

A Field Test: the Canon 400mm f/4 IS DO Lens Visits Ecuador
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The day before I was scheduled to leave for three weeks in Ecuador, a quick visit to the doctor revealed that I had an inguinal hernia. As my shoulder had also been bothering me (again), I was considering leaving my beloved 500mm f/4L IS lens home and taking the 400mm DO lens, borrowed from Canon Professional Services. After discovering the hernia, my decision was an easy one.

Without getting too technical, Canon DO lenses feature a Multi-Layer Diffractive Optical Element that results in lenses that are physically smaller and considerably lighter than similar lenses made only with traditional refractive optical elements. The Multi-Layer Diffractive Optical Element (which is the front lens element group) eliminates chromatic aberration caused by the refractive lens group. Chromatic aberration is suppressed to an absolute minimum. Furthermore, the aspherical effect corrects for spherical and other aberrations. The resulting high resolution and high contrast ensures outstanding image quality.

The most attractive attribute of the 400 DO is its extremely light weight: 4/1 2 pounds complete, and a bit under 4 pounds with the lens hood and tripod collar removed. I had used this lens briefly right after it was released in 2001 and was impressed by the sharp images it produced even when used with the 2X teleconverter. I will confess, however, that I was a bit nervous about having to rely on the 400 DO as my big lens on a major outing, three weeks in Ecuador that included two Galapagos cruises that I led for Distinctive Journeys. However, I was impressed with the lens and with the quality of the images. In addition, with Image Stabilization, the 400 DO is surely the best lens around for use when photographing from a panga (Ecuadorian for Zodiac or skiff), a canoe, a kayak, a boat or ship, or other watercraft.

Woodpecker Finch, female © Arthur Morris
Puerto Ayora, Galapagos, Ecuador

Canon 400mm f/4 IS DO lens (tripod-mounted) with 2X II TC and EOS-1Ds Mark II. ISO 800. Evaluative metering at zero: 1/200 sec. at f/10.

Whenever I am working with a 2X TC and an f/4 lens I stop down a bit (from f/8) for some additional sharpness. With that combination and a Canon professional body AF functions, but only the central sensor is active. With the bird leaning down to pierce a flower, I was able to include all of the lower blossoms while placing the AF sensor on her eye.



Galapagos Shearwater © Arthur Morris
Prince Phillips Steps, Tower Island, Galapagos, Ecuador

Canon 400mm f/4 IS DO lens (handheld) with EOS-1Ds Mark II. ISO 1600. Evaluative metering +1 2/3 stops: 1/500 sec. at f/4.

This image was created in near impossible conditions: at dusk from a rocking boat filled with eight frantic photographers. Note the exposure compensation: when the sun is not at full strength, evaluative and matrix meters are dumb!



I chose a Gitzo 1325 carbon fiber tripod topped with a Mongoose M-262 because the Wimberley Head II is overkill for lenses in the class of the 400mm DO. The first time I attempted to autofocus with the 400 DO/2X TC, EOS-1Ds Mark II combination, I was dismayed at the slow response but afterwards realized that the slow initial AF acquisition was due more to the low-light conditions and my failure to pre-focus manually than to a problem with the lens itself. On the two Galapagos trips I carried the tripod-mounted 400 DO on all of our landings and handheld the lens extensively when photographing from the pangas (with and without the 1.4X TC). On the islands, I used the prime lens alone at times, and often with either the 1.4X or 2X teleconverter. Usually, but not always, I handheld the lens for flight photography.

Between my two trips to the archipelago, I visited several cloud forest locations to the northwest of Quito, Ecuador for 2 ½ days and created images of perched hummingbirds using the 400 DO almost exclusively with the 2X TC and 25mm or more of extension. I used flash as main light techniques as I was working in extremely low light conditions. Because I was using the 2X and because it was so dark (I was usually 2-3 stops underexposed even when using ISO 800), I quickly realized that focusing manually was the only option. While I was pleased with the sharpness and the quality of the images made in the Galapagos (all without flash), I was totally amazed by the sharpness and the astounding quality of the hummingbird images.

My biggest problem with the 400 DO lens is the inadequate minimum focusing distance (MFD) of 3.5 meters (nearly 11 ½ feet). Compare this with the Nikon 200-400 VR lens that focuses under 7 feet. With many of the birds and animals in the Galapagos being utterly tame and ridiculously approachable, and with the tiny size of the hummingbirds, the 400 DO's 11 ½ foot MFD was often a problem. This was especially true with the hummingbirds as light loss with the 2X and the tubes was substantial. Had I been able to focus closer I would have often been able to get away with only the 1.4X TC (and some extension).



*Red-footed Booby © Arthur Morris
Darwin Bay, Tower Island, Galapagos, Ecuador*

*Canon 400mm f/4 IS DO lens (tripod-mounted) with 1.4X II TC and EOS-1Ds Mark II. ISO 400.
Evaluative metering +2/3 stop: 1/640 sec. at f/10.*

With a clean sand background, I simply lowered my tripod and used some extra depth of field to ensure that the entire bill would be sharp (even though I focused on the eye).

After working with the 400 DO lens every day for nearly three weeks, my shoulder is in much better shape, my hernia is undamaged, and I am the proud owner of 136 new family jewels created with this excellent lightweight lens. If you are looking to get into super-telephoto photography but have a problem carrying lenses in the seven to thirteen pound class, the 400 DO just might be perfect for you. And the same might be true if you are looking for a fast, handheldable telephoto lens. I have several friends and clients who own and use this lens (contrary to my advice!) exclusively without a tripod.

400 DO TIPS

1. When doing flight photography with the 400 DO lens or when using it with the 2X teleconverter, prefocusing manually will allow for faster initial autofocus acquisition.
2. Having the appropriate limit range switch set (3.5m to infinity when working with close subjects or 8m to infinity when working with distant subjects or when doing flight photography) will also help decrease the time needed for initial autofocus acquisition.
3. When handholding exclusively, remove the tripod collar and, if there is no chance of rain, the hood as well. This will reduce the weight of your outfit.
4. When handholding this (or any other intermediate telephoto lens), be sure that your left hand is at least half way out on the lens barrel and that your palm is facing the sky.
5. Set IS Mode 2 and leave it there whether you are on a tripod or handholding. IS Mode 2 performs exactly the same as IS Mode 1 does in these situations.

*Lava Heron © Arthur Morris
Sullivan Bay, Galapagos, Ecuador*

*Canon 400mm f/4 IS DO lens (handheld) with EOS-1Ds
Mark II. ISO 800. Evaluative metering -1/3 stop: 1/250
sec. at f/4.*

*This image was created while photographing from a
rocking Zodiac in very low light while handholding (the
only option with six or seven photographers in the boat).
Of a long series, this was by far the sharpest image of this
bird, the only individual of this species that we saw in full
breeding plumage. As I clipped the toes, I added canvas,
a bit to the longest toe, and 1 ½ toenails.*



You can learn more about Arthur Morris and BIRDS AS ART at www.birdsasart.com. His latest book is "The Art of Bird Photography II," 936 pages on CD only (www.birdsasart.com/ABPII.htm). His next weekend seminar will be in Albuquerque, New Mexico this coming December (www.birdsasart.com/albuquerque.htm).

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