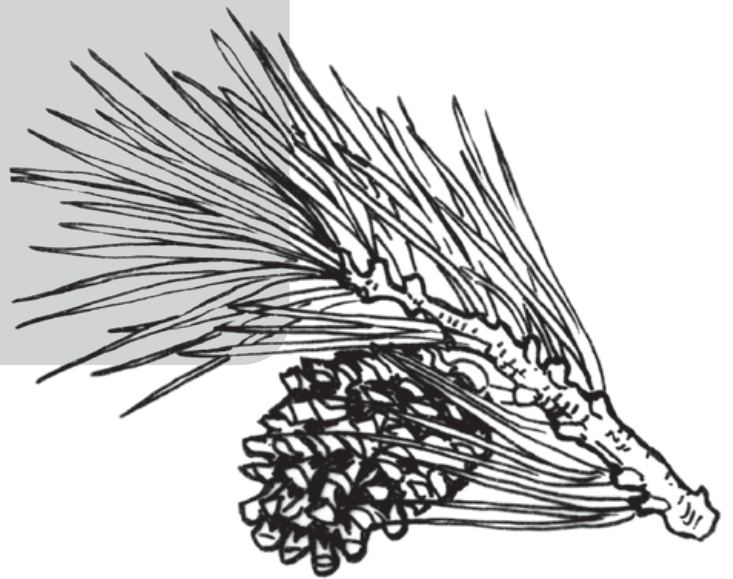


# Forest Essays



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# Western Bluebirds Live and Work Together



Two bright-blue Western bluebirds sat in their home in a woodpecker hole one spring. Around them, young trees were beginning to show bright-green leaves. There were nice, open spaces between the trees for flying. The air was warm.

Swallows swooped over the river, catching bugs in their beaks. Nuthatches and sparrows flew back and forth, eating insects, seeds and berries, and calling to each other.

Western bluebirds are a lot like the other birds that share their forest. But they do some different and special things, too.

One of these things is that they often have two sets of chicks in the same summer. That's a lot of chicks to care for — as many as 12 to 14 of them! It works because both parents take care of the chicks, and sometimes two or three young male bluebirds fly in and act as babysitters.

The same spring afternoon, the male bluebird watched his chicks. He knew that his mate was ready to lay another set of light-blue eggs. But he wasn't by himself. He could go get food while one of the younger males stayed with the chicks.

For the next couple weeks four adult bluebirds flew in and out of the nesting hole. They took turns bringing food to all the chicks. The second set of chicks was

as healthy as the first set. They were all safe and had plenty of food. They were never left alone. By the time they were big enough to fly, it was autumn.

In fall and winter Western bluebirds live in groups. The young male babysitters stayed in the woodpecker nest. Some young females joined them. They shared mistletoe berries and huddled together on cold nights. When it snowed, 12 or 13 bluebirds all crowded together in the hole.

In daytime they looked for food along with their neighbors. Robins, yellow-rumped warblers, mountain bluebirds and Western bluebirds all looked for food together.

Spring came again, and the bluebird pair stayed in their woodpecker hole. The other birds flew off. They were ready to find their own nests and start their own families, with their own babysitters to help them.

**Key Ideas and Details Questions (multiple choice)**

- 1. Where do bluebirds nest?
  - a. In a nest high up in a tree
  - b. In a hole in a tree
  - c. In a hollow in the ground
  - d. In a shrub

- 2. What kind of food do bluebirds eat?
  - a. Seeds
  - b. Other birds
  - c. Insects
  - d. Berries

**Integration of Knowledge and Ideas Question (short answer)**

- 3. When and why do bluebirds live together in big groups? Take your answer from the story.

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# Small, Striped and Smelly



Have you ever noticed an awful smell as you're driving along a highway? The smell can be so bad that it fills your car. Where does the smell come from, and what makes it so smelly? It comes from a skunk. These small animals create a stink to drive other animals away.

The most common skunk in Oregon is the striped skunk. They're no bigger than house cats. They have short, stubby legs. They don't have sharp teeth, and they can't run very fast. To make up for all these limitations, they have a secret weapon to keep them from getting eaten by predators, or enemies.

If a predator such as a bobcat, comes near a striped skunk to eat it, the skunk will first try several things to frighten the enemy. It will arch its back and raise its tail. It might turn away and stamp its feet. But if these defensive tactics don't work, the skunk uses its secret weapon.

It turns around, lifts its tail and sprays the bobcat in the face with nasty yellow fluid. This fluid smells awful! It makes the bobcat feel sick and stings its eyes

and nose. While the bobcat is blind from the fluid, the skunk runs away.

Most big mammals know about skunks and stay away from them. The only enemies that do eat skunks are big raptors, such as great horned owls and red-tailed hawks. These birds swoop down on skunks from the air. They don't have a very good sense of smell, so the skunks' spray doesn't bother them.

Striped skunks live near water and eat all kinds of things, such as insects, earthworms, lizards, rats, salamanders, frogs, snakes, birds, moles and eggs. They also like berries, roots and nuts. They sometimes live in or near human neighborhoods, especially if there's a stream nearby.

Learn to read the signs that there's a skunk around. You might find their footprints in the mud near water. You might smell a strong, musky odor, or find a hole that's just been dug near a building or a woodpile. These are signs that a skunk may be living nearby.

**Key Ideas and Details Questions (multiple choice)**

1. What is a “predator”?

- a. An animal that eats plants and berries
- b. An animal that lives by eating other animals
- c. An animal that sucks blood

2. Which animal will attack a skunk without worrying about the skunk spraying it?

- a. Bobcat
- b. Great horned owl
- c. Coyote
- d. Black bear

**Integration of Knowledge and Ideas Question (short answer)**

3. Where would you be likely to find a skunk? Find your answers in the story.

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# New Life for a Dead Tree



A large, dead tree stands tall in the forest, glowing silver among the green, living trees. It has been dead for many years. Most of its bark and many of its branches are gone. The top of the tree, called the crown, is also gone, snapped off by the wind. Its trunk is riddled with holes.

Yet the dead tree is full of life. Many birds and small animals nest in the trunks of dead trees. Woodpeckers drill holes in its trunk, looking for bugs to eat. Birds fly to and from its broken branches. Squirrels climb up and down its trunk, storing nuts and other food in its holes.

Dead trees are a very important part of the forest, because they provide food and shelter for plant and animal life. Standing dead trees are called snags. Some snags remain standing for 50 years or more. But when their roots can no longer hold the trees upright, they fall over.

Dead trees that have fallen to the ground are called nurse logs, because they act like nurseries for young plants. Once on the ground, they begin to decay faster. Ants, beetles and other insects feast on the wood, breaking it into smaller and smaller pieces. This adds nutrients to the soil and makes a good place for seeds to sprout.

Before long, nurse logs become covered in small plants, such as moss and ferns. Seeds from other trees fall on the logs and also begin to grow. Nurse logs become green again, with dozens or even hundreds of new plants growing on them.

Nurse logs are so important that following harvest, Oregon law requires forest managers to leave some down logs in the forest along with live, standing trees.

**Key Ideas and Details Questions (multiple choice)**

1. What is a snag?

- a. Male deer
- b. Standing dead tree
- c. Log
- d. Insect

2. What is another name for nurse log?

- a. Greenhouse
- b. Standing dead tree
- c. Down log
- d. Seedling

**Integration of Knowledge and Ideas Question (short answer)**

3. Why are dead trees important to the forest? Use details from the reading to support your answer.

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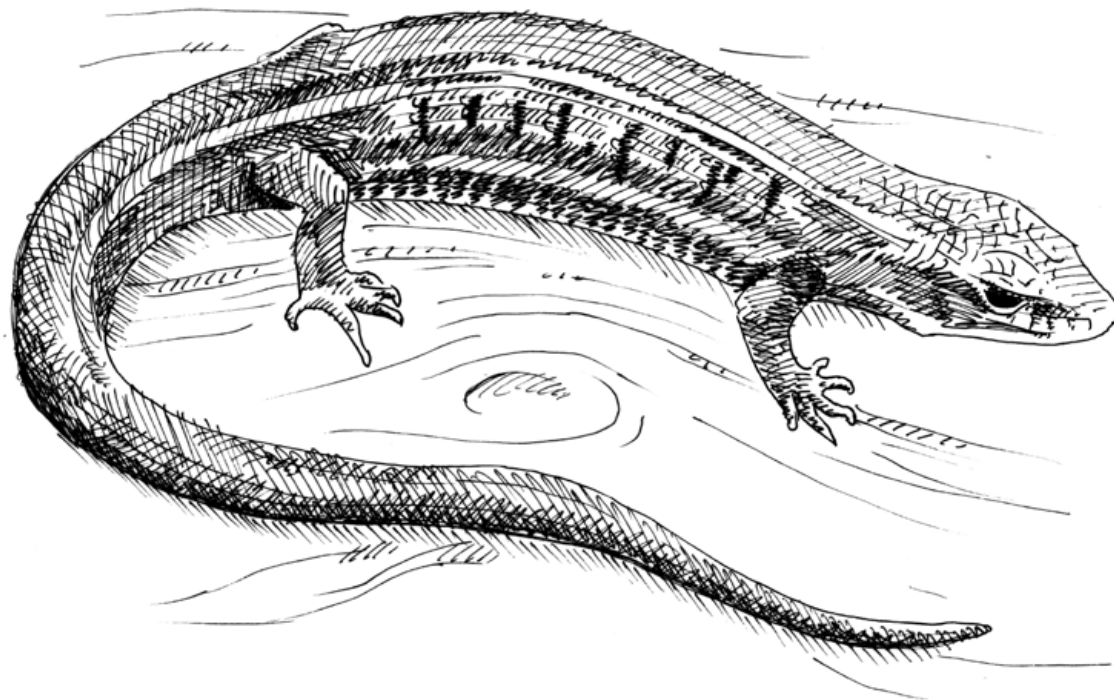
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# Alligator Lizard Loses His Tail — Or Does He?



A young, male alligator lizard is sitting on a rock in the sun. He is a reptile, so he can't keep himself warm. He's letting the sun do the work of heating his body. He's dark brown with black markings. When he was hatched, he looked just like he does now, but smaller.

After about an hour of sunning, he climbs down from the rock and slithers, making an S-shaped trail like a snake as he moves to the nearest forest tree.

The young lizard looks like a miniature alligator. He's about 7 inches long, and his skin is dry and scaly. His tail is as long as his body. He uses it to help him climb tree branches to hunt for spiders, insects and birds' eggs. After a good meal, he slithers back down the tree.

At the base of the tree he finds himself suddenly facing an enemy — a big garter snake. Garter snakes like to eat alligator lizards. Fighting for his life, the lizard releases a nasty-smelling mix of musk and scat, or poop, as the snake lunges at him. The snake pays no attention to the smell. It keeps moving toward him.

The lizard lunges back, biting the snake on the face. The snake doesn't mind the bite. It keeps coming. It's

the lizard's last chance to get away. He turns around with his tail facing the snake, and slithers quickly toward a dark place under a fallen tree. The snake follows him and grabs his tail.

Is it over? Will he be eaten? No. The alligator lizard simply leaves his tail behind and keeps running. The garter snake watches the lizard's detached tail wriggle by itself on the ground for a few minutes. By the time the severed tail stops moving, the lizard has reached his hiding spot.

The alligator lizard rests. He's not worried about losing his tail. In several weeks he'll have a new tail — although it may be a bit thicker and shorter than his old one. Until his tail grows back, it will be hard for the lizard to climb trees, so he'll have to look for food on the ground.

But the young alligator lizard will be fine. He can swim away from enemies in the nearby stream, and he can catch slugs and snails on plants near the water. Soon, he'll find a nice underground den at the forest's edge, and he'll go to sleep for the winter.

**Key Ideas and Details Questions (multiple choice)**

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| <p>1. What kind of skin does an alligator lizard have?</p> <ul style="list-style-type: none"><li>a. Moist and clammy</li><li>b. Dry and scaly</li><li>c. Hard</li><li>d. Furry</li></ul> | <p>2. How does an alligator lizard move?</p> <ul style="list-style-type: none"><li>a. It jumps like a frog</li><li>b. It slithers like a snake</li><li>c. It walks in a straight line</li><li>d. It paddles in the water</li></ul> |
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**Integration of Knowledge and Ideas Question (short answer)**

3. What do alligator lizards use their tails for? Find your answer in the story.

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# Often Heard but Seldom Seen: The Western Screech Owl

In the middle of the night a few nights ago, I heard a screech owl in the elm tree right outside my window. But it didn't screech — instead, it gave a mellow, muted trill: “Hoo... hoo... hoo... hoo... hoo... hoo-hoo-hoo-hoo-hoo...”

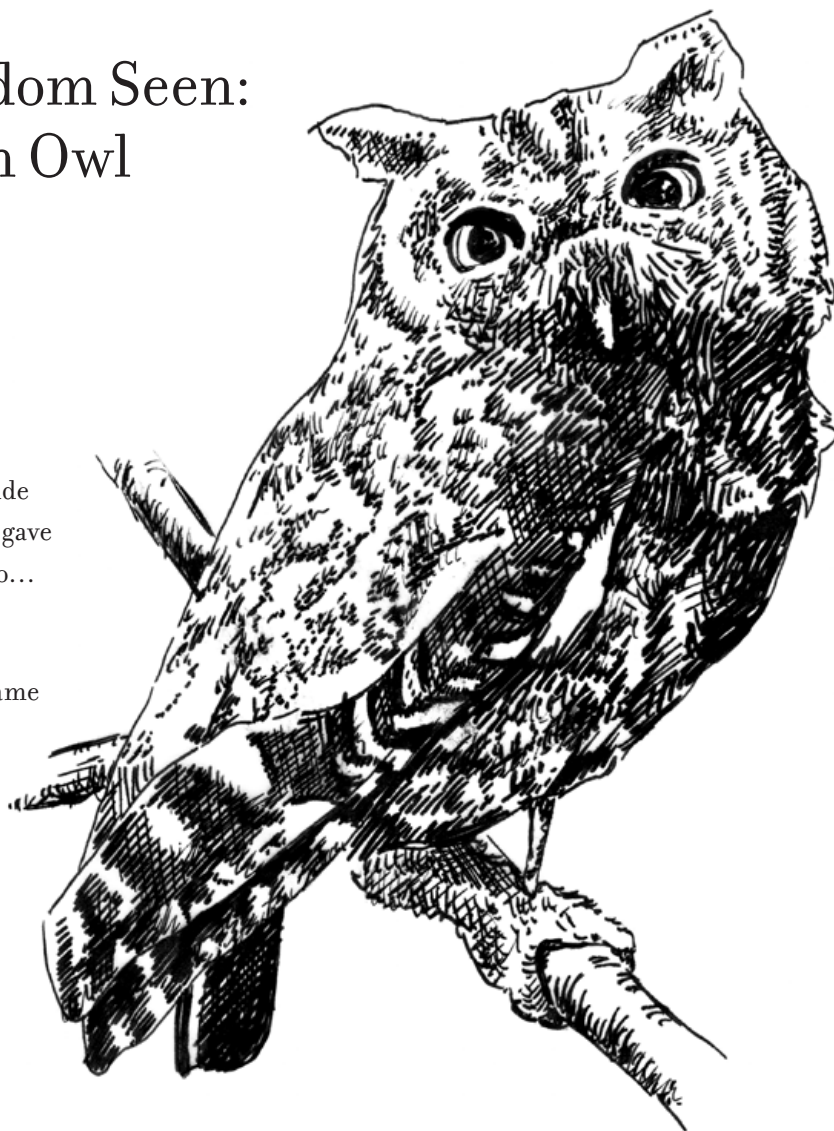
It started slowly and then sped up, all at the same pitch. A little while later I heard another sound just like it, only the whole song was a little lower in pitch. It was another owl! Back and forth, the two owls hooted softly at each other. As I listened carefully, I remembered having heard the sound before during walks around my neighborhood.

The next day I decided to check out a book about owls at the library. I learned a lot of interesting things about Western screech owls. They used to be called some other names, including little horned owl, dusk owl and mouse owl. I like “dusk owl” best, because dusk is when I hear them most often.

I was surprised to learn that they're only 8 or 9 inches long — much smaller than I would have guessed from their voices. They weigh less than half a pound.

Screech owls live in all kinds of Oregon forests. Like most owls, they hunt at night. They hide in tree hollows or in thick shrubs in the daytime. They like to roost and nest in natural tree hollows, such as the holes woodpeckers or flickers leave behind. Since they don't migrate in the winter, they live in these nests all year long. They stay with their chosen mates, so I may even be hearing the same couple of owls every year.

My neighborhood has 100-year-old maple and elm trees. Woodpeckers and flickers live here, too. Many of



the nearby trees have holes that are perfect for screech owls. I'm guessing our neighborhood's 12 blocks are home to several screech owl pairs.

Even though I've heard them, I've never seen a screech owl. They fly silently and blend in well with their forest surroundings. My owl book says that when a screech owl feels threatened — for instance, if someone gets close enough to see one — it stretches its body and tightens its feathers so it looks just like a short tree branch.

I hope one day I get to see a screech owl, but until then, I'll be listening for that sweet hooting duet. If you're ever in a place with big, old trees at dusk, you should listen, too. Follow the sound to the tree it's coming from, and who knows? Maybe you'll be luckier than I've been, and you'll see a Western screech owl for yourself!

**Key Ideas and Details Questions (multiple choice)**

- 1. What does a screech owl pair use as a home?
  - a. A hole in the ground
  - b. A nest in a tree
  - c. A leftover woodpecker or flicker hole in a tree
  - d. The eaves of houses

- 2. When do screech owls most often hoot back and forth to each other?
  - a. When they're hunting
  - b. In the early morning
  - c. In winter
  - d. Just after the sun goes down

**Integration of Knowledge and Ideas Question (short answer)**

- 3. What do screech owls do to keep from being seen? Use details from the story to support your answer.

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# Smallest Hummingbird Flies Long Distance



“Whi-i-i-i-z-z-z! Whi-i-i-i-z-z-z!”

The bird making that whizzing sound is a calliope hummingbird. It's the smallest bird in North America. Trying to see one up close is like trying to catch a fly with your hands. But when it travels south for the winter, the tiny calliope hummingbird flies farther than any other hummingbird.

This small bird moves very quickly. It hardly ever perches. Its high-speed wings buzz like a bumblebee's. When it does land on a branch for a moment, its beautiful colors shine in the light.

Just how tiny is it? The calliope hummingbird is only 3 inches long and weighs about half as much as a nickel. The human heart beats about 70 times every minute; the calliope hummingbird's heart beats more than 1,200 times per minute.

To stay alive, a calliope hummingbird must eat half its weight in sugar every day. It eats at least five times

every hour. It moves from flower to flower sipping sweet, sugary liquid called nectar. It dips its thin beak into a flower's center, then goes to another flower and does it again. Sometimes it eats insects, too.

Each spring this tiny bird arrives in the mountain forests of Oregon. The female builds a small, soft nest in a tree near a stream. She lays two tiny eggs that hatch about 16 days later. The mother feeds the babies and they grow. Soon they learn to fly.

When cold weather comes and the new babies are big enough to fly, the calliope hummingbird migrates to Mexico, where it is warm. To get there, it travels more than 2,500 miles! For such a small bird, that is a very long way.

When spring comes, it turns around and flies back to Oregon.

“Whi-i-i-i-z-z-z! Whi-i-i-i-z-z-z!”



### Key Ideas and Details Questions (multiple choice)

1. What is “nectar”?
  - a. The center of a flower
  - b. The beak of a calliope hummingbird
  - c. The sweet stuff in the middle of a flower
  - d. Sugar water from a hummingbird feeder
  
2. Where does the calliope hummingbird make its nest?
  - a. In Mexico
  - b. In a tree in the Oregon mountains
  - c. In a creek or stream
  - d. On the ground in the Oregon mountains
  
3. The calliope hummingbird is very small, and it moves very fast. What does it need most to survive?
  - a. It needs to be warm all the time
  - b. It needs to fly a long distance to Mexico in winter
  - c. It needs to eat at least five times every hour
  - d. It needs caves to nest in

# The Dancing, Singing Spotted Towhee Finds His Mate



The male spotted towhee puffed out his chest, flicked his wings to show the white in his tail, and then sang several complicated notes. He was looking for a mate, and he'd been singing since morning.

"Toe-heeee ... Toe-heeee ..." It was noon on a warm day in May. The spotted towhee buzzed out his name a few more times. He stood perched on a low shrub in a newly replanted Oregon forest. The young Douglas-firs around him were growing quickly, but he liked the many shrubs and the dead plant material on the ground best.

The towhee is a little bit bigger than a sparrow. The male has red eyes, a black head, orange under his wings and white on his belly. His black wings are marked with bright-white spots and stripes. His colors and his song make him attractive to young, female spotted towhees.

It was time to quit singing and find something to eat. He dropped to the ground, where food was hiding under dead leaves, needles and dry mosses. He performed the towhee "dance," hopping backward several times and moving the litter with a loud rustle. He found a ground beetle, pounced on it and munched it down. He also found a cricket and a grasshopper and repeated the action. He continued his backward-hopping hunt until he was full.

The next morning he was up again at sunrise, singing and looking for a mate. It worked — one week later, his new mate was building her nest, and he didn't need to sing quite as much anymore.

The nest was hidden on the ground in thick shrubbery, where owls, coyotes and other enemies couldn't see it. The female dug a shallow hole in the soil and shaped the nest inside the hole using dry leaves, stems and strips of bark. She lined it with grasses and other soft materials.

After she had laid four eggs, the two birds took turns sitting on them. Once they hatched, the new chicks demanded to be fed. They kept their parents busy searching for food and bringing it to the nest. After a couple weeks the chicks started flying. Soon they were looking for food for themselves.

As winter came, the spotted towhees started adding berries and seeds to their diet. They stayed warm in the shrubs of their young forest.

If you have a garden with shrubs and a thick layer of mulch or leaves on the ground, you could attract a pair of spotted towhees. You can even help feed them by placing a bird feeder in a low spot in the bushes.

**Key Ideas and Details Questions (multiple choice)**

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|--|---|
| <p>1. What is the “litter” where spotted towhees find food?</p> <ul style="list-style-type: none"><li>a. Food-based garbage from nearby businesses</li><li>b. Discarded paper and other trash</li><li>c. Dead leaves, twigs and mosses on the forest floor</li><li>d. Several young dogs born of the same mother</li></ul> | <p>2. How does a spotted towhee find insects to eat?</p> <ul style="list-style-type: none"><li>a. He catches them on the fly</li><li>b. He hammers on trees to find them</li><li>c. He pokes through the grass and into the soil</li><li>d. He hops backward, moving the leaf litter to find them</li></ul> |
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**Integration of Knowledge and Ideas Question (short answer)**

3. What is one reason spotted towhees build their nests on the ground? Find your answer in the story.

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# River Pig's Close Call



“Move, Danny!” yelled the crew boss. His cry was barely audible above the roar of the river and the creak and groan of the logjam, which signaled its impending break. But Danny kept on pushing and rolling logs with his cant hook, a long pole with a metal spike and hook on the end.

“Now, Danny! Now!” the boss yelled again.

Danny gave up on the logs he was trying to free and ran for shore across dozens of bobbing, spinning logs in the middle of the river, his spiked boots biting into the slippery bark. His feet touched land just as the jam released in a spray of water, rocks and mud, sending thousands of logs hurtling down the river.

“Close one, eh, Danny?” one of the other drivers said, laughing.

Danny’s boss, however, didn’t think the close call was so funny.

“What were you thinking?” the boss yelled in Danny’s face. “Don’t you know it just takes one slip and you could drown or get a leg pinched off between the logs? Next time you’d better move the first time I holler. Don’t make me regret putting you on the jam crew.”

Danny was a log driver, also called a river pig, river hog or river rat. It was a dangerous and dirty job. He spent his days walking across moving logs, pushing, pulling and rolling them down the river toward the mill.

Before there were logging roads, river drives were the most economical way to get logs to sawmills. Floating millions of trees down Oregon’s rivers damaged the rivers and salmon habitat. Log drives were banned in 1957, but some rivers are still recovering. Today logs are taken out of the woods by truck.

Since graduating from high school in 1942, Danny had worked his way up quickly from the lowly sacking crew to the elite jam crew. Danny thought working on the sacking crew was boring. He worked far behind the excitement of the main log drive, rounding up stray logs stuck on rocks and other obstacles in the river. But he worked hard, and the boss noticed his quickness and good balance.

Danny was soon placed on the main drive crew. Then he spent his days riding the bucking logs, jumping from one to another, pushing, prying and pulling logs off rocks, roots and rapids to keep them moving downstream. Danny liked working on the main drive, but he longed for the excitement of the jam crew. They worked at the very front of the drive, preventing and breaking up logjams.

When the boss finally gave Danny a chance on the jam crew, he was anxious to prove himself. He knew he had stayed out in the middle of the river too long, but he’d wanted to be the one to find the key log that would unlock the jam and get the drive flowing again. Some other river pig beat him to it, and now the boss was angry.

When he finally quit screaming, the boss noticed Danny’s red face, and his voice softened. “Look, son,” he said. “I know you want to do a good job, but a dead river pig is of no use to me. Be smart and be safe. Now get back to work!”

“Yes, sir,” Danny said, dashing off to catch up to the jam crew.

**Key Ideas and Details Questions (multiple choice)**

1. What was Danny using to move logs on the river?

- a. Cant hook
- b. Pike pole
- c. Axe
- d. Saw

2. Which was the elite crew on a log drive?

- a. Main crew
- b. Sacking crew
- c. Jam crew
- d. River pig

**Integration of Knowledge and Ideas Question (short answer)**

3. Why were river drives banned in Oregon? Use details from the reading to support your answer.

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# The Drummer of the Oregon Forest

If you hear a loud drumming sound as you walk in the forest, it could mean that a pileated woodpecker is nearby.

Pileated woodpeckers are the largest woodpeckers in Oregon. They're mostly black, with bright-red crests on their heads like mohawk haircuts, and white zebra stripes on their necks and faces. They have long, sharp, pointed bills and yellow eyes.

These woodpeckers make a lot of noise! They drum on trees with their bills, which is their way of finding food and warning other males away from their territory. They haul back with their long necks and pull with their feet to get as much power behind each blow as possible. Wham! Wham! Wham!

Pileated woodpeckers need big, dead trees nearby to find enough food to eat. They live in mature ponderosa pine or Douglas-fir forests. They eat mostly carpenter ants. These wood-eating insects live in dead wood, such as standing dead trees, stumps or logs that lie on the forest floor.

Carpenter ants make long tunnels in wood. To find the ants, woodpeckers use their strong, pointy beaks to strip the bark off dead trees. Then they hammer at the trees to make huge, oval holes. They use their long, barbed tongues to extract the ants. Other insect-eating birds come along behind to munch on whatever is left over.

Almost everything pileated woodpeckers do makes noise. They don't just drum away at trees; they also have a laughing call. "Woika-woika-woika!" they say.



To make a nest, a woodpecker hammers at a tree to create a 10-to-24-inch hole. This process can take up to six weeks. Near the end of the construction, the woodpecker goes into the hole and whacks away at the wood from the inside. It tosses wood chips out of the hole onto the forest floor.

These noisy birds help other animals, too. Many birds and mammals depend on the holes woodpeckers make for nests, shelter from enemies and a source of insects for food. Sometimes bats and swifts even share roost cavities with pileated woodpeckers.

When you visit a forest with old ponderosa pine and Douglas-fir trees, listen for a wild laugh and loud hammering. If you're lucky, you'll see the drummer of the Oregon forest: the pileated woodpecker.

**Key Ideas and Details Questions (multiple choice)**

1. What shape are the holes pileated woodpeckers make in dead trees?

- a. Oval
- b. Round
- c. Square
- d. Rectangular

2. What kind of trees do pileated woodpeckers need to survive?

- a. Young conifers
- b. Big oak trees
- c. Dead Douglas-fir and ponderosa pine trees
- d. Maple trees

**Integration of Knowledge and Ideas Question (short answer)**

3. What are two ways pileated woodpeckers' big nests help other animals? Find the answer in the story.

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# Jumping into the Fire

Put on gear. Load into a plane with fellow firefighters. Fly to a desolate wilderness area. Look for fire. Jump out of the plane. Pick up a chainsaw. Attack the fire. Attack it again. Hike home victorious.

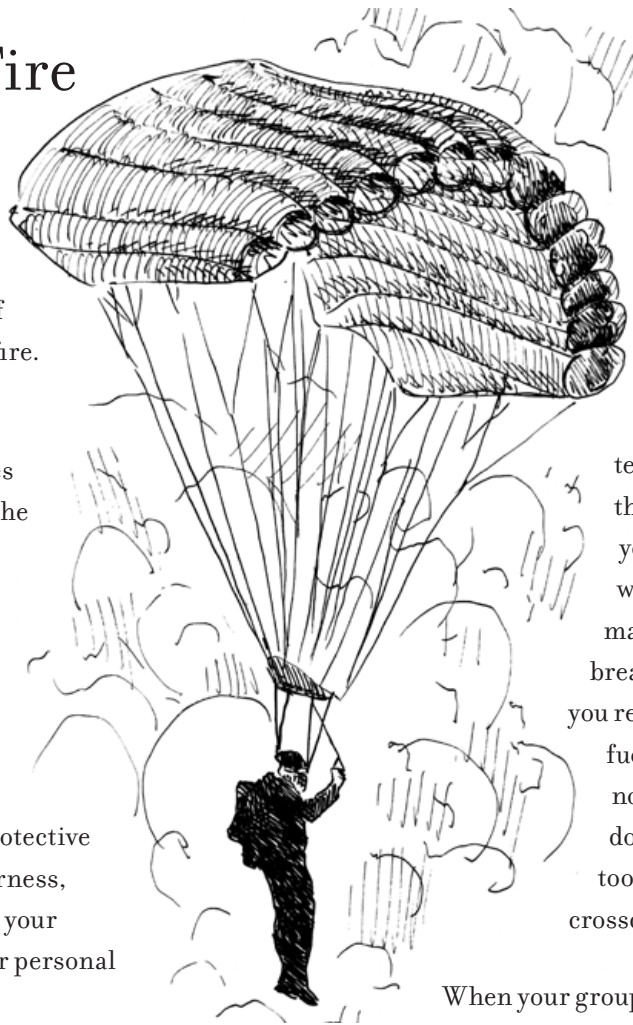
Smokejumping is a quick way to reach fires in remote areas without roads. It's one of the most cost-effective firefighting methods being used in the United States today.

Imagine it: You're sitting in a smokejumper base, hanging out with your team. You hear two loud blasts of an air horn. There's a fire! You move quickly — you only have two minutes to get into protective jump gear. You put on pants, a jacket, a harness, and reserve and primary parachutes, plus your helmet and gloves. Finally, you put on your personal fire pack.

Another smokejumper gives you a safety check to make sure you've put everything on correctly. You do the same for him or her. Then you get on a plane you call a "jump ship." The goal is to be flying within 15 minutes of hearing the fire alert.

Once the plane gets to the fire, it circles for a while. The spotter figures out a safe spot to land that's as close to the fire as possible. The jumper in charge decides how many jumpers will be needed to put out the fire. The first jumper out of the plane radios a report about wind direction and any potential hazards. You and the others reach the ground safely, and the jump ship drops tools and shelter materials to you, as well as food and water for three days.

Before you do anything, your jumper in charge contacts the officials who ordered you there, and gets a "size-up report" — a report of the details of the fire. Your team sets up lookouts, communications, escape routes and safety zones.



You work 14 to 16 hours per day. You drink a lot of water to stay hydrated. You keep track of your team members, and they keep track of you. Usually you're working together to make a fire line — a break in the forest where you remove and eliminate fuel so the fire has nothing to burn. To do that, you use hand tools and chainsaws or crosscut saws.

When your group has contained the fire, you perform "mop-up" procedures.

You cool the remaining heat of the fire by stirring the hot ash with cooler, mineral-rich soil. Once there's no more smoke, your team checks the burned area by hand to make sure the fire won't start up again.

Sound interesting? Rookie training lasts at least six weeks. Among other things, you complete field training in tree-climbing and crosscut and chainsaw skills, as well as map and compass use and mock airplane jumps. You're required to be able to run 1.5 miles in 11 minutes and carry a 110-pound pack 3 miles in 90 minutes. You also have to do 15 practice airplane jumps on increasingly difficult terrain.

It takes a special kind of person to pass the requirements, but it's one of the most exciting and rewarding jobs around. Some of you might say that a person would have to be crazy to jump out of an airplane into a forest fire — but most smokejumpers love the job and can't wait for the next fire call.

**Key Ideas and Details Questions (multiple choice)**

1. How soon after a call should smokejumpers be in the air on their way to a fire?
- a. 10 minutes
  - b. 1 hour
  - c. 30 minutes
  - d. 15 minutes

2. What is a “fire line”?
- a. A break in the fuel used by a fire
  - b. A line of people fighting a fire
  - c. A line of trees that are on fire
  - d. A tool used to fight fire

**Integration of Knowledge and Ideas Question (short answer)**

3. In what ways is smoke jumping a team activity? Why is teamwork important?

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# Secretive Giant Salamander Stands its Ground



“Bark! Bark! Bark!” comes a call from the mountains. It sounds like a dog, but it isn’t. What could it be? It’s the Pacific giant salamander, the biggest native salamander in Oregon. It can grow up to 14 inches long.

People rarely see the giant salamander. It spends its days hiding out in a moist burrow under rocks or tree litter. Its light-brown skin and dark-brown spots help it blend in with its habitat.

The giant salamander knows how to defend its ground. It barks. It head-butts. It bites. It lashes its tail and rears back its head. It secretes a noxious scent and slime from its tail.

The giant salamander may be tough, but it likes peaceful surroundings. It needs cool, clear water to survive. It lives high in damp mountain forests where streams and trees create a shady, moist environment.

At night the giant salamander slinks out to prey. When anything smaller than it passes by, it lunges out and captures a meal. Giant salamanders will eat almost anything they can catch, including insects, young fish, mice and other rodents — even other salamanders!

During the colder months adult giant salamanders look for mates. Scientists know very little about their mating behavior. Only a few giant salamander nests have been found, mostly in hidden underground chambers in the stream gravel. The female guards her eggs for six or seven months until they hatch.

About an inch long when they hatch, giant salamander larvae have yolk sacs that feed them while they stay in the nest for another two or more months. Once strong enough to leave the nest, the larvae use fuzzy gills behind their heads to breathe underwater, and fins along the tops and bottoms of their tails to move.

A young giant salamander lives in the stream while it grows. It feeds on small insects and sometimes other young salamanders. It hopes to avoid Pacific salmon, a fearsome predator.

When a young salamander is about 2 years old, it looks for a new home on land. It builds its own burrow and gets ready to fiercely defend its home with its bark and bite.



**Key Ideas and Details Questions (multiple choice)**

- 1. Where do Pacific giant salamanders live?
  - a. In ponds in the Willamette Valley
  - b. High in the mountains near streams
  - c. In the high desert of Eastern Oregon
  - d. All the above

- 2. What do Pacific giant salamanders eat?
  - a. Insects and small fish
  - b. Mice and other small rodents
  - c. Other salamanders
  - d. All the above

**Integration of Knowledge and Ideas Question (short answer)**

- 3. What kind of habitat does the Pacific giant salamander prefer? Use details from the reading to support your answer.

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# Beaver Kits' First Adventure



As the early summer sun sets, a family of beavers comes out to work and play in a pond.

One by one, the beavers swim out from under a large mound of sticks and mud. Their parents built this mound, called a lodge, to keep them safe and warm. Located in the middle of the pond, the lodge has underwater entrances that make it difficult for most other animals to get inside.

Beavers begin their day at sunset because they are nocturnal. That means they are most active at night, when they are less visible to predators such as bears and coyotes. The parents and the older siblings work together to watch for danger, repair the lodge, look for food and care for the babies, which are called kits.

The dad and two yearling beavers surface first, followed by the mom, who has three kits clinging to her back. The kits are just 1 month old. They learned to swim in the water entrance to the lodge soon after they were born, but this is the very first time they are leaving the safety of the lodge.

The kits had their first taste of solid food a couple weeks ago, when their father brought them leafy

branches to nibble. Although their mother will continue to nurse the kits for another month or more, today she is going to show them how to find their own food. Once on shore, she shows them which leaves to eat and how to find the tender inner bark. After filling their bellies, they begin romping, wrestling, diving and playfully slapping their tails in the water.

Suddenly the mother beaver hears something in the bushes. It's a black bear! She dives into the water, slapping her tail loudly on the surface to warn the others. She and the kits swim quickly back to the lodge.

Dad and the yearlings are farther offshore, so they have farther to go to reach the lodge. The bear has picked up their scent, and starts moving toward them. The beavers lumber toward the pond, but their short legs make them slow on land. The bear almost catches up with them by the time they reach the water, but they dive in and it doesn't try to follow. Once the beavers are in the water, their large, webbed feet quickly propel them home.

The beaver family is reunited, safe inside the sturdy wood-and-mud walls of their lodge.

**Key Ideas and Details Questions (multiple choice)**

1. What is a kit?

- a. A beaver lodge
- b. A young beaver
- c. Type of water plant
- d. Space between logs

2. Who cares for the young beavers in the family?

- a. Mother
- b. Father
- c. Older siblings
- d. All the above

**Integration of Knowledge and Ideas Question (short answer)**

3. Why did the mother bring the young beavers out of the lodge? Use details from the reading to support your answer.

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# Teacher Tracks the Climbing, Skin-Breathing Clouded Salamander

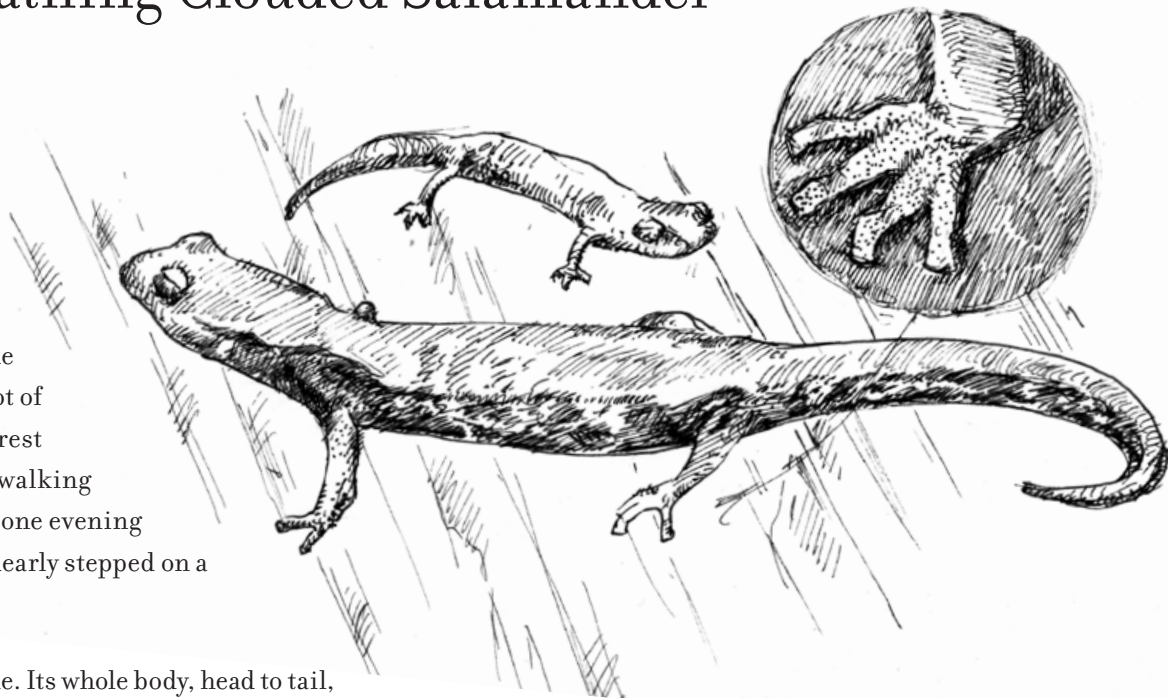
I teach fifth grade in a town on the coast of Oregon. In the summers, I spend a lot of time in the conifer forest near my house. I was walking home from the forest one evening last summer when I nearly stepped on a salamander.

It was lying in a puddle. Its whole body, head to tail, was under the water. It was brown, with smooth skin, and it was small — its body was only about 4 inches long, including the tail. Its mouth curved up like it was smiling, and it had square toes on each of its four feet.

It was just lying there, but it wiggled a bit, so I knew it was alive. I decided it must be sleeping. I walked by very slowly, not wanting to frighten it. I went inside and looked in my biology field books and discovered that it was a clouded salamander — called that because its skin is mottled gray, like dark clouds.

I learned a lot of interesting information. First, the clouded salamander doesn't have lungs. You might wonder how that works. How does it breathe? The answer is that it uses "cutaneous respiration." Cutaneous is a word describing skin, and respiration is the exchange of oxygen and carbon dioxide in breathing. In other words, the clouded salamander is a skin-breather. It absorbs oxygen and expels carbon dioxide through its skin.

Another cool fact: When it hasn't rained in a while, clouded salamanders find moisture in numbers. Several of them will hide together inside a damp log or a rocky crevice.



Best of all, this salamander can climb! It uses its tail and its square toes to go as high as 20 feet up in a tree.

Over the next few days I looked for clouded salamanders in all the forest wet spots I knew about. I only found one more. She was a mother salamander in a wet log, guarding some eggs.

Many species of salamander lay their eggs underwater, and the babies begin their lives in the water, breathing through gills. Clouded salamanders don't do that. Their babies develop fully inside their eggs until they hatch.

I couldn't wait to see those eggs hatch. I went back every day. Finally, one by one, the new babies wobbled out, each only about an inch long. They were exact copies of their parents. They had the same cloud-colored skin, the same tiny smile and the same square toes. I took some close-up photographs, trying to capture just how small and perfect they were.

Every year I teach my students many things about forest biology, but I'd never learned about clouded salamanders before. School starts in a week, and I can't wait to tell the kids what I discovered!

**Key Ideas and Details Questions (multiple choice)**

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| <p>1. What is respiration?</p> <ul style="list-style-type: none"><li>a. The tendency to get tired</li><li>b. The exchange of oxygen and carbon dioxide</li><li>c. The tendency to sweat</li><li>d. The time of day when animals sleep</li></ul> | <p>2. How do clouded salamanders climb?</p> <ul style="list-style-type: none"><li>a. They have very strong legs</li><li>b. Their bellies stick to tree trunks</li><li>c. They use their tails and their square toes</li><li>d. They're born and live in the trees and never come down</li></ul> |
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**Integration of Knowledge and Ideas Question (short answer)**

3. Why do clouded salamanders hide in dark, damp places? See if you can guess by looking for clues in the story.

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# The Bobcat Is No Cuddly Kitty



The bobcat stalks. It slinks slowly behind the unsuspecting rabbit, its paws making little noise. Suddenly the rabbit stops eating leaves and peers out from underneath the cover of the bush. Too late! In a flash, the bobcat pounces from 10 feet away and delivers a deathblow to its prey.

The bobcat's cuddly good looks mask the fierce predator underneath. Its black, tufted ears, whiskered face and bobbed tail may make it resemble a house cat, yet it's twice the size. As it prowls on the hunt, its keen eyes survey the forest, and its sensitive hearing alerts it to any movement.

Bobcats stalk their pray in young forests, where mice and rabbits are abundant. Males cover a territory of 30 square miles, while females command much smaller territories, about 5 square miles. To mark their territory, the cats scratch trees, spray urine and leave scat, or poop. This warns other bobcats to stay away.

The bobcat sleeps the day away in its main den, a cave or rock shelter. It also keeps several smaller dens

in burrowed-out logs or beneath rock ledges spread throughout its territory. At daybreak and sunset, it heads out on the hunt for prey. The spotted markings in its fur provide camouflage in the shifting light.

Bobcats mostly live alone, but each winter males and females seek each other out to mate. Each bobcat pair remains together for several months. The male then goes on his way and the female gives birth to a litter of one to six kittens. She nurses the kittens for weeks, until they are ready for solid food. After several months, the kittens are strong enough to learn to hunt with their mother. Within a year she sends the young bobcats out to make their own way.

The bobcat may look like a house cat as it sits and quietly observes the forest from its perch in a tree. But don't be fooled! This cute cat is a wild animal, not a domesticated pet.

**Key Ideas and Details Question (multiple choice)**

1. What time of day are bobcats most likely to go hunting?
  - a. In the middle of the night
  - b. In the middle of the day
  - c. Sunrise and sunset
  - d. All the above

**Integration of Knowledge and Ideas Questions (short answer)**

2. How and why do bobcats mark their territory? Use details from the reading to support your answer.

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3. Why do bobcats prefer young forests? Use details from the reading to support your answer.

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