

FROGLOG^{JR}

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How The Vampire Flying Frog
Got Its Name

Schools Leap Into Action For
Frogs

Wildlife Photography Tips

Conserving Costa Rica's
Amazing Amphibians

Amphibians As Pets

... And More!

SPECIES SPOTLIGHT

Learn all about the amazing amphibians and
spectacular species around the globe!

LEAPING LEADERS

Stories from the field of youth who make a
difference for amphibians!

HOP TO ACTION

Toad-ally fantastic activities for you to
leap into action!

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COVER: Long-lost twins finally reunited?

Andrea Ferrari clowns around with a big Malaysian horned frog.

© Andrea & Antonella Ferrari
www.animamundimag

THROUGHOUT: Call out Gray & Green treefrogs © Paul S. Crump

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MEET OUR NEW GUEST EDITOR

Ever hear of FrogLog? Well, maybe not. The FrogLog audience is usually adults (like scientists) who work in amphibian conservation. However, this issue is the first of its kind, geared towards amphibians and youth, and those who work with us! Welcome to FrogLog Jr!

When I was 8 years old, I started working with frogs and the environment. I had always loved amphibians and nature, but it wasn't until this time that I started taking herpetology and citizen science classes. I learned that not only are frogs really cute, but they are also a very important part of the natural world. They are known as an indicator species. Their skin is permeable (kind of like a sponge) and that means things like water (and whatever is in that water or the environment) goes through their skin easily.

If their homes are healthy, then the frogs are healthy. If their homes are unhealthy, the frogs start to disappear or

die out, and that means problems for other living things too.

Unfortunately, frogs and other amphibians are disappearing faster than normal. However, there are many ways we can all help them. That's great news, because when we save amphibians, we save the environment, too! Saving the environment can be a lot of fun - just keep reading to see how you can use chopsticks, take pictures, make art, dissect frogs (yes, dissect!) and even croak loudly like a frog...all to help save amphibians!

What is the biggest amphibian in the world? What is herpetology? What are

amphibians doing in a children's pop music CD? How can YOU be in an amphibian card game? You will learn more about all of these things right here in FrogLog Jr.

I would love to hear from you. You can always find me by visiting my organization website or Facebook page through www.ConserveltForward.org. Just remember to get an adults' permission first! For now, get comfy and get ready to learn a whole LOT about some of the coolest creatures on Earth!

Peace & love,

Avalon Theisen

I hope you will get as excited about amphibians as I am, and maybe you will decide to help them too!

Avalon Theisen
Guest Editor, FrogLog Jr.
Founder, Conserve It Forward, Inc.



Avalon with her favorite amphibian, the Southern toad (*Anaxyrus terrestris*), a species found in her home state of Florida, USA.

AMPHIBIAN FUN FACTS

By Ann T. Chang, Brent Nguyen, John Cavagnaro, Michelle Koo,
Rudolf von May, David Cannatella, and David B. Wake



Fun facts are a great way to spread awareness and educate others about amphibians.

You can use these to get your neighbors, friends, and family excited about the awesomeness of amphibians!



Common toad (*Bufo bufo*) tadpole found in Europe.



© FRANK TEIGLER

Adult Common toad (*Bufo bufo*) found in Europe.

Amphibians can be found on every continent except one.... can you name that continent?

Answer: Antarctica



WHAT ARE AMPHIBIANS?

"Amphibian" comes from the Greek "*amphi-*" meaning "of both" or "double kinds" and "*bios*" meaning "life" or "living", referring to the process of amphibians undergoing metamorphosis from an aquatic larval (immature or baby) form into a terrestrial (land based) adult.

There are three kinds of amphibians:

1. Frogs
2. Salamanders
3. Caecilians

The scientific names for these groups are:

1. "Anura" for frogs
2. "Caudata" for salamanders
3. "Gymnophiona" for caecilians

Anura means "without a tail."

Caudata means "tail."

And Gymnophiona means "naked snake" because even though snakes are not amphibians, caecilians and snakes both have no legs.

You can tell amphibians apart from lizards and snakes by their skin.

Lizards and snakes are reptiles and have scales on their skin, while amphibians have smooth skin without scales.

This Asian snake-eyed skink (*Ablepharus pannonicus*) from Asia is a reptile!



Red-eyed tree frog (*Agalychnis callidryas*) found in South America.



Eastern red-backed salamander (*Plethodon cinereus*) found in North America.

© Danté Fenolio



Ichthyophis kohtaoensis found in Thailand.

AMAZING ADAPTATIONS

An *adaptation* is a trait which has evolved over time (think thousands and thousands of years), and helps a species survive and reproduce in their environment.

Adaptations can include bodily processes, how an animal looks, or even how they behave!

Amphibians have some of the coolest adaptations in the animal world!

You can visit AmphibiaWeb.org to learn about more adaptations!

Can you guess how many different types (species) of amphibian are on our planet? If you guessed over 7,000 – you were right! Amphibian biologists are constantly discovering new ones too! Can you name the other groups of vertebrates (hints: scaly, feathery, and hairy)?

Check out this catchy tune by the [Wiggly Tendrils](#) to learn more!



Dyscophus antongilii



The Wood frog, *Rana sylvatica*, live in places as far north as Canada and Alaska, and are able to survive the freezing winters using special chemicals that allow it to freeze without forming ice in their blood. Photo by Joyce Gross.



Direct developing female caecilians make eggs that hatch into miniature adults, like the Ringed caecilian, *Siphonops annulatus*, who produce nutritious skin cells for their offspring to eat. The offspring will dine on mom's skin for two months! Photo by Carlos Jared.

RECORD HOLDERS

The biggest amphibian in the world is the Chinese giant salamander (*Andrias davidianus*). It can grow up to 1.8 m (5.9 feet) in length from the nose to the tip of the tail and weigh over 11 kg (25 lbs)! Photo by Theodore Papenfus.



The “Glass frogs” have transparent skin on their bellies through which you can see their internal organs – even their beating heart! Photo by Alessandro Catenazzi.



Compare that to the smallest salamander, the Arboreal thorus (*Thorius arboreus*), which only grows to a maximum of 45 mm (1.7 inches)! Photo by Sean Michael Rovito.



Some frogs, like the Waxy-monkey treefrog, *Phyllomedusa bicolor*, can make skin secretions that protect their skin from drying out in the sun. You can watch them spread this over their skin [here](#). Photo by Wolfgang Ochojski.



The longest living amphibian is probably the Blind cave salamander, *Proteus anguinus*. Some Blind cave salamanders have been kept in captivity for over 70 years, and the predicted maximum lifespan is over 100 years! Photo by Henk Wallays.



AMPHIBIAN LIFE CYCLE

Many tadpoles and larvae will develop through *metamorphosis* into the land based form that we are more use to seeing.

HOWEVER, some amphibians skip the egg-laying phase and give birth to tadpoles and larvae, or even to miniature adults! This is called "direct development".

Here are some examples:



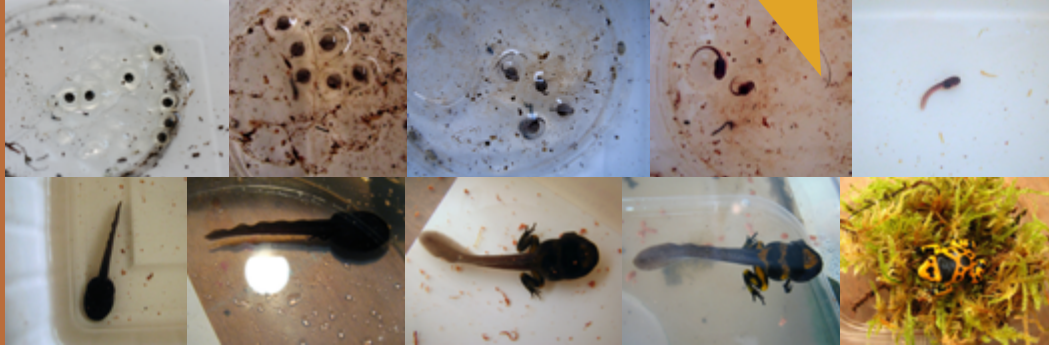
Above: Streamside salamander (*Ambystoma barbouri*).
Photo by Dr. John P. Clare

Below: Kihansi spray toad (*Nectophrynoides asperginis*).
Photo by Dr. John P. Clare



Many amphibians undergo "metamorphosis" (a change in form). These species will lay eggs, usually in standing water or close to water. The eggs will hatch into an aquatic (water) stage that we call "tadpoles" in frogs, and "larvae" in salamanders and caecilians.

Check out these amazing photos of Yellow-banded poison dart frogs (*Dendrobates leucomelas*) metamorphizing by Mireille Leurs!



Some amphibians retain their "larval" appearance as adults. We call these species "neotenic". This only happens in some salamanders. All neotenic salamanders live in the water and have gills similar to those of fish.

Mexican salamander (*Ambystoma mexicanum*). The feathery structures are their gills. Photo by Dr. John P. Clare.



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As of March 2014, there are 6,392 species of frogs, 659 species of salamanders, and 199 species of caecilians. Even though scientists are discovering new species of amphibians every year, many species are disappearing because of habitat loss, climate change, pollution, and new diseases. You can learn more about amphibian declines on AmphibiaWeb.org.



These frogs sound like a creaky door! Check it out [here](#)!



Pickerel frog (*Lithobates palustris*) from North America.

WHAT IS HERPETOLOGY?

By Sara Viernum

Herpetology is a strange sounding word that means the study of amphibians and reptiles. It comes from the Greek word “herpeton” meaning a “creeping creature”. Aristotle and Carolus Linnaeus, the scientists responsible for the way we give animals scientific names, didn’t much care for amphibians and reptiles. Linnaeus said amphibians and reptiles were foul and loathsome things (hence the creeping Greek name he gave them) and grouped them together in this title, although they are quite different indeed!

But what exactly are amphibians and reptiles?

Amphibians are made up of three groups: salamanders, frogs, and caecilians. They have permeable skin, allowing water and oxygen to pass through it. The skin of an amphibian must stay moist. They have mucous glands which help to protect their skin from drying out and it is what makes them feel slimy to the touch. The skin is also bare, not protected with feathers, fur or scales as in other vertebrates. Amphibians do not have claws. Their eggs are covered in jelly-like coating instead of a hard shell. They range in size from the Chinese giant salamander that can be 6 feet long to *Paedophryne amauensis*, a species of frog that is only 0.3 inches long.

Reptiles are made up of five groups: snakes, lizards, turtles, crocodilians, and tuataras. They have scaly skin and claws. Their eggs have a hard covering kind of like a chicken egg. They range in size from the Reticulated python that be 30 feet long to the Dwarf gecko that is only 0.6 inches long. People that study amphibians and reptiles often call these animals *herps*, *herptiles*, or *herpetofauna*.

What are people that study amphibians and reptiles called?

We are called herpetologists and we work all over the world in zoos, universities, government agencies, private businesses, conservation organizations, veterinary offices, and other such places. Some of us work with amphibians and reptiles in the wild. Some work with sick herps or help to save ones that might be in danger. Other herpetologists work with them in labs or at zoos.

So what is your favorite kind of herp?

Is it a leaping treefrog? Maybe a slithering snake? Or is it a slow and steady tortoise? My favorite herps are salamanders but I like all amphibians and reptiles!

There is much left to be learned about these beautiful salamanders and maybe YOU could study this species one day!



Cascade torrent salamander (*Rhyacotriton cascadae*) from North America.



When disturbed, they coil their tail like a corkscrew and expose their underside which is usually the bright red color seen here!



Northwestern ringneck snake (*Diadophis punctatus occidentalis*), a reptile from North America.

AMAZON MILK FROG

This frog is commonly found in captivity. You might be able to see one at your local zoo!

By Mireille Leurs

The Amazon milk frog is a large tree frog that can turn up almost anywhere in the rainforests of South America. During the day, or in dry weather, it retreats into the centers of bromeliad plants, between the folded leaves of other plants, or in tree holes where it is damp. This frog's common and scientific name refers to the thick, milky fluid they excrete when stressed.

Amphibians have poison glands which offers some protection against predators, and poison varies greatly between all of the different species. The milk frogs poison is irritating and sticky, and the substance could be especially painful if you get it in your eye or an open wound.



You should always keep handling amphibians to a minimum to reduce stress on animals.

If you do handle them, please be sure to immediately wash your hands afterwards. Because amphibians have sensitive skin, make sure your hands are free of lotion or bug repellents.



HOW THE VAMPIRE FLYING FROG GOT ITS NAME

By Jodi Rowley



When I first saw a Vampire flying frog (*Rhacophorus vampyrus*), it was perched on the trunk of a tree in the dense cloud forests of southern Vietnam. He was a pale, creamy brown color, with black running down his side. He had bright, golden eyes. With large, webbed hands and feet, and big toe-pads, I recognized him immediately as a Flying frog.

These frogs are adapted for life in the trees. They climb up, and sometimes actually glide down the from the trees, using their hands and feet like parachutes. It's not quite flying, but it's the reason they are known as "flying frogs"!"



The tadpoles have curved, black “fangs” that stick out of their mouth and are probably very useful for egg-guzzling!



But why a Vampire flying frog?

Well, my colleagues and I chose to name this particular species of frog the Vampire Flying Frog because of its amazing tadpoles.

The Vampire flying frog lays its eggs above tiny, water-filled tree-hollows. These hollows are kept from drying out by the constant mist and frequent rain in the mountains where they are found. From the eggs, long black tadpoles hatch. These tadpoles are hungry, but

with so many squashed together in a small amount of water...there is not a lot to eat!

Luckily for the tadpoles, female Vampire flying frogs return to their tadpoles to feed them her own unfertilized eggs. These eggs can be pretty tricky for a tadpole to get their mouth around. Perhaps this is why the tadpoles of the Vampire flying frog have developed curved, black “fangs” that stick out of their mouth...for egg-guzzling!



Did you know that tadpoles are best identified by looking at their tiny mouthparts?

Different species of tadpole have different mouthparts depending on what, and how, they eat!

So that's how the Vampire flying frog got its name!

So far, the Vampire flying frog is only known to live in the misty mountains of southern Vietnam. In the last five years, many frog species found nowhere else on earth have been discovered from these mountains.

Habitat loss is the biggest threat to the amazing life of these forests, including the Vampire flying frog.

Keep reading to find out how YOU can help frogs and other amphibians!



The Gopher frog (*Lithobates capito*) makes a loud call that sounds like someone snoring!

A POND WITHOUT FISH IS WHAT SOME FROGS WISH

By Sierra H. Stiles

*Old dark sleepy pool
quick unexpected frog
goes plop! Watersplash.*

Written by Matsuo Basho (1644-1694), translated by-Peter Beilenson

The woods are full of “old dark sleepy pools” like the one that inspired this Japanese poet, Basho, over three hundred years ago. You might even have one in your own backyard! Everyone knows that ponds are important for frogs. However, you might be surprised to hear that even ponds that dry up occasionally are really important habitats for some frogs. These ponds are called semi-permanent. In years with lots of rainfall, these ponds look like any other pond; however, these ponds dry completely every few years. Ponds that dry out generally have less predators (like fish) who like to munch on tadpoles.



This sign is used to educate the public about the importance of fishless ponds to amphibians like the Gopher frog.

Some frog species, like the Gopher frog (*Lithobates capito*), rely on these fishless environments to use as nurseries for their young.

A pond without fish increases the survival of tadpoles and young frogs because they are not eaten by fish!

The Gopher frog is very rare. Their need for fishless ponds has caused their populations to decline. These beautiful frogs have a call that sounds like a loud snore. They make their calls while floating on top of the water or sometimes they even call while they are underwater. They start their lives as eggs laid in these semi-permanent ponds on rainy winter nights. Tadpoles hatch from the eggs and start to grow in the pond. After metamorphosis (when they have lost their tails and turned into small frogs) they migrate

to nearby sandy hilltops. The Gopher frogs spend their winters in Gopher tortoise burrows (this is how they got their name). Eventually, they return to the pond they hatched in to find mates and lay eggs of their own.

So how do fish get back into ponds that dry up periodically? Sometimes, a flood can join a semi-permanent pond to water where fish are. When the water goes down, the fish may become trapped and thrive until the pond dries again. Fish eggs can be moved on the legs of birds flying from one area to another.

Often though, it is people who move fish around. Fishing is a very popular and an economically important activity. Semi-permanent ponds are often stocked by local people with fish. Fish are voracious predators on frogs. Frogs that use fishless ponds are not adapted to avoid these predators. One fish can eat an awful lot of tadpoles and young frogs in one season. Although the fish released are often native fish, when they are moved to a new location where they did not naturally occur, they can very quickly reduce frog populations in an area. Even though the pond will dry up within a few years and kill all the fish, the presence of the fish during frog breeding season can have a huge impact on frogs in even one season.



Nellie Pond in Alabama is a breeding site for Gopher frogs. Some years it dries up completely!

In addition, on some people's properties, many semi-permanent ponds have been converted by people to more permanent ponds. People often use heavy machinery to dig out ponds and make them deeper so they can keep fish there permanently. This prevents ponds from drying up in drought years and changes the habitat of many frog species that rely on fishless ponds.

Next time you are out hiking in the woods and you find a pond that has dried up, remember that there may be lots of frogs in the woods patiently waiting for rain to fill the basin again.

If you come back at night when the pond basin has filled with rainwater, you might hear the sound that the poet heard: **plop!** You might see the splash of water as a frog jumps in!

And maybe, it will inspire you to write a frog poem of your own!



LEAPING LEADERS

Stories from the field of youth who make a difference for amphibians! These tadpoles in training have metamorphosed into leaping leaders!



SCHOOLS LEAP INTO ACTION FOR FROGS

By Charlene Russell

"I have mud EVERYWHERE!"

in their school wetland. This year on the 28th of February, around the country, schools took part in an initiative to take action and bring awareness to frogs, some of our less understood, and sometimes disliked species.

The initiative - Leap Day for Frogs - was started by Jeanne Tarrant of the Endangered Wildlife Trust's Threatened Amphibian Programme, who notes that: "Frogs often go unnoticed; bigger, more impressive animals like rhinos and elephants get more media attention, but frogs are invaluable parts of our ecosystem and are indicators of the state of the environment."

Local learners got involved in a variety of different ways: kids at Hilton Pre-primary feasted on froggy cupcakes, and learned about tadpoles and the lifecycle of frogs; all the grade 2's, their parents, and the borders from Cowan House Prep enjoyed a picnic and then sloshed around in their school's newly rehabilitated wetland to see what species they could find. Girls from St Anne's Diocesan College braved getting dirty and surveyed their wetland and they plan to continue the monitoring and are invit-

claimed one learner from Cowan House, Pietermaritzburg, South Africa, during the search for frogs

ing Hilton College to join them. These activities all form part of each school's action projects to obtain their Eco-Schools status as part of the international Eco-Schools programme run by WESSA in South Africa. "We never realised that frogs could be so interesting!" exclaimed Jennifer Forrest, a teacher at St Anne's, "thank-you Eco-Schools and EWT for introducing us to a world we've never noticed before."

If you would like more information on the WESSA Eco-Schools programme or Leap Day for Frogs Day, please contact Charlene Russell at kznecoschools@wessa.co.za



"Generating awareness about the plight, significance and general awesomeness of frogs is a key step toward conserving these important animals."



“We never realised that frogs could be so interesting!”



Students explore their school's newly rehabilitated wetland.

You can learn about creating amphibian friendly ponds [here](#).



THE GREENIES CLUB IS A GROUP OF GIRLS DEVOTED TO HELPING OUR NATURAL ENVIRONMENT.

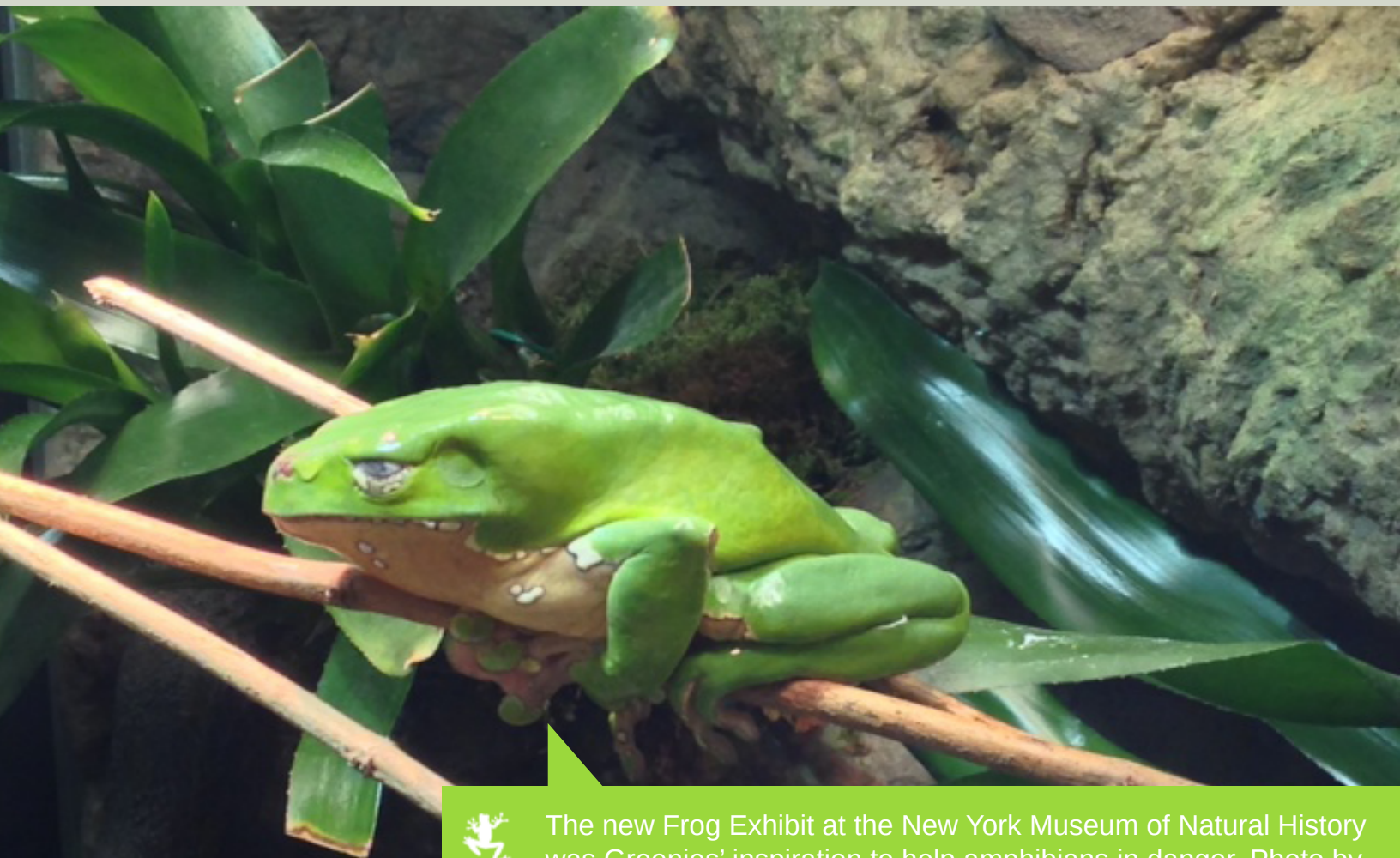
WE RANGE IN AGE FROM 5 TO 13 YEARS OLD.

The Earth is our only home. It is also the only home for millions of animals, plants, insects, and other organisms. Sometimes though, people do things that hurt our environment and the things that live in it. We know that everyone plays a part in polluting the Earth, but we also know that everyone can help restore it. We can't always be 100% Earth-friendly, but if we conserve in any possible way we can, the world will be a better place.

THE GREENIES CLUB

By Alessandra Vandevoorde

Our work still isn't done until the fight for the environment is won!



The new Frog Exhibit at the New York Museum of Natural History was Greenies' inspiration to help amphibians in danger. Photo by Alessandra Vandevoorde.

It all began one beautiful summer when two of us (Gwen and Alessandra) had a sleepover and talked about endangered animals (polar bears were one topic). We wondered what we could do to help endangered species, and decided to start a "club". Gwen suggested we raise money through a bake sale. Alessandra's mom agreed to help. First, we hand-drew some flyers announcing the bake sale, and we dropped them in the mailboxes of the neighborhood. Then, with some adult supervision, we baked various goodies. Alessandra's sister Cassandra and her friend Zahra joined us too...they were the next Greenies! Next, we sold our pastries from a table in the driveway and made a little less than \$100.

We ended up using our hard-earned money almost a year later for a trip to the New York Museum of Natural History, and we also printed some t-shirts. (The money was not quite enough for all of that, but our parents lent us the difference.) Another two new members joined us for that trip: Paige and Skylar, who are neighborhood friends. During the visit, we viewed an exhibit on frogs and other amphibians. The exhibit had many posters that explained how amphibians all over the world were dying because of habitat loss and disease. These posters inspired our club to take action to help the amphibians, which are not often thought of as endangered animals. Often cute furry animals are helped the most.

Soon, a way to raise money was found in an unlikely place, the museum's gift store! The mug was covered with pictures of frogs, and we thought about holding a raffle for it. This was a great idea, as it turned out to be quite successful. But the girls wanted to do more! So we decided to hold another bake sale, in addition to the raffle.

Since many Greenies talked about these plans at school, we got a few new members. "When I heard that you were holding a bake sale to help amphibians, I wanted to see how I could help," says Greenies member Sadie Bilenkin. In fact, because our members now covered different neighborhoods, we decided to have bake sales in two different neighborhoods.

The next few weeks were spent selling tickets door to door for the raffle, and handing out flyers to announce the bake sales. (This time, we designed the flyers on a computer.) The girls explained that the money would be given to the Amphibian Survival Alliance so that they could help amphibians in need.

When the day of the bake sale and raffle rolled around (which was in June 2013), everyone bought delicious treats to sell at Alessandra and Cassandra's house. There were fruit bars, Swedish brownies, banana bread, and a whole lot of other scrumptious treats. From 10am

to 11am, the girls sold the treats, explained about the Amphibian Survival Alliance, and held up a poster on ways to help amphibians and the environment in our daily lives. Greenies member Joy Johnson says "I like how everyone helped out. It was fun because we could do something enjoyable for an actual purpose, not just ourselves."

At 11am the girls loaded more treats into two vans and rode to Greenie members' Joy and Grace Johnson's home, to continue selling baked goods. "I really enjoyed earning the money for the bake sale and the raffle because I knew I was helping a good cause achieve their goal, another thing I liked was seeing that so many people were willing to contribute to the cause by buying raffle tickets and sweets." Grace says. At the end of the day, the girls randomly took the winning ticket out of a jar and gave the mug to the winner. After cleaning up, we met back at Alessandra's house (which has served as the Greenies headquarters) to count the money we earned. We made over \$500! However, we had to repay the loan for the T-shirts. Even so, we were left with \$400, and that amount was sent to the Amphibian Survival Alliance!

This money helped the amphibians struggling for survival...but more help is needed! You can help them too! Co-founder Gwenaëlle Du-Thum knows that our work still isn't done until the fight for the environment is won! "My favorite part of the whole process is seeing the results," she says. "In this case it would be when the frogs do get saved."





DO YOU HAVE WHAT IT TAKES TO BE A TOAD?



Try out the TOAD MAZE at your next party or amphibian awareness event!

This maze can be adapted for any species or region too, just use your imagination!

Instructions can be found [here](#)!



MEMORIES OF A YOUTH ACTIVIST

By Rachel Hopkins

When I was approached to write an article about my experiences as a youth activist in conservation, I was surprised. Not because I have not had to write about my experiences with conservation as a youth, but because people still find it extraordinary. In my mind, I'm a pretty normal teenager. I spend too much time procrastinating, not enough time on work, and have a small circle of friends I can count on for anything. Amphibians are still a big part of my life, but they no longer dominate the scene.

I was in the seventh grade when I first began to seriously try to make a difference. I was a Girl Scout, and seventh grade is when we are eligible to start our Silver Awards. It seemed like the perfect time to begin something. My original goal was to kill two birds with one stone: earn the award to boost my college resumé, and also help the environment.

It's funny how much things can change in such a short period of time, especially when you're young. As a child in elementary school, I suffered from the usual bullies that plague us. I became quiet and withdrawn, often going out of my way to avoid people. When I suddenly started voicing my opinions and meeting people, it came as a great surprise to my peers. I faced a lot of resistance at first, not because of my status as a loner, but because we have been raised to believe that humans are inherently superior. This superiority, we believe, entitles us to do

whatever we want, however we want. We try to better the quality of our lives and increase our lifespans, but the way we do it is a little backwards. You cannot save humanity by destroying the Amazon to create cow pastures. You won't live forever if you laugh off climate change as a scientist conspiracy theory because you are afraid of its implications for your lifestyle.

The only way that we can save our species and make the world a better place for our children is to shift the focus from humans.

We have to look at the earth as a living network of life that we are a part of.

Amphibians are important because they are often the first creatures that introduce small children to the environment. At least, that was true for me. They matter because their permeable

skin makes them to be bio-indicators. They are tied so closely to the environment, amphibians are the first to detect any small change in water or air quality. Scientists are able to use the fluctuation of amphibian populations to determine how healthy an environment is - the more amphibians, the more healthy the environment is. If 1 of every 3 species of amphibians is threatened with extinction (what we are seeing now) we know that something is drastically wrong. Sitting in the middle of the food chain, amphibians also affect the lives of countless species they keep in check, and that depend on them for food as well. A lesser known fact about frogs is that they contain properties in their skin that scientists can use in human medicine too. At least 200 species have disappeared since 1980; every time another frog disappears, so does another possibility in medical research and another chance at bettering human life.

If we hurt the environment, we hurt ourselves.

So I focused on the frogs. I never had a social life, and this allowed me to put all of my energy into raising awareness. My Silver Award project was to establish a Save the Frogs Day! in North Carolina. My thinking was that the most important thing I could do was to educate people about the issues, and why they mattered. Without the public being aware of the crisis, nothing would change.

I started at school and then reached out to others. After a few months of talking to people like Kerry Kriger who is the Director

and founder of Save the Frogs!, Ben Colvin (the Director of Wild South), and the leaders of my state Herpetology Society...I felt confident. I had hosted booths at different events in the state, for example, the Museum of Natural Science's Reptile and Amphibian Day, Crowder Park's Frog Fest, and other smaller events. I also took the issue to my County Board of Commissioners. I brought my science teacher (my best friend Lila), my family, and a banner to the Commissioners. On the banner, I had collected 40-feet worth of signatures showing support from different people at the events I had attended. I spoke for about two minutes about why I thought we at least needed a county-wide Save the Frogs Day!, and afterwards the Commissioners were so impressed that they wrote a letter of recommendation to the governor, Beverly Perdue, while I drafted a request for proposal. Only a few months later, she signed the proposal. North Carolina would be celebrating its first Save the Frogs Day! that next April.

Now, it doesn't mean doing this was easy. It was fun...looking back on it now. I met some great people, I laughed a lot, and learned a lot along the way. Most importantly, what I have learned in my teenage years so far...is that you can't give up. You can't allow what other people think to make you walk away from what you believe in, and you can't allow hearing the word "no" to diminish your hopes of success. "No" is just an opportunity to do things a little bit differently. Never say you think something else because you want to fit in. People will accept you, quirks and all, if you are proud of yourself and what you stand for.

Three years later, I challenge the rest of you to do as I have done.

Get up, shut your computer, go outside, rediscover the world you live in before it's gone, and then actively make the decision to protect it for as long as you can.



Meet 50 young changemakers like Avalon!

Youth-LeadeR is a global community offering media, methods, webcasts and services for students and teachers to make change-making and sustainability part of learning culture.

Their stories, authentic videos and tools are available for free in up to nineteen languages. Action packs enable you to study, support, join and replicate their initiatives at home and abroad. Inspired youth can even join a year-round action program for student clubs!

Among our favourite media is our cardgame featuring 44 young hero/ines. The game is far more than a toy! It includes their stories and videos, and interlinks with our student club action community.

We are always seeking more hero/ines from around the planet. Do you know youth that inspire you? Let us know of them.

Further - together with Avalon - we are planning to publish an educational cardgame on frogs and amphibians around the planet - and how to protect and restore their habitats. We invite you to submit a FROG or AMPHIBIAN to be included in this one-of-a-kind educational toy, to be translated to nineteen languages!

Find out more and join the movement at www.youth-leader.org.





CALL FOR NOMINATIONS

Nominate a Frog, or Amphibian

for a global educational card game on frogs

SPECIES NAME. What is our beauty's family name?

LINKS to species information on the internet

PHOTOS on the internet

SOUNDS. Is your frog talkative? Find its voice! Contact experts for help

VIDEO. Visual impressions on the internet

YOUR PHOTOS. We need to see you close to the frog. In nature!

YOUR STORY. Tell us about your day-out, and how you spotted the frog

Visit www.youth-leader.org/frogs for a few more details

Nominate a young or adult Hero/ine

We seek all sorts of changemakers, including young people working on biodiversity. Can you help us? Submit your nomination at www.youth-leader.org/nominate

LEAP DAY

By Sienna Geraci

2014



My name is Sienna Geraci. I am 8 years old, about to turn 9 in August. I live in Hillcrest, KwaZulu-Natal and go to Hillcrest Primary School. I am in Grade 3. My teacher's name is Miss Drew.

I have loved frogs since I was a baby. I had three frogs but two escaped. They were a baby Natal tree frog and a Tinker reed frog. I still have one big Natal tree frog. I know the names because Dr. Jeanne Tarrant gave me a nice poster with all types of frogs on it.

We had Dr. Jeanne come to our school in March to tell us about frogs. We were all so excited. We got to wear green uniform civvies on this day. We learned about salamanders and about the difference between a frog and a toad. We learned about frog's eggs and toad's eggs and their habitats. We learned about taking care of frogs. Some frogs are poisonous and have very bright colours.

Dr. Jeanne talked about some frogs going extinct. I am worried about this and want to help them and this makes me sad. She talked about one frog that is now extinct. The frog would swallow its eggs and the frogs hopped out.

I learned how frogs help us and how I can help them. One way is to keep the environment nice.

February 28 was Leap Day for Frogs. It is about helping people learn about frogs and how nice and cute they are. My mom and I made froggy cupcakes for my class on this day. That night Dr. Jeanne gave a talk to a lot of people and we had a picnic and then went and looked for frogs. I got a frog certificate, a frog painted on my face, a froggy magnet, a frog sticker and I made a froggy bookmark. It was so much fun. I want to do it again.

When I get big, I am going to be a frog scientist like Dr. Jeanne!



HOP TO ACTION!

Today-ally fantastic activities to raise amphibian awareness and ideas for you to leap into action!



CROAK LIKE A FROG!

By Avalon Theisen

Amphibian conservation programs have been a part of my life since I was 8 years old (I am now 13).

I always try to come up with new, creative ways to spread awareness and get others involved in amphibian conservation, too.

One idea came to me as our frog-listening season approached in the spring of 2012. Frog calls play an important part in enjoying spring and summer nights, and they also play a BIG role in citizen science. By taking part in citizen science, ordinary people can report frog calls, which helps amphibian scientists collect important information about frog activity. So I thought, why not have people imitate frog calls in a fun way that would help the frogs? My idea led to the first ever "Human Frog Chorus". The plan was to film lots of people making frog calls and to use the video to raise awareness for amphibian conservation. For our first Chorus, we ended up with 327 people, 1 very happy dog, and a six-foot tall frog!

In the process, we learned that people had a lot of fun croaking and that it was also a great "attention-getter" for our booth at events. Because everyone had such a great time with the Human Frog Chorus, I decided to start ending my frog presentations with this activity – which I still do today.

Because my programs focus on amphibian conservation and the environment (including the challenges and ways people can help) the Human Frog Chorus is a way for people of all ages to loudly proclaim...or CROAK...that they will help frogs and the Earth! Each participant also receives a ribbon showing their participation.

My organization, Conserve It Forward, invites you to hold your own Human Frog Chorus!

The Chorus works great with groups, like classrooms, birthday parties, and camps.



I hope you will have your own Human Frog Chorus soon! Conserve It Forward may even hold a contest for the best Human Frog Chorus photo or video in the 2014-2015 school year, so get creative and start croaking!

If you have any questions, please email me at ConserveItForward@verizon.net.

Peace & love,
Avalon

Introducing the...

Conserve It Forward Human Frog Chorus



Terrestrial
Eastern narrowmouth toad:
Hold your nose and repeat
"Maaaaaaaaaa"

Arboreal
Green treefrog:
Hold your nose and repeat
"Hey, ba-by, hey, ba-by"

Aquatic
Bullfrog:
Repeat "Rum, rum, jug-a-rum,
rum"

I croaked in the
Human
Frog Chorus



By making awareness
for amphibian conservation,
I pledge to help save
frogs and the environment!

ConserveItForward.org



HERE'S WHAT YOU NEED TO KNOW:

- 1) Visit our Human Frog Chorus Challenge page to get tips and ideas, and watch the video of our first Chorus. <http://www.conserveitforward.org/page29.html>.
- 2) Pick 3 of your favorite frog calls so that you can teach them to your group. We use 3 frogs native to Florida: the Eastern narrow-mouthed toad (*Gastrophryne carolinensis*), the Green tree frog (*Hyla cinerea*), and the American bullfrog (*Lithobates catesbeianus*). Make sure the calls you choose are easy to learn, and fun to do with your voice!
- 3) Schedule your Chorus. It would be great to do it at the end of an amphibian conservation program! The entire activity (from teaching the calls, to completing the Chorus) can take as little as 5 minutes. Sometimes, Conserve It Forward has funding for Human Frog Chorus participant ribbons, so once your Chorus is scheduled, just ask us!
- 4) Countdown! 3-2-1...CROAK like a frog! Croak as loudly as you can for amphibian conservation awareness!
- 5) Share your videos and photos with us at ConserveItForward@verizon.net

CHOPSTICKS FOR SALAMANDERS

By Lauren Augustine

Did you know that companies around the world are cutting down forests just to make disposable chopsticks?

A new organization called "Chopsticks For Salamanders" was started by zookeepers in 2011 to save salamanders.

Salamanders are amphibians, like frogs and toads, a group of vertebrates (animals with backbones) that need moisture to survive. North America has the highest diversity (number of species) of salamanders in the world. Chopsticks for Salamanders mission is to spread information about the diversity of salamanders in the United States. We also want to increase public awareness about cutting down trees to make disposable chopsticks, and to raise money for salamander conservation, education and research.

Disposable chopsticks are made largely from old growth forests that are clear-cut in the search for the perfect straight-grained wood. China produces roughly 63 billion chopsticks a year, which equals about 3.8 million trees. With the deforestation for the production of disposable chopsticks comes the loss of important animal habitat.

Nearly one-third of the world's amphibian species are believed to be threatened with extinction.

Founders of [Chopsticks For Salamanders](#) have chosen salamanders as the focus group of animals because the Appalachian Mountains right here in the U.S. are home to the highest different species of salamanders in the world. Salamander populations are threatened by habitat destruction, disease and climate change.

What can you do? Bring your own chopsticks (BYOC) when dining out! Talk to your local restaurant owners about changing over to reusable/washable chopsticks. Organize a CFS fundraising event to spread awareness in your area.

Please "like us" on [Facebook](#) and follow us on [Twitter](#) for updates and salamander news.



© Matthew Evans, Smithsonian

RECIPE

NOODLE BOWLS FOR 4 PEOPLE

Ingredients

3 quarts vegetable or chicken broth
1 ½ pounds linguini
1 ½ pounds chicken tenders or firm tofu, diced
8 scallions diced
2 cups shredded carrots
10 ounces of mushrooms diced
½ head of Bok Choy
Chopped cilantro and chives

Directions

Heat up vegetable or chicken stock in a large soup pot. Bring to a boil. In a separate pot, cook linguini according to the directions on the box. Take diced chicken and add it to broth, cook for 5 minutes. Divide up pasta and veggies into 4 equal amounts and place them in bowls. Add chicken and broth to each bowl. Cover the bowls and let the soup seep for 3-4 minutes.

Use spoon and reusable chopsticks to eat!

Be a trend setter! [Email us](#) selfies of you and your friends eating with your reusable chopsticks. We will share on Facebook or an upcoming issue of Froglog Jr!





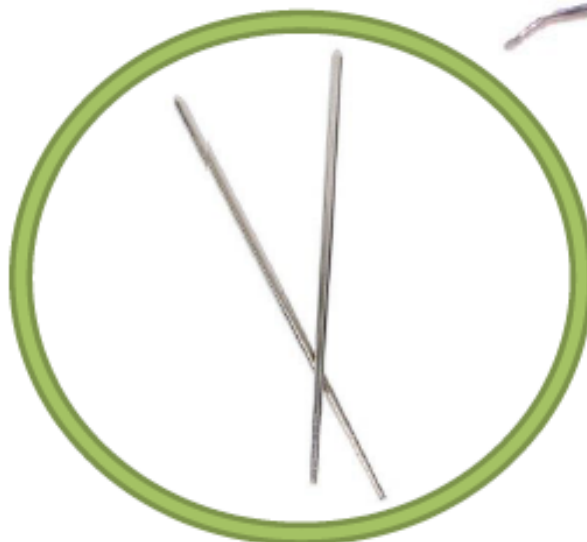
I HELP SAVE SALAMANDERS. TWO CHOPSTICKS AT A TIME.



Wood
disposable
BAD!



Reusable
GOOD!



Reuse Chopsticks
Save Salamanders



TURN THAT FROWN UPSIDE DOWN!
BE A PART OF THE SOLUTION.

Buy yours & learn more @

www.chopsticksforsalamanders.org



Salamander photos
courtesy of
Brian Gratwicke

HELP GROW HEALTHY HABITATS

By Rachel Rommel and Jaime González



Native grasses and wildflowers are important for healthy habitats, and for many native amphibian species. They provide food and shelter to insects, which support many other animals, like frogs and birds. Native flowers and grasses are great because they are generally drought tolerant, need very little water, and never need pesticides or fertilizers. These are all good things for the environment!

In Houston, Texas (USA) children have made thousands and thousands of native seed balls to help restore native prairies and improve habitat around ponds where endangered amphibians breed. The little emerging frogs from the pond are going to need lots of shade (to keep from drying out) and lots of insects (to gobble up) once they go through metamorphosis.

The seed balls can also be thrown around your school or backyard habitats. The ball will protect the seeds from birds until they germinate.

Make sure to select a seed company that provides seeds that are native to your particular region. One such source for seeds in the Southwest, USA is Native American Seed Co. (seedsource.com).

The best way to connect to local native seed sources is to contact a local nature center or state park – their staff should be able to point you in the right direction!

Main ingredients:

5 parts - Red potters clay (can be found easily at art supply or pottery stores)

1 part - Native grass and wildflower mixture. Remember to only use seeds that are both native and adapted to your region.

3-4 parts – Compost/topsoil mixture

1 part - Water

Watch [this video](#) to learn how to make seed balls!



“Unless someone like you cares a whole awful lot, Nothing is going to get better. It’s not.”
— Dr. Seuss, The Lorax

SAVE THE FROGS

By Dr. Kerry M. Kriger and Kathlyn Franco

Save The Frogs Day is the world's largest day of amphibian education and conservation action. Last year our supporters held 270 events in at least 30 countries, directly reaching over 17,000 participants.

Kids and adults all over the world can organize events in their hometown to educate their local community about frogs. You could hand out informational cards at your local grocery store, give a class presentation or even have a bake sale to raise funds for SAVE THE FROGS!

You could use your artistic skills to help SAVE THE FROGS! by entering our Art and Poetry Contests, which are open to people of all ages, nationalities and skill levels. These contests encourage kids to learn about frogs and deepen their understanding of ecology and the environment.

Our student supporters have written their local and state poli-

ticians and succeeded in getting official proclamations from governors and even legislation to benefit frogs in California, so we encourage you to write your representatives as well. You can learn how to fundraise, get rid of dissections in your classrooms, or build a frog friendly pond by checking out our Students webpage.

If your school would like to host a Skype Q&A session with a SAVE THE FROGS! scientist, please have your teacher contact us!

Thanks for helping SAVE THE FROGS!





ROAD WARRIORS

Give amphibians a brake!

You and your parents can help frogs, toads, and salamanders just by driving slower or limiting driving on rainy nights.

Many reptiles and amphibians migrate on wet spring and summer nights.

Sadly, many meet untimely ends on roads! They can be really hard to see and can look like a small rock or piece of trash in the road.

SAFETY FIRST!

There are many volunteer groups all over the world that help reptiles and amphibians safely cross roads.

There may be one in your community already!

ALWAYS talk to professionals and adults before trying to rescue animals on roads.



Spotted salamander (*Ambystoma maculatum*) from North America.
Photo by Rachel Rommel.



SPRING MIGRATION

A Salamanders Perspective and How Kids Can Help!

By Carlijn Laurijssens

It's the end of February in the Netherlands and temperatures are rising. The night temperature rises above 5-6 degrees Celsius (41-42 degrees Fahrenheit). Something stirs in the little river, the Potmarge. A small, cold foot sticks out of the ground. Soon another foot follows, and then a small head. Soon his whole body is out of the hiding place where he has been through the very long winter. He is now moving to a small creek adjacent to the Potmarge, with his long, dragon like tale dragging behind him. But all of a sudden...WOOSH! He is knocked down and his body is shivering.

Then another big object quickly passes...it is obviously not paying attention to him! He is trying to

get up to walk as fast as possible to the creek! Then, an even faster, larger object passes him, and the little creature is sucked in the wind and blown a few centimeters away. Again, he is on his back and trying to get up to move in the right direction. The poor little guy is confused, and everything is moving around him! Suddenly, there is a bright light. The creature cannot see what it is going on because the light is so blinding – this giant is moving towards him with a loud noise. Suddenly, the ground is falling beneath his little feet away and he is floating in the air.

Something is holding him, and it feels nice and warm. He is now able to see what was coming towards him!

This is the story of a salamander, but toads and frogs also live alongside the Potmarge.

the amphibians. When the frogs, toads and salamanders reach the screen, they are picked up by volunteers and safely placed at their breeding creek. For three years the team has helped these amphibians, but even more could be done in the future!

Education about the local amphibians is very important, both for young people and adults. Carlijn had the idea to organize an education day, especially for kids!

On the education day, kids between the ages of 5-11 years old could see, touch and hold toads, frogs, and even salamanders!

Some kids found them scary at first, but after a while, they loved them and did not want to let them go! The toads were especially popular! After holding the animals, the kids took their little nets and went fishing for frogs and other small water animals themselves. One even caught a frog and toad in their net at the same time!

Next year we hope even more kids will attend!



"Look Tariq here is another one and it is still alive"! Carlijn picks a little salamander from the bicycle road and places it safely in the little creek.

The people of the Potmarge Amphibian Connectivity Project help these creatures. During their spring migration, people unknowingly run over the amphibians with their bikes and motorcycles, injuring and killing them. Luckily, this team had a great idea! They put screens at both sides of the bicycle path blocking



Education about local amphibians is very important, both for young people and adults.



Common frog (*Rana temporaria*) from Europe.





By Clay Bolt

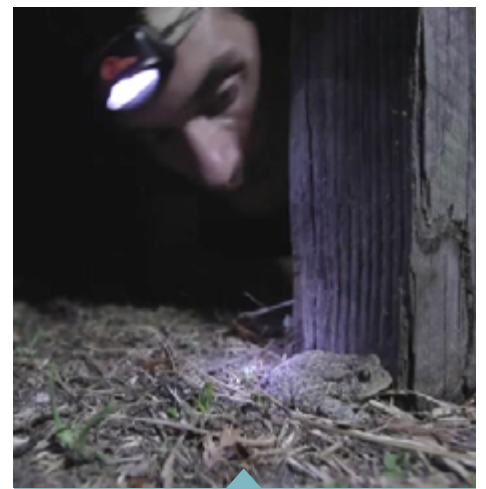
Want to know how to find the wildlife in your own backyard? **Watch this [short video](#) to learn easy ways that you can discover all of the amazing animals living in your neighborhood!**

This video was produced Neil Losin and Nate Dappen of Day's Edge Productions for Backyard Naturalists and Meet Your Neighbours.



2

It's the little things.
Wildlife is small so look closely.



1

Change your perspective.



3

Timing is everything.

Study the behavior of your favorite wildlife so that you'll know the best time of day to discover those species.



I TOAD"ALLY
want to be
your cuddle buddy
and make your heart
LEAP every day!



REPTILICIOUS Woolies

Woolies are handmade
woolen cuddlers.
Like their family in the wild,
they are all unique.

Green frog Woolies have
been designed especially
for the ASA.

From every green frog
you adopt, 2 euro will
be donated to the ASA!



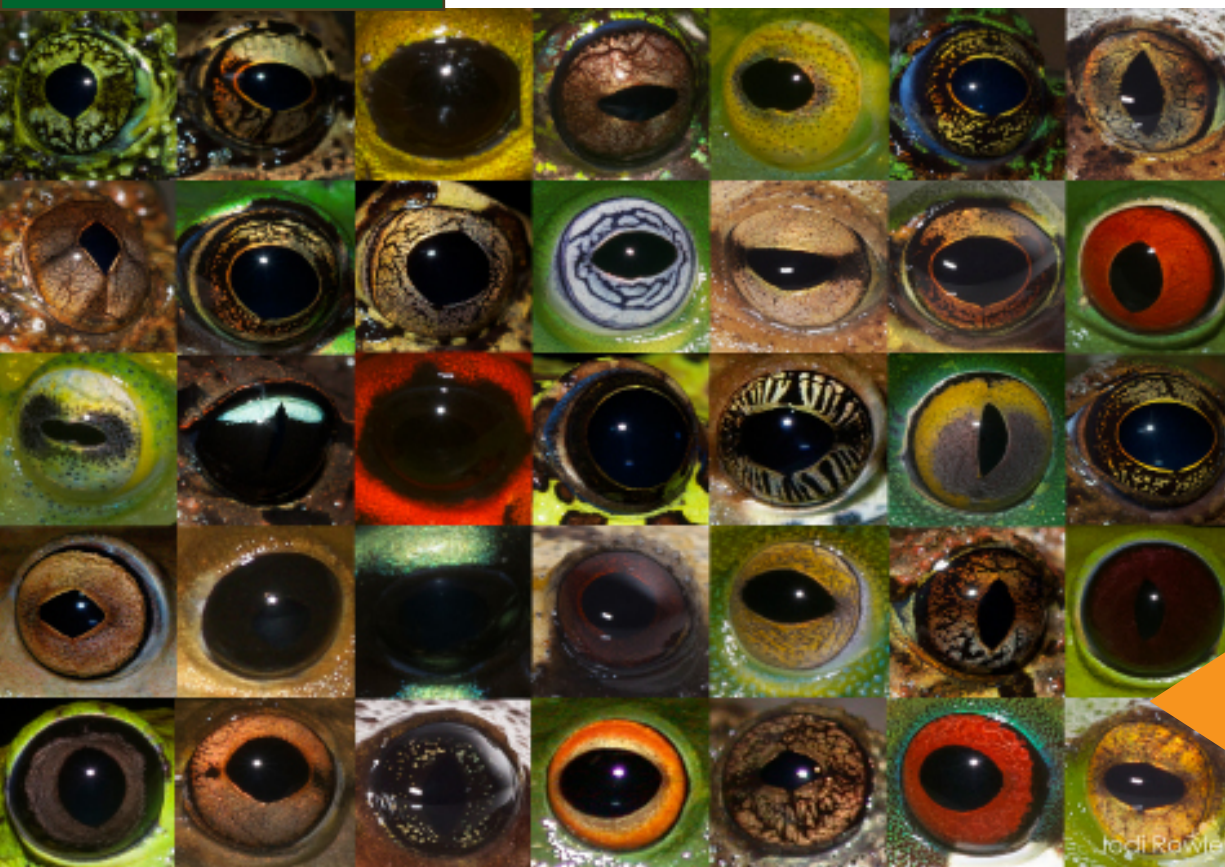
Start the day
with a cuddle
and HELP
my family
in nature!



For more information go to woolies.reptilicious.nl

I ONLY HAVE EYES FOR YOU!

By Jodi Rowley



Amphibian pupils come in a great variety of shapes!

They can be:

- round
- vertical
- horizontal
- heart-shaped
- and more!

How many types can you pick out?

I spend a lot of time photographing frog eyes. It's not the first thing people think of when they hear of an expedition in search of amphibians, but I spend hours and hours every day taking snaps of frog eyes, feet, bellies and thighs.

These photographs of amphibian "bits" are so important because they are often

incredibly useful in identifying known species, or describing new species. Sometimes the easiest way to tell frog species apart is by eye colour!

These are frog eyes from around the world; Vietnam, Costa Rica, Australia, and Brazil.



Camera
Tips from
The
Biodiversity
Group

SHOOT 'EM IN THE FIELD!

O
T
B
O
I



"Water, leaves, and Rocket frog composition" (*Epipedobates machalila*) Manabi, Ecuador, Jonathan Ontaneda, age 12

It's Your World. Explore it, Discover it, Share it, Save it!

Scientists need your help. Some of the most amazing animals are vanishing from our world every day. Many of these animals are small and overlooked. They might be colorful frogs or slimy salamanders. They might be spiny lizards or crawling insects. By better understanding the animals around us, we can help protect them for future generations. But first, we have to know about them.

You can help by taking photographs to share with experts through Biodiversity PEEK. PEEK stands for Photography, Educating, and Empowering Kids. Biodiversity PEEK is the citizen science program created by The Biodiversity Group that allows kids just like you to use photography to work with scientists around the world. You can help identify and save the amazing biodiversity of life that is all around us.

All you need is a camera...and a sense of wonder.

Join the Adventure with Biodiversity PEEK

By using your digital camera or your phone, and the website iNaturalist, you can contribute your photos to the Biodiversity PEEK project. Your photographs will be used to help scientists identify and catalogue wildlife and their habitats – in your community and around the world.

First, join our Biodiversity PEEK project on iNaturalist, where you will share your best photos.

Then, use the following tips from our folks in the field to share your photos with the world.



Khoa, Thu, and Dat at work in the field, Con Dao, Vietnam by Huy Pham, PEEK Leader

Photos, Photos Everywhere!

Photographing animals in their natural environment can be an amazing experience.

Digital cameras allow us to take as many pictures as we want. So, shoot away! In Biodiversity PEEK, we try to capture two types of photographs. These are “data photographs” and “artistic photographs.” Let’s look at the two types a little more closely:

1. Data Photographs

These images help scientists learn more about each species. They capture the small details of each animal -- the stripes along a lizard’s back, the eye ring of a fish, or the spotted belly of a salamander.

When taking data photographs, remember these tips:

- Take photographs that capture the unique characteristics of the animal. What sets it apart from a similar species?
- Photographs should be focused and clear. The smallest detail can help scientists identify the species.
- If possible, take photographs of the animal from different angles. You never know what detail will separate this animal from another similar species.



Fly on leaf, Manabi, Ecuador
by Jhonny Pequeno, age 14

2. Artistic Photographs

What caught your eye? Why did you stop to look? A drop of water on a leaf. Animal footprints in the mud. Maybe it’s a colorful insect perched on a flower. What inspires you?

- Capture the image that makes the viewer curious and wanting to know more.
- Try to excite the viewer’s eye and move his/her heart. And remember that not all art is beautiful.
- Getting one good photo means taking many, many not-so-good ones. Shoot a lot!
- Remember that artistic photos need not always be identifiable. Be creative.



“Off Kilter”, Con Dao, Vietnam
by Tran Nhan Dat, age 14



“I’m able to take some photos of the animals and plants, then share them with all the world. Joining the project, working with experts, I explore the places I haven’t been to in the forest and in the water.”


– Nhi Nguyen, PEEK Kids, Can Dao, Viet Nam

Photography Tips

Photography is a lifelong pursuit. Sometimes it can get frustrating. Most times it is fun and rewarding. Like anything else, the more you practice, the better you will be.

Here are a few photography tips to keep in mind when you're in the field:



 Snail-sucking snake (*Dipsas andiana*)
Manabi, Ecuador by Bolivar Santana, age 16

Before taking photographs...

Be careful! Some animals can bite or sting. Always approach an animal with caution. They don't know you just want to take their picture! Never handle an animal unless you're with a knowledgeable adult.

Be patient. Oftentimes, animals get frightened when you enter their world. Sometimes it helps to be quiet and still. Wait for the world to settle around you. Often, the animals will reveal themselves.

Prepare for humidity. Camera lenses fog easily with moisture and temperature change. Keep your camera in an old sock to avoid this and to protect your camera in the field. (Just make sure that sock is clean! Ewww...)

 Bee and wasp visiting flowers, Manabi,
Ecuador by Lilibeth Vera, age 16



When taking photographs...

Turn on the GPS. If your camera has GPS, be sure to turn it on before going under trees or under water (if your camera is waterproof, of course). This will stamp the photograph, telling our experts exactly where and when the photo was taken.

Flash on/flash off. Play with having the flash on and off in the same shot for different results.

Hold steady. Be sure to hold your camera steady when taking photographs. Holding the camera steady will also make sure your photos are in focus, especially when there's not much light.

Fill the frame. When photographing wildlife, getting close generally makes better photos. Try to fill the "frame" of your picture with your subject matter.

Use macro. For those close-up shots of small life, use your camera's "macro" setting.

Remember: The Eyes Have It. For those data shots, it is best to focus on the eye. Remember that you can press and hold part way on the shutter to focus, and then shift positions so the eye does not need to be in the center.

Get down! Have fun trying different angles and, especially, getting down on the level of whatever critter you are photographing. The personalities of the animals often show up best this way.

Consider the background. For example, if you are photographing a spider in its web, try getting a friend in a dark shirt to stand behind the web so it stands out. This will keep the web from getting lost in leaf brightness and visual clutter. Or, if you want a lizard's dark head to stand out, move so that the head part is in front of a light rock behind it.

Show the bigger picture. If the animal is looking at something, you may want to show that object in the photo too.

Be composed. Composition is the arrangement of objects in a picture. Play around with composition. Try different angles. Sometimes a great picture happens when you least expect it.



Bottom left: Male robber frog (*Pristimantis achatinus*), calling, Manabi, Ecuador by Erick, age 14
Bottom right: Butterfly fish and Table coral, Con Dao, Vietnam by Vo Hoang Minh Thuan, age 14



Afterwards

Share your photos with the world! Don't forget to upload your photographs. Share your best photos with other citizen and professional scientists. Our favorite site and the one we use for Biodiversity PEEK is: www.inaturalist.org. You can even ask for your critter to be identified there. Who knows, you might have discovered a new species of frog!

Drop us a line! We at The Biodiversity Group would love to hear from you. You can contact us at the bottom of our home page. The Biodiversity Group is also eager to help other NGO's, reserves, communities, and schools start up their own Biodiversity PEEK programs. So, drop us a line to see how we can help! www.BiodiversityGroup.org



ART FOR AMPHIBIANS

Share your poems, drawings, and
crafts which celebrate amphibians!

YOUR POEMS


“The Frog”

You praise the music
of your own species
And yet,
you insult my song.

You rub your dry skin
with expensive moisturizers
And yet,
you flinch when you
feel my well oiled skin.

You fear the sight of a human corpse
And yet,
you do not hesitate
to reduce me to one.

*By Aaliyah Cassim, Grade 10
Westville Girls High School, South Africa*



The Banded rubber frog (*Phrynomantis bifasciatus*) occur in the north-eastern parts of South Africa and are widespread in the rest of southern Africa. They are named after the rubbery appearance and texture of their skin. These frogs have secretions that are highly toxic to other frogs and also to the heart cells of mammals. Banded rubber frogs also have one of the most amazing adaptations, the ability to shoot their tongue out at more than a 90 degree angle to capture insects. This means their tongue can actually go backwards behind their head! Photo by Rachel Rommel.

“Amphibian”

By Rashmika Singh, Grade 10
Westville Girls High School, South Africa

With one foot
in the water
and one
on the ground
I can never
drown

“Frog Prince”

If you
loved (me)
you wouldn't want
to change (me)
into a prince

“Leap Frog”

I can't reach the
sky
if I don't
stand
on your shoulders



The female Bushveld rain frog (*Breviceps adspersus*) of southeast Africa is much larger than males. If attacked by a predator, they will inflate their body and lodge themselves in their underground burrow.

Some people believe that if you unearth a rain frog while digging in your fields, you must gently replace the frog in the ground, along with a seed, and cover it with soil for a good crop season. Photo by Rachel Rommel.

Frogs Matter. Jump In. AMPHIBIANS COULD BE THE NEXT DINOSAURS

Frogs and other amphibians are dying. After thriving for over 360 million years, 1/3 to 1/2 of the world's 6,000 known amphibian species could go extinct in our lifetime – which would be the most significant mass extinction since the disappearance of the dinosaurs. The urgent danger is chytrid fungus, but other causes include habitat loss, pollution, pesticides, and climate change. Amphibians have long been referred to as the “canaries in the coal mine” – they are among the first species to be affected by environmental stressors, so when they show declines in the wild, it serves as a warning to other species, including humans.

But with your help, the amphibians can be saved. Amphibian Ark is an initiative that will identify the 500 most threatened species of amphibians that cannot be saved in the wild, rescue them, and place them in “protective custody” at zoos, aquariums, and other institutions around the world for safekeeping, breeding, and eventual reintroduction into the wild when the threats have been controlled.

Please wear this mask to spread the word about frogs and other amphibians, and visit www.amphibianark.org to find out more and make a donation.

Amphibian Ark is coordinated by the World Association of Zoos and Aquariums (WAZA), the IUCN SSC Conservation Breeding Specialist Group (CBSG) and the Amphibian Survival Alliance (ASA). Donations to Amphibian Ark can be made at www.amphibianark.org

Instructions:



a: Cut along all dotted lines including red holes.



b: Knot one end of both strings.

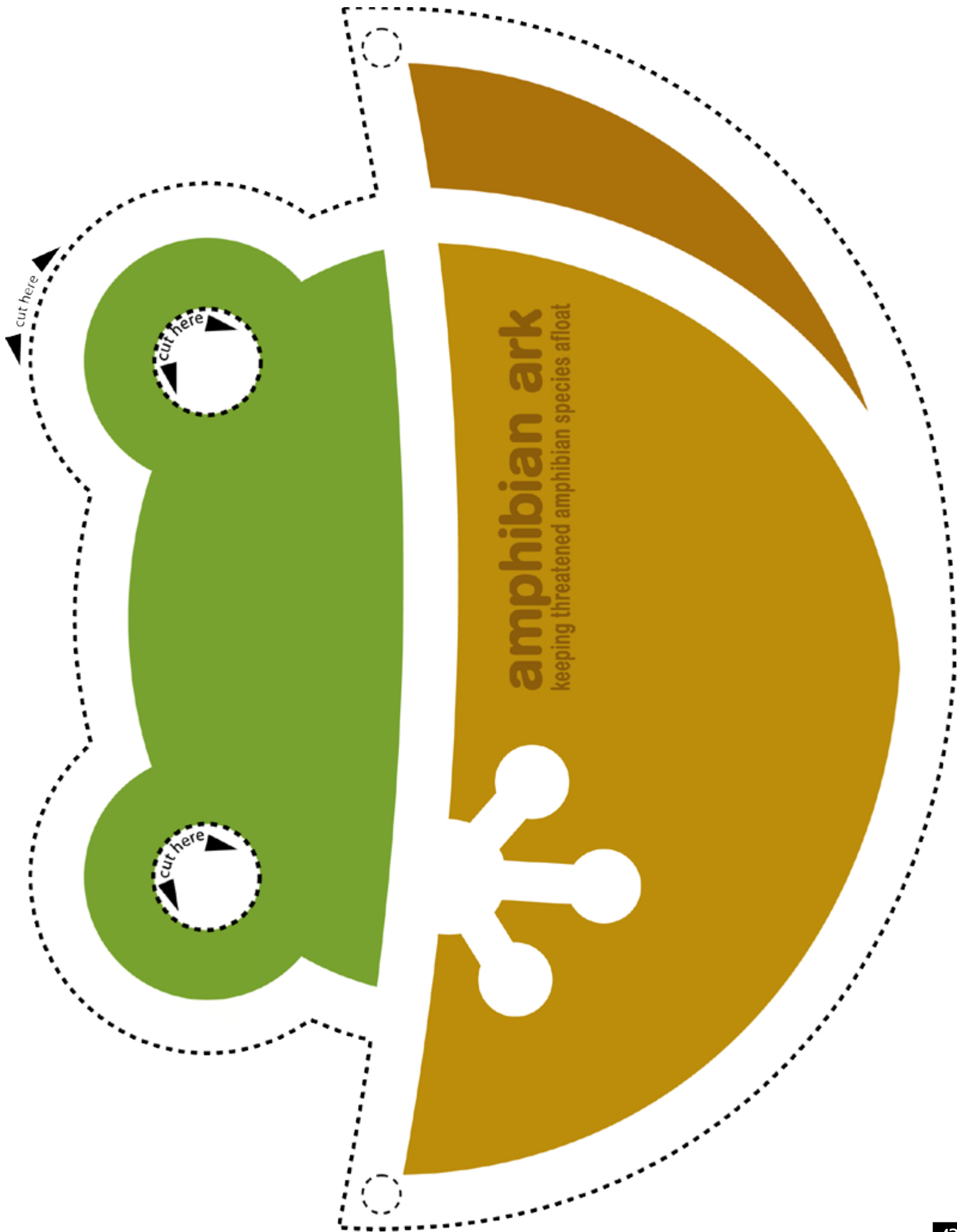


c: Insert unknotted end through red holes from front side of mask to back side. do the same for opposite hole.



d: Tie strings together behind head, placing eye holes over person's eyes.

e: Wear with pride.



amphibian ark
keeping threatened amphibian species afloat

CONSERVATION CORNER

Learn how amphibian biologists and organizations all across the globe are protecting species in need!

AMPHIBIAN CONSERVATION

at the Jacksonville Zoo and Gardens

By Mark Beshel

The Puerto Rican crested toad was once thought to be extinct until a small population was rediscovered in the late 1990's. Habitat destruction, disease, and the introduction of non-native species like the Marine toad (*Bufo marinus*) caused a sharp decline in their numbers. Since then, many zoos and aquariums have bred these toads in captivity and released the tadpoles back to the wild in Puerto Rico.

The Jacksonville Zoo and Gardens has held crested toads since 2008 with the opening of the 'Save the Frogs!' Amphibian Conservation Center.

In 2011, we received breeding recommendations for our crested toads. Getting these toads to lay eggs in captivity is no easy process, and all breeding activity is closely monitored and controlled for better success rates.

First, we have to cool them down and stop feeding them for a month. Then we warm them back up, start feeding them again, and place them in tubs with some water. The water is filtered and we make it "rain" back down on them to simulate a rainstorm. We also play a CD with crested toad calls all day, every day, until they lay eggs. The eggs hatch in as little as one day, and the tadpoles start eating after a couple of days.

We send the tadpoles back to Puerto Rico after one or two weeks where they are released and allowed to grow up...a baby crested toad is smaller than a dime! It only takes about a month for them to go from egg to baby toad. Since their eggs are usually laid in temporary pools (like big puddles) they have to grow up fast before the water dries up!

Since 2011 we have sent over 4,000 tadpoles back to Puerto Rico!



Puerto Rican crested toad tadpoles hatched at the zoo!



Young Puerto Rican crested toad.



Adult Puerto Rican crested toad.

The Striped newt is native to Florida, although they are becoming increasingly rare. Habitat destruction and disease have both played a major role in the decline of Striped newts.

Most newts have a strange life cycle. They start out by laying their eggs in the water like many other amphibians. After hatching, the little newt larvae (juvenile form before metamorphosis) develop front legs, and then rear legs, and breathe with large “fluffy” gills behind their head. During every stage of their life, they are carnivorous. They eat any animal smaller than themselves...including mosquito larvae!

After a few months of growing and eating constantly, they will leave the water, sometimes for years. At this stage of their life they are referred to as an “eft.” They continue to grow and eat small invertebrates until they become adults. Once again, they will travel back to the temporary ponds to lay eggs of their own.

In 2012, we hatched and released 59 newts back to their native range in Apalachicola wetlands. This February we released an additional 114 newts to the same location in Apalachicola.

We are currently planning to release more Striped newt larvae in early April...this should give them enough time to grow adequately before going out into the big scary world. Of course, they will be released to screened enclosures to prevent anything bad from happening to them (hopefully), and when they get large enough in their ponds in the Apalachicola National Forest, they will be completely released.

Since January we’ve successfully hatched almost 500 newts. We’ve released a total of 266 newts since April for a total this year of 380 released back to the wild this year alone! We’re currently holding the remainder of the larval newts until next year.



There are about 35 Striped newt larvae that are large enough for release, but we’re hoping to at least double that number by April!



Striped newt adult.

Did you know that tadpoles and salamander larvae are like everyone’s favorite cookies of the pond?

Everyone wants to eat them...and you can’t have just one!

Therefore, many amphibian reintroduction projects let these little guys grow a bit bigger before release, or they will protect them in the wild with the use of cages until they have a better chance at avoiding predators!



CONSERVING COSTA RICA'S AMAZING AMPHIBIANS



Lemur leaf frog (*Agalychnis lemur*) from the C.R.A.R.C. Reserve, Costa Rica, Central America Photo by Brian Kubicki.

By Brian Kubicki

The Costa Rican Amphibian Research Center (C.R.A.R.C.) is a privately owned and operated center dedicated to studying, understanding, and conserving one of the most ecologically important animal groups of Costa Rica's humid forest ecosystems, the amphibians!

What does ecologically important mean?

Ecology is the study of plants and animals and how they interact with their environment.

Amphibians are ecologically important because they are indicators of water quality, eat lots of insects, and are in turn eaten by many other animals too!

Did you know the Lemur leaf frog deposits their eggs on the surface of leaves? The tadpoles will be washed off by rain or fall into water below where they will complete metamorphosis into small frogs!

The C.R.A.R.C. and its 49 hectares (121 acres) private reserve (a protected place for plants and animals) is nestled in the Caribbean foothills of northern Talamancas in Costa Rica, near the small town, Guayacán de Siquirres. This area in Costa Rica is one of the most biologically diverse regions on the planet (many different kinds of plants, animals, and microbes can be found here). The C.R.A.R.C. was established by Brian Kubicki in 2002 to fulfill the need of a project specifically focused on studying the amazing amphibians throughout Costa Rica. The “staff” of the Costa Rican Amphibian Research Center (consisting of Brian Kubicki and his wife, Aura Reyes) is involved in conducting various research projects focused on increasing our knowledge of Costa Rican amphibians. We can better protect endangered amphibians once we know more about them!

This exciting research is being carried out both within the private reserve and throughout the rest of Costa Rica. Two examples of research projects that the C.R.A.R.C. is involved with outside the boundaries of the private reserve are the “Glass Frog Research and Conservation

Project” and the “Central Caribbean Amphibian Inventory Initiative”. At the private reserve, a large focus of work is on designing and putting into practice new methods for conserving native amphibian breeding habitat (places where amphibians can mate and deposit their eggs). Some of these projects include creating artificial breeding sites in species specific habitats, and also rehabilitating natural breeding sites that were damaged by prior human activity. Other projects simply enhance breeding sites in healthy habitats to increase breeding potential for amphibians.

Two particular species that have been highlights of habitat work within the reserve are the Splendid leaf frog (*Cruziohyla calcarifer*) and the Critically Endangered Lemur leaf frog (*Agalychnis lemur*).

For more information visit www.cramphibian.com



froguts

A Bio-eLearning Co.

By David Hughes

Pursuing Amphibian Conservation Through Virtual Dissection

"Pursuing amphibian conservation through frog dissection"...that is admittedly an odd title to find in a magazine about saving amphibians around the globe. What you as the reader are going to find even more perplexing is that this is an article about a company, Froguts Inc., whose primary focus for the last 14 years has been pursuing animal dissection...just, not in the way you might be imagining at the moment. I know you are skeptical about a company whose name contains the words 'frog' & 'guts', but hang in there. With your curiosity engaged let us now go on a journey that ends with discovering how classrooms around the world are saving frogs, and other animals, by dissecting them using virtual software.

Froguts Inc. is a company that was started by two high school best friends, Richard (Rick) Hill and David Hughes. One went on to become a teacher and the other pursued technology. Rick, who had become the teacher, noticed one day that his stepdaughter returned from school unable to describe in detail her experiences with a frog dissection in class a week earlier. The class had used actual frogs and the students spent several days exploring their anatomy and physiology, which is just another way of saying what are the parts of a frog and what does each do for the frog. Rick was frustrated by the fact that many frogs were used in the class and that students were not leaving with any lasting knowledge of what had been presented. He felt there had to be a better way to explore what the parts of animals are and how they function. There had to be an approach that would be exciting to students, represent less impact on frog populations and the environment, and result in a higher quality and lasting understanding of the concepts. Rick decided to embark on a journey to develop a simulation of a frog dissection that could be done on a computer and his path eventually led to creating the company Froguts Inc. with David. Creating software that simulates an actual frog dissection is not easy and certainly was more of a challenge than Rick thought. It took almost two years of

learning how to program, develop skills in graphic arts, and of course dissecting frogs to get the images needed to make the software simulation. If the last part of the previous sentence, the part about dissecting frogs, is concerning to you and leaves you pondering how dissection software helps frogs, do not fret, the answer is near.



After the first virtual frog dissection software was released, its popularity and the web site it was hosted on outpaced Rick's ability to pay for and manage, David joined Rick and the two created the company Froguts Inc. That frog dissection program and the others that have followed save thousands upon thousands of frogs and other animals each year. Even though a few frogs were dissected (and most were donated) once the software was completed, schools now had an alternative from buying frogs from companies to use in their classes. Schools and students could now use software to learn the same concepts and do so in a more engaging and memorable way.

Okay, so this software is saving an unimaginable number of frogs each year... that is great! But what is better about a virtual dissection...and are the students missing out on learning something by not dissecting the real frog? Froguts Inc. developed a unique approach to virtual dissections.

Each animal module, like the frog, is presented in a stems based manner. This means that the software guides the learner through an examination of the parts and the function of each system starting with the skin and moving inward into systems like the respiratory (lungs and parts of your breathing system) or cardiovascular system (the heart and parts that move blood throughout an animal). In each system the animal is in 3D using a special technique Froguts developed and allows students to use virtual tools like the scalpel, scissors, pins, probes and more. Unlike actual dissections, when a mistake is made a student can redo that part of the software dissection or repeat it as often as they want to fully understand a concept or idea. It helps that the software has a narrator who guides each learner's understanding of all the organs and how they work together to keep an animal alive and functioning. In fact, that understanding is enhanced by tools like virtual xray machines, CT machines, and the ability to simulate how organs work inside of living animals, all things that students do not experience in actual dissections. The software contains quizzes, test, and certificates of completion to help each student gauge and improve their knowledge about animals.



To learn more about the history of Froguts Inc, or to look at an actual demo of a virtual frog dissection, use a web browser and go to: www.froguts.com

If you would like to start using virtual dissections in your classroom to do your part in amphibian and animal conservation make sure to tell your school about alternatives such as Froguts.

Froguts Inc. continues today to pursue limiting the number of animals used in classrooms around the world each year.

Through its software students now have an alternative to real animal dissection and can use a more engaging manner that promotes a better understanding of an animal's organs and functionality.

We offer a lot of different animal software modules than just the frog now and they include the squid, starfish, owl pellet, fetal pig, cow eye, a pea lab and a fruit fly lab. The last two, the pea and fly, explore the amazing world of genetics which put simply are the instructions for how each animal is made and operates.

Speaking of alternatives, did you know that 16 states and the District of Columbia now require that students be offered the choice of using alternatives to dissection?

You can learn more on our [web site](http://www.froguts.com).

WHERE HAVE ALL THE FROG WATCHERS GONE?



By George Sellers



There is such an exciting world just outside of any house, building, school, etc., but yet, a lot of kids these days seem uninterested in learning about nature. Playing on the computer, texting friends, or posting on some type of social network has taken the place of exploring streams, vernal ponds, lakes, and many other types of aquatic habitats. Who is going to take the initiative or even care to protect what little remains of our natural surroundings? When was the last time that you saw a young child hold a snake that they had found, or a turtle, or inquire what those blobs of funny looking jelly masses were that they just saw in the pond? I wonder how many parents have taken their children on a hike in the woods to explore nature or collected frog eggs and let them metamorphose into tadpoles? This article will suggest some things to do that will get kids interested in amphibians!

Savethefrogs.com is a fantastic website. There are many activities designed for children of all ages (even kids aged 75!) that are hands on, educational, frog friendly, and exciting for everyone. For example there are poetry contests, poster contests, and a variety of other interesting projects to undertake. The site even has lots of frog related items to purchase that would make great gifts for birthdays, and other special occasions that warrant a present. Teachers would appreciate a snappy frog poster that one of their students brought to them as a surprise gift! Speaking of teachers, it would be an educational and fun undertaking to organize a Save the Frogs Day for your school. Helpful hints are available on the website on how to plan your frog day.

Another fantastic way to get involved with frogs is to become a FrogWatch USA volunteer. This is run by local zoos, and it is a citizen science activity that trains people of all ages to identify frog calls, listen for them on selected eve-

nings, record data, and to make a valuable contribution to science. To learn more about FrogWatch USA go to <http://www.aza.org/frogwatch/> and to learn how to become a volunteer go to <http://www.aza.org/become-a-frogwatch-volunteer/>.

The best thing to do is to go outside and see what you can find!

You have to learn to be observant and patient. I would urge you to keep a journal of everything that you observe outdoors and to take pictures of all the critters that you find. In your journal you should record the date, the time, the weather conditions, the numbers of frogs

seen, the names of the frogs, what they were doing, and any other information that you can come up with. A really interesting thing to do is to find some PVC pipe about a meter or so long and at least a couple of centimeters in diameter. Hammer one end into the ground so that it is standing up like a fence post. Scatter them all around in a variety of different habitats. Even place some on a tree trunk. It would be good to have as many pipes as possible, and then you can check them every day to see what is in them. You will be amazed at the tree frogs that you will observe. Of course you will record everything into your journal including where you placed your "frog pipes."

These are just some of the many things that kids can do to get interested in the exciting world of amphibians, and frogs in particular. I urge all young people to get outside, to get involved, to learn about nature, and to become good stewards for this wonderful planet. Form your own frog clubs or nature clubs, or anything like that.

Get involved. Protect nature so the next generation will also have some exciting things to enjoy!

TREEFROG LOGS

By Rachel Rommel

Be sure to peek in the pipes often, and always remember to remove them if you do not plan to check them regularly!

Depending on where you live, some small mammals can get stuck in these pipes.



In Texas (USA) students made something quite similar to the frog pipes mentioned in Mr. Seller's article.

We called them "Treefrog Logs"!

A spin on the classic "Toad Abode", Treefrog Logs can be put in the ground around wetlands, nailed to a fence, or put in a tree in your backyard or around school habitats.

They can also be decorated with leaves, twigs, and pine cones by the children.

Give it enough time, and you may find a little neighbor like this North American Gray tree frog (*Hyla versicolor*) move in!

If you have any questions about making, or putting out "Treefrog Logs" contact rachel@amphibianark.org



WHAT IS IN YOUR WATER?

Amphibian Activity for Kids



Easy lesson on amphibians as indicators of water quality...great for the classroom or amphibian education booths! Adapted from Cutaneous Respiration in [The Educators Guide to Houston Toads](#).

Amphibian skin is permeable, allowing both water and oxygen to pass through it. This is why many amphibians can breathe on both land and in water. Breathing through the skin is also referred to as *cutaneous respiration*, which is an exchange of gases between the air and/or water. Amphibians can absorb water directly through their skin instead of drinking water like many other animals. This also means that under hot and dry conditions they can also lose water through their skin.

In addition to water and oxygen, other substances such as chemicals and pollutants can cross through their permeable skin and into their bodies. This adaptation makes them an excellent bio-indicator, as they can be very sensitive to changes or pollutants in their environment. Bio-indicators can be used to monitor the health of the environment and ecosystems. Amphibians are excellent indicators of the cleanliness and health of water and the habitat.

Materials:

- 2 old or recycled plastic water bottles with holes poked all over them (frogs)
- 2 large clear bowls (habitats)
- Water
- Food coloring or colored soda (pollutant)

Instructions:

- Discuss the permeable nature of amphibian skin with students or your audience. Throughout the demonstration, ask relevant questions below.
- Fill two large bowls (habitats), one with clean, and one with colored polluted water (using food coloring).
- Submerge the water bottle in the clear water and squeeze it multiple times. Submerge the water bottle (your frog with permeable skin) in the clear water and squeeze multiple times.
- Redo the experiment, now with the colored water (chemicals/pollutant) and the other water bottle. Have students squeeze the bottle. After a number of rounds, the bottle can be pulled out and should be the color of the water.



Questions to ask the kids:

The water bottle filled with clear water represents a frog. What do you think the clean and colored water represents? What are examples of pollutants and chemicals that could end up in water? After the frog is submerged in the water, what color did it turn? Why did it change color? Did the frog only absorb the clean part of the water, or did it absorb everything? How do you know? Do you think frogs and other amphibians that absorb water through their skin are good indicators of whether water is clean, or not? What do you use water for? What do other animals use water for? How can humans help keep pollutants and chemicals out of our water?

REVIEW: PACHAS PAJAMAS

By Dave Room

Can youth entertainment be used to advance and increase awareness about threatened species of amphibians, and also help to celebrate conservation successes?

The Potential of Children's Entertainment is Immense

Imagine a future where entertainment is "inner-training". This is a future where all parents and children have access to age appropriate and culturally-relevant entertainment. Entertainment would train children to better understand their interdependence with nature, and how to make better decisions. It would expose children to new ideas and interests and safely connect them to real world activities. This type of entertainment would inspire children to actually create the world in which they want to live! This future is possible. In fact, we have all that we need for such a future.



We believe entertainment has the potential to be a profound and positive influence on children and the world. We see the role of children's entertainment as twofold. First, it may safely capture the child's attention, and two, gives the child sufficient information about a worthwhile topic to inspire further engagement on the subject. We are living in an unprecedented time, where children are emerging as youth leaders with the social power to make a real difference in the world. Think "[Kid President](#)" and his crusade to get the world dancing. This **new child archetype** (a dream-in-action type of kid), is popping up all around the globe. Another great example is Avalon Theisen, a 13-year-old girl who started [Conserve It Forward](#) at age 8, (and is the guest editor for this issue of FrogLog Jr). She is winning tons of awards alongside her own TV show. The organization [Youth-Leader](#) (a UNESCO project) is working with Avalon and dozens of other young trailblazers who are creating the world they want to live in!



But The Reality is Sobering

Today's kids are considered digital natives, growing up with unprecedented access to media, through a multi-

tude of devices that keep them glued to screens an average of 7 hours per day. They spend far less time outside and communicating face-to-face with others, compared to previous generations.

As reported in [Treehugger.com](#), children are also getting less exposure to the natural world in media. A 2011 study in the journal Sociological Inquiry showed nature's diminishing presence in children's books. An analysis of 296 Caldecott Medal Award Winners from 1938-2008, found half as many depictions of nature as depictions of man-made environments. The study also found that prior to 1960, depictions of the natural world, and depictions of the man-made world, were about equal.

Is Children's Entertainment Junk Food?

Most children's entertainment is like junk food. It may satisfy our cravings, but it's making kids sick. Much of what children experience on screens is vapid if not violent, misogynistic, glorifying consumption and addiction. For example, in 75% of the TV programs when U.S. children are most likely to be watching, the hero either kills people or beats them up. The American Academy of Pediatrics has repeatedly stated that such content can be detrimental to a child's healthy development. We now know every-



thing we experience rewires our brains. Hence, parents realize that much of this screen time can be detrimental for their kids. Today's parents are finding it virtually impossible to limit their child's access to unhealthy media, and are increasingly frustrated with the lack of age-appropriate and culturally-relevant children's entertainment options that is in alignment with their own values.

Parents Can Feel Good About Pacha's Pajamas

Pacha is a young girl with an imagination bigger than the Andes Mountains, homeland of her ancestors. After a stress-induced asthma attack, her magical pajamas carry her into an epic dream where she's the central player at a nature festival. Full of musical plants and dancing animals, the event is a worldwide call-to-action to save the planet from destruction. Through the dream experience, Pacha awakens with the skills needed to stay healthy and better understand who she truly is.

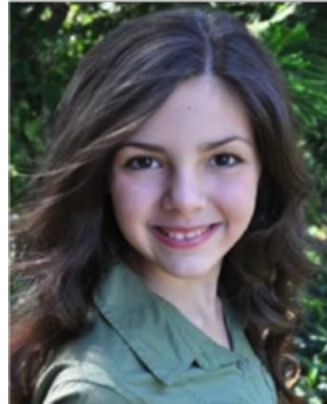
The Pacha's Pajamas: A Story Written By Nature double album has received 8 awards so far including Parent's Choice, Independent Music Awards, 2013 Family Choice Award, Creative Child Magazine's 2013 Preferred Choice, Mom's Choice Gold, Mr. Dad Seal, the Academic's Choice Smart Media Award and first place for songwriting in the Eco-Arts Awards.



Frog Talk Is Designed To Interest Kids in Amphibians

The double album includes a track called "Frog Talk" that features Avalon Theisen as Ms. Abbey Toad (the director of the Hop-On-It Choir) speaking on the Wetlands Stage at a gathering of indicator species. Ms. Toad is introduced by Sally Mander, and the track is backed by a slow ribbit-beatbox by the author and one of the creators of Pacha's

Pajamas, Aaron Ableman. Ms. Toad speaks about the role of frogs in a healthy ecosystem and the threats they face. She ends by saying that her choir will keep on croaking for change in the hopes that the world will hear them and do things a little differently.



The forthcoming Pacha's Pajamas Animated Book (Q3 2014) will feature the Frog Talk track, as well as some basic information about amphibians, their habitats and threats. This will include information on what kids can do to help, alongside a profile of Avalon and her organization [Conserve it Forward](#). The purpose is to get kids interested in amphibians, indicator species, and to provide some simple ways for youth to get active. So far, the Animated Book will be made available to teachers of 150,000 CA students through an environmental education network. We are excited to make the Animated Book available to the [Amphibian Survival Alliance](#) for use in your work. Please email dave@pachaspajamas.com if you have any questions or to explore ways we can work together.

Join Pacha's Global Dance Party

As the U.S. celebrates its independence, Pacha is launching a Global Dance Party called "We Are ALL Connected" which invites young people across the planet to proclaim their interdependence by singing and dancing in public or nature! Pacha says "the more we are aware of our connectedness, the better we'll treat each other and the planet." Youth programs and families can participate by learning the easy 10 second choreography and posting their dance video to YouTube with the hashtag #WeAreALLConnected. For more information, visit <http://weareallconnected.us>.

About BALANCE

Co-founded by Aaron Ableman & Dave Room, BALANCE produces childhood entertainment products that parents can feel good about. Through the use of compelling characters and award-winning stories with socially responsible themes, BALANCE creates Nutritious Children's Entertainment. Rather than teach environmental and social awareness didactically, BALANCE's audience experiences lessons through immersion in compelling stories and characters. The Company makes its protagonists and stories culturally relevant for urban youth through language, ethnicity of protagonists and celebrities, context and cultural authenticity.

Amphibians as Pets



Considering an amphibian pet? Growing up with tadpoles in your backyard or classroom is a great way to learn about and appreciate the natural world. Some amphibians make excellent pets for enjoyment and education. However, keeping an amphibian (or any pet) in captivity is a real commitment to its well-being for the entirety of its possibly very long life.

Recommended Guidelines

No amphibian from any commercial source (e.g., pet store, online merchant, reptile show) may be released into the wild—never, under any circumstances, even if the species technically is native to your region. The risk of introducing exotic diseases to native amphibians is just too high. And in most places it is illegal.

Wild amphibians should not be moved between sites (e.g., new pond or stream). If you bring an amphibian to your home, and you have other amphibians, you should not release it back into the wild, because of risk of disease transfer between animals.

Ask for background health information about your pet and how and where it was produced. Ask for documentation of legality for imports or protected species. Check with your local wildlife agency to make sure the species you wish to keep is legal (for example, Cane Toads, *Rhinella marina*, are illegal in some states). There may be restrictions or laws in your state regarding keeping amphibians and other wildlife as pets regardless of the source.

Go captive born! If amphibians are to be kept as pets, we encourage purchasing captive-born animals only from reputable dealers. Please always choose pets that are documented to be from a captive-breeding program. Do your homework and support vendors who support conservation efforts. Wild-caught amphibians are being badly over-harvested.

Avoid mixing species! If they don't live together in nature, don't keep them together in your terrarium. This will reduce the chances of disease transfer.

Never dump wastewater from amphibian enclosures into the natural environment where it could contaminate local populations of amphibians. Instead, dump wastewater in the toilet.

Always wash your hands before handling amphibians (to protect your amphibians) and after (to protect you); be sure to thoroughly rinse off the soap before handling your animals!

In rare cases, amphibians may carry diseases that can harm humans (zoonoses), including E. coli or Salmonella; more information is here: <http://www.cdc.gov/salmonella/water-frogs-0411/051011/index.html>

Thoroughly clean items that come into your enclosure from outdoors (branches, plants, rocks, etc.) to protect your pet from diseases that may be out there and vice versa when discarding enclosure contents (other than water).



Diseases

Amphibians may appear to be perfectly healthy, showing no signs of illness whatsoever, yet still carry a pathogen that can later harm them or you or other amphibians in the environment.

More information about the deadly Amphibian Chytrid Fungus is here:
www.amphibianark.org/chytrid-fungus/

Humane Treatment

Regardless of the source, all animals in captivity deserve the highest quality environment and conditions as possible. Resist the urge to purchase or acquire amphibians on impulse and without having proper food and housing ready.

Basic amphibian care and welfare information can be found here:
www.amphibianark.org/pdf/AZAAmphibianHusbandryResourceGuide.pdf

Before you bring in a pet amphibian, ask yourself:

“Am I able and willing to provide the proper environment, food and facilities for this animal for its lifetime?”

If not, then we recommend visiting amphibians in nature or at a regional educational exhibit. Better yet, build a backyard pond to attract native frogs, toads, and salamanders to your property (www.treewalkers.org/operation-frog-pond/)!



More resources for you
www.amphibianark.org/disease.htm
www.amphibianark.org/commercial-activities/
www.ssarherps.org/documents/amphibians_in_classroom.pdf

ONLINE RESOURCES

For Educators & Youth

Amphibian Related Education, Curriculum and Activities:

[Amphibian Survival Alliance](#)
[AmphibiaWeb](#)
[Amphibian Ark](#)
[Association of Zoos and Aquariums](#)
[Save the Frogs](#)
[IUCN List of Endangered Species](#)



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Wetland and Water Quality Resources & Curriculum:

[Learning in Wetlands: An Educators Guide](#)
[EPA Wetlands Education](#)

Amphibian Related Videos:

[7,000 Kinds of Amphibians \(short\)](#)
[PBS Thin Green Line](#)
[Fabulous Frogs](#)
[Metamorphosis](#)
[Life in Cold Blood](#)



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Global Amphibian Citizen Science:

[iNaturalist Global Amphibian Bioblitz](#)

IMPORTANT!

[Society for the Study of Reptiles and Amphibians Recommendations for Raising Live Amphibians in the Classroom](#)



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Calling all young frog fanatics!



We want to highlight your amphibian art, poetry, stories and photos!

Leaping leaders, we want your articles which explain how you hop to action for amphibians!

Please send all submissions to:
froglog@amphibians.org

You may be highlighted in a future issue of Froglog Jr.!

With submissions, please include your name, your age, and where you live.