



Sacramento National Wildlife Refuge Complex



Environmental Educational Activity

Wetland Walk

Description: (45 min) Walk on an accessible trail next to a wetland and learn how to use your observation skills to discover the types of animals that live in the refuge and the importance of wetlands.

Goals: Expose students to refuge wetlands, use observation skills to determine what wildlife is present, and introduce and practice using binoculars.

Objectives: By the end of the program, the students will be able to:

- define a wetland,
- name at least 1 reason a wetland is important,
- name and identify at least 3 animals that inhabit a wetland, and
- demonstrate how to use binoculars.

Vocabulary: habitat, wetlands, interrelationship, crop depredation, waterfowl, migration, riparian habitat

Materials: bin of binoculars, image of a beaver, muskrat, and wood duck, wood duck feathers, simple bird id sheets, American coot foot, duck skull and duck webbed foot, picture of crop depredation,

- Binoculars—show/demonstrate with 1 pair BEFORE passing out binoculars to students
 - Strap should always be around your neck
 - Do not drop the binoculars
 - Show how to adjust for the width of your eyes
 - Do not walk with them up at your eyes
 - Do not look at the sun
 - Show that occasionally the strap comes undone, which is okay—just have an adult fix it.
 - Pass out binoculars
 - Can everyone see through them?
 - Practice viewing something big and easy at their eye level (mailboxes). Then try looking at something smaller or higher. Blackbirds are hard for 4th graders and under to get in view fast enough before the bird leaves.
 - If younger siblings are with the group, give them a pair of the yellow binoculars.
- Cross the street as a group. Designate an adult to be crossing guard if needed.
 - Introduce the walk—we are going to journey along a habitat here at the refuge.
 - What is a habitat? Place where an animal lives. The SNWR provides a wide variety of habitats for wildlife. We are going to focus on one particular habitat.
 - What 4 things do all living things need from their habitat? Food, water, shelter, space

- In a habitat, the plants, animals, and other elements are interconnected. For example, plants may provide shelter for other plants and may be food for herbivores.
- Can you think of an interrelationship? A food chain—sun→plant→rabbit→hawk
- What kind of habitat is before us? Wetland or seasonal marsh (type of wetland)
- What is a wetland? Land next to water; has specific types of plants that live there; has water some part of the year;
 - There are many different types of wetlands which are determined by the soils and the types of plants. Examples: lakes, rivers, streams, swamps, mudflats, etc
 - Some are year round and some are dry during the summer. The one before us (and most of the wetlands here at the refuge) are seasonal marshes meaning they have water for part of the year.
 - Wetlands are some of the most diverse habitats in the world. Here at SNWRC, we have over 300 species of animals and many of them depend on wetlands.
- Historically:
 - This area was the Colusa Plains and was very dry. But during the wet season (winter and early spring), the Sacramento River would flood and create vast wetlands for tens of millions of waterfowl that migrate here.
 - Over time, people moved west to California and in the 1800's, built towns and farms and changed the natural landscape. The natural flooding of the Sacramento River caused problems to homes, towns, and fields. Dams, levees, and canals were created to control the water and stop the flooding (and the wetlands).
 - CA has lost over 90% of its natural wetlands due to agriculture and development. Wetlands provide important habitat for wildlife and for us.
 - During this time, waterfowl continued to migrate here for the winter. Their natural habitat with food, water, shelter, and space was altered to towns and farmland.
 - For the waterfowl, this was like taking away the grocery stores with a wide range of foods (fruits, vegetables, cereal, bread, etc) and putting in fast food restaurants with just hamburgers and fries!
 - The rice and wheat fields still provided habitat but also crop depredation was happening. (crop depredation = damage to crops by wildlife)
 - Ducks (especially northern pintails [duck]) could flatten and eat up to 40 acres of rice crop in 1 night!!
 - Farmers and others came together and wanted their crops protected and this refuge was created in 1937 to help prevent crop depredation.
 - Most wetlands today are created and managed by biologists to provide a variety of habitats.
- Wetlands have many functions:

- Flood control (act as protective sponges that capture, store, and slowly release water over long periods of time; water stored in wetland soil is released steadily over weeks or months rather than in a sudden uncontrolled rush)
 - Filter water (wetland vegetation slows water down, and causes soil and other particles to settle out, providing us with cleaner water)
 - Remove pollutants (phytoremediation is the process of green plants removing pollutants from the environment or making them less harmful; we know plants pull carbon dioxide from the air and convert it into oxygen; this is much like how wetland plant roots take up pesticides or metals from the water/soil and neutralizes them)
 - Groundwater recharge
 - Provide nurseries for baby birds and other animals
 - Agriculture (the three types of soil found in wetlands help make for fertile agriculture areas, which is why we are able to grow such a variety of crops in the Sac Valley; this includes a combination of sand, clay, and loam; sand allows water to pass through easily; clay keeps water from penetrating; and loam soil holds water well and is nutrient rich)
 - We are going to go on a walk to see what lives in and around a wetland. What should we do? (stay quiet, stay together, be patient, look around)
- Wildlife—it is important to lead the group at a pace that everyone can keep up with. Adults walk much faster than students! There will always be one or two students dragging behind. Ask an adult to try to keep them with the group. Also, students should not go ahead of the naturalist—they will scare off animals.
 - Let's try to find out what lives here.
 - Stay together as a group and stay quiet. What happens if we are noisy? Wildlife might fly/run away and part of the group may not see it.
 - Look for them with our binoculars and for signs that they left behind. What could they leave behind that lets us know they were here? Scat, tracks, and sign (feathers, pellets, kills, etc)
 - Spotting Birds
 - Ask students to identify: color, beak shape, feet (if possible), where it is located (tree, water, sky), what it is doing
 - Use the sheet and have the students identify the bird
 - Waterfowl = ducks, geese, swans—characteristics include: long necks, flat bills, and webbed feet
 - Under the eucalyptus trees (near beginning of walk)—look for vulture (gray) and egret (red from crayfish) pellets
- Variety of habitats (cross roads of auto tour and trail)
 - Look around us—can you see 3 different habitats from this location?
 - Have the students describe what they see to give the answer of the 3 habitats

- dry uplands/grasslands = high dry areas usually with grasses (often salt grass)
 - riparian zone (cottonwoods and willows, thick leafy trees, along the stream) = area between land and water; often along rivers, creeks, and waterways—can vary a lot but here often willow trees
 - seasonal marsh/wetland (tules, cattails, open shallow water)
 - Do you notice the difference in plants and the amount of water in each habitat? Do you think some animals prefer certain habitats? Would some use all of the different habitats?
- Enter riparian habitat—do this all together and quietly; walk single file especially on the wooden bridges
 - Look for waterfowl—have students practice using their binoculars
 - Look for signs of beaver—tree chewed
 - Wood duck box
 - Wood ducks are one of the few waterfowl that live in trees, they like to nest in tree cavities, we often provide them with boxes since cavities can be hard to find,
 - California Waterfowl has a project throughout Northern California with over 5,000 boxes that produce ducklings every year.
- Silent moment—at end of riparian zone and after the bridge
 - Bring the group together and if you have time have them sit on the ground
 - Have everyone be quiet and close their eyes
 - For 30 seconds, listen to the environment around you.
 - After the minute, ask students to raise their hands and describe what they heard. Hopefully, they were all natural noises.
 - Discuss that most places we go we hear noise from cars, planes, people, etc—it is important to protect places that protect natural areas.
- Walk back—typically students are not too interested at this point at looking for wildlife. Stop once or twice to look at things. This also helps to keep the group together.
- Before crossing back across the street conclude and review with the students
 - SNWR is an important home for many animals. Whether year round or as a winter home, we need everyone to help protect their homes. While here you can help us by staying in your vehicle and staying quiet.
 - What are some of the habitats at the Refuge?
 - How would you describe those habitats?
 - What might live in a wetland?

Other info:

- American Coot (what is usually what we see in the first wetland)—not technically waterfowl, it has lobed feet, (foot in the bag)
- Turkey Vultures

- Not raptors, eat carrion (dead animals), decomposers, “garbage men” of the environment, bald red head allows them to stick their head in a carcass and come out without guts all over their feathers, ~5.5’ wingspan, in flight—tip back and forth, do not tend to flap much but instead use the air currents to carry them to use less energy (do you run around all day or would you prefer to be carried in a wagon?); circling in the sky does not always indicate dead animals; one of the few birds that has a sense of smell—detect methane which is a byproduct of bacteria breaking down the carcass;
- Black-tailed Jackrabbit
 - Not really a rabbit but a hare because its young are born well furred and with their eyes open; when panicked, they can reach speeds of 30-35 mph over short distances; when it runs at moderate speeds every 4th or 5th leap is exceptionally high, allowing it a better view of surroundings or of its pursuing predator; when escaping from a predator, it flashes the white underside of its tail, perhaps alerting other jacks to danger and confusing its enemy; after fleeing a short distance, it stops and looks back evidently to see if it is still being pursued, and may then give a danger signal by thumping its feet
- If time permits, discuss the Pacific flyway and migration. A bird highway in the sky that birds use to migrate north and south. (if the group is doing Hidden Hazards or Migration Madness—they will cover this there)
 - Migration = movement of animals from 1 area to another often due to changes in climate which influences food availability
 - Some of the birds here are from Canada, Alaska, and even Russia!
 - Why would they want to come here??
 - About 60% of ducks and 80% of the geese and swans of the Pacific Flyway spend the winter feeding and resting in the shelter of California wetlands.
- Plants
 - Cattails—important for shelter and as a source of food (beavers and muskrats)
 - Bulrush/tules—tall, hollow reeds provide shelter (jackrabbits, waterfowl, blackbirds, etc)
 - Saltgrass—leaches the salt out of the soil; has a salty taste when pressed against your tongue
 - Smartweed—a favorite food of ducks
 - Eucalyptus tree—nonnative, provides shelter, food, and nesting materials to wetland animals
 - Cottonwood—helps with soil erosion in riparian wetland habitats