

# 9 Tips For Depth Of Field Control

Text and photography by Timothy Edberg

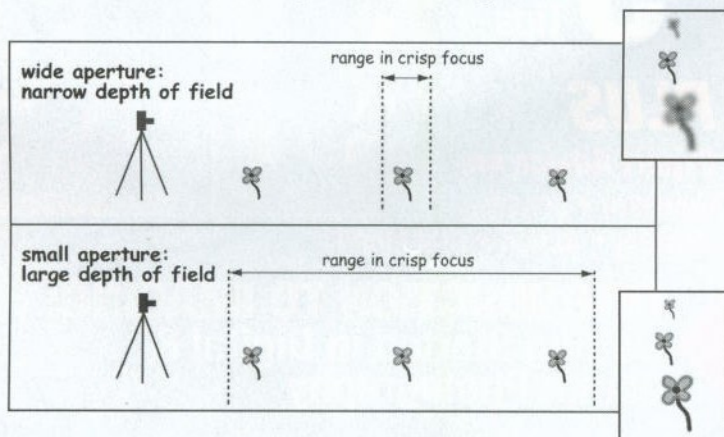
## quick fixes

### MOVE THE CAMERA

Moving the camera closer to the subject decreases depth of field (for a given aperture and focal length), while moving away will increase it. Don't attempt to move away to increase depth of field and then switch to a longer lens to refill the frame with the subject. You'll wind up with same depth of field you started with. The laws of optics dictate that for a given subject size in the photo, distance and focal length cancel out and only the aperture determines the depth of field.

DEPTH OF FIELD IS one of the most crucial determinants of the look and feel of a photograph, and is arguably one of the least appreciated. "Depth of field" refers to the zone on either side of your focus point, that is from near to far acceptably sharp. Things outside this zone of crisp focus, be they closer to you or farther away, will be noticeably blurry in your picture.

You, the photographic artist, should choose the depth of field that fulfills your artistic interpretation of a scene. A narrow depth of field will keep only a thin slab of the world in focus, riveting the viewer's attention only to objects within that narrow space; a large depth of field can render everything in your photo sharp so that the viewer sees everything in the scene. This sketch, in which the camera is focused on the middle flower, helps illustrate the point:



Four factors control depth of field: 1) lens aperture, 2) lens focal length, 3) distance to the subject, and 4) the size of the film or digital sensor in the camera. You usually choose focal length and distance for the best composition, and you are surely stuck with the film or sensor in your camera. In practice, therefore, aperture is the primary control you exert over depth of field.

### TIP 1: Aperture Control

A large aperture (small f/number) creates a narrow depth of field, a small aperture (large f/number) creates a greater depth of field. To bring attention to one primary subject, shoot wide f/numbers such as f/2.8, f/4, or f/5.6. Isolating a subject in this way is called "selective focus."

### TIP 2: Avoid Excessive

Lens sharpness tends to suffer at the smallest apertures, so don't stop down all the way unnecessarily. Stop down just enough for the depth of field you need, and no more. Some lenses have depth of field engravings on the barrel; see my website ([www.edbergphoto.com](http://www.edbergphoto.com)) for a discussion of how to use these markings. In the photo of the asters, I used f/11—just enough to give me sharpness everywhere







Conversely, to keep the whole scene sharp, shoot with the lens stopped down to small apertures like  $f/16$  or  $f/22$ . I usually do this in nature scenics. The pair of pictures of Agawa Falls in Ontario illustrates the creative control that selecting depth of field provides: one has the foreground leaves blurry, and one has them sharp.

## Depth Of Field

while keeping as much lens resolution as possible. Be advised that what constitutes "acceptable sharpness" when defining depth of field is a judgment call and also depends on the final print size. So take any aperture calculations as a guide—not a rule.







## TIP 3: Focus Into The Scene

The depth of field zone extends farther behind the point of optimum focus than in front. This means you'll make the most out of your available depth of field if you focus about a third of the way, give or take, into the scene. In the photograph of the snow-covered boulders, for example, I focused on the tree to keep everything sharp.

## MOVE THE SUBJECT

If you are at liberty to move your subject, moving it away from the background will improve a selective focus image, since the background is then farther from the zone of sharpness. On the other hand, if you want the background sharp, move the subject closer to the background.

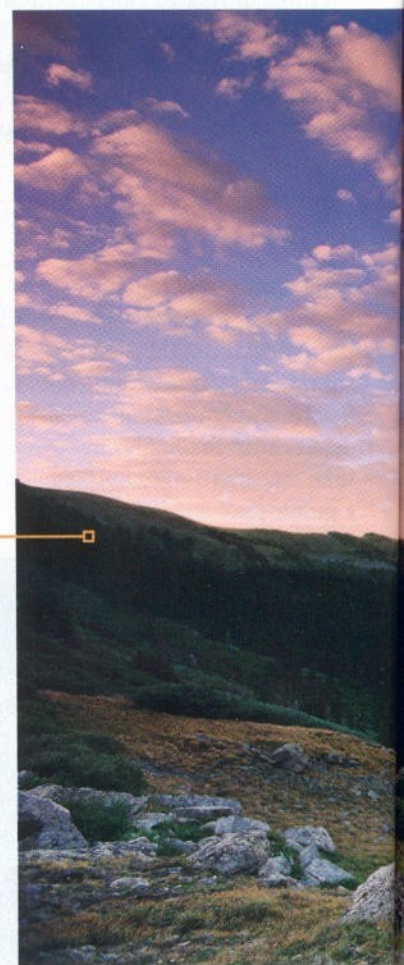
## TIP 4: Use A Tripod

If you stop down the lens to gain depth of field, you'll be forced to use longer shutter speeds to maintain proper exposure. A tripod provides a stable shooting platform when using shutter speeds too slow to hand hold. I took the Sierra primrose picture without using a tripod, and you can see the inadequate depth of field I was forced to accept because of the need for a fast shutter speed (and therefore a wide aperture).



## TIP 5: Hyperfocal Distance

Every aperture has a corresponding *hyperfocal distance*, or the distance at which to focus to obtain optimum depth of field. Focusing at the hyperfocal distance maximizes the depth of field for that aperture: the depth of field extends from half the hyperfocal distance out to infinity. In the Rocky Mountain dawn picture, the nearest boulders were about 20 feet away. This meant I needed a hyperfocal distance of 40 feet, which I could accomplish using  $f/2$  with my 24mm lens (although I shot at  $f/4$  for an extra safety margin).







## TIP 6: Depth Of Field Preview

With an SLR camera the viewfinder sees the world through the lens—but always at its widest aperture (and narrowest depth of field), regardless of what  $f$ /stop is selected. Some SLRs have a depth of field preview button that enables you to stop down the lens to the shooting aperture so you can see what the final picture will look like. I used this feature when taking the photo of the holly in snow to verify that the background would be sufficiently out of focus. This preview feature also enables you to discover if some distracting foreground element, blurred to the point of invisibility at the widest aperture, makes an unfortunate appearance when the lens is stopped down.







## WHEN IT JUST DOESN'T MATTER

In situations in which the depth of field just doesn't matter, like when you are shooting something at infinity on the horizon or a flat subject viewed head on, shoot with the lens stopped down a couple or so stops from wide open. For most lenses this is the "sweet spot" where they are at their very sharpest.

## TIP 7: Keep the Camera Parallel

When depth of field is limited, try to arrange the dominant plane of your subject to be parallel to the camera back. This keeps the subject fully within the narrow zone of crisp focus. Depth of field is especially small with close-up photography, so in the caterpillar image I took pains to line the camera up exactly broadside to the body of the creature.

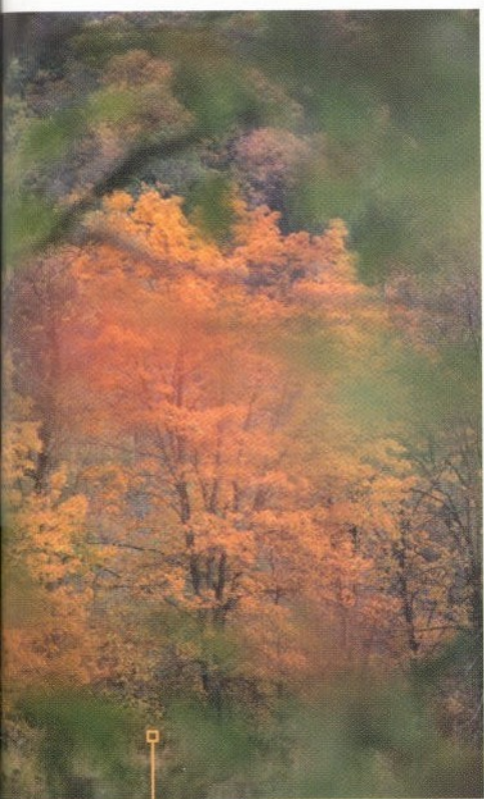
## TIP 8: Change the Focal Length

The focal length of the lens you use is typically determined by your choice of composition. For those occasions that lend you the freedom to alter the focal length, however, longer focal lengths have inherently less depth of field than shorter

lenses. Thus, you can zoom or change lenses to alter the depth of field. I shot the pair of horses with a 200mm lens, and there was no way I could keep both in focus with the limited depth of field of this telephoto lens.







## **TIP 9: Blur the Foreground**

Choosing a wide aperture and focusing on a distant object will throw foreground objects out of focus. Often this makes the foreground objects distracting if they are only slightly out of focus, but it can sometimes blur them to invisibility as a means of reducing clutter in an image. Even if nearby objects are not totally invisible, "shooting through" the foreground can add atmosphere to a photograph. By shooting through some strongly-colored foreground leaves using a wide aperture in the fall foliage image, I meant to convey a soft romantic feel. ■