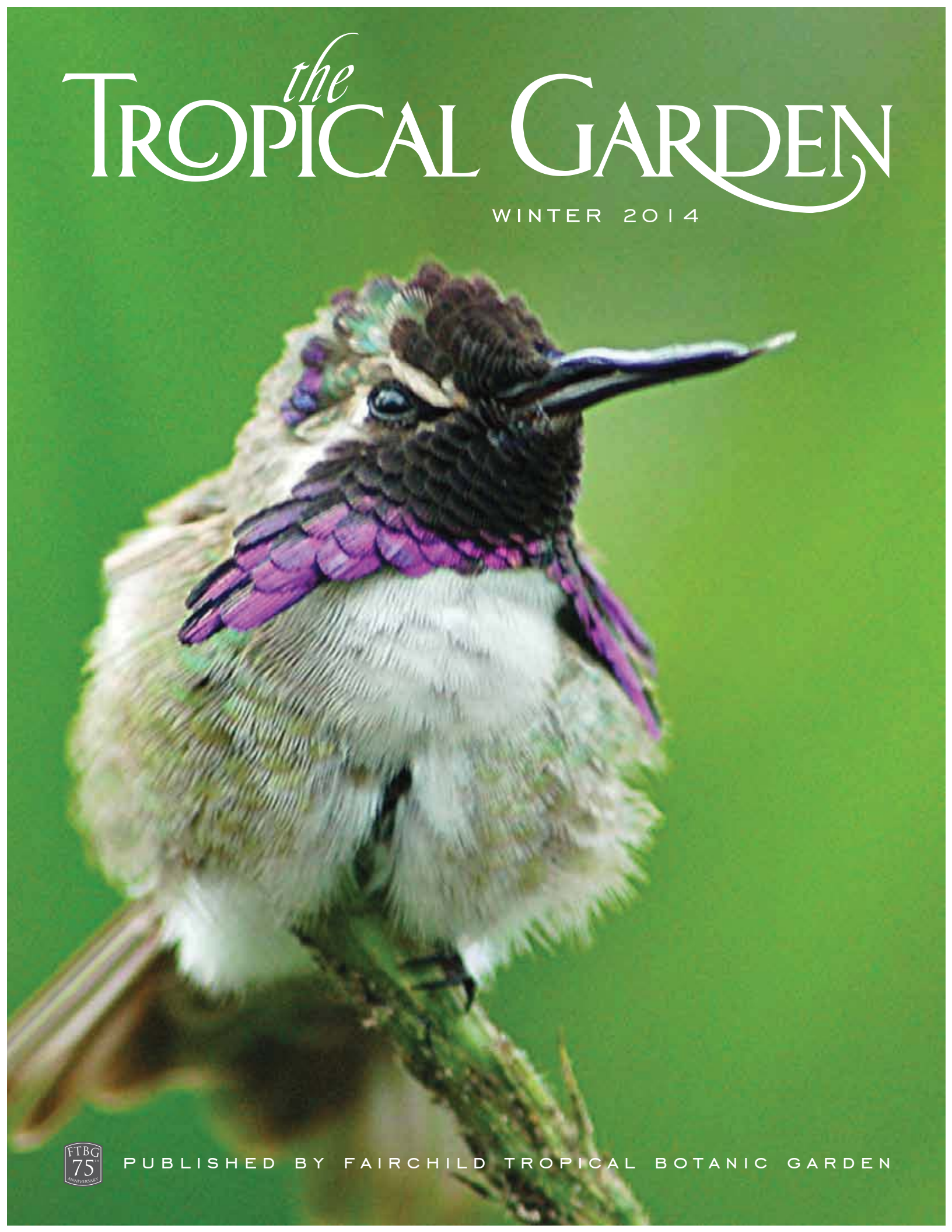
the TROPICAL GARDEN

WINTER 2014



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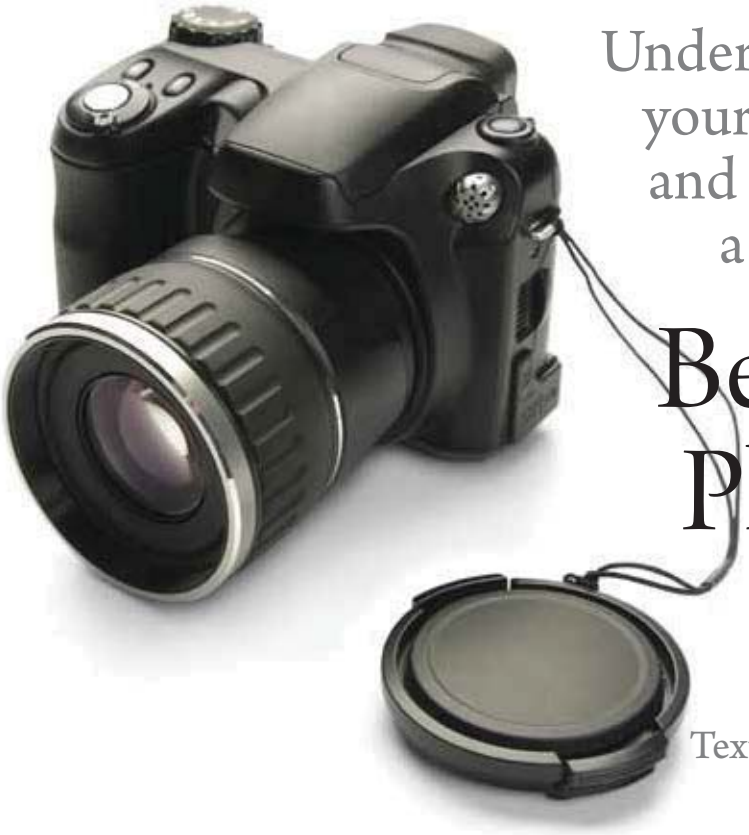

Understanding and controlling your camera's shutter speed and aperture size can make a world of difference.

Better Garden Photography

The Basics

Text and photos by Kenneth Setzer

Gardeners share many traits—patience, love of nature, an appreciation of the bigger picture. They usually love sharing that big picture as well. Many gardeners appreciate photography, if only to share what they've grown with others, online or in print.

Whether you shoot with an SLR, point-and-shoot or cellphone camera, understanding some fundamentals of how a camera works can improve your photos. This way, the mechanics of photography won't get in the way of your creativity and spontaneity, because we all know the frustration of missing that perfect shot, or even worse: getting the shot, but spoiling it because you didn't know quite how to achieve technically what your mind envisioned.

Shutter and aperture

Two important variables are involved in determining how light gets into a camera and is recorded onto the film or digital sensor as an exposure. These are the shutter speed and aperture size, the latter of which is expressed as an "f-stop" number, such as f/5.6. At this point in photography, most people's eyes start to glaze over like they might in a math class. As it turns out, eyes are a great way to analogize how a camera works.

A camera's shutter controls the duration of time for which light enters the camera, for example 1/100th of a second. The aperture—the opening within the lens—determines *how much* light enters the camera while the shutter is open. Think of the shutter as your eyelid—you can open it for a split second before closing again, or hold it open much longer (luckily cameras don't get dry eyes). The aperture is analogous to your pupil—the larger the opening is, the more light can get in during the time the shutter is open. Although it is confusing, a larger aperture is indicated by a smaller f-stop; so, for example, f/2.8 is a larger aperture than f/5.6

Why is it important to know this? Because even if you shoot in auto mode, you should know what makes that spectacular photo you took so great—or not so great. This way, you can replicate the settings and reproduce what you like, while avoiding what you do not. Eventually, you will want to start experimenting with manual settings, which, unlike full auto mode, allow you to control the exposure without leaving it up to the camera to do the "thinking."

Freeze the action or capture time

You know those tack-sharp shots of an athlete in midair, where you can see every detail and expression on her face? Those types of images, in which time seems to have been frozen, were most likely taken with a very fast shutter speed, probably 1/100th of a second or even much faster. And those photos with lots of motion blur that seem to capture a stretch of time rather than a fraction of it? The shutter may remain open for those types of shots for many seconds, quite a long time to a camera. Many photographs with moving water employ this effect, resulting in a waterfall, stream or ocean waves that look all misty and dreamy.

Image sharpness, depth of field and aperture

Depth of field (DOF)—sounds esoteric, but it's really quite simple. DOF refers to how much of the image is in focus in front of or past your focal point. For example, if you focus on a fern frond, is the tree off in the distance also in focus, or is it blurred? Are elements closer to the camera than the fern frond in sharp focus, or not? If a photo has most of its contents out of focus (not including what you actually focused on), it's referred to as having a narrow or shallow DOF. The opposite, when much of an image is in focus, is called a broad or deep DOF.

You may have seen examples of DOF used artistically in a portrait photo; many portraits employ a narrow DOF so that a person's eyes and face are in sharp focus, but the background is completely blurry. This trick can serve you well in garden photography when you want to focus attention on a particular part of a plant, like its flower, while blurring out a distracting background. The aperture (opening) mentioned above comes into play here. While a larger aperture admits more light, it also decreases DOF. It's confusing at first, but a larger aperture is indicated by a smaller f-stop number. So f/2.8 is a larger aperture than f/5.6. A smaller number means a larger aperture which means less DOF.

Putting the variables into play together

Now think of shutter speed and aperture together. They have a give-and-take relationship. They don't really care if you have a sharp scene, or blur, or motion. Their relationship needs to focus on letting in the proper amount of light to make a good photograph (as determined by the camera's light meter). They don't care if the shutter can only remain open for a split second and the aperture has to open up. Or maybe the shutter will remain open for many seconds, and to make sure the photo doesn't get overexposed, the aperture will need to shrink to a pinpoint. When your camera is in any kind of auto mode, its main concern is which partner has to do what to make a proper exposure.

BELOW
Shutter priority mode: Setting the shutter to 1/8 of a second was the quickest possible in this low-light area. The camera adjusted the aperture to f/3.5. Not much depth of field, but the water's movement is frozen. (1/8 sec., f/3.5)

BOTTOM
Shutter priority mode: Set to use a very long four-second shutter, the camera was able to go to an aperture of f/20. Extreme depth of field, and the waterfall appears misty. (4 sec., f/20)

To get the most out of your camera, try switching out of full auto mode. Your SLR or point-and-shoot camera should have a dial with symbols on it indicating what shooting mode you are using (cell phone camera apps may offer some of these controls). Often the full auto mode is indicated by a green rectangle, but we're going to go beyond that. While manufacturers differ in how they indicate shooting modes, the functions are usually the same. Try switching the dial to shutter mode, often indicated by "S" or "Tv." This lets you choose the shutter speed, and the camera has to figure out the correct aperture to maintain a good exposure—not letting in too much light, resulting in overexposure, while not letting in too little. This is great, because you can do things in shutter mode like set the shutter to stay open for a half second, and the aperture will change accordingly. Just try it while looking at your camera's display. You'll see the numbers changing. Now, with your camera on a tripod, you can take a photo of running water, and get that misty effect. Or go the other way: Set the shutter to something fast like 1/250 (one 250th of a second) and take a shot of a plant that might be swaying in a breeze. With a fast-enough shutter, you can freeze it, or you could catch something like a hummingbird at your feeder. Of course, there are limits—sometimes it might just be too dark for a fast shutter speed, even with the aperture fully open. The camera's display will flash the shutter speed or aperture number to warn you that it can't make the proper exposure with its current settings. When that happens, you'll need to slow the shutter speed and use a tripod to avoid unwanted blur from camera shake. Using a flash might help in this case also, but the results can be disappointing.

Instead of shutter mode, you can use your camera in aperture mode, probably indicated by an "A" or "Av." This mode lets you change the size of the aperture while the camera automatically adjusts the shutter speed. The biggest and smallest f-stop you can achieve is determined by the lens. If you have an interchangeable lens camera, the lowest f-stop (i.e. largest aperture) will be different depending on what lens you are using, and if it's a zoom lens, it even differs as you zoom! Manufacturers will tout their "fast" lenses, which means they are capable of a large aperture and therefore can attain a good exposure using a fast shutter speed in low-light conditions—an attribute commanding higher prices.

I used to force myself to shoot in complete manual mode so that I had to set both the shutter speed and aperture. I got a ton of lousy photos, but in the process I learned a lot about what works and what doesn't. Play around with the shutter and aperture settings and see what you get! If it's digital, it won't cost you a thing to become a better photographer.

LEFT (T-B)
Aperture priority mode: Dialing in an f-stop of f/18, the camera automatically set the shutter to a pretty long 1/8 of a second, even though the lighting was bright. (1/8 sec., F/18)

The same shot set to f/3.5. With that large of an aperture, the shutter was able to go to a quick 1/200 of a second. Note the distracting background is nicely blurred, an example of a narrow depth of field. (1/200 sec, f/3.5)

More tips for garden photography

- Use a tripod whenever possible to avoid unwanted blur from camera shake. Even steady hands aren't as solid as an inexpensive tripod.
- Avoid bright sunlight. It creates unwanted shadows and can render a bright flower as too "hot," meaning its color is so intense that its details aren't captured. The diffused, warm light of sunrise and sunset are great times for outdoor photos. Bright, cloudy weather is also ideal for capturing flowers up close.
- Remember that the closer you get to your subject, the more camera shake and factors like wind moving the subject are likely to cause unwanted motion blur. Have patience, use the fastest shutter speed possible and use a tripod.