

How Close Do I Have To Be? By Charles Klingsporn

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Many photographers are fascinated by telephoto lenses. The fascination can come from many sources starting with the large physical size of lenses they see being used by other photographers. Magazines that have advertisements for affordable telephoto zoom lenses are widely available. Outstanding animal portraits such as the ones shown by Tim Fitzharris in his regular column, and on the Internet and television are common. Many of these pictures show great facial detail and/or cute expressions. These images help to create the perception that the animal is very close. A photographer can easily draw the conclusion that it is relatively easy to capture close-up animal portraits when the photographer has the 'right' long lens. The photographer who shops for a first telephoto is likely to expect the lens to produce frame filling images at great distances.

Although there is also a lot of expert opinion about what telephoto lens to use for shooting animals and birds in a variety of settings, there is an important missing piece for the shooter who lacks the years of technique development and practice of the professional. What the amateur photographer can't do is answer the question, "**How close do I have to be**"? The inexperienced photographer does not know how to relate the size of the subject to the distance from the camera and to the focal length of the lens. That's the purpose of this article, to help the photographer think about the relationship between creature size and distance.

Let's look at an example. In order to fill the frame of a 35-mm camera with an image of a large bear when using a 500-mm lens, the photographer must be within 75 to 100 feet. Seventy-five feet (*25 yards*) is a much shorter distance than one would imagine; it is approximately the width of a two-lane highway. Twenty-five yards is certainly much closer than one should be to a large bear in the wild. In the field, a photographer will have great difficulty getting that close to any large mammal, even in the National Park System where animals are somewhat acclimated to people. Because the amateur lacks personal experience and may have inaccurate perceptions because of the images seen in the media, the photographer is likely to expect to get the shot of the bear from a safer distance such as several hundred yards. He has image size expectations that the lens can not deliver.

How big is the animal? How far is it from my camera? How much will my lens enlarge the size of the image? Those are the key questions and the answers begin to emerge when you study the table that follows the next paragraph. It shows a representative group of various size birds and animals and estimates the working distances necessary to fill a 35-mm frame with different focal length lenses. The animals and birds shown in the table are listed in approximate order of size from largest to smallest. Animal size is either length or height, whichever is larger. All of the animal size information comes from field guides published by *The National Audubon Society*. With the grizzly bear as our example, the '*Field Guide to North American Mammals*' states that an adult grizzly ranges in length from 6 to 7 feet. Using 6 feet, the photographer will need to be within about 40 feet using a 200-mm lens or about 100 feet with a 500-mm lens for a frame-filling portrait.

The entries are shown in ranges and involve approximations because, even within a single species, animals vary considerably in size and distances in the field are not easy to accurately calculate. Despite the estimating difficulties, understanding the data in the table is important. Whether the grizzly is 6 or 7 feet long and whether it is 30 or 40 yards away is not important in lens selection. What is important is to know that the grizzly image will not fill the frame from 200 or 300 yards, even with a very long lens such as 500 or 600 *mm* lens with an extender.

Frame-filling Portraits: How close do I have to be?

Animal	Animal Size	50mm	200mm	500mm
Grizzly Bear	6 to 7 ft.	10 ft.	40 ft.	100 ft.
Coyote	3.5 - 4.5 ft.	6 ft.	24 ft.	60 ft.
Rabbit	15 - 20 in.	2 to 3 ft.	8 to 10 ft.	21 to 30 ft.
Golden Eagle	30 - 41 in.	5 ft.	20 ft.	45 to 51 ft.
Squirrel	17 - 19 in.	2.5 ft.	10 ft.	21 to 24 ft.
Robin	9 - 11 in.	1 to 2 ft.	4 to 8 ft.	10 to 20 ft.

Further, each entry represents a group of animals that are similar in size. The grizzly bear information also pertains to other large mammals including the elk, white-tailed deer, mule deer and the moose. If the subject is smaller, such as a white tail doe, the photographer must be closer to fill the frame, while he/she can be further away if the subject is a full grown bull moose.

What about other lenses and distances? Fortunately, the relationships between creature size, distance and focal length are constant and proportional. An image on film taken with a 50 *mm* lens will always be $\frac{1}{10}$ the size of one shot at 100 *mm*. An animal photographed with a 500-*mm* lens will always be 10 times larger on film than the same animal photographed from the same distance with a 50-*mm* lens. The photographer with a 500 *mm* lens can get a frame-filling shot of an eastern cottontail rabbit from about 25 feet instead of the 2 and a half feet necessary with a 50 *mm* lens. The same relationships between size, distance and focal length also apply to the owner of one of the new digital SLR's although he or she can fill the frame from further away because of the 'multiplier' effect that comes from current lens-camera design.

Telephoto lenses are marvelous tools for compressing distance and visually enlarging the size of an image. In that sense, any additional length beyond the 'normal' 50 *mm* lens is helpful for photographing wildlife. Using the information in this article, the photographer can begin to develop a necessary skill, the ability to estimate distance from subject matter. When the photographer understands the relationship between focal length, subject size and distance, he or she is better able to determine what lens to buy and how to use it effectively.