

Booklet #8: The Northern Virginia Alliance of Camera Clubs

**PHOTOGRAPHING WILDFLOWERS
AND OTHER SMALL SUBJECTS
(An Introduction to Macro Photography)**

by

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PREFACE

The Northern Virginia Alliance of Camera Clubs (NVACC) is an informal organization started in 1997 by Joseph Miller with the assistance of Dave Carter* and Ed Funk. Our purpose is to promote communication and cooperation among camera clubs. We accomplish this by (a) publishing a monthly calendar of the member clubs' activities; (b) conducting training seminars for photographic judges; (c) maintaining a registry of trained judges who serve the clubs' monthly competitions and critiques; and (d) maintaining a directory of speakers who have been recommended by the various clubs. You can learn more about NVACC by going to our web site at www.NVACC.org.

This booklet is one of a series that was developed by NVACC during the period 1998-2008 to capture the considerable expertise of the many accomplished photographers in Northern Virginia and share it with others. Over recent years, we have seen significant change in the photographic art form and very rapid technical advance in both the media of photography (film and digital) and the tools (cameras, lenses, computers, and software). For that reason, the detail of some of these booklets may seem "dated", although the ideas and techniques presented transcend "progress" and the digital-film divide. Watch the NVACC web for new booklets as well as revisions that incorporate new technology and ideas into the existing ones.

Originally, our booklets were made available through member clubs for a small fee that covered the cost of reproduction. Now, however, the booklets are available on www.NVACC.com where individuals may download one machine-readable copy and one print copy per page for personal, noncommercial use only. Written permission from NVACC is required for any other use.

If you would like to know more about NVACC or have questions or suggestions concerning our booklets or services, please feel free to contact us at JoeMiller@NVACC.org.

* Dave Carter, the creator of this booklet and a founding father of NVACC has passed but his photographic skill and artistic vision live on in the technique of all photographers who were fortunate enough to work with him.



Photographing Wildflowers and Other Small Subjects

An Introduction to Macro Photography

Those of us who live in the Washington area are blessed. Within a radius of 150 miles or so we have access to some of the richest wildflower areas in the world. What makes this possible is the vast variety of habitats found from the Blue Ridge Mountains on down to the Atlantic coast. River flood planes are particularly productive because the river carries seeds from all the plants found at higher elevations.

Photographing wildflowers is fun for two reasons: (1) Wildflowers can provide a wonderful source of exciting images and (2) photographing wildflowers puts you in touch with and teaches you about nature. What follows is a brief introduction to the techniques of wildflower photography.

Wildflowers have been chosen for our discussion because there is an extra problem with them not presented with some other small subjects — subject motion. Also, among small subjects, wildflowers are the most difficult to photograph.

Equipment

Camera Body. Most any decent camera body will do, provided it has a depth-of-field preview button, a feature which manufacturers often omit just to keep costs down. With a fixed aperture (f-stop) the closer you focus, the more shallow your depth of field becomes, and it is critical to know how much of the subject will be in focus before you press the shutter button. Ordinarily, when looking through your view finder, you see the image with the aperture wide open, and therefore, with the least depth of field possible. Pressing the depth-of-field preview button closes down the aperture to the chosen f-stop and allows us to see what will be in focus in the final image.

As long as the camera remains in a fixed position and the focal length of the lens stays the same, it is the aperture (f-stop) of the lens which controls the depth of field. Shooting at f/4.5 gives you very little depth of field while taking the picture at f/22 or f/32 allows you to get more of the subject in focus. When stopped down completely, your macro lens (or any other lens) gives you greater depth of field, the depth of field is still quite shallow, so shallow that often you will have difficulty getting the entire flower in focus.

Should you buy a camera body with a depth-of-field preview button even if you don't plan to do a lot of macro photography? My answer would definitely be yes. Depth of field is important in all kinds of photography. However, I wouldn't replace my camera body just to get the depth of field preview unless I knew I was going to do a lot of macro

work over the coming years. If I were starting from scratch, I absolutely would not consider buying a camera body without a depth-of-field preview button.

Lenses. It is not necessary to spend a lot of money on new equipment to get started. While macro (close focusing) lenses are the place to start our discussion, I would not encourage you to buy one right away. It is easy to spend \$1000 or more on a good macro lens. Unless you plan to do a lot of macro photography, practice with some of the cheaper accessories. Not everyone has the interest and the patience required to photograph wildflowers and other small subjects.

I use the Nikon system so the Nikon macro lenses available to me come in focal lengths of 60 mm, 105 mm, and 200 mm. Each of these lenses is superb, but the 200 mm lens is by far the best choice for wildflowers and most other small subjects. There are three reasons for this. First, the longer the focal length the more control you have over the background. Because the 200 mm macro lens has such a narrow angle of view, the background area seen is smaller than one gets with wider angle lenses. Consequently, moving the camera only a small distance can completely change the background to something more suitable. The second reason is that Nikon's 200 mm macro lens has a collar that allows you to take vertical pictures more easily. That makes setting up your shot a lot easier. With wildflowers, you will probably use a vertical format more often than a horizontal format. Third, the 200 mm macro lens provides the greatest working distance between the lens and the subject.

How are macro lenses different from other lenses? Of course, they focus more closely than non-macro lenses. They also give better edge-to-edge sharpness and they sometimes have smaller apertures needed to get greater depth of field. Macro lenses can be focused at infinity, so they can be used like any other lens. I use my 200 mm macro lens as a regular telephoto. I use my 60 mm macro lens for copy work. The 105 mm macro lens can be used as a general purpose short telephoto lens, but be careful in using it for portraits. It gives more detail than you may want with subjects who have complexions which are less than perfect.

Extension Tubes and Bellows. Extension tubes are hollow tubes (no lens elements) which go between your lens and the camera body. They make it possible to focus closer. I recommend getting the same brand as your camera body. Extension tubes are a lot cheaper than a macro lens. The disadvantage of tubes is that they cause a loss of light. A full set of extension tubes usually results in a loss of two stops of light making it very hard to see through your view finder. A two-stop light loss also means that your shutter will be open four times as long. Under these conditions, the slightest wind makes shooting wildflowers difficult.

A bellows is a variable extension tube made of fabric folded accordion style. It works

well in a studio, but the fabric tears easily in the field which ruins the bellows completely. The bellows is expensive and bulky and really has little use in wildflower photography.

Two-Element Diopter Lenses. Diopter lenses look like clear filters. They screw onto the front of your lens and magnify the image by allowing you to focus closer. Diopter lenses come with either one lens element or two, and it is difficult to tell which is which just by looking at them. The one-element diopter lenses usually come as a set and the different strengths are frequently designated as +1, +2, and +4. I do not recommend their use because the edge-to-edge sharpness is poor.

The two-element diopter lenses are more expensive, but they give excellent edge-to-edge sharpness which is critical in most macro work. Diopter lenses do not result in a loss of light making them by far the best way to go when selecting new equipment. Diopter lenses may be stacked for greater magnification. They are the easiest to carry of all the macro accessories. They can be used with either macro or non-macro lenses. They are cheaper than any other macro accessory. Need I say more? Just be sure you get the type with two lens elements. Otherwise, they are likely to end up in the trash.

Double-element diopter lenses, like filters, come in different sizes. Nikon makes them in 52 mm and 62 mm sizes, each size in two strengths. Cannon makes them in 52 mm and 58 mm sizes, each with two strengths, and in 72 mm and 77 mm in one strength each. If your lens takes a different size filter, buy an appropriate step-up ring and get the diopter lens in the next largest filter size. If your lens requires filters larger than 77 mm the weight of your lens just caused your camera and tripod to fall forward crushing your subject.

Tele-Converters (multipliers). Teleconverters, sometimes called multipliers, go between the camera body and the lens. Unlike extension tubes, they do contain lens elements. They are used to increase magnification, usually when shooting over a long distance when you don't have a long telephoto. They can be used with either macro or non-macro lenses. What they do is multiply the focal length of the lens. A 1.4X teleconverter multiplies the focal length by a factor of 1.4 making a 100 mm lens into a 140 mm lens. A 2X tele-converter multiplies the focal length by a factor of two. Although they are sometimes available, 3X tele-converters are not very useful because the optical quality is rarely as good as it should be.

Teleconverters can also be used to increase magnification when focused on a subject that is only a few inches away. Good tele-converters are expensive and result in the loss of light (one stop for 1.4X and two stops for the 2X tele-converter). John Shaw reports that cheap tele-converters may be of acceptable quality in macro work, but not acceptable for shooting over long distances. I have never put Shaw's assertion to the test.

Tripods. The effects of camera motion (and subject motion) are magnified in macro photography. Therefore, camera support is critical. My friend Jim Steele has often said that there are only two pieces of equipment that will definitely improve your photography, a good tripod and a waste basket. This is especially true when working with subjects close at hand.

It is often tempting to the beginning wildflower photographer to purchase a light-weight tripod for walks in the woods. However, cutting down on the weight usually means sacrificing stability. Stability is one of the most important keys to successful macro photography. Bogen and Gitzo are particularly good brands. An important feature to look for is that your tripod must be one that allows you to get close to the ground. Most tripod heads make small adjustments difficult. I recommend Bogen's compact geared head, model 3275. All adjustments are made by turning knobs. It is a great aid in fine-tuning your composition.

Focusing Rail. If you do a lot of macro photography, it might be worth your while to invest in a focusing rail. This device mounts on the tripod and allows fine adjustment in the distance between the camera and your subject. It is bulky and can be expensive. I would not recommend buying one unless you are strongly committed to macro photography. A few focusing rails may allow lateral adjustments, but I have never seen one.

Cable Release. A cable release allows you to trip the shutter without shaking the camera. It is cheap and extremely helpful. Some photographers use the self-timer on their camera to trip the shutter a few seconds after the shutter button has been pressed. This permits camera vibrations to die down before the picture is taken. However, this technique won't work in wildflower photography because you don't know whether the wind will produce motion in the flower at the time the shutter opens.

Flash Units. Flash can be useful, especially when your subject is blowing in the wind. However, flash will not be discussed in this document. In my view, the problem with flash is that all your pictures have a sameness about them. Part of the beauty of wildflowers lies in the variety of light in which they are found. If you would like to read more about the use of flash, see the books by John Shaw listed in the bibliography.

Reflectors. Reflectors can be useful to lighten up shadow areas. Commercially manufactured reflectors are available, but crumpled aluminum foil over cardboard works just as well.

Scissors. I always carry a small pair of scissors with me to cut away pieces of grass and other plants which protrude into my picture space. Cut sparingly. Leave the environment with as little damage as possible. I recommend blunt scissors to avoid

accidents when you are searching through your camera bag.

Twist Ties, Coat Hangers, etc. Sometimes I use twist ties found around coat hangers when I pick up my dry cleaning to tie back foliage that gets in the way. Even the coat hangers themselves can hold back larger branches. Just be sure to untie everything when you finish.

Starting Equipment. Unless you already have some of the items discussed above, I would suggest that you begin photographing wildflowers with a good tripod, whatever long lens you own, and a double-element diopter lens that fits the telephoto lens you plan to use. When the diopter lens is available in more than one strength, start with the weakest. As you will see below, moving in too close is a common error. In addition, some macro photographers feel that the weaker diopters work best on zoom lenses.

Techniques

Where and when to find wildflowers. My personal choices of when and where to go are in the spring, either in the woods or along river flood plains. Wildflowers are everywhere, and a small number of our local species may be found even during mild winters.

Many wildflowers can be found even in big cities, perhaps growing in a crack in the sidewalk. Although pictures of these flowers usually are not considered nature shots because they are likely to show "the hand of man," such images are part of the story of wildflowers and should not be neglected.

Focusing. For best results make sure the flower is parallel to the film plane. If the absence of wind permits, focus one-third or one-half into the area you want sharp. For increased depth-of-field, stop down to at least f/16.

Best Weather and Light. Look for days with little or no wind to minimize the problem of subject movement. Bright sunlight creates problems. Film cannot record a great range of light, especially slide film. As long as you keep the sky out of the picture, cloudy days reduce the range of light by eliminating strong shadows.

Finding the Right Specimen. Try to find a perfect specimen in a perfect spot. A perfect specimen is at the peak of its blooming cycle, or perhaps forms a perfect bud. Make sure that insects or other critters have not eaten any part of the flower, stem, or leaves.

A flower in a perfect spot means that the background is free of distractions and complementary to the flower itself in terms of both color and tone. A good background is critical to good composition. I always begin composing for the background.

I also look for space around the flower because I need adequate working distance between my lens and the flower. Getting too close makes it more likely that you will damage the flower. You will probably want to avoid knocking off any dew that may be present on the petals.

Sometimes it is necessary to clean the flower, especially if there are bits of spider web on it. Pieces of web and dirt can be cleaned off best by using a Q-tip or a small paint brush very carefully. If there is dew on the flower don't touch the blossom at all.

Use your scissors to remove blades of grass and other leaves which do not contribute to your composition. Please try not to damage plant specimens.

Choosing a Point of View. Examine the specimen carefully. Select a point of view that gives a pleasing composition with a simple background.

Selecting the Film. There is a large variety of films from which to choose. I won't survey them all, because personal preference plays a big role in film selection. My primary consideration is that texture is of key importance when making portraits of flowers. To reproduce this texture you want a fine grain film which eliminates the faster films. My personal preference is Ektachrome 100S. If I want to warm the image I use an 81B warming filter. This gives an effect similar to that which you get using Ektachrome 100SW. Using the filter gives me more flexibility.

One other film worth mentioning is Ektachrome 64. This film is not well known. It is a bit softer than most other films, but it gives excellent separation of hues when those hues are very similar. This film is especially useful in the studio where subject movement does not make it difficult to use very slow films.

Using Other Filters. The use of warming filters has already been mentioned above. I rarely use other filters in photographing wildflowers. Nevertheless, some other filters are worth mentioning. Many plants have leaves and flowers that are shiny. Glare can sometimes be removed by using a polarizer. This may be your best method of contrast control.

Color correction filters (10% strength) in magenta, green, yellow, and cyan are occasionally useful in punching up the color of a flower. Just be sure that the color of the background and leaves are not adversely affected.

Choosing the Magnification. All of the devices for increasing magnification discussed above can be used in the field. They can be used in combination with each other. For example, you can start by putting a teleconverter on your camera body. To that attach first extension tubes and then a macro lens. On front of the lens you can add more than one diopter lens. This achieves magnification which will probably be adequate to fill the

frame with a blossom that is quite small indeed.

However, there are some disadvantages. You will have lost so much light that you can hardly see through the viewfinder. (Keeping your eye to the eye cup for a while allows you to adapt to the dark to some extent.) The loss of light makes both focusing and composing difficult. In addition, all the weight you have added to the front of your camera reduces camera stability. Finally, so much magnification makes it almost impossible to deal with subject motion, for example, that which is caused by the wind. So much light is lost that a shutter speed of two to four seconds would not be unusual. You have to look through the view finder to make sure the wind is not blowing before opening the shutter. I keep my eye in place to see if there is motion when the shutter closes. If there is, I know I have to take the picture again. Be careful not to bump the camera while the shutter is open.

Choosing an Aperture. With a lot of magnification, you will get very little depth of field. If you have some distance between the flower and your background, you can throw the background out of focus. This reduces many of the obtrusive elements in the background. (It does not reduce hot spots, light areas that exceed the range of the film.) Use your depth-of-field preview button to see whether you have selected an appropriate aperture. If you don't have a depth-of-field preview button, or even if you do, focus on the background itself. This will help you find elements which may be obtrusive even if they are out of focus in the final image.

Look in the viewfinder to determine whether you have enough depth of field for the flower itself. If you do, and your background is satisfactory, take the picture. If you can't get the focus the way you want it, take a different picture.

A Final Word About Contrast Control. All films, especially slide films, are limited in the degree to which they can render brightness contrast accurately. Dark areas become too dark while light areas become too light. The best way of controlling contrast is to photograph in diffuse (soft) light such as one finds on cloudy days. If you must photograph on sunny days, find a specimen which is in shadow or find a way to create a shadow which covers both the flower and the background. For example, this can sometimes be done by strategically placing your jacket between the subjects and the sun. If contrast is too great, there is no point in making the photograph.

Controlling the Wind. I would suggest that you use natural means of wind control. For example, if you find wildflowers growing on both sides of a hill, photograph one of the specimens on the hillside away from the wind. There are also times of day which have less wind than other times. The wind is usually lowest at sunrise and sunset. Take advantage of these opportunities.

Some photographers build their own portable windscreens and at least one is available commercially (from Craig and Nadine Blacklock). In my experience, such screens do not work very well and they are cumbersome to use. I advise you to save your money.

Exposure and Bracketing. Finding the appropriate exposure can be difficult because the scene nearly always has a lot of contrast. Most flowers are light in color while most backgrounds, especially dirt, foliage, and some tree trunks, are rather dark. In addition, many yellow and some white flowers have petals which are waxy. These reflect an extraordinary amount of light. You are best off using a gray card behind the flower when you make the light reading. Then shoot the picture in the manual mode.

As an alternative, you can set your camera on aperture priority and shoot one frame without any exposure compensation. Now shoot three more frames, one underexposed by $2/3$ of a stop, the next underexposed by $1-1/3$ stops, and the last underexposed by 2 stops. With this bracketing you are likely to get an acceptable exposure.

You can also bracket on both sides of the exposure made with the gray card, say $1/3$ of a stop or a half stop in both directions. Exposure is likely to be most accurate with the gray card method and a little bit of bracketing.

There is no reason to shoot wildflower pictures in the shutter priority mode ever. The depth-of-field problem is just too critical not to choose the aperture first and let the shutter speed fall where it may.

Composition

Composition will not be discussed at length. However, there are a few points which should be kept in mind.

Flower pictures often contain circles, ovals and curved lines. These are shapes which often communicate gracefulness. Make sure that you use these shapes to your advantage.

Balance conveys peacefulness while imbalance communicates tension. Be consistent with your message and try to create balanced images when you are trying to convey gracefulness with the flowers.

Compose for the background. The simplest background possible is best for most flower pictures.

Rhythm is also important. Rhythm is created when repeated shapes, lines, colors, or tones are present.

Be sure that you photograph flowers in such a way that their texture is emphasized.

Don't get too close, especially when you are just beginning. It only makes focusing much more difficult and decreases the depth of field. Often it is wise to move back a little and get several blossoms in the picture. Spread them evenly throughout the picture space for best results. Uneven numbers seem to work better. If there are any distracting elements in the background, also distribute them evenly throughout the picture space.

The rule of thirds is often inappropriate for flower photographs. It is often better to center them with equal space on both sides, and maybe the top.

Usually the vertical format is used with flowers. But don't neglect the horizontal orientation.

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Note: There is a blooming calendar for the Potomac Valley region. The calendar is meant to serve as a guideline.

For questions, or to order a copy of the blooming calendar, contact NVACC via their web site... www.NVACC.org

Photography is an art, but so is finding a subject without destroying the local ecology. I will show you how to find wildflowers and photograph them without harming the environment. These suggestions work anywhere; the pics I will be sharing were taken, literally, in my own back yard. Add Tip.Â Step 1: Choose a Camera. There is no pic for this step, as it obviously varies greatly on personal taste, resources, and skill. I do suggest that you keep the following in mind when making your camera choice: Ease of Use...it's nice to have something uncomplicated so you aren't required to lug equipment around on your hike.