



Close-Up 3D with a Lumix 3D Lens

by Ray Moxom



3D images by Ray and Nancy Moxom



In 2011 Nancy and I purchased a Panasonic Lumix G3 camera with a standard 14–42mm kit lens (equivalent to a 28 to 84 mm lens on a 35mm camera, as micro four third cameras have a form factor of 2). The latest model in the G series is the Lumix G6. Most Micro 4/3 Panasonic cameras from 2010 and recent Olympus cameras, such as the OMD, fully support this 3D lens.



We wanted a light weight 2D camera for travel that could also be used for cha-cha 3D. We also ordered a 14mm f2.5 prime lens and the Lumix 3D lens from a Japanese online store at a good price for the two lens package.

The camera and the 14mm prime lens got a lot of use that year on Norfolk Island. But, the 3D lens was near useless. It is a fixed focus pair of 12.5mm f12 lenses with 10mm lens separation. This lens separation should have been great for close up photography, but the lens was only sharp from 60cm to infinity. At 60cm from the lens, there is very little 3D. 1 in 60 is just not enough 3D bight.

I tried taping close-up lenses in front of the 3D lens, but this was awkward and there is no screw thread for attaching filters or close-up lenses.

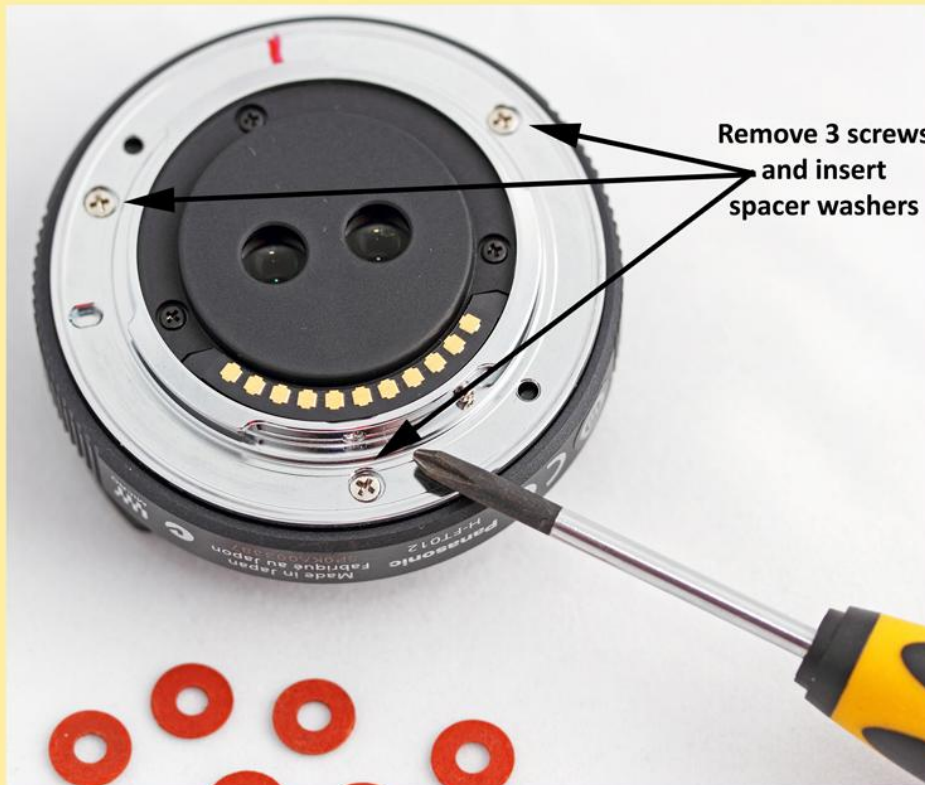
I became aware that the late Co van Ekeren and George Themelis had played around with inserting spacers between the lens mounting plate and the 3D lenses to make the lens focus closer, but had not attempted to do this myself until George Themelis wrote that it was a very simple task that only takes 5 minutes.



Lorikeet Feeding #1 by Nancy Moxom

George was right, it was simple to do and it did only take 5 minutes – not counting an hour or so to find spacer washers of the correct size and thickness. I used some old red fibre washers of the type that were used when attaching computer motherboards. I had to trim the edges a bit with a pair of scissors.

The spacers that I inserted (2 fibre washers thick) resulted in moving the lenses forward by 0.95mm. This gives a sharp focus point at 200mm from the front of the lens, which works great for subjects similar in size to the 3D photos included in this article.



200mm from the subject and 10mm separation – that's 1 in 20. So, you might ask, what about the 1 in 30 rule?

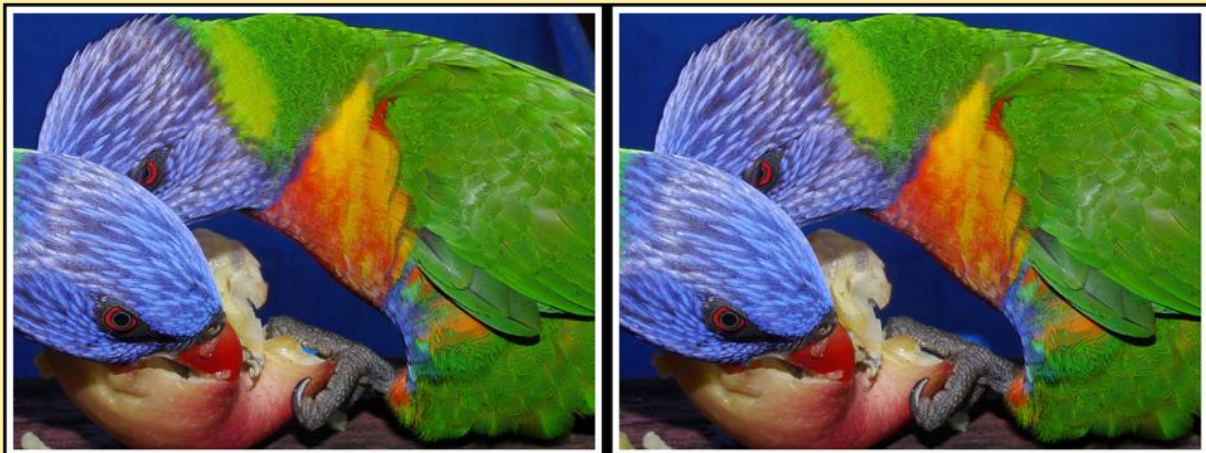
Well, while the 1 in 30 rule is important when the image has lots of depth from say a tree in the foreground to clouds in the background, it does not apply to the same extent when the depth is very limited.

So anywhere between 1 in 15 to 1 in 30 works well for most close-up subjects. What is important is that when working with a close up camera and the lens separation to subject distance is less than 1 in 30, we need to make sure that there are no distant elements in our field of view.

With the 3D lens in place the Lumix G3 camera produces a 3D MPO and a 2D JPG file for each shot. Like our other digital 3D cameras, there are image format options including 2x1824x1368 (2x2.5MP in 4:3 ratio) and 2x1712x1712 (2x3MP in 1:1 ratio). There are also 16:9 and 3:2 ration option of a bit lower resolution – both produce smaller size files that are 2x1824 wide.

So how good is the image quality? From what we have done so far, I have to say that the results are very impressive.

The real beauty of the converted lens and a Lumix micro 4/3 camera, is the simplicity of having a quality 3D close-up camera with built in pop-up flash that when set up works as simply as a point and shoot camera and gives a perfect exposure with almost every shot.



Lorikeets Feeding by Nancy Moxom



Tom's Dog by Ray Moxom

The sample photos associated with this article were all taken with a Panasonic Lumix G3 camera and a modified Lumix 3D lens

As I see it, there are currently three pocket sized 3D point and shoot cameras with lens separations of 75mm, 30mm and 10mm that are available at reasonable prices from online sellers either locally or in Japan (photos below).



Below is a larger photo of our Lumix G3 with the modified 3D close-up lens.





Chook and Woodpile by Ray Moxom

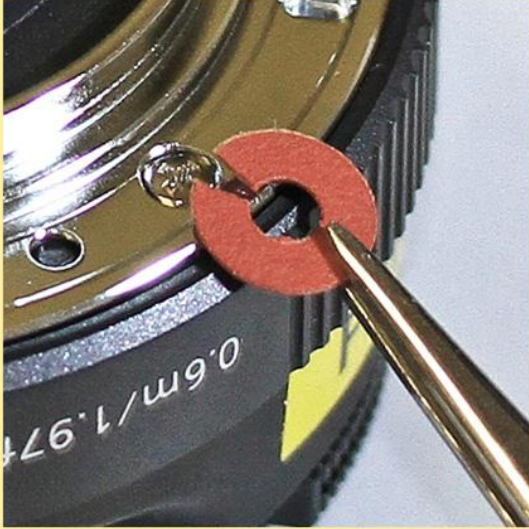


Garden Orb Weaver by Ray Moxom

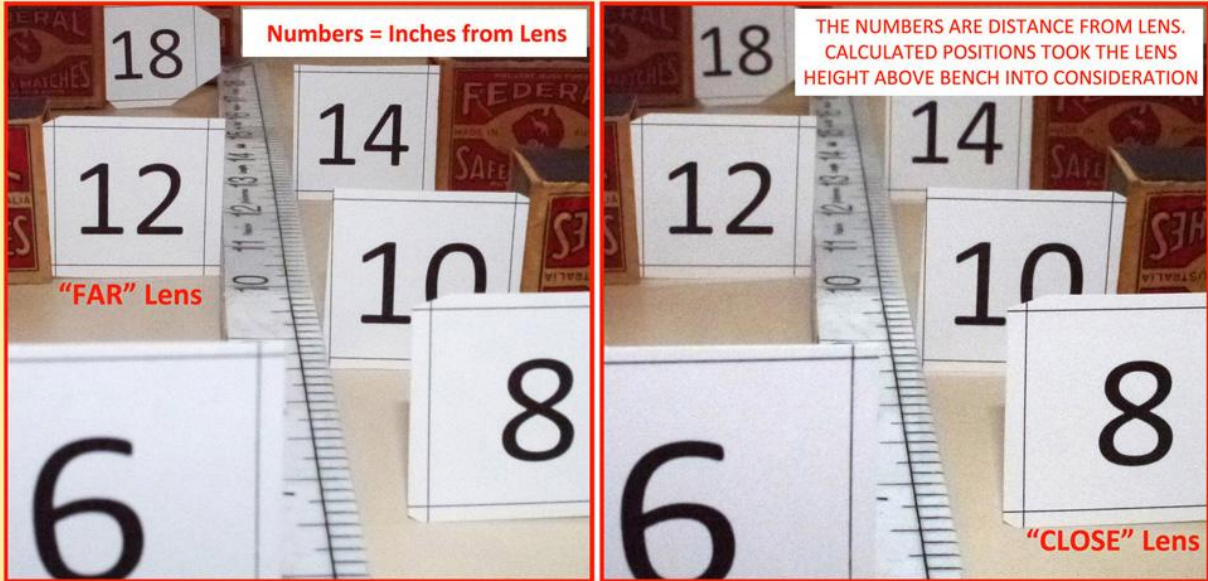
We were very impressed with our Panasonic Lumix G3 with the modified 3D close-up lens and decided to purchase a second 3D lens (\$99 USD on eBay) and modify it with thinner spacers for a 300mm sharpest focus point.

For the second lens conversion, I decided to cut a gap in the three fibre washers, loosen the three screws on the lens mounting plate and then just slip in the spacer washers (photos below and on the next page). This was even easier to do than the first lens modification. As the two lenses look identical, I labelled one 'CLOSE' and the other 'FAR'. Yes, I know the labels should read 'near' and 'far', but I did the 'close' one first and 'far' is shorter than 'distant'.





Below are left side only calibration shots for each lens. As you can see there is reasonable depth of field with optimal focus points at 8 inches (200mm) for the 'CLOSE' lens and 12 inches (300mm) for the 'FAR' lens.



To help with focusing the 'CLOSE' lens I made a simple bar cut from an old damaged yard stick. The bar attaches to the camera via the tripod screw. A piece of aluminium bar would do the same job. The end is 200mm from the front of the lenses. For the 'FAR' lens, I added a folding extension piece to extend the focus bar to 300mm.



Above is a top view of the focus bar in the extended 300mm position – note the bend near the camera mounting point to avoid the bar being in the camera's field of view.

Below is a bottom view of the same focus bar in the folded 200mm position.



This article is an expanded version of an article first published in issue 3.2013 of Stereoscopy, the journal of the International Stereoscopic Union

The above photo shows the focus bar attached to the camera.

As well as Nancy and I, three other SSCC members that I am aware of have similar setups using converted Panasonic Lumix 3D lenses. So we can look forward to seeing more close up 3D photos in our club competitions and presentations.

The photos on this and the next page are associated with this article and were also taken with a Panasonic Lumix G3 camera and a modified Lumix 3D lens



Moth by Nancy Moxom



Bee by Nancy Moxom



Trumpet Flower by Nancy Moxom



*use red-cyan
3D glasses to
view the anaglyph
versions of these
3D photos*

