

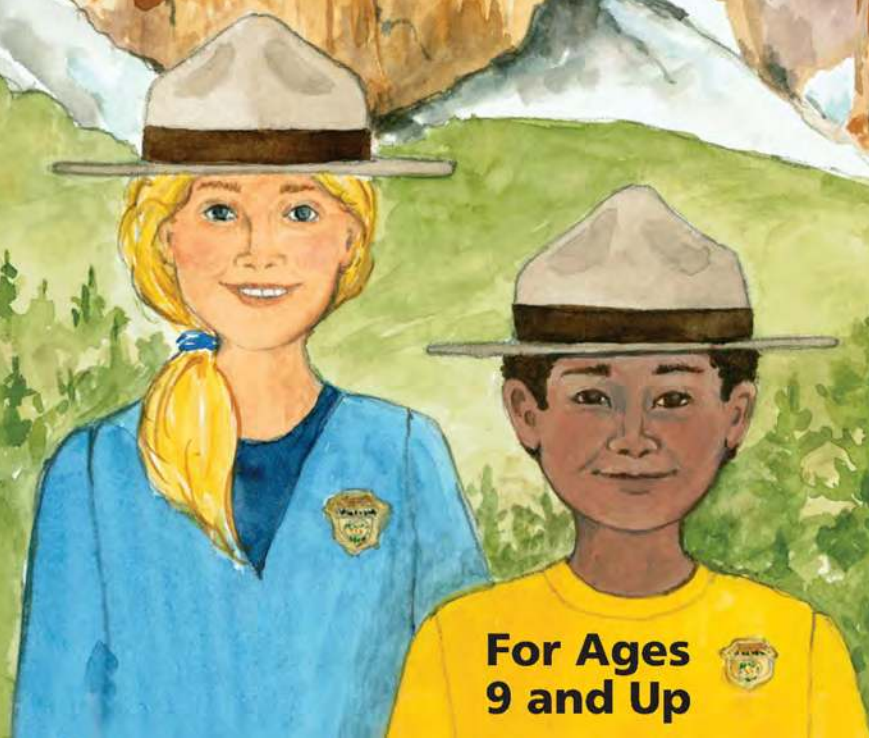


ROCKY MOUNTAIN
NATIONAL PARK



OFFICIAL
**Junior
Ranger**

ACTIVITIES BOOKLET



**For Ages
9 and Up**



ACTIVITY 1 *Ranger Tips*

FILL IN THE BLANKS. Write in a word that helps complete each sentence. Junior Rangers have fun in the park while being safe and following park rules!

The following common-sense tips will _____ you protect Rocky Mountain National Park while enjoying a safe, fun visit.

When hiking, never become separated. Make sure everyone in your group is able to _____ up.

The park's _____ won't stay on hiking trails, but people should. This protects fragile plants and prevents erosion.

Rangers – and Junior Rangers – protect Rocky Mountain National Park so it will always remain _____.

Do have a great time visiting the park.

Please _____

litter, pick plants and flowers or collect anything you see during your visit.

Human food can make wildlife sick.

Birds, chipmunks and other wild animals know how to

_____ themselves.

Observe wild _____

from a distance. They all can become aggressive if you approach them too closely.

A Changing, Living Land

As you hike up a mountain trail or drive along Trail Ridge Road, you can see and feel natural changes. The air turns cooler the higher you go. The trees and plants – and the animals that depend on them for food and shelter – also change as you pass through distinct plant and animal communities called ecosystems. There are four ecosystems in the park:

MONTANE: Found at the park's lower elevations, it's the warmest and driest ecosystem.

SUBALPINE: Higher up, it turns cooler and wetter. You might see snow in the thick subalpine forests well into summer.

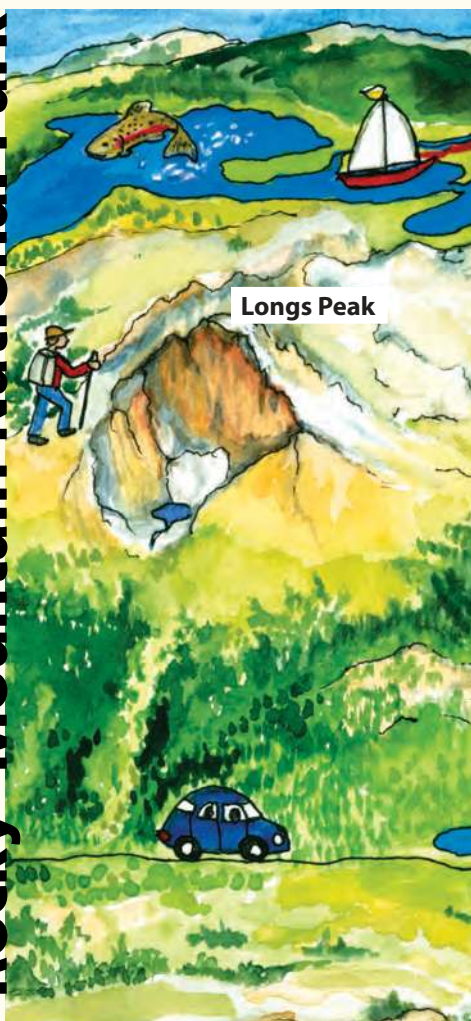
ALPINE TUNDRA: The trees are gone in this arctic-like place way up high. The weather may be windy and cold, and snow can fall in July and August.

RIPARIAN: No matter which ecosystem you're in, land next to lakes and streams is called riparian land.

In some of the pages that follow, you'll see detailed illustrations of each ecosystem. The pictures will show you that the park's changing ecosystems are full of life, even though you might not see it at first glance. Complete the activities about each ecosystem as you go through the park! **Let's go!**

Support for this publication came from the Rocky Mountain Conservancy, Rocky Mountain National Park, El Pomar Foundation and the National Park Foundation.

Rocky Mountain National Park



ACTIVITY 2 *Trail Ridge Road Map*

In the map below, some destinations along Trail Ridge Road highlight the park's different ecosystems. Using the colors at left, fill in the correct ecosystem.

Estes Park is in the _____ ecosystem

Rainbow Curve is in the _____ ecosystem.

The Alpine Visitor Center is in the _____ ecosystem.

Milner Pass is in the _____ ecosystem.

Land next to the Colorado River is part of the _____ ecosystem.

The town of Grand Lake is in the _____ ecosystem.



ACTIVITY 3

Wildlife Watch

People come from all over to see the park's wildlife. Pictured below are some of the animals commonly seen in the park. They are listed in the ecosystem where they are often spotted, but you may see them in other places. As you explore the park, see how many you can find and check them off.

MONTANE



☐ Abert's Squirrel



☐ Black Bear

☐ Coyote



☐ Elk



☐ Mountain Lion



☐ Mule Deer



☐ Nuttall's Cottontail



☐ Wyoming Ground Squirrel



☐ Black-billed Magpie



☐ Broad-tailed Hummingbirds



☐ Mountain Bluebirds



☐ Red-tailed Hawk

SUBALPINE



☐ Chickaree (Red Squirrel)



☐ Golden-mantled Ground Squirrel



☐ Least Chipmunk



☐ Long-tailed Weasel



☐ Porcupine



☐ Dusky Grouse



☐ Clark's Nutcracker



☐ Steller's Jay


☐ American Pika

☐ Bighorn Sheep

☐ Northern
Pocket Gopher

☐ Yellow-bellied
Marmot

☐ Brown-capped
Rosy Finch

☐ Common Raven

☐ Horned Lark

☐ White-tailed
Ptarmigan

☐ American Beaver

☐ Greenback
Cutthroat Trout

☐ Moose

☐ Red Fox

☐ River Otter

☐ Western
Terrestrial
Garter Snake

☐ American Dipper

☐ Red-winged
Blackbird

Montane

Ecosystem

Many of the animals in the park modify their behavior when the seasons change. For example, during the winter, animals will **migrate**, **hibernate** or adapt to **tolerate** the colder temperatures and snow. Using the pictures and animal descriptions in this scene, identify and list one animal that might use each of these strategies for survival.

Tolerate

Migrate

Hibernate



Mountain bluebirds return to the park in the spring after being gone all winter. They build their nests and hatch their young in tree cavities usually made by woodpeckers.

While flying from flower to flower sipping sweet nectar, **humming-birds** unknowingly spread pollen, which helps plants make seeds and reproduce. The tiny birds need this high-energy liquid food source to fuel their long flights south for the winter.



In the summer, **mountain pine beetles** tunnel into pine tree bark and lay their eggs. The eggs hatch into larvae that change into pupae and finally, adult beetles. The beetles' activities usually kill the tree. The next summer, a new generation of beetles flies into another tree and the life cycle is repeated.



Some wild creatures rely on camouflage for protection against predators. This **mourning cloak butterfly's** coloring helps it blend into tree bark.



Ponderosa pine tree bark has a yummy smell. Get up close and take a whiff. Butterscotch or vanilla?

Squirrels and rabbits are favorite foods of the **coyote**, a skilled hunter seen in the park year round.

During the winter, **Wyoming ground squirrels** burrow into the ground, where they sleep for seven months until the weather warms in the spring.

Black or gray in color, long-eared **Abert's squirrels** favor ponderosa pines, eating the seeds, buds and tender new growth. They stash seeds for the winter, when food is scarce.



ACTIVITY 4 *Food Web Connections*

These activities exploring the park's ecosystems help show how animals and plants interact with the environment and how all life is connected. Using your knowledge of predator and prey relationships, draw arrows from each animal to the foods you think it eats (other animals or plants). **Hint:** Some animals eat more than one.



ACTIVITY 5 *Animal Signs Treasure Hunt*

Animal signs tell you what lives where. There are lots of different tracks, nests and scat in the park. If you see any of these wildlife signs, check them off. In the blank space below, draw the animal signs **you** observed.



☐ Animals leave tracks in loose soil and mud. These tracks (from top) are elk, beaver, coyote and Nuttall's cottontail. What animal tracks have you seen in the park?

☐ Popcorn-size accumulations of sap on pine tree trunks mean mountain pine beetles have invaded the tree.

☐ Scat is seen everywhere in the park. The elk and deer droppings (from top) are similar, but different in size. Coyote scat (bottom) is easier to identify.

☐ Some birds make nests in tree cavities made by woodpeckers. Aspen cavities like this one also may be used by other animals.

At home in the fir and spruce trees of the cool, dense subalpine forests, **American martens** are voracious hunters. Their prey includes small mammals and birds.

Who's eating whom? There is a constant flow of energy through the web of life and within each ecosystem. You explored some of these connections in Activity 4. Studying the images and information in this scene, give one example of the flow of energy in the subalpine ecosystem by filling in the blanks. (The words in bold will help provide the answers.)

Producer →

Herbivore →

Carnivore

Patches where the tree bark is missing may be the work of **porcupines**, which eat the tender inner bark.

The slim body of the long-tailed weasel enables it to enter den and prey holes. The **limbering chipmunk** and other species



W. Smith

Subalpine Ecosystem



Hawks and other raptors have a diet of birds and small mammals. This **northern goshawk** is chasing a **dusky grouse**.

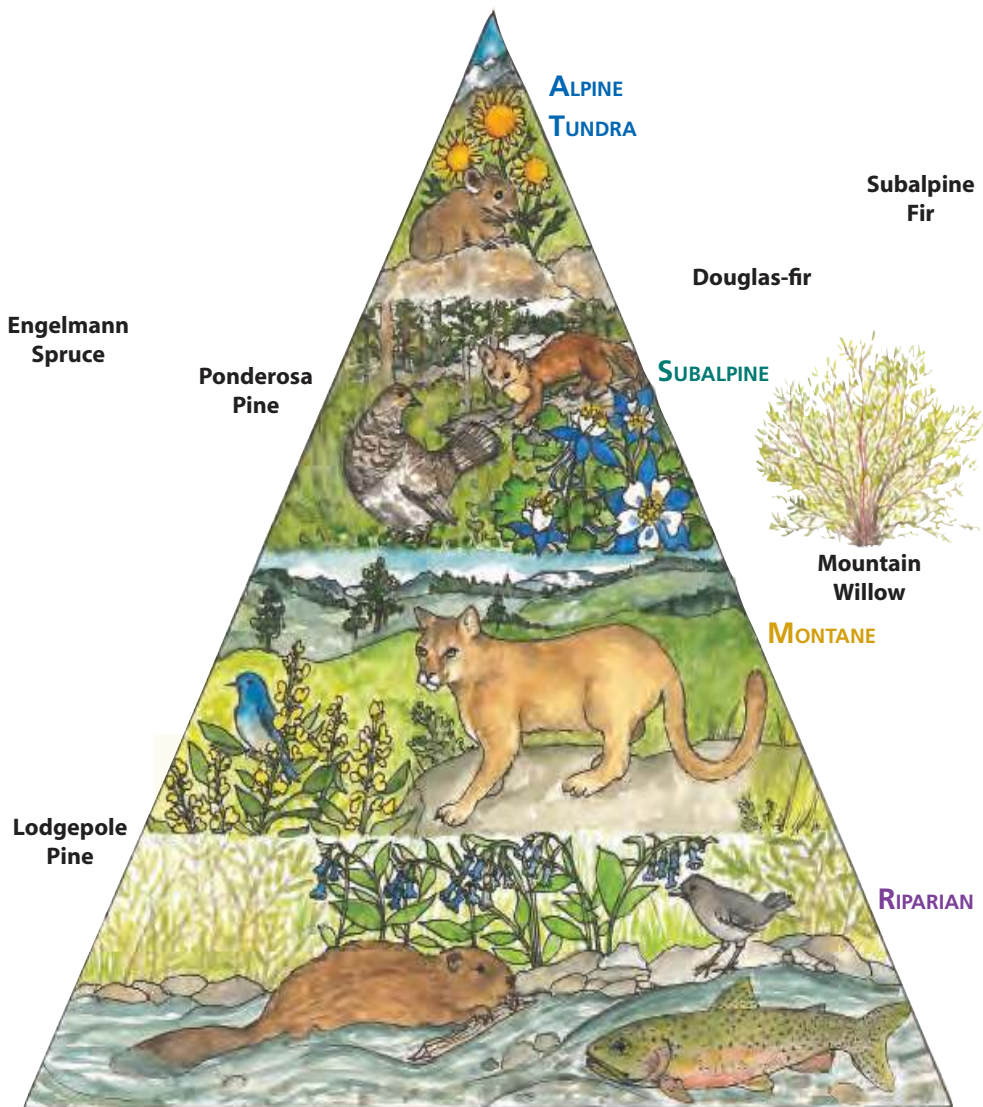
Chickarees, or **red squirrels**, pile up mounds of **pinecone** pieces called middens on the forest floor as they tear apart the cones to find the tasty **seeds**.

Mushrooms help dead trees and other plants life decompose. The mushrooms can provide food for **golden-mantled ground squirrel** and other animals.

Clark's nutcrackers are natural gardeners that store pinecone seeds in the ground for winter food. Some seeds the birds forget to dig up will sprout and grow into trees.

ACTIVITY 6 *Tree Finder*

You've already learned about the ecosystem changes that occur in the park as you go higher or lower in elevation. Trees also are affected by those changes. When you know what type of trees are around you, it's possible for you to figure out which ecosystem you are in! Draw lines from the individual trees to the ecosystem in which they belong. Visit the ecosystem scene pages for helpful clues.



ACTIVITY 7

Ranger Programs

Rangers help protect the park's plants and animals and keep the park safe for visitors. Rangers also lead nature walks and evening programs for visitors to enjoy. The programs are listed in the official park newspaper. Attend one that interests you and get the ranger's signature. In the notebook below, write down at least three things you didn't know before the program.

Program I attended:

Cool things I learned:

Ranger signature: _____

The park's alpine tundra is a vast, cold landscape. The changing climate is affecting this high, windswept world. After you study the animals and plants in this scene, make three predictions about what may happen to life on the alpine tundra as the climate warms.

1. _____
2. _____
3. _____



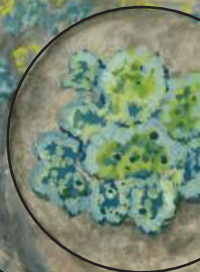
The hum of **bumblebees** can be heard on the tundra as these pollinators seek the nectar of beautiful alpine flowers. These insects can only fly in temperatures above 50 degrees.



Pikas store plant material in the rock piles that give them shelter. The hay piles provide winter food for these tiny members of the rabbit family. Pikas have adapted to the cold and snow, but the warming climate poses the threat of less insulating snow during the long alpine winters.



Many tundra **wildflowers** are unique to this high-elevation environment. Each plant has special adaptations for survival. The alpine sunflower, or *Rydbergia*, gathers energy in its roots for up to 15 years, blooms just once and dies.



The **white-tailed ptarmigan** is the only bird that spends its entire lifetime above treeline. In the summer, these birds are well-camouflaged as they hide among rock piles and willows. In winter, their feathers molt to white, making them invisible on tundra snowfields.

Alpine Tundra

Ecosystem

Trees can't tolerate the constant cold and severe winds of the alpine tundra. Trees thrive in warmer conditions, where they can produce food and take in water.



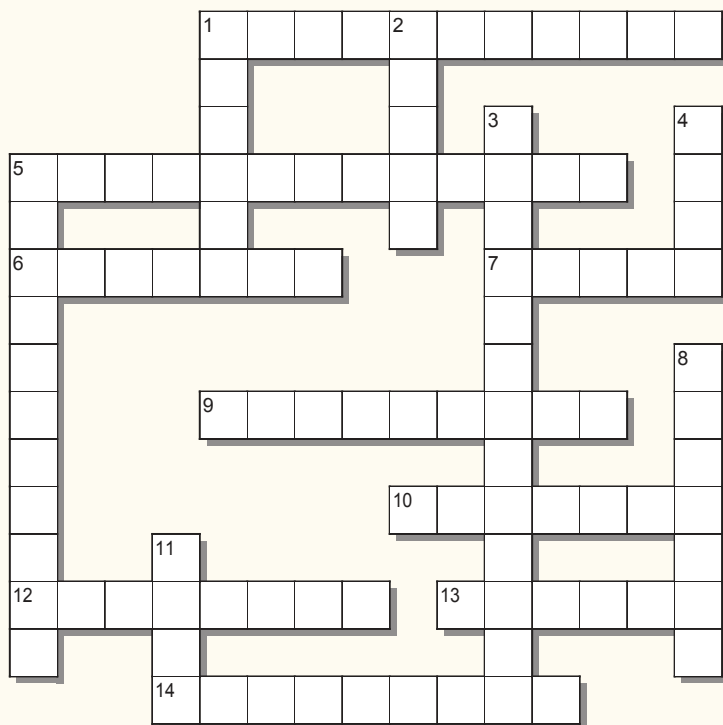
Lichens are plants that grow in the harshest of conditions. Commonly seen on rocks, lichens produce an acid that breaks down the rock.

A summer tundra resident, the **horned lark** builds its nest – and spends much of its time – on the ground. Migrating birds like the horned lark depend on specific climate patterns and amounts of daylight for their survival.

Long, slender mounds of earth called eskers are made by the underground – tunneling – of **northern pocket gophers**.

ACTIVITY 8 *Weather Words*

Complete the puzzle by answering the questions below.



ACROSS

1. Use a _____ to measure the temperature of air or water.
5. Mountains cause warm air to rise, cool and form dramatic clouds that build into rumbling summer _____.
6. The _____ ecosystem is the lowest, warmest and driest life zone.
7. The wispy cirrus _____ is common in the summer skies.
9. More snow and rain fall in the _____ ecosystem than in the montane ecosystem just below it.
10. Before you go out to explore the park, drop by any visitor center for the latest _____ report.
12. During spring, melting snow fills the rivers, streams and lakes. The land next to these bodies of water is called the _____ ecosystem.
13. Precipitation that falls west of the Continental _____ flows toward the Pacific Ocean. Rain and melting snow to the east flow toward the Atlantic Ocean.

14. Dangerous _____ strikes most often occur on mountaintops, near water and in open areas.

DOWN

1. Weather on the treeless alpine _____ can be extreme.
2. Streams and rivers run fullest when snow in the mountains _____ in the spring and early summer.
3. As elevation increases, rainfall and snowfall, also known as _____, increases.
4. The _____ speed on the alpine tundra has topped 150 miles per hour.
5. As elevation increases, the _____ of the air becomes cooler.
8. Temperature is measured in _____ Fahrenheit in the United States, Celsius in other parts of the world.
11. Summer storms can produce _____, a frozen precipitation that falls in the form of ice pellets.

ACTIVITY 9 *Alpine Tundra Adaptations*

The plants found on the alpine tundra have adaptations that enable them to survive in this cold, windswept ecosystem. Look carefully at these pictures to answer each question. Visit the Alpine Visitor Center to further discover life on the tundra.

What keeps me warm like a sweater in the wind and cold?

ANSWER

Rydbergia

What covers me like a sunscreen and keeps the water in me from evaporating in the intense sun and wind?

ANSWER



Yellow Stonecrop

How do I hide from the cold wind and stay kind of warm?

ANSWER



Moss Campion

What do I use to reach water deep underground?

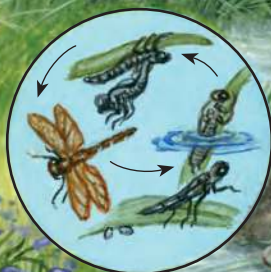
ANSWER

*Alpine
Springbeauty*

ANSWERS:
Deep roots
Insulating hairs
Hug the ground
Waxy coating

This scene introduces some of the animals that call the riparian ecosystem home. Think about how you use water. If water quality is affected by pollution, what could that mean for these animals? And for you? Write a couple of sentences describing your thoughts.

Dragonflies lay their eggs on aquatic plants or in the water. The eggs hatch into nymphs that live underwater and later emerge on the stems of plants to shed their skin. Full grown dragonflies fly away.



The legs of the **water strider** have tiny hairs that collect air bubbles, allowing these little insects to "skate" on the surface of the water. This one is being eyed by a hungry **cutthroat trout** swimming in the pure water below.



This little bird, the **American dipper**, catches insects, small fish and other aquatic prey by swimming and walking underwater.



Plants that grow underwater in the pristine high country lakes and streams are favorite summer foods for **moose**, the largest member of the deer family. Moose are most commonly seen on the west side of the park.

Riparian

Ecosystem

Many **beaver** raise their young in lodges built from sticks and mud. The beavers' "front door" often is an underwater entrance.



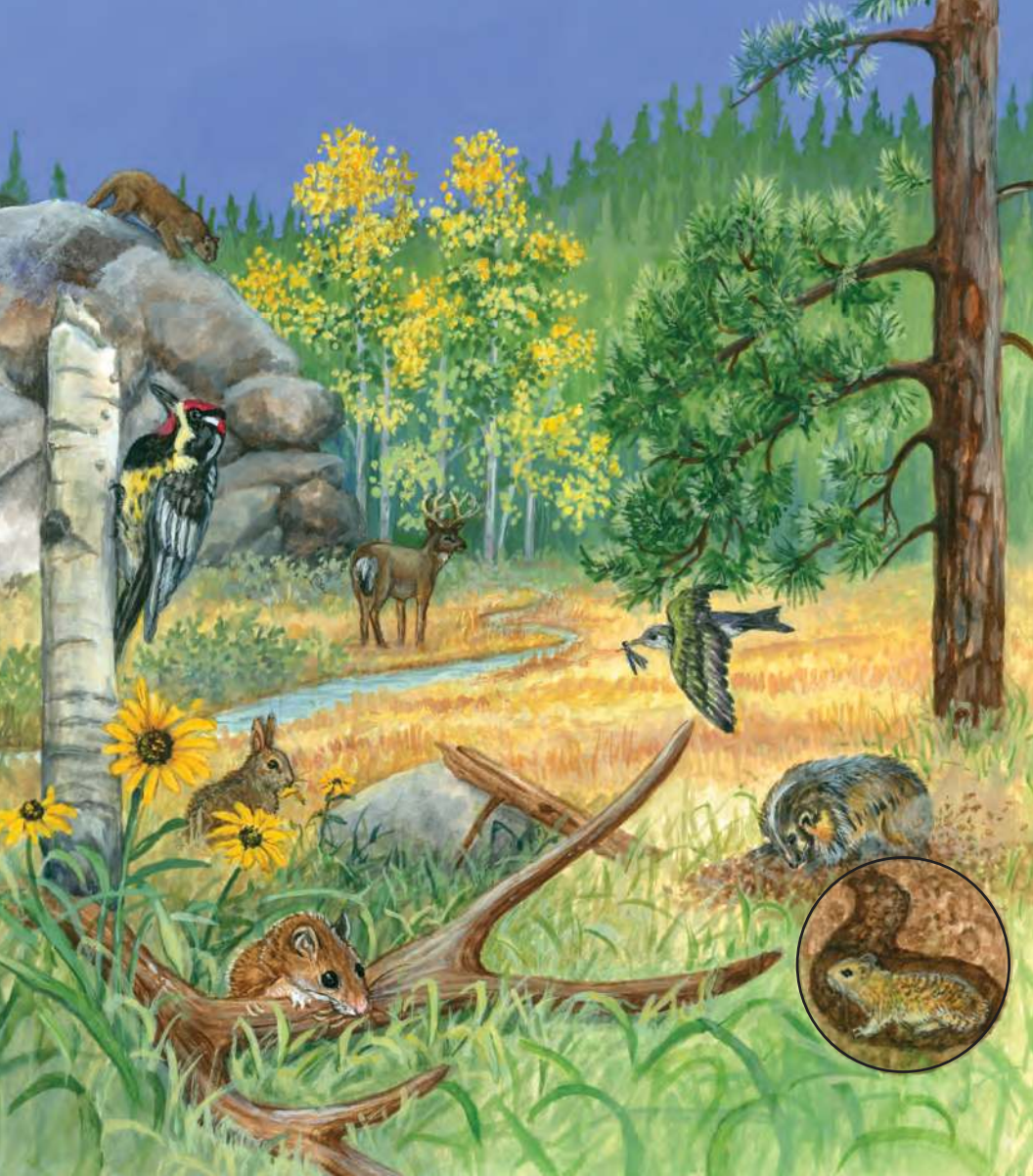
Willows thrive in water-rich environments, and are a primary food source for aquatic animals such as beaver and moose.

This bird lives up to its name. The **Nighthawk** dives into clear, cold mountain lakes and streams to catch small fish, its favorite food.



The **Western Salamander** leaves the water in the spring to breed in water, which it needs to lay its eggs and raise its young.





ACTIVITY 10 *Observation Skills*

You have visited Rocky Mountain National Park, discovered four incredible ecosystems and seen how many plants and animals interact with one another and their environments. Put your skills to the test. Look carefully at the illustration above and circle three or more examples of natural interactions or relationships. **Hint:** There are six in the picture.

ACTIVITY 11

You Are A Junior Ranger!

Find a safe, quiet place. Sit down and take the time to observe everything around you. Look, listen touch and smell.

In the notebook,
describe or draw

a memory you
have made at
Rocky Mountain
National Park.

As a Junior Ranger,
it will be your job
to share this special
place with all of
your friends. What
was your favorite
thing about this
park? What are you
going to share with
your friends and family
when you get home?



Junior Ranger Pledge

As a Junior Ranger, I promise to help protect Rocky Mountain National Park, my neighborhood parks and all other natural areas by being a responsible steward of the environment.

- I will help keep wildlife wild by not feeding animals.
- I will help protect plants by not picking them.
- I will help keep parks beautiful by placing trash in recycling bins or trash cans.
- I will enjoy nature safely and be a good example to others.

Congratulations

J U N I O R R A N G E R !

You are an important part of this park.
Stay in touch. Contact us anytime at
romo_junior_ranger@nps.gov



**Look for Junior Ranger
products at
RMConservancy.org**

Certificate of Achievement

This certifies that

has met the requirements of a
Rocky Mountain National Park Junior Ranger

Ranger Signature

Date