



Friends of Corte Madera Creek Watershed

FLORA AND FAUNA OF THE CORTE MADERA CREEK WATERSHED

**A Guide to Identifying Common Species in
Upland and Lowland Tidal Salt Marshes**



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Introduction

The Corte Madera Creek watershed is located in the eastern urbanized corridor of Marin County, California, and reaches from San Francisco Bay into the foothills of Mount Tamalpais, in the Coast Range. It is part of the ancestral lands of the Coast Miwok, who date back several thousand years in Marin County and live here to this day.

The natural communities of the watershed reflect the variety of local soil types, drainage patterns, elevations, slope, and orientations to sun and wind. Natural communities found in the watershed include Northern Coastal Scrub, Chaparral, Grasslands, Coastal Salt Marsh, Freshwater Marsh, Vernal Marsh (Seasonal Wetland), Coastal Riparian Forest, Valley Oak Woodland, Oak Savannah, Coast Live Oak Woodland, and Mixed Evergreen Forest. There is substantial urban and suburban development within the watershed, so habitats in the watershed also include suburban gardens, urban parks, and roadsides.

Due to the variety of natural communities and habitats, the watershed is incredibly biodiverse. Mount Tamalpais is known to support over 750 plant species. Numerous birds, mammals, reptiles, amphibians, fish, and invertebrates also reside within the watershed.

The purpose of this guide is to introduce readers to common and charismatic species of the Corte Madera Creek Watershed, with emphasis on those likely to be encountered in upland and lowland tidal salt marsh wetlands. Along the lower reach of Corte Madera Creek, wetland habitat supports estuarine fish species, migratory waterfowl, shorebirds, and two federally listed endangered species (the salt marsh harvest mouse and the California Ridgway's rail). As with most San Francisco Bay watersheds, most of the wetland habitat and estuaries have been filled or altered, making intact tidal salt marsh habitat rare. While not a replete manual, this guide acts as a starting point to engage, excite, and inspire readers to continue learning about all the diverse species native to the watershed and their interconnectedness. Several exotic plants are included here to inform readers about the impacts of introduced species.

Species profiles were created by Alycia Matz, Betsy Clark, and Sandy Guldman with photography from various online sources. Guide editing and assembly by Alycia Matz and Sandy Guldman.

California Cordgrass—*Spartina foliosa*



- **Habitat:** Coastal salt marshes, mudflats, banks, and margins of bays in California and Baja California
- **Description:**
 - Perennial grass; grows up to 5' tall
 - Leaves are long, narrow, and either flat or rolled inward
 - Inflorescence is narrow, dense, and spike-like
 - Has short rhizomes
 - Only native marsh plant that grows in the low marsh of San Francisco Bay
 - Readily hybridizes with introduced, invasive cord grasses
- **Wildlife and Human Uses:**
 - Provides habitat for Ridgway's Rail
 - May have mutualist relationship with Mussels

Top photo: Seed stalk © 2021 Jutta Burger

Bottom photo: Foreground Sandra Guldman

Marsh Jaumea—*Jaumea carnosa*



- **Habitat:** Coastal salt marshes
- **Description:**
 - Perennial herb with a procumbent growth form (horizontal to the ground)
 - Flowers are yellow; blooms spring-summer
 - Leaves: salt marshes and green on soft pinkish-green stems
 - Grows from an extensive rhizome system
- **Wildlife and Human Uses:**
 - Provides food for waterfowl such as the common mallard, American coot, northern pintail, and lesser scaup
 - Host plant for moths and butterflies, such as sphinx moths
 - Native Americans cook and eat it as a vegetable; it is also used to make tea as a fever treatment

Top photo: T. Abe Lloyd via iNaturalist

Bottom photo: ericstoweighs via iNaturalist

Point Reyes Bird's Beak *Chloropyron martimum* ssp. *palustre*



- **Habitat:** Coastal salt marshes, high marsh zone
- **Description:**
 - Annual herb; grows 2"-2' tall and 1'-2' wide
 - Whitish to pale rose tubular flowers; blooms mostly June-July
 - Often in sparse vegetation in association with *Limonium californicum* or *Salicornia pacifica* and other low-growing, salt-tolerant annuals
 - A hemiparasite—it's photosynthetic, but it obtains nutrients by parasitizing other plant species
- **Wildlife and Human Uses:**
 - Reduces the abundance of competitive dominant plants
 - Promotes plant species diversity
 - Reduces root zone salinity stress in salt marsh communities

Photos: © 2023 R.A. Chasey

Pickleweed—*Salicornia pacifica*



Photo: Roger Stephens via iNaturalist

- **Habitat:** Coastal salt marshes
- **Description:**
 - Perennial low-growing herb up to 2' tall
 - Flowers are small and yellow-green; blooms Jul.-Nov.
 - Leaves are fleshy and succulent; color varies from green to red
 - It is one of the most salt tolerant plants; excess salts collect in the tips, which then turn red and fall off
- **Wildlife and Human Uses:**
 - Provides food and habitat to wildlife, including the endangered salt marsh harvest mouse and numerous birds
 - Its tender green tips are edible, whether raw or cooked
 - Native Americans use the ashes to make soap and glass and collect the stems for use as a seasoning or vegetable

Saltgrass—*Distichlis spicata*



Photo: joergmipits via iNaturalist

- **Habitat:** Coastal salt marshes
- **Description:**
 - Perennial herb; can grow up to 2' tall
 - Flowers are made up of spikelets; goes to seed in April-September
 - Leaves are silvery green, with flat, stiff blades
 - Grows from extensive rhizomes, which can help stabilize erodible soils
 - Tolerates salt water and salty soils by secreting salt crystals
- **Wildlife and Human Uses:**
 - Provides habitat and forage for birds, mammals and invertebrates
 - Native Americans use the plant for harvesting salt by scraping salt from the leaf blades

Sea Clubrush—*Bolboschoenus maritimus*



Photo: ©2014 Tony Frates

- **Habitat:** Brackish mid-marsh zone and non-tidal marshes
- **Description:**
 - Perennial grass-like herb; grows up to 3' tall
 - Flowers are golden brown, ovoid spikelets clustered just below the tips of the leaves; blooms Aug-Sept
 - Leaves are green and triangular
 - Grows in dense colonies from extensively spreading rhizomes
- **Wildlife and Human Uses:**
 - Stems used to weave mats, baskets, and chair seats
 - Plants harbor beneficial bacteria and filter stormwater, removing pollutants
 - Plants protect areas from wind and wave erosion

Alkali Heath—*Frankenia salina*



Photo: cbmargetts via iNaturalist

- **Habitat:** Coastal salt marshes
- **Description:**
 - Perennial herb; grows in low mats usually less than 2' tall
 - Flowers are pink or purplish with five petals; blooms June-Oct.
 - Leaves are green to silver green; edges roll under a bit and may be covered in short hairs and salt
 - Fruits are linear capsules containing 1-20 brown seeds
 - Grows from underground rhizomes
 - A halophyte, it can survive in habitats with high salt content
- **Wildlife and Human Uses:**
 - Provides nectar for insects, such as butterflies and moths; invertebrates use it for cover and shade
 - Native Americans use it to make tea to treat colic and as an astringent

Marsh Baccharis—*Baccharis glutinosa*



Photo: prickly_sculpin via iNaturalist

- **Habitat:** Streambanks, coastal areas, salt marshes
- **Description:**
 - Perennial, upland shrub; grows 3-6' tall
 - Small flowers are white to light yellow; blooms late summer
 - Leaves are lance-shaped
 - Both the flowers and foliage are resinous and sticky
 - It is dioecious, meaning male and female flowers are borne on separate plants
- **Wildlife and Human Uses:**
 - Nectar source for wasps and native butterflies
 - Ohlone and Luiseno people used leaves to disinfect wounds and treat boils

Marsh Rosemary, Sea Lavender *Limonium californicum*



Photo: Raphaela E. Floreani Buzbee via iNaturalist

- **Habitat:** Coastal prairies, salt marshes
- **Description:**
 - Perennial herb; grows 1'-2' tall and 1'-2' wide
 - Flowers are purple-white and grow in clusters from stiff, branching stems; blooms summer-winter
 - Leaves grow in a basal rosette and are thick, leathery, and oval-shaped; their color ranges from green to brown
 - Grows from a woody rhizome
- **Wildlife and Human Uses:**
 - Provides food and habitat for bees and butterflies
 - Native Americans use it for medicinal purposes, with decoctions of the plant used for internal injuries and urinary problems

Marsh Gumplant *Grindelia stricta* var. *angustifolia*



Photo by Alycia Matz

- **Habitat:** Tidal flats, coastal salt marshes, dunes, bluffs
- **Description:**
 - Perennial herb; grows around 3' tall
 - Flowers are yellow; blooms spring-summer
 - Flowers are about 2" wide and yellow; flowers June-November
 - Leaves are green with finely toothed edges
 - Fruits are gray to red-brown, cylindrical, and very small
- **Wildlife and Human Uses:**
 - Provides food and habitat for moths, butterflies, and other insects, as well as the Ridgway's rail
 - Native Americans use the gummy, white latex on the flower buds (hence the common name) to make chewing gum and as an adhesive

California Mugwort—*Artemisia douglasiana*



Photos: ericbg2 via iNaturalist

- **Habitat:** Moist habitats, chaparral, woodlands, grasslands
- **Description:**
 - Perennial herb; grows 3-5' tall
 - Flowers are small, white to yellow and bell-shaped; blooms in summer
 - Leaves are forked near the tip; they are green on the top and silvery underneath, with a strong aroma
 - Fruits in the fall
 - Grows from rhizomes, which can help stabilize soil
- **Wildlife and Human Uses:**
 - Provides food and habitat for bees, flies, butterflies, and birds
 - Native Americans use it as a medicinal plant for issues such as joint pain, headaches, and rashes; many tribes also use it for ceremonial and spiritual purposes, such as warding off spirits

Western Ragweed—*Ambrosia psilostachya*



Photo: smfang via iNaturalist

- **Habitat:** Grasslands, woodlands, riparian areas, disturbed areas
- **Description:**
 - Perennial herb; grows 3-7' tall, but usually stays around 3'
 - Greenish flowers form a clustered spike on the top of the stem
 - Leaves vary in shape, from lance-shaped to nearly oval; they are divided into many narrow, pointed lobes
 - Stems and leaves are hairy
 - Grows from rhizomes, which can help stabilize soil
- **Wildlife and Human Uses:**
 - Seeds are eaten by birds such as quails, redwing blackbirds, mourning doves, and white-crowned sparrows
 - Several medicinal uses among Native American groups

Coyote Brush—*Baccharis pilularis*



Top photos: glasscat and kanneschultz via iNaturalist
Bottom photo: Krissa Klein via iNaturalist

- **Habitat:** Chaparral, coastal bluffs, oak woodlands, grasslands
- **Description:**
 - Grows between 4'-10' tall
 - Woody, perennial, upland shrub
 - Small flowers are white to light yellow; blooms July-Oct.
 - Leaves are small with toothed edges; their waxy texture makes them drought-resistant
 - It is dioecious, meaning male and female flowers are borne on separate plants
- **Wildlife and Human Uses:**
 - Food and habitat for wasps, butterflies, flies, and other insects
 - Shelters birds, such as wrentits and white-crowned sparrows
 - Coast Miwok use the leaves to reduce swelling

Western Goldenrod—*Euthamia occidentalis*



Photo: kamstrong10 via iNaturalist

- **Habitat:** Wetlands, marshes
- **Description:**
 - Perennial herb; grows 3-5' tall
 - Flowers are small, yellow and grow in dense clusters; blooms summer-fall
 - Leaves are green and slender, with pointed tips; they angle outwards or upwards
 - Fruits are dry, one-seeded, with a tan or white "parachute" called a pappus, which serves as a wind-dispersal mechanism
 - Grows from rhizomes, which can help stabilize soil
- **Wildlife and Human Uses:**
 - Provides food and habitat for pollinators, including monarchs
 - Native Americans use it (and other goldenrod species) for medicine, including treatment for burns, ulcers, and chest pain

Saltmarsh Dodder—*Cuscuta pacifica*



Photo: ©2020 RA Chasey

- **Habitat:** High and mid-marsh zones, brackish or saline
- **Description:**
 - Annual vine usually found July through October
 - Orange-yellow to bright orange thin stems in tangled, wiry masses
 - Flowers are white and bell-shaped
 - Seen covering both small areas and large patches that cover hundreds of acres
 - Parasitic on stems of host plants, often pickleweed and subshrubs
- **Wildlife and Human Uses:**
 - Harmful to trees and arable crops
 - Sometimes used in traditional medicine

Creeping Wildrye—*Elymus triticoides*



Top photo: stonebird via iNaturalist
Bottom photo: silversea_starsong via iNaturalist

- **Habitat:** Moist habitats, chaparral, woodlands
- **Description:**
 - Perennial grass; grows 2-4' tall
 - Inflorescence is a narrow spike of flowers up to 5" long; blooms June-July
 - Leaves are blue-green, stiff, and slender; leaves stand away from the stem at an obvious angle
 - Grows from rhizomes, which can help stabilize soil
- **Wildlife and Human Uses:**
 - Provides nesting habitat for waterfowl, shorebirds, and passerines and shelter for reptiles, rodents, and other small mammals
 - Native Americans use it as meal, or pinole, a grain mixture used for making foods such as cereals and tortillas

Spreading Rush—*Juncus patens*



Top photo: James Bailey via iNaturalist
Bottom photo: aerksn via iNaturalist

- **Habitat:** Moist habitats; drought tolerant when established
- **Description:**
 - Perennial, evergreen herb; grows 1'-3' tall
 - Flowers are brown to tan and grow in head-like clusters; blooms in summer
 - Stems are thin, gray-green, and vertically grooved
 - Fruits are spherical capsules less than 0.1" and contain many seeds; fruits in the fall
 - During rain events, it's good at filtering pollutants and slowing sediments due to its tight stem and root structure
- **Wildlife and Human Uses:**
 - Seeds and stems used for food and cover by birds
 - Stems used for basket weaving, thatching, tying, and binding

Baltic Rush—*Juncus balticus*



Top photo: tayder-tot via iNaturalist
Bottom photo: valsa via iNaturalist

- **Habitat:** Wetlands, salt marshes, tidal flats, shorelines of lakes, beaches, and river bars
- **Description:**
 - Perennial, evergreen herb; grows up to 3' tall
 - Flowers grow along one side of the stem; they are light-colored and surrounded by greenish to dark brown scales
 - Grows from rhizomes, which can help stabilize soil
 - Green, straight stems rise one at a time along the length of the rhizome
- **Wildlife and Human Uses:**
 - Seeds are eaten by waterfowl such as green-winged teal, mallard, American widgeon, and American coot; dense stands provide nesting habitat for ducks and other wetland birds
 - Stems used for thatching and to weave mats and baskets

Fat Hen—*Atriplex prostrata*



Photo: ebredberg via iNaturalist

- **Habitat:** Saline mudflats, brackish marshes, disturbed areas
- **Description:**
 - Non-native annual; grows up to 3' tall
 - Native to Eurasia
 - Accidentally introduced to the U.S. by dry ballast piles (rocks, etc. used to weigh old sailing vessels in the 1600-1800s) sometime prior to 1800
 - Leaves are triangle-shaped and often appear salted
 - Flowers are small, clustering together in a spike-like shape; blooms June-Nov.
 - The leaves and seeds can be eaten when cooked, and it's also useful as a source of potash

Brass Buttons—*Cotula coronopifolia*



Photo: brock via iNaturalist

- **Habitat:** Salt marshes, wetlands, vernal pools, beaches
- **Description:**
 - Invasive non-native perennial; grows 6-10" tall
 - Native to southern Africa and New Zealand
 - Leaves are green, branching, fleshy, and waxy, which helps them retain moisture
 - Flowers are small, yellow, and resemble buttons, hence its common name; blooms May-Oct.
 - Small seeds distribute easily by moving water and birds
 - Forms a dense groundcover, though its ecological impacts appear to be minor given it spreads slowly and is easily out-competed

Sea Fig, Ice Plant—*Carpobrotus chilensis*



Photo: Anthony Valois and the National Park Service

- **Habitat:** Coastal scrub, grasslands, chaparral, bluffs, dunes and beaches
- **Description:**
 - Invasive non-native shrub; grows up to 3' tall
 - Evergreen and succulent
 - Bright pink flowers. 1.5-2" in diameter; blooms and fruits all year
 - Spreads aggressively, forming dense mats
 - Leaves used for chutney and pickles
 - Juice slightly antiseptic; may relieve a sore throat or soothe cuts, scrapes, and sunburn

Russian Thistle—*Salsola soda*



Photo: Eric Cleveland via iNaturalist

- **Habitat:** Estuaries, salt marshes, disturbed areas
- **Description:**
 - Invasive non-native annual; grows up to 3' tall
 - Native to the Mediterranean; accidentally introduced to the U.S. in 1873 as a flaxseed contaminant
 - Leaves are succulent, small, pointed, and green
 - Flowers are small and yellow; blooms July-Oct.
 - Fruits are red and look like round capsules
 - The stems turn red as it starts to mature; after maturing, it will dry out, break at the stem, and roll and disperse its seeds
 - Forms dense stands, outcompeting native species for resources
 - *Salsola soda* is actually a popular culinary plant known as agretti

Wild Radish—*Raphanus sativus*



Photo: jjinsaus via iNaturalist

- **Habitat:** Grasslands, roadsides, disturbed areas
- **Description:**
 - Invasive non-native annual; grows 1-6' tall
 - Native to the Mediterranean
 - Leaves alternate along the stem, giving them a lobed appearance
 - Flowers range in color from pink, yellow, or white and have four petals (typical of the mustard family); blooms February-July
 - Seed pods are long and slender
 - Can form dense monocultures that exclude native plant species
 - Wild radish is edible and has been cultivated for a long time

Brass Buttons—*Cotula coronopifolia*



Photo: brock via iNaturalist

- **Habitat:** Salt marshes, wetlands, vernal pools, beaches
- **Description:**
 - Invasive non-native perennial; grows 6-10" tall
 - Native to southern Africa and New Zealand
 - Leaves are green, branching, fleshy, and waxy, which helps them retain moisture
 - Flowers are small, yellow, and resemble buttons, hence its common name; blooms May-Oct.
 - Small seeds distribute easily by moving water and birds
 - Forms a dense groundcover, though its ecological impacts appear to be minor given it spreads slowly and is easily out-competed

French Broom—*Genista monspessulana*



Photo: frostykiwi via iNaturalist

- **Habitat:** Grasslands, coastal scrub, chaparral, riparian areas, woodlands, and forests
- **Description:**
 - Invasive non-native evergreen shrub; grows 3.5'-10' tall
 - Native to southern Europe; introduced as a garden ornamental
 - Leaves are 3-parted, green, silvery to reddish-gold, and hairy
 - Flowers are pea-like, yellow; blooms late spring-early summer
 - Fruits are pea pods, hairy, brown when dry; open in summer
 - Seeds are small, black, dispersed in summer; persist for years in the soil seed bank
 - Displaces native plants and alters ecosystem composition
 - Limits wildlife movement and foraging
 - Increases fire fuels and fire risk
 - Sprouts multiple stems following fire or cutting

Scotch Broom—*Cytisus scoparius*



Photo: Chuck Willson via iNaturalist

- **Habitat:** Grasslands, woodlands, chaparral, forest edges
- **Description:**
 - Invasive, non-native evergreen shrub; grows 3.5'-10' tall
 - Introduced to California as an ornamental in the 1850s and used as an erosion control in the early 1900s before being recognized as a problem species
 - Flowers are bright yellow and pea-like, often with red on the lower petals; blooms March-May
 - Fruits are hairy pea pods that dry in summer and twist open to explode, dispersing their seeds
 - Leaves are 3-parted and similar in appearance to, but much smaller than, French broom leaves
 - Forms dense stands and crowds out native species, changes soil composition by fixing nitrogen

Harding Grass—*Phalaris aquatica*



Photo: akt7 via iNaturalist

- **Habitat:** Wetlands, marshes
- **Description:**
 - Invasive non-native perennial bunchgrass; grows 5-6' tall
 - Native to the Mediterranean; purposely introduced to the U.S. as a pasture forage plant; likely first planted in California around 1914
 - Leaves are hairless, green, and tapered to a long fine point
 - Flowers are small and white in a dense, spike-like inflorescence; blooms February - March
 - Outcompetes native species for resources

Stinkwort—*Ditrichia graveolens*



Photo: Merav Vonshak via iNaturalist

- **Habitat:** Seasonal wetlands, riparian corridors, disturbed areas
- **Description:**
 - Invasive non-native annual; grows 1-3' tall
 - Native to the Mediterranean; first discovered in the U.S. in the 1930s and first spotted in California in 1984
 - Leaves are long, narrow, pointed at the end, and covered in hairs
 - Flowers are small and yellow; blooms Sept.-Dec.
 - Seeds are wind-dispersed
 - Grows in a Christmas tree shape
 - It is very sticky to the touch and can cause contact dermatitis
 - Has a distinct smell similar to camphor
 - Can be fatal to grazing animals

Fennel—*Foeniculum vulgare*



Photo: van_skyhawk via iNaturalist

- **Habitat:** Grasslands, wetlands, marshes, riparian areas, roadsides
- **Description:**
 - Invasive non-native perennial; grows 4-10' tall
 - Native to the Mediterranean
 - Leaves have a feather-like appearance and a strong anise scent
 - Flowers are small, yellow, and clustered into large, round, umbrella-like group called an umbel; blooms May-September
 - Stems are hollow
 - Has a long, thick taproot, making its removal difficult
 - Leaves, young shoots, stems, and seeds are edible

Algerian Sea Lavender—*Limonium ramosissimum*



Photo: Jane Kelly, CNPS East Bay

- **Habitat:** Coastal marshes and inland wetlands
- **Description:**
 - Invasive salt-tolerant non-native perennial
 - Native to the Mediterranean
 - Small whitish-purple or lavender-pink flowers <0.2" wide
 - Reproduces by seed that is spread by water and horticultural practices
 - Egg-shaped leaves form low-growing clusters of leaves that act as a groundcover



Upper Photo:
Marinsunset via
iNaturalist



Lower Photo: Sea-
kangaroo via iNaturalist

Anise Swallowtail—*Papilio zelicaon*

- **Habitat:** Common to western North America in fairly open country, most likely to be seen on bare hills or mountains, in fields, or at the roadside
- **Description:**
 - Upper and lower sides of 2.04-3.15" wings are black, but the upper wing has a broad yellow stripe across it, giving it a mostly yellow appearance
 - Caterpillar to around 5 cm, begins in dark brown, changing to predominantly green, with markings in black, orange, and light blue
 - Similar to Western Tiger Swallowtail, but has a shorter body and lacks black stripes converging toward the tail
- **Behavior:**
 - Carrot family host plants include parsley and fennel



Upper Photo:
Yellow-Faced
Bumblebee
by gosner
via iNaturalist



Lower Photo:
Black-Tailed
Bumblebee by BJ Stacey via iNaturalist

Bumblebees—*Bombus* species

- **Habitat:** Native to open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows of much of western North America.
- **Description:**
 - Black and yellow abdominal sections, features vary from yellow-faced to black-tailed
- **Behavior:**
 - Can utilize a number of habitat types, including agricultural and urban areas
 - Eusocial insects that live in underground colonies composed of a queen, workers, and reproductives
 - Bumblebees collect both nectar and pollen of the plants that they pollinate. Using "buzz pollination," they sonicate the flowers to vibrate the pollen loose from the anthers



Upper Photo:
Eugene Zelenko via
iNaturalist



Lower Photo:
David Hatch
via iNaturalist

Western Yellowjacket—*Vespula pensylvanica*

- **Habitat:** Native to regions of North America, largely in areas with northern temperate climates
- **Description:**
 - Forewing size: workers 8.5–10.5 mm
 - Yellow and black pattern shared with other species of social wasps, but with yellow eye ring
- **Behavior:**
 - Forages for insects, dead animals and garbage for meat and plant nectar for carbohydrates
 - Violently protect their nests and can sting repeatedly
 - Large nests of wood fibers, are 10–15 cm below ground or in dark cavities, such as rodent burrows
 - Annual colonies are initiated by a fertilized queen, the only member of the colony to survive winter

Meadow Spittlebug—*Pilaenus spumarius*

- **Habitat:** Almost all open land habitats and in open forests, except where it is very dry or very wet
- **Description:**
 - Body length of 5–7 millimeters (0.20–0.28 in)
 - Coloring is variable ranging from yellowish to dark brown
 - A eurytopic species, it can tolerate a wide range of environmental factors and live in many different habitats
- **Behavior:**
 - Larva cover themselves with a protective white foam nest of “spittle” and feed off host plant until emerging as adult
 - Movement is running, jumping or flying
 - A hemipteran, it feeds on plants, using sucking and piercing mouthparts to extract plant sap from plant’s xylem
 - Of economic importance, they are vectors of bacteria to agricultural crops



Top Photo: David Beadle via iNaturalist
Bottom Photo: Betsy Clark

California Mussel—*Mytilus californianus*

- **Habitat:** Native to the west coast of North America, on rocky shores from northern Baja California to Aleutian Islands
- **Description:**
 - A marine bivalve mollusk; a large, edible mussel to 5” long
 - Dark blue-black shells, often eroded from wave action. Protected shell interior is light, iridescent blue-grey
 - Often found in large clusters in areas with higher salinity and rocky substrate
- **Behavior:**
 - Filter-feeders, they strain 2-3 quarts of water per hour for food particles; they trap sediments which provide shelter and food for a wide diversity of plants and animals
 - Once a popular food source for residents of San Francisco Bay area, including Coast Miwok



Top photo: Jey42 via iNaturalist
Bottom photo: Franco Folini

Atlantic Ribbed Mussel—*Geukensia demissa*

- **Habitat:** Intertidal zone in the mud of tidal salt marshes; not native to California, occurring from the Gulf of St. Lawrence to northeast Florida, and in San Francisco Bay
- **Description:**
 - Oblong marine bivalve mollusk
 - 2-4 inches long with distinctive radial, bifurcating ribs
 - Outside shells are olive-brownish and iridescent bluish-white on the inside
- **Behavior & Uses:**
 - Filter plankton up to 10 gallons of seawater per day to obtain enough food
 - Food source for raccoons and aquatic and marsh birds
 - Tight mussel mounds stabilize marsh substrate for more favorable cord grass growth



Upper Photo:
Kelly L. O'Donnell via
iNaturalist
Lower Photo: Bobby
McCabe via iNaturalist



California Bay Shrimp *Crangon franciscorum*



Photo: © ted38486 via iNaturalist

- **Habitat:** Brackish estuaries
- **Description:**
 - Average length is 2" for males and 2.7" for females
 - White, mottled with small black spots, giving it a gray appearance
 - Important food source for many including striped bass, Dungeness crab, and seabirds
 - Has been commercially fished from 1869-present
- **Behavior:**
 - Males spawn once while females spawn twice
 - Females incubate from 2,000 to 8,000 eggs
 - Young shrimp live in shallower, less salty water, then migrate to deeper, more saline areas as they mature
 - Diet includes bivalves and amphipods

Bat Ray—*Myliobatus californica*



Photo: Monterey Bay Aquarium

- **Habitat:** Sandy and muddy bays
- **Description:**
 - Wingspan can reach 6', but is rarely that large
 - Three venomous barbed spines at the base of tail
- **Behavior:**
 - Swims gracefully by flapping pectoral wings
 - Bat rays are docile and sting only to defend themselves
 - Mate in summer, with gestation of 9-12 months
 - Females give birth to two to ten live young
 - Diet includes invertebrates

Leopard Shark—*Triakis semifasciata*



Photo: Picture Fish

- **Habitat:** Marine and brackish water, most common in enclosed muddy bays
- **Description:**
 - Slender fish with silvery-bronze skin
 - Adult length 4-7', females larger than males
 - Dark ovals in a neat row across the back
 - Sturdy triangular pectoral fins are matched by two dorsal fins and a long, tapered tail
- **Behavior:**
 - Females give birth to 7 - 36 live young, each about 7" long
 - Varied diet includes crabs, shrimp, fish, fish eggs



Photo: colinmorita via iNaturalist

Great Egret—*Ardea alba*

- **Habitat:** Almost any wetlands
- **Description:**
 - Large heron with all-white plumage
 - Up to 3.3' tall with a wingspan up to 67"
 - Yellow bill and black legs and feet
- **Behavior:**
 - Breeds high in trees near bodies of water, with nests up to 3 feet across
 - Females lay 1 to 6 eggs
 - Forages in shallow water for fish or, in drier areas, for frogs, amphibians, and small mammals



Photo: colinmorita via iNaturalist

Snowy Egret—*Egretta thula*

- **Habitat:** Almost any wetlands
- **Description:**
 - Small heron with all-white plumage
 - Average length is 22-26", with a wingspan up to 40"
 - Black bill, yellow legs, black feet
- **Behavior:**
 - Breeds in mixed colonies with other herons
 - Females lay up to six pale bluish-green eggs
 - Will stalk prey in water by running or shuffling their feet, swaying their heads, or flicking their wings; may also stand still and wait to ambush prey
 - Forages in shallow water for fish or, in drier areas, for frogs, amphibians, and small mammals



Photo: ©Daniel Grossi, eBird

Great Blue Heron—*Ardea herodias*

- **Habitat:** Almost any wetlands
- **Description:**
 - Largest heron of North America, up to 54" tall, with wingspan up to 79"
 - Yellow-orange bill, slaty flight feathers, red-brown thighs, and a pair of black or slate plumes runs from just above the eye to the back of the head
- **Behavior:**
 - Breeds in colonies, and changes mates each year
 - Nests are often reused for many years
 - Female lays three to six pale blue eggs
 - Eats mostly fish, but is an opportunistic feeder



Photo: Connor Cochrane via iNaturalist

Mallard—*Anas platyrhynchos*

- **Habitat:** Almost any wetlands
- **Description:**
 - Average length is 19.7-25.6"; wingspan is 32.3-37.4"
 - Fairly large duck; males have an iridescent-green head and yellow billow, while females and juveniles are mottled brown with orange and brown bills
 - Both sexes have a white-bordered, blue patch on the wing
- **Behavior:**
 - Nests on the ground under grass or other vegetation; clutch size is 1-13 creamy or greenish eggs
 - Classified as dabbling ducks; they feed in the water by tipping forward and grazing on underwater plants
 - Generalist foragers

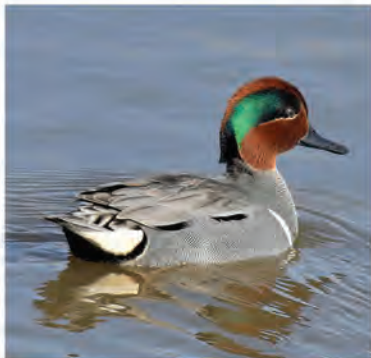


Photo: greggc566 via iNaturalist

Green-Winged Teal—*Anas crecca*

- **Habitat:** Shallow wetlands, coastal marshes, mudflats, estuaries, flooded fields
- **Description:**
 - Smallest dabbling duck in North America; average length is 12.2-15.3"; wingspan is 20.5-23.2"
 - Males have a cinnamon-colored head with a green crescent extending from the eye to the back of the head; females are a uniform brown
 - Both sexes have deep-green wing patches
- **Behavior:**
 - Nests on the ground in a well-concealed site; clutch size is 6-9 creamy white or pale olive eggs
 - Diet includes aquatic invertebrates and seeds; takes advantage of whatever foods are most abundant

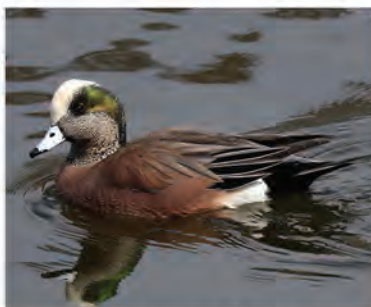


Photo: Eric Cameron via iNaturalist

American Wigeon—*Mareca americana*

- **Habitat:** Wetlands, lakes, rivers, impoundments, flooded fields, estuaries, bays, marshes
- **Description:**
 - Medium-sized ducks with a short bill and round head
 - Average length is 16.5-23.2", wingspan is 33.1"
 - Males are pale cinnamon with white patches on the sides of the rump; they have a brown gray head with a wide green stripe behind the eye and a white cap
 - Females are warm brown with a brownish gray head
- **Behavior:**
 - Nests in fields and grasslands with adequate cover; clutch size is 3-13 creamy white eggs
 - Diet includes aquatic and terrestrial plants, seeds, insects, and aquatic invertebrates



Photo: Melissa James, eBird

Black-Crowned Night Heron

Nycticorax nycticorax

- **Habitat:** Wetlands for foraging and terrestrial vegetation for coverage
- **Description:**
 - Stocky heron with neck usually tucked in
 - Average length is 23-26"; wingspan, 45-47"
 - Pale grayish with black cap and back, red eyes
- **Behavior:**
 - Nests built on a platform on an island or over water
 - Females lay 3-5 greenish-blue eggs
 - Opportunistic and omnivorous, eating crustaceans, insects, fish, rodents, birds, eggs, carrion, plants, and garbage from landfills



Photo: ©Melissa James, Macauley Library

Black-Necked Stilt

Himantopus mexicanus

- **Habitat:** Mudflats, salt marshes, and flooded fields
- **Description:**
 - Tall, small-bodied shorebird with very long legs, long neck, and straight bill
 - Up to 15" long with a wingspan up to 30"
 - Black above and white below with pink legs
- **Behavior:**
 - Ground nesting in a shallow depression
 - Females lay up to five eggs, tawny olive to light brown with dark brown speckling
 - Forages in shallow water for small invertebrates and insect larvae



Photo: paulgbarnett via iNaturalist

American Avocet

Recurvirostra americana

- **Habitat:** Mudflats, salt marshes, and flooded fields
- **Description:**
 - Long-legged shorebird with a long up-turned bill
 - Average length is 16-20", wingspan is 27-30"
 - Breeding birds have a rusty head and black and white body; nonbreeding birds have a grayish head
- **Behavior:**
 - Ground nesting on dikes or islands with little or no surrounding vegetation
 - Females lay 3-4 greenish brown eggs with irregular dark spots
 - Forages in shallow water for aquatic invertebrates and insect larvae



Photo: Becky Matsubara, eBird

Ridgway's Rail *Rallus obsoletus obsoletus*

- **Habitat:** Salt marshes with cordgrass and pickleweed
- **Description:**
 - Endangered
 - Large rail with slightly curve bill and short tail
 - Gray-brown above with dark streaking down its back
 - Cinnamon chest and neck
- **Behavior:**
 - Nests in clumps of vegetation high enough to avoid flooding
 - Females lay 3-14 creamy white eggs with brown to lilac blotches
 - Opportunistic and omnivorous, eating crustaceans, insects, fish, and in the winter, vegetation and seeds



Photo: Michael Lynch via iNaturalist

Osprey—*Pandion haliaetus*

- **Habitat:** Nearly any water body, be it salt marshes, rivers, ponds, reservoirs, estuaries, or coral reefs
- **Description:**
 - Large, slender body, with long, narrow wings
 - Average length is 21.3-22.8"; wingspan is 59.1-70.9"
 - Brown above and white below; head is white with a broad brown stripe through the eye
- **Behavior:**
 - Builds stick nests in open areas such as snags, treetops, cliffs, or human-built platforms; clutch size is 1-4 eggs
 - Forages by flying over water; will often hover briefly before diving, feet first, to grab fish
 - Diet is almost exclusively live fish



Photo: nutaboutkitties via iNaturalist

Barn Swallow—*Hirundo rustica*

- **Habitat:** Open habitats, including fields, marshes, ponds, coastal waters, meadows, parks, roadway edges
- **Description:**
 - Average length is 5.9-7.5"; wingspan is 11.4-12.6"
 - Slightly flattened head, no visible neck, broad shoulders, long pointed wings, and forked tail
 - Blue crown, back, wings, and tail, with rufous to tawny underparts and cinnamon-colored forehead and throat
- **Behavior:**
 - Builds cup nests using mud; clutch size is 3-7 eggs
 - Feeds by catching insects in the air, sometimes in mixed foraging flocks with other swallow species
 - Diet includes flies, beetles, and other flying insects

San Pablo Song Sparrow *Melospiza melodia samuelis*



Photo: ©Jonathan Iron, Macauley Library

- **Habitat:** Open habitats, including tidal marshes; this subspecies restricted to marshes around San Pablo Bay, including Corte Madera Creek marshes
- **Description:**
 - Medium-sized sparrow; has rounded head and long tail
 - Coarse streaks on breast converge into central spot
 - Russet stripes on crown and through eye; broad mustache stripe
- **Behavior:**
 - Nests built on a platform on an island or over water
 - Females lay 3-5 pale greenish white eggs spotted with reddish brown
 - Diet includes insects, seeds, and fruits

Marsh Wren—*Cistothorus palustris*



Photo: zaf2103 via iNaturalist

- **Habitat:** Wetlands, salt marshes, and weedy agricultural canals
- **Description:**
 - Average length is 3.9-5.5"; wingspan is 5.9"
 - Small, plump, round-bodied bird with a short tail that's often held upright
 - Western populations are slightly more drab and pale compared to eastern populations
- **Behavior:**
 - Often seen bouncing around in marshes among vegetation such as cattails, rushes, and cordgrass
 - Clutch size is 3-10 eggs, with males building dome-shaped nests with cattail, sedges, and grasses
 - Diet includes insects and spiders

Black Phoebe—*Sayornis nigricans*



Photo: pkondrashov via iNaturalist

- **Habitat:** Near water: streams, lakes, rivers, the Pacific Ocean, or even cattle tanks
- **Description:**
 - Small, plump songbirds with large head and medium-long, squared tails; average length is 6.3"
 - Sooty gray on the upperparts and chest, with a slightly darker black head and a white belly
- **Behavior:**
 - Often found low to the ground on perches near water, making short flights to catch insects
 - Creates mud nests often under bridges or on the eaves of buildings; clutch size is 1-6 white, glossy eggs
 - Diet includes insects and arthropods

North American River Otter *Lontra canadensis*



Photo: Mary K. Hanson via iNaturalist

- **Habitat:** Rivers, streams, creeks, coasts, lakes, swamps
- **Description:**
 - Average length is 26-42", with its tail comprising about one-third of that length
 - Has thick, waterproof fur, usually brown in color but also in tones of white, gray, and black
- **Behavior:**
 - Most active from dusk until dawn, but may be more commonly seen in the day during the winter
 - Can either live solitarily or in family groups
 - Play strengthens social bonds and is used for practicing hunting techniques
 - Diet includes amphibians, turtles, fish, crayfish, crabs, and other invertebrates; occasionally aquatic plants

Common Raccoon—*Procyon lotor*



Photo: Alexis Babayan via iNaturalist

- **Habitat:** Grasslands, woodlands, farmlands, urban and suburban areas
- **Description:**
 - Average length is 16-28"
 - Fur colors are gray to brown, with a black mask surrounding their eyes and a striped, bushy tail
 - Paws are black with five toes, enabling them to grab, hold, and pull things apart
- **Behavior:**
 - Forms small social groups, usually according to sex
 - Communicates with hisses, screams, growls, and snarls
 - Diet includes fruits, plants, nuts, rodents, frogs, eggs, insects; will sift through garbage

Salt Marsh Harvest Mouse *Reithrodontomys raviventris*



Photo: earth.com

- **Habitat:** Saline and subsaline pickleweed marshes around San Francisco Bay
- **Description:**
 - Endangered rodent
 - Head and body about 3" long, tail longer than body
 - Brown fur, some may have a cinnamon belly
- **Behavior:**
 - Mostly nocturnal
 - Active March through November
 - Nests on dry hummocks; litter size is typically four
 - Range approximately 0.5 acre
 - Diet includes leaves, seeds, and stems of plants, including pickleweed and saltgrass

Coyote—*Canis latrans*



Photo: Ad Konings via iNaturalist

- **Habitat:** Grasslands, mountains, woodlands, wetlands, urban areas
- **Description:**
 - Average length is 3' 3"- 4' 5"; tail length is about 16"
 - Fur colors are a mix of gray, tan, and reddish brown
 - Generally smaller than a gray wolf, but ears are longer
- **Behavior:**
 - More active around evening than during the day
 - Vocalizations include barks, yips, howls, and whines
 - Hunts individually, in pairs, or with a family group
 - Diet includes small mammals, snakes and birds, large insects, grasses, berries, and carrion

Bobcat—*Lynx rufus*



Photo: Marshal Hedén via iNaturalist

- **Habitat:** Woodlands, wetlands, mountains, urban edges
- **Description:**
 - Average length is 50"; males a bit larger than females
 - Fur is brown or beige, with spots or lines in black or dark brown
 - Black-tipped, stubby (or "bobbed") tail, from which it gets its name
- **Behavior:**
 - Primarily solitary animals and can get territorial
 - Crepuscular in that most of their hunting occurs before sunrise and after sunset
 - Will stalk and hunt their prey, hoping to catch it by surprise
 - Diet includes rabbits, rodents, deer, and birds

Columbian Black-Tailed deer *Odocoileus hemionus ssp. columbianus*



Photo: Alycia Matz

- **Habitat:** Forest edges, grasslands, suburban areas
- **Description:**
 - Average height is 31-42", average length is 3.9-6.9'
 - Tannish-brown, with a tail that looks dipped in black
 - Fawns have a spotted coat
 - Males' antlers start growing in April and are shed beginning in January, after the end of the mating season
- **Behavior:**
 - Most active at dawn and dusk
 - Females and offspring typically stay in groups, while bucks will either group together or remain solitary
 - Diet includes Douglas-fir, poison oak, grasses, ferns, berries, lichens, and forbs



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