

Macro and Close-up Photography - Many Challenges

The big challenges in macro or close-up photography are depth-of-field and lighting.

In the October newsletter there was a brief review of some macro issues including the use of flash and depth-of-field. These notes will provide a few more tips.

Flash

Flash is ideal with macro photography to allow you to use a small aperture to get a better (deeper) depth of field. The speed of the flash also helps to kill any subject motion, like wind blowing the subject around. To take advantage of this, I suggest setting your shutter speed to the maximum that your flash will sync at. The lens aperture will still determine the exposure, as the flash duration is way shorter than your shutter speed. This will minimize the risk of any ghost images from ambient light.

If you do this (flash exposure only), you will get a black background (more easily than fixing it in the darkroom or digitally). If you want the background behind the subject clearly visible, then you have to do it differently. You are then really using “fill flash” (the flash lighting is slightly below the ambient light level) to get rid of shadows, or, you are using another flashgun (or more) to illuminate the background independently of the subject.

If you use flash only lighting, you really need either two flashguns, or a good way of diffusing the light, or you will have really deep shadow areas.

Shadows are a problem with macro flash as the flashgun (even if mounted on the camera) is well off the camera/subject axis thus lighting the subject at an angle. One solution is to use multiple flashes or a ring-light, which is the “ultimate” multiple flash.

However, with a little care you can do the job with 2 flashguns though I have used up to 4 on occasion. The main light needs to be positioned off the camera to give a “natural” lighting direction on the subject. The fill light is then positioned on the opposite side of the camera and set to a lower exposure level than the main light, often about 1 stop, but you need to test a few subjects to find out what you like.

Another solution is to use a reflector to bounce the light off of and illuminate the subject with very diffused indirect light. This will give soft shadows or nearly shadow-less lighting. This good for subjects with specular highlights (see my comments on “white blobs” in the October Close-up.)

Depth of Field

Depth of field and focus are intertwined.... And for macro work the key issues are:

- Higher magnification = shallower depth of field
- Higher magnification gives a distribution of depth of field in front of and behind the true focal point that is more uniform (closer to 50/50), than low magnification where it approaches a 30/70 a split.
- A smaller aperture gives a greater depth of field than a larger aperture
- If you change the lens focus point, you change the magnification (and thus image framing)

A consequence of the shallow depth of field is that it becomes increasingly difficult to hand hold and get a stable image. So we usually use a tripod for provide a stable platform. A useful tool is a focusing (macro) stage. This allows you to move the camera body laterally or forwards/backwards without moving the tripod, and without changing magnification by changing the lens focus.

To give maximum depth of field, a small aperture, long exposures (another reason for a tripod), or flash lighting are required.

Most lenses work “best” in the middle of their aperture range. When dealing with depth-of-field issues we have to make a trade-off between depth-of-field and possible diffraction limited resolution at very small apertures.

When you want to use a specific aperture, or range of apertures, it is preferable to set your camera to its aperture-priority mode rather than automatic or programmed modes. That way you set the aperture and forget it, more or less!

Focusing is critical, your objective is to have the “most important” parts of the image in focus, then try and make sure that the available “depth-of-field” is well distributed across the rest of the image. This is easier said than done. What I often do is to take several shots with slightly different focus points, and select the best later. This implies manual focusing, not letting the camera do it.

Subject Ideas....

Mushrooms, mosses, leaves, waterfalls (there are at least 3), birds (dippers along the river, possibly eagles over the marshlands), spiders and webs, dew on the leaves, tree trunks, water – flowing, reflections...

Get down low, bring a sheet of plastic to lie on....

Shoot through leaves (backlight)

Equipment: a tripod is very desirable. Long lens for birds (the dipper is not common and can be found here). Wide angle for waterfalls, macro capable lens for ... close-ups. Flash will be really useful too.

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