The Photographer's Guide to

AMPHIBIAN PHOTOGRAPHY

WILDSTOCK™ Photography

A Fascination with Amphibians

Amphibians are among my favorite subjects to photograph. I was drawn to these subjects during my early years in college while working on a special project, a book on amphibians and reptiles. It didn't take much to get me hooked on one of the most rewarding types of photography. Shooting amphibians can be challenging at times. These slimy subjects are mostly nocturnal and hard to find as they move through vegetation or the forest floor. With a field of view of nearly 180 degrees, frogs can see us way before we see them, making them hard to approach. But with patience and some techniques we can successfully capture some amazing images of frogs, salamanders and other amphibians. To successfully capture these subjects in their full splendor, one must learn to work in the dark, in high humidity and under the attack of blood-thirsty insects.

With nearly 8000 species worldwide, the Class Amphibia is divided in three Orders. The Order Anura contains all the frogs and toads, the Caudata, the salamanders, sirens and newts, and the Gymnophiona, the caecillians. That means you'll have plenty of subjects to shoot, and the best part is they can be found almost anywhere except on extremely dry or cold environments. Because of their semi-permeable skin, most amphibians will feel at home near water, in moist environments and on rainy days. I enjoy driving on rainy nights to search for amphibians to photograph. The first rains of spring and early summer are the most productive. Many amphibians are prolific and opportunistic breeders that will emerge in big numbers with the first rains. Some, like the Spade-foot Toad, have spent most of the year underground, only coming out to breed during the first rains of the year. These events offer great opportunities for the nature photographer to capture the life cycle of these species. Sometimes you don't have to travel far to find amphibians; your backyard may offer enough places for them to live specially if you have a water feature like a fish pond or fountain.

Ethical Amphibian Photography

I would like to share some ethical rules for shooting amphibians. First, risking the welfare of your subject is not worth an image. A basic knowledge of the subject's needs and behaviors goes a long way when trying to photograph these difficult subjects. I have experienced nature guides picking up nocturnal frogs such as the red-eyed treefrog in the middle of the day, just to show their tourist clients the beauty of this species. I find that extremely disturbing for the animals and unethical. Many of the pictures we find online of this frog were taken in plain daylight, a time when the frogs are to be resting and preventing water loss. With that said, I prefer to photograph diurnal frogs such as poison dart frogs during the day and nocturnal species at night. The process of taking their pictures during their most active period will reduce stress and will allow you to capture their most natural behaviors.

This brings another great dilemma as many naturalist guides oppose the use of flash when shooting frogs at night. They are quick to suggest the use of a flashlight or continuous light instead of a flash, claiming the flash burns the eyes of the frog making them blind. Here's a quick and easy explanation. Continuous light will impact your frog much more than a flash. The flash duration is so fast that the frog's eyes don't even have to adjust to the change in light intensity. On the same token, using a flashlight on a frog even for a short period of time will only cause it to shut down, close its eyes and go to sleep. Want to know the difference? The continuous light of the flashlight is perceived in the same way that sunlight is perceived, but the quick flash produced by the flash is so short in duration that it produces little response on the frog. Now with that said, if you continue to flash the subject over 20 times in 5 minutes, that same frog will close its eyes and go to sleep the same way that if you had used a flashlight on it for one minute. Bottom line, it's about knowing when the subject is being affected by the light and when to stop. The best amphibian conservation groups actually do not oppose the use

of flash, but rather leave that decision to be made by the conscious photographer based on their subject. In my experience, nocturnal frogs will be the most affected by prolonged use of flash, and their first response is to shut their eyes. If you notice this behavior, it's time to move on and find another subject.

Another debatable topic is whether the subject or any elements of the scene could be manipulated. While the photographer's intention should always be to minimize the impact on the subject, one must admit that there are times when handling the subject is necessary. In this case it's important to know well the biology of the subject and what can cause it harm. It's often possible to move your subject without physical contact. A stick or a leaf could be used to move them to a better position. If handling is necessary, some basic rules should be followed to reduce and avoid any stress or harm to the amphibian. First, their skin is highly susceptible to fungal infections and to the absorption of substances on your hand, therefore the use of insect repellents or sunscreen is forbidden. In fact, the best way to handle them is using powder-free Nitrile gloves which should

be replaced for every individual handled to avoid passing any disease from one specimen to another. The chytrid fungus has caused a global amphibian decline and it's easily transmitted by contact, therefore all measures are to be taken to avoid the spreading of the disease. It goes without saying that amphibians do not enjoy being handled, and will soon show you their level of distress by changes in color or shutting down, no good for images.

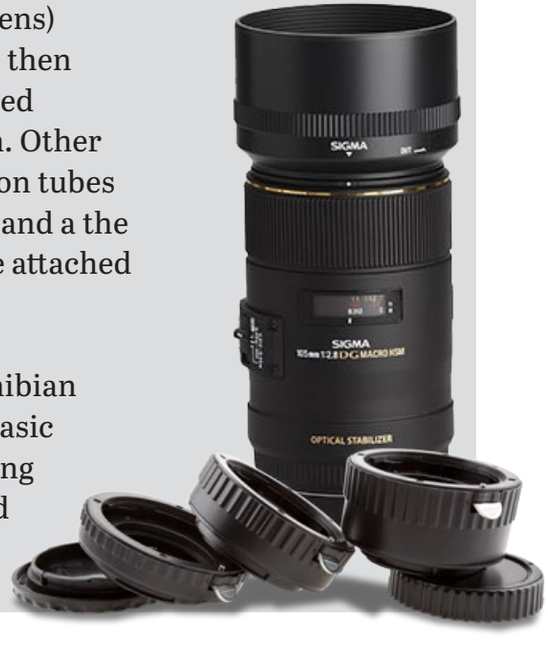
The Gear

Shooting amphibians successfully can be done with almost any standard lens, but if you want to get the best, I will suggest a macro lens. There are several reasons for the use of a macro lens. First of all, most "true" macro lenses allow you the right magnification for the tinniest amphibian subjects, but it also allows the closest focusing of any lens. Another advantage is that most of them have a maximum aperture of f2.8 which comes very handy under low-light conditions. If using a non-macro lens then some other source for magnification must be used. Either an extension tube or a macro diopter could be used, but the results will vary depending on the quality of the lens being used or the diopter.

Extension tubes are great when one can't afford the expense of a dedicated macro lens, but they are cumbersome to use and require more patience that most people have. Additionally the light fall-off from these hollow tubes can cause havoc when used in combination with flash. Therefore, if doing plenty of macro work such as flowers, insects or reptiles is well worth it to have a dedicated macro lens. Since extension tubes reduce the minimum focusing distance, you can actually use it on a telephoto lens such as a 300mm f4 to get fantastic close-ups with more than adequate subject to lens distance. In fact this is my preferred method for shooting larger frogs in their water habitat like bullfrogs and leopard frogs.

A "true" macro lens offers you the most practical way to shoot amphibians. If coupled with TTL (Through The Lens) flash and ambient light metering, then your exposures will be compensated with any changes in magnification. Other options include the use of extension tubes which attached between the body and a the lens and close-up filters which are attached in front of the lens.

Anybody wanting to get into amphibian photography should start with a basic extension tube setup before shelling hundreds of dollars on a dedicated macro lens.



Now, not all macro lenses are created equal. A "true" macro lens allows you magnifications up to 1x or 1:1 ratio. A regular lens with macro capability usually only allows about 0.33X or a 1:3 magnification ratio. The advantage of the true macro lens is the quality of the optics combined with a fairly wide aperture, usually f2.8. This allows for brighter image in your viewfinder and better autofocus response due to the increase of light passing through the lens. Dedicated macro lenses come in various focal lengths 30mm, 50mm, 90mm, 100mm, 150mm and even a 180mm. The main difference between these lenses is the minimum focusing distance (MFD) or the closest distance at which the lens can focus on a subject at 1:1 magnification. The MFD is measured to the focal plane mark on the camera. This in turn affects the minimum working distance of the lens, or how close the front element of the lens will be to the subject. This distance will vary according to the magnification. The more magnification the closer you will have to approach the subject on any particular lens.

How is this important? Depending on the type of subject you are photographing is the safe distance you can keep before spooking it. Butterflies may not allow you too close therefore a 50mm macro may not be as effective as a 180mm to capture these fleeting subjects.

Another feature to consider is image stabilization. While many macro lenses are available with this feature, it's benefit does not always justify their high price, especially if shooting amphibians at night, when artificial light must be used. The speed of the flash duration will be more effective on preventing lens blur than the image stabilizer. When shooting under these conditions a tripod is not even necessary and your shots can be hand-held.

A flash may be the second most important tool in amphibian or macro photography. Even with the right lens, you will soon find out that lack of light can be a challenge when photographing these small subjects. First, because of their nocturnal nature, and second, most of the diurnal species are found under the canopy of trees where light is extremely low even in the middle of the day. The flash you select must provide fast recycling times and enough power to allow taking photos with extremely stopped down aperture to increase depth of field. It's not unusual to shoot at f16 with a low ISO setting when shooting amphibians. Wireless capabilities are great, but not always reliable when shooting so close to your subject, so this feature is not as important to have. What is important is to have a way to hold your flash at an angle away from the axis of the lens to create a more natural light effect on your subject and to free your hand to help in holding the camera with two hands. For this I use a custom-made macro bracket. Additionally, a diffuser could be used to soften the light produced by the flash.

Focusing Technique

Focusing will be achieved by means of a combination of the autofocus system and moving your camera back-and-forth until the sharpest focus is obtained in the viewfinder.

I prefer to use the autofocus mode set to single AF using the back-focus button to obtain general focus then release the button and

make small focus adjustments by simply moving the camera back and forth to set the focus plane right where I want it. I always look to have the eyes as sharp as possible even if the tip of the nose is a bit out-of-focus. At the end, the viewer will make contact with the eyes of the subject first. The above mentioned technique is commonly use on macro photography when tripods and other macro equipment such as a focusing rail cannot be employed. A quick way to ensure your subject is in focus is to use the AF sensor selection placed over the section that you are trying to focus on.

Now if you are working with cooperative subjects (those that don't jump out of the frame at first sight of danger) then you may be able to use a tripod with a focusing rail and even attempt focus stacking, but that rarely happens with amphibians. Shooting in very dark conditions could be really challenging for your camera's AF system. You can use the focus assist illuminator on your camera or flash, but it tends to be useless for close focusing subjects as the light is projected beyond the area needed in focus. Your best approach is to use an accessory light, meaning a continuous source of light such as a mini LED flashlight. This source of light should be attached to your camera rig in a way that projects the light in front of the lens and towards the subject. This light does not need to be too intense, but sufficient to allow for full AF and to avoid changing the subject's behavior. A red light will be even better as it will prevent the frog from closing their eyes in response to the light.

Lighting

In most instances, your amphibians are going to be found under low light conditions on forest floors or even at night, when natural light is low or non-existent. Our only choice here is the use of artificial light. While most of us are familiar with flash, there are other sources of artificial light that could be employed including daylight-calibrated LED light panels. These are great when shooting videos, but not as effective when doing stills. One reason, they are bulky and heavy as they carry their own battery and the light intensity does not provide enough light to stop-down the lens to small apertures for increased depth of field. Another reason is that because it's a continuous source of light, many amphibians will react to this constant light more than to the short duration of the flash.

As with any light source, diffusion is the key to obtain soft shadows and increase the light coverage while decreasing contrast. Be aware that if you use a really big diffusion such as a 10 inch softbox, you should expect a large reflection on the shape of the softbox in the eyes of the subject. This is more noticeable the closer you get to the subject. For a more natural effect, you could use a round softbox rather than a rectangular one. It will be easier to remove this reflection in post-processing.

Now, as it is the case when using flash for any other type of photography, you must be ready to make flash exposure compensations. Flash light is metered in a similar way to continuous light, therefore differences in the subject reflectivity versus background is going to fool the flash meter, therefore you must be prepared to dial down exposure compensation. This can be easily

done via the flash menu or directly within the camera by means of the flash compensation button. Whichever way you do it, make sure to always use the same method. In many cameras, dialing compensation in the flash and simultaneously on the camera will only cancel out each other. Say you dial -1 stop in the flash and +1 stop via the camera, your resulting exposure will be 0 flash compensation.

Since flash units are like a little source of sunlight packed in a nice plastic casing, you can really put a lot of light in a short period of time allowing you to use almost any shutter speed you want if your camera and flash support high-speed synch. If your camera does not support it, then your fastest shutter speed when using flash will be the x-sync. Shooting at night or under really low light conditions, shutter speed is not as critical, as the exposure will be made strictly by the light coming from the flash. But if you are shooting diurnal frogs in a pond such as a pig frog or a bullfrog, you can still use flash to fill-in, but care must be taken to use the right shutter speed to render the exposure of the available light correctly. Nothing more discouraging than a daylight image that gives away the use of flash because the shutter speed was so fast that it barely captured the available light.

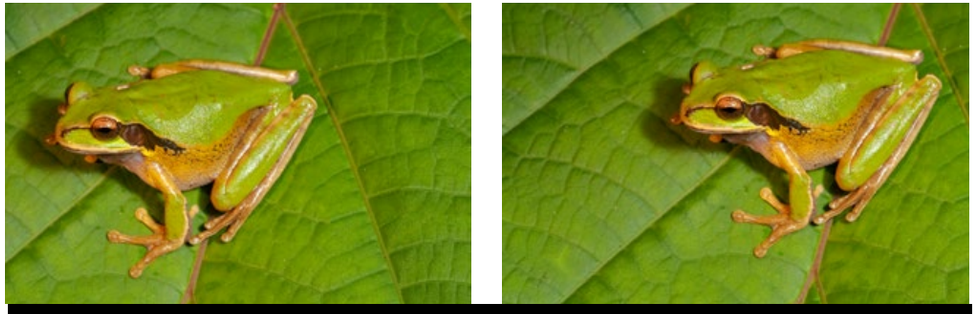
If the choice is given between a standard flash head and a ring flash, the first one will produce more natural light. Ring flashes produce flat light and leaves your amphibians with a doughnut-shaped eye reflection. Another important factor in the use of flash is diffusion. Because most amphibians are moist, using direct flash without any diffusion will create excessive highlights on the skin. To mitigate this problem, I use a small on-camera flash softbox diffuser. This will not only reduce highlights, but also soften the shadows around your subject. There are several options to diffuse the light from your flash including plastic diffusers that snap on the flash head, bouncing diffusers and my favorite, the mini-softbox. Learning to use the flash correctly is an asset for any type of photography, but a big plus in amphibian photography.

Controlling the Background

Obtaining non-distracting backgrounds when shooting tiny subjects can be challenging, but with a little ingenuity and patience this can be easily solved. Sometimes just changing the angle to include the leaf where the frog is sitting is enough to provide a pleasant backdrop. When that is not available, we can resort to holding a leaf far behind the subject to render it out-of-focus enough to create a subtle backdrop while adding some natural colors to the background. Occasionally when doing a lot of macro work, I travel with several 8x10 prints of out-of-focus-backgrounds that can be easily positioned behind my subject. This is something that is easily done if you have an assistant to hold the background while you compose the shot, but a tripod and a flexible arm with a clamp could be used to hold the printed backdrop. Sometimes when working with small subjects I use a large leaf to serve as backdrop. For the most part, careful observation of the location where the subject is found may give you

a clue of which angle to shoot to create a more pleasant background. Moving the camera while looking through the viewfinder may help you find the best angle to reduce your subject from blending into the darkness or avoid a crowded and competing background. Dark backgrounds on nocturnal photos are acceptable, but it may cause your subject to blend in with the darkness. This is specially true with darker amphibians. In such situations, a second slave flash could be used to create a side-light effect to separate the subject from the background.

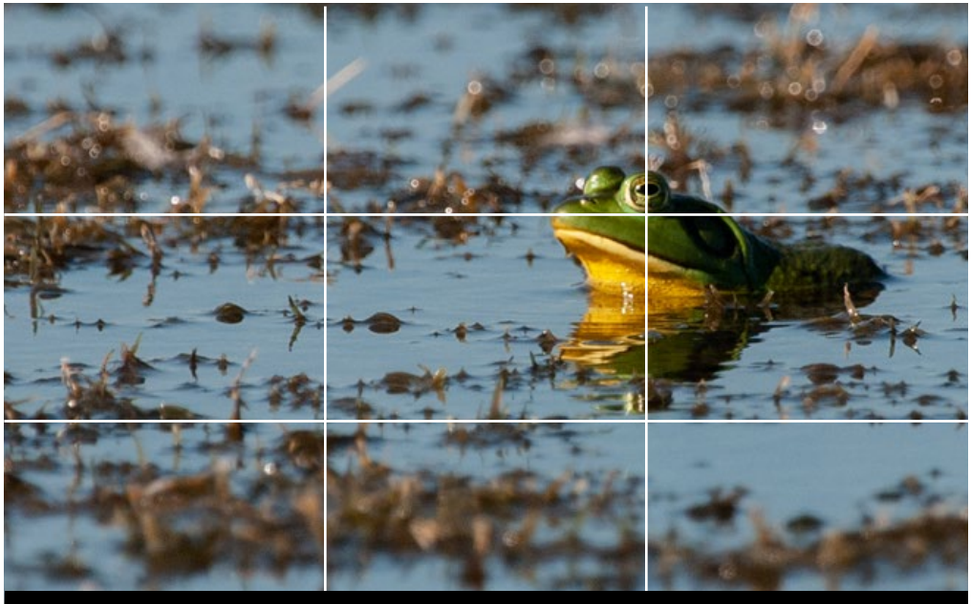
When it comes to exposure, I prefer to use TTL for both the ambient light as well as for flash exposure. Just keep in mind that flash exposure via TTL can be fooled the same way that ambient TTL exposures are fooled by background reflectivity. If your subject is light colored and the background is dark, your flash is going to overexpose your subject as the camera tries to fill the dark background with light. Most of the time I have to dial negative exposure compensation on the flash to prevent over-flashing the subject when working in the darkness of the night. Another method that I use is keeping the flash in manual mode and dialing the right power for the subject being photographed. That way as long as I keep the same flash-to-subject distance, the exposure will not be in any way affected by background reflectivity. Remember the flash intensity can be adjusted in fractions of power where: 1/1 means full power then 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128. Each fractional step is considered -1 stop or half the amount of light of the previous step. When shooting with available light and flash combined, I always try to balance the flash and ambient exposure for a more natural look. Basically, I meter for the ambient light exposure then add flash compensation if needed. In most cases I end up reducing the flash exposure quite a bit from the TTL exposure value, just to create a fill rather than a full flash exposure. When shooting in the dark then the flash becomes my main light source, therefore shutter speed is not as critical as when shooting in daylight.



On the left the subject seems to be constrained by the end of the frame and the negative space behind. On the right image, the subject location is more relaxed and the weight of the composition is balanced with the negative space in front of the subject. Additionally the diagonal veins on the leaf serve as strong guiding lines towards to the subject.

Composition & Cropping

There are really no good or bad compositions, but some are more effective than others in drawing the eye to the subject. A pleasant composition will make a good use of positive and negative space. Consider the positive space to be the subject and the negative the background. As a rule of thumb, you want to face your subject towards the inside of the frame rather than towards the outside. Leave enough space in front of the subject to avoid a constricted look and allow the eyes to find a place to rest after focusing on the main subject. When shooting amphibians, one must not get too carried away shooting tight compositions. Environmental shots are also very attractive and important to give the viewer a better idea of the subject's preferred habitats. Wider shots are also very practical as they provide more room for post processing cropping. Perhaps a wide image could be used in portrait or landscape format which is highly desired by magazine editors. Whenever presented with the opportunity to capture both formats in-situ, do it. One of the basic rules of composition in photography is the Rule of Thirds, in which the frame is divided in three sections both vertically and horizontally to form a grid. The best practice is to place the subject at the intersection of any of these lines. But the rule is not fixed on



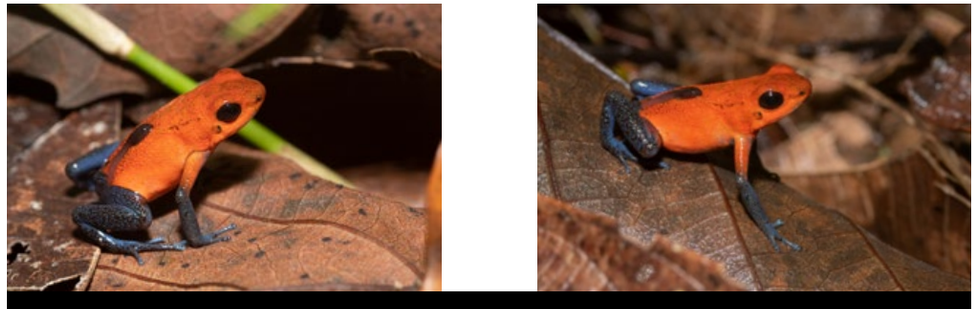
Whenever possible try to adhere to the rule-of-thirds when composing wide or environmental shots like the one above. It produces a well balanced composition with plenty of room for the viewer to rest the eyes.

stone, and sometimes you as a photographer will challenge it with an unusual composition.

When working with extreme close ups of the subject, perhaps you concentrate on the eyes and the rest of the body becomes the background. If the subject is partially cropped out of the frame, make sure the lines exiting the frame will never touch. Exiting lines that intersect will trick your brain to try to complete the image outside of the frame. That can distract the viewer's eye, moving away from the subject while trying to recreate the cropped out area of the subject.

Contrary to birds and mammals, frogs are not extremely fast subjects, they spend most of their time waiting for a meal to come within range or moving slowly through the vegetation. In order to make the shots more dynamic, wait for the subject to be in a diagonal position on the frame or tilt the camera a bit to achieve a similar effect. Some of the most effective amphibian images are those that

When cropping a subject that extends out of the frame, make sure that the lines leaving the frame never touch. Ignoring this simple rule causes our brain to try to complete the image by following the exiting lines, distracting from your image.



The image on the left is not as dynamic as the one on the right. This is because the there's a strong diagonal on the image on the right that implies motion. This can be achieved by tilting the image a bit in post-processing.

capture the subjects nature, like a pair of mating red-eyed treefrogs, or two poison-dart frogs in a territorial battle or an hourglass frog calling with the vocal sac inflated. Always keep in mind not to interfere with their activities or expose them to conditions that could be detrimental. There's a reason why I prefer to photograph diurnal frogs during the day and nocturnal frogs at night to reduce stress and possible dehydration. Frogs are extremely delicate and should be treated carefully as their skin is permeable and highly susceptible to absorb toxins from your hands. Now go and shoot some frogs!!!