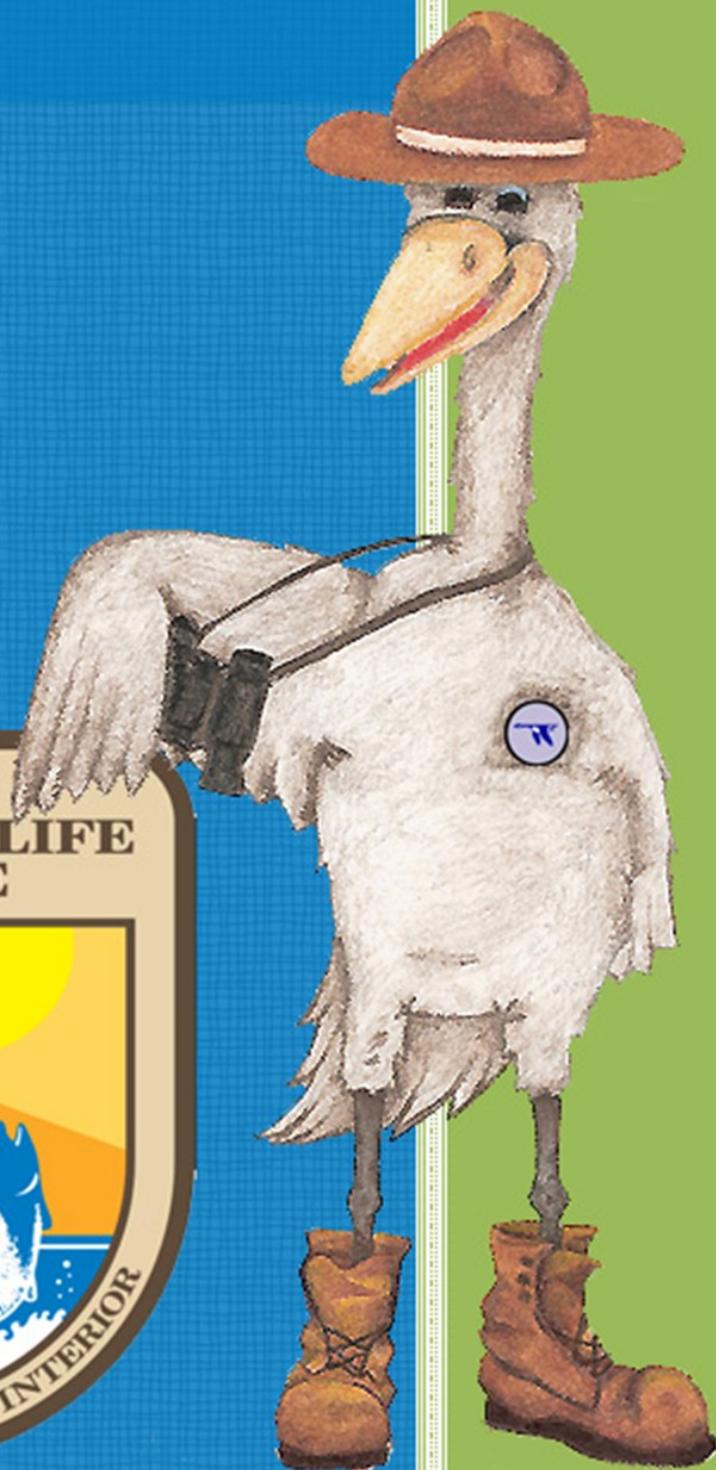


Bear River Migratory Bird Refuge

Junior Ranger Program



Will
Alvord



The Junior Ranger Program at the Bear River Migratory Bird Refuge has been designed for you and your child to explore and discover the wonder of the ecosystems of the Bear River Watershed. The activities in this booklet aim to link science with experience and creativity, while teaching Utah curriculum standards and fulfilling Scouting Merit Badge requirements. **Work with your child to complete the activities-** don't worry if you don't know all the answers! You don't need to be an expert; you simply need to be enthusiastic about exploring the outdoors. The Junior Ranger Program will allow you and your child to learn side-by-side, or let your child or student explore on their own.

Read the instructions below to find out how to become a Junior Ranger, then, get outside!

[It's easy to become a Bear River Refuge Junior Ranger!](#)

Take as much time as you like to complete the Junior Ranger program. You can keep this activity book when you are finished, but please return the pack and all its tools before you leave.

When you have completed at least [3 Outdoor](#) and [2 Workbook](#) activities you will earn the [Bear River Jr. Ranger patch](#).

1. Fill out the Junior Ranger Information Form on the following page
2. Have your parents fill out the evaluation form when you return the Activity backpack.
3. Show a Park Ranger or Volunteer what activities you finished when you check

Junior Ranger Information

Name _____

Age _____

Use the supplies in the Junior Ranger backpack and the glossary at the back of the book to help you!

TABLE OF CONTENTS

AND ACTIVITY SIGN-OFF

<i>Page</i>	<i>Activity</i>	<i>Where</i>	 When completed
Page 5-6	Tool Time	Outside	<input type="checkbox"/>
Page 7	Binocular Boot Camp	Outside	<input type="checkbox"/>
Page 8-9	Getting to Know the Refuge	Workbook	<input type="checkbox"/>
Page 10-11	I Sense a Scavenger Hunt	Outside	<input type="checkbox"/>
Page 12-13	Map Your Location	Outside	<input type="checkbox"/>
Page 14-15	Fun With Feathered Friends	Outside	<input type="checkbox"/>
Page 16	Which Beak Fits the Bill?	Workbook	<input type="checkbox"/>
Page 17	Bird Pledge	Workbook	<input type="checkbox"/>
Page 18	Weather Watching	Outside	<input type="checkbox"/>
Page 19	My Water Poem	Workbook	<input type="checkbox"/>
Page 20-21	Going Buggy	Outside	<input type="checkbox"/>
Page 22	Micro Hike	Outside	<input type="checkbox"/>
Page 23	Plant Wars	Workbook	<input type="checkbox"/>
Page 24-25	Glossary		

Get Outside Activity

TOOL TIME

Tools

Everything in your Backpack!

Setting

Bear River
Migratory Bird Refuge

Time for the Activity

30 - 60 minutes

Vocabulary

Words to Learn

Refuge
Tools
Field guide
Binoculars
Insect
Journal
Magnifying glass
Petri dish

Summary

Tools are something people use every day. Ask your Mom and Dad...I'm sure they use tools at home or at work. Scientists use a lot of special tools, and you have many great and fun tools in your Jr. Ranger Backpack. These tools are going to help you with your outdoor activities and to enjoy and learn more about the nature and world around you.

Activities

Start out with a simple task: Dig through your bag and see what fun things are in there! Check all the pouches.

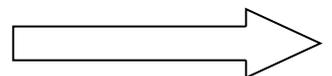
Go outside and explore the Bear River Migratory Bird Refuge. Find the Binoculars in your pack, and take them out. Look through them at something in the distance...like a plant or a sign, and practice focusing them so you can see clearly. Use the wheel or button in the middle of the binoculars to make the focus even clearer. Now try it on something even farther away and focus again. If there is a bird or other animal around, see if you can focus on something moving. Remember, practice makes perfect. And if you spot an animal or bird and can identify it – write it down here, or you can draw it on page 13.

In your pack, in the big pouch, are six field guides. Field guides are special tools that anyone can use to help identify birds, plants, insects or even an animal footprints. Check out the 6 different field guides in your pack, and see if you can find which guide will be the right tool to use to find the following:

- What Raccoon Tracks look like?
- What does an American avocet look like?
- How big is a Sedge sprite?
- What kind of animal is a cooter?

And now that you know how to use a field guide, see if you can use one to identify a bird or animal you see on the Refuge today!

More activities on the back!



Tool Time Activities (Continued)

1. There are two nets in your backpack...the black net is for the water and the blue net is for the air. Use the blue net to try and catch a butterfly. A butterfly is an insect with pretty wings and a long drinking tube for sucking up nectar from flowers. What season of the year will you find the most butterflies? Summer! If you catch a butterfly or any flying bug...grab the Bug Viewer and check out your new friend up close. If there are no butterflies around...you can use the net to practice by trying to catch blowing leaves and examine those with your Magnifying glass.

2. Are you near a wetland? A wetland is an area of land that remains wet for at least part of the year...like a pond or a marsh...so if you're on the Refuge, I bet you're near a wetland! Time to use the black, water net and see if you can catch any bugs. Have a Petri dish ready – that's one of the small plastic dishes in the side pouch of your pack – with a little water in it. Dip your net into the water and pull it back towards the shore and empty anything you see wiggling into the Petri dish. Then, grab your magnifying glass and look at it up close. You can also use your Pond Life field guide to help you identify what you've caught. Make sure to return it all back to the water when you're done exploring!

Don't forget to use all the other great activities in the Jr. Ranger Folder inside your backpack. In it you will find fun activities using a Bird Identification wheel, a Weather Window and a Water Cycle wheel. Use these great tools to learn things like the following:

Name two ways to identify a Northern shoveler.

What are the 5 “tion” words in the Bear River Water Cycle?

Which type of clouds mean a change in weather is coming?



Final Discovery Questions

So, now that you know a whole lot more about tools...especially the ones in your Jr. Ranger backpack...here are a few last questions for you to think about. If you have an answer – feel free to write it down here in your activity book.

- Can you name a tool a Biologist or Park Ranger on a Refuge would use?
- What are some tools that your parents or teachers use every day?
- What was YOUR favorite tool in the backpack? And why was it your favorite?

Get Outside Activity

BINOCULAR BOOT CAMP!

Tools

Binoculars

Setting

Bear River
Migratory Bird
Refuge

Time for Activity

5-10 minutes

Vocabulary

Words to Learn

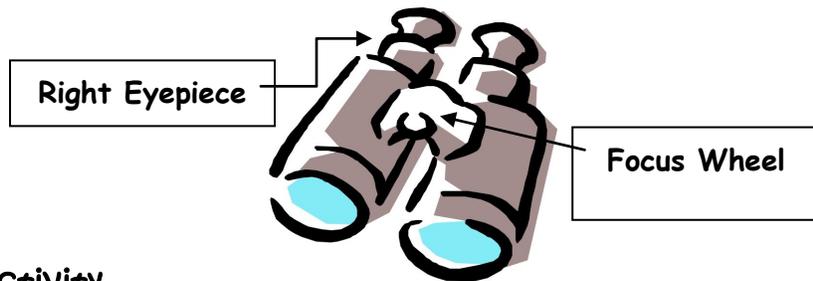
Binoculars
Focus
Focus Wheel
Eyepiece
Image

Summary

Explore the Refuge and learn in a quick and easy way...how to use **Binoculars!**

Get outside and FOCUS!

Follow the 5 easy steps below to learn how to use your binoculars...and don't forget; practice makes perfect.



Activity

1. Place the strap around your neck.
2. Hold the binoculars up to your eyes. Look at something that won't move – a tree, rock or sign. Look through the binoculars and bend the side hinges to match the binoculars to your eyes. Look until you see only a single **image**.
3. Close your right eye and move the **focus wheel** until the image is sharp.
4. Open your right eye and close your left, spin the right **eyepiece** until the image is sharp.
5. You won't need to **focus** the right eyepiece again; you will just need to use the focus wheel.
6. It's easier to find birds and animal with your eyes first. Keep watching them, and then use the binoculars for a closer look by bringing them up to your eyes.

Final Discovery Questions

Now that you've learned how to focus and use your binoculars, try the following:

1. How many birds can you see?
2. Can you see any other types of animals?
3. How far away do you think the farthest thing you can see with your binoculars is?



Workbook Activity

GETTING TO KNOW THE REFUGE

Read the story below and use the words in **bold** to help you complete the crossword puzzle.

The **Bear River Migratory Bird Refuge** lies in northern Utah, where the **Bear River** flows into the **Great Salt Lake**. The Refuge covers nearly **80,000 acres** comprised of marshes, uplands, and open water. The Refuge provides habitat for **migrating birds** and is found at the end of the Bear River **watershed**. Millions of birds pass through the Refuge each year to rest and feed on the abundant food found in **wetlands** on their way to nesting sites. In the early 1980's, after several extremely wet winters and cooler than normal summers, the Great Salt Lake began to rise above its normal shoreline. By 1986 the lake began rising so high, it began to **flood** certain areas including the dikes, Visitor Center, machine shops, and housing facilities on the refuge. In 1989 the lake receded enough to allow volunteers to begin the long process of reconstruction. Slowly, the refuge is recovering. The **environment** is slowly growing back with more wetland shorebirds increasing numbers since the flood. At the Bear River Migratory Bird Refuge people of all ages enjoy learning about the hundreds of species that live in the **Wetland habitat**. People have the chance to go **birding** and view all the animals and plant life that live on the Refuge.

Across:

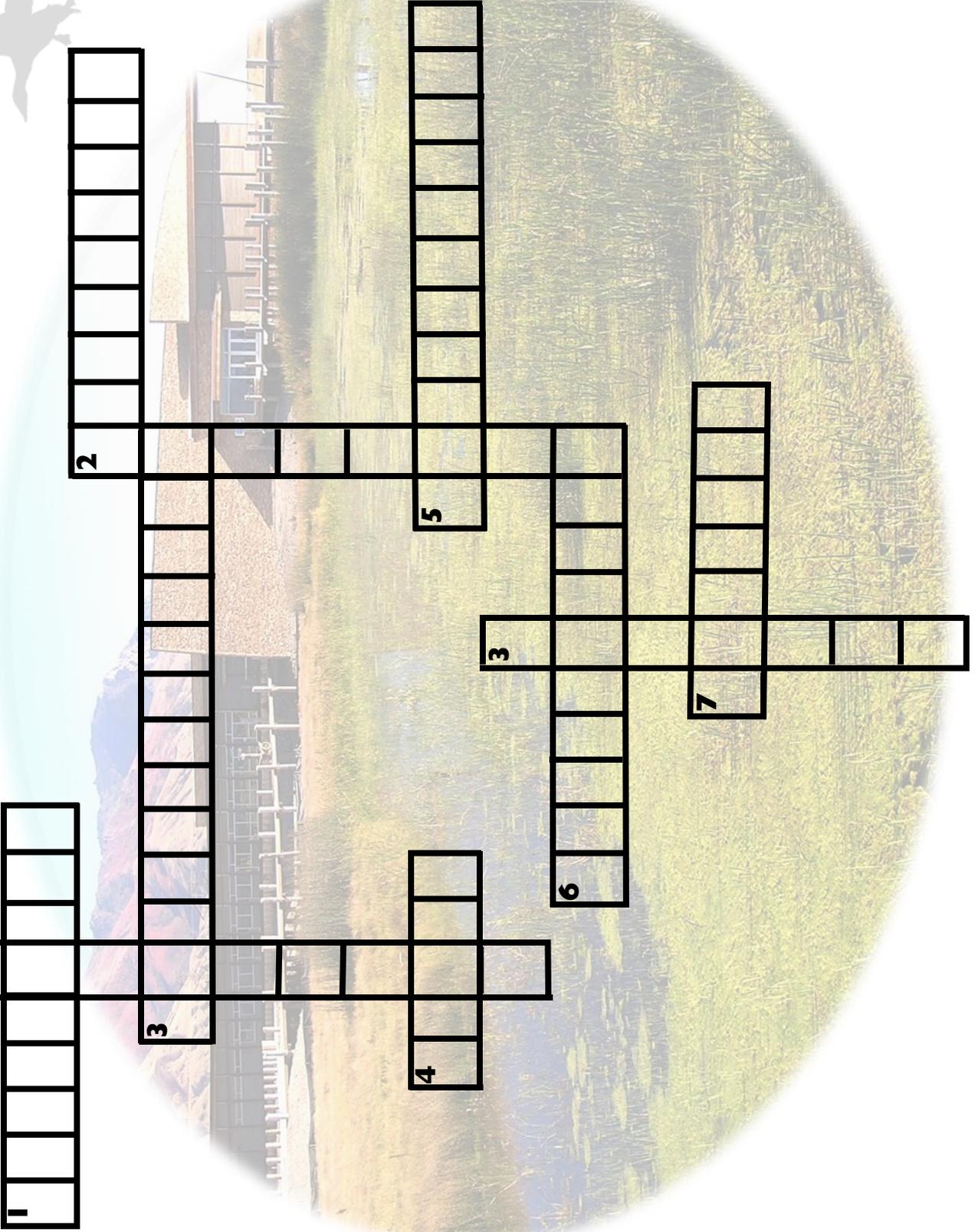
1. The largest body of water flowing into the Great Salt Lake?
2. The system where our water all flows from the top to the bottom?
3. The body of water at the mouth of the Bear River?
4. What happened in the 1980's that destroyed a huge area of the Refuge?
5. The area where animals and plants live?
6. How many acres make up the Bear River Refuge?
7. What activity can people enjoy at the Refuge?

Down:

1. The annual journey birds make to nest, passing through the Refuge?
2. The habitat found at the Refuge for migrating birds?
3. The food, water, shelter, and space animals need to survive?



Bear River Migratory Bird Refuge



A crossword puzzle grid is overlaid on the circular image. The grid consists of black squares and white squares. The white squares are arranged in a pattern that allows for the following words to be filled in:

- Across:**
 - 1. Bear River (10 letters)
 - 2. Watershed (8 letters)
 - 3. Great Salt Lake (11 letters)
 - 4. Flood (6 letters)
 - 5. Environment (10 letters)
 - 6. 74000 acres (10 letters)
 - 7. Birding (7 letters)
- Down:**
 - 1. Migration (9 letters)
 - 2. Wetlands (8 letters)
 - 3. Habitat (7 letters)

Across: 1. Bear River 2. Watershed 3. Great Salt Lake 4. Flood 5. Environment 6. 74000 acres 7. Birding
Down: 1. Migration 2. Wetlands 3. Habitat



Get Outside Activity

I sense A Scavenger Hunt

Summary - Using your senses makes sense!

Everybody has **senses**, and there are 5 kinds: **sight, sound, smell, taste** and **touch**. We're going to use 4 of them today. Follow the simple instructions below to begin your observations and explorations.

TOOLS

Your 5 Senses

Setting

Bear River
Migratory
Bird Refuge

Time for Activity

5 – 10 minutes

Vocabulary Words to Learn

Senses

- Sight
- Sound
- Smell
- Touch
- Taste

Activity

Sight: Use your eyes and see if you can **SEE** a bird, a frog or a bug.



Sound: Now close your eyes...best if you sit or lie down first. Keep them closed for one whole minute and see if you can **HEAR** a bird, a frog or the wind.



Smell: Put your face up close to some plants..what does it **SMELL** like? Now go down by the water...does it smell different?



Touch: Always remember to be very careful about what you touch in nature...some plants can be dangerous. See if you can find some grass and run your fingers along it. How does it **FEEL**? If there is any sand or mud along the trail...touch it and see if you can draw what it feels like on the next page.



I Sense a Scavenger Hunt:

Now use all your senses to play the Scavenger Hunt of Senses game on the next page! Don't forget – never **touch** or **taste** anything outside in nature unless your Mom or Dad has said it is safe.

Have Fun!

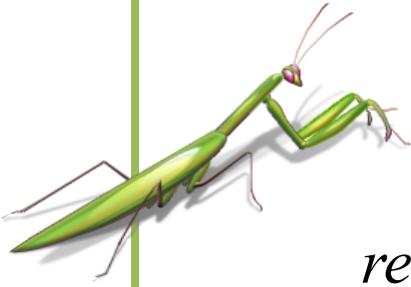


10



I SENSE A SCAVENGER HUNT

(circle what you find)



*Can you **SEE** something:
red, green, round, flying, wet*

*Can you **HEAR**:
birds singing, insects buzzing, wind blowing*



*Can you **SMELL**:
flowers, scat (animal poop), dead grass or
hay*



*Can you **TOUCH**:
something fuzzy, something smooth, mud,
grass*

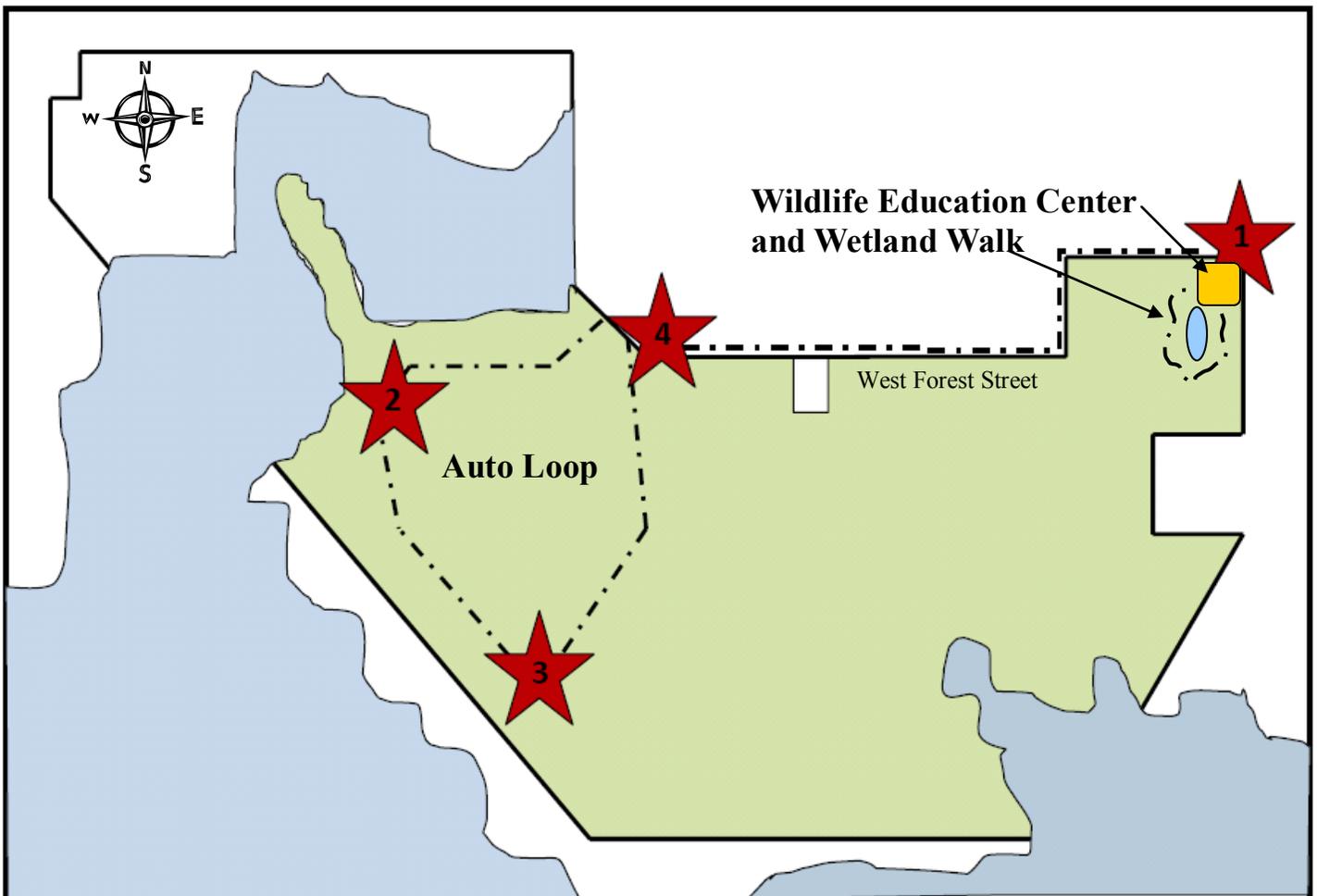
*Can you use all your **SENSES** to find:
a nest, spider web, animal tracks,
blooming flowers, a hole in the ground,*



Get Outside Activity

MAP YOUR LOCATION

Have your parents take you on a drive on the Refuge Auto Tour Loop. As you reach each spot with a star on the map below, write what birds, animals, or plants you see. Draw a picture of what you see at any point on the opposite page. Or, if you only have time to stroll on the Wetland Walk, draw a picture of what you see from one of the park benches.



Map Key

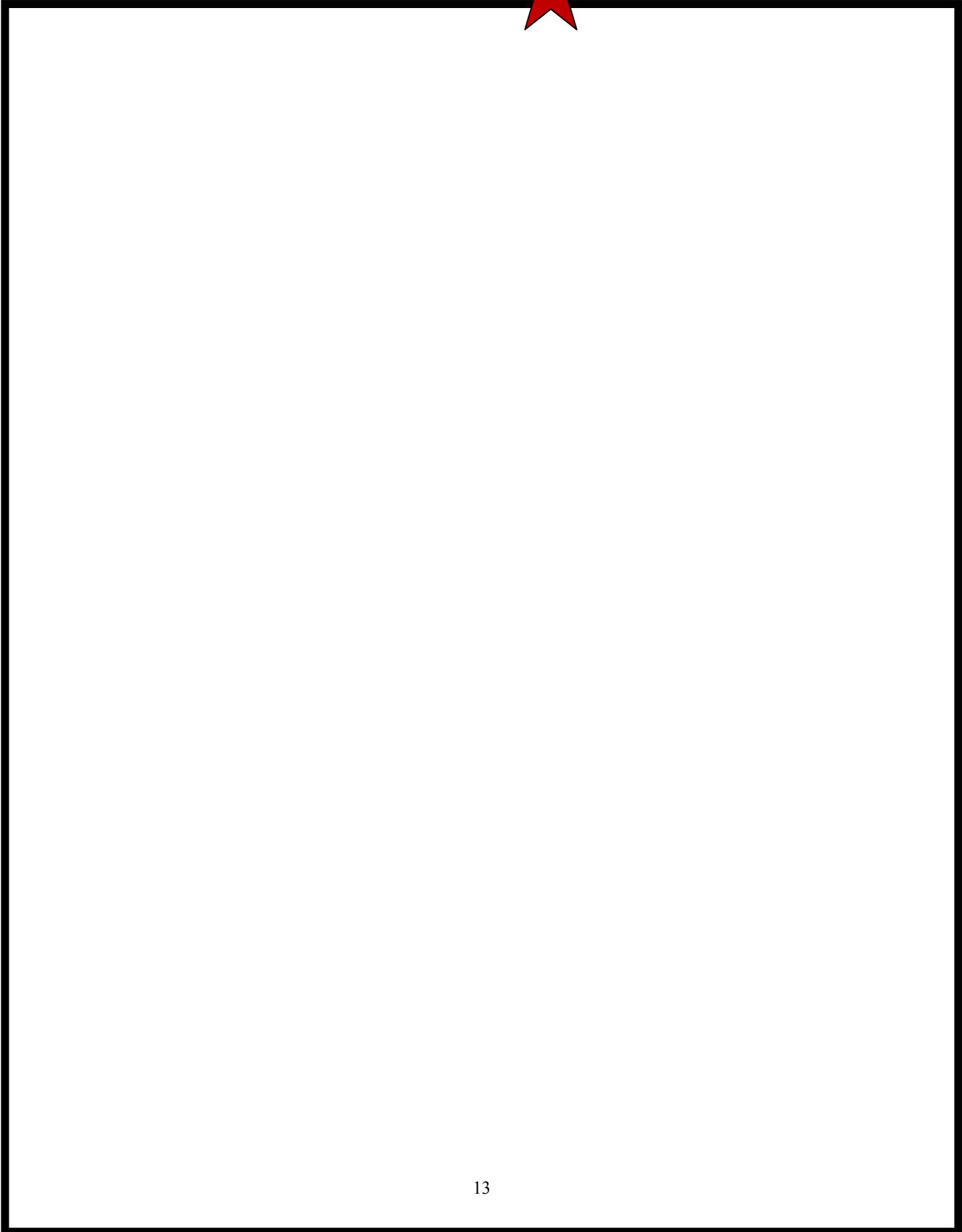
Refuge Boundary ——— Great Salt Lake 

Auto Tour Route - - - - - Place of Interest 

Wetlands 

-  1. _____
-  2. _____
-  3. _____
-  4. _____

Draw a picture of what you see at  or on the Wetland Walk



Get Outside Activity

FUN WITH FEATHERED FRIENDS

Tools

Binoculars
Utah Bird field
guide
Bird Nest & Egg
book
Outdoor Journal
Bird Wheel

Setting

Bear River
Migratory Bird
Refuge

Time for Activity

30 - 45 minutes

Vocabulary

Words to Learn

Field marks
Stopover site
Habitat
Territory

Summary

A whole lot can be learned about birds – our feathered friends here at the Refuge – by just simply watching them for a while and observing their behavior.

Bird-brained Behavior!

Behavior is how someone acts...what they do, for how long and why they do it. Birds have many different behaviors depending on the season and even the time of the day. Lots of birds like to use the Refuge as a **stopover site** during **migration**. That means, while flying to a different place (like South in Winter or North in the Spring), the birds stop here for a time to rest and get more food. Now you're ready to become a Bird Behavior Biologist!

Activity

1. Find a nice spot on the Refuge where you can sit for a while and have a good view of the birds, maybe on the Auto Loop or the Wetland Walk..

2. Grab the following 3 things from your backpack:

- Binoculars
- Utah Bird field guide
- Pencil



3. On the next page...you will find a Bird Observation Form. This is where you will write down the birds you see. For example: what kind of bird, what it was doing – it's behavior, and where you saw it. There is also a spot to write down other things you noticed about the bird and a spot to draw the bird's **field marks**.

4. Another thing to look for is evidence of bird **nesting**. Watch a bird, especially a female if you can spot one, and see if she keeps going back to the same spot. If so, she may be building or sitting on a nest. See if you can spot the nest with your binoculars and use your Bird Nest & Egg book to see what kind it is and how many eggs might be in the nest. Draw a picture of the nest or eggs on the next page in the last column.

5. In your pack is a Bird Wheel with 11 birds that are special at the Refuge. See if you can match the bird pictures with their descriptions. Did you see any of these birds on the Refuge today? Which ones? _____



BIRD OBSERVATION FORM

What kind of bird did you see?	Where did you see it?	Behavior - What was it doing?	How Many did you see?	What were the bird's field marks? Can you draw them?

Field Marks = markings on a bird that help you tell it apart from another bird...like size, colors, size and type of beak, type of legs and feet, and more. Check the bird field guide!

Bird Behaviors - Look for: feeding, nesting, flying, swimming, soaring, diving, singing, and defending territory (which means chasing another bird or animal away from its nest.)

Final Discovery Questions

Now that you've watched birds on the Refuge, watch for them in your backyard. Is their behavior different? Can you find any birds nesting in your backyard or town park? What are they eating? You can help them by putting out a feeder or even some nesting material.



Workbook Activity

WHICH BEAK FITS THE BILL?

You can learn a lot about a bird by looking at its beak, or bill. Beaks are special adaptations that can tell us what a bird likes to eat, the habitat it lives in, and more. Match the beaks below with the correct food by drawing a line to connect them.

Beaks

Canada goose



Bald eagle



American avocet



Western kingbird



American goldfinch



Food



Fish



Flying Insects



Water Plants



Seeds



tiny Water Bugs

The Bear River Migratory Bird Refuge is for the birds! We make sure to keep great habitat (food, water, shelter and space) for birds of all kinds that live or visit here. We do this in many ways...and you can help! If you want to help conserve birds, you can start in your own back yard or neighborhood by reading and signing the pledge below and doing some or all of the things listed. Once you take the pledge, cut it out on the dotted lines and put it somewhere you and your family can see it every day to help you remember all the things you can do to help birds.

MY PLEDGE TO HELP BIRDS!

I, _____, pledge to take the following actions to help conserve birds wherever and whenever I can. (Circle the birds next to each action you pledge to help with!)



Put up a bird feeder - and keep it clean and filled with good food



Never to harm native birds, their nests or eggs



Keep all cats INDOORS!



Tell all my friends & family to visit and support a National Wildlife Refuge



Avoid littering and polluting to keep the water, air, and ground clean for the birds...and everyone else!



Help my parents plant native plants birds like for food



Hang decals or stickers on large windows to help prevent birds from striking the windows



Encourage my parents or other friends and family who drink coffee to buy only shade-grown coffee



Spread the word and get my friends and family to sign this Bird Pledge too!



Get Outside Activity

WEATHER WATCHING

TOOLS

Weather Window
Binoculars
Your Imagination

Setting

Bear River Migra-
tory Bird Refuge

Time for Activity

10 - 20 minutes

Vocabulary

Words to Learn

Binoculars
Weather
Cloud types:
Cirrus
Cirrostratus
Circumcumulus
Altostratus
Altostratus
Cumulus
Stratocumulus
Stratus
Nimbostratus
Cumulonimbus

Summary

Explore the clouds above you and what they can tell you about the **weather** to come!

Get outside and FOCUS!

Follow the 4 easy steps below to learn how to use your **Weather Window**, learn to identify the different types of clouds, and use cloud identification to predict the weather.

Activity

1. Sit down or lie on your back and hold the **Weather Window** out at arm's length – the picture side facing you.
2. See if you can match the real clouds you can see through the center of the window with the pictures on the sides of the Weather Window. Once you've matched the clouds...flip the Weather Window over and read about that type of cloud and what kind of weather it can help predict.
3. Use your imagination to see shapes in the clouds. What can you see? Describe it here...or draw a picture on the next page next to your water poem!
4. Use your Binoculars to look even closer at the clouds, noticing how they move and change shape and record what you see.

Final Discovery Questions

Now that you've learned how to use the Weather Window, here are a few more things you can explore:

1. How many different types of clouds are on the Weather Window?
2. Can you find more than one kind of cloud in the sky above your house?
3. What are two kinds of clouds you can remember and look for later...and what type of weather do they bring?

After using the Water Cycle Wheel in your backpack . . . Imagine you were a drop or rain. Where would you travel to? What would you change into? Write a poem or story about your travels as a drop of water.

My Water Poem

By: _____



Get Outside Activity

GOING BUGGY!

Tools

Butterfly/Insect net
Two-way Bug Viewer
Magnifying glass
Butterfly/Pond Life/Dragonfly field guides

Setting

Bear River Migratory Bird Refuge

Time for Activity

15- 30 minutes

Vocabulary

Words to Learn

Insect
Butterfly
Moth
Grasshopper
Praying Mantis
Magnifying glass
Diagram

Summary

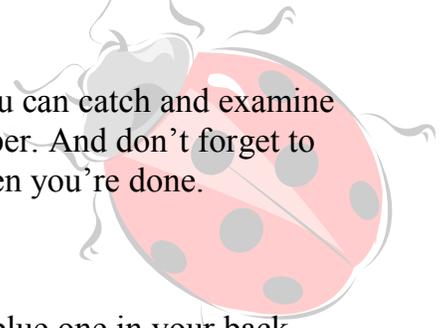
Explore the grass and air around you for **insects** of all kinds!

Buggy about Bugs!

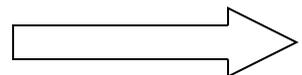
Follow the 4 easy steps below and see if you can catch and examine an insect like a butterfly, moth or grasshopper. And don't forget to release it right back where you found it when you're done.

Activity

1. Grab your butterfly net...it's the big blue one in your backpack, and see if you can capture a butterfly, moth or maybe even a grasshopper or praying mantis. Make sure to be careful and not harm the bug.
2. If you catch an insect, put it inside your two-way bug viewer to get a better and up-close look. See if you can find and name all the bug body parts. To help you, there are **diagrams** on the next page. Use your **magnifying glass** to look at the pictures closely and compare it to your live bug.
3. Use the Butterfly/Moth, Dragonfly or Pond Life field guides to try and identify what kind of insect you captured. Once you've finished looking closely at the bug...make sure to let it go right back where you caught it!
4. Use your Magnifying glass to look at a small part of the ground and grass around you...see if you can find any even smaller bugs or creatures...like ants or worms. Look at them really closely and describe what you can see.
5. On the next page, below the bug pictures, is a quick quiz on all you've learned about bugs and bug body parts. You'll need your magnifying glass to look closely at the pictures. See if you can fill in all the answers and become an Insect Expert!



Final Discovery Questions on next page



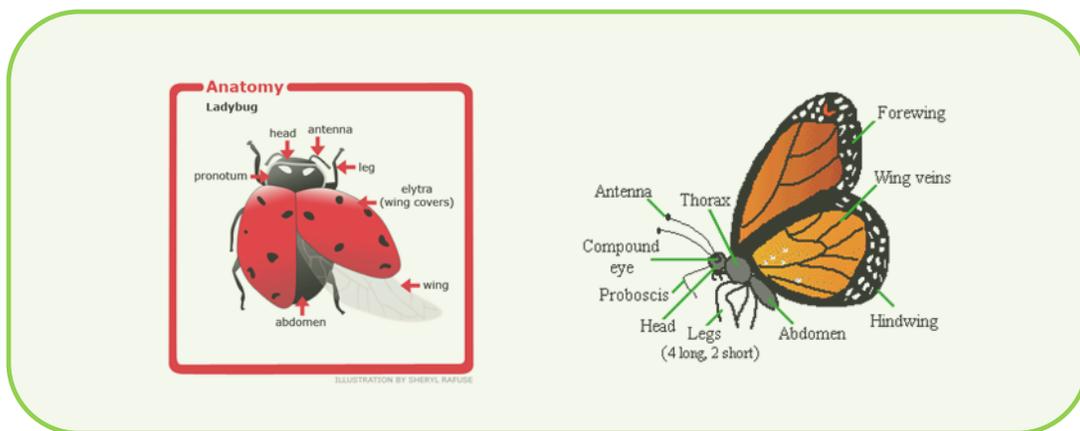
Final Discovery Questions

Now that you've had some fun catching insects with your net, here are a few more things to think about:

1. How many different kinds of insects can you find in your backyard?
2. What do the insects in your yard like to eat?
3. What season doesn't have any bugs around?

SPECIAL DISCOVERY GAME!

Use your **Magnifying Glass** to check out the **diagrams** (that means labeled pictures) below. Use them to help identify any live bugs you catch...but also, use the diagrams as a fun quiz game about bug body parts. See if you can answer the 5 questions below and become an Insect Expert!



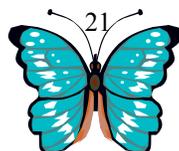
How many legs do insects have? _____

What is the name for a bug's wing covers? _____

What is the name of the long tube that a butterfly has instead of a mouth or tongue?

What kind of eye do insects have? _____

How many spots can you count on the Ladybug? ____ on the butterfly? ____



Get Outside Activity

MICRO HIKE

Habitats provide food, water, shelter and space for animals.

They can be big. Grizzly Bear habitat can stretch 100 square miles or more! Habitats can also be very small. Find a spot off the Wetland Walk Trail that is the size of this piece of paper. Using a magnifying glass, examine each and every tiny part of the habitat in front of you. Draw what you find in the space below. Use your field guides to identify any bugs or plants you find.



Workbook Activity

PLANT WARS

While some plants on the refuge are **Native** (originally from here in Utah), other plants have been introduced to the area, and are **Invasive** (not native to the area and try to take over). Invasive species often take resources away from native plants and animals, changing the natural habitat. The Refuge tries to stop invasive plant species by mowing, grazing, and by spraying chemicals to kill the plants. It is very hard to get rid of invasive plants.

Read the descriptions below and decide which plant you would rather have here in the Utah habitats and write that plant's name in the winner column.

GREEN TEAM

Cattails- A dense sausage-like cluster of flowers on top. Used as nesting cover for many birds and new shoots and stems as food for geese and muskrats. Also helps filter water to keep it clean.



MATCH 1

Cattails
vs.
Phragmites



WINNER

RED TEAM

Phragmites- Our tallest grass, with tall stalks. Birds can use it for nesting, but it grows so thick and dense that it is difficult for wildlife to get through. I can push out cattails and does not have much nutritional value as food for wildlife.

Dogwood- A group of shrubs, usually with dark brown to red stems and branches, that produces nutrient rich berries that are good food for migrating birds and other wildlife.



MATCH 2

Dogwood
vs.
Saltcedar



WINNER

Saltcedar- Clusters of pink blossoms appear on these shrubby, slender-branched, small-leaved trees. Saltcedar tolerates high amounts of salt and sucks up huge amounts of water, often drying up ponds and streams.

Wheatgrass- The most common of the bunch grasses found on the Refuge. It remains green longer than most plants. It can go without water for a long time and provides excellent cover and food for birds and rodents.



MATCH 3

Wheatgrass
vs.
Medusa head



WINNER

Medusa Head- Has narrow, rolled leaves giving the plant a slender appearance. One to several stems grow upright from the base of the plant. This plant can outcompete other grasses and has little nutritional value to wildlife.

Glossary

Below are some of the words found in **bold** in the Junior Ranger booklet. Use them to help you complete the activities and learn more about wildlife.



Beak

the bill, or mouthpart, of a bird.

Behavior

observable activity, or manner of acting, in a human or animal

Binoculars

an instrument for making distant objects look closer

Bird

a warm-blooded animal, having a body covered with feathers, wings, scaly legs, a beak, and no teeth, and bearing young in a hard-shelled egg.

a

Butterfly

an insect with a slender body, a pair of antennae, and large, colorful wings

Cloud

a visible collection of particles of water or ice suspended in the air, usually at an elevation above the earth's surface. There are many types of clouds including: Stratus, Cirrus, Cumulus, and Cumulonimbus.

Field Guide

a portable illustrated book to help identify birds, plants, rocks, etc., as on a nature walk

Field Mark

a characteristic used for identifying birds or animals when looking at them in the field

Grasshopper

an insect with large hind legs for leaping and special mouth parts for chewing vegetation

Habitat

Food, water, shelter and open space plants and animals need to survive.



Insect

An animal with three body parts (head, thorax, abdomen) and three sets of paired legs (6 total) and usually two wings

Invasive

A species of plant or animal introduced into a new area, usually with negative impacts on local plant and animal populations.

Migration

The seasonal movement of animals for breeding or weather reasons

Native

A species of plant or animal found locally.

Refuge

A safe place. A National Wildlife Refuge is land set aside as a safe place for wildlife.

Territory

An animal's home range or domain, which they protect for its food and nesting habitat

Tool

Anything used (usually handheld) to help in accomplishing a job or task

Watershed

The area where all water drains to one place. Bear River MBR is in the Bear River watershed

Wetland

A type of habitat that has water on it at least part of year...such as a swamp, bog, river or lake





This Jr. Ranger Activity Backpack was created by the staff and volunteers of the Bear River Migratory Bird Refuge, with special thanks to the Friends of the Bear River Refuge.