What Power Binoculars are Best for Birdwatching?

One of the best things about birding is the low barrier to entry. Anyone can look at or listen to birds just about anywhere, for free. But as any experienced birder knows, once you're hooked, things change.

Suddenly, catching fleeting glimpses of a Jay, or having to squint to see a far off Warbler just doesn't cut it any more. It's not long after discovering an interest in birding that someone is purchasing their first pair of binoculars.

The problem, however, is an overwhelming array of binocular options. How do you know what features you need, which optics work best, and how much to spend? A quick answer to a complex question is you can't go too far wrong with a 6x, 7x or 8x magnification, and a 0.32mm to 0.45mm optical lens.

But binocular preferences are just as unique as the eyes behind the glass, so read on to learn about what power binoculars are best for birdwatching.

All About Binoculars

Before you plunk down your hard earned cash on a shiny new set of binoculars, you owe it to yourself to know a bit about optics and how binoculars work. Not only will it demystify all those numbers you see in binocular descriptions, it will prevent you from being taken advantage of on your maiden binocular buying voyage.

The strength of binoculars is expressed as a smaller number, an "x", and another larger number. For example, a common one favoured by birders is 8x42, and is pronounced "eight *by* forty-two". The first number is in reference to the power of the magnification, or the number of times the object is enlarged. The second number refers to the diameter of the objective lens, which is the circular piece of glass at the end of the lens tube.

Generally speaking, the larger the difference between the two numbers the sharper and brighter the image will appear, regardless of the actual numbers themselves.

Magnification

Magnification is pretty straightforward. The power of magnification, expressed as the number before the "x", is the number of times the object has been enlarged. So if a set of binoculars is 6x32, for example, they will magnify your target six times. An 8x pair will enlarge the object 8 times.

Magnification Moderation

Contrary to what some novice birders think, more magnification is not necessarily better. In fact, too much can be just awful. Remember that binoculars magnify *everything* in their field of vision. This means your hand movements are also magnified. An unsteady hand is less noticeable at lower magnification rate of 6x or 7x. Something like 16x, held with a shaky hand, will feel like you're looking into an earthquake.

Too much magnification can lessen your field of vision as well, making it harder to re-spot a bird through your binoculars that you've spotted with the naked eye first. An overly magnified target bird will be harder to re-spot through your binoculars after it moves, because your overly-magnified field of vision is too small.

While magnification will make your target bigger, it will not make it clearer. In fact, too much magnification will make it fuzzy and lacking in detail. A much more useful attribute in binoculars than magnification is actually the field of view, which we will discuss a bit later.

For birding, a magnification strength of 6x, 7x or 8x is most common.

Objective Lens

The objective lens is the piece of glass at the wide end of the lens tube. The diameter of the objective lens is the second number in the optics equation. For example, a pair of bins with a strength of 7x32 would have an objective lens that is 0.32mm in diameter. A pair with a strength of 8x40 would have an objective lens that is 0.40mm in diameter.

When buying a pair of binoculars, the size and thickness of the objective lens will be one of your biggest concerns and have the greatest impact on what you see. A bigger objective lens does not necessarily mean more magnification, but it does mean more brightness.

A larger objective lens produces a brighter image with more detail. A thinner objective lens, say about 0.30mm or so, will still provide plenty of detail and be appropriate for birding. However, the image through a 0.30mm objective lens will not be as bright as the image through a larger lens.

This difference will become particularly evident in low light conditions, where a thinner lens will not be nearly as bright. Due to this dullness, a thinner lens cannot provide nearly the same level of detail and crispness that a thicker lens will in low light. Given that birds like to be active during dusk and dawn, low light hours, this is a legitimate concern for serious birders.

The Problem With Great Vision

So it seems like a larger objective lens is the way to go. Probably the bigger the better for a bright, crisp image? Well, not really. Larger objective lenses have one very real drawback: they're HEAVY! The lenses themselves are bigger and weigh more, plus they also need to be housed in wider lens tubes, which means a bigger set of binoculars.

Walking around all day with a set of heavy binoculars around your neck is bound to result in some muscle fatigue and neck soreness. If you plan to go on lengthy or multi-day birding expeditions, the weight of a pair of 0.42mm binoculars may soon grow tiresome and painful, which will ruin even the most interesting birding trip.

Many hardcore birders opt instead for two pairs of binoculars, a lighter weight pair of 0.30mm - 0.32mm bins to wear around your neck all day, and your heavy-duty 0.40mm (or better) binoculars safety stowed in a satchel or backpack, to be brought out when lighting conditions are poor and require more detail.

While most bird nerds will happily wax philosophical on the merits of 6x vs 10x magnification, a true bird enthusiast is much more concerned with two other very important features, which don't often get the respect they're due but can make or break your birding experience all the same - they are brightness and field of view.

Brightness

Brightness has a lot more to do with your objective lens than it does with prevailing weather conditions (although those certainly play a part). A bigger objective lens will give you more brightness, but no greater magnification or field of view. The strongest magnification in the world is useless to a birder if the image is dark, fuzzy and shaky.

You'll have to decide for yourself which is more important to your birding efforts - brightness or ease of use. Heavy bins with big lenses will give you a better image all day, but may be bulky, and heavy after a while.

A 0.32 to 0.35mm objective lens will still give you a crisp, clear image, and it bears mentioning that a smaller lens is by no means a "bad" or "wrong" choice. Just be aware that when the sun begins to fade (or has yet to rise), you may see a little less detail than your friends with bigger binoculars. You will, however, have a lot less of a neck ache!

Field of View

The field of view, as alluded to in our section about magnification, is an extremely important factor to take into consideration when deciding which binoculars are right for you. Field of view, or field of vision, is how much space you can view through your binoculars.

A Field of View Experiment

This may not seem very important, but here's a quick experiment to illustrate the importance of a wide field of view: spot a bird through a long cardboard tube, such as a paper towel roll. You can probably *just* fit the bird in your scope. Now, try to follow the bird as it moves. Can you? Not likely, and certainly not for long! This is an example of a small field of view. When the target moves from this restricted field of view, it is harder to pick it up again because you can't see where it's gone.

Now, try the same experiment but with a much shorter tube, such as one from a toilet paper roll. Or, cut 3/4 of the length off of your long paper towel tube. Spot a bird again, and try to follow it as it moves. You'll notice the bird may not be easier to pickup initially, but it is much easier for you to stay with the bird as it moves. This is because the shorter tube has a wider field of vision. When the bird moves, you can still see where it moved to without having to remove your binoculars.

A wide field of view is crucial for easy spotting and keeping birds in your sight.

Determining Field of View

Field of view is often expressed as the diameter of your field of vision at a distance of 1,000 yards. Some manufacturers may give the angle of view instead, which is the number of degrees observable through the optical device without eye movement.

There is a simple formula to convert between angle and field. To convert angle of view to field of vision, multiply the angle by 52.5. Conversely, to convert from field of vision to angle of view, divide the field by 52.5.

For the sake of comparison, the naked human eye has a field of vision of just over 210 degrees, with about 114 of those degrees being binocular, meaning both eyes are used to view and determine depth. The greater the field of view at 1,000 yards, or the greater the angle of view, the more you will be able to see through your binoculars.

For birdwatching you will want a minimum angle of view of at least 6.5 degrees, which is about 341 ft. of viewing area at a distance of 1,000 yards.

Other Considerations

Okay, we've covered the technical aspects of the best power binoculars. You know what kind of magnification you want, can weigh the pros and cons of different objective lenses, and are obsessed with getting the right field of vision. As if the decision wasn't complicated enough, here's a few more small things to consider when choosing your best power binoculars.

You need a pair that feel comfortable in your hand, and have a width that you can comfortably adjust to your face. Opt for models with only one focus knob, instead of one per tube. Two focus knobs may sound like a good idea, but will be too much to fiddle with when trying to spot a bird.

Weatherproofing is money well spent. You may not find this in entry-level binoculars, but it's well worth it to pay for a pair that have been weatherproofed and nitrogen-purged, so they won't fog over. If you're going to spend money on binoculars, they may as well be ones you can use in all weather conditions.

Don't take binocular advice from anyone who is not a birder. Hunters, campers and sales clerks are not often familiar with the unique requirements of bird watchers (although a hunter's rifle scope can make a great spotting scope for an intrepid birder).

Don't bother buying zoom binoculars or image stabilized binoculars, both of which are likely to be impractically heavy, not very bright, and typically have a very small field of vision.

Picks by Price

Many birders enjoy bird watching with little more than grandpa's old binoculars, while others won't leave the house without a few thousand dollars in gear. How much you'll spend depends on the features you want. Here are some popular binoculars in all price points, from under $200 to over $2,000.

Low-End

For the budget conscious birder not looking to spend over $500, it's hard to go wrong with the Nikon Action Extreme line. These highly reviewed binoculars are a favourite of many birders and come with features usually seen on more highly priced models; namely weatherproofing. They're waterproofed, nitrogen-fixed, and sealed with an O-ring to ensure they stay crisp even when it's humid. 7x35 and 8x40 optics are available, and cost about $150 to $200.

The $275 Nikon Monarch 5 is the least expensive binocular to feature Extra-Low Dispersion (ED) glass. While the glass has a reputation for delivering an outstanding image, the field of vision is a comparatively low 330 feet.

Mid-Range

For those willing to spend $300 to $1,000 (still a pretty modest investment for most hobbies), dozens of options abound.

The Nikon Monarch 7, a step up from the 5 and about $100 more, features the same crisp ED glass but a much wider field of vision. It is great value for a mid range binocular.

The Vortex Viper HD comes in many birding appropriate sizes, including 8x32 and 8x42. They have notably good optics for the price range, thanks to High-Density, Extra-Low Dispersion glass. Standard waterproof and fog-proofing and ArmorTek lens coating are backed up by an impressive unlimited Vortex VIP Warranty that doesn't even require a receipt or warranty card. Expect to spend about $500 for models in this line.

At the higher end of the mid range (about $950), the Leica Trinovid HD is similar to its posh cousin the Leica Noctivid, but for half the cost. It is notoriously well-engineered, so expect a bright and richly coloured image. It's also very compact and easy to hold, a feature appreciated by birders on long trips.

High End

For the ultra serious looking to spend over $1,000, the Zeiss Victory line is the choice of Cornell University. While the image is one of the best available, they're also very evenly weighted (thanks to the lens system being closer to the ocular end), which makes them more comfortable to hold. The SmartFocus system also allows for focus faster than other models, with under 2 turns. The warranty even covers used binoculars, plus they'll repair or replace damaged binoculars for free within 5 years.

The Swarovski SLC HD rounds out at about $2,500, and the 8x42 offers just about the largest field of vision available, plus with the same stunning image you'd expect for over $1,000. It features proprietary lens coatings to keep the lenses scratch free and easier to clean, and a field of view of more than 400 feet. They weigh just over 800g.

What's Best for Me?

Buying a pair of binoculars can be a daunting task, particularly if you're not familiar with them. The best power binoculars will depend on your preferences, expectations and budget. When in doubt, or if you're new to birding, consider borrowing some binoculars from friends and trying out different optical configurations and models before you make your final decision.

Regardless of wether you prefer a dainty 6x30 or a weighty 10x42, its important to choose a pair that give a bright image, a wide field of view, are well weatherproofed and focus quickly. And a pair that you enjoy using, because a comfortable day free from eye strain is always best for bird watching.