



## LARIVIERE MARSH WALK (K-4)

**Overview:** In this activity, students will hike through La Riviere Marsh, using their senses to observe the marsh. Along the way, they will stop at “footsteps” that have observation ideas.

**Content Standards Correlations:** Science, p. 293

**Grades:** K-4

**Key Concepts:** The salt marsh provides a unique habitat for a specialized group of plants and animals. Two endangered species, the salt marsh harvest mouse and California clapper rail, depend on the salt marsh. Migratory shorebirds and waterfowl also depend on the salt marsh as a feeding and resting stop along the Pacific Flyway. Human impacts have drastically reduced the salt marsh habitat.

**Objectives:**

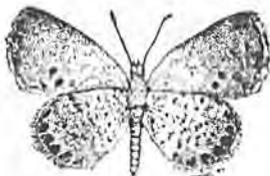
Students will be able to:

- observe the salt marsh habitat, using their senses
- describe what they smell, see, hear, touch, and taste
- name one reason the salt marsh is important
- name one way to help preserve the salt marsh

**Materials:**

**Provided by Refuge:**

- 1 Discovery Box containing various natural objects (i.e. rock, shell, feather, etc.)
- 7 Tile Footsteps
- 1 plant identification book
- 1 bird identification chart



*Western Pygmy Blue Butterfly*

### TIME FRAME FOR CONDUCTING THIS ACTIVITY

**Recommended Time:** 30 minutes

**Discovery Box** (8 minutes)

- at the top of the steps, lead the Discovery Box activity

**Footsteps** (15 minutes)

- walk with the students along the trail
- stop at each footprint, read aloud, and ask discussion questions

**Discussion** (2 minutes)

- lead a brief wrap-up discussion about the salt marsh
- allow (5 minutes) to walk to the next station from the end of the LaRiviere Marsh Trail

### HOW THIS ACTIVITY RELATES TO THE REFUGES RESOURCES

**What are the Refuge’s resources?**

- significant wildlife habitat
- endangered species
- migratory birds

**What makes it necessary to manage the resources?**

- Loss of salt marsh habitat for endangered species and migratory birds, due to development, such as landfills, salt ponds, buildings, roads, airports, etc.

**What can students do to help?**

Refuge staff acquire and preserve salt marsh habitat, but we need your help.

- Reduce, reuse, and recycle, decreasing the need for landfills
- Adopt a wetland or an endangered species
- Teach others what you have learned about the importance of salt marsh

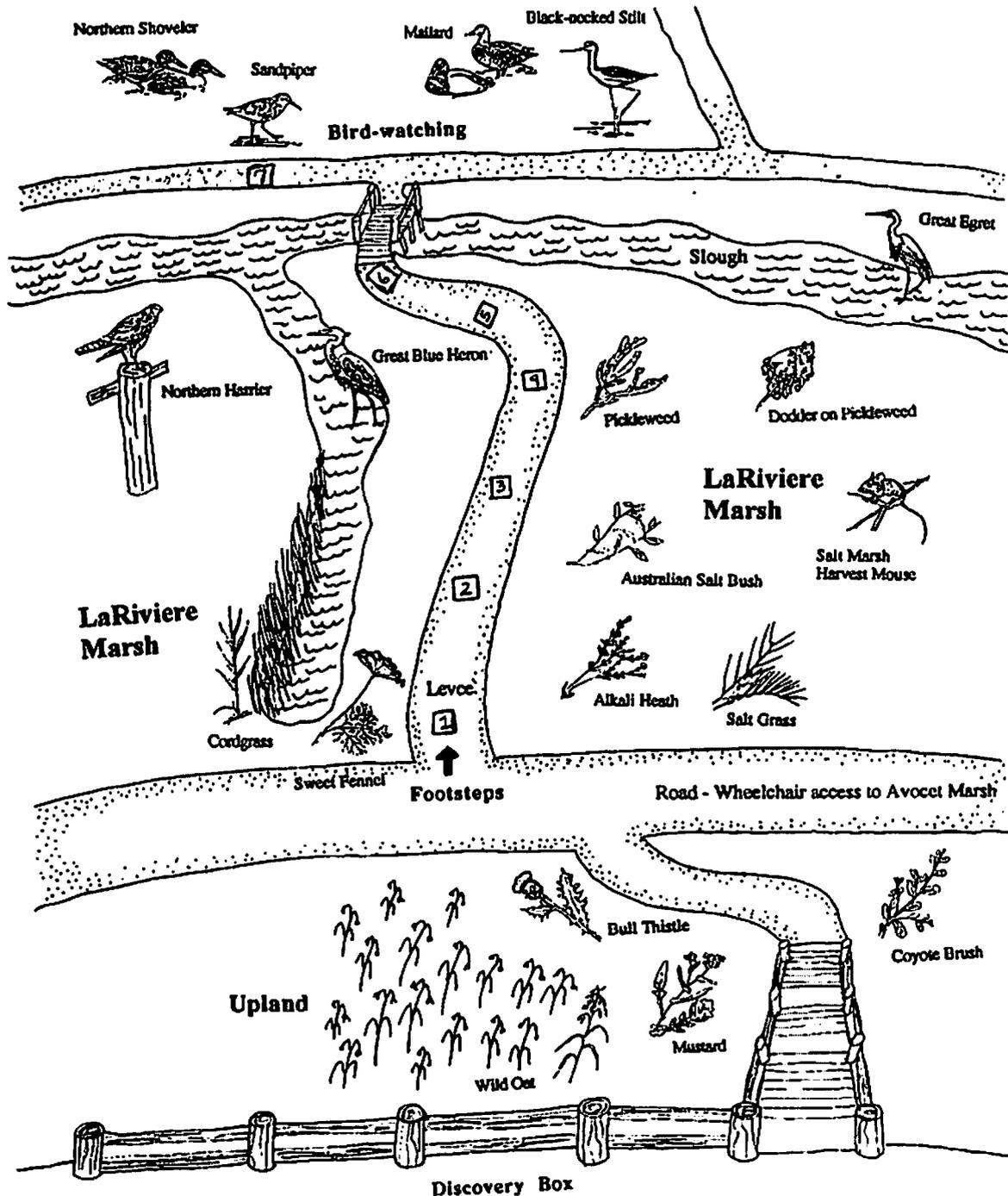
### SUPPORTING INFORMATION FOR THIS ACTIVITY

- Salt marshes once surrounded the San Francisco Bay. Today, less than 20% of the original salt marsh exists. More than 80% of the salt marsh around San Francisco Bay has been lost due to human development. Salt marshes have been diked, filled, dredged, and drained, and landfills, buildings, airports, roads, and salt ponds have been built on top of former salt marshes.

- Salt marshes are most noted for the abundant plant life that grows in their salty, waterlogged soils. The plants living in the salt marsh are called halophytes, meaning salt loving. They have adaptations for ridding themselves of salt.
- Salt marshes support various animals, including two endangered species, the salt marsh harvest mouse and California clapper rail.

- Migratory shorebirds and waterfowl also use the salt marshes to feed and rest, building up fat supplies for their long journeys along the Pacific Flyway. Migratory birds you may see in Avocet Marsh include shorebirds, such as dowitchers, black-necked stilts, avocets, and sandpipers, waterbirds such as snowy egrets, great egrets, and great blue herons, and ducks such as mallards and northern shovelers.

## LARIVIERE MARSH WALK



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## HOW TO LEAD THIS ACTIVITY BY FOLLOWING THE "DO, READ, ASK" TEACHING FORMAT

### Do

Meet the group at the top of the stairs, located to the right of the white building. From the top of the stairs, there is an excellent view of the marsh you will soon be exploring.

### Discovery Box (8 minutes)

#### Do

To prepare the students for observing the salt marsh habitat, use the Discovery Box. Gather students in a semicircle.

#### Read

"We are going on a walk to observe life in the marsh. First, we will look and describe things from the marsh in this Discovery Box to become better observers.

"I will walk past each of you with the Discovery Box open. In your mind, choose one object in the Discovery box.

"Don't tell anyone what you chose. You are going to have to describe it to everyone else without saying what the object is, and you can describe it by its size, shape, color, or texture. Everyone will try to guess what you are describing."



#### Do

- Starting at one end of the semicircle, walk slowly past the students, pausing at each student so they can see the objects inside the Discovery Box.
- Walk slowly back around the semicircle to where you started, so the students get a second look.
- After walking past everyone, close the box and ask a student to describe his/her object. Have the other students guess the object described.
- After the object has been correctly guessed,

take it out of the box and show the whole group. Allow a few student to describe their object.

#### Read

"Now we are going to become "observers" of the salt marsh habitat."

#### Ask

- ? What is a habitat? (A plant or animal's home.)
- ? Where is the salt marsh habitat? (Below you. The flat, wet area surrounded by levees.)
- ? Where is the upland habitat? (The hill you are standing on and the levee that goes through the salt marsh. We are going to walk on the levee through the salt marsh.)

#### Do

Follow the steps down to the dirt road. Cross the dirt road and walk out onto the levee - the trailhead is found between the coyote bushes.

**Note:** During your first rotation, place the footsteps in appropriate places on the path as you progress through the activity. See the map on p. 227 to assist you.

### Footsteps (15 minutes)

#### Read

"As we walk on the trail, we will come across footsteps placed on the ground. We will stop at each one, read it, and share our answers with the group."

#### Do

Begin hiking down the trail with the students. Stop at the first footstep and read it aloud or have students read the footsteps aloud.

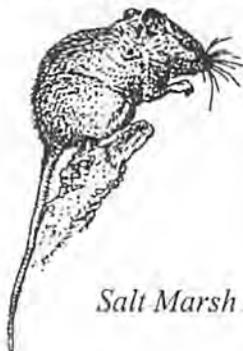
#### Read Footstep #1

Can you name an endangered animal that lives in the salt marsh? Why is it endangered?

#### Ask

- ? Do you know an endangered animal that lives in the marsh? (The salt marsh harvest mouse and the California clapper rail.)
- ? Why is it endangered? (Loss of habitat. Both animals depend on the salt marsh for survival.)

**? Would the salt marsh harvest mouse or California clapper rail survive without the marsh?** (If the salt marsh was gone these animals who are specially adapted to live in it - such as the Salt Marsh Harvest Mouse - would die.)



*Salt Marsh Harvest Mouse*

**Do**

Walk with the group to the next footstep. Stop and read aloud.

**Read** **Footstep #2**

**Imitate your favorite Marsh Animal. Hop like a bunny, creep like a mouse, fly like a hawk.**

**Ask**

**? What is your favorite Marsh Animal?** (There are many animals that live in the salt marsh along with the salt marsh harvest mouse and California clapper rail, such as shrews, house mice, rabbits, rats, foxes, hawks, owls, ducks, shorebirds, etc.)



*Red-tailed Hawk*



*Black-tailed Jackrabbit*

**Do**

On the way to the next footstep, have the students imitate their favorite animal. Stop and read the next footstep aloud.

**Read** **Footstep #3**

**Name some things you would not see, if you were an Ohlone Indian standing here 300 years ago.**

**Read**

• "You would not see the Dumbarton Bridge, the

cars, the ground you are standing on (this was built up by the salt company), your shoes, yourself, or just about anything except for the marsh itself.

- Even some of the plants you see, like wild oats on the upland, were brought in by the Europeans, and were not here when the only the Ohlone lived in the area."

**Do**

Walk with the group to the next footstep. Stop and read aloud.

**Read** **Footstep #4**

**Can you see the pickleweed? It's the salt marsh harvest mouse's favorite food. Taste it!**

**Ask**

**? What does it taste like?** (Salt.)

**Do**

ADULTS ONLY can pick some pickleweed and hand out small pieces for the students to taste.

**Ask**

**? Why does it taste like salt?** (It grows in the salt marsh, living in salty soil and drinking salty water that comes in from the Bay.)

**? Do you see any pickleweed with red tips?**

(Like other plants in the salt marsh, pickleweed must have a means of getting rid of salt. Pickleweed stores the salt in its pickle-like leaves. When the salt concentration gets too high, the ends turn red and fall off.)



*Pickleweed*

**Read**

"Remember when you are waking outside **do not eat plants unless you are with an adult who is experienced in identifying plants.** Some plants are poisonous and can make you very sick."

**Do**

Walk with the group to the next footstep. Stop and read aloud.

Read **Footstep #5**

Stop for about 30 seconds. Close your eyes and listen for five different sounds.

Ask

- ? **What did you hear?** (Some examples are: Cars, airplanes, kids talking, birds, construction noise, the wind.)
- ? **Which sounds are natural, which are man-made? What effect do you think the man-made noises have on the animals?** (Loud noises can make it difficult for animals to communicate with one another. For example, how can a duck hear another's warning call if an airplane is flying overhead?)

Do

Walk with the students to the next footstep. Stop and read it aloud.

Read **Footstep #6**

What are some ways that people affect the salt marsh?

Ask

- ? **How do people have a negative effect on the marsh?** (Examples: throwing trash in the marsh, pouring pollution down storm drains, or by building airports, roads, buildings, houses, and salt ponds on the marsh.)
- ? **How do people have a positive effect on the marsh?** (Examples: learning about the different plants and animals that live in the marsh, and by doing their part to help protect them. Ways to help the marsh include: participating in a Coast-Clean-up, writing your legislators and learning about endangered species.)

Do

Walk with the students to the last footstep across the bridge. Stop and read it aloud.

Read **Footstep #7**

Can you see any migratory birds feeding in the marsh?

Ask

- ? **What does migrate mean?** (To move from one place to another, usually seasonally.)
- ? **Many migratory birds stop in at the salt marshes. How do migratory birds use the marsh?** (They feed and rest in the marsh, storing up fat for their long journeys.)

Do

Use the bird identification chart with the students to identify a few of the birds you see.

Discussion (2 minutes)

Ask

- ? **Why is LaRiviere Marsh important?**
- (It is a home for endangered species, such as the salt marsh harvest mouse.
  - Migratory birds use the marsh to feed and rest. Many plants and animals live in the marsh. It is a place to visit and learn about.
  - Many marshes have been destroyed; La Riviere marsh is one of the few salt marshes still left. Can you think of other reasons?)
- ? **What are some things that you can do to help protect salt marshes such as LaRiviere Marsh?** (Reduce, reuse, recycle; never litter; label storm drains with warnings and never dump down storm drains, teach others what you have learned about salt marshes.)

Do

Walk to your next station from the end of the trail (5 minutes).

Do

After your last rotation, pick up the footsteps and place them in the backpack.



*Long-billed Dowitcher*