

# INTRODUCTION TO MACRO PHOTOGRAPHY

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## PART TWO

### CHOOSING THE RIGHT EQUIPMENT



*Eacles ormondei*

Nikon D850, 200mm Micro Nikkor, f/11.

There is a wide range of lenses and equipment available for the macro photographer. Some accessories are expensive. If your main interest in shooting close-ups, then a dedicated macro lens is the ideal choice and offers the greatest versatility. They are quick and convenient to use and have specially corrected optics that deliver edge-to-edge sharpness across the whole frame. Brand name macros tend to be more expensive, but many independent manufacturers produce excellent macro lenses in a range of focal lengths that won't be just as painful on the pocket. However, if your interest in macro is only casual there are cheaper alternatives and various close-up attachments that will allow your lenses to focus closer than normal. We will look at these in more detail.

## CLOSE-UP FILTERS OR SUPPLEMENTARY LENSES

There are times when you will want your lenses to focus closer than their minimum focusing distance. Some lenses especially those in the short focal length range usually focus closer than longer focal length lenses. If your interest in close-up photography is casual, then you might want to consider a cheaper alternative method of achieving this. One of the least expensive ways of achieving this is to use supplementary or close-up lenses. These are positive lenses that screw into the filter threads on your lens and are an inexpensive way of allowing you to get closer to your subjects.



Hoya HMC Close-up Filter set.

Close-up lenses come two types, cheap, single-element lenses, and two-element colour-corrected units, which although more expensive, produce much better results if used in combination with a good lens. Their small size makes them an ideal accessory for travel photographers where weight may be a significant factor. They also come in a range of strengths typically expressed as diopters normally expressed as +1, +2, +3 and +4; the higher the number, the greater the magnification. Higher magnification units are available, but these tend to suffer in quality particularly towards the edges of the lens. Most single element close-up lenses also suffer from spherical and chromatic aberrations but considering the price they can still produce an acceptable result. Short focal length lenses are often the best choice for these accessories; 50mm-100mm are fine, but the downside is the close working distance between the lens and subject making it more challenging when photographing active creatures; even static subjects such as flowers and fungi can be challenging. Canon and Hoya make a range of close-up lenses. Unfortunately, Nikon no longer makes these lenses, but you can still pick them up second-hand.



Pyramidal Orchid *Anacamptis pyramidalis*  
Nikon D850, 200mm Micro Nikkor,  
at f/8.

## EXTENSION TUBES

These are black hollow tubes manufactured in different lengths and usually sold in a set of three ranging in size. The tubes fit between the lens and the camera body. Most camera manufacturers offer a set of auto extension tubes, but many independent companies also make them to suit some popular camera mounts. They are usually cheaper than the camera manufacturers own brand. Although relatively inexpensive, they are a very useful accessory. All modern extension tubes retain the automatic functions of the lens and can be used individually or in combination.



Two things happen when an extension tube is added to your lens. First, the lens can now focus closer than its minimum focusing distance, producing an increase in magnification, but will not now focus at infinity. Secondly, there will be a fall-off in light reaching the sensor. The amount of light fall-off will vary depending on the focal length of the lens. Since there are no optical elements present within the tube there is no degrading of the image quality.



Red-eyed Tree Frog *Agalychnis callidryas*  
Nikon D3, 300mm 2.8 Nikkor lens + extension tube, at f/8.

Reasonable magnifications can be achieved with shorter focal length lenses however the working distance between lens and subject tends to be quite close. Extension tubes combined with medium range telephotos work equally as well. You will see no real perceptual difference between them except at the extremity of the frame. There are many situations where a longer telephoto with extension tubes can produce a more pleasing result; this is a technique I often adopt with timid insects such as dragonflies and also when photographing some flowers.

### MACRO LENSES

If you are serious about macro photography and plan to shoot a lot of close-ups, then a macro lens is by far the best option not only in terms of image quality but also convenience. Virtually all of the leading camera and lens manufacturers make at least one macro lens. Nikon, Canon and Sigma offer different focal lengths. Although they are designed to deliver their optimum performance in close-up, they can also be used for general photography as well. Macros are highly corrected lenses, especially for flatness of field. This has particular relevance when photographing two-dimensional subjects, for example, illustrations, or documents where you need the lens to be sharp across the entire frame. When applied to three-dimensional subjects such as insects or flowers, it is not just as critical. One of the main advantages of these lenses, when working in the field is being able to compose and photograph from infinity to life-size without having to add and remove extension tubes. Virtually all modern macros can focus from infinity to life-size without the need for any additional extension.



Various focal length macro lenses.  
Nikon's 105mm, 200mm & 85mm.

SHORT FOCAL LENGTH MACROS	MEDIUM TELEPHOTO MACROS	LONG TELEPHOTO MACROS
55mm - 60mm	90mm - 105mm	180mm - 200mm



Variable Damselfly male *Coenagrion pulchellum*  
Nikon D3X, 105mm Micro Nikkor at f/8.



Blacking Waxcap *Hygrocybe conica*  
Nikon D3X 300mm + ext tube, fill flash at f/8.

### SHORT FOCAL LENGTH MACROS

These lenses which are in the range of 55mm-60mm are often referred to as short focal length macros since they are similar to a standard lens on a full-frame DSLR. They are an excellent general-purpose macro and more suited to tabletop photography. The downside is the close working distance between lens and subject and while light in weight they, in my opinion, have limited use in field photography. Another important factor to consider is working off a tripod with a short focal macro can be very frustrating as you are much more likely to disturb the surrounding vegetation with the tripod legs and spook your quarry.

### MEDIUM TELEPHOTO MACROS

The lenses in this group are the most popular and the best compromise in terms of weight and working distance. Nikon, Canon and Sigma produce lenses in and around 100mm. These lenses will give you twice the working distance of a 50mm macro; this makes it an excellent choice when stalking active creatures, or supporting the various macro flash systems currently available from different camera manufacturers. Macros in this focal range give you greater all-around versatility and also make good medium-range telephotos for general photography.

## LONG TELEPHOTO MACROS

Macro lenses with a focal length of 150mm-200mm are more specialised and often used by photographers who have a particular interest in insects, especially dragonflies, butterflies and other timid creatures. Many professionals also find them useful in flower photography since their narrow-angle of view and flattened perspective creates a more diffused appearance to the background making the subject stand out more clearly. These lenses are essentially tripod lenses and considerably more expensive than other macros and therefore not as popular in the amateur sector. Nikon, Canon and Sigma all offer lenses in this focal range. If you plan on doing a lot of insect photography, then it is worth considering a longer focal length macro. Despite their cost and weight, there are some advantages with these lenses. First of all, the working distance between lens and subject is greater. Second, all of the lenses have a built-in tripod collar, which allows rapid change from horizontal and vertical framing without having to turn the whole camera assembly on its side, which can lead to a very unstable setup. Working off a tripod is much easier and with the increased working distance you are less likely to knock the surrounding vegetation, (spooking your quarry), or getting your tripod legs snarled up among the ground foliage. I use Nikon's 200mm Micro Nikkor for the majority of my close-up work.



Having a tripod collar on a long focal length macro allows you to rotate the camera into vertical or horizontal formats without the need to recompose or focus the image. The centre of gravity is also directly over the tripod head creating more stability.



Parasitic Ichneumon  
*Amblyteles armatorius*  
Nikon D3X 200mm  
Micro Nikkor lens, fill  
flash at f/16.

Ichneumonids are nervous insects by nature and frequently on the go. Keeping my distance proved in this case successful. However be prepared for failures you will always discard more than you will keep.

## WORKING WITH FLASH

Natural light is my first choice for conventional macro photography, but it has limitations, particularly when working at higher magnifications. Although current camera sensors have better high ISO performance, there are still many situations especially when photographing smaller insects where faster shutter speeds are necessary to freeze movement.

Flash is the most efficient way to address camera blur and motion. It provides an independent light source, which allows you to operate in challenging situations and achieve results that would be difficult, or perhaps impossible to accomplish with natural light. Other benefits include the use of smaller apertures in situations where you need greater depth of field while using the camera's optimum ISO. This is especially important when you photograph at magnifications greater than life-size since the zone of sharpness is so shallow. Flash, if used as the primary light source, enhances contrast giving your images a little more vibrancy especially in poor light. It also gives you (when necessary) the freedom to operate independently of a tripod.



Nikon R1C1 Macro flash system and Canon's MR-14EXII Speedlite.



Paper Wasp *Polistes gallicus*  
Nikon D3X, 200mm Micro Nikkor, flash at f/11.



European Common Frog *Rana temporaria*  
Nikon D810 200mm Micro Nikkor lens, flash at f/11.

## DIFFUSERS

Although modern digital sensors have a much greater dynamic range than film ever had. No sensor can ever emulate the tonal values of the human eye. These shortcomings are clearly evident on a bright sunny day when the contrast levels are high even for the best sensors to cope with. We could, of course, choose to photograph only on overcast days, but that's not a practical solution, and chances are, the sun will make an appearance just



Medium-sized diffuser used to even out the direct sunlight

when you don't want it to. High levels of contrast are especially detrimental for close-up photography; the intense light causes dark shadows within the image. We want at all cost to avoid these situations. One way to overcome the problem is to use diffusers.

A diffuser is a device that is placed between the light source (usually the sun when working in natural light) and the subject. It softens the light and reduces the contrast. A diffuser is an important accessory in close-up photography. I regularly carry two different sizes with me. What photographers often forget, is that you need to diffuse not only the subject but the background behind it as well. You need to carry a relatively large unit; one that is capable of diffusing the light, both on the subject and the background behind it, otherwise you can end up with a split exposure. In some situations, you may need to elevate your taking position or switch to a longer focal length lens to reduce the background coverage.

Some commercial companies, for example, Lasolite and Photoflex make a professional range of diffusers. The circular units are best suited for macro and easily carried. Professional units are entirely neutral and do not usually have any colour cast associated with them.



The Deceiver *Laccaria laccata*. Photographs depicting direct and indirect sunlight.

### MY OWN STEM STABILISER & WIMBERLEY PLAMP

One of the most popular macro accessories for stabilising moving subjects in the wind is the Wimberley Plamp. The original version, in my opinion, was stiff, and the clasp clamp which attached to your tripod leg meant that if you wanted to make minor adjustments to the position of the tripod you had to be extremely careful not to snap the stem of the plant it was supporting. I also found it difficult to make smooth, minor adjustments to the position since the individual segments were somewhat stiff.



My own design of Stem Stabiliser.

The latest version of the Plamp has been with a modifications and now supports additional accessories. There is also a notch for a diffuser, but I feel it's better to have a diffuser as a standalone unit. Most are too heavy in my opinion to connect to the device. I have, for many years, used my own design of stabilising device long before the Plamp became available. I carry it with me at all times. For more

information on the design refer to my latest book on macro photography. See reference at the end of the article.

### BITS & PIECES

I also carry a few other bits and pieces in my bag including clothes pegs small crocodile clips and string for holding back thin branches from the field of view. A small pair of scissors is useful when you need to remove an obtrusive piece of foliage. I also carry a small paintbrush for removing hairs, dirt and other small bits of debris off the leaves and flowers of plants. Inexperienced photographers frequently overlook these in the field, but they can often diminish the aesthetics of the image and save you time in Photoshop cloning them out.

### POLARISING FILTER

Polarising filters are widely used in landscape photography for saturating clear blue skies and removing reflections of various objects. In close-up photography, they are particularly useful for removing surface reflections from plants, foliage, water and rocks, especially after rain. They also add vibrancy and impact to your subjects in the right situations.



A polariser filter is useful in situations when you need to remove surface reflection from a subject.



Eyed Hawk-moth *Smerinthus ocellatus*  
Nikon D850, 200mm Micro Nikkor at f/8.