Review: Canon EF 600mm f/4.0 L IS III and Extender EF 1.4x III

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Both the 600mm lens and the extender are the latest versions as of this writing on April 1, 2019. Despite the date, this is no April Fool’s joke. I expected a lot from this lens combination and needed to test it by photographing animals in field conditions. Fortunately, there were plenty of ducks in Indiana at the Perrin Family Park in Jeffersonville during March. They were extremely approachable. Actually, the ducks found me approachable as access to the pond is limited except at the waterfowl feeding station where ducks approach visitors for handouts. For $.25, you can buy nutritious food for the wild ducks that frequent the site. During a few visits to this park, I shot at least 6000 images with the 600mm lens by itself or with the 1.4x extender attached. Here are some image results and my opinion on the gear.

Figure 1 Northern Shoveler near the waterfowl feeding site

When the 600mm lens arrived, I was delighted to open the package and learn more about it. The first thing I did was look it over carefully to check for any damage and to admire it a little — okay, a lot. Then I read the small instruction book for the lens. I have used the Canon 500mm for thirty years, and the 800mm for a decade, so this lens is like them in many ways. That means the usual buttons and switches built-in to the lens are present and everything is already familiar to me.
Although I typically use manual focus with live-view for close-ups and landscapes, I nearly always use autofocus with my long lenses when photographing wildlife as I need the speed and focus tracking ability to stay locked on to active wildlife. Since I know autofocus is rarely perfectly accurate with any lens/camera combination, the first thing I photographed was a test chart to run an AF microadjustment test. I cover how I do this in detail on my blog at my website (www.gerlachnaturephoto.com). After running the AF microadjustment test for the Canon 600mm by itself, and with the 1.4x extender attached, I found I needed to set these values. Amazingly, the 600mm without the extender did best at only a -1 AF microadjustment setting, and that isn’t much. More significantly, with the 1.4x extender attached to the 600mm, I needed a +5 setting to correct for a small front-focusing problem. The +5 correction makes the lens focus a little farther away, and a minus correction of -1 makes the lens focus a little closer to the photographer. Keep in mind neither adjustment is huge, and most photographers might think their lens is focusing perfectly if they made no AF microadjustment correction. But for critical sharpness, using these values is necessary with my gear. These values are necessary for my gear, but other gear might easily be entirely different.

**Figure 2 A female wood duck with the 600mm lens and 1.4x converter**

**Why the 600mm when I have the 800mm?**

For decades I photographed wildlife with several versions of the Canon 500mm lens. I have always wanted more reach to photograph wildlife at greater distances.
A decade ago I sold my 500mm lens and bought the Canon EF 800mm f/5.6 L IS USM. Instantly, I had a lot more lens to bring distant wildlife optically closer to fill the frame with subject. I shot thousands of images with the 800mm that please me over the years. If only I had begun using the 800mm lens earlier in my career. The long lens is such a game-changer for me that I will continue to use long lenses for as long as I can. Bottom line: the 800mm lens is a tremendous addition to my camera gear.

![Figure 3 Northern Shoveler](image)

Although the 800mm lens is superb for wildlife photography, I continually seek better ways to photograph wildlife. The **600mm lens with the use of a 1.4x converter** became an appealing combination that I had to have. I was eager to try it out as it offered several advantages.

- The 800mm f/5.6 lens is one stop slower than the 600mm f/4 lens. When I need more shutter speed and wish to keep the ISO down as much as possible, being able to open the lens up to f/4, rather than f/5.6, drops the ISO by one stop. In other words, if I had to use ISO 4000 with the 800mm/f/5.6 lens when set to f/5.6, I could use ISO 2000 with the one-stop faster 600mm f/4.0 lens.
- Of course, the lens speed factor equals out when the 1.4x extender is added to the 600mm lens, as it turns the lens into an 840mm f/5.6 lens. Though, the lens speeds are now the same, notice I get a little more focal...
length of 840mm with the 600mm/1.4x combo than the 800mm lens by itself. In wildlife photography, more focal length is frequently beneficial as you can be farther from the subject at a safe distance while letting the animal behave naturally.

- Another key plus for the 600mm lens is the **close-focusing ability**. The 600mm lens focuses as close at 13.78 feet or 4.2 meters, while the 800mm only focuses as close as 19.69 feet or 6 meters. The ability to focus close is incredibly important for small birds, mammals, lizards, and other wildlife. Sure, you can use extension tubes to make the lens focus closer (such as the Canon 25mm tube), but it is cumbersome to use, slows down the lens speed, and prevents you from focusing to infinity should you suddenly need to do that.

- The **Canon 600mm f/4 III lens is lighter** at 6.7 pounds than both the old version of the 600mm and the 9.9 pound Canon 800mm lens. Carrying a big telephoto lens that is lighter is always an advantage, especially for long distances.

<table>
<thead>
<tr>
<th>Lens</th>
<th>Minimum Focus Distance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canon 500mm f/4</td>
<td>12.14 feet</td>
<td>7 pounds</td>
</tr>
<tr>
<td>Canon 600mm f/4 II</td>
<td>14.76 feet</td>
<td>8.6 pounds</td>
</tr>
<tr>
<td><strong>Canon 600mm f/4 III</strong></td>
<td><strong>13.78 feet</strong></td>
<td><strong>6.7 pounds</strong></td>
</tr>
<tr>
<td>Canon 800mm f/5.6</td>
<td>19.69 feet</td>
<td>9.9 pounds</td>
</tr>
</tbody>
</table>

Notice the Canon 600mm f/4 III is the lightest lens of this group, even lighter than the 500mm lens. Only the 500mm lens focuses closer at 12.14 feet than the 13.78 feet of the 600mm. True, I wish the 600mm focused a little closer for small birds like warblers, but 13.78 feet is still is quite close-focusing for a long telephoto lens.
My Photo Experiences with the Canon 600mm f/4 III Lens

After AF microadjusting the Canon 600mm f/4 III lens and setting a -1 AF microadjustment correction for the lens by itself, and a +5 when the lens is used with the 1.4x extender, I visited a local pond where they have a designated duck feeding station in southern Indiana. Loads of Northern Shovelers and a couple of wood ducks approached me to within ten yards – hoping for food handouts. Although I did not have any “duck food,” plenty of other park visitors did. Due to park rules, park visitors are restricted to a viewing platform slightly above the pond. I would prefer to sit on the ground to photograph for the lower angle that position provides, but that was not allowed. So, to make the best of things, I mounted the 1.4x extender on my camera and then the lens to that to make my focal length 840mm. This let me make large images of the ducks when they were much further out in the pond where the shooting angle is more favorable, rather than shoot down on the ducks from a closer distance.

![Drake Wood Duck calling](image)

At first, I set my exposure manually by using the blinkies method I have used very successfully for the past several years and perhaps ½ million images. I shoot only RAW files and the in-camera exposure aids of the histogram and highlight alert (blinkies) are both based on an embedded JPEG in the RAW file. While many believe blinkies show areas of overexposure, in truth the RAW data is not
overexposed when the first blinkies appear. Therefore, I simply set a manual exposure using the exposure scale in the viewfinder to get the exposure close, shoot the image, check for blinkies, and when I get the first blinkies to appear, I use that for my exposure going forward unless the ambient light levels change. As I photograph, I constantly monitor the blinkies when I playback the images. If more blinkies appear, I subtract light by increasing the shutter speed (usually) or I stop down a little more if more depth of field is desirable. If I stop getting blinkies, then I add a little more light by slowing the shutter speed, opening the aperture, or perhaps some of both.

I did change my exposure late in the afternoon when shadows were cast on the water. A duck in late afternoon sunshine is swimming in much brighter light than one that swims into the shadows. Though manual exposure has enormous benefits over all autoexposure methods, when ambient light changes quickly, then autoexposure is the way to go (even this dedicated manual exposure shooter admits that). When ducks paddle into the sunshine for a minute or two and then into the shadowy water, I switch to Auto ISO with manual aperture and shutter speed and exposure compensation. The beauty of auto ISO is the desired aperture and shutter speed stay the same, and the camera’s ISO varies to correct for changes in ambient light levels.

Figure 6 Drake Northern Shoveler in the shade!

Big lenses can be handheld for short time periods but photographing swimming ducks requires staying on them optically for long time periods to catch special action shots. Often, I am peering through my viewfinder while tracking the duck.
for ten minutes or more, and there is no way I can hold the lens that long. It is best to mount the tripod collar of the lens to a Wimberley gimbal head. When both balance adjustments are done, the lens will stay in perfect balance wherever you point it without locking the head up. This enables tracking wildlife motion efficiently.

Autofocus offers many options and I go back and forth between many of them. I am a big believer in back-button focus where the autofocus is assigned to a button on the camera’s rear. In my case with the Canon 1DX Mark II and 5D Mark IV, I assign back-button focus to both the AF-On button and the * button. I also assign different focus patterns to the two designated buttons that control autofocus. The AF-On button has single-point AF assigned to it, and the * button has a group of five active AF points assigned to it. If I am having trouble keeping a single AF point on the duck’s face with the AF-On button, I then press the * button to get a larger group of active AF points.

With back-button focus, I always set the focus to continuous autofocus where it tracks moving subjects if the active AF point or points is on the subject and the back-button is depressed. Letting up on the back-button locks autofocus, and that is useful when the subject is still.

Since interesting behavior is often fleeting, I always set my camera to the fastest shooting speed – currently 14 images per second with the Canon 1DX Mark II. What is interesting behavior? When a duck gets up high on the pond to flap its wings, or takes a splashy bath, that is fun behavior to photograph.

*Figure 7 Northern Shoveler drying its wings*
When the ducks are steadily swimming, even if slowly, then I find it works best for me to assign the focus control to the shutter button. Then as I compose the duck, I notice what AF point coincides with the duck’s face, quickly move the joy button on the back of the camera to select the AF point that coincides to the face and shoot away. Of course, as the composition changes, I continually must move the active AF point around to coincide with the face.

When I examine my images to find the ones I wish to keep, I first look at the overall composition and scroll through my images quickly using Canon’s DPP4 software (always the latest version). I shoot a lot of images of a slowly swimming duck. Though, I am careful, I sometimes cut the tail off the duck in the composition and that is an immediate reject. If the duck blinks and the eye is only partially open, that is a reject. Typically, I go through several good images, but then once catches my attention. I enlarge the head to 100% to check for sharpness. If the pose is pleasing and the head is sharp, I give it a rating. In this way, I may view 1000 images per hour and check perhaps 45 images. Once I am through the folder, I can select all the images I did not rate and delete them. Then I return to the keepers and try to cut them down a little until ending up with 25 or fewer images.

My strategy is to shoot a lot of good images but hope for a few exceptional images. By shooting a lot of images, there is a greater chance of photographing exceptional action. Often, ducks do things quickly. If you see the duck rise and flap its wings, you can’t photograph it if you observe them doing that and then try to photograph it. Normally neat behavior lasts a second or two at best. You must be shooting when action happens – or you are always too late.

*Figure 8 Canada goose with the Canon 1DX Mark II, 600mm, and 1.4x converter*
Keep the Duck Level

My cameras offer a level on the LCD, and another one displayed in the viewfinder. Since I am peering through the viewfinder when photographing, the level on the LCD is useless at that point, so I monitor the level I see in the viewfinder in real time as I shoot and compose the duck. Though, I sometimes am off, I find it is easy to use the viewfinder level to keep the water and duck level.

Conclusion

I feel the Canon 600mm f/4 III lens with the Canon 1.4x converter is the best long lens combination I have used in my 45-year career. This combination is awesome! It isn’t cheap, but you get what you pay for in this case. Go ahead and splurge, you will be glad you did.

Figure 9 While walking to the duck pond, this American Robin posed nicely for me.
Figure 10 The reach of the 600mm/1.4x extender combo gave me an extremely low angle to this Canada goose that was not intimidated by me at all.

Figure 11 The close-focusing ability of the 600mm f/4 III lens makes it easy to capture large images of small subjects like this Tufted Titmouse.