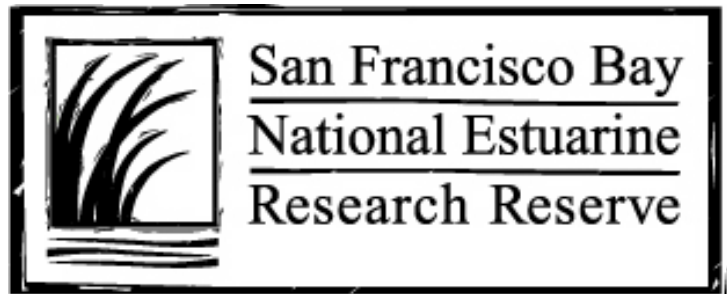


# Selected Plants and Animals of Rush Ranch



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**For additional copies or suggested additions contact :**  
Sarah Ferner, SF Bay NERR at 'daviess@sfsu.edu' or 415-338-3707



NATIONAL  
ESTUARINE  
RESEARCH  
RESERVE  
SYSTEM

# NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM



# National Estuarine Research Reserve

- NOAA's National Estuarine Research Reserve System protects estuaries and coordinates and conducts research and restoration to improve understanding and management of our nation's estuaries.
- Rush Ranch and China Camp State Park in San Rafael together make up the San Francisco Bay National Estuarine Research Reserve.
- Rush Ranch was included in the Reserve System because the tidal marsh and marsh/upland ecotone are important and rare remnants of habitats that were once common in SF Bay.



# Pickleweed

*Salicornia pacifica*

- Common salt marsh plant
- Grows well in salty, wet areas
- Adaptations include:
  - Succulent (like a cactus) to conserve fresh water
  - Isolates salt ions in specialized compartments within cells
- An orange string-like parasitic plant (called dodder) can sometimes be seen growing on pickleweed.



# Salt grass

*Distichlis spicata*

- Common salt marsh plant
- Grows well in salty, wet areas
- Often has visible salt crystals on leaf surface
- Adaptations include:
  - Actively pumping salt crystal to leaf blade surface (hence the salt crystals present on leaves)
  - Narrow, sometimes rolled, shape of leaf blades reduces water loss





# Alkali heath

*Frankenia salina*

- Common plant in salt marshes (and dry salt flats)
- Can survive in extremely salty areas (wet or dry)
- Adaptations include:
  - Fuzzy hairs on leaves that reduce water loss



# Arrow grass

*Triglochin spp.*

- Lives in wetlands, but not typically widespread. At Rush Ranch, though, it is common near the South Pasture Trail.
- Poisonous if ingested because it contains cyanide.
- Adaptations include:
  - Succulent to conserve fresh water
  - Concentrates ions in cytoplasm (cells) to decrease diffusion of salt into plant tissues



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# Suisun thistle

*Cirsium hydrophilum* var. *hydrophilum*

- Rare plant, Rush Ranch is the primary habitat for it.
- Lives in the marsh, often on relatively high elevation areas near smaller tidal creeks.
- Was thought to be extinct, but when grazing was restricted in the marsh, Suisun thistle returned.
- Population is negatively impacted by spread of invasive Pepperweed.





Photo by Mami Odaya

# Soft Bird's Beak

*Chloropyron molle molle*

(Formerly *Cordylanthus mollis mollis*)

- Federally listed as an endangered species
- Hemiparasitic (partially parasitic) plant that attaches to pickleweed or salt grass. Bird's Beak is photosynthetic so it can make its own food, but it takes additional nutrients from the host plant to provide enough energy for it to reproduce.





Photo by SF Bay NERR Staff

# Pepperweed

*Lepidium latifolium*

- Non-native, invasive shrub that is rapidly spreading throughout the marsh
- Very difficult to remove because it can grow from seeds or pieces of plant. Herbicide kills it, but there are important trade-offs to consider including pollution to the marsh and accidental impacts on rare species.
- There is on-going research to determine which animals eat it and how it is changing the marsh.



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# Tule

*Schoenoplectus acutus* and  
*Schoenoplectus californicus*

- Very common plants throughout California's tidal and freshwater marshes
- Grow primarily in low marsh, where they are inundated by tidal water frequently.
- Adaptations include:
  - Hollow "straws" or spaces that allow air to be pumped from the stems into the tubers/roots
- Used to create boats, shelters, and much more





# Cattail

*Typha spp.*

- Grow primarily in low marsh, where they are inundated by tidal water frequently.
- Multiple species present at Rush Ranch: a non-native, two native species, and a hybrid.
- Adaptations include:
  - Hollow “straws” or spaces that allow air to be pumped from the stems into the tubers/roots
  - Seeds that float in the wind, but sink in water
  - Ability to spread by rhizomes (roots) and seeds.



© Joyce Gross

# American dog tick

*Dermacentor variabilis*

- Lives in tall grasses
- They climb to top of grass blades, stretch front legs out, wait until a potential host walks by, then grab onto host's fur or clothing. The tick then climbs slowly on the host, looking for a crevice where it can attach to (bite) the host.
- Females look like they have a white necklace or shawl on. In picture on reverse side, males are near the top of the stem and females are lower down.
- These ticks do not carry Lyme disease.





© Joyce Gross

# Western black-legged tick

*Ixodes pacificus*

- These ticks are smaller and less common at Rush Ranch than American dog ticks.
- Less than 1% of western black-legged ticks in California carry Lyme disease.
- If a tick is found attached to a person, the tick can be removed, placed in a ziploc bag with a moist cotton ball, and taken to Solano County Public Health Laboratory to test whether the tick carried Lyme disease.



Photo by Tom Kucera

# Salt Marsh Harvest Mouse

*Reithrodontomys raviventris*

- Federally listed as an endangered species
- Lives in tidal salt marshes. Mice survive best in marshes with intact marsh/terrestrial ecotones, like the marsh at Rush Ranch.
- Predators include red foxes and feral cats, as well as many native predators like hawks, owls, and herons.
- Very small, relatively calm mouse with big eyes
- Very short-lived (9 months)



**Photo by: Peter LaTourette © California Academy of Sciences**

# California Clapper Rail

*Rallus longirostris obsoletus*

- Federally listed as an endangered species
- Lives only in tidal salt marshes in San Francisco Bay
- Predators include red foxes and native predators.
- Clapper rails are not commonly found at Rush Ranch, but they are occasionally here. Other rails at Rush ranch include black rails, yellow rails, and soras.





Photo by: Donna Dewherst, USFWS

# Red-winged black bird

*Agelaius phoeniceus*

- They are one of the most common birds in America.
- Males are glossy black with red patches on wings. Females are drably colored.
- Females weave elaborate nests from long pieces of cattails, then line nests with mud and soft seeds.
- Males defend territories that include multiple females and nests. (Males mate with more than one female.)
- Rush Ranch is also home to tricolored blackbird colony, a rarer cousin to the red-winged blackbird. Tricolors have a white band under the red on their wings.





# Barn owl

*Tyto alba*

- Most barn owls nest in cavities (holes) in trees, but they can also nest in barns, old buildings, and caves.
- They are able to quickly respond to rodent population increases, sometimes raising two sets of young in one year.
- Barn owls are white on the underside and may be light or dark shades of orange and brown above.
- There are barn, great-horned, short-eared, and burrowing owls at Rush Ranch.



Glenn and Martha Vargas © California Academy of Sciences

# American white pelican

*Pelecanus erythrorhynchos*

- Large white birds with black on wings.
- Often seen flying high overhead in groups, likely travelling between feeding sites.
- White pelicans typically breed at inland lakes and visit coastal areas (like Rush Ranch) in the spring and summer because of the plentiful food (small fish, crustaceans).
- They can feed cooperatively in small groups or independently.



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# Radish

*Raphanus sativus*

- Plants can be 2 feet tall and look like scraggly bushes.
- Flowers can be pale purple or pink, or white. Are there yellow flowers or flowers streaked with colors? If so, they may be wild radish or hybrids of the two.
- Seed pods can be opened to reveal small brown seeds that look a bit like mustard seeds people use for cooking. Radish is in the mustard family.
- Radish and wild radish are non-native plants that are very common in neglected or disturbed habitats, like road sides.





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# Common Stork's Beak

*Erodium spp.*

- Also known as filaree. There are three species of *Erodium* at Rush Ranch.
- The common name, stork's beak, is a reference to the fruit, which looks like a stork or heron's head and beak.
- The mature seeds are attached to a unique coil or drill shape. The coil is said to tighten in dry conditions and loosen in humid conditions. How could you test whether that is true?
- The coil helps drill the seed into the soil.





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# Ripgut Brome

*Bromus diandrus*

- A non-native annual grass found throughout California.
- Flowers are rough to the touch and can hurt livestock.
- Ripgut has long needle-like awns, the pointy parts that come from the flower or seed head.
- Stem and blades are covered in soft hairs.



Jean Pawek

# Wild Oats

*Avena fatua*

- A non-native annual grass found throughout California.
- Wild oats is good feed grass for livestock.
- Grass can be 4 feet tall.
- Stems are not hairy, though at the base of the blades may have soft hairs. Leaves are usually flat.
- Flowers in Spring.





# Curly Dock

*Rumex crispus*

- Often grows in low areas where water collects, like in ditches at the side of the road or trail.
- Curly dock is obvious because after the fruiting stem dies and it turns a dramatic rust brown color. (Even darker than the photo shown.)
- The leaves are green, lance or sword shaped and form a rosette.
- There are several species of Rumex at Rush Ranch. Why might this one be called “curly”?





# Harding Grass

*Phalaris aquatica*

- Non-native perennial grass that grows in clumps that can be 4 feet tall.
- Obvious dense seed head at the top of long stems.
- Harding grass can out compete native grass species and does especially well in areas that are not mowed.
- It is often planted as a forage grass, although it is less palatable to animals when it is mature and it can make sheep sick.



# Yellow Star Thistle

*Centaurea solstitialis*

- A non-native spiky plant with persistent yellow flowers.
- Yellow star thistle is considered a serious weed on rangelands.
- Cows, sheep, and goats can eat yellow star thistle, especially when it is young, and grazing can be used to control its' spread. However, it can make horses sick.
- What habitat is yellow star thistle most commonly found in at Rush Ranch?





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# Creeping Wild Rye

*Elymus triticoides*

- Creeping wild rye is a native grass. It is unusual to find native grasses in the uplands in California.
- It frequently grows in dense patches near the transition from marsh to upland.
- The native grass spreads by rhizomes (roots), so it may spread to be the only plant in a particular area. The strong root system prevents erosion.
- The leaves often lay sideways and have a slight bluish tint.