

# Mecklenburg Audubon Society



## FAQ: What Binoculars should I Buy?



### Binocular by the Numbers:

Every pair of binoculars has at least two numbers on them. The first number indicates the power or magnification. If the first number is seven, the binoculars magnify objects seven times - or make them appear seven times closer. The second number is the size of the objective lens (the end closest to the bird) in millimeters. The combination of the two numbers indicate how the binoculars will perform with respect to brightness. That is, how they will perform at sunset, dawn and in the deep woods. To get the index of brightness divide the object lens size by the power. For example: a 7x35 binoculars would have a relative brightness of 5 and a 7x42 binocular would have a relative brightness of 6. More relative brightness is better, so larger objective lenses are usually better. Objective lenses smaller than 35mm should be avoided.

Another number to note is the field of view. This number indicates the width of the area you will see through the binoculars, usually at a distance of 1,000 feet. Although a wide field is important because it will help you when you are searching for a bird, a very wide field can distort the edges of your field of view. With 10x binoculars, the field is narrower than for 7x or 8x binoculars, which makes finding birds more difficult.

Before you start looking for birding optics ask yourself these questions to determine what to look for in a binocular.

#### *How often do you watch birds?*

If you are an active birder who watches birds every week, perhaps 100 days per year for two to four hours per outing, you should give a lot of thought when selecting binoculars. Active birders need high-quality binoculars that can tolerate almost constant use which sometimes borders on abuse and exposure to the elements. Make sure you pick binoculars that are comfortable to see through and are light enough to carry for several hours.

#### *What types of birds do you like to watch?*

The type of birding you do is also important. Some experts say if you want to see the details of a Common Loon and its downy chick riding on its back 300 yards away, more powerful binoculars (10x) are better. Conversely, if you search for the subtle movements of a Wood Thrush deep in the forest, 7x or 8x binoculars that gather lots of light and provide a larger field of view are better.

#### *Do you wear eyeglasses?*

If you do, look for binoculars with large ocular lenses (that's the one closest to your eye) and soft rubber eyecups that can be rolled or snapped down to permit your glasses' lenses to almost touch the ocular lenses. The most user-friendly binoculars have extremely large ocular lenses, measuring more than 18mm-20mm. These enormous ocular lenses, combined with rubber eyecups prevent tunnel vision (black rings that reduce your field of view). These same characteristics are also important to many people who do not wear glasses because they make viewing birds easier and more relaxing.

#### *Are you a backyard birder?*

The close focus distance is a special consideration for binoculars you want to use in your backyard to observe birds visiting feeders or hummingbirds feeding in the garden. Each model of binoculars has a minimum close focus distance, and the best models focus down to 10 feet or less. You may have your own close focus distance in mind which may depend on how close the birdbath is from the patio.

#### *How much do you want to spend?*

Price is an important factor. You should attempt to buy the very best binoculars you can afford because they will give you more pleasure. This does not mean you must spend \$1,000. If you are a dedicated birder, plan to spend around \$300.

## Additional Information:

An important point of **magnification** mathematics is the principle of diminishing returns. Each step up in power gains you less. The way the eye and mind process visual information makes a magnified image seem closer rather than larger, and for this reason the 10x's seem just 10 % more powerful than the 5x's. Most birding is conducted well inside the range of lower-powered binoculars, so other factors must be considered.

The second principle of diminishing returns in magnification mathematics is the higher the magnification, the lower the light transmission. When all other things are equal, lower-power lenses allow more light to reach the eye than lenses of higher power.

An under publicized fact is that in ordinary daylight any binocular of equal optical quality will be equally as bright, no matter what the differences are in their objective size and power.

For an evening search for owls or rails, you may want to borrow a pair of 7x50s, the binocular size that amateur astronomers swear by.

**Field of view** is crucially important at close range. When you consider field of view (the size of the area you can see in the binoculars), you should convert the measurement by moving the decimal point two places to the left. Binoculars that give you 250 ft. at 1,00 yards are giving you 2.5 feet at 10 yards.

## Optics Web Sites:

Better View Desired [<http://betterviewdesired.com/>]

Birding Optics [<http://www.birdwatching.com/optics.html>]

Eagle Optics [<http://www.eagleoptics.com/index.asp>]

Optics for Birding Home Page [<http://www.optics4birding.com/>]

Choosing and Using Birding Equipment [<http://www.optics4birding.com/>]

Spotting Scopes [[http://www.wildbirds.com/watching\\_scope.htm](http://www.wildbirds.com/watching_scope.htm)]

Another example of the principle of diminishing returns: the higher the power, the narrower the field of view.

If you wear eyeglasses and want to see as well as you can, fold-down the rubber eye cups are a must. Those who do not wear glasses should also look carefully at any binocular they are planning to buy to see how deeply the ocular lenses are recessed. Some poorly designed models have such deeply recessed oculars that full field of view is not possible even for people with 20/20 vision.

Binoculars that focus near at hand are essential for successful woodland birding. A **close-focus range** of 15 ft. to 18 ft. is the least you should accept.

**Porro prism design:** Advantage - quick focus, larger exit pupils, focus more closely, wider field of view. Disadvantage - weight.

**Roof prism design.** Advantage: better power-to-weight ratio, focuses more finely (though not as closely); good for hawk watching and shorebirding; water resistant and durable. Disadvantage: Cost.

**Pocket design.** Advantage - weight; portability. Disadvantage - image darker; very narrow field of view.

Hopefully, these brief remarks, condensed from Jack Connor's book entitled *The Complete Birder: A Guide to Better Birding*. (Houghton Mifflin, 1987), will give a little guidance when choos-

ing binoculars. But I think Connor's closing remarks should be taken to heart – "If there's a simple rule to follow, it's spend as much as you can afford. If you're an active birder, you'll be looking through your binocs for hundreds of hours each year. Why not treat yourself? A trip to Alaska will cost you more than even the most expensive binoculars. The trip will last a week or two. A really good pair of binoculars can last your lifetime." Words of wisdom whether you are buying for yourself or a loved one.

