Macro witterings.

I use a Panasonic G9 and Olympus 60mm f2.8 macro lens. It is good kit but nothing fantastic or very expensive. The G9 has a micro 4/3rds sensor with a 2x crop which for the same scene and fstop provides more depth of field than a larger sensor and that is helpful for macro. On the other hand a small sensor's smaller pixels result in noticable blur from diffraction at larger fstops.

During the last meeting I commented on this photo by Dennis Back. According to the EXIF data in the image it was shot at f7.4 with a Nikon Coolpix 8700. The 8700 has a 4x crop the sensor being 1/16th the area of 35mm full frame and that accounts for the large dof in the shot.

This page https://www.cambridgeincolour.com/tutorials/digital-camera-sensor-size.htm provides the basics of sensor size considerations.

While a macro lens is ideal there are other options such as extension tubes and close up lenses (both of which can also be used with macro lenses).

A good introduction to macro lenses is here
https://www.cambridgeincolour.com/tutorials/macro-lenses.htm
and a short tutorial on the other options here
https://www.cambridgeincolour.com/tutorials/macro-extension-tubes-closeup.htm

I would advise against cheap close up lenses – they will disappoint. Raynox DCR-150 and DCR-250 are popular choices at around £60. Canon also do decent ones for various thread sizes. I got an old Olympus 55mm one on ebay for £7.

This image is a focus stack. It is the only way to get that much depth of field. The bee was on a window sill lit by daylight and an LED torch laying on the window sill about 6 inches in front of the bee. The torch light produced the shadows from the bee legs and highlights on its ‘fur’.

The bee was live and thankfully the only thing moving much was its tongue (if that’s what they have) lapping up some sugar water.

It was shot with a feature of the Panasonic G9 called post focus. In this mode the camera records a 6k video while racking the lens focus between the nearest and furthest points it can find in the image. The camera will then let you pick any frames from this video to save as images (hence the name post focus). It will also do focus stacking in camera but rarely does a good job. The video is stored in MP4 format and you can extract frames from it and stack in other software.

This mode where you can take a stack of 50-60 frames in a couple of seconds is really your only hope of getting an image stack of a subject liable to move around.

Peter demonstrated stacking in photoshop the meeting before last. Affinity photo also does stacking (which I have not tried). I used Helicon focus for this image which is dedicated to stacking and expensive. There is a free stacking program for windows http://www.picolay.de/ which I have not tried but being dedicated I imagine it can do a better job than photoshop or affinity.

Checking the EXIF data this image was shot at f7.1. I am surprised it wasn’t smaller. It was lit by an off camera speedlight with a small (probably 6x4”) diffuser.

Hoverflies can be really pretty and quite photographer friendly. They will sit on flowers eating pollen for many seconds – not nearly as busy as bees.

Dennis touched on some of the following points in the last meeting.

The biggest problem with macro is lack of depth of field. Some images will work with shallow depth of field but a majority will benefit from more.

When it is possible stacking will give you the most depth of field.

Where stacking isn't possible consider:

Aperture – smaller aperture = larger depth of field limited by diffraction blurring all the image at the smallest apertures. Generally people will trade some blur in the sharp part of the image for more of the image being sharp. Probably more than you want to know about diffraction can be found here

https://www.cambridgeincolour.com/tutorials/diffraction-photography.htm

Focus accuracy – where depth of field is limited you really need to make sure you get the field in the right place.

Focus plane – where you have a shallow plane of sharp focus try to get as much of your subject into that plane. That means if for example you have a butterfly with wings flat you camera needs to be perpendicular to the wings. That is probably quite restrictive from a compositional viewpoint, but, that is your compromise to choose.

Camera and subject motion – blur from camera shake and subject motion is an issue the same as non-macro and worse because your small apertures need slow shutters.

Camera to subject distance – when you only have a few mm depth of field between focusing and shooting your camera to subject distance needs to be held stable to significantly less than a few mm. When hand holding or with a subject moving around I have the camera in a mode where it delays shooting till focus is achieved and I just press the shutter button all the way. It shoots as soon as it is focused leaving little time for the camera to subject distance to change. You can also use manual focus and while you and camera are wobbling back and forth stab at the shutter release when you see sharp focus.

USE FLASH – Using flash to light your subject solves a lot of the above problems. Being so close even a small flash will provide loads of light for the smallest apertures and it freezes subject and camera motion. Going round the garden shooting bugs I mostly have a speedlight with small diffuser in one hand and camera in the other. The flashes I have can do TTL metering over wireless and I usually use TTL because the flash to subject distance is all over the place.

On camera or built in flash can also do the job. People make all kinds of contraptions to turn light from an on camera flash into a diffused light source for something just in front of the lens. Just a sheet of paper held in front of the flash at 45 degrees will work. The flash lights the back of the paper and the front of the paper is a diffused source to light the subject from front and above – try it.

That is all I can think of for now. Hope it gave some insight and ideas.

Regards all, Terry.