbitsfoot	Limited
Schismus barbatus	Common Mediterranean grass	Limited
Spartina foliosa	Cordgrass	
*Stenotaphrum secundatum**	St. Augustine grass	Naturalized
*Stipa cernua**	Nodding needle grass	Endemic
Stipa leipda	Foothill needle grass	
Stipa pulchra	Purple needle grass	
*Triticum aestivum**	Common wheat	Limited

Phrymaceae – Lopseed family

Mimulus aurantiacus	Bush monkeyflower	

Plantaginaceae – Plantain family

*Nuttallanthus texanus**	Blue toadflax	
*Penstemon spectabilis**	Showy penstemon	
Plantago arenaria	Sand / Indian plantain	Neither invasive nor naturalized
Plantago coronopus	Buckhorn plantain	Naturalized
Plantago erecta	California / foothill plantain	
Plantago lanceolata	English plantain	
Plantago major	Common plantain	Naturalized

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Plantanaceae – Plane-tree or Sycamore family

Platanus racemosa	Western sycamore	

Plumbaginaceae – Leadwort family

Limonium californicum	Sea lavender	
Limonium perezii	Canary Islands sea lavender	Naturalized

Polygonaceae – Buckwheat family

Emex spinosa	Devil's thorn	Moderate; Noxious weed
Eriogonum cinereum	Ashy-leaf buckwheat	Endemic
Eriogonum fasciculatum	California buckwheat	
Eriogonum giganteum	St. Catherine's lace	Endemic
*Eriogonum latifolium**	Coast / Seaside buckwheat	
Eriogonum parvifolium	Coastal buckwheat	Endemic
Nemacaulis denudata var. denudata	Coast woolly-heads	1B.2
*Polygonum aviculare ssp. depressum**	Prostrate knotweed	Naturalized
*Pterostegia drymarioides**	Fairy mist; Woodland threadstem	
Rumex crispus	Curly dock	Limited
*Rumex salicifolius**	Willow dock	

Rosaceae – Rose family

Heteromeles arbutifolia	Toyon; Christmas berry	
Prunus ilicifolia ssp. lyonii	Catalina cherry	

Rubiaceae – Madder family

Galium aparine	Cleaver; Common bedstraw; Goose grass	
*Galium parisiense**	Wall bedstraw	Naturalized

Salicaceae – Willow family

Salix gooddingii	(Goodding's) Black willow	
Salix lasiolepis	Arroyo willow	

Saururaceae – Lizard's-tail family (magnolid)

Anemopsis californica	Yerba mansa	

Scrophulariaceae – Figwort family

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Myoporum laetum	Lollipop / Ngaio tree	Moderate

Solanaceae – Nightshade family

Datura stramonium	Jimson weed	Naturalized
Lycium californicum	California boxthorn	4.2
*Lycopersicon esculentum**	Tomato	Naturalized
Nicotiana glauca	Tree tobacco	Moderate
Solanum americanum	American black nightshade	
Solanum douglasii	White nightshade	

Tamaricaceae – Tamarisk family

*Tamarix ramosissima**	Saltcedar	High

Tropaeolaceae – Nasturtium family

*Tropaeolum majus**	Garden nasturtium	Naturalized

§ Typhaceae – Cattail family

*Typha angustifolia**	Nailrod; Narrowleaf cattail	Naturalized
Typha latifolia	Cattail	

Ulvaceae – Green algae family

Ulva intestinales	Gutweed (alga)	
Ulva sp.	Sea lettuce (alga)	

Urticaceae – Nettle family

Parietaria hespera	(Western) Pellitory	
*Urtica dioica ssp. holosericea**	Giant creek / Hoary nettle	
Urtica urens	Dwarf nettle; Annual stinging	Naturalized

§ Zosteraceae – Eel-grass family

Zostera marina	Eelgrass	

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BCC Plants by Location

- The following is another companion to this plant guide. Due to the inherently dynamic nature of ecosystems in Bolsa Chica, this list is representative of the guide being a living document, and as such these locations will continue to be updated as more surveys are conducted. At this time and to the best of our knowledge, it is as complete as possible.

- Qualifiers of the third column are based on pages xii - xv.

- Historic / Inaccessible species are not included in this list.

A – Aquatic/water

Ulva intestinales	Gutweed (alga)	
Ulva sp.	Sea Lettuce (alga)	
Zostera marina	Eelgrass	

B – Brightwater Trail

Artemisia californica	California/Coastal Sagebrush	
Atriplex lentiformis ssp. breweri	Coast Quailbush; saltbush	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Centaurea melitensis	Maltese starthistle	Moderate
Cylindropuntia prolifera	Coastal Cholla	
Deinandra fasciculata	Slender tarweed	
Distichlis spicata	Saltgrass	
Eriogonum fasciculatum	California Buckwheat	
Foeniculum vulgare	Sweet fennel	
Frankenia salina	Alkali heath	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast Goldenbush	
Lycium californicum	California boxthorn	4.2
Marrubium vulgare	White horehound	
Opuntia littoralis	Coastal prickly pear	
Plantago erecta	California / foothill plantain	
Platanus racemosa	Western sycamore	
Quercus agrifolia	Coast Live Oak	

C – around interpretive center

Abronia maritima	Red sand-verbena	4.2
Artemisia californica	California/Coastal Sagebrush	
Arthrocnemum subterminale	Parish's Glasswort	

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Atriplex canescens	4-wing saltbush	
Atriplex lentiformis ssp. breweri	Quailbush	
Atriplex semibaccata	Australian saltbush	Moderate
Atriplex watsonii	Watson's saltbush	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Batis maritima	Saltwort	
Camissoniopsis cheiranthifolia	Beach evening-primrose	
Centaurea melitensis	Maltese starthistle	Moderate
Centromadia parryi ssp. australis	Southern tarplant	1B.1
Cotula coronopifolia	Common brassbuttons	Limited
Cressa truxillensis	Alkali weed	
Cylindropuntia prolifera	Coastal cholla	
Deinandra fasciculata	Slender/Clustered tarweed	
Distichlis littoralis	Shore grass	
Distichlis spicata	Salt grass	
Encelia californica	California brittlebush	
Eriogonum cinereum	Ashy-leaf buckwheat	Endemic
Eriogonum fasciculatum	California buckwheat	
Eriogonum parvifolium	Coastal buckwheat	Endemic
Erodium cicutarium	Red-stemmed filaree	Limited
Eschscholzia californica	California poppy	
Frankenia salina	Alkali heath	
Isocoma menziesii	Coast/Menzie's goldenbush	
Jaumea carnosa	Jaumea; Salty Susan	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Lepidium lasiocarpum ssp. lasiocarpum	Shaggyfruit pepperweed	
Limonium californicum	Sea Lavender	
Limonium perezii	Canary Island's Sea Lavender	Naturalized
Lycium californicum	California boxthorn	4.2
Lysimachia arvensis	Scarlet pimpernel	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized
Mesembryanthemum crystallinum	Iceplant, crystalline	Moderate (alert)
Mesembryanthemum nodiflorum	Iceplant, slender-leaved	Naturalized
Mirabilis laevis var. crassifolia	California wishbone bush	

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Nemacaulis denudata var. denudata	Coast woolly heads	1B.2
Opuntia littoralis	Coastal prickly pear	
Peritoma arborea	Bladderpod	Endemic
Rhus integrifolia	Lemonade Berry	
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
Salvia apiana	White sage	
Sonchus asper ssp. asper	Prickly sow thistle	Naturalized
Sonchus oleraceus	Common sow thistle	Naturalized
Suaeda taxifolida	Sea Blite	
Tetragonia tetragonioides	New Zealand Spinach	Limited
Urtica urens	Dwarf nettle	Naturalized

H – Harriett-Wieder

Ambrosia psilostachya	Western ragweed	
Amsinckia intermedia	Common fiddleneck	
Artemisia californica	California / Coastal sagebrush	
Artemisia douglasiana	Douglas' sagewort	
Astragalus trichopodus	Southern California locoweed	Endemic
Atriplex semibaccata	Australian saltbush	Moderate
Avena barbata	Slender / slim oat	Moderate
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Bassia hyssopifolia	Fivehook / Fivehorn bassia	Limited
Brassica nigra	Black Mustard	Moderate
Brassica rapa	Field / Common Mustard	Limited
Bromus diandrus	Ripgut brome	Moderate
Bromus madritensis ssp. rubens	Red/foxtail brome	High
Carex spissa	San Diego sedge	
Carpobrotus edulis	Hottentot fig	High
Centaurea melitensis	Maltese starthistle	Moderate
Chenopodium murale	Nettle-leaf goosefoot	Naturalized
Conium maculatum	Poison hemlock	Moderate
Convolvulus arvensis	Orchard morning glory	Naturalized
Corethrogyne filaginifolia	Sand-aster	
Datura stramonium	Jimson weed	Naturalized
Distichlis spicata	Saltgrass	

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Encelia californica	California brittlebush	
Erodium botrys	Broad-leaf filaree	Naturalized
Erodium moschatum	White-stemmed filaree	Naturalized
Eschscholzia californica	California poppy	
Eucalyptus globulus	Blue-gum eucalyptus	Limited
Foeniculum vulgare	Sweet Fennel	High
Frankenia salina	Alkali heath	
Glebionis coronaria	Crown daisy	Moderate
Hordeum murinum ssp. leporinum	Hare barley	Moderate
Hydrocotyle verticillata	Whorled marsh pennywort	
Isocoma menziesii	Coast Goldenbush	
Juncus acutus ssp. leopoldii	Leopld's spiny rush	4.2
Lepidium lasiocarpum ssp. lasiocarpum	Shaggyfruit pepperweed	
Malosma laurina	Laurel sumac	
Malva nicaeensis	Bull mallow	Naturalized
Malva parviflora	Cheeseweed mallow	Naturalized
Marrubium vulgare	White horehound	Limited
Medicago polymorpha	Bur clover	Limited
Medicago sativa	Alfalfa	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized
Plantago aerenaria	Sand plantain; Indian plantain	Neither invasive nor naturalized
Platanus racemosa	Western Sycamore	
Pulicaria paludosa	Spanish false fleabane	Naturalized
Raphanus sativus	Wild radish	Limited
Rhus integrifolia	Lemonade berry	
Rumex crispus	Curly dock	Limited
Salix gooddingii	Black Willow	
Salsola tragus	Russian thistle; tumbleweed	Limited
Salvia apiana	White Sage	
Salvia mellifera	Black sage	
Schinus terebinthifolius	Brazilian Pepper tree	Limited
Sisymbrium irio	London rocket	Moderate
Stipa pulchra	Purple needle grass	
Urtica urens	Dwarf nettle	Naturalized

L – Loop Trail

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Abronia maritima	Red sand verbena	4.2
Abronia umbellata	Pink sand verbena	
Ambrosia chamissonis	Silver beach bur	
Atriplex canescens	4-wing saltbush	
Atriplex watsonii	Watson's saltbush	
Baccharis salicifolia	Mulefat	
Bassia hyssopifolia	Fivehook / fivehorn bassia	Limited
Batis maritima	Saltwort	
Camissoniopsis cheiranthifolia	Beach-evening primrose	
Carpobrotus edulis	Iceplant; Hottentot Fig	High
Cylindropuntia prolifera	Coastal cholla	
Distichlis littoralis	Shoregrass	
Distichlis spicata	Saltgrass	
Encelia californica	California brittlebush	
Eriogonum parvifolium	Coastal buckwheat	Endemic
Frankenia salina	Alkali heath	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast goldenbush	
Jaumea carnosa	Jaumea; Salty Susan	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Limonium californicum	Sea Lavender	
Limonium perezii	Canary Islands Sea Lavender	Naturalized
Lycium californicum	California boxthorn	4.2
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembryanthemum nodiflorum	Slender-leaf iceplant	Naturalized
Opuntia littoralis	Coastal prickly pear	
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
Sonchus oleraceus	Common Sow thistle	Naturalized
Spartina foliosa	Cordgrass	
Suaeda esteroa	Estuary Seablite	1B.2
Suaeda taxifolia	Seablite	4.2

M – Main Trail

Acmispon glaber	Deerweed	
Agave americana	American century plant	Naturalized

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Aloe maculata	Soap aloe	Neither invasive nor naturalized
Amsinckia intermedia	Common fiddleneck	
Arthrocnemum subterminale	Parish's Glasswort	
Aristida purpurea	Purple three awn	
Artemisia californica	California sagebrush	
Atriplex canescens	4-wing saltbush	
Atriplex lentiformis ssp. breweri	Coast Quailbush; saltbush	
Atriplex semibaccata	Australian saltbush	Moderate
Atriplex suberecta	Peregrine / Sprawling saltbush	Naturalized
Atriplex watsonii	Watson's saltbush	
Avena barbata	Slender oat	Moderate
Baccharis pilularis ssp. consanguinea	Coyote brush	
Brassica rapa	Field / Common mustard	Limited
Bromus diandrus	Ripgut brome	Moderate
Bromus hordeaceus	Soft brome / chess	Limited
Centromadia parryi ssp. australis	Southern Tarplant	1B.1
Chenopodium murale	Nettle-leaved goosefoot	Naturalized
Cylindropuntia prolifera	Coastal Cholla	
Deinandra fasciculata	Slender / Clustered Tarweed	
Encelia californica	California brittlebush	
Eriogonum fasciculatum	California Buckwheat	
Eriogonum giganteum	St. Catherine's Lace	Endemic
Eriogonum parvifolium	Coastal Buckwheat	
Erodium moschatum	White-stemmed filaree	Naturalized
Eschscholzia californica	California poppy	
Frankenia salina	Alkali heath	
Heliotropium curassavicum var. oculatum	Seaside, Salt, or Alkali heliotrope	
Heteromeles arbutifolia	Toyon; Christmas berry	
Hirschfeldia incana	Mediterranean hoary mustard	Moderate
Hordeum murinum ssp. leporinum	Hare barley	Moderate
Isocoma menziesii	Coast Goldenbush	
Lasthenia californica ssp. californica	California goldenfields	
Lycium californicum	California boxthorn	4.2
Lysimachia arvensis	Scarlet pimpernel	Naturalized

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Malva parviflora	Cheeseweed mallow	Naturalized
Marrubium vulgare	White horehound	Limited
Medicago polymorpha	Bur clover	Limited
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembryanthemum nodiflorum	Slender-leaf iceplant	Naturalized
Muhlenbergia rigens	Deergrass	
Myoporum laetum	Lollipop / Ngaio tree	Moderate
Nemophila menziesii	Baby blue eyes	
Opuntia littoralis	Coastal prickly pear	
Oxalis pes-caprae	Bermuda buttercup	Moderate
Peritoma arborea	Bladderpod	Endemic
Phoenix canariensis	Canary Island Date Palm	Limited
Prunus ilicifolia ssp. lyonii	Catalina cherry	
Quercus agrifolia	Coast Live Oak	
Raphanus sativus	Wild Radish	Limited
Rhus integrifolia	Lemonade Berry	
Rumex crispus	Curly Dock	Limited
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
Salvia apiana	White sage	
Salvia leucophylla	Purple sage	Endemic
Salvia mellifera	Black sage	
Sisymbrium irio	London rocket	Moderate
Sisyrinchium bellum	Western blue-eyed grass	
Spartina foliosa	Cordgrass	
Stipa lepida	Foothill needle grass	
Stipa pulchra	Purple needle grass	
Tetragonia tetragonioides	New Zealand Spinach	Limited

Nt – between tide gates and Warner along PCH (aka PCH North)

Abronia maritima	Red Sand Verbena	4.2
Abronia umbellata	Pink Sand Verbena	
Ambrosia chamissonis	Silver Beach bur	
Ambrosia psilostachya	Western ragweed	
Artemisia californica	California sagebrush	
Atriplex canescens	4-wing saltbush	
Atriplex lentiformis ssp. breweri	Coast Quailbush; saltbush	

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Atriplex semibaccata	Australian saltbush	Moderate
Atriplex watsonii	Watson's saltbush	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Batis maritima	Saltwort	
Brassica tournefortii	Sahara mustard	High
Cakile maritima	European Sea Rocket	Limited
Camissoniopsis cheiranthifolia	Beach-Evening Primrose	
Camissoniopsis robusta	Robust suncup	
Carpobrotus edulis	Hottentot Fig iceplant	High
Centaurea melitensis	Maltese starthistle	Moderate
Cressa truxillensis	Alkali weed	
Cuscuta salina	Saltmarsh dodder	
Cynodon dactylon	Bermuda grass	Moderate
Distichlis littoralis	Shoregrass	
Distichlis spicata	Saltgrass	
Emex spinosa	Devil's Thorn	Moderate; Noxious Weed
Encelia californica	California brittlebush	
Eriogonum fasciculatum	California Buckwheat	
Eriogonum parvifolium	Coastal Buckwheat	Endemic
Erodium botrys	Broad-leaf Filaree	Naturalized
Erodium cicutarium	Red-stemmed filaree	Limited
Frankenia salina	Alkali heath	
Hedypnois cretica	Cretanweed	Naturalized
Heliotropium curassavicum var. oculatum	Seaside, Salt, or Alkali heliotrope	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast Goldenbush	
Jaumea carnosa	Jaumea; Salty Susan	
Limonium californicum	Sea Lavender	
Limonium perezii	Canary Islands Sea Lavender	Naturalized
Malephora crocea	Finger Mescomb; Coppery Mesembryanthemum	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembryanthemum nodiflorum	Slender-leaf iceplant	Naturalized

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Nemacaulis denudata var. denudata	Coast Woolly-heads	1B.2
Oxalis pes-caprae	Bermuda buttercup	(across street) Moderate
Raphanus sativus	Wild Radish	Limited
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Schinus terebinthifolius	Brazilian Pepper Tree	Limited
Spartina foliosa	Cordgrass	
Suaeda esteroa	Estuary seablite	1B.2
Suaeda taxifolia	Seablite	4.2
Tetragonia tetragonioides	New Zealand Spinach	Limited
Typha latifolia	Cattail	

P – Pocket Loop Trail and Brighwater Connector (short trail and lower trail from flood control bridge up to Brightwater)

Acmispon glaber	Deerweed	
Artemisia californica	California sagebrush	
Arthrocnemum subterminale	Parish's Glasswort	
Atriplex canescens	4-wing saltbush	
Atriplex lentiformis ssp. breweri	Coast Quailbush; saltbush	
Atriplex semibaccata	Australian saltbush	Moderate
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Bassia hyssopifolia	Fivehook / Fivehorn bassia	Limited
Batis maritima	Saltwort	
Brassica nigra	Black mustard	Moderate
Centaurea melitensis	Maltese starthistle	Moderate
Cylindropuntia prolifera	Coastal Cholla	
Deinandra fasciculata	Slender / Clustered Tarweed	
Distichlis littoralis	Shoregrass	
Distichlis spicata	Saltgrass	
Encelia californica	California brittlebush	
Eriogonum fasciculatum	California Buckwheat	
Erodium cicutarium	Red-stemmed filaree	Limited
Eucalyptus globulus	Blue-gum eucalyptus	Limited
Frankenia salina	Alkali heath	
Isocoma menziesii	Coast Goldenbush	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Lepidium nitidum	Shining peppergrass / pepperweed	

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Limonium californicum	Sea Lavender	
Lycium californicum	California boxthorn	
Marrubium vulgare	White horehound	Limited
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembryanthemym nodiflorum	Slender-leaf iceplant	Naturalized
Mirabilis laevis var. crassifolia	California wishbone / four o'clock	
Myoporum laetum	Lollipop tree; Ngaio tree	Moderate
Nicotiana glauca	Tree tobacco	Moderate
Opuntia littoralis	Coastal prickly pear	
Peritoma arborea	Bladderpod	Endemic
Phoenix canariensis	Canary Island Date Palm	Limited
Rhus integrifolia	Lemonade Berry	
Salicornia bigelovii	Bigelow's pickleweed	
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Salix gooddingii	Black Willow	
Salsola tragus	Russian thistle; tumbleweed	Limited
Schinus terebinthifolius	Brazilian Pepper Tree	Limited
Spartina foliosa	Cordgrass	
Suaeda taxifolia	Seablite	4.2
Tetragonia tetragonioides	New Zealand Spinach	Limited
Urtica urens	Dwarf nettle	Naturalized

R – Rabbit Island

Abronia maritima	Red Sand Verbena	4.2
Abronia umbellata	Pink Sand Verbena	
Acmispon glaber	Deerweed	
Amaranthus albus	Pigweed amaranth	Naturalized
Arthrocnemum subterminale	Parish's Glasswort	
Atriplex lentiformis ssp. breweri	Coast Quailbush; saltbush	
Atriplex prostrata	Fat-hen	Naturalized
Atriplex watsonii	Watson's saltbush	
Bassia hyssopifolia	Fivehook / fivehorn bassia	Limited
Batis maritima	Saltwort	
Cakile maritima	Sea Rocket	Limited
Carpobrotus edulis	Iceplant, Hottentot fig	High
Distichlis littoralis	Shoregrass	

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Distichlis spicata	Saltgrass	
Extriplex californica	California orach	
Frankenia salina	Alkali heath	
Heterotheca grandiflora	Telegraph weed	Endemic
Jaumea carnosa	Jaumea; Salty Susan	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Limonium californicum	Sea Lavender	
Limonium perezii	Canary Islands Sea Lavender	Naturalized
Myoporum laetum	Lollipop / Ngaio tree	Moderate
Nemacaulis denudata var. denudata	Coast woolly heads	1B.2
Pseudognaphalium californicum	Ladies' Tobacco	
Salicornia bigelovii	Bigelow's Pickleweed	
Salicornia pacifica	Pickleweed; Pacific swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
Spartina foliosa	Cordgrass	
Spergularia marina	Salt marsh sand spurry	
Suaeda esteroa	Estuary seablite	1B.2
Suaeda taxifolia	Seablite	4.2
Urtica urens	Dwarf / Annual stinging nettle	Naturalized

S – South Parking Lot

Atriplex lentiformis ssp. breweri	Coast quailbush; saltbush	
Ambrosia psilostachya	Western ragweed	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Batis maritima	Saltwort	
Cortaderia selloana	Pampas grass	High
Distichlis spicata	Saltgrass	
Eriogonum fasciculatum	California buckwheat	
Frankenia salina	Alkali heath	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast goldenbush	
Jaumea carnosa	Jaumea; Salty Susan	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Lysimachia arvensis	Scarlet pimpernel	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized

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Mirabilis laevis var. crassifolia	California wishbone bush; California four o'clock	
Pluchea odorata	Marsh fleabane	
Pseudognaphalium stramineum	Cottonbatting plant	
Rhus integrifolia	Lemonade berry	
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Schoenoplectus californicus	Bulrush; tule	
Spartina foliosa	Cordgrass	

St – between south parking lot and tide gates along PCH (aka PCH South)

Abronia maritima	Red Sand Verbena	4.2
Abronia umbellata	Pink Verbena	
Ambrosia chamissonis	Silver beach bur	
Ambrosia psilostachya	Western ragweed	
Anemopsis californica	Yerba Mansa	
Arthrocnemum subterminale	Parish's Glasswort	
Baccharis salicifolia	Mulefat	
Brassica tournefortii	Sahara mustard	High
Cakile maritima	European Sea Rocket	Limited
Camissoniopsis cheiranthifolia	Beach-evening primrose	
Carpobrotus edulis	Iceplant; Hottentot fig	High
Chenopodium murale	Nettle-leaved goosefoot	Naturalized
Claytonia perfoliata	Miner's lettuce	
Cuscuta salina	Salt marsh dodder	
Cynodon dactylon	Bermuda grass	Moderate
Dimorphotheca fruticosa	Freeway / Trailing African Daisy	Neither invasive nor naturalized
Distichlis spicata	Saltgrass	
Emex spinosa	Devil's Thorn	Moderate; Noxious Weed
Eriogonum parvifolium	Coastal Buckwheat	Endemic
Heliotropium currasavicum var. oculatum	Seaside, Salt, or Akali heliotrope	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast Goldenbush	
Jaumea carnosa	Jaumea, Salty susan	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Limonium californicum	Sea Lavender	
Limonium perezii	Canary Islands Sea Lavender	Naturalized
Matthiola incana	Tenweeks Stock; Purple stock	Naturalized

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Myoporum laetum	Lollipop / Ngaio tree	Moderate
Plantago aernaria	Sand Plantain; Indian plantain	Neither invasive nor naturalized
Rumex crispus	Curly Dock	Limited
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Salsola tragus	Russian thistle; tumbleweed	Limited
Schinus terebinthifolius	Brazilian Pepper tree	Limited
Schoenoplectus californicus	Bulrush; tule	
Solanum douglasii	White nightshade	
Suaeda esotera	Estuary seablite	1B.2
Tetragonia tetragonioides	New Zealand Spinach	Limited
Typha latifolia	Cattail	

Sx – South of the South Lot along PCH (not accessible to public)

Abronia umbellata	Pink sand verbena	
Amaranthus albus	Pigweed amaranth; tumbleweed	Naturalized
Ambrosia chamissonis	Silver beach bur	
Anemopsis californica	Yerba Mansa	
Artemisia douglasiana	Douglas' sagewort	
Atriplex canescens	4-wing saltbush	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Brassica tournefortii	Sahara mustard	High
Cakile maritima	European sea rocket	Limited
Camissoniopsis cheiranthifolia	Beach Evening-primrose	
Carpobrotus edulis	Iceplant; Hottentot fig	High
Chenopodium murale	Nettle-leaved goosefoot	Naturalized
Cortaderia selloana	Pampas grass	High
Dimorphotheca fruticosa	Trailing African daisy	Neither invasive nor naturalized
Emex spinosa	Devil's Thorn	Moderate
Eriogonum parvifolium	Coastal buckwheat	
Eschscholzia californica	California poppy	
Frankenia salina	Alkali heath	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast goldenbush	
Juncus acutus ssp. leopoldii	Leopold's spiny rush	4.2
Lycium californicum	California boxthorn	

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Mesembryanthemum crystallinum	Crystalline iceplant	
Myoporum laetum	Lollipop / Ngaio tree	Moderate
Nemacaulis denudata var. denudata	Coastal woolly-heads	1B.2
Nicotiana glauca	Tree tobacco	Moderate
Opuntia littoralis	Coastal prickly pear	
Plantago arenaria	Sand / Indian plantain	Neither invasive nor naturalized
Quercus ilex	Holly oak	Neither invasive nor naturalized
Ricinus communis	Castor Bean	Limited
Schinus terebinthifolius	Brazilian pepper tree	Limited
Tetragonia tetragonioides	New Zealand Spinach	Limited

T – Tide Gates

Atriplex lentiformis ssp. breweri	Saltbush; Coast Quailbush	
Atriplex semibaccata	Australian saltbush	Moderate
Atriplex watsonii	Watson's Saltbush	
Baccharis pilularis ssp. consanguinea	Coyote brush	
Brassica nigra	Black mustard	Moderate
Bromus hordeaceus	Soft brome / chess	Limited
Bromus madritensis ssp. rubens	Foxtail brome	High
Cakile maritima	European Sea Rocket	Limited
Camissoniopsis robusta	Robust sun-cup	
Centaurea melitensis	Maltese starthistle	Moderate
Cressa truxillensis	Alkali weed	
Distichlis spicata	Saltgrass	
Erodium cicutarium	Red-stemmed Filaree	Limited
Emex spinosa	Devil's thorn	Moderate; Noxious weed
Hedypnois cretica	Cretanweed	Naturalized
Heliotropium currasavicum var. oculatum	Seaside/Salt/Alkali heliotrope	
Heterotheca grandiflora	Telegraph weed	Endemic
Isocoma menziesii	Coast Goldenbush	
Limonium californicum	California Sea Lavender	
Lysimachia arvensis	Scarlet pimpernel	Naturalized
Melilotus indicus	Annual yellow sweetclover	Naturalized

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Mesembryanthemum crystallinum	Crystalline Iceplant	Moderate (Alert)
Nicotiana glauca	Tree Tobacco	Moderate
Oxalis pes-caprae	Bermuda buttercup	Moderate
Plantago arenaria	Sand / Indian plantain	Neither invasive nor naturalized
Salicornia pacifica	Pickleweed; Pacific Swampfire	
Suaeda esteroa	Estuary Seablite	1B.2
Suaeda taxifolia	Seablite	4.2
Tetragonia tetragonioides	New Zealand Spinach	Limited

W – trail along Warner

Arthrocnemum subterminale	Parish's glasswort	
Atriplex lentiformis ssp. breweri	Coast quailbush; Big saltbush	
Atriplex semibaccata	Australian saltbush	Moderate
Atriplex suberecta	Peregrine / Sprawling saltbush	Naturalized
Avena barbata	Slender/slim oat	Moderate
Avena sativa	Common / cultivated oats	Naturalized
Baccharis pilularis ssp. consanguinea	Coyote brush	
Baccharis salicifolia	Mulefat	
Bassia hyssopifolia	Fivehook / Fivehorn bassia	Limited
Batis maritima	Saltwort	
Bromus diandrus	Ripgut brome	Moderate
Carpobrotus edulis	Hottentot fig iceplant	High
Centaurea melitensis	Maltese starthistle	Moderate
Centromadia parryi ssp. australis	Southern Tarplant	1B.1
Cressa truxillensis	Alkali weed	
Distichlis littoralis	Shoregrass	
Distichlis spicata	Saltgrass	
Eriogonum parvifolium	Coastal Buckwheat	Endemic
Erodium moschatum	White-stemmed filaree	Naturalized
Festuca perennis	Italian rye grass	Moderate
Foeniculum vulgare	Sweet Fennel	High
Frankenia salina	Alkali heath	
Glebionis coronaria	Crown Daisy	Moderate
Heterotheca grandiflora	Telegraph weed	Endemic
Hordeum murinum ssp. leporinum	Hare barley	Moderate

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Isocoma menziesii	Coast Goldenbush	
Malva parviflora	Cheeseweed mallow	Naturalized
Medicago polymorpha	Bur clover	Limited
Melilotus indicus	Annual yellow sweetclover	Naturalized
Mesembryanthemum crystallinum	Crystalline iceplant	Moderate (Alert)
Mesembyranthemum nodiflorum	Slender-leaf iceplant	Naturalized
Olea europea	Olive	Limited
Platanus racemosa	Western Sycamore	
Polypogon monspeliensis	Annual beardgrass; Rabbitsfoot	Limited
Raphanus sativus	Wild Radish	Limited
Rumex crispus	Curly Dock	Limited
Salsola tragus	Russian thistle; tumbleweed	Limited
Sisymbrium irio	London rocket	Moderate
Washingtonia robusta	Washington fan palm	Moderate (Alert)

Y – Yacht Club planting (across from interpretive center)

Abronia umbellata	Pink sand-verbena	
Artemisia californica	California sagebrush	
Encelia californica	California brittlebush	
Eriogonum parvifolium	Coastal buckwheat	Endemic
Eschscholzia californica	California poppy	
Frankenia salina	Alkali heath	
Heliotropium curassavicum var. oculatum	Seaside/Salt/Alkali heliotrope	
Layia platyglossa	Coastal tidytips	
Lupinus bicolor	Bi-colored lupine	
Melilotus indicus	Annual yellow sweetclover	Naturalized
Peritoma arborea	Bladderpod	
Salvia apiana	White sage	
Salvia mellifera	Black sage	

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Inaccessible and Historical Species

On these lists are…

- the species that generally can't be seen by the public since they occur on publicly inaccessible lands
    i. organized by Latin name, Common name, Nativity, and Location
    ii. "Lower mesa" is fenced land adjacent to the main trail; DFW is Dept. of Fish and Wildlife land
- the historical species (recorded 9+ years ago but not since)
    i. organized by Latin name, Common name, and Nativity

List of Species Only on Fenced Lands (not accessible to public) / Outside Reserve Boundary

Acroptilon repens	Russian knapweed	Invasive; Moderate	Lower mesa
Agapanthus praecox ssp. praecox	African lily	Nonnative; Planted	Lower mesa
Bolboschoenus robustus (formerly *Scirpus robustus*)	Sturdy bulrush	Native	DFW
Bromus catharticus	Rescue grass	Nonnative; Naturalized	DFW
Camissoniopsis micrantha (formerly *Camissonia micrantha*)	Spencer Primrose	Native	DFW
Capsella bursa-pastoris	Shepherd's purse	Nonnative; Naturalized	Lower mesa
Crassula connata	(Sand) Pygmy weed	Native	Lower mesa
Cryptantha clevelandii	Cleveland's / Common cryptantha	Native	Lower mesa
Encelia farinosa	Brittlebush	Native	Lower mesa
Erigeron bonariensis (formerly *Conyza bonariensis*)	Flax-leaved horseweed	Nonnative; Naturalized	Lower mesa
Erigeron canadensis (formerly *Conyza canadensis*)	Canadian horseweed	Native	Lower mesa
Festuca myuros (formerly *Vulpia myuros var. myuros*)	Rattail sixweeks grass	Invasive; Moderate	Lower mesa
Galium parisiense	Wall bedstraw	Nonnative; Naturalized	Lower mesa
Gazania linearis	Treasure flower	Invasive; Moderate (Alert)	DFW

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Lepidium didymum (formerly *Coronopus didymus*)	Lesser swine cress	Nonnative; Naturalized	Lower mesa
Malva sylvestris	High mallow	Nonnative; Naturalized	DFW
Oenothera laciniata	Cutleaf/Southern Evening-primrose	Nonnative; Naturalized	DFW
Penstemon spectabilis	Showy penstemon	Native	Lower mesa
Polygonum aviculare ssp. depressum (formerly *Polygonum arenastrum*)	Prostrate knotweed	Nonnative; Naturalized	Lower mesa
Pseudognaphalium bioletii (formerly *Gnaphalium biolettii*)	Two-color rabbit-tobacco	Native	Lower mesa
Pseudognaphalium luteoalbum (formerly *Gnaphalium luteoalbum*)	Jersey cudweed	Nonnative; Naturalized	Lower mesa
Salvia clevelandii	Cleveland sage	Native	Lower mesa
Schoenoplectus acutus (formerly *Scirpus acutus*)	Hardstem bulrush	Native	Lower mesa
Silene gallica	Common catchfly	Nonnative; Naturalized	Lower mesa
Silybum marianum	Milk thistle	Invasive; Limited	Lower mesa
Stipa cernua	Nodding needle grass	Native	Lower mesa
Suaeda californica	California seablite	Native; 1B.1; Endemic	DFW
Tamarix ramosissima	Saltcedar	Invasive; High	Outside Harriet-Weider
Typha angustifolia	Nailroad; Narrowleaf cattail	Nonnative	DFW

Historic Species

*Acmispon strigosus (*formerly *Lotus strigosus)*	Strigose Lotus	Native
Amaranthus deflexus	Large fruited amaranth	Nonnative; Naturalized
Amblyopappus pusillus	Dawrf coastweed; Pineapple weed	Native
Amsinckia spectabilis	Seaside fiddleneck	Native
Arundo donax	Giant reed	Invasive; High
Avena fatua	Wild oat	Invasive; Moderate

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Baccharis glutinosa	Douglas / Marsh baccharis	Native
Beta vulgaris	Common Beet	Nonnative; Naturalized
Bidens pilosa	Hairy beggarticks	Nonnative; Naturalized
Brachypodium distachyon	(Purple) False brome	Invasive; Moderate
*Camissoniopsis lewisii (*formerly *Camissonia lewisii)*	Lewis' Evening-primrose	Native; Rare (3 via CNPS)
Carpobrotus chilensis	Sea Fig	Invasive; Moderate
Castilleja exserta	Owl's clover, Purple owl's clover	Native
Chenopodium macrospermum	Largeseed Goosefoot	Nonnative; Naturalized
Cortaderia jubata	Pampas grass	Invasive; High
Cyclospermum leptophyllum	Marsh parsley	Nonnative; Naturalized
*Dysphania ambrosioides (*formerly *Chenopodium ambrosioides)*	Mexican tea	Nonnative; Naturalized
*Dysphania multifida (*formerly *Chenopodium multifidum)*	Cut-leaved Goosefoot	Nonnative; Naturalized
Eriogonum latifolium	Coast / Seaside buckwheat	Native
Euphorbia prostrata (formerly *Chamaesyce prostrata*)	Prostrate sandmat	Nonnative; Naturalized
Euthamia occidentalis	Western Goldenrod	Native
Hordeum intercedens	Bobtail, Little, or Vernal barley	Native; Rare (3.2 via CNPS)
Hypochaeris glabra	Smooth Cat's Ear	Invasive; Limited
*Isolepis cernua (*formerly *Scirpus cernuus)*	Low bulrush	Native
Juncus bufonius	(Common) Toad rush	Native
*Laennecia coulteri (*formerly *Conyza coulteri)*	Coulter's horseweed	Native
Lamarckia aurea	Goldentop grass	Nonnative; Naturalized
Lasthenia glabrata	Yellow Rayed Goldenfields	Native
Lepidium latifolium	Broad-leaved peppergrass	Invasive; High
Lobularia maritima	Sweet Alyssum	Invasive; Limited
Lycopersicon esculentum	Tomato	Nonnative; Naturalized
Lythrum hyssopifolia	Hyssop Loosestrife	Invasive; Limited
Marah macrocarpa	Chilicothe	Native
Melaleuca nesophila	Bottlebrush	Naturalized
*Nuttallanthus texanus (*formerly *Linaria canadensis var. texana)*	Blue toadflax	Native
Oenothera elata	(Hooker's) Evening Primrose	Native

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Opuntia ficus-indica	Mission cactus; tuna cactus	Nonnative; Naturalized
Parietaria hespera	Pellitory, Western pellitory	Native
Paspalum dilatatum	Dallis grass	Nonnative; Naturalized
Phacelia distans	Common Phacelia	Native
Poa annua	Annual bluegrass	Nonnative; Naturalized
Polycarpon depressum	California Allseed / Many-seed	Native
*Pseudognaphalium microcephalum (*also known as *Gnaphalium canescens ssp. microcephalum)*	Wright's Cudweed	Native
Pterostegia drymarioides	Woodland threadstem	Native
Rumex salicifolius	Willow dock	Native
Salicornia depressa	Virginia glasswort	Native
Schoenoplectus americanus (formerly *Scirpus americanus*)	Chairmaker's bulrush	Native
Sesuvium verrucosum	Western Sea Purslane	Native
Stenotaphrum secundatum	St. Augustine grass	Nonnative; Naturalized
Stephanomeria virgata	Rod Wirelettuce; Twiggy Wreath Plant	Native
*Symphyotrichum subulatum (*formerly *Aster subulatus)*	Eastern annual saltmarsh aster	Native
Triticum aestivum	Common wheat	Nonnative; Naturalized
Tropaeolum majus	Garden nasturtium	Nonnative; Naturalized
Uritca dioica ssp. holosericea	Stinging nettle; Giant creek / Hoary nettle	Native
Washingtonia filifera	California fan palm	Native

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Salt Marsh



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Photo taken by Ron Vanderhoff
Upper Newport Bay - Summer

Scientific Name: *Arthrocnemum subterminale* (formerly *Salicornia subterminale*)

Common Name: Parish's Glasswort

Family: Chenopodiaceae

Characteristics: Perennial, 10-30 cm tall, clumps to 1 m in diameter, spreading to erect. Very small flowers, anthers dehiscing after exsertion (anthers open at maturity after being extended from plant, as opposed to staying inside the plant). Of the three pickleweeds in the reserve, this one grows at the highest tidal level. The only time water will reach A. subterminale is during the higher tides. This is also the thinnest of the two perennial pickleweeds we have (A. subterminale and Salicornia pacifica).

Flowering Period: April – September

Nativity: California native

Location in Bolsa Chica: C M P R S W [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Batis maritima*

Common Name: Saltwort

Family: Bataceae

Characteristics: Perennial. Stems prostrate to ascending, less than 1.5 m in length. Woody base, leaves are fleshy and succulent, bright yellow-green, 1-2 cm long, cylindrical. Flowers are white, mbella. triangular in shape, clawed.

Flowering Period: April – September

Nativity: California native

Location in Bolsa Chica: C L Nt P R S T W [Abundant]

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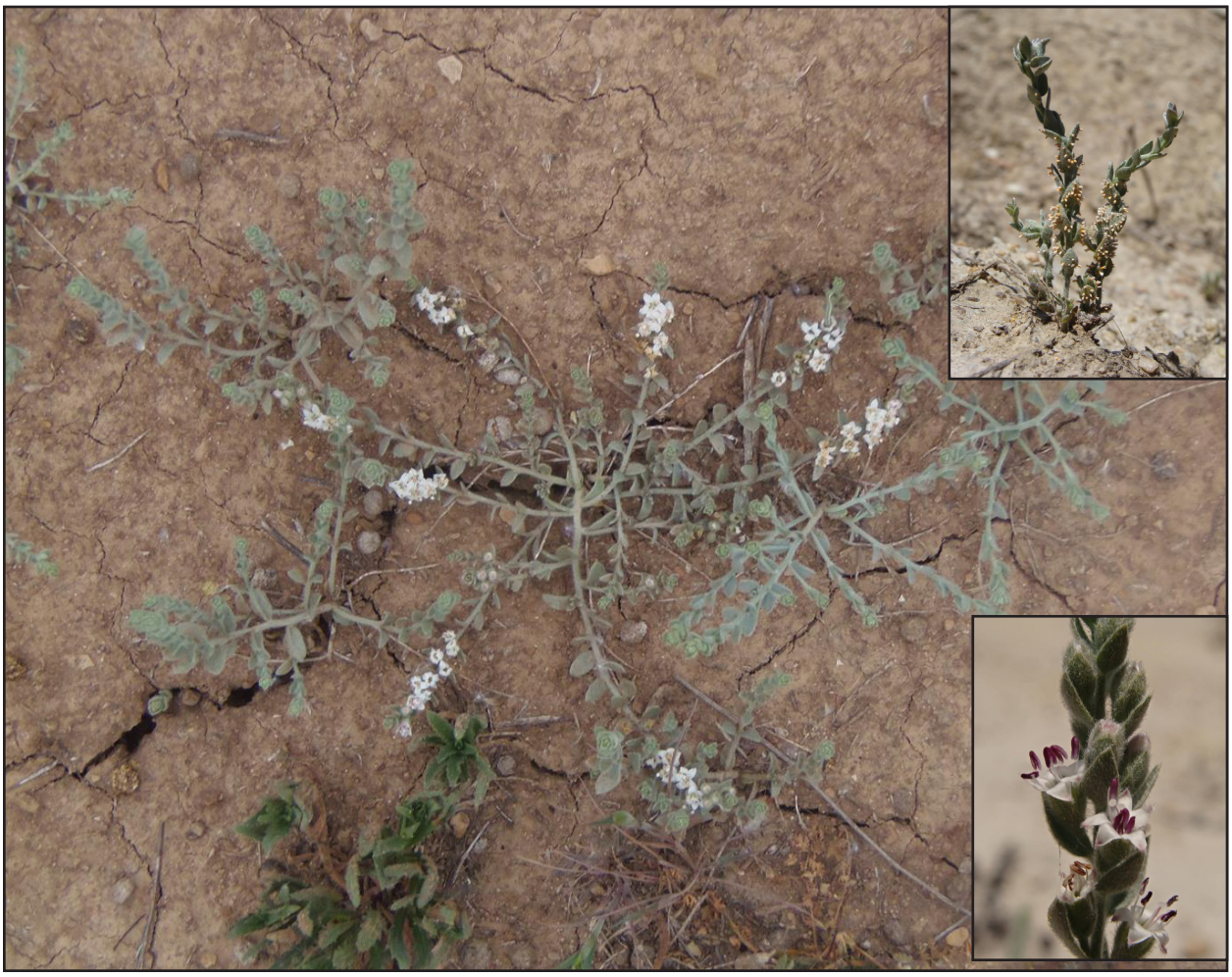

Photos taken by Ron Vanderhoff
(Main Photo) UC Irvine - Spring
(Upper & Lower Right) San Clemente State Park - Summer

Scientific Name: *Cressa truxillensis*

Common Name: Alkali weed

Family: Convolvulaceae

Characteristics: Perennial. Prostrate to erect, leaf entire, elliptic, and less than 1 cm long, seemingly hairy. Vegetation is gray-green, many branched from base. Stems 7-25 cm long, flowers white with protruding stamens, star-shaped. Confused with Atriplex watsonii.

Flowering Period: May – October

Nativity: California native

Location in Bolsa Chica: C Nt T W [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Cuscuta salina*

Common Name: Saltmarsh dodder

Family: Convolvulaceae

Characteristics: Very small orange vine, annual (perennial if on perennial host). No leaves. Flowers are 2.5-4.5 mm, parts in 5's. Vine generally not touching the ground.

Flowering Period: May – November

Nativity: California native

Location in Bolsa Chica: Nt St [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Distichlis littoralis* (formerly *Monanthochloe littoralis*)

Common Name: Shoregrass

Family: Poaceae

Characteristics: Perennial. Mat-like, prostrate 3-8 dm, and 5-23 cm lateral. Leaf blade 4-12 mm, sharply folded (much shorter than D. spicata). Spikelet (reproductive organ) is 8-13 mm, generally concealed by leaves.

Flowering Period: April – August

Nativity: California native

Location in Bolsa Chica: C L Nt P R W [Common]

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Distichlis spicata*

Common Name: Saltgrass

Family: Poaceae

Characteristics: Perennial. Grows from stout, scaly, yellow rhizomes. Stems erect, 1-5 dm tall. Leaves are sharply pointed, 2-10 cm, flat, and stiff. Spikelet (reproductive flower-esque part): 2-20 spikelets per inflorescence, 6-20 mm long, straw-colored to purple.

Flowering Period: April – September

Nativity: California native

Location in Bolsa Chica: C H L Nt P R S St T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper & Lower Left) - Fall
(Main Photo) - Winter

Scientific Name: *Frankenia salina*

Common Name: Alkali heath

Family: Frankeniaceae

Characteristics: Perennial. Matted subshrub less than 3 m in diameter. Stems are prostrate, 1-6 dm, glabrous to hairy. Leaves are 4-15 mm long, 1-6 mm wide, kind of rolled margins, leathery, and glabrous to sparsely hairy on the underside. Flowers can be white, pink, or blue-purple, petals are 6-14 mm long.

Flowering Period: April – September

Nativity: California native

Location in Bolsa Chica: B C H L M Nt P R S Sx W Y [Adbundant]

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(Left) Bolsa Chica Ecological Reserve - Fall
Photos taken by Ron Vanderhoff
(Upper Right) Upper Newport Bay - Spring
(Lower Right) Upper Newport Bay - Summer

Scientific Name: *Jaumea carnosa*

Common Name: Jaumea; Salty Susan

Family: Asteraceae

Characteristics: Perennial. Low succulent, prostrate to ascending. Leaves are opposite, sessile, narrow, entire, and fleshy, 1.5 – 5 cm. Rounded tips are broader than base. Flowers are composite, narrow rays are 1-5 mm, and corolla of disks is 6-7 mm.

Flowering Period: April – December

Nativity: California native

Location in Bolsa Chica: C L Nt R S St [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Spring (Lower Left) Winter
(Right) Fall

Scientific Name: *Juncus acutus ssp. Leopoldii*

Common Name: Spiny rush

Family: Juncaceae

Characteristics: Perennial. Many-branched from central point. Leaves are dark green, rigid, sharp/stiff tip, firm sheath appendages. Leaves are long, from 40-120 cm. Flowers and seeds are small (NOT BIG), attached to tips of leaves / inflorescences. Inflorescences are in 2-4 clusters. Full plants are generally waist to chest high. Often grows right in or near water.

Flowering Period: June – August

Nativity: California native; 4.2

Location in Bolsa Chica: C H L P R S St Sx [Common]

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Photos taken by Ron Vanderhoff
(All Photos) San Juan Capistrano - Spring

Scientific Name: *Juncus balticus*

Common Name: Baltic / Wire rush

Family: Juncaceae

Characteristics: Perennial. Generally 35-110 cm tall. Stems are many, but not branched from a center point like J. acutus ssp. Leopoldii. Stems are also 1-6 mm wide and cylindric. Inflorescences appearing at tops of stems/leaves, flowers can be anywhere from 5 to over 50 in number with usually more sepals than petals. 6 stamens, often yellow and apparent. Flower opens in 5 palmate form.

Flowering Period: July – November

Nativity: California native

Location in Bolsa Chica: Unknown

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(Upper Left & Right) Bolsa Chica Ecological Reserve - Fall
Photo taken by Ron Vanderhoff
(Lower Left) San Diego Creek Channel - Summer

Scientific Name: *Limonium californicum*

Common Name: California Sea Lavender

Family: Plumbaginaceae

Characteristics: Perennial. Plant is erect, less than 35 cm. Leaves are stout, tapered at base, and growing from a central root clump. Leaf margins are entire to wavy, 5-15 cm long and 1.5-6 cm wide, widest toward (but before) the tip. Flowers grow on ends of thin inflorescences, like erect roots. Flowers are bunched at ends of these inflorescences, and are blue to purple in color. Can be submerged in water.

Flowering Period: July – December

Nativity: California native

Location in Bolsa Chica: C L Nt P R St T [Few]

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(Upper & Lower Left) Bolsa Chica Ecological Reserve
(Upper Left) Winter; (Lower Left) Fall
Photo taken by Ron Vanderhoff
(Right) Upper Newport Bay - Summer

Scientific Name: *Salicornia bigelovii*

Common Name: Bigelow's pickleweed

Characteristics: Annual. Plant is slender, 9-60 cm tall. Stems are erect, simple, or branching above middle. Inflorescences are 15-90 mm long and 4-6 mm wide. Flowers are tiny, anthers 0.6-0.7 mm that open after being extended from plant. This is the only annual pickleweed in Bolsa Chica, and it is found in specific places near/on Rabbit Island.

Flowering Period: July – November

Nativity: California native

Location in Bolsa Chica: P R [Common]

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Photos taken by Ron Vanderhoff
(Upper Left) Anaheim Bay - Summer; (Lower Left) Newport Beach - Winter
(Right) Marblehead - Spring

Scientific Name: *Salicornia pacifica*

Common Name: Pickleweed; Glasswort; Pacific Swampfire

Family: Chenopodiaceae

Characteristics: Subshrub (generally perennial, often woody at base). Stems are spreading to erect and occasionally rooting at base, few to many branched. Inflorescence spikes are 20-85 mm long, 2.5-5 mm wide. Central flowers are 1-2.5 mm wide, separating lateral flowers. Anthers 0.7-1 mm, opening after being extended from plant. Misapplied to S. virginica, also can be known as Sarcocornia pacifica. This is the thicker of the two perennial picklweeds. Sometimes the tips of this plant can be a bright red as a result of excess salt, and often the base is woody. This pickleweed tends to grow in the medium to low tidal zone, which means it can be submerged when the tides rise.

Flowering Period: July – November

Nativity: California native

Location in Bolsa Chica: C L M Nt P R S St T [Abundant]

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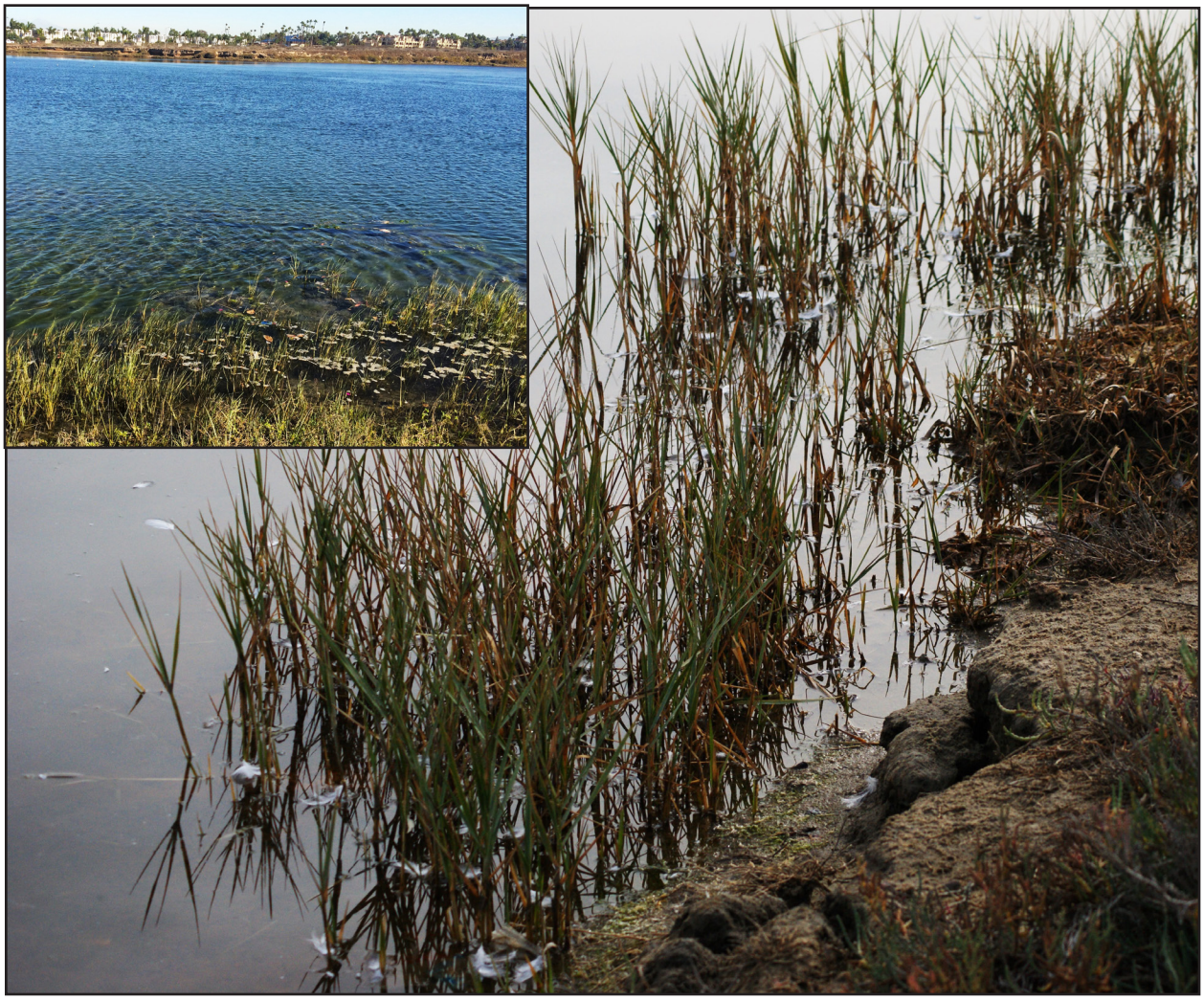

(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Winter; (Main Photo) Fall

Scientific Name: *Spartina foliosa*

Common Name: Cordgrass

Family: Poaceae

Characteristics: Perennial. 1 stem or stems in small clumps. Leaf blades 15-45 cm tall, alternate, and flat when fresh or inrolled near tip. Some ridges on upper surfaces of leaf, around 5 per mm. Inflorescences are 9-25 cm long, 5-13 mm wide, 3-25 branches, and are dense / closely overlapping. Flowers are inconspicuous and appear as clusters along the grass stalk. Spreads by rhizome or seed. Salt glands on leaves excrete salt.

Flowering Period: June – November

Nativity: California native

Location in Bolsa Chica: L M Nt P R S [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Main) Summer; (Insets) Fall

Scientific Name: *Suaeda esteroa*

Common Name: Estuary seablite

Family: Chenopodiaceae

Characteristics: Perennial. Subshrub (sometimes annual, but uncommon), stems are decumbent (lying on ground with tips pointed up) to erect, branches generally ascending and green in color. Leaves are ascending, sessile, lance-shaped, generally flat surface. Inflorescence clusters on distal (far from base) stems, flowers usually 3-5 per cluster. Flowers are bilateral (mirror image halves only in one way), and are 1.5-3 mm long. More popular in Bolsa Chica than *S. taxifolia.* Easiest way to tell the difference between *S. esteroa* and *S. taxifolia* is the former has longer and often more wild-growing leaves.

Flowering Period: May – October

Nativity: California native; 1B.2

Location in Bolsa Chica: L Nt R St T [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Suaeda taxifolia*

Common Name: Woolly Seablite; Seablite

Family: Chenopodiaceae

Characteristics: Perennial. Plant is a mound-like shrub, glabrous to generally densely hairy. Stems are spreading to erect, several from base, spreading branches, herbaceous ones pale green to red. Leaves are ascending to wide spreading, sessile, less than 30 mm long, elliptical or lance-like in shape. Leaf color is usually blue-green, but can also be yellow-green or red. Inflorescence clusters generally throughout, 2-4 mm in diameter. Flowers are 1-3 per cluster and overlapping, and bisexual. Not as common as *S. esteroa*, but distinctive.

Flowering Period: Year-round

Nativity: California native; 4.2

Location in Bolsa Chica: C L Nt P R T [Common]

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Ulva sp.* (formerly *Enteromorpha sp.*)

Common Name: Sea lettuce

Family: Ulvaceae

Characteristics: Perennial. The genus Ulva comprises a number of different types of algae, and at Bolsa Chica we have two main ones. The first is very common in the waters and often is seen floating on the surface as thick mats of intestine-like filaments. Aptly the species name is *Ulva intestinales* (though it originally was called *Enteromorpha intestinales*). The other main Ulva species we have looks more like underwater lettuce, but is less common and is usually seen when the tide is low.

Flowering Period: N/A

Nativity: California native

Location in Bolsa Chica: A [Common]

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(All Photos) Marine Stadium, Long Beach - Fall

Scientific Name: *Zostera marina*

Common Name: Eelgrass

Family: Zosteraceae

Characteristics: Perennial. *Z. marina* is characterized by long blades (150-200 cm long and 1.5-12 mm wide), and really it looks like a long, eel-like grass in the water. It is usually rooted 1-4 m below mean low tide. *Z. marina* is important at Bolsa Chica due to its habitat use for fish and is the main primary producer of the subtidal zone. It has been the effort of restoration events, and currently is thriving in Bolsa Chica waters. It can only be seen at low tide and in shallower areas. The pictures here are not from Bolsa Chica since it is difficult to accurately take pictures without large sand expanses, like those in the photos (these were taken at the northern end of Marine Stadium in Long Beach, CA).

Flowering Period: March – June

Nativity: California native

Location in Bolsa Chica: A (R W) [Common]

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Coastal Strand - Sand Dune



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Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Abronia maritima*

Common Name: Red sand-verbena

Family: Nyctaginaceae

Characteristics: Perennial. Spreading roots, densely/glandular hairy. Stems are prostrate, generally yellow, and less than 2 m long with short, erect branches forming thick horizontal mat. Leaves are very fleshy, green to yellow, with blades 5-7 cm long and petioles 5-30 mm long. Flowers are a deep, wine red, tucked closely together in bunches of 10-18, rough-looking petals with uneven serration.

Flowering Period: February – October

Nativity: California native; 4.2

Location in Bolsa Chica: C L Nt R St [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Abronia umbellata*

Common Name: Pink sand-verbena

Family: Nyctaginaceae

Characteristics: Annual. Prostrate mat. Stems are erect and often reddish with glandular hairs. Leaf petioles are red and 1 to 6 cm long. Leaf blades are green, fleshy, ovate to diamond-shaped (but not nearly as fleshy as *A. maritima*), and 15-70 mm long / 8-50 mm wide. Flowers are erect and bunched at ends of perianth tubes (smaller stems coming off the main stem). Flowers have a white center with light to dark magenta petals. The white flower seen above is indeed *A. umbellata*; while usually pink to magenta, sometimes the flowers can be all white, with lighter green stems as well.

Flowering Period: January – December

Nativity: California native

Location in Bolsa Chica: L Nt R St Sx Y [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Main Photo) Fall; (Upper Right) Winter

Scientific Name: *Ambrosia chamissonis*

Common Name: Silver beach bur

Family: Asteraceae

Characteristics: Perennial. Generally forming mat on sand dunes, stems are prostrate less than 4 m long. Leaves have petioles 1-5 cm with blades of 2-5+ cm, and are oblanceolate (like an event flag) to elliptic to triangular in shape. They are also shallowly serrated (crenate) or deeply toothed and can be pinnately lobed or divided 1-3 times. Inflorescences are usually in clusters, 4-8 mm across, with the burs (flowers) 5-10 mm long, brown, semi-glandular, spiraled, and with 10-20+ spines. The shape of the burs is variable.

Flowering Period: May – October

Nativity: California native

Location in Bolsa Chica: L Nt St Sx [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Main Photo & Lower Left) Summer; (Upper Left) Spring

Scientific Name: *Ambrosia psilostachya*

Common Name: Western ragweed

Family: Asteraceae

Characteristics: Perennial. 3-20 dm long, often from rhizome-like roots. Stem is 1 or few from a common base and often little-branched. Leaves are opposite and winged with a petiole less than 2.5 cm, but leaves further up the stem are generally sessile (no petiole). Leaf blades are 2-12 cm, lanceolate (feather shaped) to ovate (egg shaped), coarsely toothed or about 1-2 x pinnately lobed or divided, resin-gland-dotted. Inflorescences have clustered heads, 2-5 mm in diameter. Plant has bur fruits, 3-4.5 mm long, brown, and spiny.

Flowering Period: June – November

Nativity: California native

Location in Bolsa Chica: H Nt P S St [Common]

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Photos taken by Ron Vanderhoff
(All Photos) San Mateo - Spring

Scientific Name: *Calystegia soldanella*

Common Name: Beach morning glory

Family: Convolvulaceae

Characteristics: Perennial. Glabrous, and grows from rhizome. Plant is decumbent (lying mostly flat with tips curving up), less than 0.6 m long. The leaf blades are 1-3 cm long and 1.5-2 x wider than long, kind of fleshy. Peduncle (main stalk for flower) 3-6 cm long. The sepals of flowers are 10-16 mm long, corolla 32-52 mm long, deep pink or approximately purple.

Flowering Period: April – August

Nativity: California native

Location in Bolsa Chica: Unknown.

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(All Photos) Bolsa Chica Ecological Reserve
(Main Photo) Summer; (Lower Left) - Fall

Scientific Name: *Camissoniopsis cheiranthifolia* (formerly *Camissonia cheiranthifolia ssp. cheiranthifolia*)

Common Name: Beach Evening-Primrose

Family: Onagraceae

Characteristics: Perennial or subshrub. Rosetted, densely strigose (thick short hairs) to glabrous; hairs of inflorescences generally erect and short. Stems are prostrate to ascending, but less than 60 cm long. Leaves are 5-50 mm long, narrowly ovate (egg) to obovate, and minutely serrated. Petioles are 0-10 mm long. Flowers have sepals that are 4-11.5 mm, petals are 6-20 mm long, with basal spots 0-2.

Flowering Period: April – August

Nativity: California native

Location in Bolsa Chica: C L Nt St Sx [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Camissoniopsis robusta* (formerly *Camissonia robusta*)

Common Name: Robust suncup

Family: Onagraceae

Characteristics: Annual. Stem is erect, and less than 60 cm in length. Leaf is 10-80 mm in length and narrowly elongated –ecliptic (in the shape of a flattened or elongated circle). Blade has minutely course teeth pointing outward, and approximately sessile (without any kind of stalk). The flower is cup shaped, and 1.8-3.7 mm. Corolla is 3.2-7 mm long with 1-2 basal spots.

Flowering Period: March – August

Nativity: California native

Location in Bolsa Chica: T [Few]

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Photos taken by Ron Vanderhoff
(Top left) Dilley Preserve, Laguna - Spring; (Top right) Indian Truck Trail, Corona - Spring
(Bottom left) Christianitos Creek - Winter; (Bottom right) Laguna Canyon - Winter

Scientific Name: *Claytonia perfoliata*

Common Name: Miner's lettuce

Family: Molluginaceae

Characteristics: Annual. Stem 1-40 cm long, spreading to erect. Basal leaves 1-25 cm in length, elliptic to kidney shaped with rounded to acute tip. Leaves are much broader than long, less than 3 x longer than wide. Flower sepals are 1.5-5 mm; corolla 2-6 mm, white or pink in color.

Flowering Period: February – April

Nativity: California native

Location in Bolsa Chica: St [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Lower Left) Summer; (Main Photo) Fall

Scientific Name: *Heliotropium curassavicum var. oculatum*

Common Name: Seaside, salt, or alkali heliotrope

Family: Boraginaceae

Characteristics: Perennial. Plant is fleshy, occurring from rhizome-like root. Leaf is 1-6 cm in length, and generally oblanceolate (widest above the middle). Leaves are short-petioled to subsessile (almost without any kind of stalk). Calyx lobes of flower are oblong to narrow-ovate; corolla 3-5 mm in length, and 3-5 mm in diameter. Flowers are salverform (having a slender tube and abruptly spreading) to bell shaped, white, throat generally blue-purple, upper tube approximately yellow.

Flowering Period: March – August

Nativity: California native

Location in Bolsa Chica: H M Nt P St T Y [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Summer; (Upper Right) Fall
(Lower Right) Winter

Scientific Name: *Nemacaulis denudata var. denudata*

Common Name: Coast woolly-heads

Family: Polygonaceae

Characteristics: Annual. Prostrate to erect, plant 4-20 cm tall and 2-80 cm in diameter. Leaf blades are 2-8 cm in length, and 0.3-1.5 cm wide. Leaves basal, linear or spoon-shaped, ruffled, covered with white woolly hairs. Calyx arranged in tight round clusters of 5-30 flowers, and face downward.

Flowering Period: April – September

Nativity: California native; 1B.2

Location in Bolsa Chica: C R Sx [Common]

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(Main Photo) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Spergularia marina*

Common Name: Salt marsh sand spurry

Family: Caryophyllaceae

Characteristics: Annual. Delicate and succulent like, 5-30 cm tall. The Leaves are 2-4 cm long, linear, narrow, and fleshy. Sepals are 2.5-5 mm in length, oval, and free at the tips. Flower petals are generally shorther that sepals, blunt tipped, and white or pink to rosy.

Flowering Period: March – September

Nativity: California native

Location in Bolsa Chica: R [Few]

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Coastal Sage Scrub



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Photos taken by Ron Vanderhoff
(Upper Right & Bottom) Christianitos Creek, San Clemente - Spring; (Upper Left) Newport - Spring

Scientific Name: *Achillea millefolium*

Common Name: Yarrow

Family: Asteraceae

Characteristics: Perennial. Plant 10 – 200 cm tall. Leaf is finely 3-pinnately (feather like) divided. Ray flowers are 2.5-4 mm in length, ovate to round, and white to pink in color. Disk flower has 15-40 flowers, corolla are 2-3 mm in length, and white to pink in color.

Flowering Period: April – September

Nativity: California native

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Acmispon americanus var. americanus* (formerly *Lotus purshianus var. purshianus*)

Common Name: Spanish lotus; American bird's foot trefoil

Family: Fabaceae

Characteristics: Annual, generally hairy. Stems are prostrate to erect, simple or openly branched, 5-60 cm. Leaves are odd, pinnate or about simple. Stipules are gland-like with about 3 leaflets that are 10-20 mm long, lanceolate to elliptic in shape, with axes not flat. Inflorescences are 1-flowered, with simple bracts and peduncle that is 15 mm long. Flowers are approximately 5-9 mm across, are white or yellow to pink, and hairs are soft-shaggy. Fruits are dehiscent, spreading or pendent, approx. entirely exserted. The fruits are 1.5-3 cm long, and are oblong, approximately straight, generally flat and curved beak.

Flowering Period: May – October

Nativity: California native

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Lower Left) Fall; (Main Photo) Summer; (Upper Right) Winter

Scientific Name: *Acmispon glaber* (formerly *Lotus scoparius*)

Common Name: Deerweed

Family: Fabaceae

Characteristics: Perennial. Often shrubby with stem generally ascending to erect, stem is approximately woody yet green and 50-100 cm in length. Leaves are approximately pinnate with 3-6 leaflets, 6-15 mm in length, and often deciduous. Leaves are elliptic in shape and generally green in color. Yellow flowers with calyx that are 2.5-5 mm in length

Flowering Period: March – August

Nativity: California native

Location in Bolsa Chica: M P R [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Amsinckia intermedia*

Common Name: Common fiddleneck

Family: Boraginaceae

Characteristics: Annual. 20-120 cm tall, upright or spreading with the stem tips upright. Stems and leaves are green to brown, coarse hairy to bristly. Leaves are 2-15 cm long, linear or oblong. The trumpet-shaped corolla is 7-11mm long, 4-10 mm wide, orange with 5 red-orange blotches high up in the throat.

Flowering Period: March – June

Nativity: California native

Location in Bolsa Chica: H M [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper left) Fall; (Lower Left and Right) Winter

Scientific Name: *Artemisia californica*

Common Name: California sagebrush

Family: Asteraceae

Characteristics: Perennial. 60-250 cm tall, rounded, and branched from base. The stems are slender, flexible, and wand-like. Leaves are 1-10 cm, thread-like and entire or 1-2 pinnately divided into thread-like lobes, and light green to gray in color. Pistillate (all female) flowers range in numbers from 6-10 and the disk flowers in numbers of 15-30, the flowers are generally yellow but sometimes red.

Flowering Period: August – September

Nativity: California native

Location in Bolsa Chica: B C H M P Nt Y [Abundant]

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(Upper Left) Bolsa Chica Ecological Reserve - Winter
Other photos taken by Ron Vanderhoff
(Lower left) San Diego Creek, Irvine - Fall; (Right) Upper Newport Bay - Summer

Scientific Name: *Artemisia douglasiana*

Common Name: Douglas' sagewort

Family: Asteraceae

Characteristics: Perennial. 50 – 250 cm tall from rhizome. Stems are many, erect, brown to gray-green, and tomentose (covered with densely interwoven, generally matted hairs). Leaves are evenly spaced, 1-11 cm in length, narrowly elliptic to widely oblanceolate, entire or coarsely 3-5 lobed near tip, and densely white-tomentose abaxially (underside of leaf). 5-9 pistillate flowers, and 6-25 disk flowers.

Flowering Period: May - November

Nativity: California native

Location in Bolsa Chica: H Sx [Few]

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(All Photos) Bolsa Chica Ecoloigcal Reserve - Spring

Scientific Name: *Astragalus trichopodus*

Common Name: Southern CA locoweed; Milkvetch

Family: Fabaceae

Characteristics: Perennial. Densely leaved and branched, 20-100 cm tall. Leaves 2.5-20 cm; generally subsessile(without a stalk of any kind); 15-39 leaflets; 2-25 cm long and approximately lanceolate (often tapered to an acute tip). Flower petals approximately cream, faintly lilac-blushed or –lined or not, banner 11.3-19 mm, keel 8.6-13.7 mm. Fruit body 13-45 mm in length, 4.8-21 mm wide, linear-elliptic, compressed side-to-side to ovate, bladdery, and stalk like base 5-17mm.

Flowering Period: February – June

Nativity: California native

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Main Photo) Winter; (Upper Right) Fall

Scientific Name: *Atriplex canescens*

Common Name: 4-wing saltbush

Family: Chenopodiaceae

Characteristics: Perennial. Shrub 30-250 cm, erect; branches many. Branches are spreading to ascending; leaf blades linear to oblanceolate, densely white-scaly. Bracts in fruit 4-25 mm, generally fused to near tip, ovoid to spheric, hard, wings 4, 3-6 mm wide, entire to dentate (having margins with sharp, relatively coarse teeth pointing outward).

Flowering Period: June - August

Nativity: California native

Location in Bolsa Chica: C L M Nt P Sx [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Spring; (Upper Right) Summer; (Lower Right) Fall

Scientific Name: *Atriplex lentiformis ssp. breweri*

Common Name: Coast quailbush; Big saltbush

Family: Chenopodiaceae

Characteristics: Perennial. Shrub, erect, 80 – 400 cm tall, generally wider than tall; monoecious or dioecious. Branches many, spreading to ascending, twigs occasionally spine like with age. Leaves petioled, blade 12-60 mm, ovate to oblong-elliptic or deltate(more or less equally triangular, with corners rounded or not), entire to wavy, base truncate to approximately hastate (arrowhead shaped). Pistillate inflorescence approximately panicle-like, terminal; bracts in fruit 2-6 mm in length, fused to middle, wide-ovate to round.

Flowering Period: July - October

Nativity: California native

Location in Bolsa Chica: B C M Nt P R S T W [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Main Photo) Fall; (Lower Left) Winter

Scientific Name: *Atriplex watsonii*

Common Name: Watson's saltbush

Family: Chenopodiaceae

Characteristics: Perennial, 5-30 dm in diameter. Generally mat-like, densely white-scaly, and many stems. Leaves are generally opposite, blade 8-25 mm, wide-elliptic to ovate, thick to somewhat fleshy. Confused often with *Cressa truxillensis*. This is the only species of *Atriplex* that grows low to the ground. If anything, it might be confused with *Extriplex californica*, but that has only been found thus far on Rabbit Island.

Flowering Period: March - October

Nativity: California native

Location in Bolsa Chica: C L M Nt R T [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Summer; (Lower Left) Winter; (Right) Fall

Scientific Name: *Baccharis pilularis ssp. consanguinea*

Common Name: Coyote brush

Family: Asteraceae

Characteristics: Perennial. Shrub less than 4.5 m in height, prostrate and mat-forming to erect and rounded. Stems erect (prostrate), brittle, forming erect or rounded shrub, branchlets evenly distributed around branches. Leaves generally 15-40 mm in length.

Flowering Period: July - December

Nativity: California native

Location in Bolsa Chica: C H M Nt P S Sx T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Summer; (Upper Right) Spring; (Bottom) Fall

Scientific Name: *Centromadia parryi ssp. australis* (formerly *Hemizonia parryi ssp. australis*)

Common Name: Southern tarplant

Family: Asteraceae

Characteristics: Plant 10-70 cm in height, with leaves that are softly to coarsely hairy. Stems are prostrate to spreading to erect. Ray flowers are 2-4 mm in length, yellow in color, with 9-30 ray flowers. Disk flower anthers are more or less red to dark purple.

Flowering Period: June - October

Nativity: California native; 1B.1

Location in Bolsa Chica: C M P W [Common]

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Photos taken by Ron Vanderhoff
(Upper Left & Upper Right) - San Joaquin Hills - Winter
(Lower Left) Chiquita Ridge, Ladera Ranch - Winter; (Lower right) Modjeska Canyon - Spring

Scientific Name: *Chenopodium californicum*

Common Name: California goosefoot; pigweed

Family: Chenopodiaceae

Characteristics: Perennial. 20-90 cm tall, caudex stout (generally short and sometimes woody). Stems are several from base, decumbent (lying mostly flat on the ground but with tips curving up) to ascending. Leaf blade 40-100mm, broadly deltate (more or less equilaterally triangular, with the corners rounded or not), coarsely dentate (having margins with sharp, relatively coarse teeth pointing outward) to wavy-toothed, base truncate (abruptly narrower or smaller at the base or tip) to hastate (arrowhead-shaped) or cordate (heart-shaped), tip acute.

Flowering Period: March - September

Nativity: California native

Location in Bolsa Chica: Unknown

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Photos taken by Ian McGregor
(All Photos) Near San Mateo Campground - Summer

Scientific Name: *Corethrogyne filaginifolia* (formerly *Lessingia filaginifolia*)

Common Name: Sand-aster

Family: Asteraceae

Characteristics: Perennial. Subshrub, generally 10-100 cm. Stems are 1-many from base, low-lying or ascending and erect, simple or distally branched, sometimes glabrous but especially toward tip. Leaves are alternate, crowded at base, and have no petiole (sessile) or are wing-petioled. The shape is spoon, egg-shaped, entire or toothed, hairy, and smaller toward tip. Inflorescences are 1 to several bunched together, ray flowers have 10-43 petals with white/pink/purple rays, and disk flowers have 12-120+ petals with a corolla of about 4-8 mm long. Fruit is 2-5 mm long, cylindric, and 5-7 ribbed. *These characteristics describe about 3-7 different subspecies (including *C. filaginifolia var. californica*, *var. filaginifolia*, *var. incana*, and *var. linifolia*), but the Jepson includes only the consolidated descriptions.

Flowering Period: July – November

Nativity: California native

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Croton setiger* (formerly *Eremocarpus setiger*)

Common Name: Turkey-mullein; Dove weed

Family: Euphorbiaceae

Characteristics: Annual, less than 20 cm tall and less than 80 cm wide. It's mound-like and monoecious. Stems are spreading to ascending. Leaves have petioles that are 1-5 cm long, blades of 1-6 cm, and are ovate (egg-shaped), with rounded tips. Inflorescences are cyme-like with 1-3 flowers. Flowers have 0 petals but 5-6 sepals and 6-10 stamens. Fruits are about 4 mm in diameter. Seeds are 1, and are 3-4 mm long, smooth or about ridged. This plant is toxic to livestock, especially in hay.

Flowering Period: May – October

Nativity: California native

Location in Bolsa Chica: H [Few]

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(Upper Right) Photo taken by Ron Vanderhoff, Marblehead - Spring
(All Other Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Mid & Lower Right) Spring

Scientific Name: *Cylindropuntia prolifera* (formerly *Opuntia prolifera*)

Common Name: Coastal cholla

Family: Cactaceae

Characteristics: Perennial. Plant less than 2 m in height, generally 1 trunk, branches few to several, generally curving upwards; terminal segments less than 13 cm, 3.5-5 cm in diameter, and easily detached. 6-14 spines, generally less than 2 cm in length, pale red-brown to dark brown, sheath pale yellow-brown. Flower produced from areoles of older fruit, purple-red; filaments green, generally tinted purple. We have two main cacti at Bolsa Chica – *Opuntia littoralis* spreads on the ground and has the bright flowers and large pads, whereas *Cylindropuntia prolifera* stands more erect and does not have large flowers.

Flowering Period: April - July

Nativity: California native

Location in Bolsa Chica: B C L M P [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Deinandra fasciculata* (formerly *Hemizonia fasciculata*)

Common Name: Slender tarweed

Family: Asteraceae

Characteristics: Annual. 4-100 cm in height, leaves proximally toothed (closer to the base, origin, or point of attachment), more or less coarse-hairy. 5 ray flowers; corolla deep yellow, ray 6-14 mm. 6 disk flowers, all or mostly staminate; anthers more or less red to dark purple, lanceolate to oblong or linear. *Deinandra fasciculata* looks very similar to *Centromadia parryi ssp. australis*, but one way to tell them apart is from the flowers – *D. fasciculata* has many more petals than *C. parryi*.

Flowering Period: April - September

Nativity: California native

Location in Bolsa Chica: C H M P [Common]

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Photos taken in Winter (Top right) and Spring (Main and Lower Left)

Scientific Name: *Encelia californica*

Common Name: California brittlebush

Family: Asteraceae

Characteristics: Perennial, is deciduous. Shrub 50-150 cm in height, and many slender branches from base. Stem branched proximally (close to the base, origin, or point of attachment). Young stem glabrous(without hairs); older stems with smooth or roughened bark. Leaves scattered along stem; petiole 2-25 mm; blade 3-6 cm, diamond-shaped or narrowly ovate, acute, green, glabrous to sparsely and minutely strigose (with stiff, straight, sharp, appressed hairs) or bristly. 15-25 ray flowers; ray flowers 15-35 mm in length. Disk flowers 5-6 mm in length, color brown-purple.

Flowering Period: February - June

Nativity: California native

Location in Bolsa Chica: C H L M P Nt Y [Abundant]

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(All photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Eriogonum cinereum*

Common Name: Ashy-leaf buckwheat

Family: Polygonaceae

Characteristics: Perennial. Shrub 60-150 cm tall, 100-200 cm in diameter. Stems 10-40 cm in length, and hairy. Leaves cauline (borne along an elongate, above ground stem); blades 1.5-3 cm long, 1-2.5 cm wide, white-tomentose (covered with densely interwoven, generally matted hairs). Flowers 2.5-3 mm, hairy; perianth white to more or less pink in color. The best way to tell between E. cinereum and E. giganteum is the former (cinereum) has flat leaf edges, is smaller, not as woody as base, and has inflorescences that are more congested, with the flowers more or less in a roundish ball.

Flowering Period: All year

Nativity: California native; Endemic

Location in Bolsa Chica: C [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Summer; (Main Photo) Winter

Scientific Name: *Eriogonum fasciculatum*

Common Name: California buckwheat

Family: Polygonaceae

Characteristics: Perennial, is deciduous. Mat to shrub, 20-150 cm tall, 20-250 cm in diameter. Stems 3-25 cm long, tomentose (covered with densely interwoven, generally matted hairs), hairy, or glabrous (without hairs). Leaves cauline (borne along an elongate, above ground stem); blades 6-15 cm long, .5-4 cm wide, generally linear, tomentose, hairy or glabrous (without hair), margin generally rolled under. Flowers 2.5-3 mm glabrous or hairy; perianth white to more or less pink in color.

Flowering Period: All year

Nativity: California native

Location in Bolsa Chica: B C H M P Nt S [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Main and Lower Left) Spring; (Upper left and Lower right) Fall

Scientific Name: *Eriogonum giganteum*

Common Name: St. Catherine's Lace

Family: Polygonaceae

Characteristics: Perennial, deciduous. Shrub 30-200 cm tall. Stems 10-40 cm in length, tomentose (covered with densely interwoven, generally matted hairs) to more or less glabrous (without hairs). Leaves cauline (borne along an elongate, above ground stem); blades 2-7 cm long, 1-5 cm wide, tomentose to more or less glabrous. Flowers 2-4mm long, hairy; perianth white to rose in color. Looks like *E. cinereum* but *E. giganteum* is bigger and taller. In addition, E. giganteum is much woodier around the crown and main stem, has rolled under leaf margins, and has more open inflorescences.

Flowering Period: May – October

Nativity: California native; Endemic to Catalina Island; Planted at the reserve

Location in Bolsa Chica: M [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Upper Right) Summer; (Lower Right) Spring

Scientific Name: *Eriogonum parvifolium*

Common Name: Coastal / Cliff buckwheat

Family: Polygonaceae

Characteristics: Perennial, deciduous. Shrub 30-100 cm tall, 50-200 cm in diameter. Stems 2-10 cm, tomentose (covered in densely interwoven, generally matted hairs) or glabrous (without hairs). Leaves cauline (borne along an elongate, above ground stem); blades 0.5-3 cm in length, 0.3-0.8 cm wide, narrow to more or less round, tomentose abaxially (side or surface of a structure away from the axis on which the structure is borne). Generally glabrous adaxially (side or surface of a structure toward the axis on which the structure is borne). Flowers 2.5-3 mm, glabrous; perianth white to pink or green-yellow in color. Leaves can be yellow, green, red, or with small splotches of brown. Very colorful.

Flowering Period: All Year

Nativity: California native; Endemic

Location in Bolsa Chica: C L M Nt St Sx W Y [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Winter; (Main & Upper Right) Spring

Scientific Name: *Eschscholzia californica*

Common Name: California poppy

Family: Papaveraceae

Characteristics: Annual. Erect or spreading, 5-60 cm tall. Leaves mostly basal. Bud is erect, acute to long-pointed, glabrous (without hairs), occasionally glaucous (covered with a whitish blue waxy or powdery film), with a flat ring at the base of the flower called a torus. Torus is 0.5-5 mm wider than the receptacle edge, and is often pink or purple. Flowers have 4 petals, 20-60 cm long, deep orange to light yellow, bases generally orange.

Flowering Period: February - September

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: C H M Sx Y [Few]

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Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Extriplex californica* (formerly *Atriplex californica*)

Common Name: California orach

Family: Chenopodiaceae

Characteristics: Perennial. Spreading to decumbent (lying mostly flat on the ground), less than 30 cm tall, and less than 80 cm wide, with thick fleshy taproot. Many stems originate from base and branches decumbent to ascending. Leaves proximal opposite, blades 5-24 mm, lanceolate to elliptic, gray-scaly.

Flowering Period: April - October

Nativity: California native

Location in Bolsa Chica: R [Few]

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Photos taken by Ron Vanderhoff
(Main) Trabuco Canyon - Spring; (Top left) Pine Canyon - Spring; (Top middle) UCI Ecological Preserve - Winter; (Lower right) San Onofre State Beach - Winter

Scientific Name: *Galium aparine*

Common Name: Cleaver; Common bedstraw

Family: Rubiaceae

Characteristics: Annual. Climbing or prostrate, occasionally short, erect; clings by small, hooked prickles. Stems are 30-90 cm long, weak, brittle. Leaves are narrow, in whorls of 6-8, and 13-31 mm long.

Flowering Period: March – July. 4 flower petals, whitish in color.

Nativity: California native

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Right) Winter; (Main & Lower Right) Fall

Scientific Name: *Heteromeles arbutifolia*

Common Name: Toyon; Christmas berry

Family: Rosaceae

Characteristics: Perennial. Shrub, small tree, less than 10 m tall, unarmed. Trunk bark more or less gray; twigs puberulent (minutely hairy). Leaves petioled, simple, dark green, shiny above, yellow-green below; blade 5-10 cm long, elliptic, leathery, finely toothed, and veined to teeth. The flower funnel is shaped like a shallow bowl, 5 free sepals. Petals 5, less than 4 mm long, white, large, and rounded.

Flowering Period: June - August

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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(All Photos) Bolsa Chica Ecolgical Reserve
(Main Photo) Spring; (Upper Left) Summer; (Upper Right & Lower Left) Fall

Scientific Name: *Heterotheca grandiflora*

Common Name: Telegraph weed

Family: Asteraceae

Characteristics: Annual to short lived perennial. 10-250 cm tall. Stems generally erect, distally branched, densely bristly, and glandular. Leaves of 3 types: lowest have a petiole with ear like basal lobes clasping the stem; middle leaves have a petiole and are linear to elliptical and densely hairy; upper leaves are linear and have no petiole, and are less hairy but stickier. 25-40 ray flowers; ray 5-8 mm long. 30-75 disk flowers, each 4-6 mm long.

Flowering Period: June – October

Nativity: California native; Endemic

Location in Bolsa Chica: B L Nt R S St Sx T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Main & Lower Left) Spring; (Upper Left & Lower Right) Fall

Scientific Name: *Isocoma menziesii*

Common Name: Coastal Goldenbush

Family: Asteraceae

Characteristics: Perennial. Plant less than 2 m tall, mat forming to erect. Stems prostrate to erect, branched from base or rarely from above, minutely scabrous (rough to the touch), or tomentose (covered with densely interwoven hairs). Stems yellow-tan, gray-green- or red-brown in color. Leaves 0.7-4.5 cm long, 5-15 mm wide, ovate to widely spoon shaped, entire or toothed, glabrous (without hairs), minutely scabrous or tomentose, and gray-green in color. Flowerheads about 1 cm long, in dense rounded clusters at branch tips.

Flowering Period: June – November

Nativity: California native

Location in Bolsa Chica: B C H L M Nt P S St Sx T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Main) Winter; (Upper Left & Lower Right) Fall

Scientific Name: *Lycium californicum*

Common Name: California boxthorn

Family: Solanaceae

Characteristics: Perennial. Glabrous, branches spreading in rigid fashion. Leaves are 3-10 mm long, succulent, linear to teardrop and approx. round in cross-section. Flowers are 4-6 mm across (tiny), have 2-4 lobes, bell-shaped, and are white or purple-tinged/-veined. Can grow to be a pretty large shrub. The branches are woody and the ends of them are generally in points, hence the "thorn" part of the name. Fruit is a red, firm berry, 3-6 mm long.

Flowering Period: March - August

Nativity: California native; 4.2

Location in Bolsa Chica: B C L M P Sx [Common]

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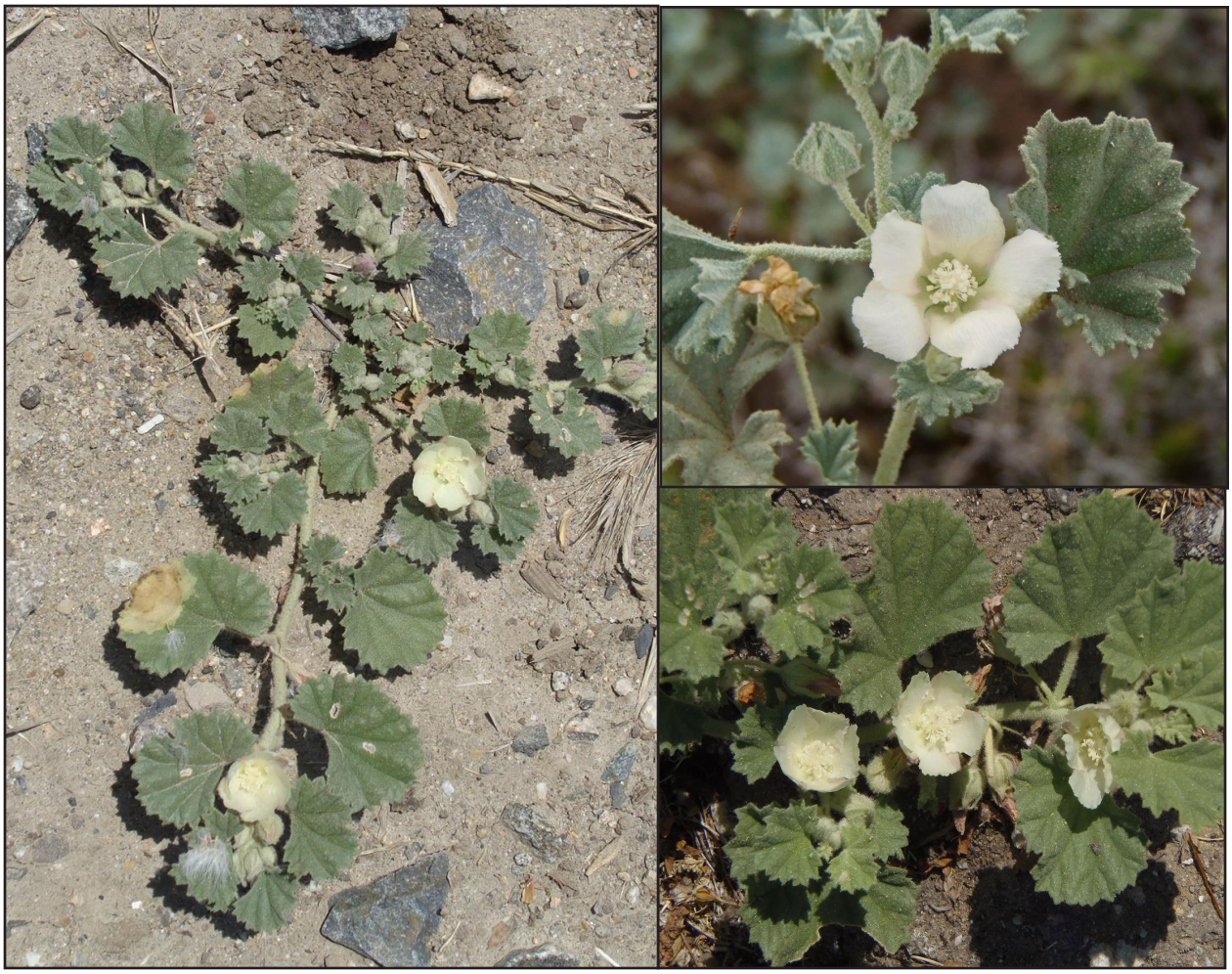

Photos taken by Ron Vanderhoff
(Upper Right) Laguna Coast Wilderness Park - Spring (Left) Poche Beach, San Jaun Capistrano - Spring (Left - Spring), and San Diego (Lower right - Summer)

Scientific Name: *Malvella leprosa*

Common Name: Alkali mallow

Family: Malvaceae

Characteristics: Annual / perennial. Stems are decumbent (lying mostly flat), about 10-40 cm. long with dense, white hairs. Leaves are also hairy, with blade lengths of 1-3.5 cm long, and generally either kidney bean shaped or triangular. Leaves also have toothed margins and are wavy (similar to how *M. parviflora* is wavy). Flower stalks are usually deciduous, petals are 10-15 mm long, cream-white to yellow, and occasionally with a rose tint. Flowers usually appear at nodes in groups of 1-3.

Flowering Period: April – November

Nativity: California native

Location in Bolsa Chica: Unknown

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(AllPhotos) Laguna Coast Wilderness Park - Spring

Scientific Name: *Mimulus aurantiacus*

Common Name: Bush monkeyflower

Family: Phrymaceae

Characteristics: Perennial (subshrub). Stems are 10-150 cm long, and leaves are narrowly elliptic to linear, entire to serrated, with edges usually rolled under. Lower surfaces of leaves pale and either densely hairy or minutely hairy. Upper surface glabrous, and blades are about 10-88 mm long. There are 2-4 flowers per node, and the flowers themselves are usually yellow-orange to orange with tube throats 26-38 mm in length. Lobes are entire to possibly 2 lobed toward the top of the petals.

Flowering Period: March - June

Nativity: California native

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Mirabilis laevis var. crassifolia* (formerly *Mirabilis californica*)

Common Name: California four o'clock; California wishbone bush

Family: Nyctaginaceae

Characteristics: Perennial. Stems are trailing to ascending, approx. woody, and approx. grey in age with hairs toward tips. Leaves have blades of 1-4.5 cm, are ovate (egg-shaped), and hairy. Involucre (the bottom part of the flower) bell-shaped, 5-8 mm long. Flowers are broadly funnel-shaped and pink to purple-red in color (sometimes white).

Flowering Period: December - June

Nativity: California native

Location in Bolsa Chica: C P S [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Top) Spring; (Bottom) Fall

Scientific Name: *Opuntia littoralis*

Common Name: Coastal prickly pear

Family: Cactaceae

Characteristics: Perennial. Stems are up to 1.5 m in length, clumps less than 9 m in diameter, branches spreading to sprawling. Segments ("leaves") are 15-22 cm in length, oblong-elliptic to narrowly obovate (upside down egg), gray-green and glabrous. Spines are about 2-4 cm long, round cross section, coated white but yellow at base. Flowers can be multicolored, from yellow to pink with filaments orange-yellow, pink or red styles, and yellow-green to green stigmas.

Flowering Period: April - June

Nativity: California native

Location in Bolsa Chica: C L M P Sx [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Right) Spring; (Upper & Lower Left) Fall; (Mid Left) Winter

Scientific Name: *Peritoma arborea* (formerly *Isomeris arborea* and *Cleome isomeris*)

Common Name: Bladderpod

Family: Cleomaceae

Characteristics: Perennial, deciduous. Many-branched stem, generally 50-200 cm long, minutely hairy. Leaves have a petiole of 1-3 cm, generally 3 leaflets, with blades that are 15-45 mm long, oblong-elliptic in shape. Inflorescences are 1-30 cm long, and flowers have fused sepals, 4-7 mm long. Petals are yellow in claw shape, and are 8-14 mm long and 4-5 mm wide. Fruits look like bladders, and seeds are small balls that are within the bladders. Although they are originally green, the seed pods turn brown and are smooth. They hang down from the plant like small ornaments.

Flowering Period: November - June

Nativity: California native

Location in Bolsa Chica: C M P Y [Common]

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Photos taken by Ron Vanderhoff
(Right) Caspers Park - Winter; (Lower left) Gypsum Canyon - Spring (Upper left); San Clemente - Spring

Scientific Name: *Plantago erecta*

Common Name: California / foothill plantain

Family: Plantaginaceae

Characteristics: Annual. It has scattered hairs, silky or long. Leaves are 3-13 cm long, thread-like to narrowly oblanceolate (wider at base then narrow at top), either entire or few, small teeth. Can be many inflorescences, 3-30 cm long including peduncle (stalk of individual flower), spikes are 0.5 – 3 cm long, and hairs are nearly always ascending on inflorescence. Flower lobes are spreading or reflexed, 2-2.7 mm long, round-ovate (egg-shaped).

Flowering Period: March - May

Nativity: California native

Location in Bolsa Chica: B [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Upper & Lower Right) Spring

Scientific Name: *Prunus ilicifolia ssp. lyonii*

Common Name: Catalina cherry

Family: Rosaceae

Characteristics: Shrub / tree, 4-15 m tall, not thorny. Leaves are evergreen with a petiole 8-25 mm in length and a blade 16-120 mm long, entire and flat margins, and ovate (egg) in shape. Many flowers, often glabrous sepals, petals are 1-3 mm long, and are white to approx. yellow. The fruit is generally blue-black in color and 15-25 mm long.

Flowering Period: March - May

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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Photos taken by Ron Vanderhoff
(Upper Left) Laguna Coast Wilderness Park - Summer;(Main Photo) San Joaquin Hills - Spring
(Upper & Lower right) Laguna - Winter

Scientific Name: *Pseudognaphalium californicum* (formerly *Gnaphalium californicum*)

Common Name: Ladies' tabacco; Green everlasting

Family: Asteraceae

Characteristics: Annual to perennial, scented. Stems are 20-130 cm long, sometimes tomentose (dense hairy matted), internodes are 10-20 cm in length. Leaves are generally not crowded, 4-10 cm long, 5-10 mm wide, possibly fewer in number toward top of stem. Leaves are flat or slightly curled-under margin, narrow teardrop shape. Tops and bottoms are generally green, sticky, and possibly tomentose. Inflorescences are flat-topped or rounded, with the involucre (structure that includes the whole flower head) is 5.5-7 mm. Pistillate flowers are 105-140 in number, and disk flowers are 7-12.

Flowering Period: April - July

Nativity: California native

Location in Bolsa Chica: R [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Pseudognaphalium stramineum* (formerly *Gnaphalium stramineum*)

Common Name: Cottonbatting plant

Family: Asteraceae

Characteristics: Annual or biennial, unscented. Stems are 20-80 cm, loosely to densely tomentose, not glandular. Leaves are approximately crowded, 2-8 cm long, and 2-5 mm wide, tending to not be as many toward top. They are cylindric to upside-down tear drop shape, with flat or slightly curled under margins, and faces generally grey-tomentose. Inflorescences are dense, 1-2 cm in diameter. Pistillate flowers are 160-200 and disk flowers are 18-28.

Flowering Period: March - August

Nativity: California native

Location in Bolsa Chica: C S [Few]

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Photos taken at Bolsa Chica Ecological Reserve (Insets) and
Laguna Coast Wilderness (Main, Ian McGregor)
(Upper left) Fall; (Upper right) Winter, (Main Photo) Spring

Scientific Name: *Rhus integrifolia*

Common Name: Lemonade berry

Family: Anacardiaceae

Characteristics: Perennial. Shrub grows 1-8m. Leaf 2.5-6cm, leathery deep green, generally flat with slight curvature along the length of the margins. Some leaves gradually pointed at the tip, others rounded. Flowers on short branches, 2-4mm, petals ranging from white to pink, entire inflorescence packed tightly in a generally conical shape. Fruit 7-10mm in diameter, fleshy and more or less red in color.

Flowering Period: February-May

Nativity: California native

Location in Bolsa Chica: C H M S [Common]

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(All Photos) Bolsa Chica Ecological Reserve; (Upper right) Fall; (Main) Winter; (Lower right) Spring

Scientific Name: *Salvia apiana*

Common Name: White sage

Family: Lamiaceae

Characteristics: Perennial. Multiple branches from a wide base. Non-flowering stems reach about .5m high. Mature inforescence stalks can reach 3m. Leaves "white" (very pale green (closer to blue than yellow)), 4-8cm, wide at the base and taper to a point at the tip, edged with small, rounded teeth. Whitish-purple to red stalks with flowers whorled (arranged in groups of three or more at the nodes), range in color from white to lavender. Flowers appear to have two "lips;" upper lip very small (only 2mm), lower lip much larger 8-18mm long and cupped at the tip. Two stamens attached to the lower lip, exserted (erect, sticking up and protruding out of the flower). Fruit light brown and shiny, 2.5-3mm. Tends to hybridize with black sage when growing in proximity.

Flowering Period: April-July

Nativity: California native

Location in Bolsa Chica: C H M Y [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Salvia leucophylla*

Common Name: Purple sage

Family: Lamiaceae

Characteristics: Generally annual, occasionally perennial. Leaves longer than wide and tapered to a point, pale green and wrinkled, 2-3cm long. Base of leaf either heart-shaped or sharply tapered, with the margins occasionally rolled under. Small rounded teeth. Whole shrub under 1.5m tall, either prostrate (bent down towards the ground) or erect. Inflorescence clusters 1.5-4cm wide, spaced apart. Flower tube 6-13mm long, upper lip 6-8mm, style extends erect out of flower. Fruit 2-3mm, brown or dark grey.

Flowering Period: April-June

Nativity: California native

Location in Bolsa Chica: M [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Bottom left) Fall; (Main / Top right) Spring

Scientific Name: *Salvia mellifera*

Common Name: Black sage

Family: Lamiaceae

Characteristics: Perennial. Shrub height 1-2m. Leaf 2.5-7cm in length, slightly wider at tip than at base, longer than it is wide, margins curl in, top of leaf more or less hairless, underside hairy. Inflorescence 1.6-4cm wide. Flower tube 5.5-9mm, ranges from white to pale blue or lavender/pale rose. Upper lip of flower double lobed, stamens/style less protruding than other sages. Fruit 2-3mm, generally brown in color.

Flowering Period: March - June

Nativity: California native

Location in Bolsa Chica: H M Y [Few]

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Photos taken by Ron Vanderhoff
(Main Photo) Moro Canyon - Winter; (Upper Right & Lower Left) San Diego Creek - Spring

Scientific Name: *Solanum americanum*

Common Name: American black nightshade

Family: Solanaceae

Characteristics: Annual to subshrub, 30-80 cm in height, no or short hairs. Leaves are 2-15 cm long, egg-shaped (ovate), entire to coarsely wavy-toothed. Inflorescences are either in bunches or umbel-like (many parts coming from a single point – think of the inside of an umbrella). Flowers are 3-6 mm wide, deeply lobed, and white. Fruits (look like little berries), are 5-8 mm across, and are black to green in color.

Flowering Period: March - November

Nativity: California native

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Solanum douglasii*

Common Name: White nightshade

Family: Solanaceae

Characteristics: Perennial, less than 200 cm in size, many-branched, generally simple hairs (less than 1 mm), kind of curved, and white. Leaves are 1-9 cm long, ovate, entire to coarsely irregularly toothed. Inflorescences are umble-like (see *S. americanum*). Flowers are about 10 mm wide, white, lavender, or lavender-tinged with deep lobes. Fruits (berries) are 6-9 mm across, and black.

Flowering Period: Year-round

Nativity: California native

Location in Bolsa Chica: St [Few]

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Photo taken by Ian McGregor
Samuel Taylor State Park - Fall

Scientific Name: *Toxicodendron diversilobum*

Common Name: Poison-oak

Family: Anacardiaceae

Characteristics: Shrub, 0.5-4 m, or vine-like, <25 m. Stems are twigs grey to red-brown, tapered, sparse hairs or none. Leaves have petioles 1-10 cm, and there are generally 3 leaflets. Leaf shapes can be best characterized as variable (can be round, oblong, entire, wavy, lobed, thin to leathery, rounded to obtuse tip, semi-serrated). Leaf color is bright red in fall, glabrous on top, may be small hairs on underside. Terminal leaflet is 1-13 cm long, 1-8 cm wide. Inflorescences are loose branches, arched, slender. Flowers have green sepals, ovate (egg-shaped) petals that are yellow- to white-green. This plant is known to be an irritant to humans. It generally grows close to freshwater and in shade. If you are unsure about whether you see poison oak, do not touch it. Remember, “leaves of three – let it be.”

Flowering Period: April – June

Nativity: California native

Location in Bolsa Chica: Unknown

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Freshwater Wetlands



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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Spring; (Main Photo) Summer

Scientific Name: *Anemopsis californica*

Common Name: Yerba Mansa

Family: Saururaceae

Characteristics: Perennial; The plant is 1-2ft tall that grows by thick, woody, creeping, red rhizomes. The stem can be 10- 50 cm, often being hollow and can be either smooth or hairy. The leaf base is wedge-shaped, while the leaves are spinach like, basal, elliptic to oblong and generally 5-15cm long. The flower is 1-1.2mm circumference, smooth and/or wrinkled near tip and resemble of those of a plantain. They have long, prominent, conical centers with large white tracts that appear to be petals, sometimes tinged with red. The seed is generally 0.8-1.1mm, obovate (upside down egg), shiny and dark red/brown.

Flowering Period: July- October

Nativity: California native

Location in Bolsa Chica: St Sx [Few]

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Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Baccharis salicifolia*

Common Name: Mulefat

Family: Asteraceae

Characteristics: Perennial; The evergreen shrub grows under 12ft. The stems are smooth to having hairs that are only visible when magnified, and may be slightly sticky. The stems can be clustered with few, brown branches spreading. The leaves are sessile, often toothed, light green and have blades under 15cm. The inflorescence heads in terminal are flat- topped or pyramidal panicle- like cluster in the summer through the fall. The flower can be between 0.8-1.3mm. In the summer, flowers are at the ends of the branches and leaves are mostly toothed, while winter the flowers are lateral and leaves are mostly smooth on the edges. The mulefat got its name by pioneers who let their mules fatten up on the plant.

Flowering Period: All year

Nativity: California native

Location in Bolsa Chica: B H L Nt S St Sx W [Abundant]

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Photos taken by Ron Vanderhoff
(Upper Right) Prado Dam, Corona - Fall (Lower Right) Fall
(Left) Anaheim Bay, Seal Beach - Summer

Scientific Name: *Baccaris salicina* (formerly *Baccharis emoryi*)

Common Name: Willow baccharis

Family: Asteraceae

Characteristics: Annual; The plant is hairless and generally sticky, with a stem that is much-branched. The leaves are short petioled, with blades between 25 and 70mm, 5-20mm wide and linear to narrowly oblanceolate (tear drop shaped). The lower leaves are larger, toothed and based wedge shaped, while the upper leaves are smaller, narrower, not toothed. The inflorescence heads are in tight groups of 3-5 in panicle like clusters. The flower is 1.2-2 mm, with flower heads in clusters of 1-3 per stalk, containing a surprisingly soft texture.

Flowering Period: May- November

Nativity: California native

Location in Bolsa Chica: Unknown

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Carex spissa*

Common Name: San Diego sedge

Family: Cyperaceae

Characteristics: Perennial; The stout, green plant turns brown in winter. The stems are sharply three- angled and solid on the cross section, measuring to be 1-1.8m, with a brown base. The leaves are three-ranked, generally smooth and form a U-Shaped mouth at top where they leave the stem. The leaf blade 6-18 mm wide, being blue/green when young. The inflorescence lower spikelets staminate at the tip. The fruit is 2-2.6 mm, 1-1.3mm wide, obovate (upside down egg), red dotted and contains a beak of 0.1-0.8 mm with a bent dark tip.

Flowering Period: April- September

Nativity: California native

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Hydrocotyle verticillata*

Common Name: Whorled Marsh pennywort

Family: Araliaceae

Characteristics: Perennial; The leaf petiole is 0.5-25 cm, slender and has a blade 1-4cm wide, round, pelate (umbrella shaped) and shallow. The inflorescence is a spike, not an umbrel, with spiked peduncles 1.5-20cm. The fruit is 1-3mm, elliptic, containing acute ribs. The plant is a common weed found throughout the warmer regions of the Americas, growing in areas ranging from poorly-drained soils to shallow water.

Flowering Period: April- September

Nativity: California native

Location in Bolsa Chica: H [Few]

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Photos taken by Ron Vanderhoff
(Main Photo) Irvine - Fall
(Upper Left) Bolsa Chica - Fall; (Lower Left) San Clemente - Fall

Scientific Name: *Pluchea odorata*

Common Name: Marsh Fleabane or Sweetscent

Family: Asteraceae

Characteristics: annual or ephemeral perennial; the plant is coarse, glandular and can be 1-3 feet tall and can be foul scented. The leaves are 4-12cm, velvety oval shaped, toothed and egg shaped; inflorescence involucre (bracts around the inflorescence) are 4.5-5.5 mm, phyllaries are lavender to bright purple; the pistillate flower is purple and 3.5-4mm; the disk flower is purple with a corolla of 4-5mm. The flower heads are broad, cone-shaped or flat-topped clusters at the top of plant, while the fruit is minutely rough-hairy. There are pappus bristles present (tufts of hair on each seed of thistles) to tip. The plant is sticky to touch and is found in wet soils near watercourses and marshes where it is an important butterfly plant.

Flowering Period: June- November

Nativity: California native

Location in Bolsa Chica: S [Few]

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Photos taken by Ron Vanderhoff
(Main Photo Huntington Beach - Fall
(Upper Left) San Diego - Summer; (Lower Left) Bolsa Chica - Fall

Scientific Name: *Schoenoplectus californicus* (formerly *Scirpus californicus*)

Common Name: Bulrush; Tule

Family: Cyperaceae

Characteristics: Perennial; the stem can be 4-10 mm diameter, being blunt and 3 sided throughout to cylindric proximally. The leaf blades are at most 2 cm long, 22 mm wide, flat, sheath splitting and leave coarse fibers. The inflorescence are panicle-like and 1-8cm. The spikelets can have as many as 25-150+ in clusters of 1-2+, while the dark red/brown flower perianth bristles can be found in 2-4. The fruit is 1.8-2.2mm, 1.3mm wide, 2 sided and smooth. Although this plant is native to California, it can be found across Southern North America and beyond. The Native Americans used bulrushes to make baskets, shoes, aprons, duck decoys, lodges, mats and canoes.

Flowering Period: April- October

Nativity: California native

Location in Bolsa Chica: S [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Typha latifolia*

Common Name: Cattail

Family: Typhaceae

Characteristics: Perennial; The plant is 15-30dm tall, with a stem 3-7 mm in diameter. The stems are simple, stiff and erect, resembling a C when cut in the cross section. The leaf sheath tip lobes ear-shaped, while the leaves are flat in cross-section at base with a papery texture. The widest flesh blades are 10-29mm wide, dry 5-20 mm wide. The pistillate spikes are medium to black or red/brown. Female inflorescence are green when in flower, but brown in fruit. The flower heads (also called cattails) are spike- like, terminal and cylindrical. Cattails grow in wet soils, ponds and marshes. They are important habitat plants that are used by Red- winged blackbirds, song sparrows and common yellowthroats for nesting.

Flowering Period: June- July

Nativity: California native

Location in Bolsa Chica: St Nt [Common]

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Photos taken by Ron Vanderhoff
(Main Photo & Upper Right) Irvine Lake - Fall
(Lower Right) San Juan Hills - Winter

Scientific Name: *Xanthium strumarium*

Common Name: Cocklebur

Family: Asteraceae

Characteristics: Annual; This plant is coarse, bushy and branched summer annual grows in moist, open places. The plant can grow to be 2-4 feet tall. The leaves alternate, are lobed, coarsely toothed, and somewhat triangular or heart shaped. The leaf petiole is 2-10 (14+)cm, while the leaf blade is 4-12 (18+) cm and 3-10 (18+) cm wide. The leaf blades can be up to 15cm long, green, hairless; covered in hook-tipped spines. The male flowers are green and develop at the top of the plant. Female flowers form in burs on short stalks in the leaf axils (where the leaf meets the stem). Burs are oval with two beak-like hooks at the end. This is a worldwide plant of wet, moist disturbed soils.

Flowering Period: July- October

Nativity: California native

Location in Bolsa Chica: Unknown

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Woodland



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(All Photos) Harriett Wieder Regional Park - Fall

Scientific Name: *Malosma laurina*

Common Name: Laurel Sumac

Family: Anacardiaceae

Characteristics: Shrub. 2--6 m; flowers bisexual or unisexual. Leaf: simple, evergreen; petiole 10--40 mm; blade 3--10 cm, 2--4.5 cm wide, elliptic to lance-oblong, +- leathery, +- folded along midrib, tip abrupt-pointed, margin entire. Inflorescence: branches slender; bractlets < 1.5 mm. Flower has green sepals that are entire; petals generally white. Fruit: 2--3 mm diam, glabrous, +- white.

Flowering Period: June – July

Nativity: California native

Location in Bolsa Chica: H [Few]

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(All Photos) Harriett Wieder Regional Park
(Left) Spring; (Right) Summer

Scientific Name: *Platanus racemosa*

Common Name: Western Sycamore

Family: Plantanacae

Characteristics: Tree. Stem: 10--35 m, often leaning; base less than 1 m wide; outer bark light gray, tan, inner paler. Leaf has a petiole 3--8 cm long; blade 10-25 cm, approximately round, glabrous to somewhat hairy adaxially (on the top of the leaf), tomentose abaxially. Staminate Flower: sepals 0; petals free. Pistillate Flower: sepals free; style red-tipped, stigma maroon, glabrous. Fruit: head 2--3 cm, approx. sessile; basal hairs +- 2/3 fruit, persistent on fruit head.

Flowering Period: February - April

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: B H W [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Quercus agrifolia*

Common Name: Coast Live Oak

Family: Fagaceae

Characteristics: Tree 10--25 m tall, evergreen; top wide; trunk bark furrowed, approximately checkered, somewhat gray. Leaf: 2.5--6 cm; petiole 4--15 mm; blade generally widely elliptic to round, generally adaxially convex, +- dull green, abaxially glabrous to densely tomentose, dull, pale green, tip rounded to spine-toothed, margin rolled under or not, weakly spine-toothed. Fruit: cup 10--16 mm wide, 8--15 mm deep, obconic, scales thin, +- not tubercled, +- glabrous, +- brown; nut 25--35 mm, slender, ovoid, distally acute, shell woolly inside; mature in year 1.

Flowering Period: February - April

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: B M [Few]

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(All Photos) Harriett Wieder Regional Park - Fall

Scientific Name: *Salix gooddingii*

Common Name: (Gooddings') Black Willow

Family: Salicaceae

Characteristics: Shrub or tree < 30 m. Stem: twigs +- yellow or yellow-green or red-brown, velvety or soft-shaggy-hairy, glabrous in age, brittle at base or not. Leaf petioles are 4--10 mm long, generally with glands; young leaves white-hairy; mature blade 67--130 mm long, linear to narrowly elliptic, acuminate (base wedge-shaped), finely serrate, abaxial hairs generally minute, spreading, wavy. Inflorescence: blooming with leaves, pistillate 23--82 mm, on leafy shoots 2--48 mm (margins of shoot-leaves finely serrate); flower bract +- tan; pistillate bracts deciduous. Staminate Flower: stamens 4—6. Pistillate Flower: ovary glabrous or hairy, stalk 1.2--3.2 mm, style 0.1--0.3 mm.

Flowering Period: March - April

Nativity: California native

Location in Bolsa Chica: H P [Few]

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Photos taken by Ian McGregor, from Sunol Regional Wilderness (Fall)

Scientific Name: *Salix lasiolepis*

Common Name: Arroyo Willow

Family: Salicaceae

Characteristics: Shrub, small tree, < 10 m. Stems are twigs that are approx. yellow, yellow-green, or yellow- or red-brown, glabrous, densely short-soft-spreading-hairy, or tomentose, generally brittle at base. Leaf: later stipules generally leaf-like; petiole 3--16 mm, tomentose to velvety; young leaves white- or white-and-rusty-hairy; mature blade 35--125 mm, strap-shaped to elliptic or obovate, acute to convex (base wedge-shaped to convex), entire to irregularly serrate, +- to strongly rolled under, abaxially generally +- dense-tomentose or -woolly-tomentose or hairs sparsely short-soft-spreading or short- or long-silky, white or white and rusty, wavy.Inflorescence: blooming before leaves, pistillate 18--72 mm, on leafy shoots 0--6 mm; flower bract dark brown, with generally wavy hairs, tip broadly rounded. Staminate Flower: stamens 2. Pistillate Flower:ovary glabrous, stalk 0.5--2.4 mm.

Flowering Period: January – June

Nativity: California native

Location in Bolsa Chica: Unknown

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Grasslands



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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Aristida purpurea*

Common Name: Purple three awn (3 awn grass)

Family: Poaceae

Characteristics: Perennial. The plant can be up to 30 inches tall. When the stem is unbranched it can be 10-100 cm. The narrow leaf blade is 5-25cm and 1-2mm wide. The inflorescence tips sometimes spread or ascend. The lower spikelet are 4-12mm, while the upper spikelets are 7-25mm. This plant is native to arid locations in western North America and poses no concern to native plant communities. However, it spreads quickly into disturbed areas and can be considered invasive in certain situations.

Flowering Period: February- November

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Lasthenia californica ssp. californica*

Common Name: California goldenfields

Family: Asteraceae

Characteristics: Annual. The roots are fibrous and dispersed. The stem is erect, with leaves 0.8-7cm and 1-6mm wide. The inflorescence is bell shaped or hemispheric being 5-10mm. The ray flower can be found in 6-13, with being 5-10mm. The disk flower has another triangular tip. The fruit is <3mm, black to gray and generally hairy. The California goldenfields are abundant in moist soils among grasslands and coastal sage areas.

Flowering Period: February- June

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Layia platyglossa*

Common Name: Coastal tidy tips

Family: Asteraceae

Characteristics: Annual. The stem is generally not purple streaked and has leaves 4-100 (120)mm, linear to lanceolate (feather shaped) or oblanceolate (tear drop shaped). The inflorescence peduncle is <13cm, with the basal margins interlocked by cottony hairs. The ray flower 5-18, are 3-21mm and yellow throughout or yellow with white tips. The disk flowers 6-120+ are dark purple, sometimes yellow to brown, with dull, hairless or sparsely hairy fruit.

Flowering Period: February- July

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: Y [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Lepidium lasiocarpum ssp. lasiocarpum*

Common Name: Shaggyfruit pepperweed

Family: Brassicaceae

Characteristics: Annual. Hairs stiff to spreading. Stems are erect to decumbent, 1 to several from base, 6-30 cm long and branched distally (away from) base. Basal leaves not rosette, late deciduous, 1.5 – 4.5 cm long, spoon-shaped to upside-down lance, 1-2 pinnate lobes. Other leaves (toward tips) are short-petioled, 1.2-3.3 cm long, 4-12 mm wide, tear-shaped to upside-down tear, entire to serrated but not lobed. Inflorescences are much-elongated. Flowers have sepals that are 1-1.3 mm long, oblong in shape, and really small petals 0.6-1.5 mm long and 0.2-0.5 mm wide, narrow, white. Fruits are 2.8-4 mm long, 2.4-3.6 mm wide, and is generally egg-shaped to round, flat, with winged tip and a notch.

Flowering Period: March - June

Nativity: California native

Location in Bolsa Chica: C H [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Lepidium nitidum*

Common Name: Shining peppergrass / pepperweed

Family: Brassicaceae

Characteristics: Annual. Stems are erect to decumbent, 1 to many from base, 10-35 cm long and occasionally branched toward the top. Leaves are basal, not rosetted, and early-deciduous. They are 1.5-7.3 cm long, pinnately divided, lobes linear (oblong to lanceolate), entire, and either short petioled to sessile. Inflorescences are much-elongated, with very short hairs. Flowers have sepals that are 0.9-1.3 mm long, petals that are 0 in number or some that are 1.2-2 mm long and 0.2-1 mm wide. The petals are oblanceolate and white with 4 stamens. Fruits are 3-5.5 mm long and 2.6-5 mm wide, round to broadly ovate (egg-shaped), flat, wing-tipped, and have a notch that is 0.3-0.7 mm long.

Flowering Period: February – March

Nativity: California native

Location in Bolsa Chica: P [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Lupinus bicolor*

Common Name: Bicolored Lupine

Family: Fabaceae

Characteristics: Annual. The plant is 10-40cm and hairy. With the leaf petiole being 1-7cm, the leaflets 10-4mm and 1-5mm wide, are hairy above and below, often with longer hairs on the edge. The inflorescence is 1-8cm the peduncle 3-10cm; the flower 4-10mm, the calyx upper lip is 2-4mm and deeply lobed, while the lower calyx is 4-6mm, with petals generally purple/blue, pink or white, banner spot white with magenta in age. The hairy fruit is 1-3cm and generally 3-6mm wide. The Lupinus leaf structure is common to most species within this genus.

Flowering Period: March- June

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M Y [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Muhlenbergia rigens*

Common Name: Deergrass

Family: Poaceae

Characteristics: Perennial. The plant can be 3 ft tall, with two foot plumes rising above the plant. The stem is densely clumped, 5-15dm. The leaf ligule is flat, 0.5-2mm, while the blade is 10-50cm and 1.5-6 mm wide. The narrow, cylindric inflorescence is 15-60cm and 5-12mm wide, with appressed branches. Deer grass grows on the banks of seasonal creeks, along roads or in gullies where the runoff forms in the winter. It often grows in round tufts.

Flowering Period: June- September

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Nemophila menziesii*

Common Name: Baby blue eyes

Family: Boraginaceae

Characteristics: Annual. The plant is slender with a brittle stem. The lower leaf 5-7 is lobed and oval in outline. The leaves are pinnate (leaflets arranged on opposite sides of the stem). There are fewer upper leaves, generally being toothed or lobes narrower. The flower corolla is 5-20mm and 10-40mm wide, being bright blue with white center or blue- veined. The flower is generally hairy, delicate, and black dotted at center. The Baby blue eyes grow in loose, acidic, organically rich, evenly moist, well-drained soils in full sun to part shade. In optimal conditions, the plant will self- seed.

Flowering Period: February- May

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Sisyrinchium bellum*

Common Name: Western blue-eyed grass

Family: Iridaceae

Characteristics: Perennial. The stem is generally tufted, being <64cm and 1.5-5.3mm wide. If the plant is bearing nodes it is only 1mm. In the inflorescence, the translucent margins of inner bract are wider just below tip, and not extended above tip. The flower perianth is 10.5-17mm and the sepals and petals are similar, oval and tipped with a slender point. The flower is yellow at the base, with deep blue, purplish, or white petals, often with darker veins.

Flowering Period: March- May

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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Photo taken by Ron Vanderhoff
Hobo Canyon, Laguna Beach - Spring

Scientific Name: *Stipa lepida* (formerly *Nasella lepida*)

Common Name: Needle grass, Foothill

Family: Poaceae

Characteristics: Perennial; The stem is 3.5-10dm and 0.8-1.2mm in diameter. The lead sheaths are hairless to coarsely hairy. The leaf blade is 12-23cm and 1-3.5mm wide, while being flat or having margins inrolled. The open inflorescence of the foothill needle grass is 9-55cm. This plant is drought resistant, requiring very little water. Stipa leaves are rolled in on each other, forming a kind of needle, hence the common name.

Flowering Period: March- June

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: M [Few]

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Photo taken by Ron Vanderhoff
Newport Coast - Spring

Scientific Name: *Stipa pulchra* (formerly *Nasella pulchra*)

Common Name: Needle grass, Purple

Family: Poaceae

Characteristics: The stem of the plant is 3.5-10dm, with a 1-3.1 mm diameter. The leaf sheaths are hairless to hairy, and have blades 10-20cm and 0.8-4.9 mm wide, while being flat or having margins inrolled. The open inflorescence of the purple needle grass is 18-60cm. The leaves are bright green up close, but appear gray from a distance. Stipa leaves are rolled in on each other, forming a kind of needle, hence the common name.

Flowering Period: March- June

Nativity: California native; Planted at the reserve

Location in Bolsa Chica: H M [Few]

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Non-natives & Invasives



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Bolsa chica Ecological Reserve - Spring

Scientific Name: *Agave americana*

Common Name: American century plant

Family: Agavaceae

Characteristics: Perennial. Can grow to be as tall as 6 ft. Leaves are grey-blue to blue-green with spines at tips and margins. Flower stalk is around 15 ft tall; after flower stalk is produced, the plant dies and is replaced by small offshoots. The plant lives for 10-25 years.

Flowering Period: Summer

Nativity: Non-native; Naturalized

Location in Bolsa Chica: M (other side of fence by palms) [Few]

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(All Photos) Bolsa Chica Ecological reserve
(Left) Fall; (Right, Upper & Lower) Spring

Scientific Name: *Aloe maculata*

Common Name: Soap aloe

Family: Asphodelaceae

Characteristics: Perennial. Shrub, erect and densely clumped. Stems are 0-0.2 m long, simple or branched. Leaves are 10-30 cm long, 5-12 cm wide, lance-like to egg-shaped. The tops of the leaves (adaxial) are pale to dark green with white spots, while the bottoms (abaxial) are green. Inflorescences have either 0 or 2-5 branches, bunched in heads, and are 20-65 flowered, 10-30 cm across, and dense. Flowers have a perianth tube (between flower and plant) 25-40 mm long, 2-10 mm wide, orange-red to pink. Fruits are 20-35 mm long, 8-16 mm wide, and are oblong / red-brown.

Flowering Period: April

Nativity: Non-native; Neither invasive nor naturalized

Location in Bolsa Chica: M [Few]

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Photos taken by Ron Vanderhoff
(Upper Left & Lower Left) San Juan Creek, Dana Point - Fall; (Top) South Main Div. Rd., Hwy 74 - Fall
(Lower Right) Aliso Creek, Laguna Niguel - Fall

Scientific Name: *Amaranthus albus*

Common Name: Pigweed amaranth; tumbleweed

Family: Amaranthaceae

Characteristics: Annual. Stems prostrate to erect, 10-100 cm, generally many-branched, more or less green to white when dry, moderately to densely woolly distally. Leaf petioles 5-40 mm; blade elliptic to obovate or narrow-spoon-shaped, base wedge-shaped, tip obtuse to acute, margins flat or wavy. Stem leaves are generally deciduous, 40-80 mm, 15-30 mm wide; replaced by axillary leaves, 7-20 mm, 3-10 mm wide. Small flowers, 0.7-2 mm, lance-oblong to linear, tip acute; stigmas 3, erect.

Flowering Period: June - October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H W [Few]

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Photos taken by Ron Vanderhoff
(Left) San Juan Creek, Dana Point - Summer; (Lower Left) Upper Newport Bay - Summer
(Right) Upper Newport Bay - Winter

Scientific Name: *Apium graveolens*

Common Name: Wild celery

Family: Apiaceae

Characteristics: Annual. Plant 50-150 cm. Stems not rooting at nodes. Leaf petiole 3 – 25 cm in length; blade 7-18 cm, oblong to obovate, leaflets 2-4.5 cm, ovate to more or less round, generally lobed. Flower rays 7-16, 0.7-2.5 cm, more or less equal; calyx lobes minute.

Flowering Period: May - July

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve
(Lower Left) Fall; (Main Photo) Winter

Scientific Name: *Atriplex prostrata* (formerly *Atriplex triangularis*)

Common Name: Fat-hen

Family: Chenopodiaceae

Characteristics: Annual. 1-12 dm. This plant is branched at the base, with a green-striate, finely white scaly appearance, becoming hairless with age. The green leaf blade 10-90mm is hairless to sparsely fine-scaly. Ovate. This species of saltbush (or, *Atriplex*) is very distinctive at Bolsa Chica by its appearance. The leaves are in a triangular shape (originally this was called *A. triangularis*), and tend to be small / fleshy. When the plant begins dying off, the leaves and buds become a brilliant red color, interspersed with bits of bright green and yellow. In a way, you could almost confuse it with crystalline iceplant. When the plant has fully dried out, it turns black. This species is currently only found on Rabbit Island.

Flowering Period: April- October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: R [Common]

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Atriplex semibaccata*

Common Name: Australian saltbush

Family: Chenopodiaceae

Characteristics: Perennial. This matt-like subshrub is less than 13 inches tall has several stems, about 30-100 cm, spreading and ascending, with a white-scaly appearance or hairless in age. The alternating leaves are sessile and short petioled, with the leaf blade 8-35mm. The shape of the leaf can be oblong to oblanceolate or narrowly elliptic. The pistillate inflorescence has bracts3-6mm, which fuse at the base to the middle. This subshrub can grow a matt up to 4 feet in diameter, but is generally easy to control.

Flowering Period: April- December

Nativity: Invasive; Moderate

Location in Bolsa Chica: C H M Nt P T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Atriplex suberecta*

Common Name: Peregrine / Sprawling saltbush

Family: Chenopodiaceae

Characteristics: Annual or perennial, sprawling, 20-60 cm. Stems are decumbent to ascending, base densely scaly. Leaf blades are 12-30 mm long, ovate (egg-shaped) to diamond-shaped or oblanceolate. They are coarsely, irregularly serrated, fine-scaly abaxially (bottom) and glabrous adaxially (top), with tapered base. Fruiting bracts are sessile or short-stalked, 2-5 mm long, fused toward base, diamond-shaped to obovate (upside-down egg), thin. Seeds are 1-1.5 mm long. Looks very similar to A. semibaccata, but is a deeper green and grows larger.

Flowering Period: March – June

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: M W [Few]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Avena barbata*

Common Name: Slender/slim oat

Family: Poaceae

Characteristics: Annual. This plant has alternating leaves, with leaf blades between 6-30cm, 2-6mm wide, and hairless to minutely scabrous (sometimes ciliate). The spikelets are 21-30mm, breaking apart above glumes and between florets. It is usually densely soft-hairy below the awn. The *A. barata* has shown to out-compete native grass and woody species by exhausting the surface soil- water before natives have had a chance. The seeds are small, but edible.

Flowering Period: March- June

Nativity: Invasive; Moderate

Location in Bolsa Chica: H M W [Abundant]

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Photos taken by Rabask

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Scientific Name: *Avena sativa*

Common Name: Common/cultivated oats

Family: Poaceae

Characteristics: Annual. Stems are erect, 40-180 cm long. Leaves have flat blades 8-45 cm long and 3-16 mm wide, minutely scabrous (rough to the touch). Spikelets are 25-32 mm long, lemma (flower sheath) 12-25 mm long, sometimes glabrous on back. Awn generally present.

Flowering Period: March-May

Nativity: Non-native; Naturalized

Location in Bolsa Chica: W [Common]

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Photos taken by Ron Vanderhoff
(Upper Right) Huntington Beach - Summer; (Lower Left) Bolsa Chica Ecological Reserve - Spring
(Top & Lower Right) Bolsa Chica - Summer

Scientific Name: *Bassia hyssopifolia*

Common Name: Fivehook/fivehorn bassia

Family: Chenopodiaceae

Characteristics: Annual, generally hairy. Plant usually less than 1.5 m tall, with erect stem axis but ascending to erect branches. Leaves are linear to lanceolate, more toward the bottom. The lower leaves are 5-60 mm long, 1-3.5 mm wide, flat, and are generally withered in age. Inflorescences are 5-50 mm long. Sepals of flower are tan-woolly with a leathery base in fruit, and spines that are approximately 1 mm.

Flowering Period: May - November

Nativity: Invasive; Limited

Location in Bolsa Chica: H L P R W [Abundant]

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(All Photos) Harriett Wieder Regional Park
(Top & Lower Left) Spring; (Lower Right) Fall

Scientific Name: *Brassica nigra*

Common Name: Black mustard

Family: Brassicaceae

Characteristics: Annual. Hairs sparse to dense, stiff, especially below. Stems 30-200 cm, generally branched distally. Leaf basal pinnately lobed, with sharp margins, fine to coarse teeth generally pointing outward to tipward. Distal leaves smaller, without petiole, and tapered base, not lobed. Flower sepals 4-6 mm; petals 7-11 mm, 3-4.5 mm wide.

Flowering Period: April - September

Nativity: Invasive; Moderate

Location in Bolsa Chica: H P T [Common]

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Photos taken by Ron Vanderhoff
(Upper Left) San Onofre State Beach - Winter
(Top Left, Upper Right, and Center) San Juan Creek, Dana Point - Spring

Scientific Name: *Brassica rapa*

Common Name: Field/common mustard

Family: Brassicaceae

Characteristics: Annual, biennial. Erect, with 0 to few hairs. Stems 30-100 cm, simple or branched. Leafs basal pinnately lobed, lateral lobes 2-4 pairs, terminal lobe obovate, wavy to coarse teeth generally pointing outward. Distal leaves cauline without petiole, base lobed, generally clasping. Flowers overtopping buds; sepals 4-6.5 mm, petals 6-11 mm, 3-6 mm wide.

Flowering Period: January - May

Nativity: Invasive; Limited

Location in Bolsa Chica: H M [Few]

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Photos taken by Ron Vanderhoff
(Upper Left) Coal Canyon, Chino Hills State Park - spring
(Left & Lower Right) PCH Huntington Beach - Winter; (Upper Right) OC Great Park - Winter

Scientific Name: *Brassica tournefortii*

Common Name: Sahara mustard

Family: Brassicaceae

Characteristics: Annual. Branched from the base more or less, stem, leaves densely stiff-hairy. Stems 30-70 cm long. Basal leaves rosette, persistent, petioled, pinnately lobed, with fine to coarse teeth generally pointing outward to tipward, lateral lobe pairs 4-10; cauline leaves few, base tapered, not lobed. Flower sepals 2.5-4.5 mm; petals 4-7 mm, 1.5-2 mm wide.

Flowering Period: January - June

Nativity: Invasive; High

Location in Bolsa Chica: Nt St Sx [Few]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Bromus diandrus*

Common Name: Ripgut brome

Family: Poaceae

Characteristics: Annual. 15-120 cm tall. Leaf sheath glabrous or hairy; ligule 1-3 mm; blade 2-7 mm wide, hairy. Inflorescence 6-25 cm, more or less open; lower branches generally nodding, upper branches spreading to ascending; generally 1 inflorescence branch. Spikelet 25-70 mm, not strongly flattened; glumes without hairs and rough to the touch.

Flowering Period: February - July

Nativity: Invasive; Moderate

Location in Bolsa Chica: H M W [Abundant]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Bromus hordeaceus*

Common Name: Soft brome/chess

Family: Poaceae

Characteristics: Annual, 11-65 cm tall. Leaves are hairy, ligule (junction between sheath and blade) 1-1.5 mm long, and blade is 1.5-5 mm wide. Inflorescences are 2.5-13 cm, dense, with branches erect to spreading. Spikelets are 12-22 mm, not strongly flattened, lemma 6.5-10 mm long and 1.9-2.5 mm wide, glabrous or hairy. Awns are 4-10 mm long.

Flowering Period: April – July

Nativity: Invasive; Limited

Location in Bolsa Chica: M T [Common]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Bromus madritensis ssp. rubens*

Common Name: Red/foxtail brome

Family: Poaceae

Characteristics: Annual, 10-50 cm tall. Leaves are glabrous or hairy, ligules are 1-3 mm long and leaf blades are 1-4 mm wide. Inflorescences are erect to ascending branches, obovoid (upside-down egg), dense. Spikelets have 3+ sterile florets, overlapping at maturity.

Flowering Period: February – June

Nativity: Invasive; High

Location in Bolsa Chica: H T [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Insets) Spring; (Main) Summer

Scientific Name: *Cakile maritima*

Common Name: European sea rocket

Family: Brassicaceae

Characteristics: Annual to perennial. Stems prostrate or mound-forming to erect, less than or equal to 80 cm. Cauline leaves broadly ovate to lanceolate, petioled. Flower sepals 4-5.5 mm; petals 8-14 mm. Leaves look a little bit like *Ambrosia chamissonis*, but *C. maritima* leaves are more fleshy, stiff, and tend to be a darker green in color. *C. maritima* also has stout seed pods, while *A. chamissonis* has distinct, non-white flowers.

Flowering Period: May - November

Nativity: Invasive; Limited

Location in Bolsa Chica: Nt R St Sx T [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Carpobrotus edulis*

Common Name: Iceplant; Hottentot fig

Family: Aizoaceae

Characteristics: Perennial. Stems less than 3 m. Leaves widest below middle, not covered with a whitish/bluish waxy or powdery film. Flower pedicelled; sepals 3-4 cm, sharp-triangular in cross section, outer angle serrate near tip; petals 3-4 cm.

Flowering Period: More or less all year

Nativity: Invasive; High

Location in Bolsa Chica: H L Nt R St Sx W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Left & Upper Right) Spring; (Lower Right) Fall

Scientific Name: *Centaurea melitensis*

Common Name: Maltese starthistle; Tocalote

Family: Asteraceae

Characteristics: Annual. 10-100 cm, more or less gray-hairy, resin-dotted. Generally 1 stem, distally more or less branched, winged. Leaves covered more or less with matted hairs, rough to the touch, minutely hairy with short crinkled hairs; proximal leaves (closest to base) 2-15 cm, entire to lobed; distal (leaves furthest from the base) entire or toothed. Many flowers, corolla yellow; disk flower corolla 10-12 mm. Most of the starsthistles popping up Spring 2016 are *C. melitensis*. They can best be told apart from *C. solstitialis* in that *C. melitensis* has smaller flowers, smaller thorns at the base of the flower, and its original basal leaves look much more like they're a mustard than a starthistle (lobes, large "heads" distally).

Flowering Period: April – July

Nativity: Invasive; Moderate

Location in Bolsa Chica: B C H Nt P T W [Common]

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Photos taken by Ron Vanderhoff
(Left & Upper Right) Coal Canyon, Chino Hills State Park - Spring
(Lower Right) Upper Silverado Canyon - Summer

Scientific Name: *Centaurea solstitialis*

Common Name: Yellow starthistle

Family: Asteraceae

Characteristics: Annual. 10 -100 cm, often rounded, more or less busy, gray matted hairs. Branched distally or throughout, winged. Leaves rough to the touch beneath with matted hairs; proximal 5-15 cm, 1-2 times lobed or dissected, generally none or withered at flower. Many flowers, corolla yellow, disk flower corolla 13-20 mm. *C. solstitialis* has both bigger flowers and much longer thorns (at base of flower) than *C. melitensis*.

Flowering Period: May – October

Nativity: Invasive; High

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(Left & Lower Right) North Main Divide Rd., Hwy 74 - Fall
(Upper Right) San Juan Creek, Dana Point - Fall

Scientific Name: *Chenopodium album*

Common Name: Lamb's quarter; White goosefoot

Family: Chenopodiaceae

Characteristics: Annual. 18-100 cm, many branched. Leaf blades 15-70 mm, ovate to more or less diamond-shaped, irregularly toothed, dull-green on upper leaf surface, powdery on lower leaf surface. Flower sepals ovate, white-margined, generally with a ridge, powdery, generally enclosing fruit, tip obtuse; stamens 5.

Flowering Period: June - October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological reserve
(Left & Upper Right) Spring; (Lower Right) Fall

Scientific Name: *Chenopodium murale*

Common Name: Nettle leaf goosefoot

Family: Chenopodiaceae

Characteristics: Annual. 15-50 cm. Leaves 0.8-4 cm, equilaterally triangular or diamond-shaped to ovate, toothed, dark green, shiny, base wedge-shaped. Flower sepals ovate, with ridge, red, powdery, tip acute to obtuse, enclosing fruit.

Flowering Period: All year

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H M St Sx [Common]

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Photos taken by Ron Vanderhoff
(Left) Bell View Trail - Winter; (Lower Left) Bell View Trail - Spring
(Upper Right) Meadow between Falcon and Blue Jay Camp Grounds - Summer
(Lower Right) Live Oak Trail and East of Oso Reserve - Fall

Scientific Name: *Cirsium vulgare*

Common Name: Bull thistle

Family: Asteraceae

Characteristics: Biennial 30-200 cm. Generally 1 stem, more or less openly branched in distal half, loosely matted hairs, often glandular-hairy. Upper leaf surface with slender appressed bristle-like prickles, sometimes with matted hairs when young, under surface with matted hairs; main veins prominently raise on the under surface; Proximal leaves 10-40 cm, proximal leaves without a petiole or winged petiole, shallowly to deeply 1-2 times lobed, main lobes generally rigidly spreading, spine-margined, otherwise entire, tip prolonged, leaves gradually reduced, long-decurrent as spiny wings, generally spinier than basal leaves, main spines less than or equal to 15 mm. Flower corolla 25-35 mm, purple, tube 18-25 mm, throat 5-6 mm, lobes 5-7 mm; style tip 3.5-6 mm.

Flowering Period: May – October

Nativity: Invasive; Moderate

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve- Spring

Scientific Name: *Conium maculatum*

Common Name: Poison-hemlock

Family: Apiaceae

Characteristics: Perennial. Plant 50-300 cm. Stems generally purple-spotted or streaked. Leaf petiole dilated; blade 15-30 cm, widely ovate, generally 2-pinnate. Inflorescence with many branches; peduncles 2-8 cm; bracts 4-6, having a long-tapered and sharp tip; bractlets 5-6, 1.5-2 mm, generally fused at base, thin, dry, and pliable, translucent or variously colored, but not green; rays 10-20, 1.5-5cm. Highly toxic alkaloids in plant; do NOT ingest and avoid sap when possible.

Flowering Period: April – July

Nativity: Invasive; Moderate

Location in Bolsa Chica: H [Common]

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(All Photos) Bolsa Chica Ecological Reserve- Spring

Scientific Name: *Convolvulus arvensis*

Common Name: Orchard morning glory

Family: Convolvulaceae

Characteristics: Perennial, originating from deep persistent root. Stem prostrate, tufted, or twining. Leaf generally 2-3 cm, arrowhead shaped, tip generally rounded. Inflorescence peduncles generally 2.5-6 cm, 1-several flowered, in flower generally curved or bent backward or downward; bracts more or less linear. Flower calyx 5 mm, lobes oblong; corolla 2-2.5 cm, funnel-shaped, white, pink on the upper surface, especially at folds, margins entire.

Flowering Period: March – October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H [Few]

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Photos taken by Ron Vanderhoff
(Left) Huntington Beach - Fall
(Upper Right) Alexander Canyon, South Laguna - Summer
(Lower Right) Laguna HIlls - Summer

Scientific Name: *Cortaderia selloana*

Common Name: Uruguyan Pampas grass

Family: Poaceae

Characteristics: Perennial, dioecious. Stems are densely clumped and erect, 2-4 m long. Leaves are generally basal and have glabrous to hairy sheaths. The blades are 3-12 mm wide, flat and folded, with a sharp margin. The leaves are also blue-green on the underside. Inflorescences are 30-130 cm long and variously colored, and are plume-like. Spikelets are laterally compressed, 15-17 mm long with 4-8 florets. Lemma can be both hairy and glabrous.

Flowering Period: September - February

Nativity: Invasive; High

Location in Bolsa Chica: S Sx [Few]

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Photos taken by Ron Vanderhoff
(Left) San Diego Creek Channel - Summer
(Upper Right) Laguna Beach - Winter; (Lower Right) Caspers Park - Winter

Scientific Name: *Cotula australis*

Common Name: Australian brassbuttons

Family: Asteraceae

Characteristics: Annual. Stems are semi-erect, 1-many from base, and branched throughout. The plant is 2-20 cm in wide. Leaves are petioled or sessile, with blades of 2-6 cm long, upside-down egg-shaped to spoon-shaped, with the base not sheathing. Flowers are 0.5-0.8 mm across, 12-40 in number, and are a dull white to pale yellow.

Flowering Period: January - May

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecolgoical Reserve
(Left & Upper Right) Spring; (Lower Right) Fall

Scientific Name: *Cotula coronopifolia*

Common Name: Common brassbuttons

Family: Asteraceae

Characteristics: Perennial. Plant is 5-40+ cm wide. Stems are prostrate to erect, rooting at nodes. Leaves are sessile, 2-7+ cm long, linear to lanceolate (upside-down teardrop) or oblong, with bases fused into sheaths around stem. Blades are resin-gland-dotted. Flowers are a bright yellow color, 1-1.5 mm across.

Flowering Period: March - December

Nativity: Invasive; Limited

Location in Bolsa Chica: C L (in nesting area) [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Cynodon dactylon*

Common Name: Bermuda grass

Family: Poaceae

Characteristics: Perennial from rhizomes or stolons. Stems are generally erect, with leaves having white-hairy ligules (junction of sheath and blade). Blades are less than 6 cm long, either glabrous or upper surface hairy. Inflorescences have generally 4-7 branches that are 2.5-5 cm long. Spikelets are about 2 mm, lemma (shell of flower) about 2 mm long, boat-shaped with margins hairy.

Flowering Period: June - August

Nativity: Invasive; Moderate

Location in Bolsa Chica: Nt St [Common]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Datura stramonium*

Common Name: Jimson weed

Family: Solanaceae

Characteristics: Annual, less than 100 cm big. Stems are about glabrous to sparsely hairy. Leaves are 5-15 cm long, 4-10 cm wide, ovate (egg-shaped), coarsely toothed to shallowly lobed. Flowers are erect. Calyx (sepals) are angled toward the base and have 5-7 mm lobes, whereas the flower as a whole is 6-9 cm across, glabrous, white or pale blue-purple, and lobes 8-10 mm. Fruit is prickly and is 25-35 mm wide, glabrous. Listed as toxic in The Jepson Manual 2012.

Flowering Period: June – August

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H [Few]

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(Main Photo) Photo taken by Ron Vanderhoff
Lake Forest - Fall
(Upper Left) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Dimorphotheca fruticosa*

Common Name: Trailing African daisy

Family: Asteraceae

Characteristics: Perennial, subshrub. Stems are sometimes much greater than 1 m long, trailing to ascending, sparingly branched, rooting at ground contact. Leaves are 4-8 cm long, approximately fleshy. Proximal leaves (toward base) are wing-petioled, while distal leaves (toward top) are about sessile. Blade is oblanceolate (tear-drop) to obovate (upside-down egg), and are entire or sparingly dentate (coarse teeth). Inflorescences have usually 1 head, 4-7 cm in diameter, with bell-shaped cup. Flowers are either pink-purple to rose-purple on top and purple or deep rose-purple on bottom, OR they can be white on top and blue-purple on bottom, sometimes deep violet at base.

Flowering Period: March – July

Nativity: Non-native; Neither invasive nor naturalized

Location in Bolsa Chica: St Sx [Few]

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Photos taken by Ron Vanderhoff
(Left) Mission Viejo - Winter
(Upper Right) Laguna Canyon - Spring
(Lower Right) Mission Viejo - Winter

Scientific Name: *Ehrharta erecta*

Common Name: Panic / Upright veldtgrass

Family: Poaceae

Characteristics: Perennial. Stems are 40-100 cm long, erect or ascending, sometimes rooting from lower nodes. Leaves have striated sheaths that glabrous to hairy, and also have ligules (junction of sheath and blade) that can be 3 mm long. Blades are 5-15 cm long, 4-15 mm wide, flat and glabrous, with margins often wavy. In florescences are erect, with spikelets sessile to subsessile, and stalks generally less than 1 m and stiff. Spikelets are 3-6 mm long and have sterile lemma (not opened).

Flowering Period: March – June

Nativity: Invasive; Moderate

Location in Bolsa Chica: Unknown

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Emex spinosa*

Common Name: Devil's thorn

Family: Polygonaceae

Characteristics: Annual. Stems are decumbent to erect, 30-60 cm long. Leaves are alternate, have petioles of 1.5-4 cm, blades of 3-13 cm long and 1-12 cm wide. Inflorescences can either be in bunches or spike-like. Flowers have perianth parts (sub-stem that holds flower) of 5-6, fused or free. Main identifier is the presence of the fruit, which is small, spiny (1.5-3 mm), and has a 3-angled perianth. They are small and can be hidden, but these give away the "thorn" part of Devil's Thorn.

Flowering Period: May – December

Nativity: Invasive; Noxious Weed

Location in Bolsa Chica: Nt St Sx T [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Erodium botrys*

Common Name: Broad leaf filaree

Family: Geraniaceae

Characteristics: Annual. Stems are prostrate to ascending, 10-90 cm long, short-hairy. Leaves are lobed to dissected, lobes are about 8-10 mm wide. Lower leaves are 3-15 cm long, blades are about equal to petiole length, egg-shaped to oblong in outline, glabrous to sparsely hairy. Flowers have 10-13 mm long sepals with bristly tips, generally more petals than sepals, and are pink. They also have 5 petals, each one with 3 purple lines leading to the center with the middle being the longest. Fruiting bodies are 8-11 mm long, narrow, have 3-4 glabrous ridges, and the style column (coming from the fruiting body) is 5-12 cm long. This *Erodium* has the biggest flowers of the species we have.

Flowering Period: Mar - July

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H Nt [Common]

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Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Erodium cicutarium*

Common Name: Red-stemmed filaree

Family: Geraniaceae

Characteristics: Annual. Stems are decumbent to ascending, 10-50 cm long, approximately glandular-hairy. Leaves are compound, with lower leaves 3-10 cm long and larger blades than petioles. They are ovate (egg-shaped) to oblanceolate in outline, and sparsely hairy. Leaflets are 9-13 in number and are deeply dissected. Ultimate segments are1-2 mm wide. Flowers are pink to purple, with generally darker veins. Sepals are 3-5 mm long with bristly tips. Fruit body is 4-7 mm long and style column is 2-5 cm long. This *Erodium* differs from botrys in that the flower petals are thinner, more separated from each other, and don't have the three purple lines.

Flowering Period: February – September

Nativity: Invasive; Limited

Location in Bolsa Chica: C Nt P Sx T [Abundant]

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Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Erodium moschatum*

Common Name: White-stemmed filaree; Green-stemmed filaree

Family: Geraniaceae

Characteristics: Annual to biennial. Stems are decumbent to ascending, 10-60 cm long, and short hairy. Leaves are compound with lower leaves 5-15 cm long, larger blades than petioles, oblong to obovate, sparsely hairy. Leaflets are 11-15 in number, lobed to shallowly divided, with ultimate segments 1-4 mm wide. Flowers are pink with petals that are 10-15 mm long. Sepals are 5-10 mm long with tip strigose (sharp, appressed hairs). Fruiting body is 5-8 mm long, style column is 3-7 cm. This *Erodium* can easily be identified when in flower because the flowers are bunched together at the tops of stems, which is unlike the other *Erodium* species we have.

Flowering Period: February – September

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H M W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Eucalyptus globulus*

Common Name: Blue-gum

Family: Myrtaceae

Characteristics: Tree. Stems are less than 60 m, straight. Bark sometimes persistent near base, but otherwise shed in irregular strips, smooth, blue-gray. Twigs are approx. square or winged. Leaves are 10-30 cm long, 2.5-4 cm wide, generally narrowly lanceolate, often sickle-shaped and aromatic. Inflorescences have 1 flower in axils and are appr. sessile. Flowers are about 4-ribbed, obconic, glaucous, bud cap flat-hemispheric. Fruits are over 2 cm long, 4-ribbed, and are warty with wide rims and thickened.

Flowering Period: October – January

Nativity: Invasive; Limited

Location in Bolsa Chica: H P [Few]

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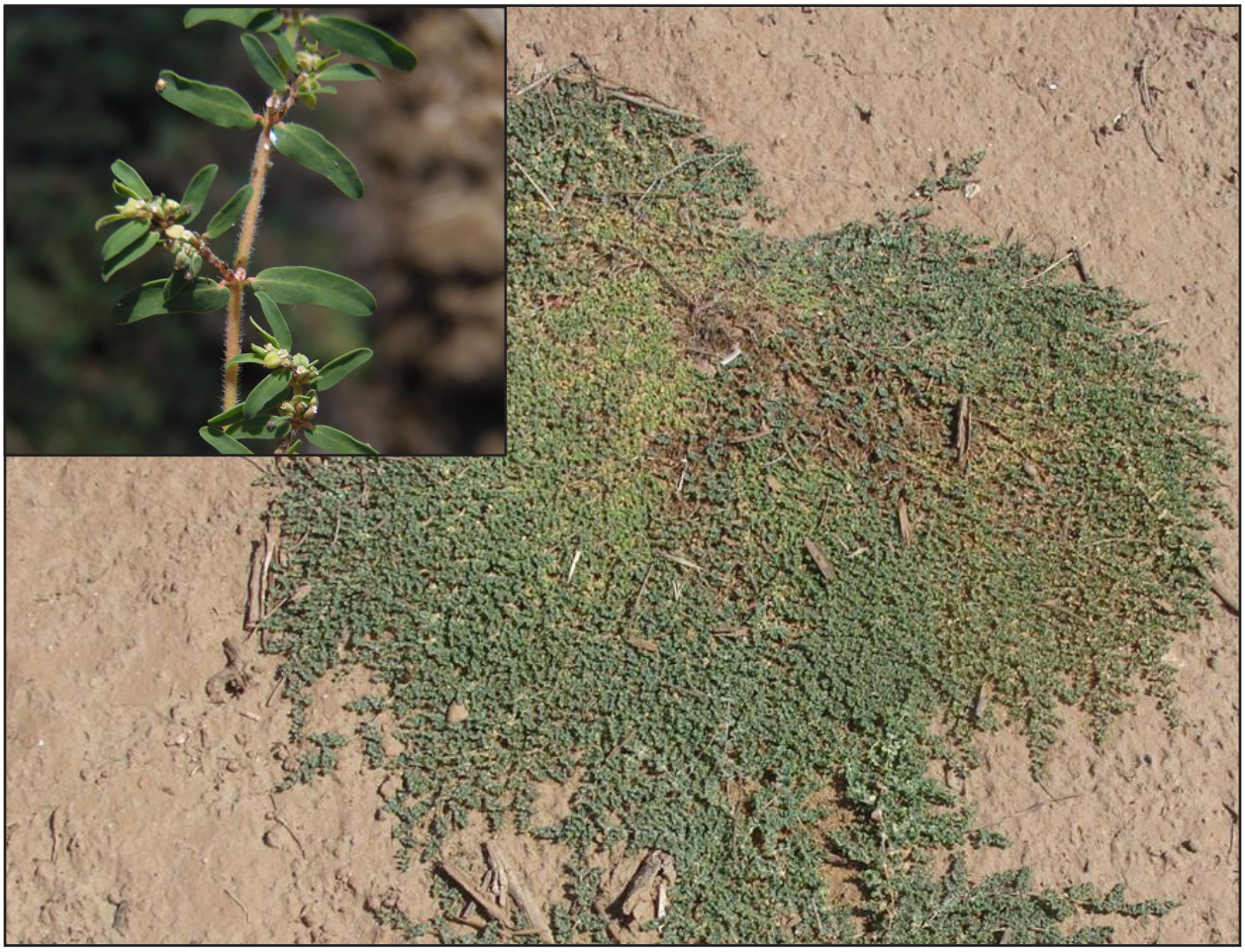

All photos taken by Ron Vanderhoff
(Upper Left) Newport Beach - Fall
(Main Photo) Veeh Reserve and Mill Creek, Laguna Hills - Fall

Scientific Name: *Euphorbia maculata*

Common Name: Spotted spurge

Family: Euphorbiaceae

Characteristics: Annual. Stems are prostrate and hairy. Leaves are 4-17 mm long, separated stipules, fringed, with ovate to oblong blades, acute to obtuse, finely toothed, and hairy to becoming glabrous. Inflorescences are dense on short, lateral branches. The involucres (shell of the flower) are less than 1 mm long obconic and hairy. They are scalloped, white to pink. Flowers number 4-5, and fruit is less than 1.5 mm long, ovoid, lobed, strigose. Leaves are distinguishable because of a red spot in the center of the leaves.

Flowering Period: April – October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Festuca perennis* (sometimes known as *Lolium multiflorum*)

Common Name: Italian rye grass

Family: Poaceae

Characteristics: Annual. Stems are less than 75 cm long, glabrous or scabrous (rough to touch) only near inflorescences. The inflor. are 4-25 cm long, less than 2 cm wide, approx. dense, and the base is often enclosed in sheath at maturity. Branches number 1-3 per node, and spikelet stalks are slender and less than 1 mm long. The spikelets themselves are 5-11.5 mm long, with 3-6 florets and lemma 4.5-6.5 mm long and awns that are 5-15 mm long.

Flowering Period: February – May

Nativity: Invasive; Moderate

Location in Bolsa Chica: W [Few]

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(All Photos) Huntington Beach, taken by Ian McGregor

Scientific Name: *Ficus benjamina*

Common Name: Weeping fig

Family: Moraceae

Characteristics: NOT IN JEPSON / CAL FLORA. Tree, can grow to 50 feet tall. They have sturdy shapes and have glossy, oval to elliptic leaves that are up to 4 inches long. Twigs arch gracefully and stems have a milky sap (when broken). It is widely grown in the tropics as an ornamental and is common in city parks.

Flowering Period: March – April

Nativity: Nonnative. Planted.

Location in Bolsa Chica: Unknown

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(All Photos) Harriett Wieder Regional Park - Fall

Scientific Name: *Foeniculum vulgare*

Common Name: Sweet fennel

Family: Apiaceae

Characteristics: Perennial, taprooted, 0.9 – 2 m tall, glabrous, glaucous, and is anise or licorice-scented. Stems are erect, branched, and solid. Leaves have petioles that are 7-14 cm long, conspicuously sheathing. Leaf blades are 30-40 cm wide, triangular-ovate, finely pinnately dissected, with segments that are 4-40 mm long and thread-like. Inflorescences are compound umbels (radiating from common point), no bracts, 15-40 rays that are 1-4 cm long. Flowers have wide petals, yellow, with narrow tips.

Flowering Period: May – September

Nativity: Invasive; High

Location in Bolsa Chica: B H W [Common]

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(All Photos) Harriett Wieder Regional Park - Spring

Scientific Name: *Glebionis coronaria* (formerly *Chrysanthemum coronarium*)

Common Name: Crown daisy

Family: Asteraceae

Characteristics: Annual. Stems are erect, generally branched, and are less than or equal to 100 cm in total length. Leaves are alternate, sessile, toothed or 1-3 pinnately lobed or dissected, and are less than 8 cm, obovate. Inflorescence heads are 2-6 cm in diameter. Ray flowers are yellow or cream with yellow base, while disk flowers are about 4-5 mm across. This species can take over a landscape, as was seen at Harriett and Warner in Spring 2016.

Flowering Period: March – July

Nativity: Invasive; Moderate

Location in Bolsa Chica: H W [Abundant]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Hedypnois cretica*

Common Name: Cretanweed

Family: Asteraceae

Characteristics: Annual, with silky sap. Herbage finely brisly, hairs minutely forked or barbed at tip. Stems are branched and spreading, and are 5-40 cm in length. Leaves are alternate, entire to dentate or pinnately lobed, 5-18 cm long, and oblong to oblanceolate. Inflorescence heads 1 to several in open clusters, with involucres (the structures holding the flowers) 8-10 mm long. Flowers are 8-40+ in number, yellow with dark spots on the outside of the petals, withering readily.

Flowering Period: February – June

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Nt T [Few]

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Photos taken by Ron Vanderhoff
(Top Left) San Clemente -Winter; (Top Right) San Juan Creek Channel - Fall
(Bottom Left & Right) Aliso Park - Summer

Scientific Name: *Helminthotheca echioides* (formerly *Picris echioides*)

Common Name: Bristly Ox-tongue

Family: Asteraceae

Characteristics: Annual or biennial. Plant has milky sap, herbage with rigid hairs, most of which have 2-4 hooked branches at tip, often also with scattered prickles. Stems are 1, branched, leafy, coarse, stout, 30-200 cm long. Leaves are alternate, 5-20 cm long, oblong, entire, coarsely toothed, or shallowly lobed. Towards the top, the leaves are sessile. Inflorescence heads are 2-4 cm in diameter, with an involucre of 15-20 mm long. Many flowers, yellow, readily withering.

Flowering Period: Year-round

Nativity: Invasive; Limited

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(All Photos) Silverado trail to Bedford Peak - Summer

Scientific Name: *Herniaria hirsuta var. cinerea*

Common Name: Hairy rupturewort

Family: Caryophyllaceae

Characteristics: Annual, approx. prostrate, taprooted. Stems are generally 5-20 cm long. Leaves are opposite below, alternate above, oblanceolate to obovate, veins 0-1. Leaf blades are 3-12 mm long. Inflorescences have 3-8 flowers, which are 1.2-1.8 mm across.

Flowering Period: Spring - Fall

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(Left) Peter's Canyon Reserve - Summer
(Upper Right) Sheep Hills, Aliso Viejo - Spring; (Lower Right) El Modena Hills - Winter

Scientific Name: *Hirschfeldia incana*

Common Name: Mediterranean hoary mustard

Family: Brassicaceae

Characteristics: Annual to perennial with simple hairs. Stems are 40-150 cm long with hairs reflexed. Leaves are basal rosette, pinnately lobed, 5-25 cm long obovate to lanceolate, lateral lobes are in 1-6 pairs, cauline dentate to pinnately lobed, petioled or sessile, base not lobed. Inflorescences are much-elongated. Flowers have sepals spreading to reflexed while the petals are obovate, yellow, and clawed. Fruit is narrow, cylindric, appressed to stem.

Flowering Period: April - October

Nativity: Invasive; Moderate

Location in Bolsa Chica: M [Few]

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(Above) Bolsa Chica Ecolgoical Reserve - Spring

Scientific Name: *Hordeum murinum ssp. leporinum*

Common Name: Hare barley

Family: Poaceae

Characteristics: Winter annual. Stems are 30-110 cm long and erect. Leaf blades can get up to 8 cm long and 1-6 mm wide. Inflorescences are generally green at flower, becoming purple. Central spikelets have stalks of 1-2 mm with lemma awn generally less than lateral floret awn. Lateral spikelets have scabrous palea (sheathing bracts of flowers) on lower half.

Flowering Period: February – May

Nativity: Invasive; Moderate

Location in Bolsa Chica: H M W [Abundant]

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(Above) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Limonium perezii*

Common Name: Canary Islands Sea Lavender

Family: Plumbaginaceae

Characteristics: Perennial. Grows from rhizomes, erect from 15-45 cm tall. Leaves have larger petioles than blades, and blades are 4-15 cm long and 2.5-7 cm wide. They are round to wide-ovate, basically entire with simple to 3-branched hairs. Inflorescences are winged, clusters 2-flowered, crowded in terminal 1-3 cm of branch tips. Flowers have calyx (sepals) of about 10 mm across, blue-purple, with the overall flower bigger than the calyx and white in color.

Flowering Period: March – September

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C L Nt R St [Common]

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(All Photos) Bolsa Chica Ecolgoical Reserve - Spring

Scientific Name: *Lysimachia arvensis* (formerly *Anagallis arvensis*)

Common Name: Scarlet pimpernel

Family: Myrsinaceae

Characteristics: Annual, spreading. Stems are 5-40 cm long and freely branched. Leaves are opposite or whorled, blades are 5-20 mm long, ovate to elliptic, upper leaves lanceolate to ovate (egg-shape). Flowers have parts in fives, 4-7 mm across, and are salmon, blue, or blue-white in color. Petals have many marginal hairs. This plant is TOXIC to humans and livestock, according to the Jepson Manual 2012.

Flowering Period: March – May

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C M S T [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Summer; (Main Photo) Spring

Scientific Name: *Malephora crocea*

Common Name: Finger mescomb; Coppery iceplant

Family: Aizoaceae

Characteristics: Perennial, shrub. Stems are stout, pale, corky, and nodes are often rooting. Leaves are opposite, fused at base, triangular to round. They are on short shoots, 2.5-6 cm long and 6 mm wide. They can also be linear-elliptic or linear-oblanceolate, pale glaucous-green, sometimes red. Pedicel (stalk of the actual flower) is 1-6 cm long. Flowers have at least 2 sepals, petals are orange on top and purple on bottom, or entirely yellow or orange. Many seeds, 1 mm long, 0.8 mm wide.

Flowering Period: March - December

Nativity: Non-native; Naturalized

Location in Bolsa Chica: M Nt [Few]

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(All Photos) Harriett Wieder Regional Park - Spring

Scientific Name: *Malva nicaeensis*

Common Name: Bull mallow

Family: Malvaceae

Characteristics: Annual, biennial. Stems are generally decumbent to ascending, 20-60 cm long, sparsely stellate hairy. Leaves have stipules (appendage at base of petiole) that are 4-6 mm long and 3-5 mm wide. Leaf blades are 3-12 cm wide, round to reniform, crenate, wavy, with shallow/acute lobes that number 5-7 (leaf shape is palmate). Inflorescences have 1-4 flowers in leaf axils. Sepals are veiny and 4-6 mm long, whereas the petals are 5-12 mm long and are pink to blue-violet, but turn blue when dry. Veins are dark and filament tube hairy. Fruit has 7-10 segments and have sharp outer edges.

Flowering Period: March – June

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Malva parviflora*

Common Name: Cheeseweed mallow

Family: Malvaceae

Characteristics: Annual. Stems are prostrate, decumbent, ascending to generally erect, 20-80 cm long, widely branched, hairy near tips, glabrous below. Leaves are palmately shaped, with stipules 4-5 mm long and 2-3 mm wide. Blades are 2-8 cm wide, round to reniform, 5-7 angled to lobed, and rounded teeth. Inflorescences have 2-4 flowers in leaf axils. Flowers have sepals that are about 3 mm, much larger in fruit, with lobes spreading, widely ovate. Petals are 3-5 mm, pink to generally white. Fruit is 6-7 mm in diameter with 10-11 segments, glabrous to hairy, wrinkled, net-veined, ribbed on back, and toothed.

Flowering Period: March – May

Nativity: Non-native; Naturalized

Location in Bolsa Chica: H M W [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Top right) Spring; (Lower right) Summer

Scientific Name: *Marrubium vulgare*

Common Name: White horehound

Family: Lamiaceae

Characteristics: Perennial. Stems are ascending to erect, 10-60 cm long. Leaves have a larger blade than petiole with blades that are 1.5-5.5 cm long, wide-ovate to round, margin crenate (margins with shallow, rounded teeth). Flowers have sepals that are 4-6 mm long with short-soft-hairy lobes (10 in total).

Flowering Period: March - November

Nativity: Invasive; Limited

Location in Bolsa Chica: B H M P [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Lower Right) Fall; (Top) Winter

Scientific Name: *Matthiola incana*

Common Name: Tenweeks/Purple stock

Family: Brassicaceae

Characteristics: Annual or biennial, occasionally subshrub. Stems are 25-60 cm long, occasionally woody at base. Leaves are dentate to pinnately lobed, linear to oblong, entire to wavy-margined, middle (4-16 cm long and 0.8-1.8 cm wide). Flowers are fragrant, sepals are 1-1.5 cm long, petals are 2-3 cm long and 0.7-1.5 cm wide, obovate to ovate, and purple/violet/pink/white. Fruits are 6-12 cm long and 4-6 mm wide, somewhat constricted between seeds.

Flowering Period: March – June

Nativity: Non-native; naturalized

Location in Bolsa Chica: St [Few]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Medicago polymorpha*

Common Name: Bur clover

Family: Fabaceae

Characteristics: Annual, generally glabrous. Stems are prostrate, mat-forming, or ascending, 10-50 cm. Leaflets are 10-20 mm long, wedge-shaped to obcordate, length is 1-2x the width. Inflorescences are 2-6 flowered. Flowers have sepals that are about 3 mm long, and main flowers are 3.5-6 mm across / yellow. Fruits are ovate to short-cylindric, gray to black, prickly with hairs. Bur-like fruits lodge in fur. This plant is common in fields, and the yellow flowers are really, really tiny. This is the smallest of the clovers we have at Bolsa Chica.

Flowering Period: February - June

Nativity: Invasive; Limited

Location in Bolsa Chica: H M W [Common]

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(All Photos) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Medicago sativa*

Common Name: Alfalfa

Family: Fabaceae

Characteristics: Perennial. Stems generally erect, 20-80 cm. Leaves are lanceolate, entire to sharply toothed, with leaflets being 1-2.9 cm long and narrowly lanceolate to obovate. Inflorescences are spike-like, 8-30 flowered, and longer in fruit. Flowers are 6-11 mm across and are violet to yellow-green. Fruit is generally coiled 2-3 turns (or straight or sickle-shaped), light to dark yellow-brown, leathery, and no hairs or prickles.

Flowering Period: April - October

Nativity: Naturalized

Location in Bolsa Chica: H [Few]

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Photos taken by Ron Vanderhoff
(All Photos) San Diego Creek Channel, Irvine - Summer

Scientific Name: *Melilotus albus*

Common Name: White sweetclover

Family: Fabaceae

Characteristics: Annual, biennial. Plants are glabrous or strigose (dense, short, appressed hairs). Stems are generally erect, 0.5-2 m long. Leaves are odd-1-pinnate, bases fused to petiole, 3 leaflets that are 1-2.5 cm long, elliptic-oblong to obovate, approximately toothed. Inflorescences are slender, with axis generally 3-8 cm when flowers open. Flowers have sepals of 2 mm, whole flower is 3.5-5 mm across, and are white. Fruits are 3-5 mm long with a network of lines.

Flowering Period: May – September

Nativity: Non-native; Naturalized

Location in Bolsa Chica: W [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Melilotus indicus*

Common Name: Annual yellow sweetclover

Family: Fabaceae

Characteristics: Annual, approximately glabrous. Stems are spreading to erect, 10-60 cm long. Leaflets are 1-2.5 cm long, oblanceolate to wedge-shaped-obovate, generally sharply dentate (serrated). Inflorescences are slender and compact, with the axis usually 1-2 cm when flowers open. Flowers have sepals that are 1-1.5 mm long, overall flowers are 2.5-3 mm and yellow. Fruits are 2-3 mm, bumpy, or with faint lines.

Flowering Period: April – October

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C H Nt S T W Y [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Summer; (Lower Left) Fall
(Top right) Winter; (Main) Summer

Scientific Name: *Mesembyranthemum crystallinum*

Common Name: Crystalline iceplant

Family: Aizoaceae

Characteristics: Annual / biennial. Plant is glabrous, and stems are trailing / forked. Leaves have blades of 2-20 cm, ovate to spoon-shaped, lower to cordate. Inflorescences are in bunches and sessile. Flowers have 5 equal sepals and petals aging pink. Seeds are brown and rough. The main identification for this species is the bright salt crystals that line the stems and flowers. *M. crystallinum* is notorious at Bolsa Chica because of this adaptation – by being able to take up the salt water and then exude the salt as crystals, the plant can take up much more water than others and thus thrive for a longer period of time and are more successful at placing seed. When you squeeze or step on the stems and flowers, a substantial amount of water comes out.

Flowering Period: March – October

Nativity: Invasive; Moderate

Location in Bolsa Chica: C L M Nt P Sx T W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Fall; (Lower Left & Main Photo) Summer

Scientific Name: *Mesembryanthemum nodiflorum*

Common Name: Slender-leaf iceplant

Family: Aizoaceae

Characteristics: Annual, biennial, glabrous. Stems are prostrate to ascending, branched from base, 15-20 cm. Leaves have blades 1-2 cm long and linear. Inflorescences are 1-flowered with short flower stalks (pedicels). Flowers have 5 equal sepals, with petals aging white to yellow. Fruits are fine-papillate, and seeds are white to light brown, smooth. This iceplant, unlike the *M. crystallinum*, does not have the big salt crystals that the plant exudes. However, this species is also a problem with taking over a landscape, and it can be more difficult to remove (when young) due to the absence of a thick taproot and thinner leaves than the *crystallinum*.

Flowering Period: April – November

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C L M Nt P W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Myoporum laetum*

Common Name: Lollipop/ Ngaio tree

Family: Scrophulariaceae

Characteristics: Shrub, tree, glabrous. Plant is 3-10 m tall, many-branched, broadly spreading. Young leaves are bronze-green and sticky. Leaves are alternate/sometimes opposite, evergreen, petioled (or sometimes sessile) with conspicuous glands. They are less than 10 cm long, generally lanceolate, finely serrated toward top of plant, bright green, and fleshy. Inflorescences have 2-4 flowers per axil. Flowers are 10 mm in diameter, are bell-shaped, white, and purple-spotted. Lobes are 4-5.5 mm long, are glabrous underneath and long-hairy adaxially (on top). Fruit is 5-10 mm long, ovoid, fleshy, pale to dark red-purple. This plant is TOXIC, as its leaves and fruits may be fatal to livestock according to the Jepson.

Flowering Period: Early spring

Nativity: Invasive; Moderate

Location in Bolsa Chica: H M P R St Sx [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Left & Lower Right) Summer; (Upper Right) Fall

Scientific Name: *Nicotiana glauca*

Common Name: Tree tobacco

Family: Solanaceae

Characteristics: Shrub/small tree. Plant is glabrous, glaucous, with soft wood. Leaves are 5-21 cm long, petioled, generally ovate (egg-shaped), and inflorescence bracts are linear and less than 5 mm in length. Flowers have sepals that are about 10 mm, unequal, and triangular. The overall flower is 30-35 mm across, cylindric, and yellow. Fruits are 7-15 mm. Seriously toxic to livestock according to Jepson 2012.

Flowering Period: April – August

Nativity: Invasive; Moderate

Location in Bolsa Chica: H P Sx T [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Olea europea*

Common Name: Olive

Family: Oleaceae

Characteristics: Deciduous. Shrub-like tree is generally less than 10m, gnarled trunk with gray bark. Leaf stalk 2-7mm, blade 20-70mm and 6-16mm wide, narrow and tapers equally at both ends, darkish green on the top of the leaf and silvery on the bottom. Flowers are white, 2.5-4 mm across, have 4 lobes, are ovate-elliptical, and have margins inrolled. They usually grow together, from 1-3 in number.

Flowering Period: Feb-June

Nativity: Invasive; Limited

Location in Bolsa Chica: W [Few]

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(All Photos) - Bolsa Chica Ecological Reserve
(Lower Left) - Winter; (Main Photo) - Spring

Scientific Name: *Oxalis pes-caprae*

Common Name: Bermuda Buttercup

Family: Oxalidaceae

Characteristics: Perennial. Bulbs many on rhizomes. Plant tip <2.5cm, white to brown; stem generally underground, vertical and short; leaf count under 40, basal rosette at enlarged stem tip, purple spotted (leaves); flower lanceolate to oblong, tips with two orange tubercles; petals <2.5cm, yellow; common garden weed. Possibly toxic to sheep. Known as sourgrass because when the stem is chewed, it tastes like a lemon. Chewing the stem is ***not*** toxic to humans.

Flowering Period: January- May

Nativity: Invasive; Moderate

Location in Bolsa Chica: M Nt T [Common]

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Photos taken by Ron Vanderhoff
(Lower Left) Anaheim Bay, Surfside - Spring
(Above) Crystal Cove State Park - Spring

Scientific Name: *Parapholis incurva*

Common Name: Curved Sickle Grass

Family: Poaceae

Characteristics: Annual. Stem decumbent to erect, 3-35cm; leaf sheath 1-4cm, blade 1-10cm, 1-3mm wide, generally in-rolled. Inflorescences are 2-15 cm long, spikelets number about 3-20. Generally above highest tide level.

Flowering Period: April- June

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: Unknown

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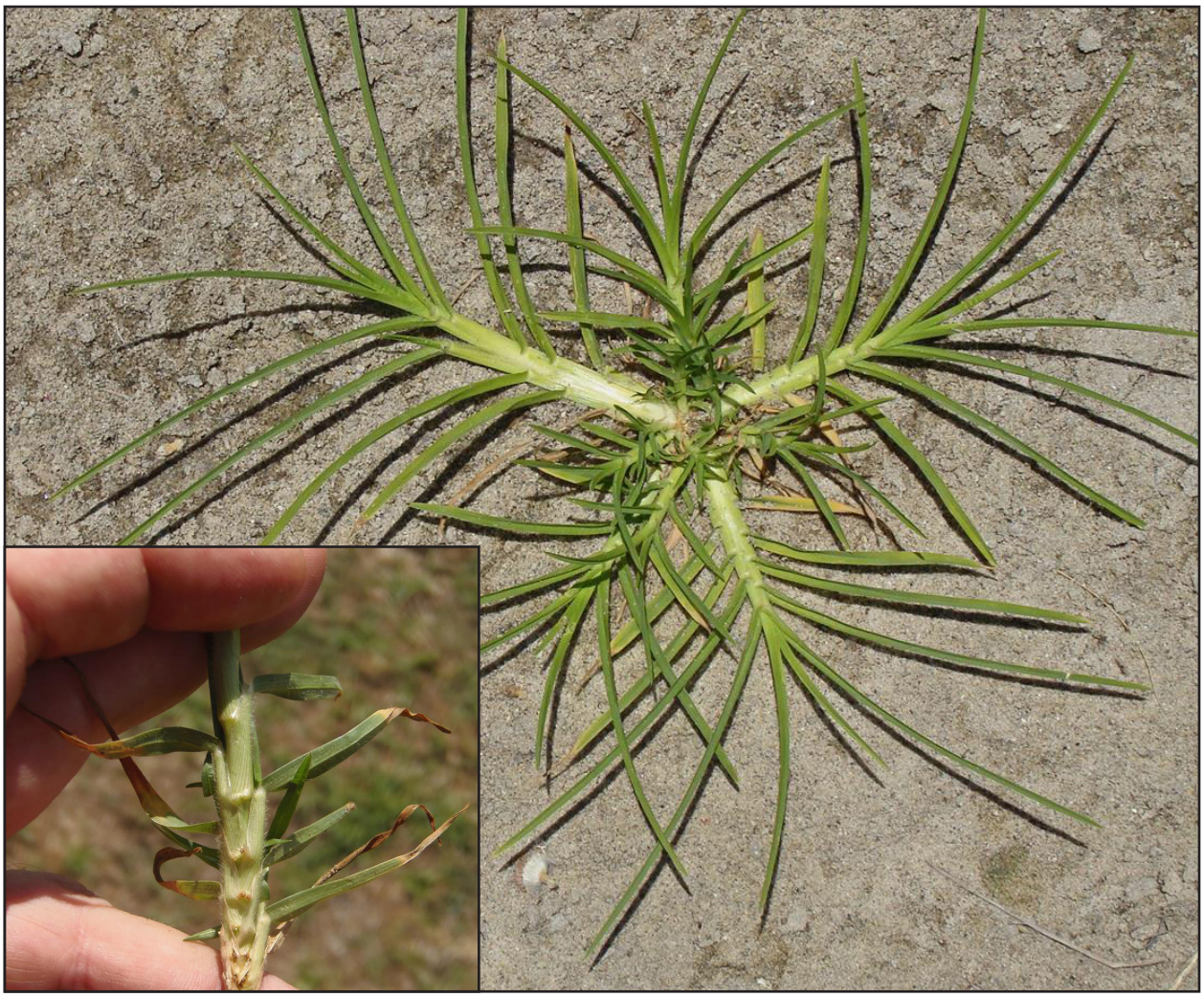

Photos taken by Ron Vanderhoff
(Lower Left) Peter's Canyon Wash, Near Walnut, Irvine - Summer
(Above) Huntington City Beach - Summer

Scientific Name: *Pennisetum clandestinum*

Common Name: Kikuyu grass

Family: Poaceae

Characteristics: Annual-perennial. Matt-forming; vegetative stem spreading, stem 0.3-4.5dm; leaf sheath 1-10cm, can be hairy or non-hairy, leaf blade 1.5-3cm, 1-6mm wide, upper surface non-hairy to short-hairy, leaves flat or folded; branches <0.5cm; inner and outer inflorescence bristles 6-15, <11mm, terminal bristle 10-14mm; spikelet 10-20mm, lanceolate, grey-green; often used as fodder or as lawn grass.

Flowering Period: All Year

Nativity: Invasive; Limited – Noxious weed

Location in Bolsa Chica: Unknown

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Bolsa Chica Ecolgoical Reserve - Fall

Scientific Name: *Pennisetum setaceum*

Common Name: Crimson Fountain Grass

Family: Poaceae

Characteristics: Annual or perennial. Stem 4-15dm; leaf sheath 4-8cm, non-hairy, blade 20-65cm, 2-3.5mm wide, upper surface non-hairy; inflorescence panicle-like, 8-30cm, pink to dark red; outer bristles 28-65 count, 1-19mm, inner bristles 8-16 count, 8-27mm; spikelet 4.5-7mm, lanceolate; escaped ornamental or aggressive weed.

Flowering Period: March- December

Nativity: Invasive; Moderate

Location in Bolsa Chica: found on W [Few]

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Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Phoenix canariensis*

Common Name: Canary Island Palm

Family: Arecaceae

Characteristics: Tree. Leaves are pinnately compound, petiole generally armed, bases persistent on trunk. Leaflet margins are folded upward, proximal (near stem) are occasionally reduced and spine-like. The leaves themselves are generally 5-7m. Inflorescences are within crown, fewer in number than leaves, and flowers are borne singly. Flowers have fused sepals at base and petals are free. Fruit about 2cm, rounded to ovate, brown, pulp thin.

Flowering Period: October- April

Nativity: Invasive; Limited

Location in Bolsa Chica: M P [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Spring; (Lower Left & Right) Summer

Scientific Name: *Plantago arenaria* (also called *Plantago indica*)

Common Name: Sand/Indian plantain

Family: Plantaginaceae

Characteristics: Annual. Stem 2-6cm, branched; leaf cauline, opposite, appearing clustered at nodes, 2-4.5cm, thread-like or linear; inflorescence 1-2cm, round to elliptic; peduncle 3-7cm, tips long, slender; flower petals narrowly oval, held outward; flower about 2mm, narrowly ovate; seed 2 count, 2.5mm. Often used for bird seed and poultry feed.

Flowering Period: July - November

Nativity: Nonnative; Neither invasive nor naturalized

Location in Bolsa Chica: H St Sx T [Common]

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Plantago coronopus*

Common Name: Buckhorn plantain

Family: Plantaginaceae

Characteristics: Annual, biennial. Hairs coarse; leaf 4-25cm, narrowly lanceolate, gradually tapered to base, deeply pinnately lobed. Inflorescence generally 1-6 count, 5-50cm including peduncle; spike 2-22cm, narrowly cylindrical. Flowers are hairy tube in middle, 3 lobes generally spreading, 1 usually erect, about 1 mm long, lance-ovate. Seed generally 3 count.

Flowering Period: April - July

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(Upper Right) Laguna Canyon - Summer
(Lower Right) Harding Canyon, CNPS - Spring
(Main Photo) Seaview Park, Niguel Hill to below Aliso Park - Winter

Scientific Name: *Plantago lanceolata*

Common Name: English Plantain

Family: Plantaginaceae

Characteristics: Perennial. Leaf 5-25cm, lanceolate to oblong, tapered to petiole; inflorescence 20-80cm, spike 2-8cm; peduncle grooved, green midrib not reaching tip; flower 2-2.5mm, ovate. Flowers have some fused sepals, general flower lobes spreading and are 2-2.5 mm long, and are ovate (egg-shaped) to acute. Seed numbers either 1 or 2.

Flowering Period: April - August

Nativity: Invasive; Limited

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(Right) Christianitos Creek, San Clemente - Spring
(Upper & Lower Left) Mission Viejo Country Club - Fall

Scientific Name: *Plantago major*

Common Name: Common Plantain

Family: Plantaginaceae

Characteristics: Annual or perennial. Leaf blade 5-18cm, widely elliptic to cordate. Inflorescence generally 3-7 count, 5-60cm including peduncle. Spikes are generally 3-20cm, linear- cylindrical. Flowers have lobes that are spreading to reflexed about 0.5 mm in length, lance-ovate. Seed 5-16 count <1mm.

Flowering Period: April - September

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: Unknown

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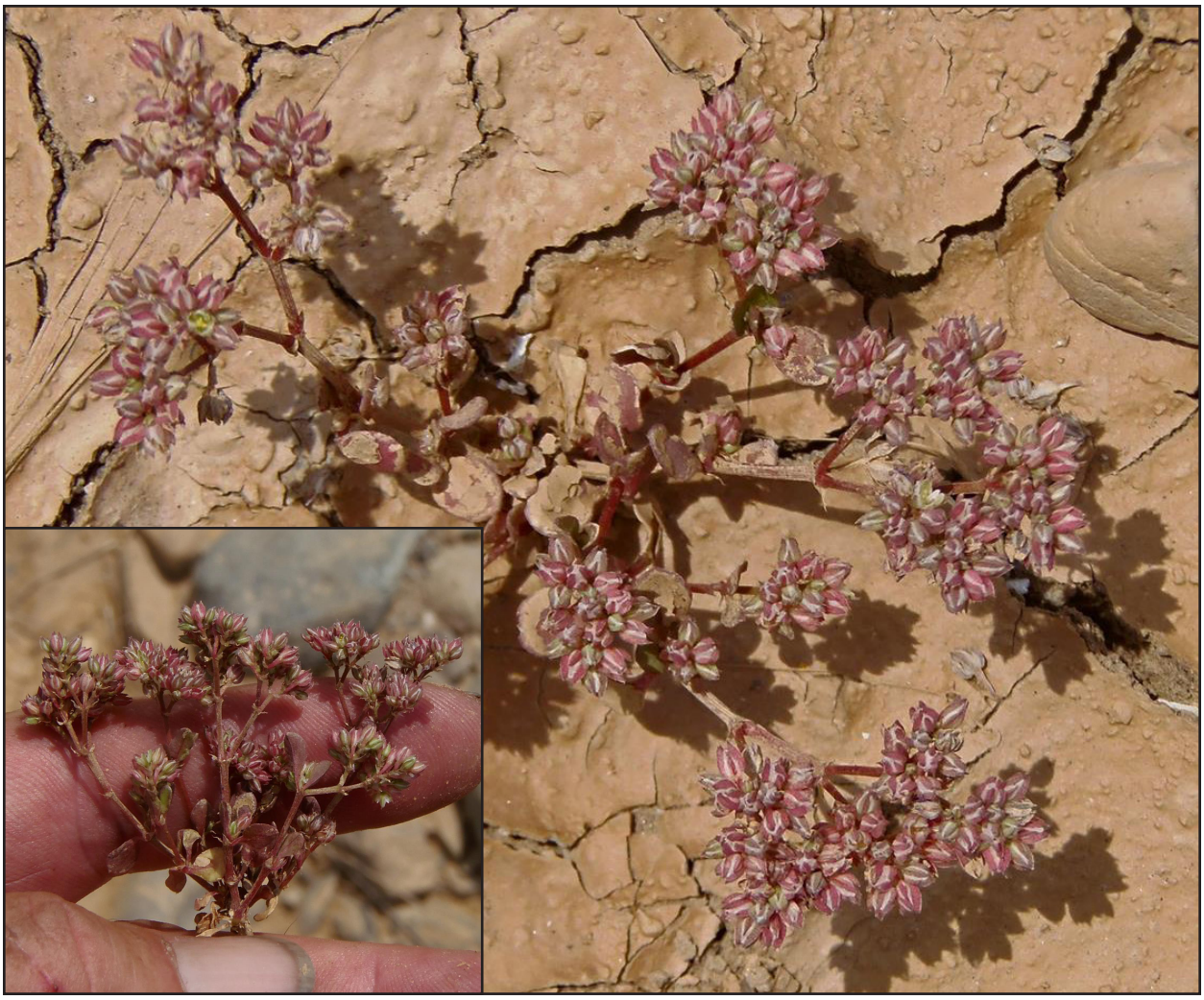

Photos taken by Ron Vanderhoff
(All Photos) Santa Ana Mountains - Summer

Scientific Name: *Polycarpon tetraphyllum var. tetraphyllum*

Common Name: Four-leaved allseed

Family: Caryophyllaceae

Characteristics: Annual matted or tufted, taprooted. Stems are prostrate to erect, often much branched (especially above), and are 3-17 cm long. Leaves are opposite, appearing whorled or not, no petiole or tapered to blade. The blades are 4-12 mm long, have 1 vein, and are obovate (upsidedown egg). Flowers have sepals that are lanceolate to ovate with widely triangular awns, and linear to elliptic petals.

Flowering Period: Spring – Fall

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Polypogon monspeliensis*

Common Name: Annual beardgrass; Rabbitsfoot

Family: Poaceae

Characteristics: Annual. Stems are simple, decumbent to erect, and are 20-100 cm in length. Leaves have open sheaths, irregularly toothed and minutely hairy. Blades are 1-20.5 cm long and 4-6 mm wide. Inflorescences are 1-17 cm long, plume-like, and dense. Spikelets have tiny stalks (less than 0.5 mm) and awns that are 2-10 mm long (glumes) or 0.5-4.5 mm long (lemma). This grass got its name because the grass stalk heads look like fuzzy rabbit feet.

Flowering Period: April - August

Nativity: Invasive; Limited

Location in Bolsa Chica: W [Few]

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Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Pulicaria paludosa*

Common Name: Spanish false fleabane

Family: Asteraceae

Characteristics: Annual to perennial. Plant is 60-120 cm long from short rhizomes, stiff to soft-hairy. Leaves are alternate, 1-3 cm long linear to oblong, entire, and often rolled under to clasping. Inflorescences have many heads, with stalks 1-3 cm long and the involucre (bell-shaped cup that subtends the flower) with a length of 4-5 mm and 6-10 mm in diameter. Ray flowers are 3.5-4 mm across with a 1.5-2 mm tube.

Flowering Period: July - October

Nativity: Nonnative; Naturalized

Location in Bolsa Chica: H [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Winter

Scientific Name: *Quercus ilex*

Common Name: Holly Oak

Family: Fagaceae

Characteristics: Tree to 20 m, evergreen. Trunk bark in small plates, gray-black; twigs gray-brown, densely woolly. Leaves are 3-8 cm long with petioles 10-25 mm in length. Leaf blades are lanceolate to ovate, adaxially (upside) glossy dark green, abaxially (underside) approx. yellow or somewhat white-woolly. Leaf margins are entire to shallowly spine-toothed. Fruit is a cup 7-15 mm wide, 5-7 mm deep, thin, top- or cup-shaped, and scales thin. Nut is 15--25 mm, ovoid to conic-oblong, shell hairy inside at least at tip; mature in year 1. This plant is minorly TOXIC via dermatitis that can occur from the acorns, according to CalFlora.

Flowering Period: May - August

Nativity: Neither invasive nor naturalized

Location in Bolsa Chica: Sx [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Fall

Scientific Name: *Raphanus sativus*

Common Name: Wild Radish

Family: Brassicaceae

Characteristics: Annual-biennial. Sparsely hairy to hairless, plant 40-120cm tall; stem branched distally, 40-130cm; leaf basal blade 2-60cm, 1-20cm wide, oblong, obovate (narrow end at the base), oblanceolate (more pointed end at base), spoon shaped outline, lateral lobes 1-12 count, dentate (serrated edge); flower sepals 5.5-10mm, petals 15-24mm, 3-8 mm wide, flower petals purple/pink with yellow in the middle or white with purple/rose veins; fruit lanceolate (long, wider in the middle), occasionally ovoid; proximal segment 1-3.5mm, pedicel spreading to ascending, immature fruit is edible and tastes like the root of the culinary variety; seed 2.5-4, spherical to ovoid.

Flowering Period: May - July

Nativity: Invasive; Limited

Location in Bolsa Chica: H M Nt W [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Lower Right & Left) Spring; (Upper Right) Winter

Scientific Name: *Ricinus communis*

Common Name: Castor Bean

Family: Euphorbiaceae

Characteristics: This plant is HIGHLY TOXIC and is fatal when ingested. Shrub, tree-like; 1-3m, hairless, sap clear; stem trunk ascending to erect, branched above; leaf on upper side of the stem, alternating, peltate, 1-1.5cm, sheath-like, green to purple/red, sheds leaves annually, petiole 10-30cm, blade 10-50cm, sharp toothed; inflorescence panicle, terminal, 1 -3dm; staminate flower sepals 3-5 count, many stamens, clustered; pistillate flower sepals 3-5 count, ovary 3 chambered; fruit 1.2-2 cm diameter, green, red at maturity; seed 9-22mm, smooth, shiny, mottled; usually in rich or sandy, moist soils. Castor oil is used for lubricant to make soap while in medicine, ricin is one of the most toxic natural chemical compounds known, thus it is best to generally avoid plant, especially the sap and open fruits.

Flowering Period: all year

Nativity: Non- native; Limited

Location in Bolsa Chica: Sx [Few]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Upper Right) Winter
(Lower Right) Summer

Scientific Name: *Rumex crispus*

Common Name: Curly Dock

Family: Polygonaceae

Characteristics: Annual to perennial; hairless or papillate and hairy; stem 4-10dm, prostrate, or generally erect to ascending, often ridged, red/brown in front; leaf blade 15-30cm generally basal and cauline (arising on upper part of the stem), wavy margins, inner perianth lobe 3.5-6, pedicel 4-8mm; inflorescence axillary or generally terminal, generally panicle like, as fruit matures inflorescences turn reddish brown; flower enlarged, hardened, veiny, covering front; fruit hairless, black or dark brown to red; during the tender growth period, leaves and their stalks can be cooked as a substitute for rhubarb. Despite being invasive, this plant is actually a wetland-indicator!

Flowering Period: All year

Nativity: Invasive

Location in Bolsa Chica: H M St W [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left & Upper Right) Fall; (Lower Right) Summer

Scientific Name: *Salsola tragus*

Common Name: Russian thistle; tumbleweed

Family: Chenopodiaceae

Characteristics: Annual. <1.5m, hairless to bristly, when dead readily breaking at base, generally tumbling; stem branched from base, branches wiry, longitudinally ribbed, generally red-striped; leaf opposite to alternate below, deciduous, alternate above, 8-52mm, in age leathery, base margin translucent, tip sharp-pointed to spiny; inflorescence bract surrounding front, cylindrical spiny, in age broad, thick; flower sepals 2-5mm, tips not stiff, anthers 0.6-1.3mm; fruit generally persistent, 2.9-8.4mm diameter including wings, wings 5 count, opaque, veins dark to pale, margins minutely toothed to unevenly smooth; seed initially grows vertically but usually falls over, creating a 90 degrees bend at root crown, the stem resumes a vertical grown pattern and eventually becomes woody; after it dries, the main stem easily breaks off and the plant rolls away, spreading seeds as it tumbles.

Flowering Period: July - October

Nativity: Invasive; Limited

Location in Bolsa Chica: C H L M P R St W [Abundant]

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(All Photos) Bolsa Chica Ecological Reserve
(Right & Upper Left) Fall; (Lower Left) Spring

Scientific Name: *Schinus terebinthifolius*

Common Name: Brazilian pepper tree

Family: Anacardiaceae

Characteristics: Tree. Plant 5-10m, branches ending in thorn or not; leaf 8-15 cm, simple or compound; leaflets sessile, 5-20 count, leathery, resinous, oblong, entire to toothed; inflorescence panicle, axillary or terminal; flower sepals, petals white to yellow, stamens 10 count; fruit drupe, spherical, leathery, shiny, generally pink to red, pulp resinous to oily, aromatic, smaller fruit clusters occur more generally over tree giving it a reddish appearance; tree has capability of producing countless root sprouts when the roots are injured or the tree is removed.

Flowering Period: May - September

Nativity: Invasive; Limited

Location in Bolsa Chica: H Nt St Sx [Few]

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Photos taken by Ron Vanderhoff
(Right & Upper Left) Bell Canyon and Oak Trails, Casper's Park - Winter
(Left) Newport Beach - Spring

Scientific Name: *Schismus barbatus*

Common Name: Common Mediterranean grass

Family: Poaceae

Characteristics: Annual. Stem generally 2-16cm, erect to prostrate; leaf generally basal, tufted, hairless, blade <2mm wife, thread-like; inflorescence panicle-like, laterally compressed, axis breaking above glumes and between florets, dense, 1-7cm, 0.5-2(3)cm wide, spikelet glume 4-5mm, glumes lanceolate (long, wider in the middle); fruit remain loosely enclosed by papery lemma and palea and are dispersed by wind, fruits translucent, separate above the glumes, which remain attached to the inflorescence stem.

Flowering Period: March - April

Nativity: Invasive; Limited

Location in Bolsa Chica: Unknown

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Photos taken by Ron Vanderhoff
(Left & Upper Left) Elsinore Peak - Spring
(Upper Right) Corona del Mar - Winter (Lower Right) San Onofre State Beach - Winter

Scientific Name: *Senecio vulgaris*

Common Name: Common groundsel

Family: Asteraceae

Characteristics: Annual. Plant 1-6dm, small, shallow rooted, annual garden weed; Stem simple or branched; leaf 2-10cm, 0.3-4cm wide, ovate to oblanceolate (more pointed end at base), alternate, mostly basal to evenly distributed, middle generally reduced, sessile, often clasping; inflorescence heads radiate, generally black tipped, bell shaped, linear to narrowly lanceolate (long, thicker in the middle), hairy or non-hairy; ray flower 0-21 count, ray generally yellow (white, pink/purple); disk flower 3-100+ count, corolla tubular to bell- shaped, lobes erect to recurved, pale to deep yellow, triangular ovate; fruit 2-2.5mm, cylindrical, generally show ribbed or angled, densely hairy.

Flowering Period: February - July

Nativity: Non-native; Naturalized

Location in Bolsa Chica: S St [Few]

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(All Photos) Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Sisymbrium irio*

Common Name: London rocket

Family: Brassicaceae

Characteristics: Annual to perennial. Plant 15-50cm tall; Stem 1-7.5dm, erect, hairless or sparsely hairy at base; leaf basal rosette or not, simple, dentate; cauline 1.5-15cm, oblanceolate (more pointed end at base) to oblong in outline, petioled or sessile, base not lobed, terminal lobe is longer than the lateral lobe and is usually arrowhead or spear-shaped at the base; inflorescence elongated; flower sepals 2-2.5mm, tips not horned, petals 2.5-4mm, 1-1.5mm wide, law 1-1.5mm, erect to spreading, lateral pair generally sac-like at base, tips horned or not, petals yellow (white, pink), clawed; fruit 2.5-5cm, 0.9-1.1mm wide, pedicel ascending to spreading 5-20mm, linear or awl-shaped, cylindrical, unsegmented; seed 4-90count, 0.8-1mm, oblong, wingless; often forms dense stands and is the most abundant *Sisymbrium* in the river- bottom area.

Flowering Period: January - April

Nativity: Invasive; Moderate

Location in Bolsa Chica: H M W [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Left) Fall; (Right) Winter

Scientific Name: *Sonchus asper ssp. asper*

Common Name: Prickly sow thistle

Family: Asteraceae

Characteristics: Annual to perennial. Sap milky; stem erect, smooth, distally branched; leaf basal and cauline (upper part of the stem), proximal (clasping) lobes of leaves rounded, strongly curved to coiled, alternate, entire to toothed and coarsely pinnate-lobed, cauline generally sessile, leafs strongly ear-shaped at the base and armed with mild prickles; inflorescence involucre swollen at base, short triangular, inner series linear, tapered; flower many, ligule yellow, readily withering; fruit generally flat, beakless, white bristles, 3 ribbed per side, otherwise smooth; prefers moist areas.

Flowering Period: All year

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C [Few]

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Photos taken by Ron Vanderhoff
(All Photos) San Juan Creek - Spring

Scientific Name: *Sonchus oleraceus*

Common Name: Common sow thistle

Family: Asteraceae

Characteristics: annual. Plant 10-140cm; stem often proximally branched; leaf generally cauline (upper part of stem), generally tapered or abruptly wing-petioled; cauline 5-35cm, distal often widest at base, proximal clasping lobes acute, not curled or coiled, blades nearly all lobed, lobes variable in width, terminal lobe often widely arrowhead- shaped; inflorescence peduncle 0.5-7cm, hairless to bristly- glandular, sometimes cottony, involucre 10-13mm; fruit 2.5-3.8mm, flat, 2-4 ribbed, cross wrinkled, dark brown, pappus bristles; among the most common garden weeds throughout the temperate world.

Flowering Period: All year

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C L [Few]

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Photos taken by Ron Vanderhoff
(Upper Left & Right) Newport Beach - Spring (Lower Left) Lake Forest Nature Park - Spring

Scientific Name: *Spergularia bocconi*

Common Name: Boccone's sand spurry

Family: Caryophyllaceae

Characteristics: Annual. Stem lower main generally 0.5-1mm diameter; leaf fleshy, generally 0-2 count per axillary cluster, stipules generally1.5-4.5mm, generally deltate, dull, white to tan, tip acute to short acuminate; inflorescence generally 1-6+ count; fruit 2.7-5.3mm; seed 0.4-0.6mm, light brown, sculptured, minutely papullate; flower light lavender/pink; in disturbed, moist soils, it can become locally dominant.

Flowering Period: Spring

Nativity: Non-native; Naturalized

Location in Bolsa Chica: Unknown

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(All Photos) Huntington Beach - Spring

Scientific Name: *Tecoma capensis*

Common Name: Cape honeysuckle

Family: Bignoniaceae

Characteristics: Bush, shrub, or large vine. Plant grows to 3-5 ft tall and can spread to 6 ft, but if trained as a vine it can reach 20-30 ft. Leaves are compound, pinnate, dark green and glossy. The leaflets are serrated and pointed with a tropical appearance. Flowers are in terminal clusters of trumpet-shaped orange or red-orange flowers. They are 2 inches long, with anthers/filaments protruding out a big.

Flowering Period: All year, but generally November – January

Nativity: Non-native; Planted

Location in Bolsa Chica: Unknown

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(All Photos) Bolsa Chica Ecological Reserve - Summer

Scientific Name: *Tetragonia tetragonioides*

Common Name: New Zealand spinach

Family: Aizoaceae

Characteristics: Annual. Stem prostrate, many spreading, +30cm; leaf alternate or sometimes basal opposite, 2-5(10)cm, blade triangular-ovate margin entire, wavy; inflorescence flowers 1 or 2-3 clusters, axillary, sessile; flower sepals 3-5 count, tiny and yellow-green, petals are absent, generally bisexual, self-fertile, 5mm; fruit nut like, four fattish sides, 8-10mm diameter, angled, with 2-5 horns; seed pear shaped, brown; covered with tiny-water filled warts.

Flowering Period: April - September

Nativity: Invasive; Limited

Location in Bolsa Chica: M Nt P St Sx T [Common]

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(All Photos) Bolsa Chica Ecological Reserve
(Upper Left) Winter; (Lower Left) Fall
(Right) Spring

Scientific Name: *Urtica urens*

Common Name: Dwarf nettle; Annual stinging nettle

Family: Urticaceae

Characteristics: Annual. Weak, stinging hairs, 10-60(80)cm; stem branched or not, erect, spreading or decumbent; leaf opposite, lanceolate to cordate, toothed, prominently 3-5 veined from base, crystals round to elongate, leaf blade 18-40(90)mm, elliptical to oval, the edge with large slender teeth; staminate flower sepals 4 count, free, green, sharp, bristly; pistillate flower sepals 4 count, free; fruit lenticular to deltate, enclosed by 2 inner sepals. Can get minor rash on skin when directly handled.

Flowering Period: January - July

Nativity: Non-native; Naturalized

Location in Bolsa Chica: C H P R [Common]

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Bolsa Chica Ecological Reserve - Spring

Scientific Name: *Washingtonia robusta*

Common Name: Washington fan palm

Family: Arecaceae

Characteristics: Tree. Leaf petiole 1-2m, blade 1-2m, generally persistent as brown skirt, segments 40-60, margins folded upward, with thread-like fibers, petiole red/brown, sharply toothed throughout; inflorescence 3m; fruit drupe, oblong or ovate, black; wide at the base but slender above; coyotes eat large quantities of the fruits, and birds commonly harvest them, a bird's digestive system cannot accommodate the large fruit pit and is regurgitated after the pulp is digested.

Flowering Period: April - June

Nativity: Invasive; Moderate

Location in Bolsa Chica: W [Few]

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