Reptile and Amphibian Audio! How (and Why) Some Can Make Sounds!

By: Eric Roscoe

**Princess and the Frog Cartoon. © Todd Bright.*

When it comes to groups of animals known for their calls, or other vocalizations leading to making their presence easily known and detectable, reptiles and amphibians might not be the first group to come to mind. Most species, and even groups of herps, or "herptiles," are comparatively silent, usually either lacking the ability to call or make sounds, or having only the limited ability to do so under certain circumstances. Due to this fortunate, or unfortunate, characteristic of these groups of animals, they often go undetected and unappreciated, or still yet in many cases, may be unduly feared, misunderstood or reviled. There is still something about some groups of animals which appear or behave in manners much different from our own, that raises that "alien" factor. This is particularly true when some (such as snakes) do not have legs or eyelids, and also because of that fact that many cannot, or do not, usually make sounds we are familiar with.

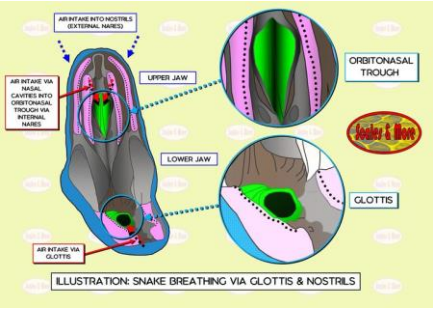

**Illustration. Glottis/Epiglottis in a Snake. © Scales and More.*

But what if we informed you that there are, in fact, several groups of reptiles and amphibians which can, and do, make sounds through various means and for various reasons or purposes? Some of these, such as frogs and toads, we might then think of as being well known for their

mating and reproductive calls during certain periods of the year, while there are others which might be more obscure, or those who we may not have initially thought to be able to make sounds, thereby surprising us with some added herpetological insight and knowledge?

As it turns out, many reptiles and amphibians which are capable of producing sounds possess vocal chords and apparatuses which are not extremely different from the human's set. However, where they may differ are in the musculature and sometimes orientation of these organs. For this article, we will be examining a few of the most well known, and some lesser known, groups of amphibians and reptiles which can vocalize, as well as the "hows" and "whys" behind each group of animals discussed.

**Western Diamondback Rattlesnake (Crotalus atrox), and "rattle". © Joel Sartore.*

Many more species of reptiles are certainly capable of producing other sounds through mechanical means, such as how rattlesnakes, and even many species of harmless and nonvenomous snakes without rattles create their telltale "rattle," whether by their hollow segments of the tail, or when performed within dry grass or leaves. Others might be able to produce similar sounds through the shaking, rubbing together of, and/or display of their crests, scales, spines, and/or frills. However, for this article, we will be focusing on the vocalizations some of these animals are able to make using their vocal cords and/or pharynxes, whether for mating and reproductive purposes, territorial, or defense behaviors.

**Frilled Dragon (Chlamydosaurus kingii). © SnakesatSunset.com, Example illustrating a*

mechanical sound created by the frill.

Reptiles and amphibians might never be able to develop and speak as complicated and sophisticated a language as humans, or be able to produce their own CDs, cassette tapes, or other forms of audio media, but they nevertheless, have among the most unique and sometimes surprising and unusual means of vocalizations among animals which very well would be worth such an educational article to learn more about them! Are there any amphibians or reptiles which we didn't think of for this list that make or produce sounds?!

Crocodilians

**American Alligator "Bellowing". © Stephen Reber.*

-Crocodilians, which include the crocodiles, alligators, caiman, and their relatives, are perhaps the most widely vocal of the "non-avian," or otherwise "non-bird" groups of reptiles, having a wide variety of different sets of calls and vocalizations, all depending on the specific age, size, and sex of the animal. Crocodilians may use their vocalizations to defend their territories, signal their distress, and during mating and reproduction. Hatchling and juvenile crocodilians of many species may be well known for their high pitched "yelping" calls to signal their distress and/or when they hatch and are ready to emerge from their nest. Both male and females of some species are also well known for their "bellowing" used to attract mates, or to defend territories. Most crocodilians can also produce hissing, growling, and/or "coughing" sounds for similar purposes as well.

**Hatchling American Alligators and Eggs on Nest. © Shutterstock.*

-Crocodilians are able to make and produce many of these vocalizations by expanding or contracting their vocal chords of their larynxes, which can alter or modify their pitch and frequencies as well. A crocodilian's vocal cords are made up of several different epithelium, glottis, and other muscles and organs. Bellowing in crocodilians is created by inhaling air into their lungs, and blowing or expelling it out in deep, intermittent "roars" or "bellows." During some of these vocalizations, they also adapt specific head, tail, or bodily orientations conducive for producing the sound. They can also create infrasounds, or low frequency sound waves through the air and water, causing the water around them to "vibrate" or "sprinkle," and which is thus commonly referred to as their "water dances."

Frogs and Toads

**American Bullfrog (Lithobates catesbeianus). © Lang Elliott.*

-Frogs and Toads, which are grouped into the order of amphibians known as "Anurans" are another of the more well known "vocal" groups of animals, at least among reptiles and amphibians. Even many who might not otherwise like reptiles or amphibians might find the song of calling frogs pleasing sounds of nature. Most species produce their telltale calls or vocalizations, particularly during their breeding seasons within certain periods of the year, in order to defend territories, signal against potential rivals or intruders of the same or similar species, and of course, to attract mates. Frogs and toads can also make a variety of other calls and vocalizations during other times of the year as well, sometimes to signal territorial displays, and in other instances, as distress calls or as defense to startle predators. Different species, or sometimes different sexes and life stages of frogs and toads can make a wide variety of different calls. They can vary in pitch, intensity, or frequency depending on the specific purpose or situation surrounding their calls. Smaller species of frogs must work harder to expend more energy to produce their calls than larger species of frogs due to their proportions of overall muscle and bodily mass.

**Spring Peeper (Pseudacris crucifer). © TreeHugger.*

-In order to produce these calls or other sounds, most frogs and toads are able to close their nostrils and push, or expel, air from their lungs over their vocal cords located in their larynxes. This air is then pushed, or more forced, over their tracheas and air sacs beneath their chins or throats, thereby acting as a resonating chamber, which magnifies and amplifies the sound produced. Their glottises', which open into their lungs, also modulates the net flow of air and influences their call production. Frogs and toads are one of the few "true" circular breathing groups of animals, meaning they are able to force the air from their air sacs back into their lungs in a circular path. This allows them to call, or "croak," continuously or in succession even while submerged underwater!

Geckos

-When it comes to lizards, most species generally have limited ability to make sounds, although like snakes, many can produce hissing through the expulsion of air over their glottis or epiglottis, and lungs. However, geckos are an exceptionally large and diverse group of lizards which are unique in their ability to make and produce a much wider range of vocalizations than most other lizards can.

**Tokay Gecko (Gekko gecko). © AskNature.org*

-Unlike most other lizards, geckos are able to produce these wide range of calls through having "true," or well developed, vocal cords and pharynxes. Depending on the sex, age, and species,

many can make “barking,” “chirping,” “clicking,” or other vocalizations. Some species of geckos are even named after the sound of their calls, such as the well-known Tokay gecko, which is oftentimes believed to produce calls sounding like “to-kay… to-kay.” Most geckos use these calls to defend their territories, during mating or to attract mates, or in many cases, as a startle or defense mechanism when in distress.

**New Caledonian Giant Gecko (Rhacodactylus leachianus). © Everything Reptiles.*

Many Species of Snakes

-Many species of snakes are able to produce loud and/or raspy sounding hissing as a mechanism of defense against potential threats or predators. They are able to produce these sounds by forcibly inhaling and exhaling air through their glottis, or epiglottis located in their mouths and throats, and other minor musculature acting as “flaps” to control the amount of air intake and outtake.

-Can some species of snakes also “growl?” The answer to this question is yes, some certainly can! Perhaps the most well known example are King Cobras (Ophiophagus hannah), although other species can as well. Species of snakes which can “growl” do not do so in the same way a dog or cat might, as their larynxes are small, and snakes lack vocal cords. Despite this, a sound similar to growling can be produced through hissing, and when air passes through the glottis/epiglottis, and the lungs are vibrated.

**Bullsnake Hissing (Pituophis catenifer sayi). © MTPR.org*

Some Turtles and Tortoises

-Turtles and tortoises, sometimes collectively known as “chelonians,” are a group of reptiles which generally lack vocal cords, and are a group which we oftentimes might not think of being capable of producing sound. However, they can still create hissing sounds through the rapid or forcible expulsion of air through their jaws and/or shells. Some species, such as tortoises, can also create higher pitched “wheezing” or “whining” sounds during mating or reproduction, which are similarly created due to the passage of air through their lungs.

Some Species of Salamanders

-Salamanders are another group of amphibians which are generally mute, and often ones which we do not think of as capable of making any sounds. However, there are at least some species of more aquatic salamanders with neotenic features (such as having gills, and living a more aquatic lifestyle into their adult stages) which are sometimes capable of making “clicking,” “squeaking,” or “barking”-like sounds as a defense mechanism or when distressed. This is most likely caused by the expulsion of air from their lungs, as these salamanders lack “true” vocal cords. Oftentimes, these sounds or behaviors are reflected into the species’ common names, relating to the sounds puppies or dogs make, such as “Common Mudpuppy,” “Water Dog,” or sometimes other names such as “Siren.”

**Common Mudpuppy (Necturus maculosus). © National Geographic.*