



LIFE IN THE FOREST



Get to know
Oregon's
forest wildlife



Oregon Forest
Resources Institute

FROM THE MOMENT YOU STEP INTO A FOREST, THERE ARE SIGNS OF LIFE. Birds chirp overhead. A moth or butterfly might flutter past. Maybe you spot a banana slug slowly inching along, leaving a trail of slime.

Oregon's forests are full of creatures large and small. So why is that? Have you ever stopped to think about it? Perhaps now you're wondering: What makes forests such great places for animals to live?

Well, a forest is an area covered by trees – lots of trees. These trees come in all shapes and sizes. There are tiny seedlings, and towering giants that are centuries old. All the trees that make up a forest, whether they're young, old, alive or dead, are important to a range of wild animals that use them as places to live, eat and sleep.

Covering nearly half the state, Oregon's forests are full of trees that provide shelter, nesting spots and food for wildlife. Trees also create the shade that keeps forest streams at the cool temperatures fish like best.

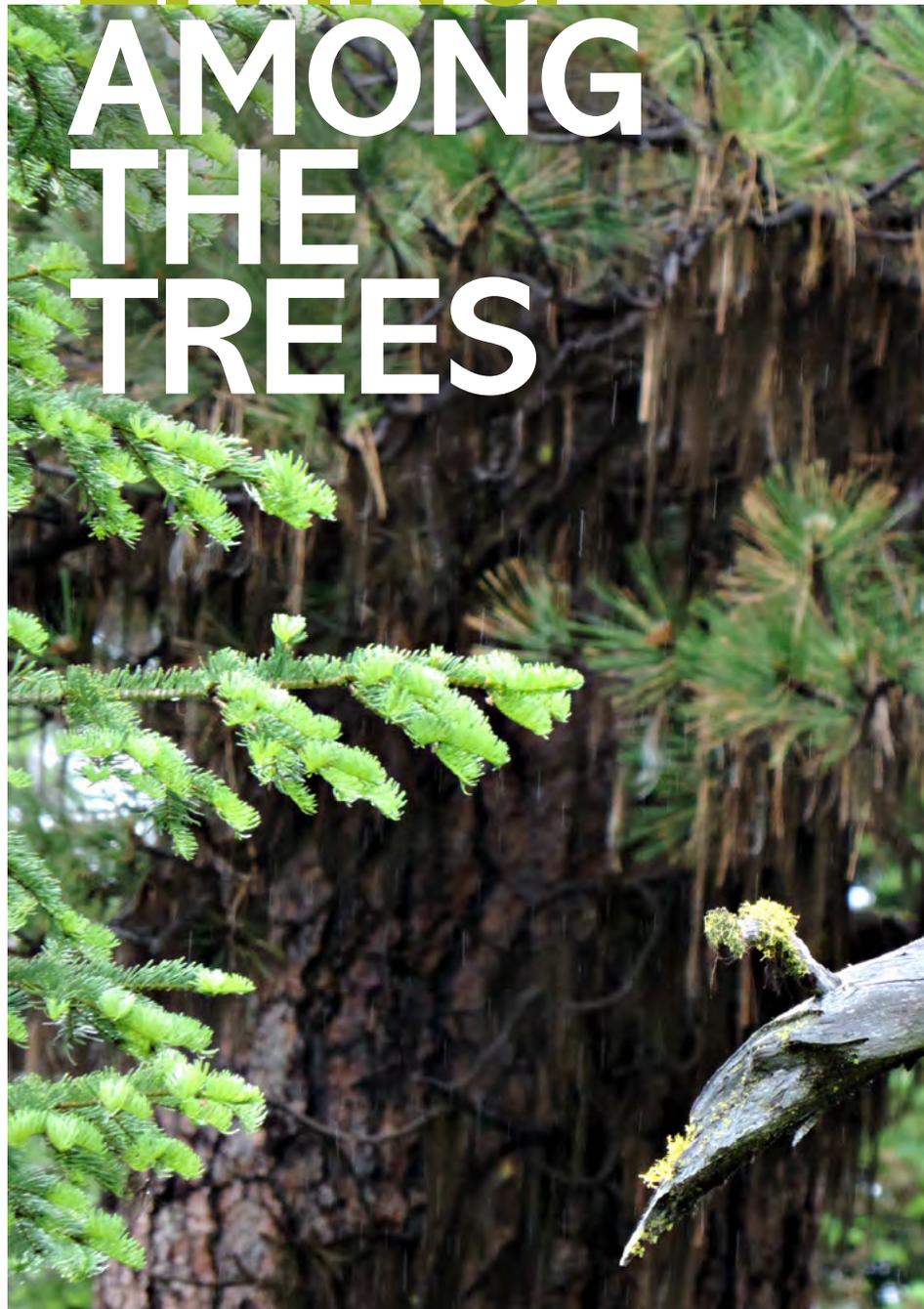
In short, trees are a big part of what makes forests a unique home for countless insects and hundreds of birds, mammals, fish, amphibians and reptiles.



LIVING AMONG THE TREES



Fisher





DID YOU KNOW?

Oregon is home to more than **700 KINDS OF WILDLIFE**. There are **92 SPECIES** here you can't find anywhere else! Here are some examples of wildlife that live in Oregon's forests:



Elk

Great horned owl

Osprey

A variety of forest homes

As trees grow in a forest, they attract different kinds of wildlife. That's because each animal has a particular place they like to live, and foods they like to eat. Some prefer older forests with bigger trees. Others seek young forests with lots of grasses and berries to eat.

Even after trees die, they live a second life as shelter or a food source for animals. When a tree falls into a stream, the water pools up and creates a good spot for young fish to hide. Logs and stumps attract insects that eat rotting wood, and provide a home for salamanders. Standing dead trees, called "snags," make great nesting spots for birds and bats.



HOW DO WE KNOW WHAT WE KNOW

about forest animals?

Have you ever wondered why an animal acts the way it does? Maybe you've wondered how squirrels can climb trees so easily. Or how high frogs can jump. Or how hummingbirds fly so fast.

If you're asking these kinds of questions, you're thinking like a scientist. Every day, scientists ask questions about the world around us. Then they try to figure out the answers. Thanks to their work, we know that squirrels have super-flexible ankles that help them climb trees. We also know just how far certain kinds of frogs can jump, and that hummingbirds can spin their wings to gain speed as they fly.

DID YOU KNOW?

Biologists are scientists who study all forms of life. Wildlife biologists focus on the insects, animals and fish that live in the wild. There are many different kinds of wildlife biologists. Here are some examples:

Aquatic biologists

study animals that live in water.

Animal ecologists

study animals and their environments.

Entomologists

study insects.

Ichthyologists

study fish.

Mammologists

study mammals.

Ornithologists

study birds.



SCIENTISTS WHO STUDY WILD ANIMALS ARE CALLED WILDLIFE BIOLOGISTS.

They record details they observe about each animal they study, to answer questions about its behavior. This could include what it eats, where it lives and how far it travels.

The work of wildlife biologists helps us better understand forest animals. It can also help us improve the places they live, identify and protect animals at risk of going extinct, and avoid conflicts between wildlife and humans.

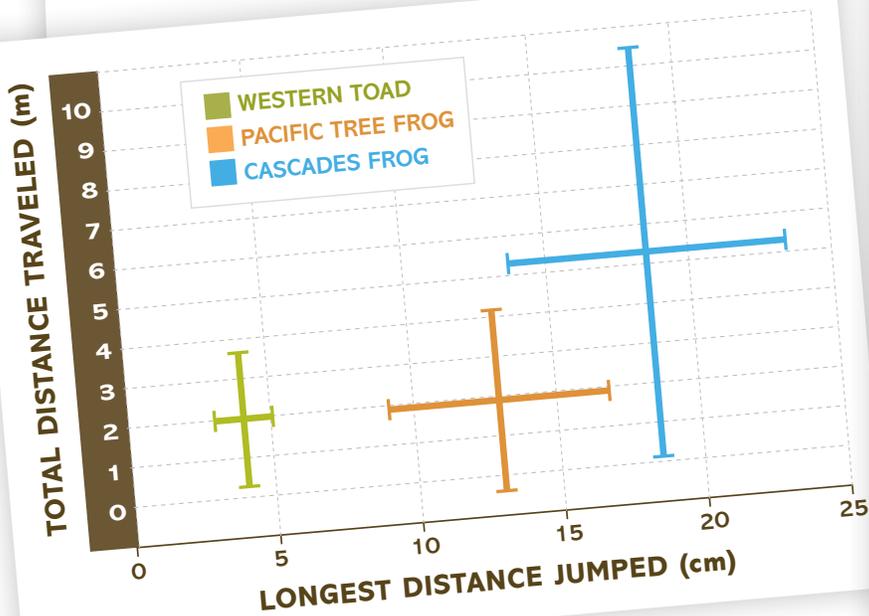


CASE STUDY: JUMPING FROGS

What biologists wondered: Is there a relationship between how far a frog can jump and the distance it travels within its habitat?

How they studied it: For three Oregon frog species, researchers measured the jumping ability in controlled laboratory conditions, and their movement behavior in the forest. They followed the movements of individual frogs using fluorescent powder that glows under black lights.

What they found:



The horizontal lines show the range of how far about 60 frogs of each species jumped in the lab. The vertical lines show how far those same frogs traveled in the forest.

Analyzing the evidence:

Which frog species had the longest jump?

Which had the shortest jump?

Which frog species traveled the farthest?

Which traveled the shortest distance?

What does the evidence tell us about frogs?

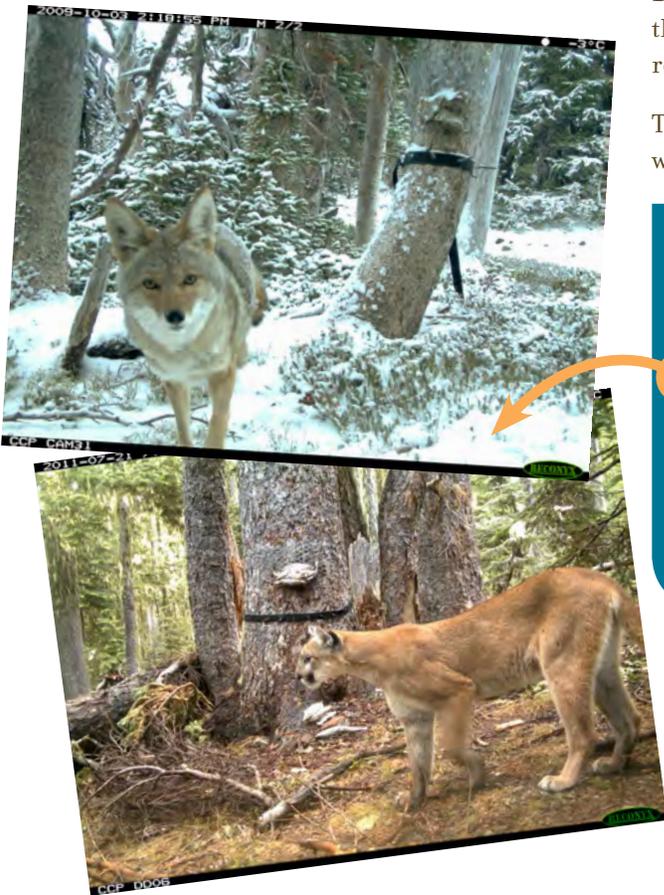


Finding forest wildlife

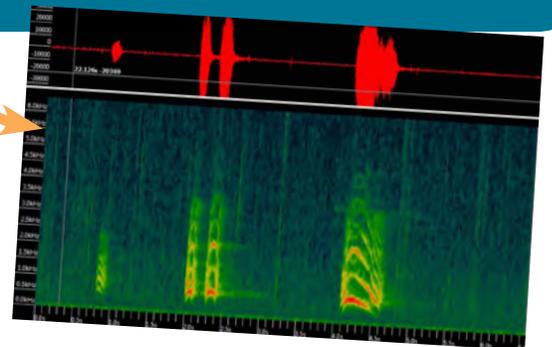
Wildlife biologists will sometimes trek deep into the woods to learn more about the creatures that live in the forest.

But some animals are very good at hiding. Wildlife biologists have to coax them out or work like detectives to find animal tracks and other clues that reveal where they've been.

These are some of the many techniques wildlife biologists use to investigate wildlife:



- **Setting traps** that capture animals without hurting them.
- Attaching **radio collars** to animals to monitor and map their movements.
- Using **motion-sensing cameras** that snap a photo whenever wildlife passes nearby.
- **Training dogs** to find the poop (scat) of a particular kind of animal.
- **Testing water** for DNA strands shed from fish or amphibians living there.
- Using computers to analyze **audio recordings** of birds to identify voice patterns.



AT HOME IN THE FOREST

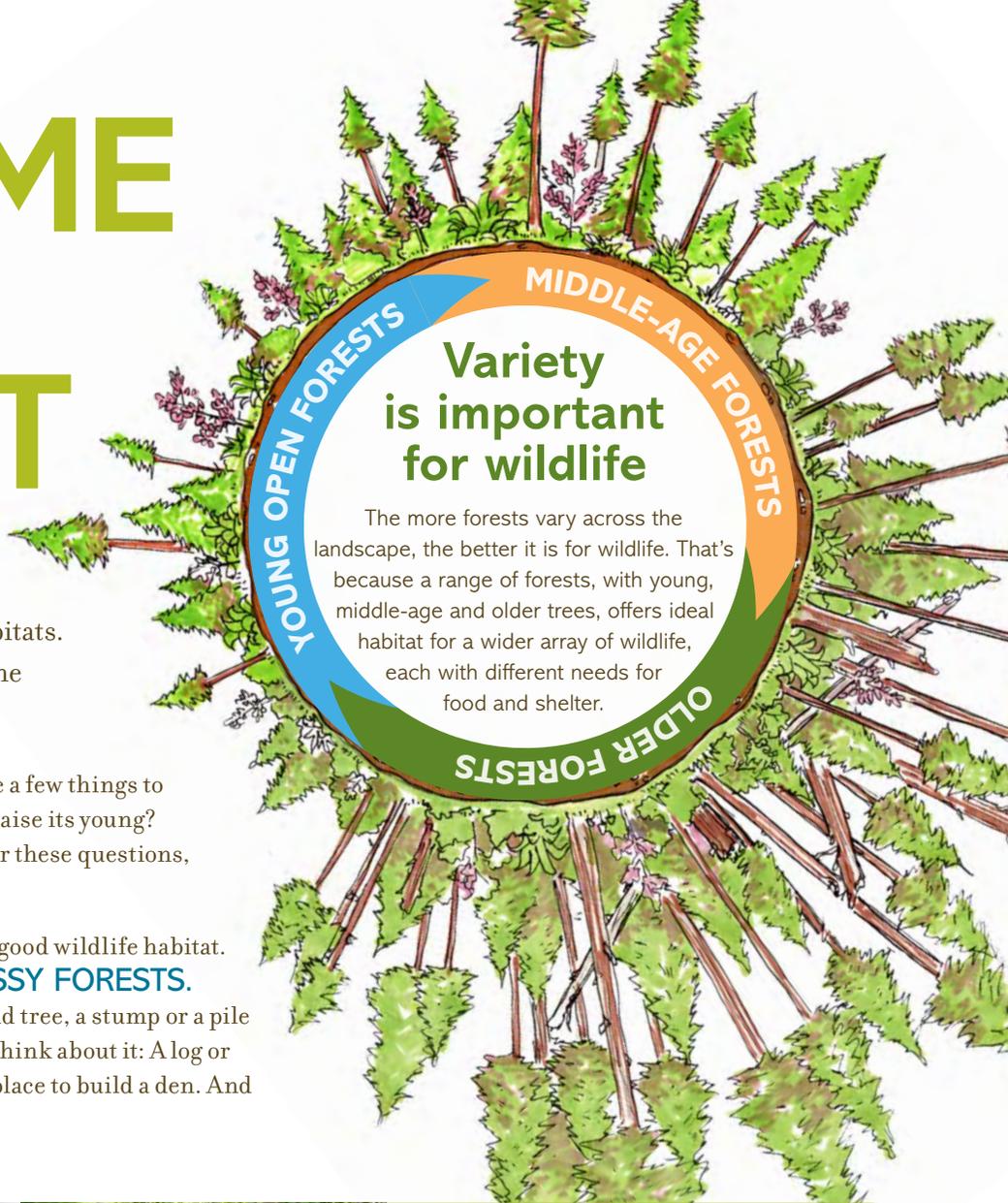
All the wildlife that live in forests have different strategies for survival. This is especially true when it comes to their habitats. A habitat is an animal's natural home – the place where it lives, eats and sleeps.

How do you find an animal's habitat? There are a few things to consider. Where does it prefer to rest, hide or raise its young? Where does it go to find food? If you can answer these questions, you've found the animal's ideal habitat.

Next time you're in a forest, see if you can spot good wildlife habitat.

HERE'S A HINT: ANIMALS LIKE MESSY FORESTS.

While you might not give a log, a craggy old dead tree, a stump or a pile of sticks a second glance, animals love them. Think about it: A log or stump could be hollow, making a perfect, dry place to build a den. And that pile of sticks could be a great spot to hide.



Pileated woodpecker



American beaver

Habitat creators

In addition to making a home for themselves, some animals create habitat for other creatures. These are called "ecosystem engineers." Two examples that live in Oregon's forests are the pileated woodpecker and the American beaver.

Woodpeckers pound holes in trees to eat the bugs living under the bark. This creates openings in tree trunks that owls and other creatures use as nests or dens.

Some beavers build dams with sticks on streams. These create ponds that become a good home for young fish and ducks. Scientists have found that young coho salmon are more likely to survive the winter if they live in areas with ponds created by beavers.



THE FOREST'S BOUNTY

Just like you, each animal that lives in the forest has favorite foods. And what each animal likes to eat is as varied as the creatures that call Oregon's forests home.

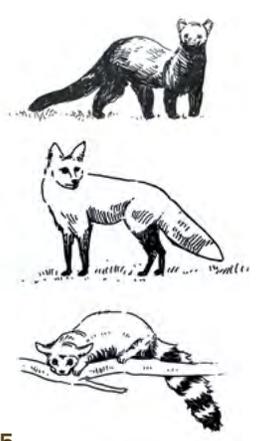
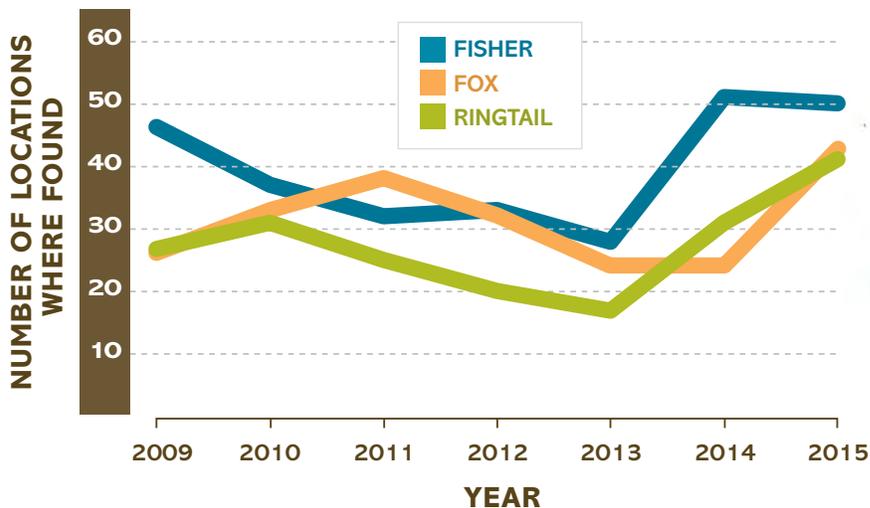
Some are vegetarians, such as deer and elk, and only eat plants. They're called **HERBIVORES**. Others, such as wolves and other predators, are **CARNIVORES**. They only eat other animals. Then there are **OMNIVORES** such as bears and skunks, which eat both plants and animals.

Wildlife biologists describe bears, skunks, coyotes, raccoons and other animals that have a varied diet as "**GENERALISTS**." That means they're not picky eaters.

There are also forest animals that will only eat one kind of food, called "**SPECIALISTS**." For example, the red tree vole is a small rodent that rarely eats anything besides the spiky, needle-like leaves of Douglas-fir trees.

Presence of carnivores in the forest

The presence of carnivores like fishers, foxes and ringtails in a location changes from year to year, and researchers are studying whether that is due to the availability of food or other factors.



A chain reaction

All animals need the energy from eating food to live and grow. This food energy is transferred among plants and animals through food chains. These food chains are connected into a larger food web. That means if there's less of a certain food, or if it goes away, there's a ripple effect.

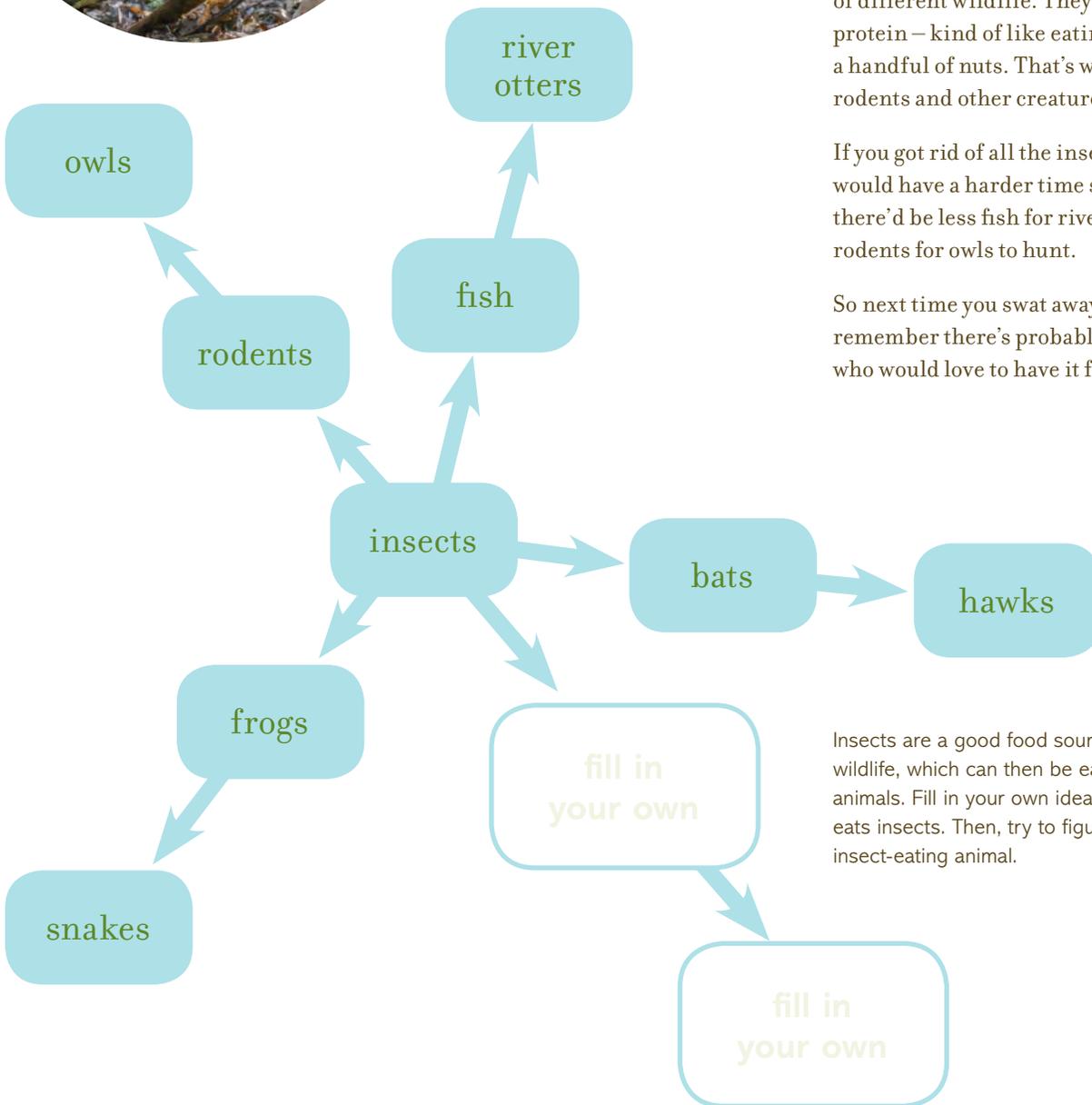
What might this look like? **WELL, LET'S IMAGINE THAT ALL THE INSECTS DISAPPEARED FROM THE FOREST.**

You might enjoy not being pestered by mosquitoes while hiking or camping in the woods, but it would be a big problem for some animals that live in the forest.

Insects, including mosquitoes, are food for lots of different wildlife. They're very high in fat and protein – kind of like eating an energy bar or a handful of nuts. That's why bats, birds, fish, rodents and other creatures like to eat them.

If you got rid of all the insects, these animals would have a harder time surviving. As a result, there'd be less fish for river otters to eat, and rodents for owls to hunt.

So next time you swat away a mosquito, just remember there's probably a hungry bat out there who would love to have it for dinner.



Insects are a good food source for all kinds of forest wildlife, which can then be eaten by other, larger animals. Fill in your own ideas for another animal that eats insects. Then, try to figure out what could eat that insect-eating animal.

Wild animals don't often stay put. In fact, some will travel great distances in search of food or a mate. We know this because wildlife biologists have used radio collars and other methods to follow their travels.

WILD TRAVELERS



Marbled murrelet

Here's an example ⁽¹⁾

The marbled murrelet, a small seabird that is about the size of a dove, has an uncanny ability to travel vast distances. The birds spend a lot of time on the ocean hunting small fish. Then they fly for miles to reach coastal Oregon forests, where they find a soft spot to lay a single egg in the moss on tree limbs.

To study marbled murrelets, researchers went out in small inflatable boats and used salmon nets to capture ones that were swimming in the ocean. They then attached small radio transmitters to the birds' backs. The transmitters allowed researchers in planes and on the ground to track each bird's travels. The aim was to follow them to their nests. The researchers would then climb into nearby treetops and set up video cameras to observe the nests.

Tracking the birds' travels and where they nest helps scientists recommend the best ways to protect forest habitat where marbled murrelets are found.



CASE STUDY: WOLF TRACKING ⁽²⁾

What biologists wondered: Where and how far do gray wolves in Oregon travel?

How they studied it: They attached a radio collar to a male wolf called "OR-7" to track its movements.

What they found: OR-7 wandered many miles before finally meeting a female wolf. The pair started a new wolf pack in southern Oregon.



Gray wolves, like OR-7, were once found all over Oregon.



OR-7's route across Oregon and into northern California, based on radio-collar tracking data collected between September 2011 and March 2012. The batteries in the wolf's radio collar expired in October 2015. Since then, scientists have relied on motion-sensing cameras and live sightings to track his movements.

Analyzing the evidence:

Where did OR-7 travel? About how many miles did he go?

What does the evidence tell us about wolves?

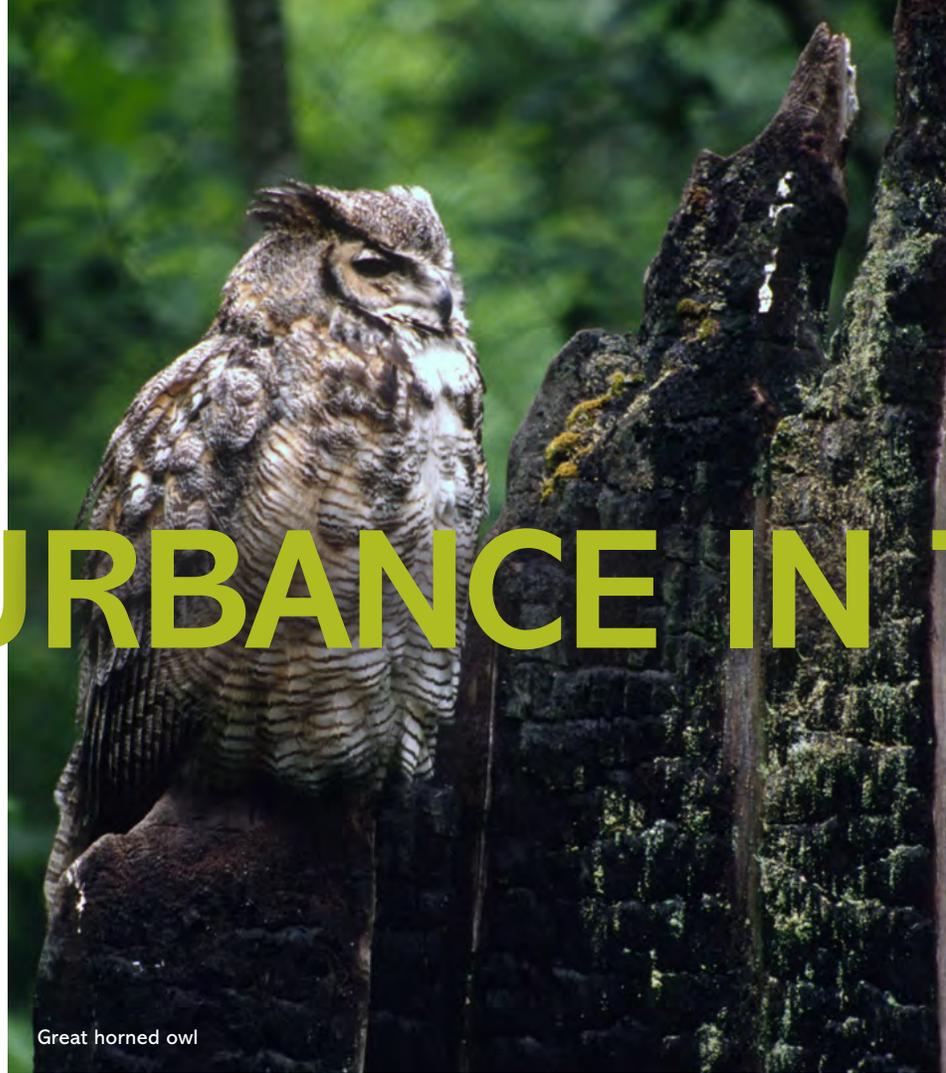
Forests are constantly changing. Trees grow bigger and taller. Some die and fall to the ground. Plants grow flowers in the spring and fruit in the summer. All these changes affect the wildlife that live in the forest. For example, bears limit their activity in the winter, to conserve energy during a time when there's less food in the forest to eat.

A DISTURBANCE IN

Many of the changes to the forest happen slowly, often over the course of months, years or even decades. But the forest can also change quickly and dramatically because of a fire or windstorm. You might assume these "natural disturbances" aren't good for wildlife. It turns out an occasional small or medium-size fire can end up helping animals that live in the forest.

Wildfires that are started by lightning are a natural part of the forest cycle. **BURNED FORESTS MIGHT LOOK DEAD, BUT THEY'RE ACTUALLY FILLED WITH LIFE.** After a fire, the forest slowly recovers. Wildflowers bloom and berry plants thrive; these attract birds and insects. Woodpeckers drill into the soft trunks of burned dead trees and feast on the bugs inside. Deer and elk eat the plants growing in the forest clearings created after a wildfire.

Eventually, new trees sprout or are planted by humans to replace the ones killed in the fire. As the trees grow taller after many years, the forest habitat will become similar to what it was before the fire.



Great horned owl



Triepeolus bee on Canada thistle

CASE STUDY: BEES AND FIRE ⁽³⁾

What biologists wondered: Does a forest fire help or hurt bees?

How they studied it: They set up traps for bees in an Oregon forest recovering from a wildfire. They collected bees from a variety of spots in the forest. Some areas were burned lightly (low-severity). In others, the trees were reduced to sticks (high-severity).

What they found:





Don't start a wildfire



Although wildfire is a natural occurrence that can benefit wildlife, we can't let fires burn out of control. Sometimes they get so big and burn so hot that they do more harm to forest animals than good. Wildfires can also spread quickly beyond the forest, putting people in danger and destroying homes.

Lightning starts some fires, but careless people cause most wildfires in Oregon. These human-caused fires don't have to happen. That's why it's important to never play with matches, lighters or fireworks. Don't leave a campfire burning when there's no one there to watch it – even a small breeze could cause the fire to spread. When you're done with a campfire, make sure to put it out completely. Drown the fire with water and stir it with a shovel until it is dead out. The wildlife that live nearby will benefit.

Analyzing the evidence:

Looking at the graph, which forest areas had the most bees: lightly burned or heavily burned areas?

Bees drink nectar from flowers. When a fire burns away trees, more sunlight reaches the forest floor and more flowering plants can grow. How might this affect bees?

What does the evidence tell us about bees and fire?



THREATENED AND ENDANGERED WILDLIFE

WHAT'S THE DIFFERENCE

between threatened and endangered species?

Endangered species

are in danger of becoming extinct.

Threatened species

are likely to become endangered unless we take steps to prevent it.

WHAT ARE THE LAWS THAT PROTECT THEM?

The **Endangered Species Act**, a federal law enacted by Congress in 1973, aims to protect and recover animals, insects and plants that are in danger of going extinct.

Oregon also has two laws, called the **Oregon Forest Practices Act**, passed in 1971, and the 1987 **Oregon Endangered Species Act**, that protect threatened and endangered animals living in the state's forests.

These federal and state laws include special protections for "sensitive" animals or "species of concern." These are animals that could become threatened or endangered.

Many of the animals that live in Oregon's forests are thriving, but some aren't doing as well. They're called threatened or endangered species. That means there are fewer of these animals around than there were in the past. Some are in danger of going extinct.

WHY ARE THERE FEWER OF CERTAIN FOREST ANIMALS?

There are usually a number of reasons. Common ones are losing habitat or past overhunting. Sometimes scientists need to do more research, because they just don't know enough about an animal to determine why there are fewer living in the forest than before.

Wildlife lose habitat when people cut down a forest and don't replant the trees. This is often done to make room for building houses, schools or businesses. Some animals have also been affected by the way logging was done in the past, before Oregon had laws protecting wildlife.

Wildlife biologists and other scientists often focus their research on figuring out how to help threatened or endangered animals. This shapes the laws that protect them. It also helps those who care for forests in protecting and restoring their habitats.



Threatened species that live in Oregon's forests

There are a number of threatened and endangered species that live in Oregon's forests. The state and federal government, wildlife biologists, zoos, wildlife advocacy organizations, forest landowners and others are working to help protect and recover their populations.

Here are some examples of threatened Oregon species:

The **OREGON SPOTTED FROG** is named for the black spots that cover its head, back and legs. The frogs are threatened by the loss of much of their forest wetland habitat.

NORTHERN SPOTTED OWLS live and hunt for small rodents and other prey in older forests. One reason their population has declined is because of the loss of older forest habitat, related to past logging practices. Another threat is competition with the barred owl, which is not native to Oregon, for the same food and habitat.

The **OREGON SILVERSPOT BUTTERFLY** lives in coastal meadows, but it flies into forests for cover from strong winds. Threats to the butterfly include loss of habitat and being preyed on by parasitic wasp larvae, spiders and ants.

COLUMBIAN WHITE-TAILED DEER were once numerous in Oregon, but their population has declined because of loss of habitat and past hunting practices.

CASE STUDY: DETECTING FISHERS

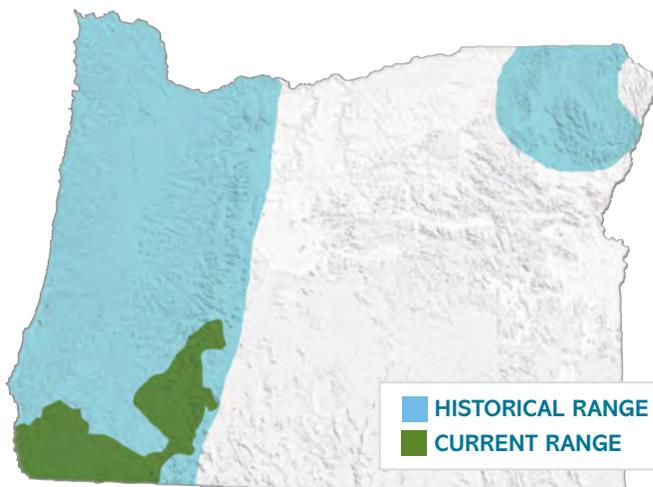
Fishers are furry carnivores about the size of a housecat. A member of the weasel family, fishers are only found in North America. A small population lives in southern Oregon forests. But they once roamed across a larger part of the state. For that reason, they're considered a "species of concern."

What biologists wondered: Where do fishers currently live in Oregon?



How they studied it: They used motion-sensing cameras to assess where fishers live. They set up 1,855 camera survey stations and collected more than 4 million photographs. They also used dogs specially trained to detect fisher scat.

What they found:



Analyzing the evidence:

Comparing the historic and current ranges of fishers on the map of Oregon, what differences do you notice?

What does the evidence tell us about fishers' range in Oregon?

In the past, fishers were hunted for their fur. Historically, logging big trees where fishers build their dens also didn't help. What might be affecting fisher populations today?

THE HUMAN TOUCH

Forests change for natural reasons, such as after fires or windstorms. They can also change because of people. And if we're not careful, we can change the forest in ways that hurt wildlife.

HUMANS TAKE UP SPACE THAT WAS ONCE FOREST,

with homes and cities.

We bring in exotic creatures called "invasive species" that compete with native animals for the same kinds of food and habitat. In the past, we hunted some species close to extinction.

With the help of scientists, we've learned how to reduce our impacts on wildlife. Wildlife biologists and other scientists are constantly expanding our knowledge of the animals and fish that live in forests. As a result, we often have a good idea of how to help forest wildlife.

This includes avoiding cutting down trees that are close to streams with fish, or when birds are nesting nearby. It could also mean changing the forest on purpose to help wildlife. An example is placing logs in streams to create pools for young fish.

In Oregon, state law requires loggers to leave snags, standing dead trees and some logs on the ground when they cut down trees for wood. This helps animals such as birds and flying squirrels, which like living in the hollow parts of dead trees.

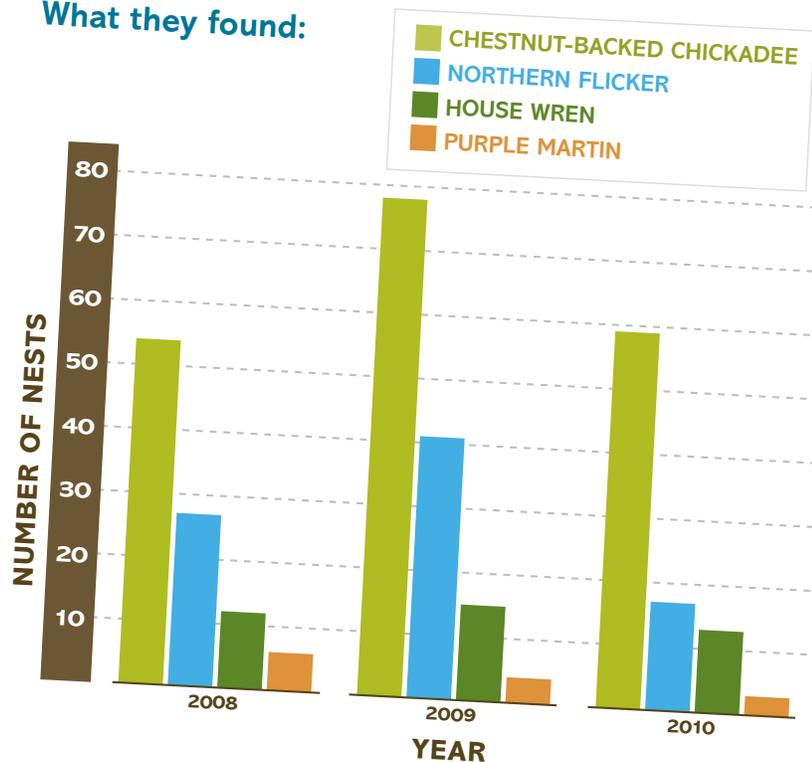
Oregon law also requires that when trees are cut down, new ones must be planted in their place. Replanting trees maintains forest wildlife habitat into the future.

CASE STUDY: CREATED SNAGS

What biologists wondered: Will birds nest in human-made snags after an area of the forest has been logged?

How they studied it: They set up cameras to monitor snags over three years.

What they found:



Northern saw-whet owl using a created snag.

Analyzing the evidence:

Which species had the most nests each year? How many more nests did it have than the other species each year?

What differences are evident from year to year?

What does the evidence tell us about birds nesting in human-made snags?



Foresters create snags by cutting off the tops of live trees.



Trout and logging⁽⁴⁾

Coastal cutthroat trout live in forest streams near the Oregon Coast. To figure out if cutthroat trout are affected by the logging that happens in those forests, a group of researchers launched a study that lasted 10 years.

In particular, the researchers were curious about the impact of Oregon's forest protection laws. These regulations require loggers to avoid cutting trees on either side of any stream with fish living in it. The shade from these trees helps keep the water at the cool temperatures trout and other fish need to thrive.

Each year of the study, the researchers tracked the number of trout living in two creeks. Near one creek, trees were logged. As state law requires, loggers left trees standing along the creek. No logging happened near the other creek.

At the end of the study, researchers found that the number of trout increased in the creek that was logged when compared to the creek that wasn't logged. They concluded that the cutthroat trout living in the logged creek were not negatively impacted by logging methods that followed Oregon's laws.





Western gray squirrel



Hummingbird

THE WILDLIFE NEXT DOOR

EVEN IF YOU LIVE IN THE MIDDLE OF THE CITY, YOU LIVE NEAR WILDLIFE. Do you wake up to birdsong each morning? What about sometimes seeing a squirrel climbing up a tree in your neighborhood? How about seeing a bee buzzing around a flowerbed?

A lot of animals live in urban forests. These are the forests growing in or near Oregon's cities, and they include the trees planted along streets and in parks, which provide shelter and nesting spots for wildlife.

Urban wildlife such as raccoons and coyotes have figured out how to live near humans. That means you're more likely to see one of these animals in the city. But it's not good if wildlife gets too close to people. Leaving garbage or pet food outside can attract raccoons, bears and other animals that might make a mess or damage homes or property.

Bird feeders are fine, but purposely feeding most other wildlife isn't a good idea. Providing easy meals for wildlife is an invitation for them to come back. They'll be less afraid of people and potentially become a threat to us and our pets.



Wildlife damaging trees

Certain wildlife can also harm tree growth. This can be a problem for other animals that rely on trees for food and shelter, as well as for people who make a living from forests by selling trees to make wood products.

A few examples of wildlife that can damage or kill trees are bears, porcupine and the mountain beaver, which isn't actually a beaver but a large rodent that lives in underground burrows in the forest and likes to eat tree seedlings. Some bears, for instance, will peel the bark off trees and eat the new wood underneath.

To avoid this issue, wildlife biologists are researching how to discourage these animals from damaging trees. They're also investigating ways that the people who work in or own forests can co-exist with bears, mountain beavers and other wildlife.



Raccoon



Black bear

Sure, let's go looking for bears!

It's not often you actively head into the woods to look for a mama bear and her cub. That's why when Vanessa Petro, a research wildlife biologist from Oregon State University, called and asked if I wanted to go with her, I ignored my inner voice of caution. I enthusiastically told her, "Yes, absolutely!"

It was a misty winter Oregon day when we headed out in search of a female black bear and her cub in the forest. Our purpose was to locate the bear in her den. Then we'd document the den's conditions – presumably without getting mauled.

Vanessa is studying bear habits to learn why some peel the bark off Douglas-fir trees. Peeling appears to be a learned behavior that bears teach their young, but not all bears peel. Researchers like Vanessa are gathering more information about the behavior. This could help wildlife biologists predict where bears might peel trees, and perhaps find a way to discourage peeling. But there's a lot more to learn before we reach that point.

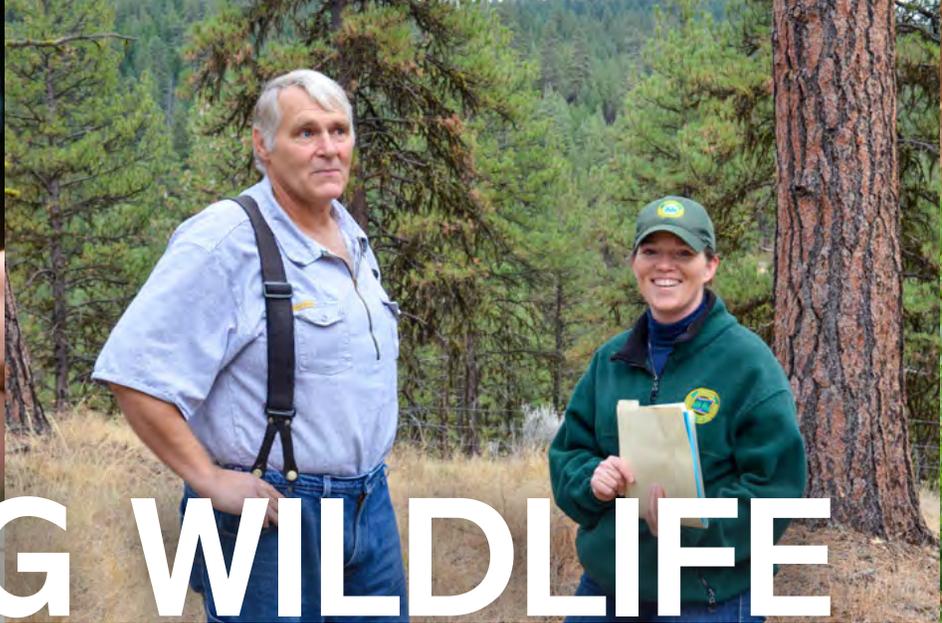
My day in the field with Vanessa was exciting. The entire time, after getting out of our truck to track the bear in the forest using a radio signal, we had to be absolutely silent. We hiked as quietly as possible through the woods toward a rather sleepy mother black bear with her cub.

We checked several potential sites. Then finally we located the bears! It happened so fast that I missed seeing the mother bear. I did, however, spot a sleepy cinnamon-colored black bear cub stumble over a log and follow his mother to another den.

We documented the location of the den they'd left, snapped a few pictures and then high-tailed it out of there. Admittedly, I looked over my shoulder a few times on the way out. Luckily, we weren't followed. I'd lived to tell the tale of the day I went looking for bears.

– Fran Cafferata Coe, Oregon wildlife biologist





HELPING WILDLIFE

Throughout this book, you've learned a lot about how humans impact forest wildlife. That isn't always a bad thing. There are a lot of ways we're helping wildlife.

EVERY DAY, PEOPLE WHO WORK IN OREGON'S FORESTS ARE MAKING A DIFFERENCE FOR THE ANIMALS THAT LIVE THERE. They plant certain kinds of trees and plants that are good for wildlife, and take other steps to improve forest habitat.

Foresters and loggers work with wildlife biologists to carefully plan their work in the forest to ensure they aren't harming wildlife. There are laws that require protecting animals.

And about a third of Oregon's forests have been set aside as public parks and wilderness areas where logging is restricted. One reason is because of their importance as wildlife habitat.

Saving the bald eagle

The bald eagle is a perfect example of the difference we can make for wildlife.

Today, bald eagles are commonly found throughout Oregon and North America. **BUT THE BIRDS WERE ONCE IN DANGER OF GOING EXTINCT.** Among the reasons were loss of forest habitat and the use of a chemical for killing bugs called DDT. The chemical caused bald eagles to lay thin-shelled eggs that cracked before their chicks could hatch.

To help save the bald eagle, the federal government banned the use of DDT. It also required protecting the bird under the Endangered Species Act. This included making it illegal to kill bald eagles, and requiring their nests to be protected.

These actions helped the bald eagle rebound. In 2007, the U.S. Fish and Wildlife Service announced the bald eagle's population had recovered enough that special protections were no longer needed. However, here in Oregon and across the country nesting bald eagles must still be protected. Loggers must preserve nest trees and leave a buffer of other trees around the nest. This ensures logging activity doesn't disturb the birds while they raise their young.





Ways to make a difference for wildlife

Helping wildlife isn't just the job of wildlife biologists – you can make a difference too. Here are some ideas:

- **Volunteer for a habitat restoration project.** This could include helping plant trees in the forest, removing non-native plants or picking up litter that could harm animals.
- **Create habitat in your backyard, school grounds or community.** Build a house for birds or bats. You could also make a garden with native plants that provide food, shelter and cover for bees, hummingbirds and other pollinators.
- **Get involved in a citizen science project.** Sometimes researchers need the public's help. If you sign up for a citizen science project, you'll be trained to collect data for scientists researching wildlife.
- **Visit zoos, aquariums, natural history museums, and forest or park visitor centers** to learn more about threatened and endangered wildlife, and ways to help them.



CLIMATE CHANGE AND WILDLIFE

As our global climate warms, it's creating new challenges for forest wildlife.

Hotter, drier summers are leading to bigger, more destructive wildfires. These massive fires damage more forest wildlife habitat. Warmer streams and lakes can harm fish, frogs and salamanders that need cold water. Some plants and trees need cooler weather to survive. This is a problem for animals that rely on them for food and shelter.

Some animals are sensitive to warmer weather. This is especially true of those that live in the mountains, where it tends to be colder and it snows more often. As temperatures rise, these animals might have to move to even higher areas or find ways to seek shelter from the heat.

Scientists are keeping an eye on how climate change impacts wildlife. They're studying how we can help animals that are most affected by rising temperatures. In some cases, that involves looking closely at the wildlife that have learned how to thrive in a changing climate.



Adjusting to a changing climate ⁽⁵⁾

Scientists are curious why some creatures fare better than others in rising temperatures. To help answer this question, researchers are studying a tiny, furry creature called a pika.

Pikas look like chubby hamsters, but they're more closely related to rabbits. They have round ears, no tail, and small, fuzzy bodies. They usually live in cold, mountainous areas. But an unusual group of pikas lives in a much warmer place: Oregon's Columbia River Gorge.

Researchers found these pikas changed their behavior to survive. The pikas retreated to shady forests or into thick moss to protect themselves from the summer heat. They also learned to eat moss. This grows near the rock piles where the pikas hide from the sun.

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CITATIONS

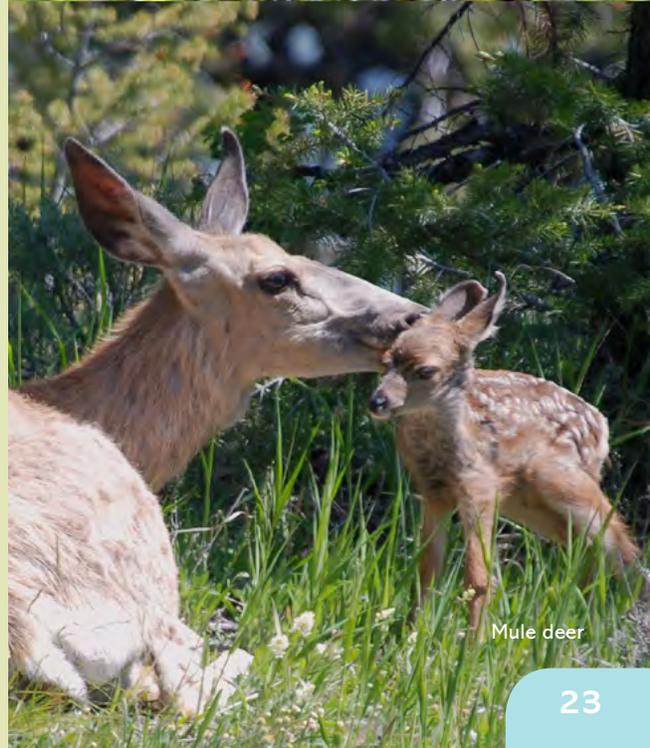
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Bobcat



Coastal tailed frog



Mule deer



Red-tailed hawk



Yellow-faced bumble bee



Rubber boa

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The Oregon Legislature created the Oregon Forest Resources Institute (OFRI) in 1991 to advance public understanding of how forest stewardship meets the social, environmental and economic needs of both present and future generations. OFRI works closely with the scientific, academic and educational communities at Oregon State University, the Oregon Department of Forestry and other agencies to ensure its K-12 resources are accurate and objective.



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