

DEPTH OF FIELD/DEPTH OF FOCUS

Photography technical skills

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New Westminster Photography Club

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DEPTH OF FIELD/DEPTH OF FOCUS

PROGRAM NOTES

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Depth of Field (DOF) is most simply defined as the distance between the nearest and farthest objects that appear in focus in a photograph.

Especially with today's automatic cameras, it is easy to overlook, ignore and/or forget the settings that provide the **appropriate** DOF for your composition.

DOF is an essential part of your **composition** even though you set it by the controls you usually use for **exposure**, eg aperture.

Here are three factors should be taken into account when making DOF decisions:

APERTURE

This is one of the first things taught in photography, and one of the most easily forgotten, especially if you set your camera on "program" and leave it there.

Remember, when you look through the viewfinder in an **SLR** (electronic viewfinders...??) you are always seeing through a **wide open aperture**. This usually gives the most **shallow** DOF (more or less obviously depending on your lens choice and subject distance). Moving the focus ring moves the **point of focus** (area in the sharpest focus) forward or back in the frame. With a wide open aperture, what you see is what you get.

If you want **more** DOF (more sharpness from front to back) you have to **stop down** (use a smaller aperture – a larger number like f16 or f22). In this case, unless you have a way to preview your DOF, you may be surprised by unwanted detail that was not revealed through the viewfinder.

DISTANCE FROM THE SUBJECT/SUBJECT DISTANCE TO BACKGROUND

Depending (somewhat) on lens choice, the closer your subject is to the camera, the shallower the DOF becomes. The farther your subject is to the background, and/or the farther away you are from your subject, the more difficult it will be to isolate the subject from the background. If the subject is very close to its background, you may have to use macro lenses in order to eliminate background detail (if desired). This change in perspective can impact the message of your photograph.

FOCAL LENGTH OF THE LENS

This is often more illusion than anything else – longer lenses don't change the perspective – they merely magnify. But in general, the shorter the focal length the more DOF you will get at a given aperture.

FOCUS

Once you have decided what DOF is **appropriate** for your composition, you must decide where to put the point of focus. For very shallow DOF, eg a closeup of a flower or a tight portrait, focus on the most important (to you) part of the image, perhaps the centre of the flower, or the eyes in a portrait.

It is often said that out of focus objects are less objectionable in the background than in the foreground, but that is a rule you can break. An out of focus foreground can set off a subject very well.

For medium (most camera lenses, especially the consumer level ones, are sharpest two or three stops from their maximum aperture) to small apertures, focus on your subject, or, to maximize DOF, maybe half or a third of the way into the frame if there is no main subject. Or, keep all your subject on the same focal plane. (eg, doors, windows, walls, rows of flowers).

PREDICTING DOF

DOF preview buttons or levers on the camera stop the lens down to the preset aperture. However, you are then looking at a very small image that suddenly becomes dark, and it can be very challenging to assess true sharpness (thumbnail sized images look great but blow them up to 11X14... and unsharp areas may be revealed) This method is helpful, however, in catching distracting items close to the camera, such as grasses or twigs, and somewhat judging the sharpness of the background.

Lens scales, if your camera has them (more common in old manual focus cameras) and you learn how to use them, will provide a fairly accurate idea of your range of sharpness. **Hyperfocal distance** (below) can be calculated with lens scales.

Equations are calculations that take into account focal lengths of lenses, f-stops, subject distance, etc., but unless you have a talent for that sort of thing, the sun will be down by the time you have figured out your DOF. (editorial comment: yuck)

Charts that come with lenses can give you DOF at various apertures. (editorial comment: yuck)

Educated guesses come with practice/experience. As a start, for **shallow** DOF, use a large aperture (2.8, 4.0), long lens and move closer to your main subject. Focus on the area of the subject you wish to emphasize. For **maximum** DOF, use a small aperture (f16 or f22), perhaps a wide angle lens if it works with the subject, move away from your subject and don't focus on "infinity" (see "hyperfocal distance"). Focus on the main subject or about half way into the scene.

APPLICATION/USES

Maximum DOF (sharp from front to back) is most commonly used where no single item or group of items has more visual importance than any other, such as landscapes, patterns (tiles, flowers, etc.) or scenes showing perspective (fences, roads, rows of trees, etc.) In these types of photos, other compositional techniques (lines, curves, etc.) are used to draw the viewers' eyes to the subject(s).

Shallow DOF is commonly used for portraits or close-ups to isolate the subject from the foreground, background or other objects.

There is no "correct", "good", or "bad" DOF, only DOF which is "appropriate" to the subject you are photographing and the message/mood you are conveying.

HYPERFOCAL DISTANCE

This is a technique used to maximize the DOF in a frame by ensuring that DOF beyond "infinity" is not "wasted". It is dependent on having lenses with distance/DOF scales.

For example, if you use the scales on your lens to focus on something 10 metres away at say f11, your DOF scale might show that distances from 4 meters to **past** infinity are in focus.

If you turn the focus dial to set your point of focus to 4 meters away (in other words, focus closer than you had been), the view through the SLR viewfinder (remember, it is wide open) may look wrong, but the scales will tell you that DOF is 2.5 meters **to** infinity. You have gained another 1.5 meters of DOF without setting any other control.

Thus to put as much of the scene as possible in focus, set your smallest f-stop (say f22 if the light allows) and set the infinity symbol on your distance scale opposite one of the f22 markers. The distance on the other f22 mark will be the closest area in focus, and everything from there to infinity should be sharp.