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The Great Basin Spadefoot

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THE GREAT BASIN SPADEFOOT



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Great Basin Spadefoot

In southern Idaho, you can find a special little amphibian called the Great Basin spadefoot toad. The Great Basin spadefoot has shovels on its feet! Well, sort of. Spadefoots are burrowing toads. On each back foot, they have a black, wedge-shaped spot. This little spade, called a tubercle, works like a shovel and helps them dig.

Great Basin spadefoots are not true toads. True toads have large glands just behind their eyes that make a type of poison. Spadefoots don't have these glands. What really makes spadefoots different are the pupils in their eyes. The black pupils in the spadefoots' eyes are vertical. They run up and down. Other toads have pupils that are horizontal. They run left to right.

Great Basin spadefoots are found in some pretty dry places. They are found in open habitats in the desert. They really seem to like grasslands and areas where there are some bushes, like sagebrush. When things get too dry or hot, spadefoots will burrow underground. They can stay buried for many months. While waiting for rain, Great Basin spadefoots shut their bodies down. They go into something called aestivation (ES-ti-va-shun). This is like hibernation, but it happens during the summer. They go into a deep sleep and wait for things to get wetter or cooler. During the colder winter months, spadefoots hibernate.

Even though spadefoots live in dry places, they still need to lay their eggs in water. After a spring or summer rain, you might hear the breeding calls of a male spadefoot. The call is a hoarse, duck-like “wah-wah-wah.” Spadefoots will lay their eggs in farm ponds, shallow lakes and even rain puddles. Females lay 300 to 1000 eggs in clusters. Each cluster contains 10 to 40 eggs. That's a lot of eggs for a two-inch toad! The eggs hatch quickly, usually in two to four days. In about a month, the tadpole is transformed into an adult. Spadefoots develop quickly before their water pools dry up.

Great Basin spadefoots look for food at night. They like to eat ants, beetles, grasshoppers, crickets and flies. To protect themselves from predators, they look like rocks. If camouflage doesn't work, they have another trick up their sleeves. Great Basin spadefoots make a nasty skin secretion. Some people think it smells like popcorn or roasted peanuts. This nasty stuff will repel most predators. If you grab a spadefoot, you might start sneezing or your nose might start running! Some people have an allergic reaction to the skin secretion.

Keep an eye out for Great Basin spadefoots next time you are in southern Idaho. Look for the vertical pupil and watch out for the sneezes!



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AMAZING AMPHIBIANS

Have you ever caught a frog? If you have, you've held an amphibian. Frogs are amphibians. Toads and salamanders are amphibians, too. 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. 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 in our state.

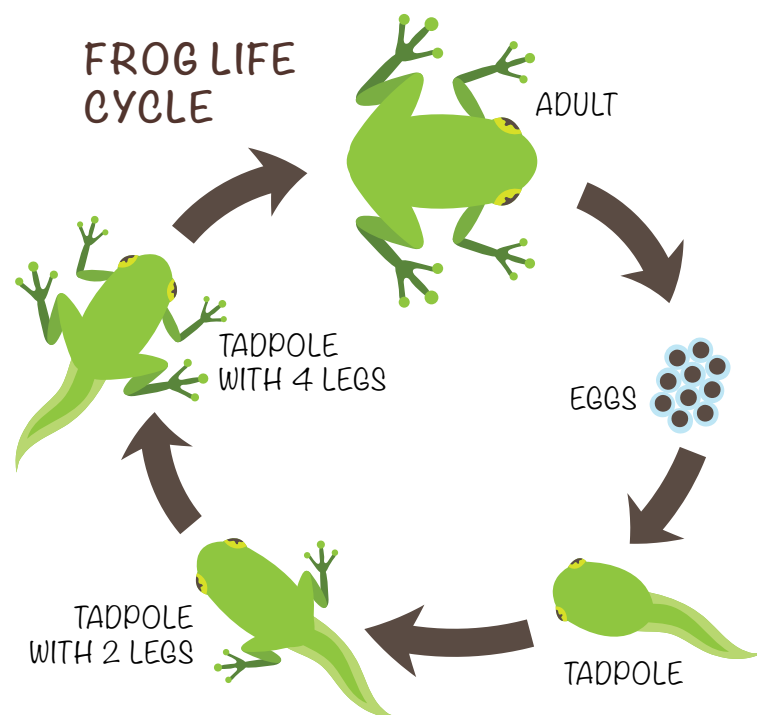
Amphibians are the only vertebrates (animals with backbones) that go through a metamorphosis. Their bodies change shape as they develop and grow. All amphibians start their lives inside eggs. The eggs hatch and then the amphibians are called larvae (LAR-vee). Frog larvae have round bodies with tails. We call frog and toad larvae tadpoles. The larvae then change into adults. Frogs sprout legs, and the tail goes away. That's a big change!

All amphibians share things in common with each other. Most are usually found in or around water. All amphibians lay their eggs in a wet place. Their eggs are not covered with hard shells. The eggs are covered with layers of jelly. The jelly needs to stay wet, so the developing amphibian inside the egg can breathe. If the jelly dries out, air can't flow in and out of the egg; the amphibian will die.

Most tadpoles live in water. They get oxygen out of the water with gills. Almost all of Idaho's tadpoles eat plants or decaying plants. There are, however, some that eat insects and even other tadpoles and frogs. Metamorphosis from tadpoles to adults may take a few days or a few years. It all depends on the type of frog and temperature of the water. The first sign that the tadpole is transforming is back legs begin to appear. Then lungs begin to develop. The front legs then sprout and the tail begins to shrink. The last things to disappear are the gills.

Adult frogs and toads spend time on land as well as in the water. Frogs do not only breathe with lungs; they can also breathe through their skin! Their moist, thin skin lets oxygen and other gasses pass right through. About once a week, frogs shed their skin. They pull the skin over their heads like a sweater and usually eat it. It may sound gross to eat the skin, but it has nutrients that the frog needs. Most adult frogs eat invertebrates. Insects, spiders, and roly polies are all on the menu. Larger frogs will eat just about anything that is alive that they can fit in their mouths. Frogs and toads swallow their prey whole. Frogs shut their eyes completely when catching their prey, so they need to aim before they strike. Frogs eyes help them to swallow! The eyes sink through openings in the skull and help push food down the throat. This is why frogs seem to blink as they eat.

Amphibians are amazing animals! Keep an eye and ear out for them this spring while exploring around ponds, lakes and wetlands.



What's Wrong With That Frog?



Infection with trematodes in this leopard frog caused extra legs to grow. (Photo by Pieter Johnson, courtesy of Oregon State University)

Have you ever seen a frog or toad with more than four legs? How about frogs with only two or three legs? All across the country people are discovering frogs that don't look the way they should. Frog deformities have been reported in at least 44 states. It's not just one kind of frog being affected. Problems have been reported in 50 different frog and toad species. Most people report seeing frogs with too many legs, frogs with not enough legs or frogs with faces that don't look right. What's happening?

Frogs that have leg and face deformities usually had something happen when they were in the early tadpole stages of their development. Scientists have done studies to try and figure out what happened to the frogs. There are four things that might have caused the frog to not develop normally; pollution, poor diet, predators and parasites.

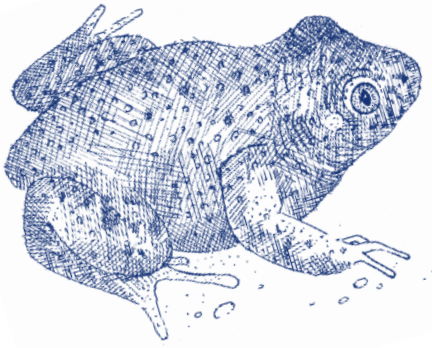
One thing that may have happened is pollution found its way into the water where the tadpole was developing. Unlike humans who have skin that forms a barrier against harmful things, frogs have thin skin. Harmful substances can pass right through their skin making them more sensitive to chemicals and pollution.

Predator attacks can also cause deformities. A frog's legs can easily be injured or removed by a

predator grabbing onto the tadpole. Or maybe the frog wasn't eating a nutritional diet. Frogs need to get vitamins, minerals and protein just like you. Eating poorly can stunt growth.

Another cause of deformities is parasites. A parasite is an organism that lives off of another living thing. The parasite that seems to be causing the problem with frogs is the trematode. They are found in many ponds and lakes. Trematodes have many different stages in their life cycle. One stage is called the larval stage. Tadpoles can pick up the trematode larva. The larva changes in the tadpole's body into a hard cyst (sist). It is kind of like a hard little ball. When the cysts develop in the part of the tadpole that will change onto legs, problems happen. The legs don't develop normally. This may cause extra legs to grow or no legs may develop at all. People can also get the parasite. Have you ever had a rash called swimmers' itch? This is caused by the trematode. People only get a rash, because we are better at fighting off the parasite.

Some people are concerned. Changes in frog populations and frog deformities are sometimes the first sign that something is wrong in the environment. Frogs are more sensitive to changes and problems in the environment than humans. What do you think? Do you think humans need to be concerned?



DO FROGS REALLY HAVE COLD BLOOD?

If you hear an animal is cold-blooded, does that mean the animal's blood is actually cold? Well, not really. It means they are the same temperature as their surroundings. If a Great Basin spadefoot lives in a burrow and the air in the burrow is 50 degrees, the frog will also be 50 degrees. Snakes, lizards, turtles, insects, fish and frogs are all cold-blooded animals.

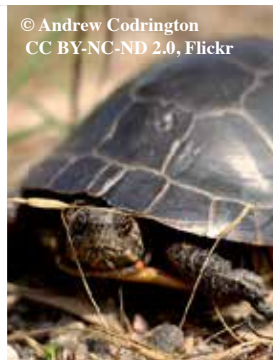
Some people call cold-blooded animals ectothermic (ek-to-THER-mik) animals. Ecto means outside, and therm means heat. Ectothermic animals get heat from outside their bodies. You may also hear people call them poikilotherms (poy-KEE-lo-therms). This is just a fancy word for a cold-blooded animal.

Cold-blooded animals are most active in warm weather. Cold weather slows down their muscles. That's why cold-blooded animals lay or bask in the sun. The sun helps to warm them up. If they get too warm, they need to move to a shady

spot or go in a burrow. Colder weather can kill cold-blooded animals. They need to migrate to warmer places or move underground. Some cold-blooded animals, like bees and dragonflies, shiver to stay warm.

Cold-blooded animals have a real advantage in deserts. Deserts are warmer, and food is often harder to find. Cold-blooded animals don't need to eat as much as warm-blooded animals. Sometimes they can go months between meals. This is why you often see more cold-blooded animals living in deserts than warm-blooded animals.

Calling an animal cold-blooded may be a bit confusing. Next time you are talking about a cold-blooded animal, how about calling it an ectothermic animal or a poikilotherm? You may teach others a new word and teach them the true meaning of the term "cold-blooded."



Spring Has Sprung!

The days are getting longer. The weather is getting warmer; there is excitement in the air. That can only mean one thing - it's spring! If you watch and listen carefully, you may see that animals are aware that it's spring, too.

What kinds of things are happening with wildlife in the spring? It is a busy time for them. Animals all around are looking for mates and places to have their young. Skunks and foxes are searching for dens. Birds are establishing territories and building new nests. Great horned owls, which start to lay eggs in February, may already have chicks learning to fly.

The hardships of winter are over for many animals. Deer and elk are heading for higher ground where new, nutritious food is now available. Another sign telling us that warm weather is ahead is the molting of animals' coats. Elk and deer shed their winter coats and grow new lighter coats. Animals, such as white-tailed jackrabbits and weasels that grew a special white coat to blend in with the snow, must replace it with their brown summertime coat.

Hungry bear cubs, weighing only three to four pounds, are coming out of their dens with their mothers. Romping and playing help them build strong muscles. At other times, their mothers are teaching them how to find food and to survive on their own.

The sun's warmth and longer days also brings about the beginning of another year in the lifecycle of amphibians and reptiles. Having spent the winter in an underground hideaway, these animals need to find places to bask in the sun. The sun's warmth helps them to raise their body temperatures so they can begin a new year. Males fill the night with their calls hoping to attract females.

In the springtime, songbirds brighten our lives with flashes of color and beautiful song; they announce the coming of spring after winter. Look and listen. What signs of spring are near you?



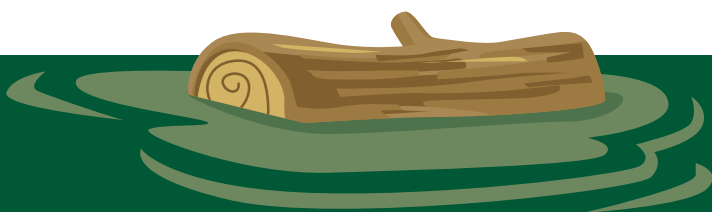


Go Herping!

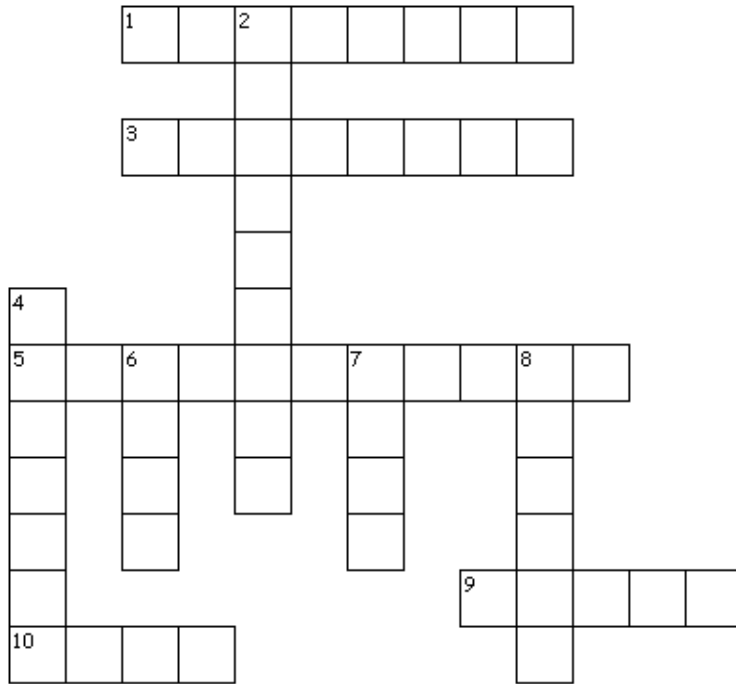
Have you ever heard of herpetology? In Greek, herp means creeping, so herpetology is the study of creeping things. It is the study of reptiles and amphibians. Many people just call them herps for short.

It is fun to look for amphibians and reptiles and learn about what they need to survive. If you want to go “herping” and look for reptiles or amphibians, 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 when the sun is going down and at night; reptiles are usually seen 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. Herpetology can be a fun! Read books and watch videos to learn more about amphibians and reptiles. Then go exploring and look for herps around your neighborhood.



A Spadefoot Puzzle



Across

1. This helps a spadefoot to dig.
3. The Great Basin spadefoot has _____ pupils.
5. This is like hibernation but it happens during the summer.
9. Amphibian eggs are covered with this.
10. These help frogs and toads swallow.

Down

2. Spadefoots are _____ toads.
4. An immature frog or toad.
6. Frogs may eat this after shedding.
7. Spadefoots may eat these.
8. This can pass right through the skin of a frog.

Words

Aestivation
 Ants
 Burrowing
 Eyes
 Jelly
 Oxygen
 Skin
 Tadpole
 Tubercle
 Vertical

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WE WOULD LIKE TO HEAR FROM YOU!
 If you have a letter, poem or question for Wildlife Express,
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