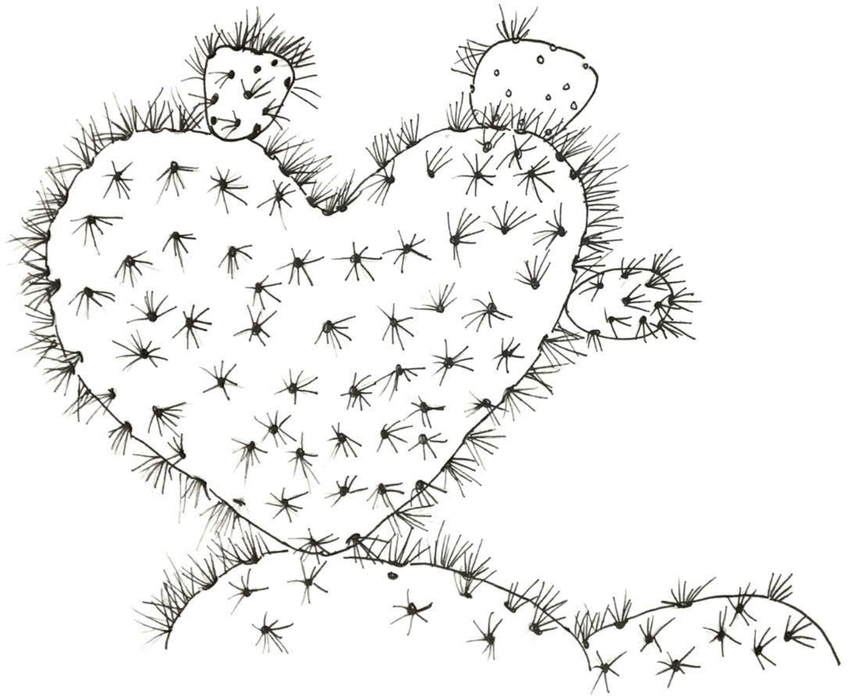
# The Bolsa Chica Coloring Book

Bolsa Chica Land Trust
Mesas
Wetlands
Preserving All of Bolsa Chica

Illustrated by
Annie Bou



# Forward

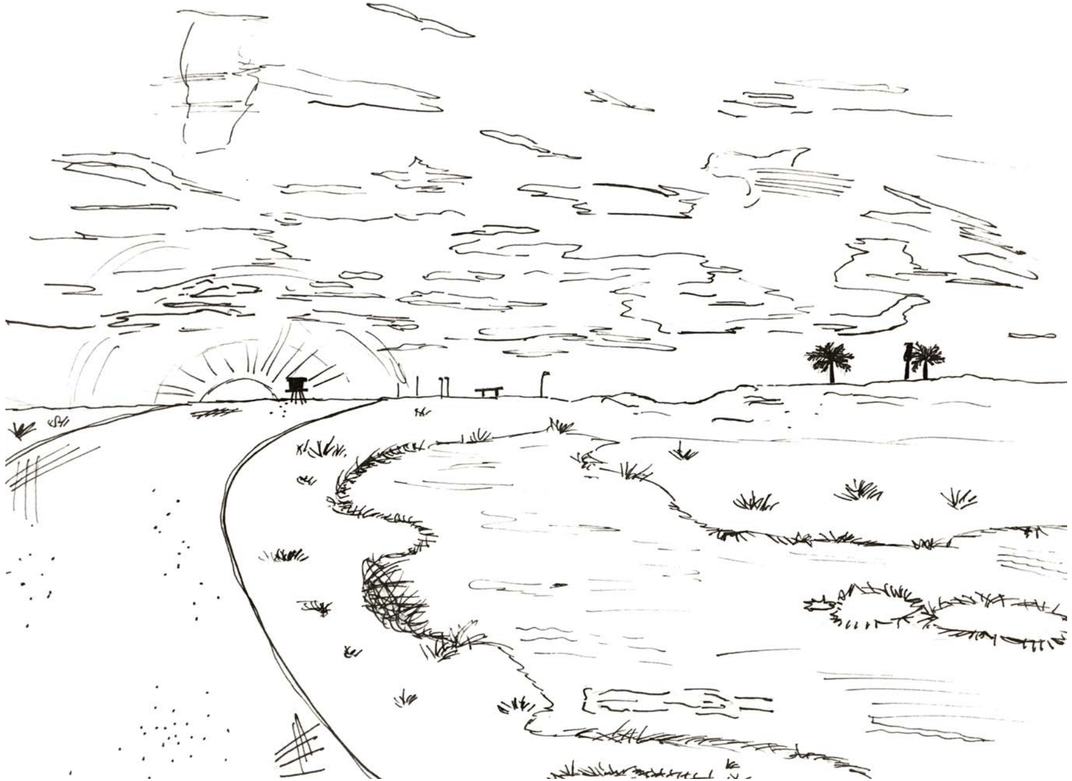
Bolsa Chica has a rich history going back 9,000 years to the first Native People who settled here – the Tongva and Acjachemen. They fished in the salt marshes, fashioned boats from reeds growing on the water's edge, and used the plants on the mesas for food and medicinal purposes. Today, we are trying to restore all of Bolsa Chica from the wetlands to the uplands back to these native habitats. By restoring these lands to native habitats – salt marsh, coastal strand, coastal sage scrub, and grasslands– the native fauna return. From the smallest insect to the large birds and mammals, native habitats supply food, shelter, and refuge from the surrounding urban environment.

We want to thank Annie Bou for the amazing coloring pages she drew for this coloring book! Without Annie, this book wouldn't exist. She volunteered countless hours drawing every image within these pages, and we're forever grateful. We also want to thank all the photographers who graciously let us use their photos for this book.

-Bolsa Chica Land Trust Board of Directors

# Bolsa Chica Coastal Wetland Estuary

The Bolsa Chica Ecological Reserve (BCER) is largely water with bays, tidal basins, and inlets, which all have tidal influence. When it is low tide, the mud flats under the water are exposed and the shore birds, from tiny Western Sandpipers to large Dowitchers, flock to feast on the worms, mollusks, and other organisms that live in the mud flats. Along the edge of the water are salt marsh, fresh water marsh, coastal strand/dunes, riparian and uplands (coastal sage scrub and grasslands) habitats. All these habitats, together with the associated plants, form the ecosystem that many animals rely on for food, shelter, and breeding. For example, the Great Blue Heron (*Ardea herodias*) hunts for fish at the salt marsh and riparian habitats, hunts lizards and other small animals on the uplands, and nests in the trees on the mesa. BCER is on the Pacific Flyway for bird migration with over 200 species of birds identified, and the waters are nurseries for numerous sea animals. Photography, hiking, and bird watching are popular activities along the over 4 miles of trails and scenic overlooks at BCER open for the public to enjoy. No dogs, bikes, or drones are allowed at BCER to protect the local wildlife.



# Lowlands

The lowlands at Bolsa Chica consist of the wetlands or estuary - the tidal salt and freshwater marsh, bays/open water, mudflats, tidal basins, riparian - and low elevation habitats of coastal strand or dunes.  At the lowest elevations are open waters in the bays and tidal basins, and when the tide is out, the mudflats are exposed.  The freshwater comes from the Wintersburg Channel and turns into brackish water where the channel empties into Outer Bay which is salt water.  Eelgrass (*Zostera sp.*) beds are always submerged underwater, while the marsh and riparian plants like Cordgrass (*Spartina sp*.) and Pickleweed (*Salicornia sp*.) can be covered in water only part of the day during high tide. The coastal strand and dune habitats do not get submerged in water, and are made up of very sandy soil at the edge of the marsh.  Plants like Salt Grass (*Distichlis spicata*) and Sand Verbena (*Abronia sp*.) are found in this habitat.

# Uplands

The uplands or mesas contain coastal sage scrub and coastal grasslands. Coastal Sagebrush is a dominate plant in the coastal sage scrub habitat. Plants like Coastal Sagebrush are drought tolerant, deciduous in the hot summer months, and very aromatic. Sometimes this habitat is considered 'soft chaparral' habitat because the leaves are less waxy and stiff than the dominate plants in chaparral communities. Chaparral habitats consist of more evergreen and less herbaceous (non-woody) plants than coastal sage scrub. There are also cacti and succulents found in coastal sage scrub communities like Coast Prickly Pear (*Opuntia littoralis*). Native coastal grasslands are composed of bunch grasses and forbs (herbaceous vascular plants that are not grasses). Most of the grasses are perennial grasses like Purple Needlegrass (*Stipa pulchra*) while the forbs are annual wildflowers like the California Poppy (*Eschscholzia californica*). The Bolsa Chica Land Trust Stewards – the restoration team of the Land Trust– have been restoring coastal sage scrub and native grassland habitat on the lower mesa since 1996.

# Miniature Lupin (*Lupinus bicolor*)

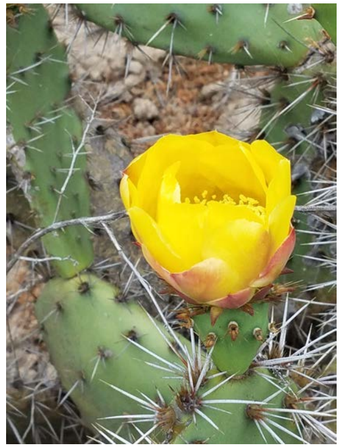
This small native purple flower is seen on the mesa at Bolsa Chica. Short in stature at 0.26-1.3ft high, but just as beautiful as the larger lupines across California, Miniature Lupins have purple and white flowers in a whorl and gray fuzzy leaves in a easily recognized circle. Lupins are part of the pea family, and like peas, are nitrogen-fixing plants which improves the overall soil conditions. Miniature Lupin is often seen along side California Poppies, Goldfields and similar annual wildflowers. It is mostly associated with coastal strand, native grasslands, coastal sage scrub, and some mixed evergreen forests. This plant pops up during the spring time, doesn't require a lot of water, and is tolerant of many soil types in full sun. Once the flowers are pollinated by bees and other pollinators, tiny seed pods form, similar to the peas you buy in the store. Once the seeds are mature, the seed casing twists open to release the lupin peas to wait for the next spring.

# California Poppy (*Eschscholzia californica*)

The California Poppy is the California state flower since 1903. With varying orange coloration from pale orange-yellow to deep orange-red, there are many different variations. This flower can be both an annual or a perennial depending on soil and weather conditions and is drought tolerant. In the wild it can be found in many different types of habitats up to 2,000 meters (6,500 ft) of elevation. The leaves are a soft blue-green color with delicate leaves. When the poppy goes to seed, the seed pods 'pop' open, spreading the seeds far and wide. The California Poppy blooms during spring and summer (February to September) and can be aggressive in gardens. In gardens, it likes full sun and well-draining soils. Sow seed in late fall or right after the first rains of the season. It's great for bird, pollinator, and wildflower gardens. Other names for this species is: Golden Poppy, California Sunlight, Cup of Gold. California Poppy Day is on April 6.

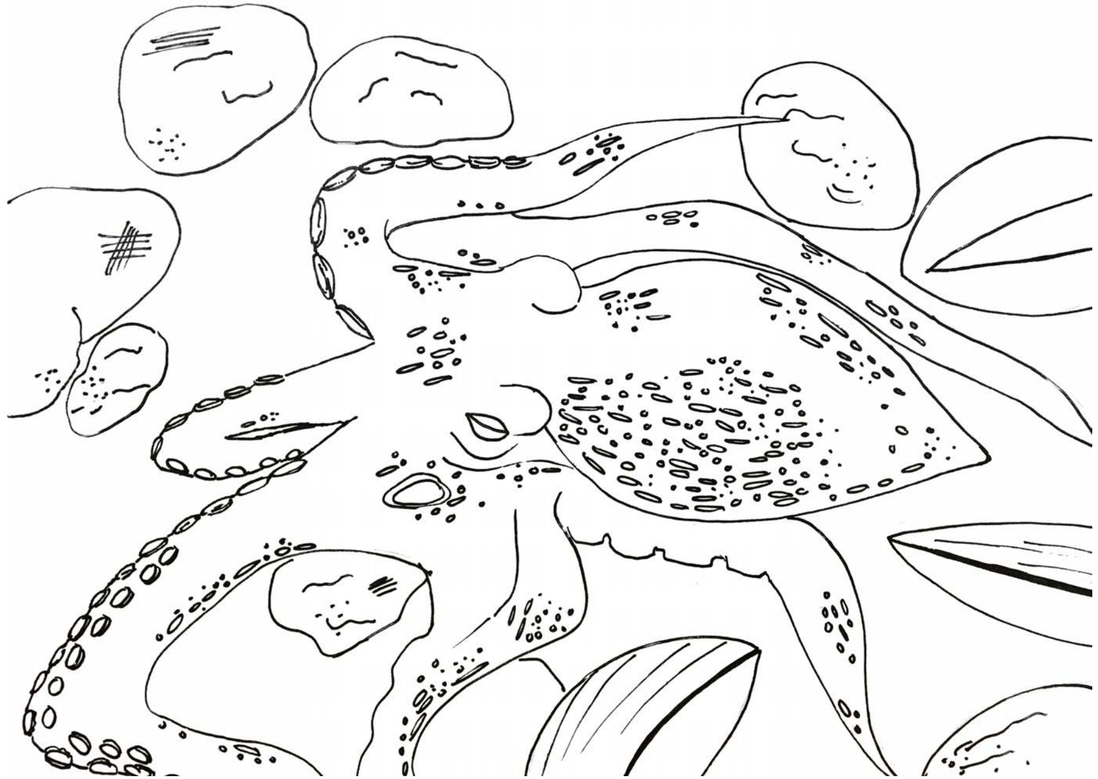
# Coast Prickly Pear (*Opuntia littoralis*)

The Coast Prickly Pear is a type of native cacti that grows in dense clumps on the mesa at Bolsa Chica. It can be found in chaparral and coastal sage scrub habitats. During the late spring (May to June) it has beautiful large yellow or red flowers which turn into deep red tunas or fruit. The spines are relatively long (2-4cm) but are clustered on the pads in groups with lots of flesh in between. The fruit, and pads for that matter, are edible. The species easily hybridizes with other species. A parasitic insect, the Cochineal (*Dactylopius coccus*), creates cochineal scales on Opuntia. Cochineal scales are white waxy coatings that look like fungus that covers and protects the female insect as she sucks out the juice from the Opuntia pad. Humans have been harvesting and even farming these insects for hundreds of years. The cochineal scales, when crushed, yield a bright crimson dye called carmine that was first used by the Aztecs for textiles and other products. This dye was the second major cash export for the Spanish when they controlled Mexico. The dye is still used today.



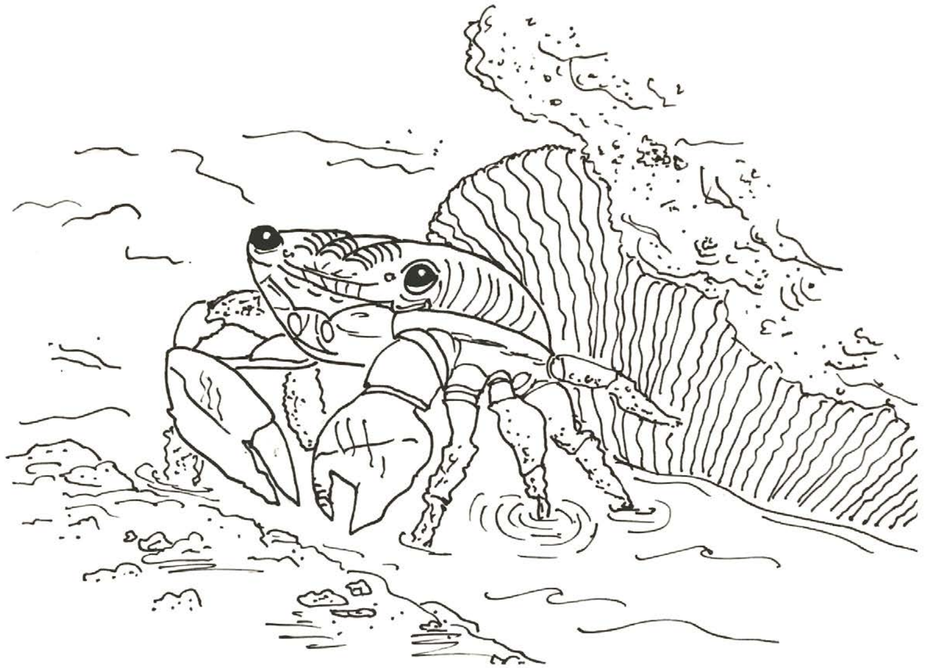
# Two-spotted Octopus (*Octopus bimaculoides*)

The Two-spotted Octopus is a native cephalopod who lives in the salt marsh intertidal zone to hunt crabs, mussels and small fish.  It grows to 2ft and is related to squids, cuttlefish, and, of course, the Giant Pacific Octopus (*Enteroctopus dofleini*), the largest species of octopus.  The Two-spotted Octopus is so named because it has two blue round eyespots right under each eye. It is hypothesized that these spots are to fool predators into thinking those large bright spots are their actual eyes, and leave them alone.  They also go by the name of Bimacs.  They live for about 2 years.  Males will die through senescence (when the body gradually deteriorates and shuts down) shortly after mating, while females go through senescence when their 70,000 eggs hatch.  Like all octopuses, Two-spotted Octopuses are expert at camouflage.  They also hide in rock crevices and can jet away if threatened by predators such as sea lions, moray eels, and humans.



# Stripped Shore Crab (*Pachygrapsus crassipes*)

One of the more colorful crabs in the area, these crabs are often seen on rocks and between crevices near tidepools and estuaries. Stripped Shore Crabs, also called Lined Shore Crabs, have green stripes on a dark square back, red or purple claws, and often have white mottled spots. Unlike male Fiddler Crabs, both claws are more or less the same size. Females are smaller than males when mature. These crabs usually mate once a year, and the female carries the fertilized eggs on her belly. A smaller crab at only 4 to 5 cm, they eat algae, smaller prey, and will scavenge on dead animals or cannibalize each other. This crab spends half of its time outside of water on land, and dips into the water to wet its gills. Raccoons, gulls, octopuses, and rats often eat them. Humans have been know to eat them as well.



# Western Sand Wasp (*Bembix americana*) on Southern Tar Plant (*Centromadia parryi ssp. australis*)

The Western Sand Wasp is a small wasp in the family Crabronidae. This wasp looks a lot like the native Anthophorine Bee (*Anthophora curta*) or native digger bees (*Melissodes sp.*). The best ways to distinguish this wasp from bees is the less hair it has, the antennae are longer, and if it's carrying pollen on its legs (wasps don't carry pollen on their legs). Wasps, unlike bees, are mostly predatory, so they do not collect pollen on their legs, but will sip nectar on occasion. As the name implies, sand wasps live and nest in sandy soils.

Southern Tar Plant is a California Native Plant Society B1 listed species - this means it is threatened with extinction. There are only a few populations left in the world and all are found in Southern California which means it's endemic to the region. This small spiky plant is an annual - living for one year. During the late summer it blooms petite yellow flowers providing one of the only nectar food sources in the heat of summer.

# Monarch Butterfly (*Danaus plexippus*)

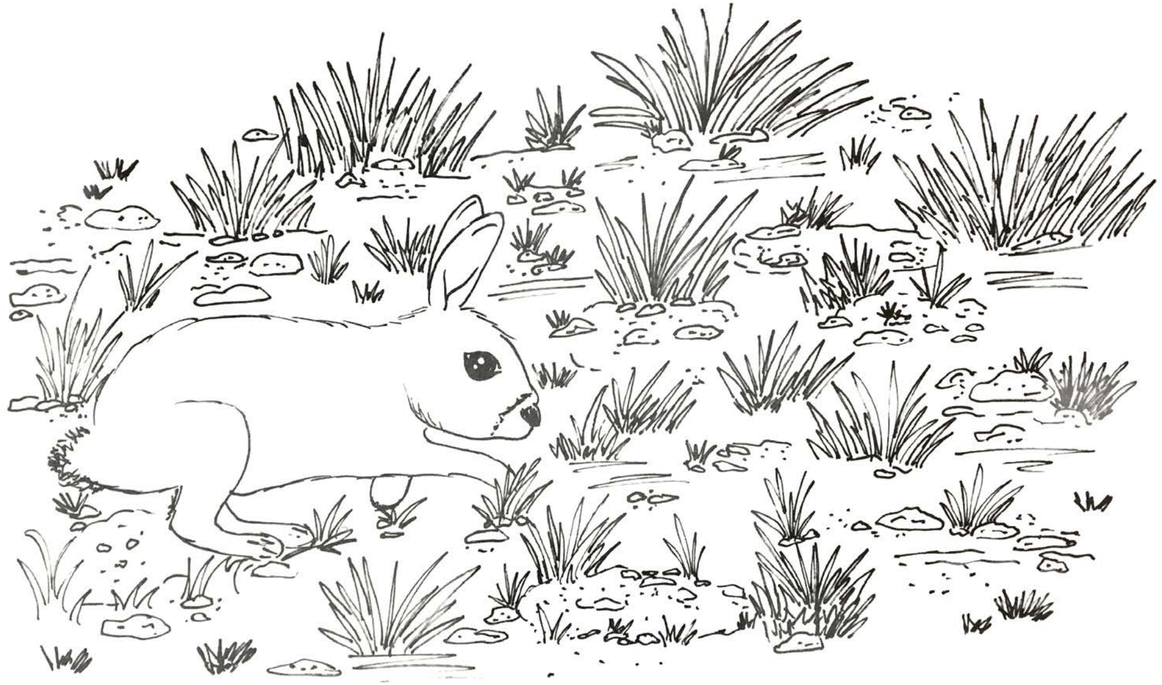
Once a common butterfly to see during their migration, Monarch Butterfly numbers have plummeted to dangerous levels. These black and orange fliers migrate from Mexico up into Oregon and Canada every year. It takes 3 generations to make the full track back down to Mexico. You can see them in Southern California in the spring and fall. Their larva relies exclusively on milkweed plants for food, but not all milkweed is the same. There are 15 species of milkweed native to California, and 3 species for Orange County: CA Milkweed (*Asclepias californica*), Woollypod or Indian Milkweed (*A. eriocarpa*), and Narrow-leaved Milkweed (*A. fascicularis*). Please plant native milkweed instead of Tropical Milkweed (*A. curassavica*) which can negatively alter the migration and breeding behavior of these butterflies. Milkweed contains toxins that makes the butterflies poisonous. Adults will feed on many different species of flowering native plants like Coast Sunflower (*Encelia californica*) found at Bolsa Chica. Male monarchs can be distinguished by female monarchs by a black 'sex spot' on the lower wings. The function of these dorsal hindwing spots is unknown.

# Western Side-blotched Lizard (*Uta stansburiana elegans*)

Western Side-blotched Lizards are often mistaken for Great Basin Fence Lizards (*Sceloporus occidentalis longipes*), but have smaller scales, no blue on the belly, and a dark spot right behind the front limbs giving it the name side-blotched. Males have three different morphs, or colors, and each morph has a different mating strategy (like rock-paper-scissors). Orange-throated males are the dominate, territorial morph; yellow-throated males are non-territorial and mimic females to sneak onto an orange-throated male's territory to breed with females; and the blue-throated males guard females from yellow morph males and cooperates with other blue morph males against orange morph males. You will often see this lizard basking in the sun on trails and rocks during the day. Like a lot of similar lizards, the tail detaches and wiggles as a defense mechanism against being eaten. Once a tail is gone it will grow back a new tail to replace the missing one.

# Desert Cottontail (*Sylvilagus audubonii*)

These cute Desert Cottontails have the unmistakable white fluffy tails and are part of the Leporidae family in the order of Lagomorpha. They are not part of the rodent order of Rodentia and therefore are not rodents. They nest in burrows in the ground that have been dug by other mammals like California Ground Squirrels. The average lifespan is less than two years, but they can live up to 7.8 years in captivity. They are full grown at only three months. Even though they have 5 litters a year, few of the young make it to adulthood. The Desert Cottontails are herbivores and their diet consists of grasses and other plants. They use their large ears to hear predators like coyotes and hawks as their main defense mechanism. If a Desert Cottontail spots a predator, it will freeze in place in hopes it has not been detected. A threatened individual will flee away in a zigzag pattern and can jump two feet straight up if surprised. The population of the Desert Cottontail is positively correlated to food availability and weather. In wet years with increased plant growth, the population will increase. The opposite also is true.

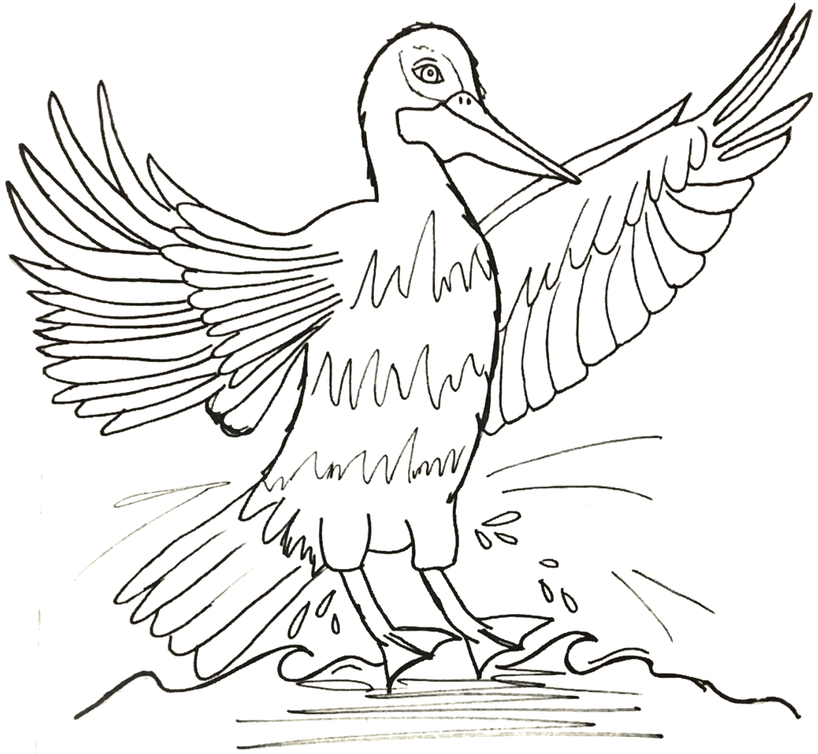


# California Ground Squirrel (*Otospermophilus beecheyi*)

A common sight along the mesa, the California Ground Squirrel, or Beechey's Ground Squirrel named after Fredrick William Beechey, a British explorer, scurry around in search of food before darting back to their underground burrows if a predator is spotted. They will stand guard at the entrance to their burrows and give an alarm call to other squirrels if a coyote, hawk, or even Great Blue Heron is spotted stalking around for a tasty squirrel. These squirrels are a mottled mix of browns, grays, and buff colors with the belly in lighter shades of the same. Their ears are black, and they have a white ring around the eyes. Sporting a fluffy tail, they are sometimes confused for tree dwelling Eastern Fox Squirrels (*Sciurus niger*). However, these squirrels prefer the cover of burrows to the canopy of trees like the non-native Eastern Fox Squirrels. The squirrels play an important role on the mesa coastal sage and grassland habitats by dispersing seeds, aerating the soils, and creating burrows for other animals, like Burrowing Owls (*Athene cunicularia*), when the squirrels abandon old burrows. There is also some evidence that some California Ground Squirrels, when adults, can be resistant to rattlesnake venom.

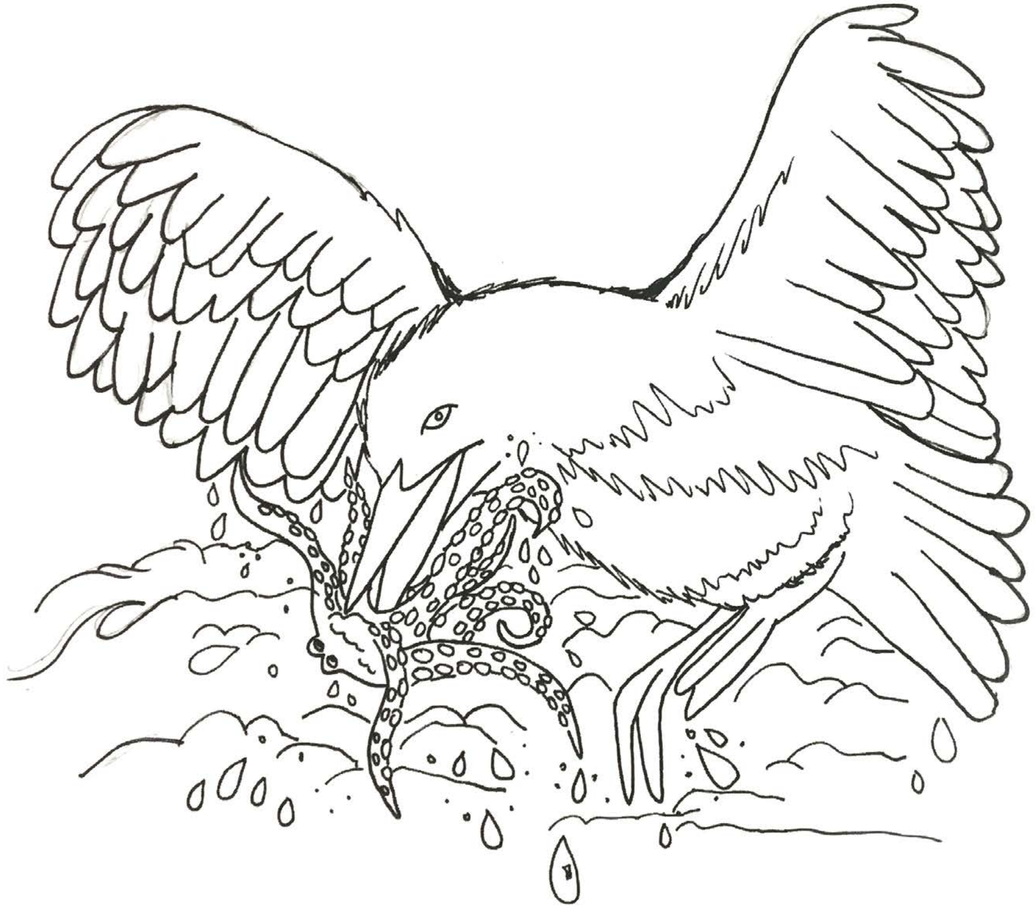
# White Pelican (*Pelecanus erythrorhynchos*)

White Pelicans are large white birds with black on the tips of their wings. They are found in coastal Southern California during the non-breeding season. During the breeding season they grow a breeding 'horn', or the projection, close to the tip of the bill. This growth falls off after the breeding season. They will cooperate with each other during feeding to corral fish towards the shallow end of ponds and bays to easily scoop up the fish in their large bill pouches. It is a myth that pelicans carry food in these pouches, they use them to scoop up fish and then shallow the fish whole. Skilled thieves, White Pelicans will steal food from each other and other birds, like Double-crested Cormorants (*Phalacrocorax auritus*). Pelicans cool down from being over-heated by facing away from the sun and quickly flapping their bill pouches. The bill pouch has a lot of blood vessels which releases body heat. The closest living relative to the White Pelican is the Brown Pelican (*Pelecanus occidentalis*).



# Gull with Two-spotted Octopus (*Octopus bimaculoides*)

Gulls are known for eating a wide variety of food, including this Two-spotted Octopus who doesn't want to be eaten. Two-spotted Octopuses are very intelligent marine invertebrates with two distinct blue circle spots on either side of the body. Gulls are notoriously hard to identify, even for experienced birders. This difficulty is because within one species they can look different between years/ages, seasons, and even by individual differences depending on the wear and fade of their feathers. And that's only within the same species! In North America, there are 27 species in total, with 16 species in the Genus *Larus* alone. Many species look very similar and will even hybridize with each other, making identification even more challenging. Gulls are generally a mix of white, gray, and black in color. They are usually found near water and manmade areas with abundant food sources (like dumps, fishing piers, and parking lots), and that's how they got the nickname 'seagull'.



# California Least Tern (*Sterna antillarum browni*)

An endangered bird, the California Least Tern is a late spring and summer visitor to Bolsa Chica. The smallest of the North American terns, they often have to compete with their larger cousins for food. California Least Terns have a black cap with white angular forehead and a black-tipped yellow bill. When they hunt, they will hover briefly before plunging head first into the water. Courtship starts in late April and involves a 'fish-flight' display. A male flies with a fish and if a female is interested in him, she will chase him. The pair will make elaborate aerial maneuvers while vocalizing. Males will also dance with fish around females on the ground. The female will join in the dance if interested in the male. They will nest on the exposed sand bars or islands and both parents raise their chicks (usually 2) on a mostly small fish diet. Chicks are often preyed upon by mammals and larger birds. At Bolsa Chica there are clay roofing tiles at the colonies to give the chicks a place to hide from predators while the parents are fishing.

# Burrowing Owl (*Athene cunicularia*)

Burrowing Owls live in Southern California year round. As the name suggests, these owls live in holes in the ground, or burrows, unlike other owls who live in trees. Most of the time, these owls like to use abandoned holes made by animals like California Ground Squirrels, but will also use man-made burrows. You might see this owl hunting during the day and at night for insects and small vertebrates. However, they are most active during the morning and evening which is called crepuscular. Burrowing Owls will use dung from mammals around their burrows to attract dung beetles. The owls then catch and eat the dung beetles from the comforts of its burrow. Like other owls, they have large eyes and can swivel their heads 270 degrees. Both males and females are the same size, unique among owls. To make sure they have enough food during the incubation of the eggs, the owls will stash extra food in the burrows which can become quite large.

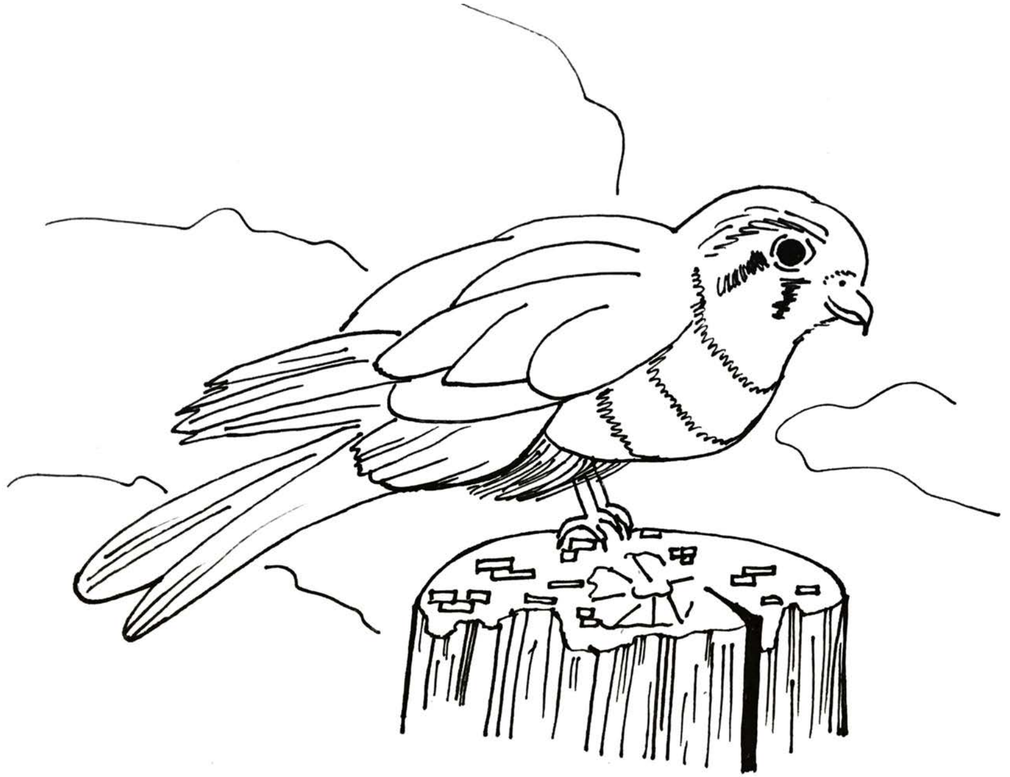
# Allen's Hummingbird (*Selasphorus sasin*) and Bladderpod (*Peritoma arborea*)

An orange and green hummingbird, Allen's Hummingbirds are very similar to Rufous Hummingbirds (*Selasphorus rufus*). Allen's Hummingbirds have a smaller breeding range, which includes coastal California, than the widespread Rufous Hummingbirds. Female and male hummingbirds look different, or are dimorphic, with males having vibrant orange throats. The female hummingbirds build small nests using spiderwebs to hold it together. Males do not help raise the two chicks.

Bladderpods are a favorite food source of nectar for Allen's Hummingbirds. These bright yellow flowers bloom profusely during the spring and summer. Once the flowers are pollinated the seeds are held in a green sac like a bladder, hence the common name. Harlequin Bugs (*Murgantia histrionica*), an invasive species, are often found on bladderpods in high numbers.

# American Kestrel (*Falco sparverius*)

The smallest falcon in North America, the American Kestrel is a fierce predator. A very colorful kestrel with rusty red, white, blue or gray, and black depending on if it is a male or a female. Like many birds, males are the showier of the two, with slate-blue on the head and wings contrasting with that rusty red on the back and tail, and black spots. Both have two black slashes down the face over white with either a blue or gray top. These birds hunt insects and other small prey from open perches like fence posts or wires. Sometimes they will even hover in place facing the wind looking for prey. During the winter males and females use different habitats. Females are found in the usual open areas, while males are found in more wooded areas. American Kestrels can also be found at sports stadiums during the games perching on the lights. They are hunting the insects attracted to the light beams. Both will store extra food in hidden areas like clumps of grass, tree cavities, or bushes to hide it from thieves and to eat later.



# Resources:

Bolsa Chica Land Trust: www.BCLandTrust.org

California Department of Fish and Wildlife; Bolsa Chica Ecological Reserve: https://www.wildlife.ca.gov/Lands/Places-to-Visit/Bolsa-Chica-ER

The Cornell Lab of Ornithology; All About Birds: https://www.allaboutbirds.org/

University of California, Irvine; Natural History of Orange County, CA: http://nathistoc.bio.uci.edu/

# Biography

## Artist Annie Bou:

My name is Annie Bou, and I am currently an undergraduate student attending the University of California, Los Angeles studying for a B.S. in Human Biology and Society. As a Human Biology and Society major, I plan to enter the business industry to fight against injustices in sciences and to put people and the environment first. Having had a passion and love for art since I was a little girl, I jump at any opportunity to use my creativity to help others and to support important causes. In fact, volunteering with the Bolsa Chica Wetlands has allowed me to succinctly fuel my passions in art while spreading the message of the importance of environmental and habitual protection!

## Photographers:

Cactus, crab, landscape sunset, butterfly, owl, squirrel, lowland landscape– Jane Lazarz

Bee, least terns, pelican- Steve Eric Smith

Cactus flower– Kim Kolpin

Hummingbird– Jerry Chapman

Kestrel– Norm Chu

Octopus– Roy Holden

Rabbit, poppy, lupin, lizard, upland landscape– Erin Chin

Learn about Bolsa Chica while coloring different local native animals, plants, and landscapes! Use the accompany photo for reference or get creative. Great for all ages! From cute bunnies to awe-inspiring views, Bolsa Chica is home to many jewels of nature. Dive right in and color the wonderful world of Bolsa Chica!


**Bolsa Chica Land Trust**

5200 Warner Ave. Suite 108

Huntington Beach, Ca 92649

714-846-1001

Info@BCLandTrust.org

www.BCLandTrust.org