

BEST BINOCULARS OF 2013: THE FULL REVIEW TABLE

Model name	Price	Weight (oz.)	Class	RATINGS					FEATURES			
				Quality Index	Overall Performance	Overall Feel	Clarity/ Crispness	Eyeglass Friendliness	Close Focus (ft)	Field of View (ft/1000 yd)	Waterproof	Warranty
Alpen Apex XP 8x32	\$470	19		3.7	3.7	3.6	3.7	3.8	4	393		Lifetime
Alpen Rainier HD ED 8x42	\$1,716	29.4		3.8	3.5	3.4	3.8	4.5	6.5	393		Lifetime
Alpen Shasta Ridge 8x30	\$216	19		3.3	3.1	3.6	3.0	3.7	15	393		Lifetime
Alpen Wings ED 8x42	\$575	24		4.0	3.6	3.8	3.9	4.8	6.5	393		Lifetime
Atlas Optics Intrepid 8x42	\$300	26.6		3.7	3.3	3.1	3.6	4.6	6.5	420	Yes	Lifetime
Atlas Optics Radion 8x42	\$329	26.6		3.9	3.9	4.0	3.5	4.3	6.5	375	Yes	Lifetime
Atlas Optics Sky King 8x42	\$199	26.7	Top Pick	4.0	3.7	3.7	4.0	4.5	6	365	Yes	Lifetime
Brunton Epoch 8.5x43	\$1,650	25		4.0	3.8	4.1	3.8	4.4	6	370	Yes	Lifetime
Bushnell Elite 8x42	\$750	25.7		4.0	3.9	3.7	4.0	4.3	8	330	Yes	Limited lifetime
Bushnell Legend Ultra HD 10x25	\$275	8.1		2.3	2.0	2.0	2.5	2.5	6	285	Yes	Limited lifetime
Bushnell Legend Ultra HD 10x42	\$435	24.7		3.6	3.6	3.6	3.8	3.5	6.5	340	Yes	Limited lifetime
Bushnell Nature View 6x30	\$150	17.3		3.8	3.5	3.6	3.5	4.5	9	419	Yes	Limited lifetime
Celestron Granite ED 7x33	\$500	21.2		3.7	3.9	3.7	3.5	3.7	6.5	477	Yes	Limited lifetime
Celestron Granite ED 8x42	\$440	25.6	Top Pick	4.3	4.2	4.0	4.3	4.5	6.5	426	Yes	Limited lifetime
Celestron Nature DX 8x42	\$185	22.2	Best in Class	4.2	4.0	4.4	4.0	4.5	6.5	388	Yes	Limited lifetime
Eagle Optics Denali 8x42	\$199	21.9	Top Pick	3.9	3.7	4.3	3.8	3.7	7	408	Yes	Lifetime
Eagle Optics Denali 10x42	\$210	21.9		3.1	2.8	3.2	3.0	3.3	7	318	Yes	Lifetime
Eagle Optics Golden Eagle HD 8x42	\$600	24.2	Top Pick	4.3	4.1	4.3	3.9	5.0	5.1	347	Yes	Lifetime
Eagle Optics Kingbird 8.5x32	\$143	17.3		2.6	2.7	3.0	3.0	1.7	15	390	Yes	Lifetime
Eagle Optics Moon Energy 8x21	\$55	6		1.3	1.3	1.4	1.3	1.3	16	383		Lifetime

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Eagle Optics Ranger 8x32	\$322	19.2		3.3	3.0	3.0	3.0	4.0	3	393	Yes	Lifetime
Eagle Optics Ranger 8x42	\$399	21.8	Top Pick	4.0	3.9	3.7	4.1	4.3	5.2	341	Yes	Lifetime
Eagle Optics Ranger 10x42	\$344	21.6		3.8	3.7	3.8	3.8	4.0	5.2	314	Yes	Lifetime
Eagle Optics Ranger ED 8x42	\$520	27.4		4.1	4.2	4.0	4.1	4.0	6	425	Yes	Lifetime
Eagle Optics Ranger ED 10x42	\$529	26.5		4	3.9	3.9	3.4	4.7	6	348	Yes	Lifetime
Eagle Optics Raptor 6.5x32	\$133	17.3		3.4	3.3	3.3	3.2	3.8	15	410	Yes	Lifetime
Eagle Optics Raptor 8.5x32	\$143	17.3		3.1	3.3	3.0	3.0	3.1	15	390	Yes	Lifetime
Eagle Optics Shrike 8x42	\$110	23.2		3.0	2.6	3.1	2.6	3.8	13.1	341	Yes	Lifetime
Eagle Optics Shrike 10x42	\$122	22.4		3.0	3.0	3.7	3.0	2.3	13.1	304	Yes	Lifetime
Eagle Optics Talon HD 10x42	\$533	26.5		3.5	3.4	3.7	3.6	3.2	6	348	Yes	Lifetime
Eagle Optics Vanquish 8x26	\$133	12.7		3.0	2.7	3.3	2.7	3.3	7.6	352	Yes	Lifetime
Kahles 10x42	\$1,050	24.1		2.0	2.1	1.9	3.0	1.0	8.25	315		Limited lifetime
Kowa Field 8x32	\$538	19.8		4.2	4.0	4.2	4.1	4.3	4.90	393		10 years
Kowa Field DCF 10x42	\$680	26.3		3.8	3.8	3.5	3.9	4.3	13.1	315		10 years
Kowa Genesis 8x33	\$1,285	20.8		4.2	4.2	4.4	4.3	4.0	5	420	Yes	10 years
Leica Trinovid 8x42	\$1,449	28.6	Top Pick	4.5	4.4	4.2	4.7	4.8	11.4	378	Yes	Limited lifetime
Leica Ultravid HD 8x32	\$2,099	18.9	Top Pick	4.5	4.5	4.3	4.8	4.3	6.9	404	Yes	Limited lifetime
Leica Ultravid HD 8x42	\$1,899	27.9	Top Pick	4.7	4.8	4.4	4.9	4.6	9.8	389	Yes	Limited lifetime

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Leupold BX-1 YOSEMITE 8x30	\$129	17	Top Pick	3.5	3.2	3.7	3.0	4.0	11	389	Yes	Limited lifetime
Leupold Cascades 10x42	\$375	23.1		3.9	3.9	3.5	4.1	4.0	9.9	267	Yes	Limited lifetime
Leupold Mojave 10x42	\$499	23.4		3.7	3.8	3.4	3.2	4.3	8	368	Yes	Limited lifetime
Meopta Meopro 6.5x32	\$350	21		4.0	3.4	4.6	4.4	3.8	3	440	Yes	30 years
Meopta Meopro 8x42	\$499	25		3.9	4.0	4.0	4.0	3.5	5	366	Yes	30 years
Meopta Meopro 10x42	\$550	26		3.6	3.5	3.0	4.0	4.0	5	330	Yes	30 years
Meopta Meostar 8x32	\$959	20	Top Pick	4.2	4.2	3.9	4.3	4.3	5.7	420		30 years
Meopta Meostar 8x42	\$999	30.4		4.1	3.9	4.4	3.5	4.5	9.8	411	Yes	30 years
Meopta Meostar HD 10x42	\$1,110	30.4		3.9	3.8	3.0	4.5	4.2	9.8	331	Yes	30 years
Nikon Aculon A211 8x42	\$135	26.8		2.5	2.3	2.4	2.7	2.8	16.5	420		25 years
Nikon Aculon A211 10-22x50 (zoom) 10x50	\$180	33.9		2.3	2.2	2.2	2.5	2.4	49.2	199		25 years
Nikon EDG 7x42	\$2,549	27.7		4.7	4.7	4.4	4.8	4.9	9.9	419	Yes	25 years
Nikon EDG 8x32	\$2,549	23.1		4.3	4.1	3.6	4.5	5.0	9.9	409	Yes	25 years
Nikon EDG 8x42	\$2,659	27.7		4.5	4.4	4.3	4.6	4.7	9.9	403	Yes	25 years
Nikon EDG 10x42	\$2,769	27.9		4.3	4.2	4.1	4.2	4.6	9.9	341		25 years
Nikon Monarch 3 8x42	\$255	24.9		3.9	3.8	4.0	3.6	4.1	9.8	330	Yes	25 years
Nikon Monarch 3 10x42	\$277	24.7		3.9	3.8	4.0	3.4	4.2	9.8	299		25 years
Nikon Monarch 5 8x42	\$309	20.8	Best in Class	4.3	4.1	4.5	4.2	4.5	8.25	330	Yes	25 years
Nikon Monarch 5 10x42	\$329	21.6		4.3	4.1	4.3	4.1	4.5	8.25	288	Yes	25 years
Nikon Monarch 7 8x42	\$530	22.9	Best in Class	4.5	4.3	4.3	4.5	4.7	8.25	420		25 years
Nikon Monarch 7 10x42	\$550	23.6		4.0	3.9	4.0	4.2	4.2	2.5	351	Yes	25 years
Nikon PREMIER LX L 8x20	\$539	9.5		3.4	3.3	2.7	4.0	3.7	7.8	356	Yes	25 years
Opticron Countryman BGA HD WP 8x32	\$529	21.7		3.4	3.3	3.1	3.6	3.6	9.2	420		20 years

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Opticron Discovery 8x50	\$657	25.4		4.1	3.9	3.8	4.3	4.2	5.25	330	Yes	5 years
Opticron Natura BGA Waterproof 8x42	\$425	23.2		2.8	2.6	2.8	3.0	2.7	9.5	327	Yes	20 years
Opticron Oasis S-Coat DBA 8x42	\$995	23		3.9	3.8	3.8	3.9	4.1	7.2	366		20 years
Opticron Oregon LE WP 8x32	\$155	18.2	Top Pick	4.0	3.9	3.8	4.0	4.2	5.9	423	Yes	5 years
Opticron Trailfinder 3 WP 8x42	\$219	22	Top Pick	4.0	4.0	3.8	3.7	4.3	16.4	357	Yes	5 years
Opticron Verano BGA HD 8x42	\$641	26	Top Pick	4.5	4.4	4.3	4.5	4.7	6.6	366	Yes	20 years
Optics Planet OPMOD 8x42	\$195	26	Top Pick	4.0	3.8	3.8	4.0	4.5	6.6	366		Limited lifetime
Pentax DCF BC 9x32	\$300	17.6		3.6	3.5	4.5	4.0	2.5	8	351	Yes	Lifetime
Pentax DCF BR 9x42	\$399	24.2		3.8	3.5	3.9	3.7	4.0	5.25	321	Yes	Lifetime
Pentax DCF SP 10x43	\$798	25		3.9	3.9	3.9	3.93	4.0	6.6	315	Yes	Lifetime
Pentax Papilio 6 6.5x21	\$120	10.2		3.0	3.0	2.7	3.3	2.8	1.6	393		Lifetime
Swarovski CL 8x30	\$1,054	17.6	Top Pick	4.3	4.3	4.1	4.3	4.0	9.8	372	Yes	Limited lifetime
Swarovski SLC HD 10x42	\$2,421	28		4.4	4.2	4.0	4.8	4.5	6	330	Yes	Limited lifetime
Swarovski Swarovision 8.5x42 EL	\$2,699	28		4.6	4.6	4.3	4.8	4.8	4.9	399	Yes	Limited lifetime
Swarovski Swarovision 8x32	\$2399	20.5	Top Pick	4.7	4.6	4.8	4.8	4.7	6.2	423	Yes	Limited lifetime
Swarovski Swarovision 10x42 EL	\$2,777	28	Top Pick	4.7	4.7	4.6	4.8	4.7	4.9	336	Yes	Limited lifetime
Swarovski Swarovision 10x50	\$2,943	35.2		4.6	4.5	4.4	4.8	4.8	9.2	345	Yes	Limited lifetime
Vanguard Endeavor ED 8420 8x42	\$429	25.8		3.6	3.4	3.5	3.3	4.0	8.2	367	Yes	Limited lifetime

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Vanguard Spirit XF 8420 8x42	\$250	24.7		3.7	3.5	2.9	3.4	5.0	6.9	409	Yes	Limited lifetime
Vixen Ascot WP 8x42	\$315	30.4		3.3	3.1	2.5	3.1	4.5	19.8	469		Limited lifetime
Vixen New Foresta HR WP 8x42	\$399	23.1	Top Pick	3.9	3.6	3.9	3.7	4.3	9.8	423		Limited lifetime
Vortex Diamondback 8x28	\$155	14		2.6	2.4	2.6	2.6	2.8	13.1	360	Yes	Lifetime
Vortex Diamondback 8x42	\$244	25.2		3.8	3.8	3.6	3.8	4.0	4.5	420	Yes	Lifetime
Vortex Diamondback 10x42	\$255	24.4		3.8	3.9	3.5	3.9	4.0	5	345	Yes	Lifetime
Vortex Razor HD 8x42	\$1,279	24.7	Top Pick	4.3	4.1	4.3	4.2	4.6	6	362	Yes	Lifetime
Vortex Razor HD 10x42	\$1,299	24.7		4.2	4.3	4.2	4.2	4.0	6	362	Yes	Lifetime
Vortex Talon HD 8x32	\$488	19.8		4.1	3.8	4.4	4.1	4.2	8.2	420	Yes	Lifetime
Vortex Talon HD 8x42	\$520	27.4		4.1	4.0	3.7	4.2	4.5	6	425	Yes	Lifetime
Vortex Viper HD 8x42	\$655	24.2	Top Pick	4.2	4.1	4.1	4.3	4.2	5.1	347	Yes	Lifetime
Vortex Viper HD 10x42	\$665	24.6		4.1	3.8	4.2	4.0	4.3	5.1	319	Yes	Lifetime
Zeiss Conquest HD 8x32	\$999	22.2	Best in Class	4.8	4.7	4.8	4.9	4.6	4.9	420	Yes	Lifetime
Zeiss Conquest HD 8x42	\$1,077	28	Top Pick	4.7	4.5	4.7	4.9	4.6	6.5	384	Yes	Limited lifetime
Zeiss Conquest HD 10x42	\$1,110	28		4.7	4.8	4.4	4.9	4.6	6.5	345	Yes	Limited lifetime
Zeiss Terra ED 8x42	\$385	25.4	Top Pick	4.3	4.0	4.4	4.0	4.8	5.25	375	Yes	Limited lifetime
Zeiss Terra ED 10x42	\$349	28.1		4.3	4.0	4.5	4.0	4.8	4.9	366		Limited lifetime
Zeiss Victory 8x20	\$744	7.9		3.3	2.9	3.0	3.9	3.5	8.5	351	Yes	Limited lifetime
Zeiss Victory T*FL 8x32	\$2,055	19.8	Top Pick	4.8	4.8	4.6	5.0	4.9	6.5	420	Yes	Limited lifetime

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Zeiss Victory T*HT 8x42	\$2,444	27.7	Top Pick	4.8	4.8	4.7	4.9	4.7	6.2	408	Yes	Limited lifetime
Zeiss Victory T*HT 10x42	\$2,499	27.7		4.7	4.8	4.6	4.9	4.8	6.2	330	Yes	Limited lifetime
Zen-Ray Prime HD 8x42	\$860	29.2		4.0	3.8	3.5	3.8	5.0	6.6	426		Lifetime
Zen-Ray Vista 8x42	\$229	24		3.4	3.3	3.4	3.1	3.6	6	393		Limited lifetime

Methods, Definitions, and Advice by Ken Rosenberg and Jessie Barry

OVERALL METHODOLOGY

To rank all 102 models, we invited birders from the Cornell Lab of Ornithology staff and local birding community to the outdoor patio at the Cornell Lab on several afternoons in May. We asked each reviewer to rank a minimum of five models, in order to “calibrate” their comparisons across different models. For each of the review categories below, we asked reviewers to score each model from 1 to 5, with 1 = poor, 2 = fair, 3 = good, 4 = very good, and 5 = excellent. We also invited specific comments on each pair of binoculars. We then averaged the scores for each model across reviewers and computed a Quality Index, as described below, by combining the scores from each category. Note that all of these scores are subjective and reflect

the opinions and impressions of a diverse set of bird watchers. In the end, we gave greater weight to our own (Jessie’s and Ken’s) scores, so we claim a greater responsibility for the final rankings!

In addition to the subjective scores, we present some basic specifications for each model, along with the manufacturer’s suggested retail price and information on warranties.

POWER

One of the most basic features of all binoculars—the magnification, usually expressed as, for example, “8x” meaning 8 times magnification.” Most birders use 8x or 10x binoculars, and there is often

strong disagreement as to which is better. In general 10x brings birds “closer up” (especially good for certain types of birding such as hawk-watching) and can provide more detail for field marks or individual feathers. But 10x also usually means a slightly narrower field of view, slightly darker image (especially in low light), and can cause greater hand-shake. On the other hand, 8x usually offers a wider, brighter image, which could be important for finding birds that are close or in dense foliage. Note that some birders prefer 7x binoculars, which can provide an even wider and brighter image. We do not recommend 6x binoculars for birding—or “compact” style binoculars with objective lenses less than about 30 mm. Though they offer weight

and often price savings, the resulting image quality is simply not worth it. In our review, we selected 8x models as top picks whenever possible, but note that most models come in a 10x, 8x, and often 7X option and provide a comparable level of quality.

OBJECTIVE

The width of the objective lens (measured in millimeters) will usually affect a binocular's field of view and brightness. So, an 8x42 model with a 42-mm objective lens will usually be larger, brighter, with a wider field of view than an equivalent 8x32 model. The ratio of power to objective size is also important, so an 8x42 model also has a wider field of view, and will have a brighter image, than the equivalent 10x42 model. Note that the internal configuration of the lenses and prisms will also affect field of view (some small 32-mm objectives have a surprisingly wide field of view). So it is important to check the field of view measurements side by side (see below).

RETAIL PRICE

Prices can be confusing when comparing binoculars, because many companies offer prices well below the manufacturer's suggested retail price (MSRP), and even the reported MSRP can vary from website to website and can change over time. Some companies also issue a "manufacturer's allowable reduction," which can determine how much below MSRP a company can offer a binocular. We tried to provide the most up-to-date MSRP for all models as of October 2013. We grouped models into general price categories, but these should be considered only approximate. Also be aware that you can often find a particular model for well below the MSRP at various stores or web sites.

WEIGHT

We report the manufacturers' weights in ounces. Note that personal preferences apply here as well,

and lighter is not always better. Perhaps counterintuitively, lightweight binoculars can sometimes be harder to hold steady than heavier models. Some birders prefer the more solid feel of heavier binoculars, whereas for others the lighter weight is critical for extensive use or for backpacking or other travel. Although it is tempting to go for extremely small and lightweight compact binoculars, we do not recommend these for any kind of serious birding. On the other hand, the newer 8x32 models offered by many manufacturers might represent just the right compromise between weight and image size or brightness.

FIELD OF VIEW

Usually presented as "number of feet at 1,000 yards," field of view determines how wide an image you will see. This can be very important for scanning the sky or finding birds up close in dense foliage. It takes more skill to "get on" a bird with narrower-field binoculars, which is why many birders prefer 8x or even 7x models. Manufacturer-specified field of view varied from about 200 to 480 feet at 1,000 yards in the models we tested. This translates to an up-close field of view of between about 14 and 30 inches wide at a distance of 15 feet.

CLOSE FOCUS

This is the closest distance at which a binocular will focus. Close focus distances have been getting smaller and smaller over the years, and most models can now focus well under 10 feet, which is perfectly adequate for nearly all birding. Extremely close focusing is offered by some models, and these are designed for birders who also like to observe butterflies and other nature close up. We report manufacturers' specifications.

OVERALL PERFORMANCE

The first of our subjective 1-to-5 scores, "Overall

Performance" attempted to capture how satisfied a reviewer was with a binocular model, compared with others they were testing. In other words, would they consider buying these binoculars given their scoring in the other categories?

OVERALL FEEL

For this score, we asked reviewers to consider the ergonomics of the binoculars, their weight, size, sturdiness, balance, comfort in the hands, and ease of focusing. This measure was highly subjective and varied considerably across observers depending on the size of their hands and other preferences. Many reviewers made comments about the stiffness of the focusing or how easy it was to adjust the diopter (setting to adjust the image for both eyes).

CLARITY/CRISPNESS

This all-important measure considers the quality of the image in terms of sharpness, brightness, edge-to-edge focus, color aberrations, or other visible issues. Even for this less-subjective measure we found much variation across reviewers. Some observers readily noticed subtle color differences (some models looked bluer or yellower than others) or "color-fringing" of the image, whereas others did not notice these. Many reviewers commented on whether the image degraded from the center to the edges, but others used primarily the center of the binocular field and were less bothered by blurriness around the edges. In general, this is the measure that really separated the top-of-the-line from less expensive binoculars. Nearly everyone recognized the edge-to-edge crispness and brightness of the top models (with lots of "wows" emanating from the review crowd), but scores for the other price categories were much more variable. We tended to weight this image quality score more heavily when selecting our top picks in each category.

EYEGLOSS FRIENDLINESS

If you wear eyeglasses while birding (as Ken does), this is another extremely important feature to consider when selecting binoculars. Fortunately most binoculars now have adjustable eyecups that eliminate the “tunnel view” that eyeglass wearers used to suffer. (If you still lift your glasses each time to use your binoculars, we strongly recommend trying to turn the eyecups fully down instead.) The best eyecups turn and lock in several intermediate positions (and stay where you put them), and are durable for frequent use. Even with the eyecups fully down, some models don’t provide enough eye relief (the distance from the eyepiece lens at which your eye can see a full field of view), and eyeglass wearers will see black rings around the image. The few models that don’t have retractable eyecups, or the various compact binoculars with poor eye relief, are not usable by eyeglass wearers for birding. This is especially important to consider when selecting

binoculars for kids who wear glasses. Our reviewers rated both the eye relief and the sturdiness and ease of use of the eyecups for each model.

QUALITY INDEX

To combine all of the subjective reviewer scores into a single value, we computed the “grand average” of the four average category scores (Overall Performance, Overall Feel, Clarity/Crispness, Eyeglass Friendliness) for each binocular model. This index, which ranged from 1.3 to 4.8, provides a fine-scale comparison across all the 102 binocular models we tested. Note that the exact ranking of a model in terms of Quality Index does not tell the whole story; for example two models that differ in both image quality and eyeglass friendliness could end up with a similar Quality Index score. If you don’t wear eyeglasses, then other features

may be more important for you to consider. For close comparisons, we urge you to look at all the subjective scores, as well as other features such as weight, close focus, field of view, waterproofing, and warranty.

TASTE FOR YOURSELF!

Finally, we want to emphasize again the importance of trying several binocular pairs side by side in person before selecting a pair that’s best for you. We did our best to select some top picks within each price category, based on the extensive comments we received, as well as our own strong birding opinions. But we also know that every birder is different! Once you’ve narrowed your choices in terms of price, head to your nearest Wild Birds Unlimited or other favorite birding store and make the comparisons yourself.