

Habitat Comparison

Student Nature Journal Sheet

Date: _____

Time: _____

Habitat: _____

Animals

Use words, illustrations, and numbers to describe the animals found in this habitat.

Plants

Use words, illustrations, and numbers to describe the plants found in this habitat.

Non-Living

Use words, illustrations, and numbers to describe the non-living items (soil, rocks, water, sunlight) found in this habitat.

Weather

Record the weather according to your teacher's instructions and methods.

Habitat Comparison

Facilitator Guide

Date: _____

Time: _____

Habitat: Oak Savanna

Animals

Forest floor:



millipede



velvet mite



termite holes



termites



woolly bear caterpillar

Understory:



carpenter ant



woodpecker holes



cicada exoskeleton

Tree tops:



squirrel nest

(made mostly of leaves)



paper wasp nest



bird nest-
usually varies in
size according to
size of bird

Plants



red oak (leaves with
pointed tips, stay on in fall)



bur oak (rounded, lobed leaves,
drop in fall); 'curly hair' on acorns



aspen
(native, can be invasive)



box elder
(helicopter seeds)



raspberry
(watch out for thorns!)



black knot fungus - not a plant,
but a fungal disease on cherries.
Aka "poop on a stick" 😊

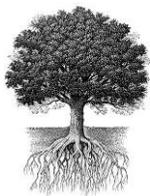


hazelnuts on American
hazel

Non-Living



Refuge is in the Anoka Sandplain, so soils tend to be sandy.

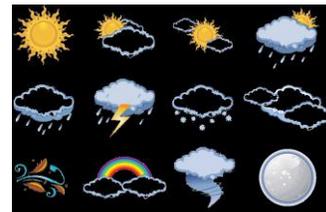


Savanna plants have deep
root systems to help them
reach ground water.



As sunlight comes through
branches of large oak trees, it
scatters - a key characteristic of
oak savanna.

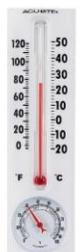
Weather



cloud coverage and type



wind meter



thermometer

Habitat Comparison

Facilitator Guide

Date: _____

Time: _____

Habitat: **Oak Savanna**

Animals

Forest floor

- Each leaf that falls becomes food for litter eaters living on the forest floor. Look for invertebrates (animals without backbones) under leaves or logs. Invertebrates such as millipedes, spiders, harvestman, forest snails, carrion beetles, burying beetles, maggots, termites, velvet mites are there. What is the role of a decomposer? They make sure everything is chewed up and broken down. It all gets turned into nutrients that fertilize the soil and keep the forest healthy.
- In the fall, ants spend more time sheltering in their nests tending to their queen and young larvae. Many other insects die at the end of summer, like cicadas that fall to the forest floor to become ant food. Woolly bear caterpillars migrate over the ground looking for hibernating places, too.
- Instruct students to journal one forest floor invertebrate.

Understory

- Spend time listening for sounds of animals. Chipmunks rustling, birds chirping, or squirrels running among the bushes.
- Have students take a close look at a tree trunk. Carpenter ants use trunks as highways to look for food in the tree tops. Empty skins of cicada nymphs can be found on tree trunks, too. Holes in the bark are signs of wood-boring insects like longhorn beetles. Larger holes could be homes for rodents, birds, and other animals.

Tree tops

- Birds swoop and fly through the canopy. The blue jay is one of the noisiest; it bosses other birds and copies their calls. They gather acorns to prepare for winter. Other birds have finished raising their young and gather in small flocks, feeding on fruit and seeds to prepare for the migration south. If the leaves have fallen, it is easy to spot bird nests, squirrels nests, or old wasp nests.

Plants

Stop at a bur oak tree.

- Show students a fallen bur oak tree leaf. Have them find their own. Then show them how to do a leaf rubbing in their journal. Ask them to pick up another leaf and explain the differences between the bur oak leaf and other leaves they find. Prompts like shape, veins, color, and size of the leaves may help the students.
- What other observations can they make about a bur oak tree? (Some people call them “Halloween trees!”) Knobby, winding branches, which scatter sunlight for the plants below. Corky, thick bark to protect from fires. Acorns, which provide food for countless animals like birds and rodents. Some trees are very large and can be over 100 years old!

Observe the understory. ** Beware of poison ivy!!**

- What plants did you expect to find? Perhaps grasses and flowers as described inside the classroom? What do you see instead? Why? This oak savanna area is not as healthy as it could be because it went decades without grazing and burning. Without these disturbances, the canopy became very dense and sun-loving prairie plants can't survive.
- Can you find a plant with berries? Seeds? Can you find a plant that could be used as a shelter for animals? Are there plants growing beneath the shrubs?
- Instruct students to draw one understory plant.

Non-Living

- Soil: Squeeze the soil between your fingers for moisture and smell it – is this habitat dry or soggy? What are the qualities of the soil - hard or soft? Wet or dry? Silt (like garden soil), sandy (like a beach?), or clay (like Play-Doh)? Record notes.
- Water/Moisture: Is there a lot of water or only a little? How do the large oak trees get enough water to grow so big and tall?
- Sunlight: Is there a lot of sunlight or just a little? What areas have the most sunlight? How does it influence the plants growing there?

Weather

- Have students notice the weather and temperature before entering the savanna and then after entering the savanna. What changed? Feel the air/wind against their cheeks as they turn in a circle – is it windy or calm? Is it the same in all directions? Compare sitting vs standing.
- How will today's weather influence animal activity?
- Instruct students to record the weather according to their teacher's expectations.

Habitat Comparison

Facilitator Guide

Date: _____

Time: _____

Habitat: **Wetlands**

Animals

Birds



trumpeter swans



sandhill crane



bald eagle

Amphibians and Reptiles



leopard frog



painted turtle

Mammals



tracks (deer)



muskrat hut (made of cattails)



scat

beaver lodge (made of wood branches)

Invertebrates



orb snail

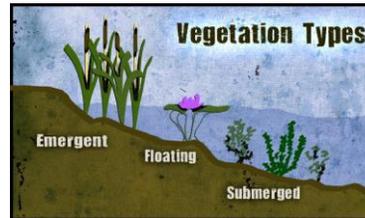


dragonfly nymph



backswimmer

Plants



Emergent



bulrush



cattail



smartweed

Floating



water lily



duckweed

Submerged



coontail



watermilfoil

Non-Living



Refuge is in the Anoka Sandplain, so soils tend to be sandy.
Wetland soils are water logged and may feel like mud.



full sun

Plants and animals thrive in full sunlight.



A defining feature of a wetland? Water!

Weather



cloud coverage and type



wind meter



thermometer

Sherburne National Wildlife Refuge

Habitat Comparison

Facilitator Guide

Date: _____

Time: _____

Habitat: **Wetland**

Animals

- Sit with eyes closed and listen to sounds around you. Count on fingers each time a different sound is heard. How many different sounds did students hear? How would they describe the sounds? (shrill, bubbly, loud, soft, quiet) What made the sounds? (likely candidates include geese, wind, people, traffic) How do these sounds make you feel? (relaxed, peaceful, excited, curious) Did they hear frogs/toads? Why or why not?
- Look out over the open water, search for movement. Look for muskrats (or their homes made of cattails), turtle heads popping up, birds (in the water or sky). Wetlands are also home to an amazing number of birds. Many birds would go extinct without wetland habitat in which to breed, build nests, raise young, feed, and rest along migratory routes.
- Walk the shoreline and search for signs of animals who have left their tracks or other evidence behind like deer foot prints, rodent holes, animal scat. Do they think they would find more animals in the oak savanna or the wetland? Why or why not?
- Once on the dock, search tubs for signs of macroinvertebrates and fish. Watch the invertebrates swim – do they all swim the same way? Are they all the same size? What colors do they see? Are they all the exact same color? Are they in a lifecycle stage?

Non-Living

- Soil: Squeeze the soil between your fingers for moisture and smell it – is this habitat dry or soggy? What are the qualities of the soil - hard or soft? Wet or dry? Silt (like garden soil), sandy (like a beach?), or clay (like Play-Doh?) Record notes. Wetland soil is waterlogged, or soaked with water. Record notes. Have students repeat soil observations as they move closer to the wetland dock.
- Water/Moisture: Is there a lot of water or only a little? Where do the plants get their water to grow? Is the water shallow or deep? Where does wetland water come from? Schoolhouse Pool's water level usually averages about 6 feet above GPB (that is, General Pool Bottom, or 960.00 feet above sea level). Elevations remain fairly stable because Schoolhouse Pool is spring-fed. In most refuge wetlands, water comes from the St. Francis River as well as precipitation.
- Sunlight: Is there a lot of sunlight or just a little? How does it influence the plants growing there?

Plants

Wetland plants include three main groups: emergent (roots in soil, leaves out of water), floating (plants that free float on top of the water, some are rooted and some are not), and submerged (completely submerged in water).

Emergent Plants: e.g., cattails, wild rice, bulrush, sedges, smartweed

- Along the shore, find a cattail. Who is taller, the cattails or the students? How about the adults? Emergent plants are often adapted to be tall, so it would be unlikely they would be completely submerged during flooding. Touch the leaves – what do they feel like? Where are the roots? Cattails and other emergent plants like bulrushes store energy and nutrients in their extensive roots and rhizomes. Have students run their hands up and down the stems. How do they feel? The stems have tough internal fibers and a hollow structure. This allows them to withstand severe winds without damage. Who would live in a cattail forest? What other observations can students make about cattails? Record in their journals.

Floating Plants: e.g., spatterdock, waterlily, and duckweed

- Observe water lily leaves. Large, green, waxy. How would this help the plant? Floating leaves are generally tough because they have to withstand the weather and water movement. Stomata (breathing pores) are found only on the upper surface of the leaf. This upper surface often has a thick waxy cuticle to repel water and help to keep the stomata open and clear. Can students see the stems? Weak stems allow the plant flexibility to move with the water. Do they think there are plants living below the lily pads? Water lilies are like trees of the forest, shading out plants below.

Submerged Plants: e.g., coontail and watermilfoil

- Have students look into the water. What do the plants look like below? The submerged leaves are often highly dissected or divided. This has the advantage of creating a very large surface area for absorption and photosynthesis. It also minimizes water resistance and hence potential damage to the leaves. Once examining in the tubs, ask do the plants have roots, leaves, stems, flowers? Why are they limp out of water? How would flexibility help them survive?

Weather

- Have students notice the weather difference between on the shore compared to on the wetland education dock. What changed? Ask them to feel the air/wind against their cheeks as they turn in a circle – is it windy or calm? Is it the same in all directions? Compare sitting vs standing. How will today's weather influence animal activity? Instruct students to record the weather according to their teacher's expectations.