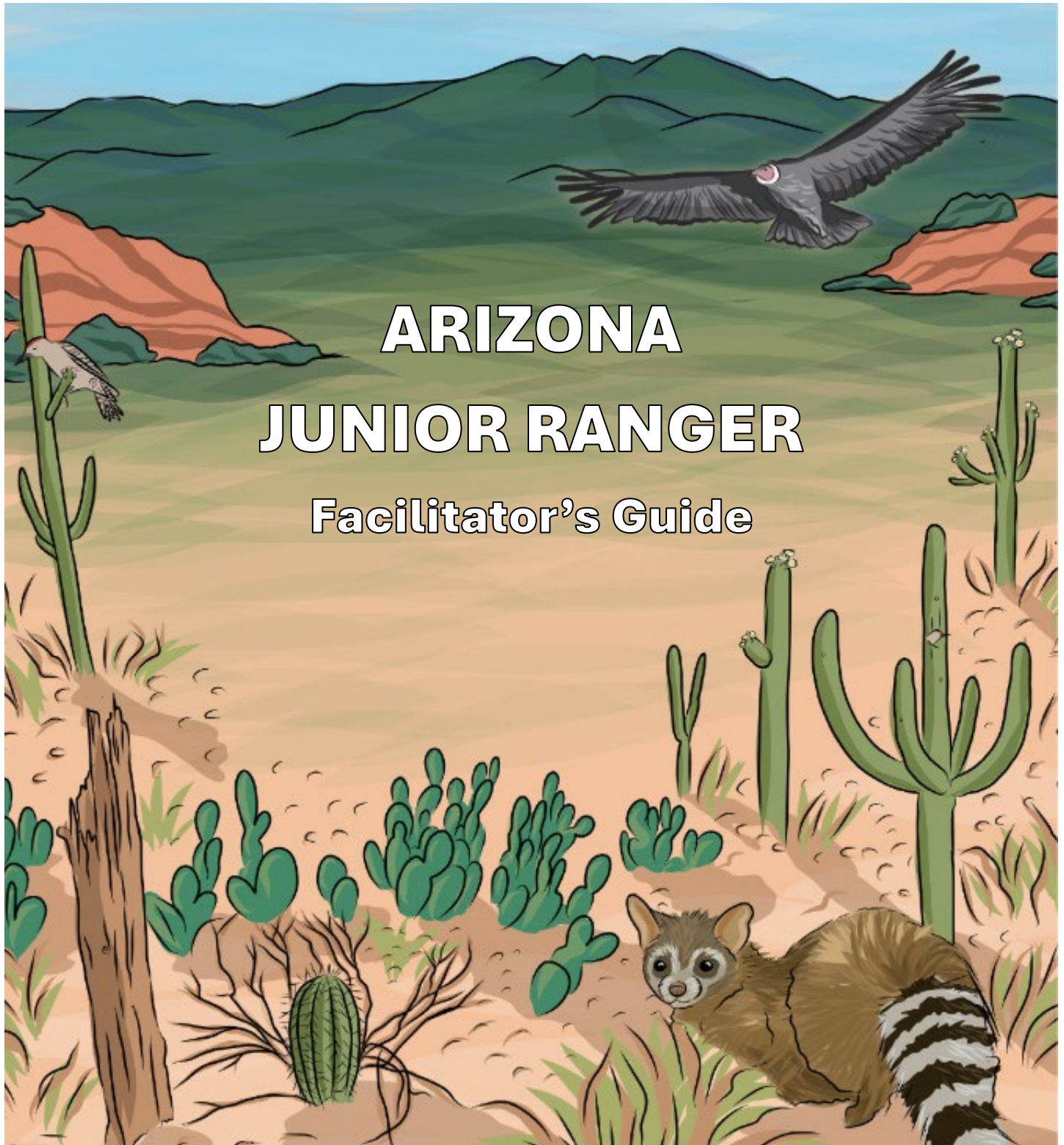




Forest Service
U.S. DEPARTMENT OF AGRICULTURE

Southwestern Region | June 2025



ARIZONA JUNIOR RANGER

Facilitator's Guide

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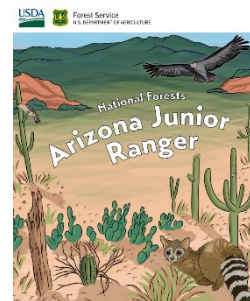
Arizona Junior Ranger Facilitator’s Guide

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Introduction

This guide is a supplement to the Arizona Junior Ranger Book. Forest Service staff, volunteers, and partners; classroom teachers; informal educators; and family members who work and/or spend time with young learners may find this guide helpful to supplement the book's activities. It is not intended to be comprehensive, but to give the user additional information about some of the elements (plant species, tools, etc.) and to provide a springboard for further exploration and inquiry.



For each activity, there is a section containing:

- **Background** - a short summary of the activity.
- **Vocabulary** - defining words that may be unfamiliar to young learners.
- **A Closer Look** - providing additional information.
- **Extension** - optional questions and/or activities to prompt further exploration and learning.

What is a Junior Ranger Book?

Junior ranger books are activity books for people to learn about public lands.

The *National Forests - Arizona Junior Ranger* book is designed with elementary-middle schoolers as the target audience, but it can be used by all ages.

How to Facilitate the Junior Ranger Book

First and always foremost: The goal of this book is for all the users to have fun and be successful!

With these goals in mind, feel free to modify the instructions as appropriate for the age and ability of the youth you are with. There is no single right way to use junior ranger books; they can be done as a standalone experience or integrated into a larger program.

- **Step 1 – Introduce the Junior Ranger Book** - Introduce the book by going to the first page and talking through the steps to become a junior ranger.
 - If you are working with youth as part of a class, summer camp, after school program, etc., carve out time in the schedule to work on the junior ranger book. You can use the book as a reward after other work is completed or set up a lesson that specifically ties to one or more of the activities.

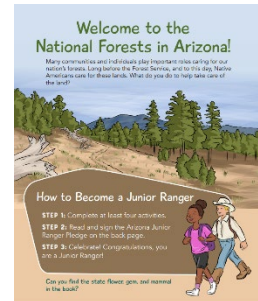
- **Step 2 – Review the Book** - After the junior ranger book is complete, spend time reviewing the activities.
 - If time is limited, or you are working with a group, you can have the junior rangers identify their favorite page or share one thing they learned.
- **Step 3 – Take the Pledge** - Address this important step in becoming a junior ranger by letting the junior ranger know they will be taking a pledge and then discussing what a pledge is.
 - “To officially become a junior ranger, we are going to take a pledge.”
 - Youth may make connections to the Pledge of Allegiance and state pledge. Older Students may be familiar with the Hippocratic Oath.
 - Ask the junior ranger to “Stand up tall, raise your right hand and repeat after me...” When reciting the pledge, speak slowly, pausing after every 3-7 words at the natural breaks, for the junior ranger to repeat the words of the pledge. Younger kids may need more frequent pauses.
- **Step 4 – Sign the Pledge Page** - Have the **junior ranger sign** the last page of the book. Then **you sign below as the witness**, and **offer congratulations**, “Congratulations, you are officially a junior ranger!”

If you have additional items like buttons or stickers, you can share those with the junior ranger.

Welcome to the National Forests in Arizona Page

Background

This page invites junior rangers into the book and explains the steps to become a junior ranger. As with all the pages, feel free adapt the instructions for your specific set of circumstances.



Vocabulary

- **Community** (noun) - a group of people in the same area who live or work together. A community can also be a group of living things, like plants and animals.
- **Symbol** (noun) - a visual representation of an idea or thing. For example, the pine tree has been a symbol of the Forest Service since 1905. Today, you can find it on uniforms and on signs in the forest.

A Closer Look: State Symbols

- State Flower – saguaro blossom (cover page)
- State Gem – turquoise bracelet (welcome page)
- State Mammal – ringtail (cover page)

Extension

- Research additional state symbols. What are the other symbols in Arizona? Why were they selected?

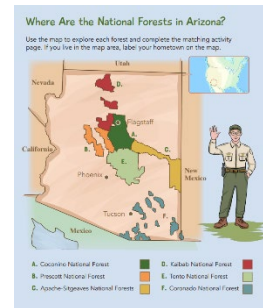
Arizona Map Activity

Background

The activity introduces the national forests in Arizona.

Vocabulary

- **National forest** (noun) – A forest that is protected by law and managed by the U.S. Department of Agriculture’s Forest Service, an agency that is part of the federal government.



A Closer Look: Maps in the Forest Service

Maps are important in national forests. They are an important tool to keep people from getting lost, to share where things are located, and to understand spatial relationships.

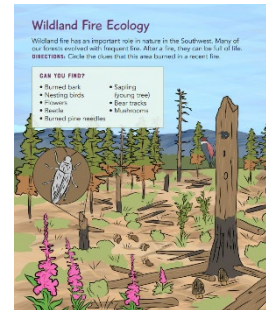
Extensions

- Imagine you are a map maker. Draw a mental map of a special place, like your school, a park, or your neighborhood.
- The national forests are the homelands to different Tribes and Pueblo nations. Many communities continue to be connected to these places and care for these lands. Research these homelands and draw them on the map.

Wildland Fire Ecology Activity

Background

This activity introduces the concept of fire ecology in the Southwestern United States. Although this activity is designed to be representative of a forest in New Mexico or Arizona, there are significant differences in fire ecology throughout the region (e.g., desert grassland, piñon-juniper woodlands, alpine meadow, etc.).



Vocabulary

- **Ecology** (noun) – The study of relationships between animals and plants and their environment.
- **Nesting** (adjective) – A bird (or other animal) that is caring for eggs or young in a nest.

A Closer Look: Fire Ecology

Fire can transform an area in many ways. Areas may become more open and new nutrients are introduced to the soil. Learn more about some of the other changes that might be seen after a fire.

- **Burned bark** – Burned bark can be a sign of recent fire activity. As trees age, some species, like **ponderosa pine** (*Pinus ponderosa*) develop thick bark that helps to make them more resistant to fire.
- **Nesting birds** – Standing dead trees, called **snags**, provide important nest sites for cavity-nesting birds. **Lewis's woodpeckers** (*Melanerpes lewis*) is one of the birds who use snags to raise their chicks.
- **Flowers** – There are many plants that come back after a fire. **Fireweed** (*Chamaenerion angustifolium*) is a bright pink wildflower. It is a common plant in areas that have recently burned.
- **Beetle** - Some species of beetles are attracted to recently burned forests to lay eggs, including metallic wood borers (family Buprestidae). The insects that arrive after a fire can be a good food source for **insectivores** (insect-eating animals).
- **Burned pine needles** – Pine needles burn during a fire. You can often tell how far flames traveled up a tree by looking at which are burned, and which are still green.
- **Sapling** – A sapling is a young tree. In parts of the western United States, aspen trees are some of the first trees to return after a fire. **Aspen** (*Populus tremuloides*) mainly grow from established roots, rather than from seeds. This adaptation helps

to make them resilient to fire, because they can grow back from the roots after they have burned. New plant growth after a fire can be a good food source for **herbivores** (plant-eating animals).

- **Bear tracks** – A moderate-intensity fire can clear parts of the forest floor, making it easier for wildlife to travel through.
- **Mushrooms** – Certain mushroom species are “fire-loving,” emerging after a fire, including types of **morel mushrooms** (*Morchella spp.*).

Extension

Research fire ecology in a different ecosystem. It could be in a desert grassland, an alpine meadow, or somewhere else. How are things similar and how are they different?

Helpful Plants Activity

Background

Plants have many uses. They can be used as food, medicine, material for building, material for art, and more. This activity introduces three plants that are native to the Southwestern United States and a use for each of them. These plants have many uses beyond what is listed in the junior ranger book and facilitator's guide.



Vocabulary

- **Respectfully** (adverb) – Doing something with respect or treating someone or something with care.
- **Purpose** (noun) – A reason or use.
- **Expert** (noun) – Someone who has special knowledge or skill.
- **Compound** (noun) – A mixture of different elements.

A Closer Look: Uses of Plants

- **Common Name:** piñon, pinyon
Scientific Name: *Pinus edulis*
 - The piñon pine is a slow-growing tree species. It is a favorite tree for firewood because of its dense wood and nice smell. The nuts have many culinary uses, and are part of the diets of different animals, including deer, bear, pinon jays, and wild turkeys.
- **Common Names:** prickly pear, nopal, opuntia
Scientific Name: *Opuntia spp.*
 - There are many species of prickly pear cacti. Prickly pears are made of leaves or pads (called *nopal* in Spanish) and flowers that become fruit (called *tunas* in Spanish). The flowers range in colors from yellow to pale green, to pink and red, to purple. In addition to the uses listed in the book, there are medicinal uses of the prickly pear.
- **Common Names:** yucca
Scientific Name: *Yucca spp.*
 - There are many yucca species in the Southwestern United States, including soaptree yucca and banana leaf yucca. The flowers and fruits of the yucca plant are edible and can be eaten fresh and dried. The leaves are stiff and fibrous, meaning full of fiber. The leaves are used in art, including weaving and basket-making.

Extension

Research other ways that these plants are used. What are some other plants that are common where you live? How can they be used and appreciated?

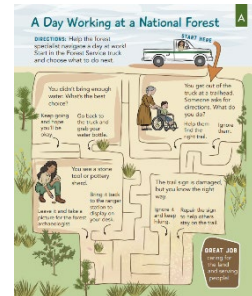
A Day Working at a National Forest Activity

Background

The activity introduces a day in the life of a Forest Service employee.

Vocabulary

- **Navigate** (verb) – To find one’s way.
- **Pottery sherd** (noun) – A broken piece of pottery. Pottery sherds can reveal important information about the past.
- **Archaeologist** (noun) – Archeologists learn about the past by studying sites and objects that people made, used, and left behind.
- **Ranger Station** (noun) – A building where forest service employees work. Many ranger stations have a front desk where they welcome visitors to the forest, provide maps about places to go and things to do, and sell permits for activities like collecting fuelwood.
- **Trail sign** (noun) – Trail signs are markers that help you stay on the trail and know where to go. They can be made of metal, wood, or rock, and are sometimes painted on trees or rocks. The sign that is illustrated in the book is in the shape of a wilderness sign; its unique shape lets you know you are about to enter a wilderness area.
- **Repair** (verb) – To fix.
- **Recreation** (noun) – Activities done for enjoyment when not at school or work. In the junior ranger book, it refers to outdoor recreation activities like hiking, camping, birdwatching, or biking.



A Closer Look: Recreation

The work that this employee does is the work of a recreation technician. Recreation technicians do many tasks to make sure that people visiting a national forest or grassland can safely visit and enjoy special places, such as trails, picnic sites, and campgrounds. Common duties include clearing downed trees from hiking trails, cleaning campgrounds, and providing information.

Extension

Research another job in the outdoors. Write a journal entry imagining a day in your life doing that job.

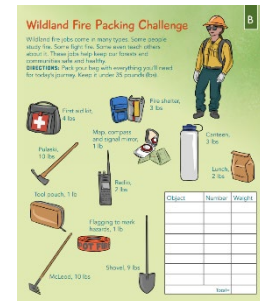
Wildland Fire Packing Challenge Activity

Background

This is a math activity that introduces different tools that are used by wildland firefighters.

Vocabulary

- **Wildland fire** (noun) – A fire in natural fuels (grasses, trees, etc.), rather than buildings or structures.
- **Wildland firefighter** (noun) – A firefighter whose job addresses wildland fire. Wildland firefighters work in teams called **fire crews**.
- **Hazard** (noun) – Something that is not safe.
- **Journey** (noun) – The experience of traveling from one place to another. In the activity book, it refers to the day of work in the field.



A Closer Look: Wildland Fire Tools

The tools and uniform components that wildland firefighters use are critical to their safety. Learn more about the tools featured in the book below.

- **First aid kit** - Used to treat minor injuries or illness and to treat bigger issues until more medical care can be provided.
- **Tool pouch** – Used to carry small repair tools, or electronics and electronics cords.
- **Flagging** – Brightly colored tape used by wildland firefighters and other Forest Service workers. There are different kinds of flagging, with different uses. Flagging can be used for navigation to mark routes, to mark trees and limbs for cutting, and to identify trees and/or areas that may be hazardous.
- **Radio** – A two-way communication tool. It is critical for sharing and receiving information with people.
- **Fire Shelter** – A shelter to protect wildland firefighters that is used as a last resort if there is no escape route available or no time to escape.
- **Lunch** – Food to eat during the day. A **Meal, Ready-to-Eat (MRE)**, is a pre-cooked food used when there isn't other food available. MREs are often carried in fire packs as a backup option, or for longer trips.
- **Map, map compass and signal mirror** – Important tools for knowing where you are and where you are going. They can be used to find landmarks and escape routes.
- **Canteen** – Also called a water bottle. A canteen carries water to stay hydrated. 4L (liters) of water is the minimum that is recommended for firefighters to carry.

- **Pulaski** – A multipurpose wildland fire tool, it has both a vertical axe blade and a horizontal adze blade. It is used to make fire breaks, and can dig soil and chop wood. It is also commonly used in trail construction.
- **McLeod** - A double-sided hand tool that has a rake on one side and a hoe-like blade on the other side. This tool is used to rake fire lines and for erosion control during trail restoration.
- **Shovel** - A tool with a large blade designed for scraping, digging, and cutting.

Extension

- Wildland Firefighter encompasses many different positions, including smokejumper, hotshot crew member, engine crew member, helicopter crew member, and hand crew member. What is one unique aspect of each of these positions?
- Research the uniform of a wildland firefighter. How is it similar or different from the uniform of a structural firefighter?

Animal Motions Activity

Background

The activity introduces some animal adaptations of species in Arizona using movement.

Vocabulary

- **Dart** (verb) – to move very quickly from one direction to another.
- **Glide** (verb) – to move smoothly.



A Closer Look: Arizona Animals

All these animals are currently listed as threatened or endangered species under the Endangered Species Act. This may be a relevant topic of conversation with older youth (middle school and older), particularly as it relates to work that scientists and land managers are doing to protect and/or restore the species and their habitat.

- **Common Name:** Gila Trout
Scientific Name: *Oncorhynchus gilae*
 - It is the southernmost member of the Salmonid (Salmon-like) family in the United States. When conservation efforts first started, in 1973, there were only five small populations on the planet, now there are over 20!
- **Common Name:** Chiricahua Leopard Frog
Scientific Name: *Rana chiricahuensis*
 - It is called the Chiricahua Leopard frog because the frog was first identified in the Chiricahua mountains in Arizona. Like birds, you can tell different frog species apart by their calls. The call of a Chiricahua leopard frog sounds like a snore or a chuckle! Another thing that makes them unique, is that they can call when they are underwater.
- **Common Names:** Mexican Gray Wolf, Mexican Wolf, Lobo
Scientific Name: *Canis lupus baileyi*
 - The Mexican gray wolf is a smaller subspecies of the gray wolf that in North America is found in many of the northern states and in Canada. It was nearly **extirpated** (eliminated, in this case nearly hunted to extinction) in the 1970s. The wolves in the Southwestern United States and Mexico came from only seven remaining Mexican gray wolves. Wolves are an important part of the ecosystem, but they eat livestock in addition to their native prey, which can make them challenging to live with in some communities.

- **Common Name:** Mexican Spotted Owl
Scientific Name: *Strix occidentalis lucida*
 - There are three subspecies of spotted owls: northern spotted owl, California spotted owl, and the Mexican spotted owl. Each has a different range. Over time, they have adapted to diverse habitats that are able to provide them with access to nest sites and prey. The Mexican spotted owl lives in the Southwestern United States and Mexico. They nest in forested mountains with big trees, and deep in canyons.

Extensions

- Research different behavioral and physical adaptations of these species, or other species found in Arizona. How do those adaptations help them survive?
- What are scientists doing to help these animals recover so that they are no longer threatened or endangered?

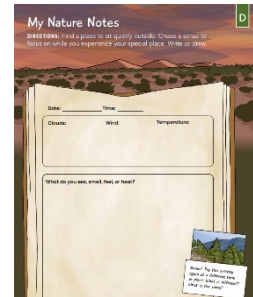
My Nature Notes Activity

Background

This is a nature journaling activity that is designed to record different experiences outdoors using the skill of observation.

Vocabulary

- **Observation** (noun) – A way of gathering information. It could be done by using your senses or by using tools.
- **Experience** (noun) – Something that someone has gone through.
- **Temperature** (noun) – How hot or cold something is. In some cases, temperature is measured on a definite scale like Fahrenheit or Celsius.



A Closer Look

Observation is an important skill. It is used in many different professional fields, such as art, science, medicine, and education.

Extensions

- Why might observation be an important skill in the Forest Service?
- Try this activity again in a different season, time of day, or location.

Eagle's River Journey Activity

Background

The activity introduces the life cycle of a bald eagle through a boardgame.

Vocabulary

- **Biologist** (noun) - biologists study living things like plants and animals, and their habitats in forests, grasslands, and other places.
- **Wobble** (verb) – to move in an unsteady way.
- **Tangle** (verb) – to twist together in a messy way.
- **Discard** (verb) – to get rid of or to throw away.
- **Plentiful** (adjective) – to have plenty of something. In this case, it means there are many fish.
- **Osprey** (noun) – a bird of prey whose head has bright white feathers and a mask of dark feathers across its eyes. Its diet is almost entirely fish (**piscivorous**).
- **Urban** (adjective) – relating to a city or large town. Opposite of **rural**.



A Closer Look: Eagle Conservation and Management

Arizona is home to the entire known population of desert nesting bald eagles in the United States. The Tonto National Forest plays an important role in the conservation of desert bald eagles and has had three dedicated bald eagle breeding areas on the Tonto Basin Ranger District, Mesa Ranger District, and Cave Creek Ranger District. These breeding areas protect eagles during their breeding months January-April.

In Arizona, five out of six of the national forests have nesting bald eagles. Part of why Arizona has been a success story for the conservation of bald eagles is because of teamwork. Many people and organizations have helped, including the dedicated work of the Arizona Department of Game and Fish Arizona Bald Eagle Management Program and the Southwestern Bald Eagle Management Committee. The Management Committee is made up of different land management agencies, Tribes, and other organizations that help to coordinate recovery efforts.

Extension

- Learn about the life cycle of a bald eagle.
- Research the diet of a bald eagle population in a different part of the country. How are their diets similar and how are they different?

Sky Island Match-Up Activity

Background

The activity introduces the concept of sky islands and how different animals live in different ecosystems.

Vocabulary

- **Ecosystem** (noun) – an interconnected system that is made up of living organisms (e.g., plants, animals) and non-living things (e.g., rocks, sunlight, water).
- **Stalk** (verb) – The quiet way that predator animals move when they are tracking prey animals.
- **Roam** (verb) – To wander from place to place.
- **Munch** (verb) – To eat.
- **Elegant** (adjective) – Something that is graceful and dignified.



A Closer Look: Sky Island Ecosystems

Ecosystems

In the sky islands, the different ecosystems are impacted by many variables, including elevation, precipitation, soil type, and temperature. These variables impact which living organisms that can live there. When you travel up Mount Lemmon on the Coronado National Forest, the change you see is often described as being like taking a trip all the way from Mexico to Canada! This is because of the diversity of ecosystems that you travel through, from the Sonoran Desert up to a subalpine forest. Learn more about the four ecosystems included in the activity:

- **Mixed conifer forest** – In the Southwestern United States, mixed conifer forests are found at high elevations. “Mixed conifer” means that different types of **conifers** (plants that produce cones and typically have needle- or scale-like leaves) can be found there, like spruce, fir, and pine species. A deciduous tree that is common to mixed conifer forests is the quaking aspen.
- **Oak woodland** – In the Southwestern United States, oak woodlands are found on mountains and plateaus. The trees found in this ecosystem are different oak, juniper, and pine species; and Arizona cypress.
- **Desert grassland** – Desert grasslands are typically flat, open spaces with grasses, shrubs and **succulents** (plants that store water in their leaves, stems, or roots; includes all cactus species). Desert grassland ecosystems surround the sky islands of Arizona.

- **Sonoran Desert** – The Sonoran Desert is one of three deserts in Arizona and New Mexico: the Chihuahuan Desert, the Mojave Desert, and the Sonoran Desert. These deserts share some characteristics but also have things that make them unique. For example, the Sonoran Desert is known for its high diversity of plant species and the iconic saguaro cactus!

Extensions

- Some of these animals are found in multiple ecosystems. Research the ecosystem (the environment) where these animals live and why they are able to survive and **thrive** (do well) there.
 - **Bonus:** Research the range (the geographical scope) of where these animals are found.
- Pick one of the ecosystems in the activity. Research other animal species that are often found there (for example: different mammals, birds, reptiles, amphibians, fish, **arthropods** (animals with exoskeletons like arachnids or insects), etc.

Junior Ranger Pledge

Background

This is the Forest Service Arizona Junior Ranger Pledge.

Vocabulary

- **Pledge** (noun) – a formal promise, commitment or vow.
- **Witness** (noun) – a person who sees an event. In the case of the junior ranger book, it is the person who sees the junior ranger take the pledge.



A Closer Look: Pledges

Forest Service employees take an Oath of Office when they begin a new job, as do all federal employees. What are other examples of oaths, pledges or vows?

Extension

Congratulations! You are now a junior ranger!

- Write your own junior ranger pledge.
- Think of ways that you can help a special place near you.