Close-up nature photography gives me a unique way to explore my surroundings. I see things I wouldn’t ordinarily see because my mind develops a search image for small objects. With my camera in hand, the prairies I walk through and work in almost daily become a whole new world full of engaging creatures and beautiful patterns. My own backyard becomes a wilderness full of predators and prey that I wouldn’t have otherwise paid attention to.

Illinois bundleflower seeds in their pods (left) and a robberfly perched on a stem (right).

**Equipment**

Besides the new perspective on the world, and the fact that you don’t have to travel far from home to find great photo opportunities, another great thing about close-up photography is that it doesn’t take a lot of expensive equipment. It’s not free, but you don’t have to trade your car for a big wildlife lens! There are essentially four necessary pieces of equipment: a camera, a macro lens, a tripod, and a cable release. I always use natural light, but many insect photographers find a ring flash or other flash system useful as well.

Your camera doesn’t have to be anything expensive. For years, I was taking great close-up photos with a 1960’s manual focus Canon camera. The camera is mainly just a box that holds your film (or nowadays, your sensor). The key is to get a camera that allows interchangeable lenses – in this case, a macro lens, which I’ll get to in a minute. You also need to be able to control the exposure and aperture manually. The lowest end digital SLR cameras from most manufacturers will usually fit the bill. I’m using a Nikon D300s right now, which is a nice camera, but really more than I need for macro work.

Finding a good macro lens is important, so don’t cheap out on it. You’ll probably end up spending between $500 and $1000 for a nice lens. There are a range of focal lengths – usually between about
50mm and 200mm - that will allow you to get a 1:1 macro ratio. That 1:1 ratio used to mean that you could focus tightly enough on a subject that it would appear life size on a 35mm negative. I don’t know exactly what it means with digital technology, but I know you want it. There are ways to get even better magnification, such as adding close-up filters (like screw-on magnifying glass lenses) or extension tubes, but unless you’re photographing the eyes of fleas, you probably won’t need them. I have a Nikon 105mm macro lens, which I really like. It has a long-enough focal length that I can be a comfortable distance from an insect (comfortable for the insect, I mean) and it also reduces the amount of background in the photo. A longer lens, like a 200mm can be nice too, but sometimes you have to be so far away from the subject it’s difficult to keep grass stems or other things out of the way between you and the subject (especially in prairies). A shorter focal length gets you close to the subject and you get more in the background – something I don’t want, but that might appeal to you, depending on what kind of photos you take. Some people get by with just buying close-up filters (the screw-on type again) and putting them on regular lenses to make them focus closer – and some are happy with the results. I’ve never tried it, but am always leery of putting more layers of glass between me and my subject.

![A jumping spider in Sarpy County, Nebraska.](image)

If you’re buying a tripod just for close-up photography, it doesn’t have to get very tall or have a super-strong head to hold long lenses steady. On the other hand, you may want those features if you photograph things other than just bugs and flowers. A good close-up photo tripod allows you to get the camera close to the ground and has a tripod head that makes it easy to adjust your camera’s position very slightly (important for last-minute adjustments on small subjects). It’s nice if the legs can spread very widely and lock in various places. Some tripods let you reverse the center post so it points downward, which sounds great, but then you’re squeezing between the tripod legs to use an upside
down camera... I like carrying a small Bogen tripod with a compact ball head for close-up work, but I also have a bigger tripod for other photography – that also works for close-up photos.

Another useful tool I occasionally use is a Bogen super clamp. Originally designed to hold big flashes, I think, you can order a special plate for it that allows you to attach a tripod head to the clamp. Then you can clamp a tripod head anywhere on your tripod’s legs – or elsewhere – to get your camera right down to the ground for easy close-up shots. I don’t use it often, but I always carry it with me because when I need it, I need it.

My small tripod, showing my Bogen super clamp and ball head attached to one leg.

Finally, if you’re going to use a tripod, you need to also have a cable release (aka a remote shutter release). This is just a cable with a button that allows you to click the shutter without touching the camera. As I’ll discuss in a moment, many close-up photos are taken with a relatively long exposure time, and it’s important not to jiggle the camera by pushing the shutter release button on the camera itself. Unfortunately, cable releases for today’s digital cameras are apparently made by endangered pandas in secret underground laboratories, because they can cost between $50 and $100 each. Look around for cheap knock-offs (mine cost about $4) and buy several in case they break.

**Controlling Depth-of-Field and Background**

One of the trickiest things about photographing small subjects is that not much of the photo is in focus – there is a narrow depth-of-field. When you focus on a particular spot, the distance in front of, and behind, that spot where things are also in focus is your depth of field (see illustration below). The more magnification you have, the less depth-of-field you have. However, you can also control depth-of-field with your aperture settings. A wide open aperture of 3.5 or so will have very little depth-of-field compared to a closed aperture of 22 or higher. So if you want more depth-of-field, you can close down
the aperture – but that also means you have to use a slower shutter speed. It’s not unusual for me to use shutter speeds of over a full second or two just to get enough depth-of-field to make a photo work. (This is why it’s so important to have a tripod and cable release).

When working with a narrow depth-of-field, it’s important to make good decisions about what part of the photo really needs to be in focus and what parts don’t. With insects or other animals, it’s almost always important for the eye to be in focus, even if little else is. When you look at a photograph of any animal, your eye is drawn to its eye, and if it’s not in focus the photo just looks wrong. For other subjects, like flowers, think about what the focal point of the photo will be for the viewer – what will draw their eye the most – and make sure that’s sharp.

One trick that helps keep as much of the subject in focus as possible is to swivel your camera around so the subject is parallel to the surface of your lens. In other words, get broadside to your subject. This is much easier with relatively flat things like butterflies and leaves, of course, than it is with many flowers, but there usually ways of “flattening” the subject (not literally, of course) by moving the camera. Again, a tripod makes this easier because you can take your time and set up just right.

A cricket frog peers at my camera (left). While much of the frog is fuzzy because of shallow depth-of-field, I made sure to get the eye sharp. Right: Side-oats grama is difficult to photograph, but in this case, I was able to position the camera so that the grass stem and seeds were parallel with the front of my camera, allowing me to get them all in focus.

While it can present a number of challenges, shallow depth-of-field isn’t all bad. Often, it’s really nice to be able to “fuzz out” distracting elements in a photo. This is helpful when you want to draw the viewer’s eye to a particular part of the photo, or when you want to isolate the subject from its background. Normally, my decisions about depth-of-field deal with things like grass stems or leaves
behind a flower or insect. The extent to which they appear in the photo is determined by how far behind the subject they are. Sometimes it’s nice to have a few leaves or flowers behind a subject to provide some context and layering to the photo. Other times, it’s nice to have a perfectly clean background, where everything behind the subject is far enough away that it’s completely fuzzy and blended together. When you’re trying to create a clean background, you can play around with different camera angles that change the background – especially by shooting so that there is open space behind the subject. Many times, moving so that the background is a uniform color (e.g. all green grass with no brown stems) can help. Other times, a mixed color background works well. The important thing is to be conscious of the background and think about it before you take the picture. Sometimes bending a few grass leaves out of the way (be ethical about this) can make all the difference.

![Gray hairstreak butterfly on big bluestem.](image)

Gray hairstreak butterfly on big bluestem. I was able to position my camera so that the butterfly was parallel to the camera and so there were no distracting stems in the background.

Another important element of the background of close-up photos is the horizon line. In almost all cases (but not all), a horizon line behind a close-up photo is distracting and shows that the photographer wasn’t paying close attention to the background. Moving the camera just a little higher can often eliminate the sky from the photo and create a cleaner, more uniform background. The biggest problem with including the sky in a close-up photo is that the sky is so much brighter than the subject and the rest of the background that it becomes washed out and overly bright. There are, of course, exceptions to that, especially when you’re trying to silhouette something against sunrise or sunset light or when there are nice dark storm clouds in the air. Regardless of what you put in the background, be sure you do it on purpose.
The photo on the left is problematic because of the horizon line through the middle of it. By getting a little closer and raising the camera slightly (on a tripod) I was able to get a cleaner, less distracting, background.

Weather and Light

As with any other kind of photography, the most important factor is light. There are three important components of light I pay attention to: direction, intensity, and color. Light can come from behind the subject (back light), behind you, and toward the subject (front light), or from the side (side light). Each of those creates unique effects. Back light can be great for silhouettes, for example, but the detail of a small subject is often lost to shadows – not usually a good thing. Front light illuminates the subject well, with no shadows, but can sometimes be less interesting, for the same reasons. Side light can create some interesting patterns of light and dark (portrait photographers usually incorporate side light for that reason) but can also be distracting if those patterns are too contrasty. All three directions of light can be useful – the important thing is to recognize what the light is doing and use it consciously.
The late afternoon light on this grasshopper was right on the edge of being too intense for a good photo. You can just start to see a few washed out highlights, and the color is not as warm as it would have been in 15 more minutes. In this case it worked ok, and the side light (from the left) it provided some interesting shadows that added texture to the photograph.

The intensity of light is often more important than the direction. Bright sun in the middle of the day creates light so intense that a camera can’t pick up the entire range of light to dark, so part of the photo will usually be washed out and overly bright while other parts are completely black. Before and after sunrise, the dim light creates very little contrast between bright and dark, but that lack of contrast can sometimes also mean uninteresting photos. Bright overcast days - when you can almost, but not quite, see your shadow - are wonderful because they give enough light to see details but not so much that you get harsh shadows or washed out areas. The hour or so right after sunrise and right before sunset are also great times because the light is diffused as it passes at a low angle through the atmosphere. A few light clouds along the horizon also can help stave off the harsher light that comes as the sun gets higher in the morning and (or allow you to start shooting a little earlier in the evening.)

The other great thing about early and late day light is its color. When the sun is a nice warm color (e.g. orange or pink), so is the light coming from it. When that warm light reflects off of an insect, flower, or anything else, it makes it glow with color. In contrast, the brilliant white sun of a cloudless afternoon has no color to it and heavy overcast conditions and deep shade tend to produce a bluish cast. Bright overcast days don’t color the light, but they still tend to produce saturated colors in close-up photo subjects – but skies tend to look boring and white/gray, so bright overcast days can make scenic photos difficult.
The photo of larkspur (left) shows golden highlights from early morning sunlight. I also tried to get the lower two flowers in the same plane (relative to the camera) so they were both in focus. The hoary vetchling on the right was taken on a bright overcast day.

Finally, when taking close-up photographs, the other important weather factor is the wind. Trying to photograph an insect on a flower with a slow shutterspeed is nearly impossible when that flower is bouncing around in the wind. Yes, it can be fun to play with artistic blurring of flowers as the wind blows them around, but how many of those photos can you really take?? Sunrise and sunset can be good times for low wind speeds, as well as for nice light, because the wind tends to be calmer at those times of day – but, of course, not always. The perfect day for close-up photography is a bright overcast day with calm winds. When I look out the window and see those conditions, I do what I can to free up my schedule so I can walk around with my camera – at least for a little while.

Close-up photography is not terribly expensive and doesn’t require long trips to exotic locations. Even better, it allows you to see things up close that you might have otherwise walked right past. I’ve discovered more about the prairies I manage by photographing them than I have through research because photography forces me to get down on my knees and look around. The creatures, plants, and patterns I find there always amaze me, and I can share what I see with others. Grab your camera – don’t forget the tripod – and go exploring!