

Wildlife Express!



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Amphibian Alert



Let's Look at the...



Idaho Giant Salamander

Giants are prowling Idaho's forests. They don't say, "fee, fie, foe or fum." They yelp. What are these giants? They are Idaho giant salamanders.

Idaho giant salamanders are special. Most salamanders are voice-less, but Idaho giants can make a yelping sound. They are only found in central Idaho and two places in western Montana. You can't find them any place else on the planet.

Idaho giants are the largest salamanders in Idaho. Adults may be 13 inches long. If salamanders were football players, Idaho giants would be linemen. They have huge heads, bulky bodies and muscular legs.

Like other salamanders, Idaho giants have three life stages. They start as eggs, hatch out into larvae (LAR-vee) and then turn into adults.

Idaho giant salamanders may breed in the spring or fall. Females lay between 135 to 200 eggs. They lay their eggs in clean, cold streams. Each pea-sized egg is stuck under logs or rocks in the water. Females guard their eggs from predators until the eggs hatch. Once the eggs hatch, the mother salamander leaves. She does not help her young find food or shelter.

Larvae stay in the stream and breathe with small gills on the sides of their heads. Larvae are usually brown with yellowish spots on their backs and sides. They also have a fin that runs down the top of their tails. Larvae eat insects, fishes, frogs and other salamanders. Most larvae **metamorphose** (met-a-MOR-foze) or change into adults, but some will not. They stay in the larvae stage. These larvae may breed and can grow to be two feet long. They can be larger than the adults!

Adult Idaho giant salamanders are dark brown or black with gray, tan or copper colored marks on their backs. Adults are found in wet forests near streams, lakes and ponds. They usually hide during the day under rocks, logs or bark. They are most active on warm, rainy nights. Adults breathe with lungs.

Adults will eat just about anything they can catch and fit in their mouths. They eat insects, small snakes, mice, frogs and other salamanders. Idaho giants are good climbers. They can climb up plants to a height of eight feet!

Some people are concerned about Idaho giant salamanders. They are only found in Idaho and Montana. They are found no place else in the world. If their habitat changes, we could lose them forever.

Look for Idaho giant salamanders next time you are in Idaho's forests and mountain streams. Just be careful. Idaho giant salamanders have teeth. Their bite may break the skin. It might be best to just look at these giants.



Idaho giant larva

What is an Amphibian?

Have you ever caught a frog? If you have, you've held an **amphibian** (am-FIB-ee-un). Frogs are amphibians. Toads and salamanders are amphibians, too.

Amphibians were the first **vertebrates** (VERT-e-brets) to walk on land. Vertebrates are animals that have backbones.

Amphibians are split into three groups. The first are **caecilians** (si-SIL-yens). They are leg-less and look like worms. Idaho doesn't have any caecilians living here. Salamanders and newts are the next group. Idaho has four salamanders and one newt. The last group is frogs and toads. We have 10 different frogs and toads living in Idaho.

Amphibians are the only vertebrates that go through a **metamorphosis** (met-a-MOR-fo-sis). That means their bodies change shape as they develop and grow. Think of a frog. Frogs start their lives in eggs. They hatch out of the eggs as tadpoles. Tadpoles have round bodies with tails. As frogs develop and grow, they sprout legs and the tails go away. That is a huge change.

All amphibians start their lives inside eggs. The eggs hatch and then the amphibians are called **larvae** (LAR-vee). The larvae then change into adults.

Amphibians are usually found in or around water. All amphibians lay their eggs in a wet place. Amphibian eggs are not covered with hard shells. They are covered with layers of jelly. The jelly needs to stay wet. If the jelly dries out, air can't flow in and out of the egg. The developing amphibian inside the egg may suffocate and die.

Most larvae live in water. They breathe with gills. Most adults live on land and breath with lungs. Many amphibians can breathe through their skin! Their skin is moist and thin. Oxygen and other gases can pass right through it.

Some amphibians have bumpy skin. The bumps are glands that ooze liquid. The glands help keep their skin moist. Some glands make poison or a liquid that tastes bad. This helps protect amphibians from predators.

Amphibians are cold-blooded animals. Cold-blooded animals cannot make heat inside their bodies. If a frog lives in a pond and the water is 50 degrees, the frog will also be 50 degrees. Instead of cold-blooded, many scientists like to use the word **poikilothermic** (poy-kee-lo-THER-mik).

That's more fun to say than cold-blooded!

Amphibians are amazing animals! Keep an eye out for them next time you are wading in the water.



Pacific chorus

Sensational Salamanders

Salamanders are amphibians that have tails when they are adults. Idaho has four salamanders. They are the long-toed, the tiger, the Coeur d'Alene and the Idaho giant. The rough-skinned newt is also found in Idaho, but it is not supposed to be here. It was brought to Idaho and released into the wild.

Salamanders are usually placed into three general groups. These groups are **terrestrial** (te-RES-tree-el), **aquatic** (a-KWAT-ik), and **amphibious** (am-FIB-ee-us). What determines which group a salamander is in? The amount of time it spends in the water during each life stage.

Terrestrial salamanders spend their life on land. They lay their eggs on land, and they develop and grow on land. They rarely go into the water, but they are never far from it. Many terrestrial salamanders do not have gills or lungs. They breathe through their skins and the skin on the



Coeur d'Alene Salamander

inside of their mouths and throats! If these salamanders stay underwater for a long time, they could drown. Some terrestrial salamanders give birth to live young. The eggs develop and hatch inside the mothers' bodies. Then the mothers give birth to the baby salamanders. A terrestrial salamander in Idaho is the Coeur d'Alene salamander.

Aquatic salamanders never leave the water. Some never change into adults. Most aquatic salamanders have both gills and lungs. Their lungs help them rise and fall in the water. They fill their lungs with air to go up. To go down, they breathe out. Idaho doesn't have any fully aquatic salamanders.

Amphibious salamanders spend part of their lives in water and part on land. These salamanders lay their eggs in the water. The young salamanders develop in the water and change into adults. They then leave the water for a life on land. Most of Idaho's salamanders are this type.

Salamanders come in all sizes. The largest salamanders in the world are found in Japan and China. A Japanese giant salamander has measured over five feet long and weighed 55 pounds! The smallest salamander in the world is found in Mexico. It is about one inch long. Idaho's largest salamander is the Idaho giant at 13 inches. The smallest is the Coeur d'Alene. It is about four to five inches long.

Salamanders truly are sensational animals!

From Food Chains...

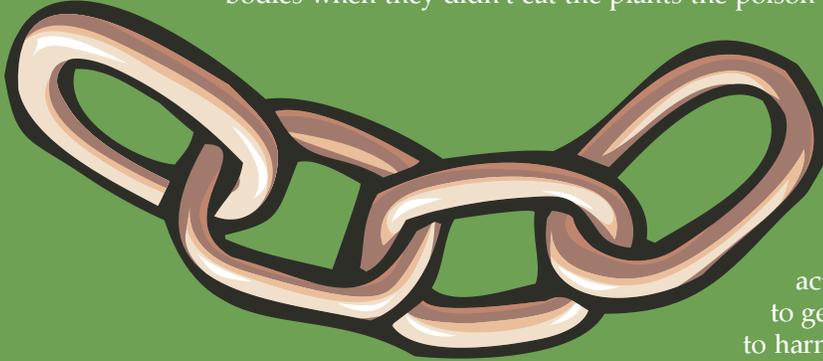
Have you ever heard the saying, "one thing leads to another?" This sure is true with food chains.

Food chains are formed when one animal eats a plant and then another animal eats the plant eater. Each plant or animal is one link in the chain. At each link, energy is passed from one link to the next.

Some links are easy to see. Almost all food chains start with the sun. Plants, like grass, use the energy from the sun to make the sugar and food needed to grow. An elk eats the grass and uses the energy stored in the grass. A mountain lion may then eat the elk, and the energy in the elk is passed to the mountain lion. Sun links to grass, which links to elk, which links to mountain lion.

Sometimes things other than just energy and nutrients pass from one animal to the next.

Chemicals used to kill certain plants have been found in birds. How did the poison get into their bodies when they didn't eat the plants the poison was sprayed on?



The answer can be found by following the links in the food chain. Mice had swallowed the poison when eating plants. The poison does not leave the bodies of the mice. It is stored in their body fat. When the birds ate the mice, they also ate the poison that was in the mice.

Food chains can teach people how their actions not only affect the animals they want to get rid of, but also animals they do not want to harm.

Fire Lizards

The word salamander comes from Greek words that mean fire lizards. You may be wondering how could a wet, slimy salamander be connected to a hot, dry fire. It all goes back to ancient times.

During the Middle Ages, people depended upon fire for their survival. Fire was used for heating homes and cooking food. Gathering wood and building fires was a daily chore.

When people set damp logs on fire, salamanders would scurry out of the logs. They did not know salamanders were hiding in the cracks and holes in the logs. When they saw salamanders in their fires, people thought the salamanders had somehow been born out of the flames.

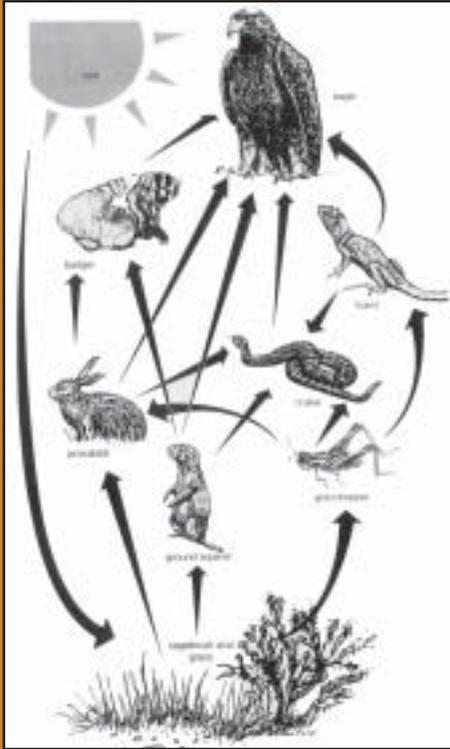
Salamanders would run and walk right through the fire. The fire didn't seem to hurt them at all. This was really puzzling. How could a creature walk through a fire and not appear to be hurt? People that lived during the Middle Ages believed in magic, and they thought salamanders must have magical powers. They did not know salamanders could move really fast when they needed to or that the slime on salamanders might protect them for a few seconds in a fire.

Some people made medicines out of salamanders. They thought the magical powers in salamanders could cure sick people. Other people were frightened by salamanders. They thought the magical powers could be used against people.

Of course, now people know salamanders are not magical creatures. They are just interesting animals that were accidentally thrown on a fire and ran for their lives.



To Food Webs



Food webs are made up of food chains that are linked together. If you could draw them out, food webs might look a bit like spider webs.

Food webs help show us how plants and animals are connected in nature. No matter how different and separate plants and animals may seem their food chains connect them in some way.

Would you think that a salamander would be connected to a wolf? It may be hard to see this connection, but it is there.

Here are the food chains that connect salamanders to wolves. Wolves eat moose, and moose eat cattails. Salamanders eat aquatic insects, and the insects eat moss growing on cattails. Salamanders and wolves are connected in the food web by cattails. If the cattails around a pond are removed, both the wolves and salamanders might be affected, along with every other animal along the chains.

Food webs can also help us see our connections to nature. Do you think you might be connected to salamanders? Think of different food chains and see if you can find any links.

Nature's Transformers

Do you have a toy called a transformer? It can be a lot of fun to play with transformers. It is like having two toys in one. A robot might turn into an airplane or truck. Nature has transformers, too.

Can you think of an animal that changes the shape of its body as it grows? Butterflies, frogs or salamanders may come to your mind. Their bodies change shape and form, as they get older. They go through a **metamorphosis** (met-a-MOR-fo-sis).

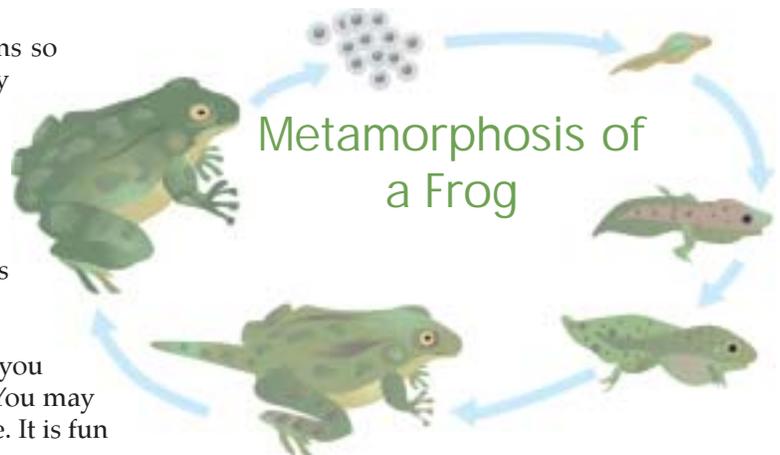
You may be thinking, "doesn't everything change as it grows?" Everything does change a bit as it grows and develops. During a metamorphosis though, changes happen quickly and are dramatic. Think of a butterfly. It changes from a fuzzy, crawling insect that chews its food to a beautiful, flying insect that drinks its food. What a change!

Maria Sybilla Merian was one of the first people to tell others about metamorphosis. In 1705, she published a book of her paintings showing butterflies and beetles in their different life stages. At one time, people thought that insects, like butterflies and beetles, just appeared out of dead and rotting plants and animals. Ms. Merian's paintings and descriptions changed this. Her work showed the world that metamorphosis was real.

Many scientists think that metamorphosis happens so that each life stage lives in a different habitat. That way the young insects and adult insects do not have to compete with each other for food.

Chemicals, called hormones, trigger the changes. At each stage, certain hormones control how the animal grows. Scientists have made these hormones in laboratories. They use them in insecticides to control the number of mosquitoes and other insect pests.

Metamorphosis is a truly amazing thing to see. If you find a cocoon, leave it outside, but look at it everyday. You may be able to see the insect changing and developing inside. It is fun to see what will emerge!



What's Herpetology?

The study of amphibians and reptiles has a special name. It is called **herpetology** (her-pe-TOL-e-jee). In Greek, herp means creeping, so herpetology is the study of creeping things. Many people call amphibians and reptiles herps.

Amphibians and reptiles may look a bit alike and share a few things in common. They are both cold-blooded, have four legs and most lay eggs. But they really are quite different. In fact, birds have more in common with reptiles than amphibians. Let's look at some of the differences.

Amphibians have a thin, moist skin. Reptiles have a tough, thick skin covered with scales. Amphibians have different stages in their development – egg, larvae and adults. They go through a metamorphosis. Reptiles do not go through a metamorphosis during their development. Amphibians need a wet place to lay their eggs. Reptiles lay their eggs in dry places.

With so many differences, how did amphibians and reptiles get grouped together under the same field of study? They were grouped together before people knew much about them.

If you would like to go "herping" and look for amphibians and reptiles, here are some things to keep in mind. You are more likely to see an amphibian or reptile in the spring during breeding seasons. Use a good sturdy stick to flip things over. Many herps hide under rocks, logs and leaves, so looking under things is a good place to start. Look for amphibians at night and reptiles during the day.

If you would like to get a close look at an amphibian or reptile, place the animal in a clear plastic box. Amphibians will probably need a bit of water in the box. Herps can bite! Use a net or wear thick leather gloves when handling animals and never handle a rattlesnake. Once you are done looking at your herp, put it back where you found it.

Although it may be fun to keep herps as pets, it can be tricky keeping them alive. There are also laws about keeping wild animals as pets. Check with your local Fish and Game office about the rules.





Whoa, Mama!

Some mothers really have their work cut out for them. The Idaho giant salamander may lay up to 200 eggs at one time. While other animals, like black bears, have one or two young at a time. Which mother has the hardest job? Why is there such a difference? The animal's life style, life span and its place on a food web all come into play.

Usually, animals that have a large number of babies or lay many eggs at one time are prey animals. Often they do not care for their young. This is what most frogs do. A bullfrog may lay up to 20,000 eggs! In about four days, tiny tadpoles hatch from the eggs. Bullfrogs do not take care of their young. Once the female lays her eggs, she leaves. She is not there to protect her young or show them where food is. Do you think other animals like to eat frog eggs and tadpoles? You bet! Many of the eggs and tadpoles will be eaten by other animals. Bullfrogs even need to watch out for their brothers and sisters. They will eat each other.

To make sure there will be bullfrogs in the future, nature has given the bullfrog the ability to lay thousands of eggs. Hopefully, some eggs and tadpoles will live to lay eggs themselves.

Animals that have a fewer number of young usually invest a lot of energy and time caring for their babies. Sometimes the babies are born helpless and need mother's help to survive. When bear cubs are born, they are tiny. They are about the size of a pop can and weigh less than one pound! It is up to the mother to care for her babies and make sure they survive. Imagine if she had 20,000 cubs to care for! The mother would not be able to take care of all of them. She just would not have the energy, time or food.

The frog lays thousands of eggs and leaves. It has no guarantees that any of its young will survive. The bear has two cubs, spends a lot of time and energy caring for them and has a better chance her cubs will live. Which mother would you rather be?

Salamander Scramble

Unscramble the letters to complete the sentences. Find the word in the word search puzzle.

1. Salamanders are _____ (hiasnampbi).
2. Idaho giants are the _____ (tgealrs) salamanders in Idaho.
3. Most salamander larvae breathe with _____ (lslig).
4. The largest salamander in the world is found in _____ (naajp).
5. Salamanders cannot make _____ (teha) inside their bodies, so they are cold-blooded.
6. The word salamander means fire _____ (szalidr) in Greek.
7. Amphibian eggs are covered in a layer of _____ (ylejl) instead of a hard shell.
8. Food _____ (besw) help show us the connections between plants and animals in nature.
9. People who _____ (tysdu) salamanders are called herpetologists.
10. Salamanders go through a _____ (hsatmpsimrooe) as they develop.

m h h t m i y d u t s j f
 q e c x e a o d f b l k o
 u a t f j o l v j e l r w
 f t a a h n i s e d i l p
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WE WOULD LIKE TO HEAR FROM YOU!
If you have a letter, poem or question for Wildlife Express, it may be included in a future issue! Send it to the address printed above!

Express Yourself!

Slippery Salamander

Slippery salamander sitting in the stream,

Wake up there is something to see.

A bug is sliding past your head.

What a lovely snack it would be.

Don't let it go free,

Slippery salamander sitting in the stream.

Ask your teacher for a list of animals that will appear in *Wildlife Express* this year and send us a poem about your favorite. We'll put one in each issue with your name and school. Send them to our address listed above.