

Winter Investigation

Facilitator Guide

Date: _____

Time: _____

Habitat: _____

Animals

2 toes



Usually hoofed animals like deer

3 toes facing front



Birds

4 toes with claws



Dog family, like coyote, fox, wolf or domestic dog

4 toes, no claws



Cat family (can hide claws), like bobcat, or domestic cat

5 toes



Rodents (mice, squirrels, beavers), weasels, skunks, raccoons, badgers, groundhogs

Other Signs: Scat, Food, Track Size and Pattern, Nests, Holes

Scat (poop) or owl pellets



Look at shape, size, contents, location

Food left behind



Think about what animal eats it (nut shells, berries, bark, plant parts, prey animal parts)

Track size and walking pattern



Big or small animal? Hopping, bounding, walking, running, shuffling? Tail marks?

Plants



Red oak (pointed tips, leaves stay on in fall)



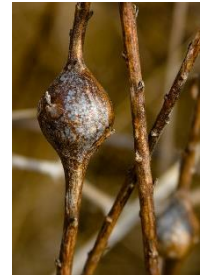
Bur (or white) oak (round-lobed, leaves drop in fall)



"Log hotel"



Nests



Galls in the stems of plants, especially goldenrod

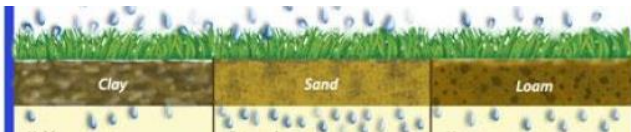


Seeds: Why are seeds important in winter?



Prairie grasses (Big bluestem, little bluestem, switch grass, Indian grass)

Non-Living



Refuge is in the Anoka Sandplain, so **soils** tend to be sandy; there are few naturally occurring rocks except on Blue Hill.



Note **snow** depth and the temperature at different depths.

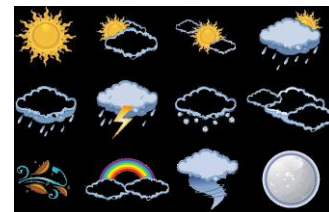
Ice transparency: Does the color of the ice change depending on how thick or thin it is?



partial shade

The amount of **sunlight** will cause some variation in snow depth.

Weather



cloud coverage and type



wind meter



thermometer

Habitat Comparison

Facilitator Guide

Date: _____

Time: _____

Habitat: _____

Animals

Birds

- **Wolf ears:** Stop, be very quiet, and make “wolf ears” (with hands cupped behind ears). What do you hear? If this were spring or summer, what do you think you would hear?
- Watch for **bald eagles**, maybe even witness a courtship display. Talk about the refuge’s eagles: many nesting pairs, incubation starts in March and lasts 35 days, hatching usually occurs in April, life span is about 25 years.
- Listen and watch for **trumpeter swans** coming from farm fields where they seem to be finding good carbohydrates to eat.
- Has anyone heard the chickadees singing their **spring song**? “Spring’s here!” or “fee-bee.” Or great horned owls (now mating and laying eggs), “Hoo hoodoo hoooo hoo!” or “Who’s awake—are you?” Or blue jays saying, “Spelunker,” or even cardinals saying, “What cheer, cheer, cheer.”

Mammals

- **Beaver chew:** Are beavers still gathering wood? They do not hibernate but are less active in winter. In the fall, beavers create a stock pile of wood chew for the winter. Their lodges are incredibly well insulated, too.
- **What will deer eat?** In fall, acorns, grass, and herbs; in winter, twigs, white cedar or other conifers, plus acorns, fruits, and corn (if they can find them).
- Follow **animal tracks** to see where they may lead. Examine **scat** to discover what the animal has been eating.

Plants

Trees/Log Hotels

- Note trees with obvious evidence of woodpecker activity; a tree may even have wood chips at its base. Who might live in a “**log hotel**”?
- What kind of nests do you see in the trees? A gray squirrel nest is called a **dray**. Why do you think a gray squirrel would choose to live in an oak savanna? (Food, shelter close by.) What happens if squirrels don't find all those acorns they bury? (Oak trees grow.)
- Note the many **oak leaves (mostly red oak group) remaining on trees** due to leaves not developing normal abscission layer in autumn (which would allow leaves to drop without leaving an open wound on the stem—compare to losing a scab after skin has healed). Normal for these trees, especially when younger. Remaining leaves will be dropping from now until new leaves emerge.
- Look for **boxelder samaras** (“wing” seeds) in the oak savanna.

Prairie Seeds/Plants

- **Perennials:** Big bluestem, little bluestem, switch grass, Indian grass, prairie sage (pick and rub a small bit—smells great!). Also goldenrod (any galls?), round-headed bush clover, and more.
- Look for remains of **mullein**, a biennial that grows a rosette of soft leaves the first year and sends up its stalk(s) with pale yellow flowers in the second year. (Looks kind of like lambs’ ears.) Romans would soak dry spikes in tallow to use as torches!
- Talk about **seed heads/seed dispersal**. Compare to sand burs, which are common at the refuge. Does wildlife use seeds or material containing seeds to survive winter? How?

Non-Living

Soil If soil is accessible, 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? Did it change from the fall? Record notes.

Sunlight Is there a lot of sunlight or just a little? What areas have the most sunlight? How does sunlight influence the plants, soil, and snow in different areas? Have you noticed that the **days are getting longer**? The shortest day of the year, the winter solstice, was on December 21!

- Take notes on **snow depth and consistency** in different places.
- Take notes on **ice color and transparency** when found. (Do NOT walk on lake ice!)

Weather

- Have students notice the **air temperature** before and after entering habitats. What changes do you notice? Feel the **air/wind** against your cheeks as you turn in a circle – is it windy or calm? Does it feel the same in all directions? Compare the wind when you sit vs. when you stand. Does it feel different? How?
- How will today’s weather influence **animal activity**?
- Instruct students to **record the weather** according to their teacher’s expectations. Note current weather conditions, including air and snow temperatures, wind speed and wind direction, cloud cover and type.