

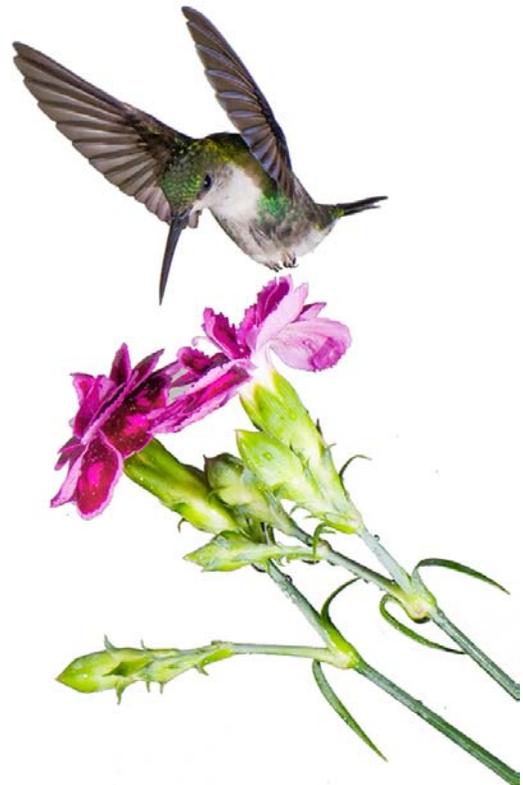
The Hummingbird Guide Update March, 2009

Thank you for purchasing The Hummingbird Guide. I hope that you have found it helpful and that you are enjoying capturing the beauty of hummingbirds and other fast-moving subjects with your multiple high speed flash set-up.

I will be sending you updates from time to time. Many of you have taken the time to e-mail me to share your beautiful hummingbird images, ask questions, or let me know of problems you have experienced as you worked at perfecting your lighting set-ups. Your feedback is important to me and helps me know what topics I should cover in the updates. I enjoy hearing from you. Feel free to e-mail me at lindaasart@aol.com any time.

Warmest Regards,

Linda Robbins



Work in the shade

I go to great lengths to find a location in the shade where I can place my set-up as it makes my life simpler. You should do the same. If your set-up is in the open you may have to contend with bright sun or with changing lighting conditions; either makes multiple high-speed flash photography more challenging. Working in bright sun will not cause any problems as long as you remember that the manual exposure that you set should be two to three stops darker than the metered ambient exposure. (Note: if you lower your ISO to get to the 2-3 stops under the ambient you will need to move your flashes closer in order to properly expose the bird and the background.)

Testing your set-up

Once you have your set-up in place and the birds are coming in, make several images and then download your card. Seeing the images on your laptop will help you to determine if your lighting is good or if you need to adjust the position and/or the aim of one or more of the remote flashes.

Some hummingbird addicts have devised clever methods of testing their set-ups even when they have no birds available. Melvin Grey lives in England; unfortunately, there are no hummingbirds there. Melvin was readying a set-up for an upcoming trip to the Asa Wright Nature Center in Trinidad to photograph hummingbirds, and wisely wanted to test it before the trip. He borrowed a small Postman Pat figure from a friend's son (with assurances that he would return the toy unharmed). After the addition of a few feathers from his fly tying box, he had his hummingbird stand-in.



“Airmail” set-up test
Image Copyright 2009: Melvin Grey

Melvin’s test shots with Postman Pat confirmed that his remote flashes were well positioned, that they were lighting his subject evenly, and that his artificial background was lit well by the single background flash he used.

Take a look at few of the wonderful images Melvin returned home with from his first experience with his hummingbird flash set-up.



Copper-rumped Hummingbird. Pax Guest House, Trinidad
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens and a Canon 1D Mark III mounted on a tripod.
ISO 800. Manual mode: 1/200 sec. at f29. Five flash set-up at 1/16
power. Wireless flashes triggered by homemade 'off camera flash cord'



Green Hermit, female. Pax Guest House, Trinidad
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens and a Canon 1D Mark III mounted on a tripod.
ISO 800. Manual mode: 1/200 sec. at f29. Five flash set-up at 1/16
power. Wireless flashes triggered by homemade 'off camera flash cord'



White-chested Emerald. Trinidad.
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens and a Canon 1D Mark III mounted on a tripod.
ISO 800. Manual mode: 1/200 sec. at f29. Five flash set-up at 1/16
power. Wireless flashes triggered by homemade 'off camera flash cord'



White-chested Emerald. Pax Guest House, Trinidad
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens and a Canon 1D Mark III mounted on a tripod.
ISO 800. Manual mode: 1/200 sec. at f29. Five flash set-up at 1/16
power. Wireless flashes triggered by homemade 'off camera flash cord'



Tufted Coquette, male feeding in flight. Asa Wright Centre, Trinidad
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens plus TC2, Canon 1D Mark III mounted on a tripod. ISO 1250. Auto mode, 1/1000 sec. at f10. Canon flash with 'Better Beamer' set to minus 2



Tufted Coquette, male. Asa Wright Centre, Trinidad
Image Copyright 2009: Melvin Grey

Canon 500mm f/4L IS lens plus TC2, Canon 1D Mark III mounted on a tripod. ISO 1250. Auto mode, 1/125 sec. at f8. Canon flash with 'Better Beamer' set to minus 2

Melvin experienced some of the problems that are common in hummingbird photography such as a persistent guarding bird, lots of wasps, and lodge-owned feeders that were very large with numerous perches. The Guide contains solutions to many of the difficulties you may encounter, so read through it carefully.

Melvin also said, *"I found the Hummingbirds' movement so fast and unpredictable that, as I was trying to obtain as large an image as possible in the frame, I frequently ended up with 'bits of Hummingbirds' but it was all great fun and, when you do get a reasonable result, it makes it all worthwhile."*

I think you will agree that Melvin's results were more than reasonable!

Re-position your flashes after making changes to the set-up

Every time you make a change to your set-up such as removing the feeder and replacing it with flowers or moving the feeder higher or lower, left or right, you will likely need to realign and re-position the flashes.

Get in the habit of putting your eye right next to the flash head so that you can aim it at the target zone just in front of the feeder tube or flowers where you expect the hummingbirds to hover. You may also need to move the flashes forward or back a bit.

Let's say that your feeder is hung near the right edge of your background as you look through your camera and the birds are approaching from the left. You remove the feeder and replace it with a very large flower held in place by a Plamp. The flower may now be 5 inches closer to the flashes on the left side of the set-up, so the new target zone will also be 5 inches to the left. If your remote flashes had been 26 inches from the feeder, the flashes on the left would now be only 21 inches from the target zone and the flashes on the right would be 5 inches farther away from your subjects at 31 inches. If you do not reposition the flashes to the original distance of 26 inches, the birds will not be properly lit. You might find that the hummingbirds' backs or their backswept wings are over-flashed while their faces and breasts appear too dark.

Get into the habit of carefully checking the aim and position of all your flashes every time you a change to the set-up. Careful flash positioning is crucial if you wish to create pleasing, evenly lit images of hummingbirds.



This image illustrates some of the problems that may occur as a result of poor flash placement. The near wing and flank are over-flashed and there is shadowing along the head, back, and far wing.

Attention to Detail...

Hummingbird addict Peter Hawrylyshyn of Toronto, Canada recently returned from a hummingbird photography trip to Rancho Naturalista Lodge in Costa Rica. Peter wrote, *“With your help (via the Guide and by e-mail) I didn’t have too much trouble with the basic set-up. I quickly realized that it’s the “finer” details in the set-up—making sure that the lighting is balanced, finding flowers the hummers like, resetting and double checking all of the settings after changing the flash batteries, and securing the set in windy conditions—that are the ultimate challenge. This makes the whole experience more fun and more rewarding. I did learn a lot by applying*

what I learned from your Guide. I was often amazed at how a single sentence solved a problem that had been confronting me: setting the flashes to 50mm so they aren't too strong; dealing with guarding birds like the Red-footed Plumeleteer that took over a feeder at Rancho; and coping with wasps at the feeders. It's all in the Guide!"

Here are some of Peter's excellent images.



White Necked Jacobin - male. Rancho Naturalista , Costa Rica.
Image Copyright 2009: Peter Hawrylyshyn

Canon 400 mm f/4L DO IS lens and a Canon 50D mounted on a tripod.
ISO 400. Manual mode: 1/250 sec. at f20. Seven flash set-up. Five remote flashes and two background flashes triggered with an ST-E2



Green Breasted Mango - Female. Rancho Naturalista , Costa Rica.
Image Copyright 2009: Peter Hawrylyshyn

Canon 400 mm f/4L DO IS lens and a Canon 50D mounted on a tripod.
ISO 250. Manual mode: 1/250 sec. at f18. Seven flash set-up. Five
remote flashes and two background flashes triggered with an ST-E2.



Crowned Woodnymph - Female. Rancho Naturalista , Costa Rica.
Image Copyright 2009: Peter Hawrylyshyn

Canon 400 mm f/4L DO IS lens and a Canon 50D mounted on a tripod.
ISO 500. Manual mode: 1/250 sec. at f20. Seven flash set-up. Five
remote flashes and two background flashes triggered with an ST-E2.

Mixing different makes and models of flashes; not recommended!

I unequivocally recommend that you use only one make and model flash at your set-up. Unless you are certain that all of the flashes in your set-up have the exact same flash durations at each manual power setting, you may get ghosting in your images as a result of the different flash durations. Most manufacturers do not include this information in their flash manuals, so it can be difficult to know if it is possible to mix models of flashes even from the same manufacturer, and in many cases, the published durations are only estimates.

Take a look at the flash durations of various flash models below and you can see that different models often have vastly different flash durations for the same manual power settings.

	<u>Full</u>	<u>1/2</u>	<u>1/4</u>	<u>1/8</u>	<u>1/16</u>	<u>1/32</u>	<u>1/64</u>	<u>1/128</u>
Canon 550 EX	1/833	1/2000	1/4000	1/8000	1/15000	1/19000	1/31000	1/35000
Canon 580 EX	1/833	1/2000	1/4000	1/8000	1/15000	1/19000	1/31000	1/35000
Metz 45-CL4	1/300	1/1000	1/2500					
Metz 60 CT-4	1/200	1/300	1/800	1/2500	1/4000	1/5500		
	(requires external battery pack)							
Nikon SB-26	1/1000	1/1100	1/2500	1/5000	1/8700	1/12000	1/23000	
Nikon SB-600	1/900	1/1600	1/3400	1/6600	1/11100	1/20000	1/25000	
Nikon SB-800	1/1050	1/1100	1/2700	1/5900	1/10900	1/17800	1/32300	1/41600
Quantum QflashT2	1/300	1/700	1/1300	1/2400	1/4000	1/6500	1/9500	
	(requires Quantum Turbo battery to power)							
Quantum Qflash X/X2 200W/S	1/400	1/1000	1/2000	1/3600	1/5800	1/9900		
	(requires Quantum Q-Paq battery to power)							

Quantum Qflash X/X2 400W/S	1/250	1/500	1/1100	1/2300	1/3600	1/5800	1/9900
	(requires Quantum Q-Paq battery to power)						
Sunpak 555	1/450	1/1000	1/2000	1/4000	1/8000	1/12000	1/17000
Sunpak 544	1/450	1/1000	1/2000	1/4000	1/8000	1/12000	1/17000
Vivitar 285/285HV	1/1000	1/2000	1/4000	--	1/6000		
	(The non-HV version has high voltage (6v+) – this will harm many Modern cameras)						
Canon 420 EZ	Not recommended. Turns itself off after 5 minutes and no override.						
Canon 420 EX	Not recommended. Turns itself off after 90 seconds and No override.						
Canon 430 EZ	Not recommended. Turns itself off after 90 seconds and No override.						

During my efforts to try to find the flash durations for different makes and models of flashes, I received help from Chuck Westfall, Technical Advisor/Professional Products Marketing Division at Canon. He wrote:

“To the best of my knowledge, Canon has never published any official specifications on flash duration for Canon Speedlites at any setting other than full power. But there are a few individuals who've attempted to estimate this information on their own, and I am inclined to agree with their findings. Here is one web page that discusses the durations of the 580EX. This would also apply to the 580EX II.

I have not seen any detailed test results for the 550EX, but would not be surprised to hear that they are similar to the 580 units.”

Wayne Schmidt ran the tests on the flashes in the list above. You can visit his link (as I did) to learn more about his tests and results:

<http://www.waynesthisandthat.com/flashdurations.html>

Wayne says that his tests indicate that the values he came up with are accurate to plus-or-minus 25%. So, the flash duration for the 1/128 power setting of the Canon 580 EX flash is somewhere between 1/26000 and 1/44000.

What does all this mean? To keep things simple and ensure that all of your set-up flashes are firing at the same flash duration, it is best to use only a single make and model flash. If you mix flashes, be sure to test your set-up carefully and check the resulting images for ghosting. And remember, you need to photograph fast-moving subjects to do this, not substitutes like Postman Pat....

Your on-camera flash settings

If you are triggering your remote flashes optically, your on-camera flash light burst is firing the remote flashes when you press the shutter button and your on-camera flash fires. You should set your on-camera flash on manual at the same low power setting you are using on your remote flashes, and you can go to an even lower power setting if you wish, as long as the flash burst reaches the set-up flashes. You do not want your on-camera flash at full power because—depending on the distance and placement of the artificial background—too powerful a flash burst from your on-camera flash may cause shadows of the feeder or the birds to fall on the background and ruin your images.

Depth-of-field considerations.

I have received several interesting questions about depth-of-field, and, as I began to look into d-o-f, I ended up with a question of my own.

One thing is for sure: if the size of the bird in an image is the same then the d-o-f at a given aperture is the same *no matter the focal length of the lens*. As the size of the hummingbirds and the wing positions vary tremendously, it is difficult to comment definitively on d-o-f. Depths-of-field when using apertures between f/16 and f/22 will typically range from roughly an inch or two at most in front of and behind the subject. (With long lenses, d-o-f is about 50-50 in front of and behind the point of focus. With three inches of total d-o-f, you would usually (depending on the wing position) be fine d-o-f-wise with a tiny Western Emerald (because they are so small) but you should would likely see a loss of d-o-f in parts of the image with many of the larger species unless they had their wings fully up or fully back. However, another important factor in determining d-o-f is the distance to the subject. Depth of field increases as the distance to the subject increases. With so many variables, you should be gaining an

understanding of why it is virtually impossible to accurately assess d-o-f issues **before** seeing the image on your laptop.

If you would like to try and gain a deeper understanding of this complex subject, there are lots of great d-o-f calculators on line. Here is a link to the one that I use: <http://www.dofmaster.com/dofjs.html>. By plugging in various combinations of camera bodies, lenses, camera to subject distances, and apertures you can learn a ton, but again, with so many in-the-field variables it is impossible to come up with anything definitive; the proof is in the pudding.

Diffraction

After seeing a George Lepp Tech Tips article in *Outdoor Photographer* dealing with unsharpness caused by diffraction when using small and tiny apertures, Artie wrote George as follows:

Hey George, Linda Robbins has written a guide to high speed flash hummingbird photography and taught me to make some great images using six, seven, and now eight flashes. We normally work at apertures between f/16 and f/29, yet the digital files look perfectly sharp with great feather detail there does not seem to be any loss of sharpness due to diffraction. We are using either the 500 f/4L IS or more recently, the 400mm f/4 IS DO lens (which we both love and feel is great for the hummers because of its incredibly fast initial focusing acquisition.) I am puzzled as to why the hummingbird images made at small or tiny apertures look so sharp. Are we missing something? I read your recent Tech Tips piece on diffraction and you mention that diffraction will be evident in prints as small as 8 1/2 x 12 inches. Does this imply that diffraction will not be evident in the digital files at the native resolution?

George graciously replied:

“You are getting away with the small f/stops on the hummingbirds because of the relatively large lenses and the fact that the f/stops on the big glass aren’t as physically small as they are on a shorter lens like the 24-105mm. Diffraction is caused by the number of light rays that have to be bent to form the image. With a small lens the aperture opening for f/22 is a lot smaller physically than that of the aperture f/22 on the 500mm lens. This is why the old guys with the 4x5 and 8x10 cameras and the big optic on the front of the field camera got away with f/64. Hence the Ansel Adams group thought that f/64 was the ideal f/stop for landscapes. They didn't see

diffraction at f/64. Do that with a 35mm based camera and a 50mm lens and the resulting image will be junk. Watch that f/29 with the 400mm, as you are getting close to a problem. Shoot some at f/16 and others at f/29 or f/32 and you might see a difference in sharpness.”



Green Breasted Mango Male. Rancho Naturalista, Ecuador.
Image Copyright 2008: Linda Robbins

Canon 400 mm f/4L DO IS lens and a Canon Mark II N mounted on a tripod. ISO 400. Manual mode: 1/250 sec. at f18. Eight flash set-up at 1/32 power.

Inexpensive artificial background option

Rich Garrett, who assists me on some of the Hummingbird Addiction Photo Tours, has found a great source for artificial backgrounds. An 18" x 24" poster costs only \$2, and the flat-rate shipping charge is only \$10 no matter how many posters you order. The posters are not waterproof, and you should **not** order the optional lamination because it is shiny and will reflect the background flashes. At \$2 each, however, you can order extras and don't need to be overly concerned if one is ruined by a sudden shower. The only drawback is the ½" white border around the edges; you wind up with 17" x 23" of usable background. But they will work, and they are a great bargain. At these prices, you can afford to get lots of different backgrounds to add variety to your photographs, and you can experiment inexpensively to find backgrounds that you love. Send them some OOF images of flowering bushes or plants as described in the Guide, or images of soft swathes of color and you can have inexpensive backgrounds in a few days: <http://www.shorrunposters.com>

The posters are printed on medium-weight paper. You will need to place the posters against something to keep them flat. In the picture below, Rich backed the poster with a collapsible reflector. You could easily back them with a lightweight backing such as foamboard.



Short Run Poster
Copyright 2009: Rich Garrett

Rich lives in Arizona, and each Spring he looks forward to the arrival of the hummingbirds that nest in his backyard. Rich is extremely careful not to disturb the nesting birds or do anything that could attract predators to the nest. He puts up a blind at the first sign of a nest being built so he can photograph them without stressing them and he is able to enter and exit the blind unseen by the birds. If you photograph any nesting birds, remember that no image is worth putting the well-being of the birds at risk.



Anna's Hummingbird nest with a US Dollar coin for scale.
Image Copyright 2009: Rich Garrett

Canon 5D and a 100mm macro lens.

Hummingbird nests are tiny and are often decorated with small bits of lichens, feathers, or fungus held together with spider webs the mother gathers. It is amazing that a mother and two chicks can fit into such a small space. This nest was abandoned after the nesting season.



Anna's Hummingbirds. Arizona.
Image Copyright 2009: Rich Garrett



Rufous-tailed Hummingbird, male. Rancho Naturalista, Costa Rica.
Image Copyright 2008: Rich Garrett

Canon EOS-1D II and a Canon 500mm f/4 IS lens mounted on a tripod.
ISO 400. Manual mode: 1/250 sec. at f/18. Eight flash set-up at 1/32
power.



Green-breasted Mango, male. Rancho Naturalista, Costa Rica.
Image Copyright 2008: Rich Garrett

Canon EOS-1D II and a Canon 500mm f/4 IS lens mounted on a tripod.
ISO 400. Manual mode: 1/250 sec. at f/20. Eight flash set-up at 1/32
power.



Brown Violetear, male. Rancho Naturalista, Costa Rica.
Image Copyright 2008: Rich Garrett

Canon EOS-1D II and a Canon 500mm f/4 IS lens mounted on a tripod.
ISO 400. Manual mode: 1/250 sec. at f/22. Eight flash set-up at 1/32
power.