

---

# Macro Photography

Scott J. Simmons

## 1. Equipment

### 1.1. Getting Started

- Camera, *tripod*, *cable release*, shutter lock up, lens that can focus close up alone or with attachments.
  - Don't take short cuts. Macro photography demands more precision than many other forms.
  - The equipment can slow you down, force you to be more patient, and you'll take better pictures.
- *Extension Tubes* (SLR Only)—These fit between your lens and camera body and simply add distance between your lens and the focal plane, thereby allowing you to focus closer. More effective at wider focal length.
  - Drawbacks:
    - Your camera won't be able to focus to infinity while the tube is attached to your lens.
    - You will experience a loss of light, loss of shutter speed. On a windy day, this can be frustrating.
    - They add weight to your to your set up, since it moves the lens farther away from your tripod head.
  - Recommendations:
    - Kenko Extension Tube Set (12, 20 & 36mm)—You can stack them.
    - I think Nikon makes a 50mm extension tube with tripod collar, but you may lose autofocus.
    - You don't need a name brand. All the tube does is act as a spacer between camera and lens. You just need to find one that will carry your electronics back and forth without losing functionality.
- *Diopter (Close Up Lens)*—These attach to the front of your camera and magnify the size of your subject by shortening the focusing distance of your lens. More effective on longer focal length lenses.
  - Drawbacks:
    - Your camera won't be able to focus to infinity while the diopter is attached to your lens.
    - You will experience a loss of sharpness in your image. Be sure to use only diopters that have two elements and are corrected for the focal length of the lens you're using.
    - Diopters come in various strengths (noted as +1, +2, +3, etc.), and lose sharpness with strength.
  - Examples:
    - *Canon 250D +4* (58mm), corrected for 30mm – 135mm range.
    - *Canon 500D +4* (58mm), corrected for 70mm – 300mm range.
    - *Nikon 5T +1.5* (62mm), corrected for 70mm – 300mm range.
    - *Nikon 6T +3* (62mm), corrected for 70mm – 300mm range.
  - Recommended: Use the 5T, 6T, or 500D on a 70mm-300mm lens.
- *Macro Lens*—This is the best optical choice for macro photography. The lens is corrected to focus to 1:1, meaning that the image you're photographing is the same size on your film (or sensor) as it is in real life.
  - Advantages:
    - They often have finely tuned optics, making them very sharp lenses.
    - They are often fast lenses, so you can have quick shutter speeds without loss of sharpness.
  - Drawbacks:
    - It's a prime lens, so one more lens to lug around. You may have another lens of same focal length.
    - They're expensive especially at longer focal lengths, which I prefer.
    - You don't *need* one to get a good macro image.
  - Examples (Nikon has similar lenses):
    - *Canon EF 50mm f/2.5 Compact Macro*—Nice, small lens, but it will include a wide background.
    - *Canon EF 100mm f/2.8 USM Macro*—A great compromise between focal length and price.
    - *Canon EF 180mm f/3.5L USM Macro*—Farther away from subject, blurrier backgrounds, tripod collar.

## 1.2. Focal Length

- With short focal length lenses, you will be closer to your subject and have a wider background with more depth of field.
  - For me, this is less desirable. I want to be as far away from bugs as possible.
  - The wider the background in the photo, the more likely it is that it will appear cluttered.
- With long focal length lenses, you can be farther away from your subject and have a narrower background with less depth of field.
  - By moving the camera away from the subject and shooting with a longer focal length, it's more likely that you can limit the background coverage to a single color.
  - You also have a greater likelihood of blurring the background to distinguish it from your subject and create simpler, less cluttered and more pleasing compositions.
  - My advice: buy the longest focal length macro lens you can afford.

## 2. Lighting

- A great composition can still look boring if the lighting is flat or harsh if the lighting is too bright.
  - The best lighting is in the morning or evening, where shadows are not harsh.
  - Mid-day photos can make harsh compositions with blown highlights.
  - Cloudy days (and even drizzly days) are highly preferable. *Nothing's better than a cloudy, drizzly, windless day.* You might be miserable, but your photos will be great.
- Macro photography has a small enough subject area that you can exert control over your lighting.
  - Even in the harsh mid-day sun, you can use a diffuser to cut down on harsh shadows.
  - A white umbrella makes a great diffuser, and you can buy some compact ones in a photo store.
  - To add light on flat days, you can use a white, gold, or silver reflector to add some contrast.
  - You can also use fill flash. Set your flash to under expose by 1.5 stops.
- Use a polarizing filter to cut down on reflections off the leaves.
  - Polarizers have the most effect at 90 degree angles to the sun.
  - This is absolutely essential for macro photography outdoors.
- For moving subjects, use your flash in aperture priority mode and set exposure compensation to -2 stops.
  - Your flash will light your subject and background (if it is close enough).
  - Ambient sunlight will act as a kind of "fill" light to the flash.
  - This will allow you to hand hold your camera and still get sharp pictures.

## 3. Composition

- Two kinds of macro images (at least in my head) and variations between the two:
  - *Isolated Subject*—Here you have a subject—a flower, bee, etc., set against a background that is pleasing or complementary to the subject.
    - It is usually desirable to have enough distance between the subject and background that the background is completely blurry. This is easier with a longer focal length lens.
    - It is usually good to follow the "rule of thirds" and place the main subject of interest in the photo at the intersection of the lines of the rule of thirds.
    - If the subject has a "face," it is good for it to face toward the most open part of the composition.
  - *Foreground Design*—The frame is filled with the design of a particular flower (or other subject).
    - Find a subject of interest that is more specific than a pretty flower. It could be the center of the flower with the petals radiating out of it, or it may be the edges of the petals.
    - Look for lines and shapes, textures and colors that can combine to make a pleasing image.
    - Often you can get the entire image in focus if the subject is "flat" enough. Here a shorter focal length lens has no disadvantage.

- The Rule of Thirds
  - Compositions appear more pleasing if you place your subject on an intersection of the rule of thirds.
  - Mentally divide your frame into 9 equal squares with 2 horizontal and 2 vertical lines.
  - Place a point of interest (the eyes of a bug, the stamen of a flower, etc.) at the intersection of the lines.
  - The stem of a flower may also be put on one of the lines of the rule of thirds.
- Depth of Field
  - In macro photography, you have precious little to work with, even at  $f/16$ .
  - It's often difficult to keep enough of your subject in focus while still blurring your background—the more separation between your subject and background, the better.
  - You can use shallower depth of field to blur out unwanted elements, floral imperfections, etc.
  - You can also use it to your advantage to select your subject and distinguish it from other objects.
- Explore your subject fully
  - If you find an interesting subject, spend a lot of time there and take a lot of pictures.
  - Look at the subject from different angles and points of view. Try to exhaust all possible vantage points.
  - I'm surprised how many photographs I can find if I slow down and look for some time.
- The big challenge is getting your image sharp where you want it to be sharp and blurry where you want it.
  - I gave up on autofocus for macro photography. Just focus manually; it's a lot simpler.
  - Find an angle that gives you enough separation between foreground and background.
  - Keep your camera parallel with the plane of interest, so that you can get your whole subject in focus.
  - Bracket depth of field. Take lots of images at several f-stops and see which ones you like best later.
  - I've been told to keep your aperture larger than  $f/16$ . I've taken some at  $f/22$  but bracket wider.
  - Be patient, especially on cloudy, windy days, and use your mirror lockup function ( $1/10 - 1/30$  sec).

#### **4. Elements of Design**

- Composition is about elements of design: lines, textures, pattern repetition, etc.
  - You want to consider a mood/feeling or an element of design and figure out how to remove all distracting elements from that.
  - Since the flower is only the canvas for you to work with, you can break lots of "rules" for the image.
    - You don't need to include the whole flower—only parts that serve the composition.
    - You don't need to find a perfect specimen—maybe the imperfect parts are of most interest.
    - Find a unique angle—a view from behind or below. Look for out of the ordinary points of view.
  - Above all, keep it simple. Scan the outside of your image and find ways to remove distracting elements.
  - Examine your subject from every possible angle, get close and far away—take lots of pictures.
- I'm a big fan of diagonal lines, whether present or inferred from patterns in the image.
- Obviously, flowers may it easy to find radial patterns, but don't bulls eye them. Find creative ways to make your compositions more dynamic.
- Look for texture—layers of rose petals, water drops, jagged edges, intersecting lines, etc.
- Look also for repetition of elements. I've been told patterns of three are pleasing.
- Also consider the effect of color on your composition.
  - This includes finding a background color that will complement the color of the subject.
  - It may also be that you choose to become relatively monochromatic with your image, cropping out all but one particular color, concentrating on various gradations of brightness of that color.