

Depth of Field – Les Ryan

There are several ways of describing "Depth of Field" most of them technical, based on laws of physics and mathematical formulae. Essentially, it is the zone or space in front of, and behind, the focussed point in which objects *appear acceptably sharp*. Looking at this Frogmouth photo, the depth of field is not much more than the actual body of the bird itself. The Teatree branch immediately behind the Frogmouth is certainly soft and the Curlew is, at the least, fuzzy. But that was the effect I wanted to achieve because I wanted to disguise the rusty fence in the background – you can still see it in the top right corner, but it's hardly noticeable ... is it? In fact, at times having an acceptably fuzzy background is "Cool!!!" It helps define the subject or object within the photograph. A fine quality blur or "Bokeh" is now highly regarded ... almost as much as razor sharpness.



The soft background created by the shallow depth of field in this parrot image is a bonus. It helps define the bird. When I took this shot in a large aviary, the parrots were flying around in a frenzy. Several would land on the rail, quickly walk along it and then fly off. They were far too quick for me to get a good shot. So, patiently, I pre-focussed my camera on a section of the rail and waited for an inquisitive parrot to do its thing. If you look closely at the grain in the rail in front of the bird you can see just how shallow the depth of field is. Whilst the parrot's tail is blurred, the banded claw just makes it; the head, beak and eye are sharp. All I had to do was half hold the shutter button to lock the focus and wait until the beak and the catch-light in the parrot's eye was sharp. Click!! But if the bird wasn't leaning forward into the zone, it'd be fuzzy polly!!



Earlier, I emphasised objects "*appear acceptably sharp*" because often the perception of depth of field can be influenced by the size of the print or computer image you are looking at. The smaller the print or image, the greater the perceived depth of field. You can check this out by looking at a thumbnail print of one of your photos compared with one that is a standard print size. The thumbnail will invariably appear sharper.

In essence, depth of field increases or is broader when we use small apertures (e.g. F16, F22, F32) short focal length lenses (e.g. 12mm to 28mm) and small magnifications as when the subject is a long way from the camera like in landscape photography. By contrast, depth of field is decreased or shallower when the lens aperture is large (say, F1.4, F2.8), the focal length of lens is increased (say, 135mm or higher) and we are closer to our subject as perhaps when taking a telephoto shot of a parrot on a rail in an aviary or park.

In a measured environment, we can chart with reasonable accuracy what will and won't appear to be acceptably sharp. Indeed, years ago when lenses had aperture rings the instructions in the box invariably had depth of field charts. Not so in these digital times. Nevertheless, if we utilise the several tools at our disposal to *control depth of field*, namely - the lens aperture setting (adjusted in the menu of our digital camera body), the focal length of the lens we are using and noting magnification, - with practice, we can learn to gauge an acceptable focus zone. We will actually manage the quality of "unsharpness", the Bokeh, in the image. Our subjects will be sharp because we know how to refine sharpness in the camera *before* we push the shutter button.

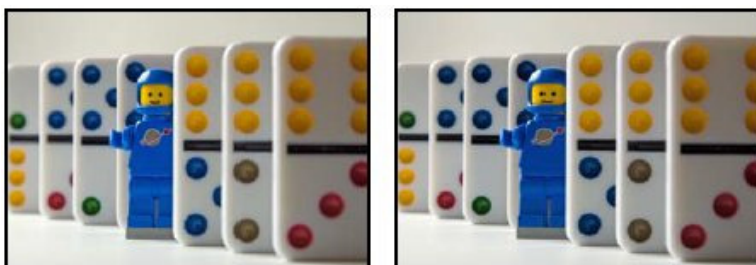
However, combining these tools inappropriately will result in "depth of field error", a common reason for fuzzy photographs. Fixing it requires homework. Sounds complicated but it's not really. Read on...

Depth of Field Error

If your subject is out of focus owing to depth of field error you might care to experiment by playing with your camera or lens aperture settings. Let me illustrate what happens when you do this using a series of images of a Spaceman standing between a line of dominoes.



Starting from the far left image (above), the cameras aperture is set to F4. The depth of field is very narrow. We can see the sharpest point of focus is around the Spaceman. The dominoes behind him are fuzzy. The domino immediately in front of the Spaceman with the blue and yellow spots has a little definition, but the front two do not. In the centre image the aperture is set to F5.6. The domino in front of the Spaceman is now almost in focus. The others have a little more definition than the first image but they are still not sharp. The image on the right was taken with the cameras aperture set to F8. Things are clearing up quite a bit. The depth of field is broadening. The domino with the green spot behind the Spaceman is less fuzzy and the one with two brown spots in front of him seems somewhat sharper too.



In the fourth image in this series the cameras aperture was set to F11. Immediately we can see a marked improvement in the depth of field. The three dominoes in front of the Spaceman have sharpened considerably and the domino at the back with the yellow and green spots appears sharper too, although there is still the impression of a smudgy halo around each one. In the fifth image the cameras aperture was set to F16. The whole image now appears sharp. The two dominoes immediately in front and behind the Spaceman are well defined. The red spots on the domino in the

foreground appear cleaner, and the yellow and green spots on the domino at the back whilst still not quite there are still much sharper than in any of the previous images.

From this short experiment we can see the differences that can be achieved with just little adjustments to the camera or lens aperture settings. All of the domino shots were taken with the camera set on Aperture-Priority because it impacts focus decisions. In the field, thinking carefully about your aperture settings before pressing the shutter could mean the difference between an "Oh my goodness" moment and a "WOW" shot.



If you can't adjust the aperture setting on your digital camera try an experiment by taking a range of images of the same subject adjusting the "preset scene modes" in your camera. You know the ones: landscape, beach, snow, sports, night photography etcetera. This will have a similar effect to adjusting the aperture but you must ensure you record what you are doing so that you can use the most suitable setting for your given situation in the field. Note taking is essential. Recording your settings and matching them to your experimental images will help you to recall and appreciate what does and doesn't work with your camera in different lighting situations and different environments. Our memories can be totally unreliable tools at times so remember to take the notes with you on your next trip.

If your camera has a **depth of field preview button**, pressing it before taking a shot can generally give you a good indication through the viewfinder of what is and isn't in focus. Be sure to release the preview button before pressing the shutter.

When light levels are low or you are using a small aperture (say F16 or F22) to get greater depth of field, **use a tripod**. A steady camera on a tripod will generally provide better results than hand holding the camera when using longer exposure times than a 60th of a second. Some digital cameras have built-in anti-shake or image-stabilisation features and there are lenses with vibration-reduction mechanisms but ultimately, using a tripod is the best insurance against blurry images.

Summary & Conclusion



When considering depth of field in bird photography we should endeavour to find a balance between defining the bird and its immediate environment within the image whilst avoiding distracting or intruding elements. Measuring that balance so you can achieve it consistently takes practice and persistence. If you need inspiration, take a look at John Barkla's photos or Geoff Jones' website at Barra Imaging barraimaging.com.au. Both are masters of the art.