WILDLIFE

Bear River Refuge
Migration Matters

Teacher/Volunteer Summary

Objectives:

- Students will understand the concept of migration/migratory birds and be able to name at least two migratory species
- Students will identify three reasons/barriers that explain why "migration isn't easy" (example: loss of food, habitat)
- Students will describe how invasive species impact migratory birds

Core Curriculum Connections:

Grade 4-Standard 5: Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.

Objective 2: Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.

a. Identify common plants and animals that inhabit Utah's forests, wetlands, and deserts
c. Describe some of the interactions between animals and plants of a given environment (e.g., woodpecker eats insects that live on trees of a forest, brine shrimp of the Great Salt Lake eat algae and birds feed on brine shrimp).

Key vocabulary:

- Bird
- Migration
- Flyways
- Wetlands
- Habitat
- Invasive species

Migration Matters

SUMMARY: Student participants increase their understanding of migration and migratory birds by playing Migration Matters. This game demonstrates the main needs (habitat, food/water, etc.) for migratory birds, and several of the pitfalls and dangers of NOT having any of those needs readily available along the migratory flyway.

BACKGROUND: Providing food, water, and habitat for migratory birds is a major portion of the US Fish and Wildlife Service (FWS) & Bear River Migratory Bird Refuge's (MBR) mission. Migratory birds are historically the reason the refuge exists, and teaching the students about the many species of migratory birds that either nest or stop-off at the refuge is an important goal.

The refuge hosts over 200 migratory species including large numbers of Wilson's phalaropes, Tundra swans and most waterfowl, and also has upwards of 70 species nesting on refuge land such as White-faced ibis, American Avocet and Grasshopper sparrows. Without large migratory stopover wetland and grassland habitats, many of these species would not have many alternatives for foraging or nesting habitat suitable to their needs, and the energy-consumption of migration, molting, and breeding could be detrimental without readily accessible food and shelter.

MATERIALS:

- Colored pipe-cleaners in rings to represent "food"
- 5-6 laminated representations of wetland habitats
- 35 Bird Name tags (1 bird per student; 5 spp/7ea)
- 2 long ropes to delineate start/end of migration

PROCEDURE:

Set-up/warm-up: Set up the "game board" in a large outdoor space – preferably on grass if possible. A large indoor space will work if weather does not allow outdoor time. A good alternative (if time permits) is to have the students/participants help set up the game area as it peaks their curiosity and keeps time interactive.

Start by placing your rope on the ground in two areas representing beginning and ending spots for migration. For example – one area will be roped off as "the Tundra" or the starting area where a large amount of migratory birds breed. About 30m away, will be the second area representing the southernmost portion of the migratory pathway such as Mexico or South America. Extra spaces and rope can be used dependent on the number of participants.

Then, place the large Bear River MBR habitat card on the ground in the center of the area, between the two roped off migratory destinations. Once this is completed, around the area and between the two final destinations…places several (4-5) smaller wetland cards that represent

smaller wetland habitat that birds can use as stopover habitat. Next, spread out all of the colored pipe-cleaners that represent "food" for the migratory birds around these habitat cards. Place the "food" rings close to the wetland habitat cards – and more near the Bear River card to illustrate that more food is available near good habitat and how important. Then, give each student a bird name tag to hang around their neck.

Before the game starts…explain to the students that they are each a migratory bird about to take a long trip along a flyway. Explain/discuss: (Migration: Bird migration is the regular seasonal journey undertaken by many species of birds. Flyway: discuss and show map of 3 North American flyways. Which one are we in? Bear River MBR actually is in parts of both the Central and Pacific Flyway.) Then – have the student "birds" flock together by bird species.

Activity:
The activity itself is simple, but can have several incarnations repeated to prove the point that "migration isn't easy."

1. All participants start at the northern portion of their trek. Each will have a bird name tag on so they can flock with birds of their same species, learn the bird names and how to identify, and their bird's song/call. See listing of calls at the bottom of lesson. Once you have given each student a bird tag and taught them their birds' call, you're ready to tell them the rules.
2. The rules are simple. Each bird needs to get to the other end of migration. They make a beak with their fingers, and while making lots of bird sounds, the students run to pick up one colored "food" ring with their "beak" and then go to the nearest wetland card (Bear River poster included) for shelter/water/habitat. They will rest here for a short moment- quietly to avoid predators- and then when the leader says go, continue on safely to the end of migration. That is the easy version – all birds got food and habitat and made it safely through migration.

Next, ask the participants to put all their food back and return to their new "southern" roosts. While they are doing this…quietly remove a few of the wetland habitat cards AND a few of the "food" rings and start the "return migration" by repeating steps the previous steps. This time…there may not be enough food for everyone, and a few of the stopover wetlands may be too crowded. If a student "bird" did not get food or did not get to a wetland…they need to sit out in a side area designated the "bird cemetery." This demonstrates that just the removal of a few small necessities can have large impacts. Discuss this with the participants.

Again, ask the students to return their "food" rings to the playing field. While they are doing this – remove a few more wetland cards and prepare to start the southern migration one more time. BUT, this time, instruct the participants that invasive plant species (explain what these are, how they got here, etc. Invasive plant species are European or Asian, non-native plant species that were planted usually for landscaping and have escaped into the wild – and now outcompete or

choke out other native plants that the birds need as they may not be adapted to eat the invasive.) have taken over some of the land where in the past good feeding grounds existed, and that they can only "eat" or pick up "food" rings of one or two colors, as the other colors represent the inedible or low-in-nutrition invasive plant. Start Migration and repeat steps 1-3! This time, many more students or "birds" will not be able to find food nor suitable habitat…and unfortunately, may not make it through this season's migration. Notice how many more birds are in the "bird cemetery" than made it through migration. Discuss this and some causes of food and habitat loss such as oil spills, proliferation of agricultural fields, suburban sprawl, etc.

Wrap up:
Have the students identify some of the dangers that face migratory birds, as well as reiterate the basic needs (food/water/habitat) for migratory birds. Ask the participants if they can identify any migratory birds that were mentioned during the game, and have the students explain why invasive plant species are an extra risk to migratory birds. Finish up by having students help pick up all the "food" rings and wetland cards if time permits, and to watch and listen for migratory birds on the walk back to the education center.

BIRD CALLS

Canada Goose: Honk, "Wa-AH"
Wilson's Phalarope: nasal "wok wok"
Snowy Egret: Small burp-ish "blaah"
Northern Pintail: high regular duck "quack"
Red-tailed Hawk: high, screeching and descending "weeeeeeessshhh"

Utah Division of Wildlife Resources
Track Stories

Teacher/Volunteer Summary

Objectives:

- Students will list at least three types of signs that wildlife leave behind (tracks, scat, scrapings, burrows, nests, bones, etc).
- Students will distinguish common animal signs from the natural landscape and form realistic hypotheses about that animal's behavior based on their observations.
- Students will identify the tracks, furs and skulls of common Utah animals.

Core Curriculum Connections:

Grade 4 - Standard 5: Students will understand the physical characteristics of Utah's wetlands, forests, and deserts and identify common organisms for each environment.

Objective 2: Describe the common plants and animals found in Utah environments and how these organisms have adapted to the environment in which they live.

a. Identify common animals that inhabit Utah's forests, wetlands, and deserts.
b. Describe some of the interactions between animals and plants of a given environment (e.g., woodpecker eats insects that live on trees of a forest, brine shrimp of the Great Salt Lake eat algae and birds feed on brine shrimp).

Objective 4: Observe and record the behavior of Utah animals.

c. Describe how the behavior and adaptations of Utah mammals help them survive winter (e.g., obtaining food, building homes, hibernation, migration).

Key Vocabulary:

- Naturalist
- Hypothesis
- Nocturnal
- Diurnal
- Hibernation
- Track
- Trail
- Scat

Track Stories

SUMMARY: After discussing why humans infrequently see wildlife and listing the different types of evidence animals leave behind to suggest their presence, students will perform a group activity called Track Stories. Four groups will each examine their own "tracking site:" an area where the tracks of a specific animal are present. Using their observations and a laminated card with additional clues, students will agree on a realistic hypothesis that explains what the animal was doing to create those tracks or other signs. As a class, groups will discuss and illustrate their track stories.

BACKGROUND: Even in lush natural locations, humans are not guaranteed to see wildlife. Many species, such as mountain lions, are rarely seen. This is because wild animals tend to avoid contact with humans. Nocturnal species are not even active at the same time of day as diurnal humans. Animals that are in the process of hibernating are unlikely to be seen as well. Even if we cannot see these animals, they still leave behind signs that they were here:

- Tracks are individual footprints left behind by animals. Oftentimes tracks are lined up into a pattern called a trail. The best places to find tracks and trails are in mud and snow.
- Scat is a fancy word for poop. The shape and contents of scat can reveal information about the animal that made it and what that animal was eating.
- Homes/shelter such as nests and burrows reveal wild animals that live in the area. Different species live in different types of places within a habitat (e.g. tree cavities, near bodies of water, underground) and make different styles of homes.
- Body parts such as antlers and snake skins reveal those animals have been moving through an area. Fur clusters, bones, blood and carcasses suggest predation.
- Sounds are a strategy many wild animals take to communicate, even when hidden. Birds, for example, vocalize to announce their presence, maintain a territory, warn of danger, or attract mates.

MATERIALS:

- 4 large, laminated "Naturalist Know-How" cards
- Castings of animal tracks
- Beaver chew
- Caution tape and/or flags
- An assortment of furs, skulls or other visual aids that coincide with the animals in the activity
- Plastic tarp
- Large dry-erase board with markers
- Noisemaker such as whistle or duck call
- (If hard ground) Loose soil, trowel

PROCEDURE:

Set-up:

Select an area for the class to sit and lay out the tarp. Place the large dry-erase board and markers at the front of the tarp where all students will be able to see. On a table off to the side, set out an assortment of furs, skulls and other visual aids that coincide with the animals in the activity.

Find four spots in the station area to set up tracking sites. If the ground is too hard to stamp obvious tracks, dump water on the area and/or apply a layer of loose soil. After creating a site, block it off with flags and/or caution tape and take measures to prevent students from stepping on the tracks.

The tracking sites are as follows:

- Beaver: Use beaver track castings to stamp tracks around a beaver chew. The tracks may be arranged in a disorganized cluster.
- Coyote and rabbit: Use coyote and rabbit track castings to stamp tracks in a pattern that suggests an interaction between the two. Two parallel lines of tracks works well. Take care to make sure the tracks are realistically spaced (don't space them too close or too far apart considering the animal's size).
- Fox and vole: Build vole holes – loose soil and a trowel might be necessary -- or make scrapings at the base of a log. Stamp fox tracks around holes.
- Mule deer: Find a shrub or low-hanging tree. Break a branch or remove leaves in a conspicuous way, or use a plant that already has similar damage. Stamp mule deer tracks around the base.

Attempt to make the sites look as natural as possible. To make the station more convincing, consider stamping a few trails outside the delineated area. Students tend to be more engaged if they assume the tracks are genuine.

Warm-up:

Students will seat themselves on the tarp in front of you. After welcoming them to the station, ask students if there is any wildlife around us. Why can't we always see them? (They are wild animals, not pets; wildlife tends to shy away from humans; many animals are nocturnal; etc.) What are some ways we can tell that there is wildlife here? (Tracks, scat, scrapings, nests, bones, etc.)

Introduce yourself and explain to students that you are a naturalist, and part of your job is being able to read and understand these signs of wildlife to learn more about how they live. Explain that tracking is not just about being able to identify those signs; it's about looking at how those signs were made and coming up with a realistic explanation of what happened there. That way, you can understand more about which animals live here and what they're up to.
Tell students that in this station you are going to teach them how to be naturalists too.

Activity:
Tell students that you have four places roped off where you found some signs of animals. If they listen closely, you'll tell them which site they're going to in just a moment.

Students need to look carefully at what is inside the caution tape. There might be tracks, or there might be other signs. Their goal is to come up with, as a group, a realistic explanation of what those animals were doing to make those tracks or signs. They are essentially coming up with a story that explains what happened there. Each station has a laminated “Naturalist Know-How” card that gives hints and clues in the form of pictures. When they're ready, they should come back to the table and find their animal or animals on the table full of furs and skulls.

Emphasize that students are to go nowhere but their station and then the table. Do not let students wander off or visit other stations. Also emphasize that each group only has 5 minutes to decide on their track story. When you use the noisemaker (duck call, whistle, etc.), explain that students must immediately come to you and listen to your instructions.

Quickly divide students into four groups (e.g. by row they are sitting in) and send them off to their stations – walking, not running – one group at a time.

Students will perform the activity as described. Invite parent volunteers to rove around and help groups. Presenter will rove around the tracking sites to keep students engaged.

Have each group tell the other groups their track story. While this is happening, the presenter draws or writes what that group is describing on the dry-erase board to illustrate it. If feasible, walk as a group from station to station rather than sitting on the tarp.

Wrap up:
Reinforce the main idea: how do we know animals are here without seeing them?

Ask students if there is any way for us to know if our track stories are correct. (They might say yes, like in the off-chance you see an animal making the tracks). Tell them that might be the case, but most of the time you'll never know for sure. But if you go explore nature on your own time, and pay very close attention to your surroundings, and study animal signs, you can become a very skilled naturalist – which means there would be a better chance your hypothetical track stories actually happened.

If extra time is available, move as a single group or split into parent-led smaller groups to look for other signs of wildlife activity in the area.