



Exploring Habitats

2nd Grade Field Trip **Preparing For Your Trip**





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Exploring Habitats 2nd Grade Field Trip

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Welcome and Need to Know Information

Dear Teacher,

This packet contains all the information you will need to prepare your students for an “Exploring Habitats” field trip to Glacier National Park.

- The field trip lesson plan on pages 14-20 should answer most questions about field trip logistics, objectives, and schedules.
- The rest of the lessons are meant to prepare students for the concepts and vocabulary highlighted on the field trip. Each activity can serve as a pre-visit introduction or a post-visit assessment/extension. A suggested unit plan organization is located on the following page.
- Glacier’s [SmartBoard lessons](#) are a great way to supplement this unit.
- Visit our [website](#) for more lesson plan ideas and background information for any field trip. This guide contains only a sample of what is available.

Be sure to confirm the date(s) and meeting place for your field trip (received via email are correct). There is no cost for this field trip. A waiver for the park entrance fee has been processed for your class(es). [Travel grants](#) from the Glacier National Park Conservancy may be available to schools with restricted travel budgets.

The education ranger assigned to your group will call you before your field trip date to discuss the schedule and answer any questions. You can also reach them at 406-888-7899.

Our education programs are made possible by the support of the Glacier National Park Conservancy. Thank you for introducing your students to the National Park Service mission and the wonders of Glacier!

Glacier National Park
Education Staff



Glacier National Park
CONSERVANCY

Glacier’s Education Goals

- Provide opportunities for the students to form emotional and intellectual connections with park resources and values.
- Introduce students to the National Park Service mission and significances of Glacier.
- Provide curriculum-based, outdoor education experiences that are age appropriate and supplement classroom learning objectives.
- Introduce students to the value of protecting natural and cultural resources for current and future generations and to encourage actions we can all take to be good stewards of this special place.



Suggested 5-Day Lesson Sequence with Field Trip

	Summary	Objectives <i>Students will understand:</i>	MT and Next Generation Science Standards	Materials
Pre-Field Trip <i>Lesson 1 - National Park Service Symbols</i>	Students learn how the design of the National Park Service arrowhead is made up of symbols and have a chance to create their own design.	<ul style="list-style-type: none"> The symbolism of the National Park Service Arrowhead How to use their understanding of symbols to create their own arrowhead design 	MT.SS.K-12.2 Students analyze how people create and change structures of power, authority, and governance to understand the operation of government and to demonstrate civic responsibility. K-ESS3-3 - Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	<ul style="list-style-type: none"> Picture of the National Park Service Arrowhead Photos of other National Park Service sites
Pre-Field Trip <i>Lesson 2 - Web of Life</i>	Students will create a food web that demonstrates the interconnectedness of animals in Glacier National Park.	<ul style="list-style-type: none"> The inter-relationships of animals and plants through the weaving of a simple food web 	MT.SCI.K-12.3 Students... demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. K-ESS3-1-Use a model to represent the relationship between the needs of different plants and animals...and the places they live.	<ul style="list-style-type: none"> Ball of string or yarn Paper and crayons Sample Glacier food chain Who Eats Whom? chart
Pre-Field Trip <i>Lesson 3 - Habitat is Home</i>	Students will draw pictures of their homes to compare animal and human homes.	<ul style="list-style-type: none"> The basic parts of an animal's habitat 	MT.SCI.K-12.3 Students... demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.	<ul style="list-style-type: none"> Pictures of human and animal homes Drawing paper and pencils
Field Trip Day <i>Exploring Habitats</i>	Students will learn about the different types of habitats in Glacier National Park and the requirements that all animals have to survive there. The students will take a 1-2 mile hike to explore these habitats closer.	Vary depending on field trip. Talk to the ranger before your visit for more information.	Vary depending on field trip. Talk to the ranger before your visit for more information.	<ul style="list-style-type: none"> Appropriate clothes Nametag Lunch Adult helper
Post-Field Trip <i>Lesson 4 - Is There Room for Everybody?</i>	Students will play game to understand how only a certain number of animals can survive in one habitat.	<ul style="list-style-type: none"> Carrying capacity (the number of species that can survive in an area over time) and its relationship to habitat 	MT.SCI.K-12.3 Students... demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment. 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.	<ul style="list-style-type: none"> Labeled cards (animals and pounds of meat) Paper and pencils



Lesson 1: Pre-Visit

National Park Service Symbols

Materials:

- * *NPS Arrowhead Symbols Worksheet*
- * *Blank Arrowhead*
- * *Coloring Arrowhead*



Vocabulary

Symbol

Method

Students learn how the design of the National Park Service arrowhead is made up of symbols then have a chance to create their own design.

Objectives

Students will be able to:

- Describe the symbolism behind the National Park Service Arrowhead.
- Use their understanding of symbols to create their own arrowhead design.

Common Core Standard

CCSS.ELA-Literacy.CCRA.R.7 - Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Next Generation Science Standard

K-ESS3-3 - Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Background

There are more than 400 National Park sites in the United states. These places include parks, battlefields, monuments, seashores, historic sites and recreation areas. The National Park Service protects these places because they are important to our nation.

The arrowhead is the symbol for the National Park Service. This shape reminds us of the culture and history National Park sites protect. Each picture inside the arrowhead represents something that is protected in a National Park site.

Procedure

1. Begin with the NPS symbols worksheet. Have students follow the directions to fill in the blank in each sentence.
2. You may wish to then have the students color their own National Park Service arrowhead. Finally using the blank arrowhead worksheet have students design their own arrowhead. Possible assignments might be to use symbols that represent their class, themselves, their family, a favorite natural place or Glacier.

Evaluation

While students are working and as they finish ask individuals why they chose specific symbols and what they represent.

Extension

Have students identify other symbols around their school or community and learn what they represent.

The National Park Service

There are almost 400 National Park sites in the United States. These places include parks, battlefields, monuments, seashores, historic sites, and recreation areas. The National Park Service preserves and protects these places because they are important to our nation.

The arrowhead is the symbol for the National Park Service. This shape reminds us of the culture and history National Park sites protect. Each picture inside the arrowhead represents something that is protected in a National Park site.

Directions:

Look at the National Park Service arrowhead at the top of the page. Now look at the pictures and words on the right. Fill in the blanks with the word you think fits best to describe what National Park Service sites protect.

The _____ represents the wildlife protected by the National Park Service.

The _____ represents the plants protected by the National Park Service.

The _____ represents the beautiful scenery protected by the National Park Service.

The _____ represents the natural resources (like clean air and water) protected by the National Park Service.

The _____ represents the history of our nation protected by the National Park Service.



Lake



Mountain



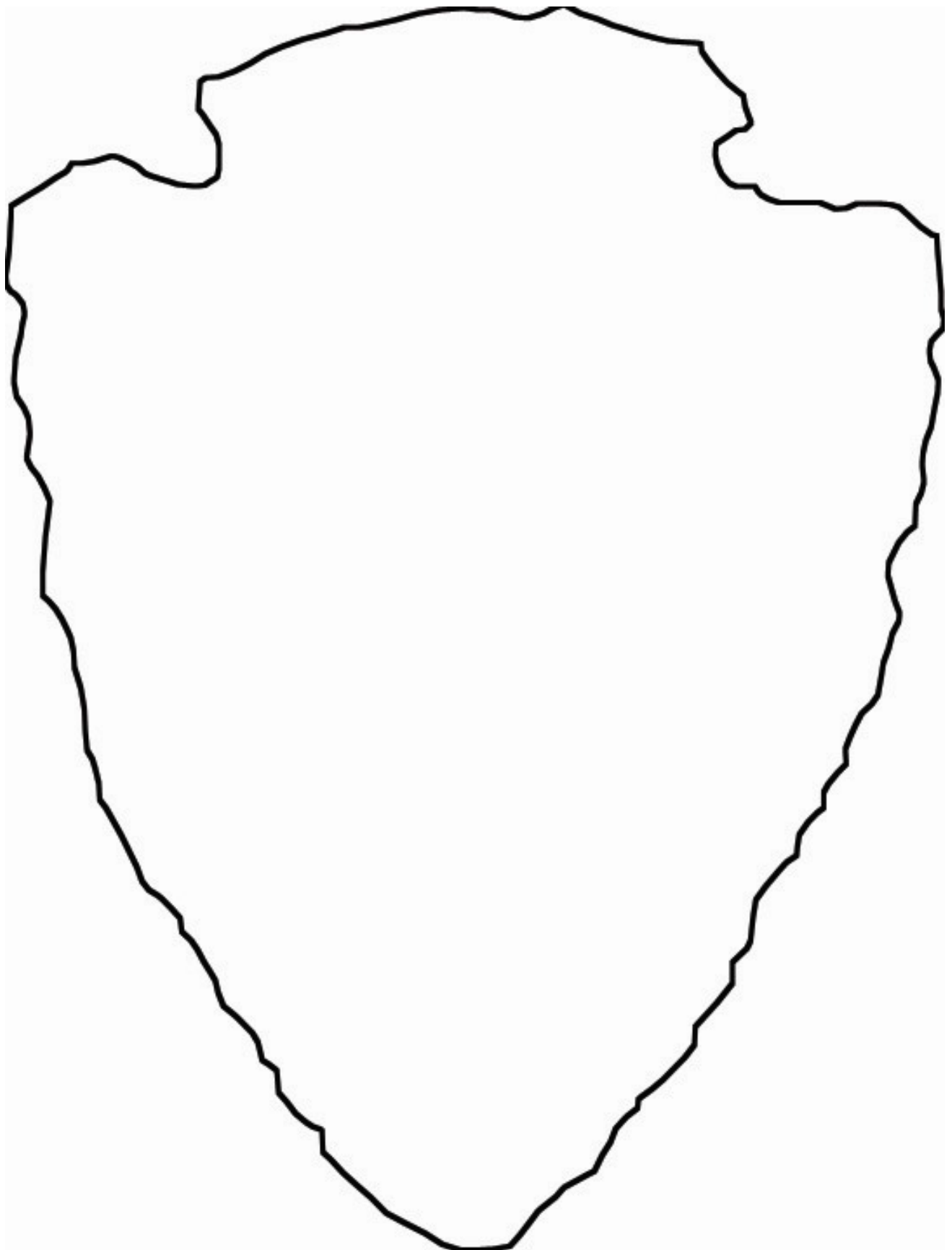
Bison



Tree



Arrowhead



The logo is a shield-shaped emblem with a black outline. It features a large sequoia tree on the left side, a mountain range with a river in the center, and a bison at the bottom. The text "NATIONAL PARK SERVICE" is written in a bold, sans-serif font across the middle of the shield.

**NATIONAL
PARK
SERVICE**



Lesson 2: Pre-Visit

Web of Life

Materials:

- * Ball of yarn or string
- * Paper and crayons
- * Sample Glacier food chain
- * *Who Eats Whom?* chart



Vocabulary

Connection, food chain, food web

Method

Students will create a food web that demonstrates the inter-connectedness of animals in Glacier National Park.

Objectives

Students will be able to illustrate the interrelationships of animals and plants through the weaving of a simple food web.

MT State Science Standard

MT.SCI.K-12.3.2 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

- A proficient student will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.

Next Generation Science Standard

K-ESS3-1-Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live.

Background

Students will help you construct a set of concentric rings with themselves in the center ring, and the world around them in increasingly larger circles (e. g. their desk could be the second circle, their classroom, the third, etc.). Depending on the writing and spatial skills of your students, either you or they could write the descriptors in the circles. This is a good permanent display (rather than written on the board), because they can write in the location and range of new things throughout the year.

Procedure

1. Discuss and list the various things people need to live. Do the same for another animal, such as a wolf or an elk. Be sure to list the situations, plants and animals that affect the focus animal, such as disease, humans, accidents, etc. then pick one or two of the “affecting animals” and discuss what they need. Make sure the list includes wolf, air, water, moose, elk, deer, beaver, mouse, grass, trees, soil, sun, bears, coyotes, humans, cows, sheep, vegetables - the list should include as many items as there are students. Use the “Who Eats Whom?” chart and the sample Glacier food chain for reference.
2. Assign each student one item and have them draw it. Attach the drawings with string or yarn as a necklace, or tape the picture on their shirt.
3. Have students stand in a tight circle. Start with one student. Have students hold the string and pass it (without letting their end go) to someone else who has something they need, or has something that affects them. Keep passing the string back and forth in this fashion until all the pieces are connected (teacher may wish to hand the string back and forth instead of tossing it.) Students should loop the string around another finger as it is passed to them again and again. Keep it tight!
4. Make up various stories about impact to the members of the web (wolf kills moose, bear eats sheep, sheep eats grass, human builds house where the bear lives, etc.). Every time this happens, have the directly affected parties tug on the string to see if and how it affects everyone else.

Evaluation

Have the students draw a simple web (six animals or so) and label the connections with the relationship those animals have.

Extension

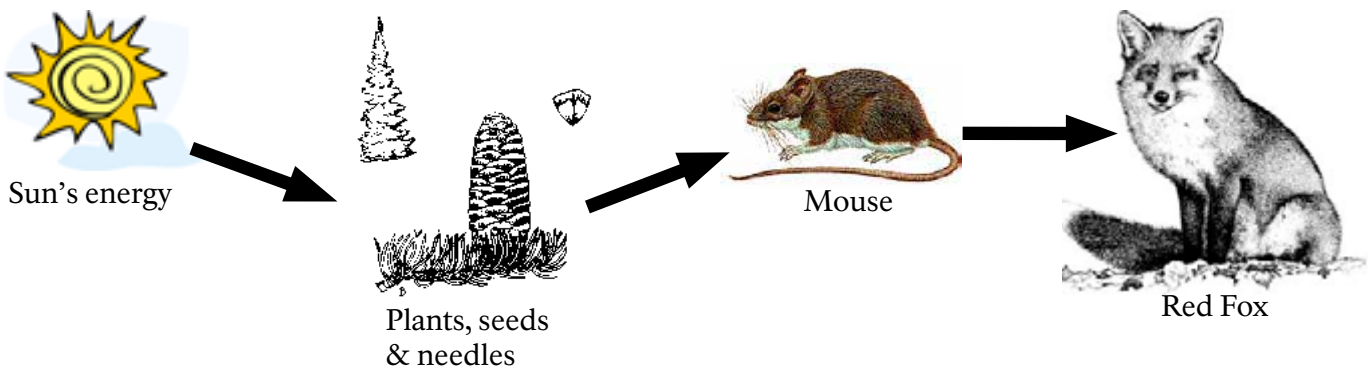
Drop one or two members of the web out of the circle (perhaps a drought kills some of the plants) and see how missing members affect the others.

Who Eats Whom?

Animal/Plant	Eats	Is Eaten By
Grizzly bear	Rodents, insects, elk calves, roots, pine nuts, grasses, large mammals, carrion, berries	
Black bear	Rodents, insects, elk calves, pine nuts, grasses, other vegetation, berries, carrion	Wolves, grizzly bears, mountain lions, humans
Elk	Grasses, sedges, shrubs, aspen bark, aquatic plants	Wolves, grizzly bears, mountain lions, humans
Red Fox	Grasshoppers, beetles, crickets, berries, nuts, grains, mice, rabbits, birds, turtles, eggs, and even dead animals like road-kills	Bobcats, lynx, mountain lions, and wolves
Beaver	Grasses, sedges, inner tree bark	Wolves, bears, scavenger species, humans
Fungi	Decomposed carrion and dead plant matter	Some small mammals
Bighorn Sheep	Grasses, shrubby plants	Coyotes, wolves, humans
Mountain lion	Elk, mule deer, small mammals	
Snowshoe hare	Shrubs, conifer needles	Lynx, foxes, bobcats, Great Horned Owls, coyotes
Buds and twigs		Elk, beaver, snowshoe hare, moose, deer
Fruits		Bears, birds, foxes, insects, coyotes, deer
Aspen		Elk, beavers, insects
Grasses		Elk, deer, bears, moose, rodents, insects
Snakes	Small rodents, tadpoles, fish, salamanders, frogs, worms, insects	Fish, birds, carnivorous mammals
Birds	Seeds, insects, berries, fish	Other birds, carnivorous mammals, snakes and squirrels, and weasels (bird eggs)
Aquatic insects	Other aquatic insects, aquatic plants, detritus	Fish, birds, amphibians
Eagle	Fish, carrion, ducks	
Ground squirrel	Fungi, roots, leaves, bird eggs, buds, insects, seeds, carrion, nuts	Weasels, coyotes, badgers, hawks, foxes, owls
Deer	Shrubs, grasses, aspen, conifers	Wolves, bears, coyotes, mountain lions
Terrestrial Insects	Plant material, other insects, blood (mosquitoes, ticks)	Rodents, weasels, foxes, martens, coyotes, fish, bears, birds

Animal/Plant	Eats	Is Eaten By
Pika	Grasses, lichens, sedges, conifer twigs	Coyotes, pine martens, hawks
Weasel	Rodents, snakes, ground squirrel, insects, birds, frogs, eggs	Hawks, owls, foxes, coyotes, humans (trapped for fur)
River otter	Fish, frogs, young muskrat	Humans (trapped for fur)
Pine marten	Rodents, eggs, hares, insects, shrews, berries, carrion, birds	Owls, humans (trapped for fur)
Shrew, Moles	Insects	Owls, coyotes, foxes, hawks
Mice	Seeds	Owls, coyotes, foxes, hawks
Yellow-bellied marmot	Grasses, seeds	Coyotes, foxes, bears
Coyote	Small mammals, carrion, ground squirrels, birds, deer	Wolves
Cutthroat trout	Small fish, fish, eggs, small rodents, frogs, algae, insects	Bald eagles, Lake Trout, osprey, otters, humans
Wolf	Hoofed animals (90%), beaver, hares	

Glacier Food Chain



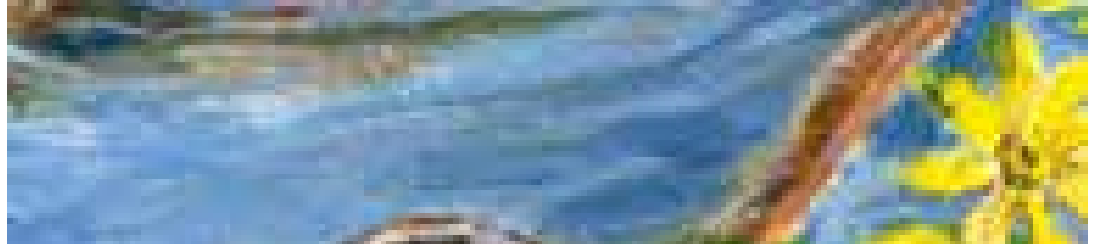


Lesson 3: Pre-Visit

Habitat is Home

Materials:

- * Pictures of human and animal homes
- * Drawing paper and pencils



Vocabulary

Food, habitat, shelter, space, water

Method

Students will draw pictures of their homes and compare human and animal habitats.

Objective

Students explore the idea that animals need a home and the basic parts of a habitat.

MT State Science Standard

MT.SCI.K-12.3.3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

- A proficient student will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.

Next Generation Science Standard

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

Background

All animals, including people, need a home. Home for animals is different from a house that people live in. Wild animals need food, water, shelter and space in just the right arrangement.

Procedure

1. Discuss human homes and the things usually found there.
2. Have students draw the inside of a house-include places to eat, sleep and play.
3. Have them share their pictures with the other students.
4. Show pictures of animal homes; discuss the differences between student homes and wild animal homes (animals may have to use a much larger area to find all four parts of a habitat-food, water, shelter and space.
5. Sing a song about animal habitats. Doing an internet search brings up lots of results for children's animal habitat songs.

Evaluation

Have students design their own animal and draw the habitat it needs.

Extension

Check out the [Big Circle](#) activity on our [website](#).



Field Trip Day!

Exploring Habitats

Remember:

** Flexibility is essential for an enjoyable visit to Glacier. Each program is unique but the following represents a typical visit.*



Vocabulary

Habitat, food chain, aquatic, forest, alpine, grassland/meadow, plus bolded words below.

Method

Students will learn about the different types of habitats in Glacier National Park and the requirements that all animals have to survive there. The students will take a 1-2 mile hike to explore these habitats closer.

Objectives

These are typical of the objectives that can be achieved, depending on the teacher's pre- and post- visit focus and the ranger.

Students will be able to:

- List some of earth's natural features that **national parks** like Glacier, protect– lakes, mountains, **valleys**, forests.
- Name or draw an animal that lives in each of the alpine, forest, aquatic, or grassland habitats of Glacier.
- Find and describe differences of what land looks like from place to place (hills, mountains, valleys, rivers, etc.) and why different plants and animals live in those different places.
- Give another word that can be used in place of habitat and list the requirements all animals (and people) need in their habitats: food, water, **shelter**, space.
- Tell one thing animals (and people) could do if their habitat changes.
- Show or tell one thing people should do to be safe when hiking in a place that has **wild animals**.
- Describe a beaver's habitat. (Tell which it is: aquatic, forest, grassland, or alpine.)
- Tell a characteristic of a **beaver** that helps it live in its habitat.
- Use senses to make **observations** and to sort, count, and classify various natural objects. Then try to identify those same objects on the trail.
- Use bingo cards in a scavenger hunt activity to find evidence of **organisms**, food chains, and inter-relationships within habitats along the trail.
- Make a number of simple food chains of organisms in Glacier.
- Identify examples of Montana American Indians making use of nature.
- List things plants need to live and how they get those things from their habitats in Glacier National Park.

MT State Science Standards

MT.SCI.K-12.1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.

MT.SCI.K-12.3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

Next Generation Science Standards

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

Background

One of the reasons Glacier National Park was established was to preserve habitat as well as the natural processes and biological diversity (variety of plants and animals) within habitats.

Sample Field Trip Schedule

8:30 am – 9:30 am — Travel to Glacier

Simple assignments can be completed by seatmates or individuals during this time. Point out sights along the way that relate to the park story such as mountains, valleys or mountain passes, plant communities, river crossings, and canyon formations. You may also want to review vocabulary words or ecological concepts.

9:30 am – 10:00 am - Meet park rangers at Apgar

After a brief welcome, park ranger(s) will talk with students, chaperones, and teacher(s) about the schedule for the day, have a quick bathroom break, and walk to Lake McDonald to discuss different types of habitats in Glacier

10:00 am – 10:30 am - Puppet show (Alternatively, after lunch w/stations)

Students view a puppet show about protecting resources in Glacier.

10:30 am-12:00pm - Ranger-led hike (Alternatively, the hike may be after lunch and the stations activities in the am with an early lunch).

Students hike with a ranger along the Oxbow Trail (1.5 miles roundtrip on fairly level terrain) to a beaver lodge and explore the four different habitats of Glacier. The ranger will conduct several activities which may include: a scavenger hunt, creating food chains & a food web, playing charades, a camouflage game, etc.

12:00 pm– 12:30 pm - Lunch

12:30 pm – 1:15pm - Stations at the Education Center (Alternatively, the stations may be in the morning with puppet show and the hike in the afternoon).

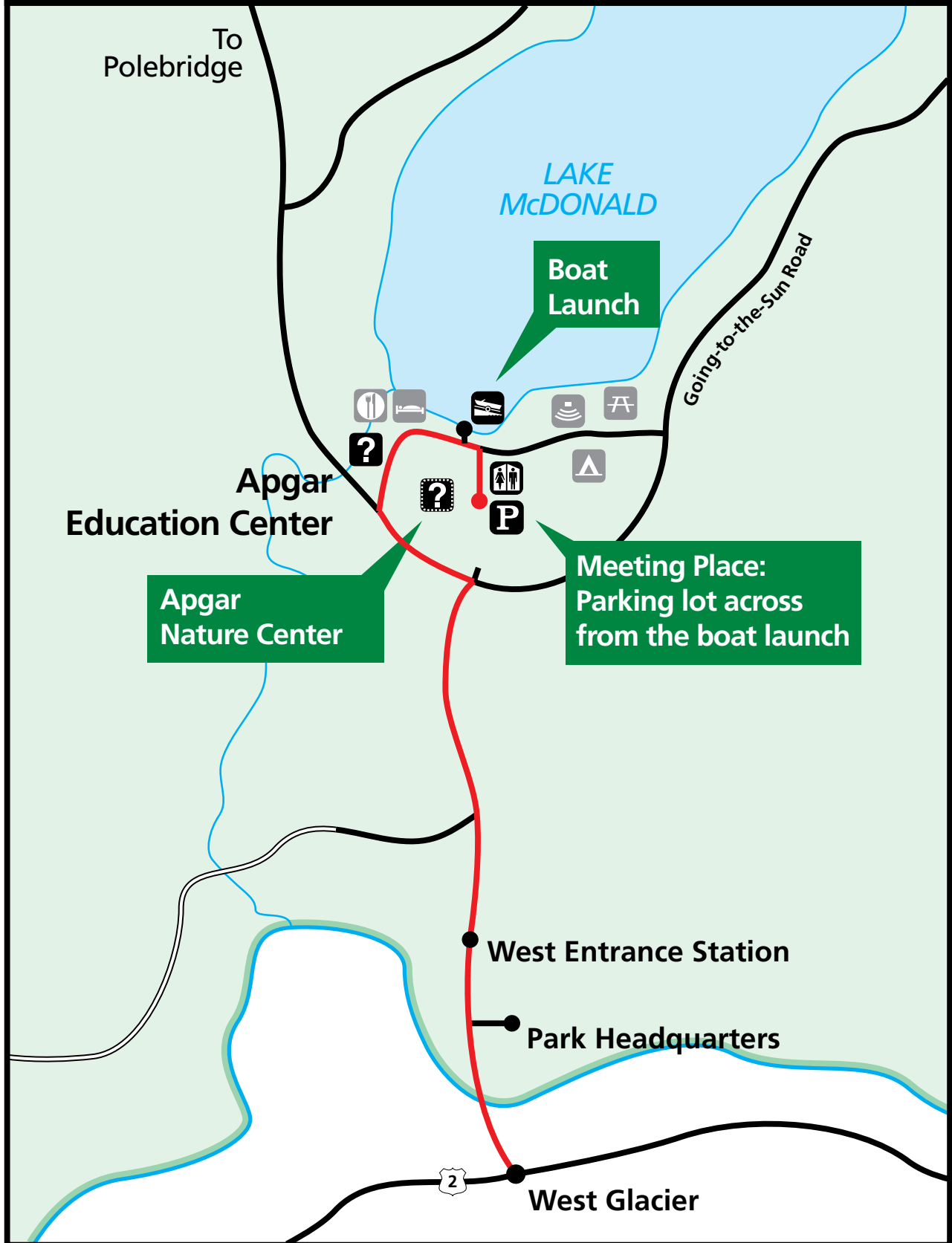
Students participate in stations inside the Education Center and play habitat games in the forest outside the center. They may also review what they have learned by playing “Habitat Jeopardy.”

1:15 pm – 1:30 pm - Conclusion

Ranger(s) review the educational objectives for the day and engage students in a fun activity to assess their learning.

1:30 pm– 1:45 pm — Bus leaves the park

Education Programs



Protecting the National Park

In order to have a fun and exciting experience, a firm framework of rules should be discussed in advance. The discussion should include the following points:

- Respect both plants and animals in Glacier National Park.
- Harassing animals and picking flowers, pine cones, feathers, and other natural objects in the park are illegal.
- Respecting rights of others in Glacier by refraining from disruptive behavior.
- Respecting each other, the ranger, chaperones, and teachers (walk on trails, keep hands to yourself, wait to talk until the instructor is finished, etc...)

School Regulations and Safety

Teachers are responsible for following school regulations regarding parental permission slips, travel authorization/insurance, etc. An accident can ruin a field trip and jeopardize future ones. Safety is of utmost importance. Students must be with adults at all times.



Clothing

Remind students to check the weather and bring appropriate, comfortable clothing, including a warm hat, snow/rain pants, warm coat, gloves/mittens, and hiking shoes. Encourage students to bring extra layers.

Name tags

For safety and courtesy, rangers prefer to call students by name. Masking tape with names written in big letters, works well. If you make name tags as a pre-visit activity, be sure they are easy to read and stay on when the students are active.

Food and Lunches

Everyone needs a lunch and drink. Resealable drinks work best as they can be refilled and saved. No food or drink is available at the park. Students are expected to clean up the lunch area. Food/gum are prohibited except at designated times.

Groups

See the chaperone guidelines on the next page. Typically it works best to assign adults to groups of students before arriving at the park. (A typical bus of 45 students would be divided into nine groups of 5 students each.)

Items to leave Behind

Students should not bring iPods, CD players, radios, cell phones, or money. These items can be lost and may be a distraction. Adults should also leave cell phones at home (or turned off) during the field trip. Cameras and binoculars will not be needed and may only be brought if they will be used at ranger approved times. Designating one adult as the class photographer and asking them to take pictures throughout the day to share with everyone is a great alternative.

Safety

An accident can ruin a field trip and jeopardize future ones. Safety is of the utmost importance. Students should stay with adults at all times.

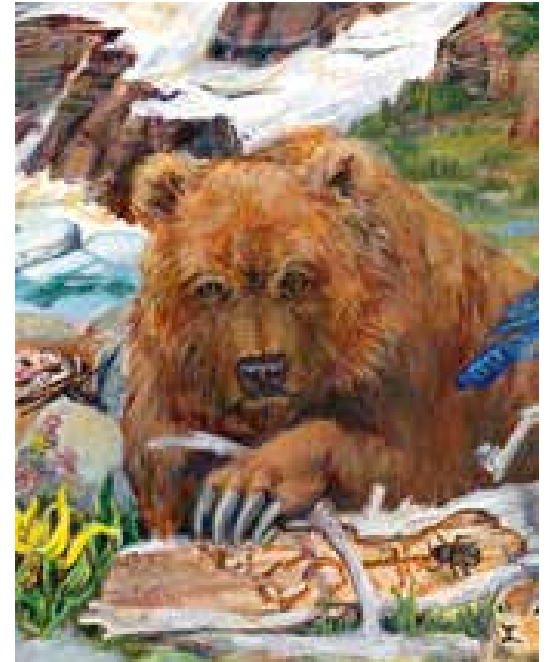
Chaperone Guidelines and Responsibilities

The chaperone requirements for ranger-led educational field trips to Glacier are (these numbers include the teacher):

- Kindergarten - 2nd Grade = 1 adult for every 3 students (example: 22 students, 8 adults required/allowed).
- 3rd - 5th grade = 1 adult for every 5 students (example: 22 students, 5 adults required/allowed).
- 6th grade and higher = 1 adult for every 10 students (example: 22 students, 3 adults required/allowed).

Please assist your child's teacher by volunteering to help with a field trip to Glacier, or by respecting when your help is not needed because it exceeds the park's guidelines listed above. Our facilities, staffing, and resource protection mandate that we limit not only the number of students we can handle per trip, but also the number of adults with each group.

If you are selected to help with a field trip, realize that you are an important partner in our program. We need your participation and cooperation to make the trip a success and will be asking this of you:



Do not bring siblings who are not part of the class. Your full attention is needed to help monitor the students assigned to you that day.

- **Please ride on the school bus.** It makes getting everyone through the entrance station much easier and avoids parking problems.
- **Assist with safety.** It will be one of your primary duties as a chaperone.
- **Be an active participant.** Students will want to participate if you do.
- Provide guidance to students for lunch and clean-up.
- Help set boundaries and provide leadership.
- Guide the learning process and help focus students on the activity or speaker.
- **Please consult with your school administrators about the policy regarding firearms on school sponsored events.** We have never had an injury from a wildlife encounter in over 20 years of conducting school field trips in Glacier. Rangers carry bear spray, first aid kits, and radios and will show the group how to hike and recreate safely while in the park.
- Most importantly go with the flow, adapt, and have fun in Glacier! The students pick up on how you react if you are having fun, they will too!

Sample Teacher Evaluation of Ranger and How Day Went



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Glacier National Park
West Glacier, Montana 59936

Thank you for bringing your students to Glacier National Park. Your candid and thoughtful responses to the questions below will be used to help us further improve our programs.

1. Please rate how enthusiastically the ranger engaged your students
 - Exceeded my expectations
 - Met my expectations
 - Did not meet my expectations
2. Please rate how respectfully the ranger engaged with you and your chaperones
 - Exceeded my expectations
 - Met my expectations
 - Did not meet my expectations
3. Please rate how appropriate the ranger's teaching techniques were for your students' grade level
 - Exceeded my expectations
 - Met my expectations
 - Did not meet my expectations
4. Please rate how well prepared the ranger was to teach and lead your class
 - Exceeded my expectations
 - Met my expectations
 - Did not meet my expectations
5. How well did the ranger attend to the safety of all participants?
 - Very well
 - Somewhat well
 - Not at all well
6. Please let us know what the ranger did well and what he/she can improve upon
7. Please rate how well the program activities met the curriculum learning objectives
 - Very well
 - Somewhat well
 - Not at all well
8. Please rate how appropriate the vocabulary and concepts were for your students' age level.
 - Very appropriate
 - Somewhat appropriate
 - Not appropriate
9. Please rate how much your students' understanding of concepts you are teaching in the classroom increased.
 - Exceeded my expectations
 - Met my expectations
 - Did not meet my expectations
10. Please let us know what content and activities worked well and what we can improve upon
11. How would you rate the ease of registering for the GNP program?
 - Very easy
 - Somewhat easy
 - Not easy
12. Please rate the usefulness of the pre-arrival resources you used by placing an "x" in the appropriate box.
Essential Useful, not essential Not useful Don't know/Didn't use
 - Pre-visit lessons
 - Tips for a successful field trip
 - Chaperone guidelines and responsibilities
 - Meeting map
 - Field trip logistics and timeline
 - Learning objectives and alignment with state standards
 - Pre-trip phone call with GNP ranger
 - Post-visit lessons
13. If you used pre- and/or post-visit lessons, please describe the ones which you found most useful.

**Sample Ranger
Evaluation of Class
and How Day Went**



United States Department of the Interior

NATIONAL PARK SERVICE
Glacier National Park
West Glacier, Montana 59936

Dear _____:

Thank you for participating in the education program at Glacier National Park on _____.

We hope that the field trip provided your class with an opportunity to better understand the significance of their national park. As a follow-up we are sending all participating teachers this evaluation to help you better prepare for your next trip. This evaluation is intended to point out strengths as well as areas that need additional attention.

Students wore name tags and were properly dressed for the day.	
Snacks/lunches were organized for easy distribution and everyone assisted with lunch clean-up.	
There were an appropriate number of chaperones present.	
Chaperone(s) actively participated in supervising students.	
Pre-site class preparation was evident.	
Class behavior facilitated a positive learning environment.	

Additional comments:

Sincerely,

Park Ranger(s)



Lesson 4: Post-Visit

Is There Room for Everybody?

Materials:

- * Labeled cards: (animal and pounds of meat)
- * Deer – 50 lbs (10 cards)
- * Beaver – 20 lbs (10 cards)
- * Raccoon – 4 lbs (15 cards)
- * Rabbit – 3 lbs (20 cards)
- * Squirrels – 1 lbs (30 cards)
- * Paper and pencils



Vocabulary

Carrying capacity, habitat

Method

Students will play a game to understand how only a certain number of animals can survive in one habitat.

Objectives

Students will develop an awareness of carrying capacity (the number of species that can survive in an area over time) and its relationship to habitat.

MT State Science Standard

MT.SCI.K-12.3.3 Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

- A proficient student will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.

Next Generation Science Standard

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

Background

Animals need certain things to survive: food, water, shelter and space in the proper arrangement. As humans develop land, there is usually a decrease in the animals' habitat. A large predator such as a cougar needs about 70 pounds of meat per week to remain alive and healthy. A mother needs about twice that much to keep both her and her cubs healthy. Cougars stalk and chase about 10 animals for every one they catch.

Procedure

1. Depending on the number of students in your class, you may wish to modify the numbers of the cards. The idea is to have enough so that some of the cougars survive, but not all.
2. Distribute the cards face down in an area outside or in a gymnasium.
3. Have the “cougars” establish their “lair” (a place where they live) in the playing area.
4. Starting from their lair, have them gather one card at a time and bring it back to the lair. Continue until the cards are gone.
5. Have each student total their pounds of meat. Those with their 70# weekly requirement have survived. The number of cougars still alive represents the carrying capacity of that area for cougars.
6. Play again with variations: blind cougars (blindfolds), old cougars who have broken their killing teeth (can't eat deer), mothers with cubs (need 140#), etc.
7. After carrying capacity is established, remove some cards because humans have moved in and reduced habitat. Play again and discuss the effects of habitat loss on the carrying capacity.

Evaluation

Ask students to write ways in which humans can help conserve habitat for an animal of their choice.

Extension

Check out the Habitat Hunt activity on our [website](#).



Appendix

Additional Teacher Background Information

Animals

Like plants, animals are affected by environmental influences such as landforms, climate, and availability of food and water. The great diversity found in the Waterton-Glacier International Peace Park area is mainly due to the overlap of habitats between the mountains and the prairie – and the great junctioning of five floristic provinces.

As human developments continue to fragment wildlife habitat, Waterton-Glacier and other national parks have become more important to wild animals that require space, prey, and human tolerance. Nevertheless, even within the refuge of large parks, many species are so far ranging (birds, bears, wolves and ungulates, to name a few) that the long-term reality is the need for interagency cooperation in ecosystem management planning. The baseline information that the parks offer through monitoring and research comes to play once again.

Review of the earliest records suggests that wildlife composition, at least for mammals and birds, has changed little since the parks were established. Species known to have been extirpated include mountain bison and mountain or woodland caribou. Nonnative species include the ring-necked pheasant, rock dove, starling and house sparrow; however, none of these species is widespread or abundant. Raccoons and blue jays have expanded their ranges into the W-GIPP area as have the turkey (introduced in different areas of the state/province).

The park provides important year-round habitat for many wildlife species. Grasslands, shrub lands and riparian areas provide winter range for deer, elk and moose. Grasslands and forest environments provide spring range for deer, elk and grizzly bears. As spring progresses into summer, deer and elk move to higher elevations following the green-up of vegetation. The higher elevations also provide summer habitat for grizzly bears, bighorn sheep and goats. Low elevation valleys in the fall and spring provide habitat for almost all terrestrial wildlife species.

There are many documented migration routes for raptors (birds of prey) that follow mountain ranges and ridges in Waterton-Glacier. These are significant travel corridors through which, using rising thermals and updrafts from the mountains, thousands of birds make their semi-annual migrations to winter or summer ranges. A vast majority of the birds are golden eagles, with some bald eagles and hawks mixed in. During the autumn of 1996, over 3,000 raptors were counted at one site during September, October and November as they crossed high above the upper McDonald Valley. The parks may be along one of the largest golden eagle migration corridors in North America. This needed air space, a necessity for what some researchers indicate are declining populations of raptor species, is an interesting and no less important “habitat” requirement that must not be compromised by inappropriate human activities, especially within the protected “domain” of a national park. This is an excellent example of a management concern that requires cooperation among varying interest groups and managing agencies.

Good opportunities to see wildlife tend to be seasonal. The key to successful wildlife watching is being at the right place at the right time and having the proper equipment such as binoculars. In fact, one

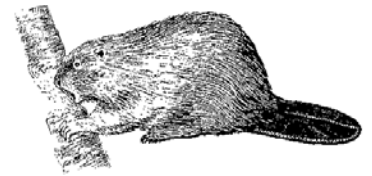
of the best ways to see wildlife is to use binoculars and patiently scan open areas. In the high country, this technique can reward the viewer with sightings of bears, bighorn sheep, marmots, mountain goats, eagles and much more. One animal house we routinely see on our field trips is a beaver lodge.

Beavers

Beavers are members of Rodentia, the largest mammal order. Rodents are gnawing animals and have two pairs of prominent, chisel-shaped incisor teeth. These teeth grow continuously and maintain their sharp edges; they must be used frequently for gnawing or they will become too long.

The beaver, weighing up to 60 pounds, is the largest North American rodent. Beavers are excellent swimmers and can be easily identified by their scaly, flat tails. The tails are used for steering while swimming, and bracing them on land as they gnaw trees. Their back feet are webbed and used like paddles when swimming. Beavers move slowly on land, where they are prey for coyotes and mountain lions. Being excellent swimmers, they are safe from predators while in the water.

Beavers often dam streams to create deep ponds. They then build a lodge in the pond near the bank. On large streams and rivers, however, dams are not constructed. To build a dam and make a pond, beavers cut down trees and bushes with their sharp teeth. They take branches in their mouths and pull them into the water. Holding the branches with their teeth and front paws, they push the branches into the mud at the bottom of the creek. They dig up mud from the creek bottom and pile it on top of the branches to fill up the holes. This continues until the beavers have constructed a strong dam. Water builds behind the dam creating a pond.



The beaver lodge is similar in construction to the dam. A large pile of branches and mud is piled until it is higher than the surface of the water. The beavers swim to the bottom of the pond and gnaw up through the pile until they have made a tunnel that reaches above the water line. There they make a living chamber lined with leaves and grass. Beavers are monogamous and work together to choose the spot to build a dam and lodge.

Beavers eat the inner bark or cambium layer of branches of deciduous trees. Preparing for winter, beavers cache branches in the water. When the pond freezes, the store of food is easily available to them.

When beavers dam a stream, they set in motion a form of succession. The resulting backwater floods lowland near the creek. Trees are soon killed, creating an opening in the forest canopy. Water-associated plants and shrubs quickly invade the pond and shoreline, creating favorable habitat for waterfowl, moose, blackbirds, amphibians, fish, insects, muskrats, wading birds, warblers, marsh hawks, and a score of other animals. After many years the water becomes shallow, filling in with silt and plant debris.

Stimulated by the nutrient-rich mud, grasses, sedges, and shrubs begin to choke the water with their accumulating debris. The ground begins to firm as more silt is trapped.

As years pass, the trees near the lodge are cut down by the beavers for use as food and shelter. The beavers must move on and find a new spot to support themselves. Without the beavers to keep it strong, the old dam collapses, draining the pond. The area becomes meadow, supporting grasses, sedges, and other flowering plants. Trees begin to re-invade the drier ground and eventually the meadow reverts to forest. Centuries may be required to see this process completed.

At each stage, many of the animal inhabitants change because the habitat has changed. The robin and the red squirrel in the original, pre-beaver forest give way to the heron; the heron is replaced by the insect and berry eating cedar waxwing; the waxwing is followed by the tree-dwelling robin and red squirrel once again.