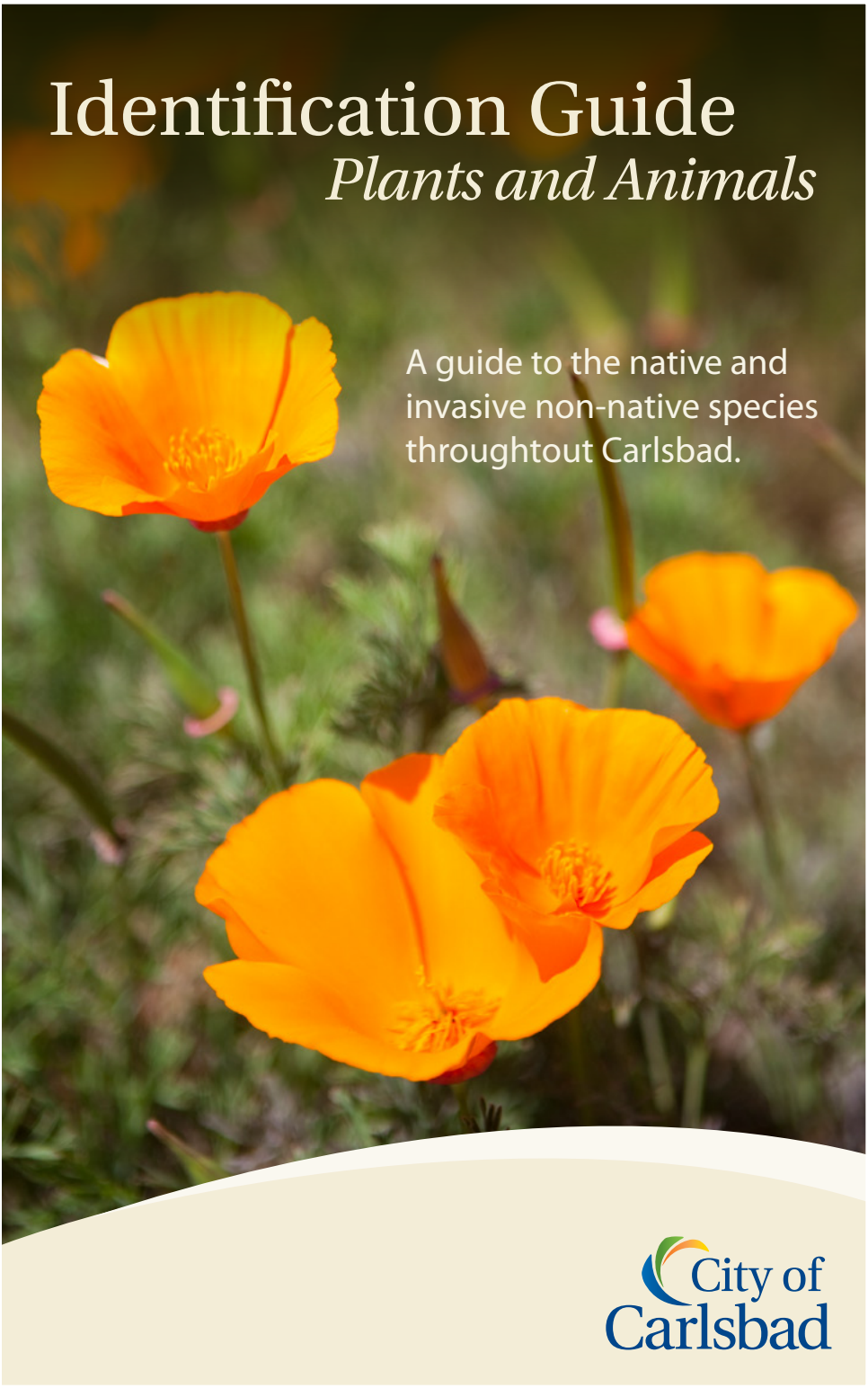
# Identification Guide
## *Plants and Animals*



A guide to the native and invasive non-native species throughtout Carlsbad.

City of Carlsbad

## Additional Resources

**Books**

*San Diego County Native Plants*, 3rd ed.
James Lightner, 2011. San Diego Flora, San Diego, California.

*Native Plants, Torrey Pines State Reserve and Nearby San Diego County Locations.*
Margaret Fillius. 2005. Fillius Interests, San Diego, California.

*Field Guide to Amphibians and Reptiles of the San Diego Region*,
Jeff Lemm. 2006. California Natural History Guides.

*San Diego County Bird Atlas.*
Philip Unitt, 2004. Proceedings of the San Diego Museum of Natural History, No. 39. Temecula, California.

*San Diego County Mammal Atlas.*
Tremore, S. 2017. Sunbelt Publications.

**Online Resources**

Carlsbad Habitat Management Plan (HMP), City of Carlsbad
http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=27193

Field Guide, San Diego Museum of Natural History
http://www.sdnhm.org/science/field-guide/

Field Guide to San Diego County, Tom Chester
http://tchester.org/sd/sd.html

Plants of San Diego County, Michael Simpson, SDSU
http://www.sci.sdsu.edu/plants/sdpls/

California Invasive Plant Inventory,
California Invasive Plant Council (Cal-IPC)
http://www.cal-ipc.org/ip/inventory/

Identification: Weed Photo Gallery, University of California
http://www.ipm.ucdavis.edu/PMG/weeds_intro.html

San Diego Plant Atlas Project, San Diego Museum of Natural History
http://www.sdplantatlas.org/

Wildflowers and Other Plants of Southern California
http://www.calflora.net/bloomingplants/

Insect Identification: Insects and Spiders of California
http://www.insectidentification.org/insects-by-state.asp?thisState=California

California Reptiles and Amphibians
http://www.californiaherps.com

All About Birds, Cornell Lab of Ornithology
http://www.allaboutbirds.org

Bird Friends of San Diego County, Scott Streit
http://www.bird-friends.com/

# About This Guide

The purpose of this guidebook is to provide you with a broad understanding of the vegetation communities, habitats, species, and preserve system in Carlsbad. You will learn how to identify the most threatening invasive species, as well as native species for each broad habitat type (upland and wetland/riparian). In addition, you will learn to distinguish between native and non-native species that look similar to one another, and to identify sensitive native species that must be protected.

## How to Use This Guide:

The following is a list and description of the main topics of this guidebook

- Description of vegetation communities — including a list of indicator species (species that characterize a given vegetation community)
- Key species (sensitive and non-sensitive) for each vegetation community
- High and moderate risk invasive species as defined by the California Invasive Plant Council (Cal-IPC)
- Other resources (books, websites, etc.)
- Color codes:

Title bars

- Brown are invasive species
- Blue are native riparian/wetland species
- Green are upland native species

Species Labels

- Red are high risk invasive species
- Orange are moderate risk invasive species
- Purple are native species that can be confused with invasive species
- Pink are sensitive native species.

## Definitions and Acronyms

**CHP:** Chaparral habitat

**CSS:** Coastal sage scrub habitat

**Habitat:** A place and associated environmental conditions (including food, water, and shelter) suitable for the survival and reproduction of a species or community of species. Note that "habitat" is often used interchangeably with "vegetation community," however, "habitat" not only refers to the plant community, but also things like climate, soil, hydrology, and other characteristics.

**HMP**: Habitat Management Plan. The HMP identifies and provides for the City-wide protection of sensitive plants, animals, and habitats, while allowing compatible development. The HMP is a regulatory document that identifies the City's obligations in protecting its HMP preserve system.

**HMP Preserve:** Preserves that have been conserved permanently and are subject to HMP regulations.

**Narrow Endemic Species:** Native species with a highly restricted distribution or habitat requirements. Disturbance to a single narrow endemic species population could jeopardize the continued existence of that species.

**Native Species:** A species that is indigenous to a given region or ecosystem. In this guide, native species refers to species that are native to San Diego County.

**Naturalized Species:** A non-native species that has become adapted to an area outside of its natural range, and can survive on its own without any human assistance or cultivation.

**Riparian Habitat:** An ecosystem that is located along a permanent or ephemeral river or stream. Riparian habitat consists of hydrophilic (adapted to wet conditions) vegetation. Riparian habitat is a type of wetland.

**Sensitive Biological Resources:** Habitats and species that are under threat and are legally protected by state and/or federal law.

**Upland Habitat:** Terrain that is not affected by the water table or surface water such that riparian (*hydrophilic*) vegetation does not persist.

**Vegetation Communities:** An association of plants, each occupying a specific ecological niche, inhabiting a common environment, and interacting with one another (e.g., grassland community).

**Wetland:** Areas that are periodically or permanently covered by surface or ground water, and support vegetation adapted for life in saturated soil.

**Wildlife Movement Corridor:** Narrow strips of habitat that are used by wildlife to move from one area of habitat to another.

**W/R:** Wetland and/or riparian habitat

# Vegetation Communities

## Riparian/Wetland

Riparian vegetation communities consist of plant species that require moisture in the soil. Riparian plant communities include southern willow scrub, mulefat scrub, salt marsh, and freshwater marsh. Typical native plant species include arroyo willow (*Salix lasiolepis*), Goodding's black willow (*Salix gooddingii*), sycamore (*Platanus racemosa*), cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), cattail *(Typha* spp.), bulrush (*Schoenoplectus* spp. and *Bolboschoenus* sp.), rush (*Juncus* spp.), western ragweed *(Ambrosia psilostachya*), salt heliotrope (*Heliotropium curvassavicum*), and pickleweed (*Salicornia* spp., *Arthrocnemum* sp., and *Sarcocornia* sp.). Typical non-native species include giant reed (*Arundo donax*), tamarisk (*Tamarix* spp.) pampas grass (*Cortaderia* spp.), and curly dock (*Rumex crispus*).

## Upland

Upland vegetation communities are not associated with saturated soils and, therefore, are not characterized by plant species that require wet soils to grow. The most common upland communities in Carlsbad are coastal sage scrub, chaparral, and grassland.

**Coastal sage scrub** is characterized by low drought-deciduous species such as California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), coast monkey flower (*Mimulus aurantiacus*), california encelia (*Encelia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), coyote brush (*Baccharis pilularis*), deerweed (*Acmispon glaber*), and coast goldenbush (*Isocoma menziesii*).

**Chaparral** consists of evergreen and drought-deciduous (losing leaves during drought conditions) shrubs. The vegetation is generally much more dense than coastal sage scrub. Typical species include chamise (*Adenostoma fasciculata*), ceanothus (*Ceanothus* spp.), toyon (*Heteromeles arbutifolia*), mission manzanita (*Xylococcus bicolor*), and manzanita (*Arctostaphylos* spp.).

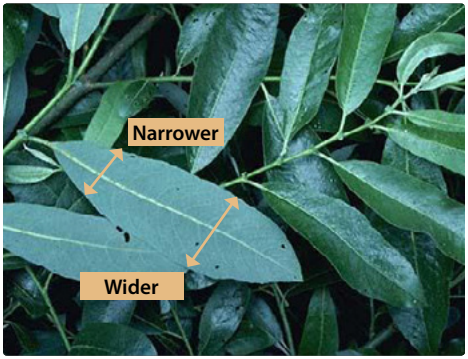
**Grassland** consists of grasses and forbs. Native species include needlegrass (*Stipa* spp.), coast range melic (*Melica imperfecta*), blue-eyed grass (*Sisyrinchium bellum*), and California poppy (*Eschscholzia californica*). Non-native species include bromes (*Bromus* spp.), oats (*Avena* spp.), and barleys (*Hordeum* spp.).

# Willows and Mulefat

**Mulefat (*Baccharis salicifolia*)**
Radial flowers (not catkins); leaves with 3 major longitudinal veins, sticky, aromatic leaves; little to no leaf stem.

**Willows vs. Mulefat**
Willows have catkins for flowers. Leaves with one main vein, not generally sticky, leaf stem present.

**Black Willow (*Salix gooddingii*)**
Underside of leaves same color as top of leaves.

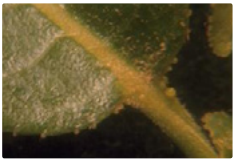



**Arroyo Willow (*Salix lasiolepis*)**
Underside of leaves lighter color. Leaf half near tip is wider than leaf half near base.



High Risk Invasive Species  Moderate Risk Invasive Species

**Red Willow (*Salix laevigata*)**
Bud scales in axis of upper leaves with sharp point. No bumps on leaf stem. Underside of leaf lighter color.



**Shining Willow (*Salix lucida* var. *lasiandra*)**
Bud scales with rounde tip. Bumps (glands) on leaf stem. Underside of leaf lighter color.

**Sandbar Willow (*Salix exigua*)**
Leaves 10 times longer than wide.

**Bulrush** (***Schoenoplectus californicus***)
Triangular stems in x-section

**Pickleweed**
(***Salicornia pacifica***)

**Cattail** (***Typha latifolia***)
Rounded stems

**Salt Heliotrope**
(***Heliotropium curvassavicum***)

**Cocklebur**
(***Xanthium strumarium***)

**Western Ragweed**
(***Ambrosia psilostachya***)



High Risk Invasive Species  Moderate Risk Invasive Species

Belding's Savannah Sparrow
(*Passerculus sandwichensis beldingi*)

Song Sparrow
(*Melospiza melodia*)

Yellow Warbler
(*Dendroica petechia*)

Yellow-breasted Chat
(*Icteria virens*)

Common Yellowthroat
(*Geothlypis trichas*)

Least Bell's Vireo
(*Vireo bellii pusillus*)

Native Species (Commonly Confused)  Sensative Native Species

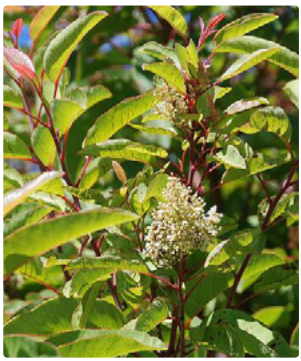
# Coastal Sage Scrub Shrubs

California Sagebrush
(*Artemisia californica*)

California Buckwheat
(*Eriogonum fasciculatum*)

Deerweed
(*Acmispon glaber*)

Coyote Brush/Bush
(*Baccharis pilularis*)



Laurel Sumac
(*Malosma laurina*)

Broom Baccharis
(*Baccharis sarothroides*)

Lemonadeberry
(*Rhus integrifolia*)



High Risk Invasive Species

Moderate Risk Invasive Species

Coast Goldenbush
(*Isocoma menziesii*)

Black Sage
(*Salvia mellifera*)

Saw-toothed Godenbush
(*Hazardia squarrosa*)

San Diego Viguiera
(*Bahiopsis laciniata*)

California Adolphia
(*Adolphia californica*)

California Encelia
(*Encelia californica*)

White Sage
(*Salvia apiana*)

Bladderpod
*(Peritoma arborea)*

Native Species (Commonly Confused)  Sensative Native Species

# Chaparral Shrubs

**NATIVE SPECIES - UPLAND**

Chamise (*Adenostoma fasciculatum*)

Toyon (*Heteromeles arbutifolia*)

Eastwood Manzanita
(*Arctostaphylos glandulosa*)

Mission Manzanita
(*Xylococcus bicolor*)

Ramona lilac
(*Ceanothus tomentosus*)

Wart-stemmed Ceanothus
*(Ceanothus verrucosus)*



High Risk Invasive Species  Moderate Risk Invasive Species

# Herbaceous Plants

Blue-eyed Grass
(*Sisyrinchium bellum*)

San Diego Thornmint
(*Acanthomintha ilicifolia*)

Thread-leaved Brodiaea
(*Brodiaea filifolia*)

Del Mar Mesa Sand Aster
(*Corethrogyne filaginifolia* var. *linifolia*)

Poison Oak
(*Toxicodendron diversilobum*)

Chia
(*Salvia columbariae*)

Native Species (Commonly Confused)  Sensative Native Species

Purple Three-awn Grass
(*Aristida purpurea*)

Purple Needlegrass
(*Stipa pulchra*)

Coast Range Melic
(*Melica imperfecta*)

Shoregrass
(*Distichlis littoralis*)

Giant Wild-Rye
(*Leymus condensatus*)

Saltgrass
(*Distichlis spicata*)



High Risk Invasive Species  Moderate Risk Invasive Species

# Sensitive Wildlife Species

Coastal California Gnatcatcher
(*Polioptila californica californica*)

Orange-throated Whiptail
(*Aspidoscelis hyperythra beldingi*)

Rufous-crowned Sparrow
(*Aimophila ruficeps*)

Osprey
(*Pandion haliaetus*)

Cooper's Hawk
(*Accipiter cooperii*)

Quino Checkerspot Butterfly
(*Euphydryas editha quino*)

Native Species (Commonly Confused)  Sensative Native Species

# Thistles

**Milk Thistle (*Silybum marianum*)**
Milk-colored veins

**Yellow Star Thistle (*Centaurea solstitialis*)**
Long yellow spines

**California Thistle (*Cirsium occidentale* var. *californicum*)**
Wooly stems and leaves, giving the plant a silvery appearance

**Tocalote (*Centaurea melitensis*)**
Similar to yellow star thistle, but spines are purple and shorter



High Risk Invasive Species  Moderate Risk Invasive Species

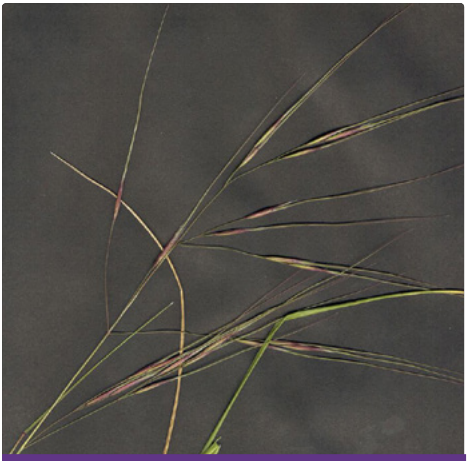
**Bull Thistle**
(***Cirsium vulgare*** )
Leaf tips with very long spines

**Italian Thistle**
(***Carduus pycnocephalus***)
Stem and leaf tips spiny

**Artichoke Thistle** (***Cynara cardunculus***)
Large -up to 6 ft.

# Grasses

**Wild Oats**
**(*Avena barbata, Avena fatua*)**
Two long awns, sometimes purplish-red.



**Needlegrass native grass**
**(*Stipa pulchra*)**
Awns and spikelets are very long and thin (needle-like).

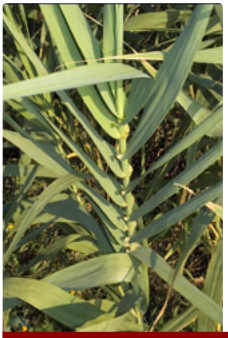
**Ripgut Brome (*Bromus diandrus*)**
Long, narrow spikelets bunched together with very long awns. "Ripgut" refers to problems caused when used for grazing.

**Red Brome**
**(*Bromus madritensis* ssp. *rubens*)**
Short annual grass, tuft at the top of the stem, may be green or red.

**Ripgut brome and wild oats can sometimes be confused with native needlegrasses, which are perennial bunch grasses, and much more delicate.**



High Risk Invasive Species  Moderate Risk Invasive Species



**Arundo - giant reed (*Arundo donax*)**
Large, dense thickets up to 20 ft tall. Found in riparian areas.

**Fountain Grass**
**(*Pennisetum setaceum*)**

**Pampas Grass**
**(*Cortaderia selloana*)**

**Italian Rye Grass**
**(*Festuca perennis*)**

**Barley**
**(*Hordeum murinum*)**

Native Species (Commonly Confused)  Sensative Native Species

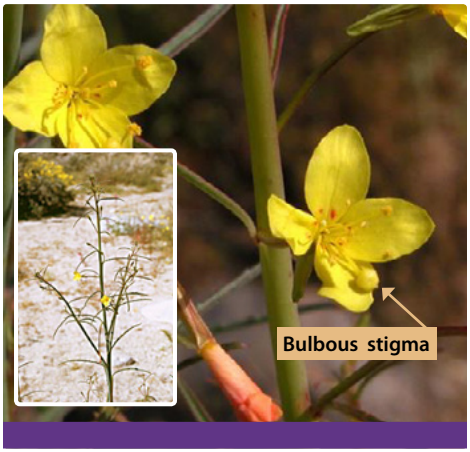
# Mustards

**INVASIVE NON-NATIVE SPECIES**

**Black Mustard**
(***Brassica nigra***)
Tall (up to 8 ft tall);
annual -pulls out easily.

**Short-pod Mustard**
(***Hirschfeldia incana***)
Short; long taproot –hard to pull out;
spindly stems.

**Wreathplant, native**
(***Stephanomeria diegensis***)
Can look like black mustard that has dried up. Pink or white flowers with many petals, does not have long seed pods.




**False Mustard, native**
(***Camissonia californica***)
Long petioles and narrow leaves; does not have long seed pods. Flowers with small red spots.



High Risk Invasive Species  Moderate Risk Invasive Species

# Onion & Carrot Families

**Fennel (*Foeniculum vulgare*)**
Carrot family. Up to 8 ft tall, smells like black licorice.

**Poison Hemlock (*Conium maculatum*)**
Carrot family. Riparian; red-purple spots/ stripes on stems. Poisonous

**Native onion (*Allium* spp.)**

**Onionweed (*Asphodelus fistulosus*)**
White flowers, dark reddish vein down the center.

**Mock Parsley (*Apiastrum angustifolium*)**
Riparian, edible.

Note difference in anthers between species.

**Common Goldenstar (*Bloomeria crocea*)**

**San Diego Goldenstar (*Bloomeria clevelandii*)**

Native Species (Commonly Confused)  Sensative Native Species

# Miscellaneous Invasive

**Tree Tobacco (*Nicotiana glauca*)**
Form like a slender tree, up to 15 ft ; leaves leathery, with a gray-blue color.

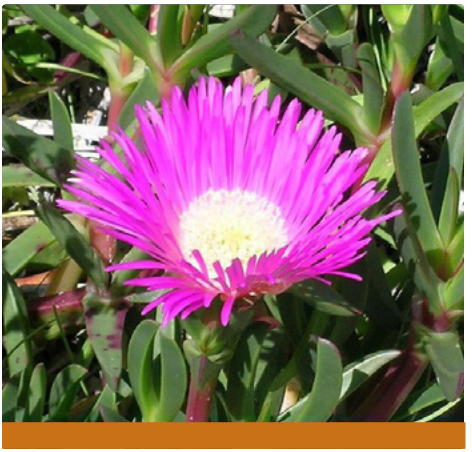
**Tamarisk/Salt Cedar (*Tamarix ramosissima*)**
Riparian habitat; up to 18 ft.

**Castor bean (*Ricinus communis*)**
Up to 9 ft ; leaves and fruits green to maroon

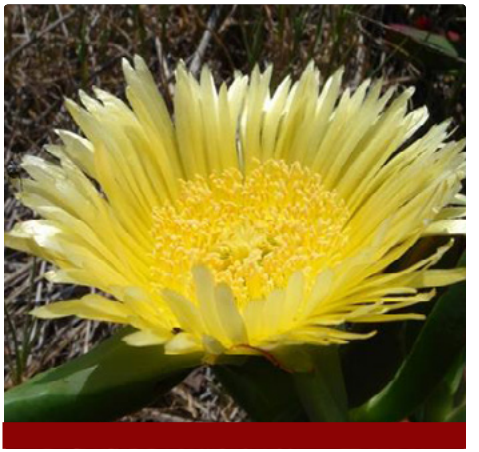
**Crown Daisy (*Glebionis coronaria*)**
Solid yellow and white-tipped flowers



High Risk Invasive Species  Moderate Risk Invasive Species



(***Carpobrotus chilensis***)
Leaf tips with very long spines



(***Carpobrotus edulis***)
Stem and leaf tips spiny

**Hottentot Fig**
Two similar species, difficult to tell apart. C. edulis flowers 2.5 –6 " across, yellow or light pink. C. chilensis flowers 1.5-2.5 " across, flowers deep pink.

**Crystalline Iceplant**
(***Mesembryanthemum crystallinum***)

**Russian Thistle/Tumbleweed**
(***Salsola tragus***)

Native Species (Commonly Confused) Sensative Native Species

# Field Notes

For more information email the Habitat Managment Program
at rosanne.humphrey@carlsbadca.gov

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