

BUCHANAN FODDER

FROM TIM BUCHANAN

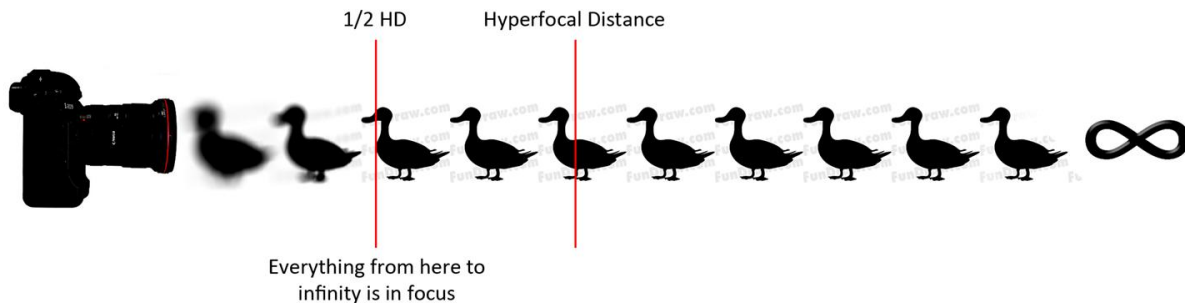
Hyperfocal Distance

On our recent field trip to Close Memorial Park, Kay Johnson asked if anyone in our group knew what *Hyperfocal Distance* was. Only a few people raised their hand, so I thought I would take a crack at an explanation.

When you rotate the focus ring on your lens, you are adjusting the focal distance (the distance from the camera to the geometric plane parallel to the film/sensor that is in focus). As you increase the focal distance, things further away will be in focus. Decreasing the focal distance will bring things closer to the camera into sharp focus.

Depth of Field (DOF) should also be a familiar topic. It refers to the area in front of and behind the focal distance that is also in acceptable focus. DOF is dependent on the aperture size. As the aperture gets smaller (the f-stop number gets bigger), the area in focus around the focal distance gets larger. This area of focus around the focal distance is known as depth of field. Shoot wide open with a lens at f/1.4 and the DOF can be very small indeed.

So what is the *Hyperfocal Distance*? Simply put, the *Hyperfocal Distance* (HD) is the nearest focal distance at which the depth of field extends to infinity. Focus a lens at this distance and everything will be in focus from around half of the focal distance to infinity. For example, if I happened to know that the HD for a particular lens was 20 feet at f/8, then everything from 10 feet to infinity would be in focus. Below is a diagram to illustrate this point. You get blurry ducks up to $\frac{1}{2}$ HD and then everything is acceptably sharp to infinity.



As you might have figured out by now, the HD varies by lens length, and aperture. If you have a fast, long lens, you will find that at large apertures (small f-stop numbers) the HD can be thousands of feet away. On the other hand, if you have stopped your wide-angle lens down to a small aperture (high f-stop number), the HD can be just several feet from the lens.

So how do you find out what the HD is for a particular lens/aperture combination? One way is to carry around a hyperfocal chart - or, you could consult various online tools such as ones found at <http://www.dofmaster.com>. These tools can tell you what the HD is for a particular lens and aperture with great precision.

So who uses this, anyway? Well, have you ever used one of those disposable cameras? The focal distance is preset and cannot to be changed. Any guess as to where their focal distance is set to? That's right - the *Hyperfocal Distance*.

Landscape photographers are also usually aware of *Hyperfocal Distances* when they want to have both something in the foreground and something in the background in focus. Knowing where the HD is will allow you to get the maximum DOF for that lens/aperture combination. These days, most cameras have a DOF preview that allows you to tell if you have enough DOF or not.

Another potential use for HD is to avoid having to *worry about focus at all!* For example, if I were using a 24mm lens on my camera with an aperture of f/8, anything beyond 4 feet will be in acceptable focus. Then, all you have to worry about is exposure and composition!