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Midpriced Binoculars Review



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A flock of Iowa bird watchers puts some binoculars to the test

If you are a bird watcher with between \$300 and \$800 to spend on a new pair of binoculars, what can you get? This is the question for a birder ready for something beyond entry-level binoculars or discount-store offerings who can't afford or doesn't choose to spend close to \$2,000 for top-echelon binoculars. To answer this question we evaluated 56 midpriced binoculars from 18 different manufacturers. All have suggested retail prices of at least \$300, and all can be found (at the time of this writing) at street prices less than \$800.

How We Evaluated Them

We numbered and tagged the binoculars and set them up on tables that overlooked an outdoor scene. There were bird feeders, meadow, pond, trees, butterflies, and birds—a great variety of natural subjects to observe.

For more controlled lab-type comparisons, we pinned to a wall an Edmonds Optics Resolution Power

test chart that incorporates multiple examples of the standard USAF 1951 Resolution Test Pattern in red, blue, yellow, and black. The chart is large enough to let you see copies of the same test pattern at the center and at the edges of the field of view.

We constructed a beanbag rest 24 feet in front of the chart so that any two binoculars could be set up side by side and compared under identical distance and lighting conditions. A beanbag rest was mounted on a heavy Gitzo tripod that stood on a stone floor. The tripod's crank let us raise and lower the beanbag rest to match each tester's height. After aiming and focusing, we could easily move from one pair of binoculars to another and compare two perfectly still, steady images.

A team of 13 other Iowa birders was invited to rate the binoculars for optical quality, fit, and feel, plus other ergonomic details such as the focus knob, eyecups, and diopter adjustment mechanism. We deliberately omitted



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Our field testers are all veteran Iowa birders.

price information on the form the testers filled out while evaluating the binoculars. Our intent was to rank the binoculars according to their quality without regard to their cost. We also researched warranties, an important issue when investing in binoculars.

Here are the elements tested for and included on the chart.

Optical Quality

The binoculars were compared for resolution, brightness, contrast, color fidelity, detail in shadowed areas, and freedom from chromatic aberration. Each tester rated the binoculars' optical quality on a scale of 5 (best score among the midpriced binoculars) to 1 (worst). Top-end reference binoculars were also available for comparison—Zeiss FL 8x 42 and 10x42, a Swarovski EL 8.5x42, and a Leica Ultravid 8x42.

A word of caution on interpreting the optical quality numbers. The combined scores are rated to the tenth of a point, but the spread is tight, with most of the binoculars scoring within one point of each other. It's wise to not

regard the scores as absolutes. Every score on the chart is composed of the ratings of multiple testers, each of whom doubtless brought his or her own preferences and particularities to the test. This doesn't mean subjective comparisons are meaningless. But there is a tendency, when seeing something reduced to a number such as 4.3, to put undue credence in its specificity.

Among the standouts for optical quality were the Leica Ultravid Compacts, amazingly sharp, clear binoculars (see review of Leica Ultravid Compacts). The Vortex Razor 8x42 shared the highest optical score with them.

Ergonomics (Fit and Feel)

Fit and feel are necessarily an individual matter, made up of the size, weight, shape, and balance of the binoculars, the texture of the armor-ing, and a host of details. People respond favorably or unfavorably to indentations for thumbs; to the size, location, and style of the lugs to which the strap attaches; and to the general tight-



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ness or looseness of knobs and hinges. Most people seem to like tethered lens covers, but some don't like lens covers dangling down from the binoculars. One of our testers, whose hands are particularly large, scorned the compacts, preferring the way that full-sized binoculars fit his grip. Another tester said that high-quality binoculars that worked with her glasses and would fit in her small purse were "to die for."

A great advance in binocular ergonomics was the use of rubber or synthetic materials to cover and protect the surface. Armoring quiets bumps, secures one's grip, and makes binoculars much more hand friendly. Although virtually all the binoculars in our study incorporate pleasant armoring, the Swift 8.5x44 Audubon (Model 828) got an especially high

Diopter Adjustment

The diopter adjustment mechanism is a focus knob that lets you focus one side of the binoculars separately from the other, in order to set the binoculars to accommodate differences in the focusing of your two eyes. When you acquire new binoculars, you immediately set the diopter adjustment for your own eyes. If the setting holds, and no one changes it, you can forget about it. If you share your binoculars with others, each user needs to set the diopter personally, each time the binoculars change hands. The correct diopter adjustment is essential to a focused image.

Even though a birder with non-shared use of a pair of binoculars might need to use the diopter adjustment only once, or only rarely, it's important to be able to set it easily. You should be able to turn the diopter knob without straining your fingers or scrunching up your eye with the effort. Ideally, a diopter adjustment should lock so that it can't be accidentally moved from its setting. It should have markings or "stops," called detents, to facilitate putting it back to its normal setting if it does get changed. And the setting should be easy to read so that you can confirm at a glance that it's still adjusted correctly.

We found considerable range in diopter adjustment style and quality among our midpriced binoculars. We found lockable diopter adjustments superior to diopters that hold their setting merely by friction, but only 13 of 56 of the midpriced binoculars in our study offer the locking feature. Those binoculars with lockable diopter adjustments use a variety of ingenious devices.

Our favorite was the Leica Ultravid Compact. The regular focus knob

is also the diopter adjustment knob. When you push a button under the bridge, the focus knob changes function and focuses only the right eyepiece, allowing you to set the diopter. When you release the button, the focus knob again focuses both eyepieces. At any time you can read the setting on the focus knob, reassuring you that it is correct or alerting you that it needs adjusting. Other notable examples of locking diopter adjustment mechanisms are the Bushnell Elite2 and Bushnell Infinity, Leica Ultravid, Leupold Cascade, Minox HG, Pentax DCF ED and Pentax DCF SP, Swift Audubon, Vortex Razor, and Vortex Viper.

Focus Knob

Ergonomic quality in binoculars is conveyed by the focus knob. If it turns smoothly, with even resistance throughout its range, you feel confident in the engineering quality of the instrument. A focus knob with slack doesn't feel right, and it doesn't give you immediate, accurate focusing. Our testers rated each pair of binocular on the perceived quality of its focus knob. The results are displayed in the chart.

Most bird watchers also like a focus wheel that goes quickly from near focus to infinity. If you have to turn and turn the wheel, the flying merlin will be long gone before you roll the knob away from the sparrow in the bush. On the other hand, too fast a focus makes binoculars hard to focus precisely.

A manufacturer that has admirably addressed the challenge of making the focus knob both precise and fast is Minox. The new Minox HG series binoculars (see review) go from close-up to infinity in less than one full turn

of the focus wheel. Up-close focusing is fast, and distance focusing is precise. Going a step further, Minox put a distance scale on the focus knob, turning it into a range finder. We love this feature because we often would like to make a note of the viewing distance from a bird, and the Minox GH focus wheel lets us read the distance at a glance.



Dial-up eye cups offer customized eye-relief for birders who wear glasses.

Eyecups

Other details to note among the midpriced binoculars are the eyecup design and quality. Our team (dominated by individuals who wear glasses) strongly preferred eyecups that twist or pull up and down, rather than the older-style rubber folding eyecups. Nearly all of the binoculars in our study did employ twist-ups or pull-ups. However, if you do not wear glasses, you might be perfectly happy with folding eyecups. The chart indicates the eyecup style for each pair of binoculars.

Our team's favorite eyecups were twist-ups with multiple detents, or clicks, that allow a birder quickly to

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All makes and models were tested side by side under identical conditions.

score for fit and feel. It's pleasant to the touch, it's nonslip, and it accomplishes its tactile effect without any ridges. Quite elegant—just a subtle texture does the job.

dial the degree of eyecup extension required. These are marked TC (twist/click) on the chart.

The winner for best eyecups was the Vortex Razor, which has both detents and markings, and an extension range better than that of any other binoculars we tested. Although most twist eyecups have only three detents, the Razor has 15, allowing you to fine tune a repeatable setting. The only improvement we would suggest would be to make them a bit stiffer to turn so that they could hold their setting better.

Eye Relief

For all binoculars there is an optimal distance between your eye and the eyepiece. That distance is called eye relief. If your eye is too close to or too far from the eyepiece, you can't see the whole picture: Part of it is blacked out. The challenge for eyeglass wearers is to choose binoculars with eye relief long enough to accommodate the glasses. Otherwise, your glasses don't allow your eyes to get close enough to the eyepiece, and you can't see the whole picture.

A few years ago it was difficult to find a binoculars with eye relief sufficient for eyeglass wearers. But optics have come a long way on that score. Most manufacturers seem to have realized that people with corrected vision make up a significant portion of the binoculars market. Most of the pairs we looked at work well with eyeglasses.

For the eye relief column on the chart, we relied on the numbers published by the manufacturers. If you wear glasses, a good starting place is to consider binoculars with a listed eye relief of at least 16mm. However, methods of measuring eye relief vary

from manufacturer to manufacturer, so you can't rely entirely on the published figures. Oddly, Leica seems to grade their binoculars' eye relief especially conservatively. We found that the Leica Ultravid Compacts had excellent eye relief for glasses wearers, despite published eye relief of only 15mm.

Our team especially appreciated the eyecups on the Pentax DCF SP, with its three-stage indents. The eye relief of the 8x43 model, published as 22mm, is generous enough even for a person whose glasses are large and ride far from the eye. But the three-stage indents allow a person with closer-fitting glasses to dial an appropriate degree of eye relief.

Other binoculars with particularly long eye relief include the Celestron Regal LX 8x42, the Alpen models 493 and 496, and the Vortex Viper 8x42. Binoculars such as these, with eye relief of 20mm or more, are good candidates for anyone who has trouble getting the whole picture while wearing glasses. The safest practice for anyone looking for new binoculars, of course, especially if you wear glasses, is to try 'em before you buy 'em.

Close Focus

Have you ever found yourself backing up so that you could focus on a butterfly or on the birds at the feeder right outside your window? Sometimes you want to magnify what is close, so that you can appreciate tiny details, such as the individual feathers that make up the gorget of a hummingbird. For that you need binoculars that will focus up close. The binoculars in our study have a close focus ranging from 4 feet to 18 feet.

The closest-focusing binocular we looked at was the Minox BV 8x42,

with a published close focus of 3.9 feet. Another binocular with a remarkably close focus was the Alpen model 493 8x42, which focuses down to 4 feet. Unlike some close-focusing binoculars, the Alpen 493 has a good overlap between the images presented to the two eyes. That makes for comfortable viewing even up close, and it avoids the squeezed-eyes feeling that comes with some other close-focusing binoculars.

Field of View

Field of view and eye relief are rivals. When a binocular designer increases one, the other one suffers. Only by adding expensive elements to the eyepieces is it possible to maximize both at once. That is probably why we found only a few midpriced binoculars that had both outstanding eye field of view and eye relief. However, for a person who does not wear glasses, eye relief doesn't matter, and binoculars with a wide field of view can be enjoyed without penalty.

We found several binoculars with exceptionally wide fields of view and moderate eye relief that might work well for some, though probably not all, glasses wearers. Among these are three 8x32s—the Kowa BD32-8x, the Minox BL, and the Carson Optical SM-832HD, each with a more than 420 feet field of view at 1,000 yards.

Among the 8x42s, the Vortex Razor turned in the widest field of view by far—410 feet at 1,000 yards, yet it provides 18mm of eye relief, adequate for virtually any glasses wearer. The Leupold Katmai 6x32 also achieves both a wide field of view (425 feet) and long eye relief (19.2mm).

Three 10x42s in our study offered fields of view of more than 340 feet at

1,000 yards, and these all have eye relief of at least 16mm, which is adequate for most glasses wearers. These were the Kowa BD42-10x High Performance, the Minox BL, and the Bushnell Elite2.

The Main Chart

The main chart is sorted by overall quality, with the best at the top. To calculate the overall quality index, we weighted optical quality as 50 percent of the score, with the other 50 percent comprised in equal parts of fit and feel, close focus, focus knob quality, diopter adjustment quality, and eyecup quality.

Not included in the overall quality calculation: price, warranty, prism style, field of view, waterproofing, and size and weight except as they affected fit-and-feel scores. All of these are important aspects of binoculars, but how much to weight them in making a purchase decision will vary from person to person.

The Warranties Chart

It's sometimes difficult to discover exactly what a manufacturer is promising by way of warranty. In some cases we received conflicting information from company spokespeople, or what we were told differed from what we read on the manufacturer's website. The information is reported as accurately as possible, but we recognize that another questioner on another day or with another respondent might possibly produce a different answer.

"Limited warranty" usually means that only manufacturers' defects are covered. "Lifetime warranty," on the other hand, can mean many things. It can mean there is no time limit. It may

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Midpriced Binoculars Comparison

Manufacturer (Brand)	Model	Magnification	Objective Lens	Street Price	Weight (oz.)	Prism Style	Field of View	Eye Relief (mm)	Close Focus (ft.)	Length (in.)	Width (in.)		Waterproof	Coatings	Eyecup Style	Diopter Location	Diopter Locks	Diopter Indicator	Fit & Feel	Focus Knob	Diopter Quality	Eyecup Quality	Optical Quality	Overall Quality
Leica	Ultravid	8	20	\$619	8.5	roof	341	16.0	7.2	3.6	4.4		yes	FMC	P	FK	✓	M	4.8	4.8	4.9	4.9	4.8	4.8
Leica	Ultravid	10	25	\$679	9.4	roof	273	15.0	10.5	4.4	4.4		yes	FMC	P	FK	✓	M	4.9	4.8	4.9	4.9	4.8	4.7
Minox	HG 62155	8.5	43	\$789	22.9	roof	321	18.0	7.6	5.7	5.0		yes	FMC	TC	E	✓	M	4.5	4.7	4.8	4.9	4.5	4.6
Vortex	Razor	8	42	\$700	29.4	roof	410	18.0	8.2	6.5	5.5		yes	FMC	TC	FK	✓	DM	4.9	2.9	4.8	4.9	4.8	4.6
Minox	HG 62163	8	33	\$679	21.3	roof	395	15.0	6.6	5.0	4.9		yes	FMC	TC	E	✓	M	4.5	3.8	4.9	4.9	4.5	4.5
Pentax	Pentax DCF ED	8	32	\$799	23.5	roof	393	17.0	4.9	5.0	5.0		yes	FMC	TC	E	✓	M	3.9	4.7	4.4	4.5	4.5	4.5
Vortex	Viper	8	42	\$480	23.0	roof	347	20.0	5.1	5.8	5.3		yes	FMC	TC	E	✓	C	4.5	4.8	4.0	4.1	4.5	4.5
Leupold	Katmai	6	32	\$290	18.2	roof	425	19.2	4.9	4.1	4.7		yes	FMC	TC	E		D	4.4	4.8	3.9	4.1	4.5	4.4
Eagle Optics	Ranger SRT	8	42	\$300	21.8	roof	341	19.5	5.2	5.8	5.1		yes	FMC	TC	E		C	4.5	4.9	4.0	4.1	4.4	4.4
Zeiss	Victory 8x20 Compact	8	20	\$450	7.9	roof	351	14.0	8.2	4.0	3.8		yes	FMC	P	CF		M	4.0	3.8	3.9	4.1	4.6	4.3
Nikon	Monarch	10	42	\$320	21.1	roof	314	15.5	8.2	5.6	5.0		yes	FMC	T	E		M	4.4	4.7	3.9	4.0	4.3	4.3
Bushnell	Elite 2	10	42	\$500	28.0	roof	341	17.0	8.0	5.7	5.0		yes	FMC	T	FK	✓	DM	3.9	4.7	4.4	4.4	4.2	4.3
Nikon	Monarch	8	36	\$250	19.8	roof	367	17.0	8.2	4.9	5.1		yes	FMC	TC	E		M	4.4	4.7	3.9	4.1	4.2	4.2
Zeiss	Victory 10x25 Compact	10	25	\$490	8.6	roof	285	14.0	13.1	4.7	3.8		yes	FMC	P	CF		M	3.9	3.8	3.9	4.0	4.7	4.2
Zeiss	Conquest	10	40	\$800	29.0	roof	315	15.0	9.8	6.0	5.0		yes	FMC	T	CF		C	4.0	3.9	3.9	4.1	4.5	4.2
Zeiss	Conquest	8	40	\$770	28.9	roof	360	16.0	9.8	6.0	5.0		yes	FMC	T	CF		C	4.0	3.8	3.9	4.0	4.5	4.2
Pentax	Pentax DCF SP	10	43	\$649	25.0	roof	315	17.0	6.6	5.7	5.0		yes	FMC	TC	E	✓	M	3.9	4.8	4.4	4.4	3.9	4.1
Minox	BL 62149	8	32	\$349	18.5	roof	429	15.5	6.2	4.8	5.0		yes	FMC	T	E		M	4.1	4.0	3.9	4.0	4.1	4.1
Pentax	Pentax DCF SP	8	43	\$599	24.5	roof	330	22.0	6.6	5.7	5.0		yes	FMC	TC	E	✓	M	4.0	3.0	4.3	4.4	4.1	4.1
Celestron	Noble	10	50	\$298	27.0	roof	262	20.0	9.0	6.7	5.2		yes	FMC	T	E		M	4.4	4.8	3.9	4.0	3.9	4.1
Kowa	BD32-8x	8	32	\$440	19.7	roof	430	15.0	6.0	4.9	4.8		yes	FMC	T	E		M	4.0	3.9	3.9	4.0	4.0	4.0
Zeiss	Conquest	10	30	\$520	18.0	roof	288	15.0	9.8	5.2	4.5		yes	FMC	T	CF		C	3.9	4.7	3.9	4.1	4.0	4.0
Leupold	Pinnacles	8	42	\$380	23.0	roof	341	17.8	6.6	5.5	4.8		yes	FMC	P	E		D	3.9	3.0	3.9	3.9	4.2	4.0
Vortex	Stokes Broadwing	8	42	\$350	26.6	roof	350	18.0	5.0	6.0	5.0		yes	FMC	TC	E		M	4.5	3.8	3.0	3.3	4.1	4.0
Zeiss	Conquest	8	30	\$471	17.5	roof	360	15.0	9.8	5.6	4.5		yes	FMC	T	CF		C	4.0	3.7	3.9	4.0	4.1	4.0
Kowa	BD42-8x	8	42	\$530	25.8	roof	361	18.3	6.5	5.7	5.0		yes	FMC	T	E		M	4.0	3.9	3.9	4.0	3.9	4.0
Celestron	Noble	10	42	\$282	24.0	roof	314	16.0	8.0	5.8	5.1		yes	FMC	T	E		M	4.4	4.8	3.9	4.0	3.7	4.0
Swift	Audubon (Model 828)	8.5	44	\$360	23.4	roof	336	19.0	9.0	5.8	4.9		yes	FMC	T	FK	✓	DM	4.7	3.4	4.3	4.4	3.8	4.0
Minox	BV 62167	8	42	\$249	27.5	roof	389	18.0	3.9	5.5	5.0		yes	MC	TC	E		M	3.9	3.9	3.9	4.0	3.8	4.0
Minox	BL 62148	10	42	\$399	22.9	roof	344	16.0	8.2	5.6	5.0		yes	MC	TC	E		M	4.0	3.9	3.9	4.0	3.9	3.9
Bushnell	Infinity	8.5	45	\$380	25.0	roof	314	17.0	6.7	6.0	5.3		yes	FMC	TC	FK	✓	DM	4.4	3.0	4.8	4.7	3.6	3.9
Swift	Eaglet	10	42	\$490	23.6	roof	261	16.0	6.5	5.4	5.0		yes	FMC	T	E		D	3.9	3.9	3.4	3.6	4.0	3.9
Swift	Eaglet	7	36	\$450	20.6	roof	374	16.0	5.9	5.0	5.0		yes	FMC	T	E		D	4.0	3.9	3.4	3.6	3.9	3.9
Fujinon	HB	12	60	\$685	56.0	roof	285	15.5	5.0	9.0	6.1		yes	MC	TC	FK		DM	3.1	3.8	3.0	3.2	4.2	3.9
Swarovski	8X20 BN	8	20	\$629	7.6	roof	345	13.0	13.0	4.0	3.7		yes	FMC	T	CC		M	3.5	3.9	3.9	4.0	4.1	3.9
Zeiss	Conquest Compact	8	20	\$300	6.3	roof	345	14.0	10.8	4.0	3.7		yes	FMC	F	CC		M	3.5	3.9	3.9	3.9	4.0	3.9
Kowa	BD42-10x	10	42	\$560	26.3	roof	344	17.6	6.6	5.7	5.0		yes	FMC	T	E		M	4.0	3.9	3.9	4.0	3.7	3.9
Kowa	BD32-10x	10	32	\$465	19.9	roof	344	15.0	4.9	5.0	4.8		yes	FMC	T	E		M	4.0	3.0	3.9	4.0	3.8	3.9
Celestron	Regal LX	10	42	\$452	25.0	roof	319	16.0	6.0	5.8	5.3		yes	FMC	P	E		DM	4.0	3.9	3.0	3.2	4.0	3.9
Celestron	Regal LX	8	42	\$442	25.0	roof	340	20.0	6.0	5.8	5.3		yes	FMC	P	E		DM	3.9	3.9	3.0	3.2	4.0	3.9
Alpen	Model 493	8	42	\$305	19.4	roof	341	20.0	4.0	5.8	5.0		yes	FMC	TC	E		DM	4.0	3.9	3.0	3.2	3.8	3.8
Swarovski	10X25BN	10	25	\$681	8.1	roof	285	13.0	16.0	4.6	3.7		yes	FMC	T	CC		M	3.2	4.0	3.9	4.0	4.1	3.8
Carson	XM-832HD	8	32	\$270	20.6	roof	420	15.5	9.8	5.5	5.0		yes	FMC	T	E		C	3.9	4.3	3.4	3.6	3.8	3.8
Alpen	Model 495	10	42	\$320	24.0	roof	315	16.0	5.0	5.6	5.0		yes	FMC	TC	E		DM	3.9	3.8	3.0	3.2	3.8	3.8
Zeiss	Conquest Compact	10	25	\$380	7.1	roof	285	14.0	18.0	4.7	3.8		yes	FMC	F	CC		M	4.0	3.9	3.8	3.9	4.0	3.8
Leupold	Cascades	8	42	\$250	22.9	Porro	341	18.0	9.9	5.5	5.5		yes	MC	T	FK	✓	M	2.2	3.0	4.3	4.3	4.0	3.8
Pentax	Pentax DCF HRC	10	42	\$299	22.2	roof	315	18.0	8.2	5.7	5.2		yes	FMC	TC	FK		D	4.1	3.9	3.0	3.2	3.8	3.7
Alpen	Teton 84	8	42	\$599	26.5	roof	383	17.0	8.2	6.0	5.0		yes	FMC	TC	E		M	3.1	2.9	3.8	3.9	3.9	3.7
Alpen	Model 496	8.5	50	\$330	28.0	roof	290	20.0	16.0	7.0	5.0		yes	FMC	TC	E		C	3.9	3.9	3.4	3.5	3.8	3.6
Canon	Image Stabilizer	12	36	\$579	31.4	Porro	262	15.0	12.0	6.9	5.0		no	MC	F	E		M	3.1	3.9	3.0	3.1	3.9	3.6
Canon	Image Stabilizer	10	30	\$359	22.0	Porro	314	14.5	13.8	5.9	5.0		no	MC	F	E		M	3.1	3.9	3.0	3.1	3.9	3.5
Steiner	Wildlife Pro	10.5	28	\$299	11.0	roof	264	13.0	8.5	5.5	4.5		yes	FMC	F	E		C	2.9	2.9	2.1	2.3	4.0	3.4
Steiner	Merlin	8	42	\$469	27.0	roof	342	19.0	6.9	6.4	5.2		yes	MC	F	E		C	2.1	2.9	2.9	3.1	3.7	3.4
Steiner	Merlin	8	32	\$429	20.0	roof	336	15.0	8.9	5.5	5.2		yes	MC	F	E		C	3.0	3.0	2.9	3.0	3.4	3.3
Steiner	Merlin	10	42	\$499	25.0	roof	274	18.0	7.9	6.4	5.2		yes	MC	F	E		C	2.1	2.0	2.9	3.0	3.7	3.3

LEGEND
The chart is sorted by Overall Quality, with best scores at the top.

Mag: magnification

Obj: diameter of objective lens

Street Price: what a buyer has to pay, estimated

Field of View: in feet, at 1,000 yards

Coatings:
MC = multi coated
FMC = fully multi coated

Eyecup Style:
T = twist-up eyecups
TC = twist-up with clicks
P = push-pull eyecups
F = fold-down eyecups

Diopter Location:
E = on eyepiece
CF = on far end of central column
CC = on close end of central column
FK = with focus knob

Diopter Indicators:
M = marks
D = detents
DM = detents and marks
C = center point only shown on diopter

Optical Quality:
composite subjective evaluation

Highest = 5. Lowest = 1

Fit & Feel: composite subjective evaluation
Highest = 5. Lowest = 1

Focus Knob: composite subjective evaluation
Highest = 5. Lowest = 1

Diopter Quality:
composite subjective evaluation.
Highest = 5. Lowest = 1

Eyecup Quality:
composite subjective evaluation.
Highest = 5. Lowest = 1

Overall Quality:
based 1/2 on optical quality, 1/2 on ergonomic characteristics

Warranties

Manufacturer	Models	Name of Warranty	Time Limit	Defects	Alignment	Accident	Transferable	Fee
Alpen	All in survey	Limited Lifetime Warranty	No limit	yes	yes	maybe	no	\$15
Bushnell	Elite2, Infinity	Limited Lifetime Warranty	No limit	yes	no	no	no	\$10
Canon	Image Stabilizer	Limited Warranty	3 years	yes	maybe	no	no	\$0
Carson	XM-832HD	No-fault	No limit	yes	yes	yes	yes	\$0
Celestron	Regal LX, Noble	No-Fault	No limit	yes	yes	yes	yes	\$25
Eagle Optics	Ranger SRT	Platinum Protection	No limit	yes	yes	yes	yes	\$0
Fujinon	HB	Lifetime Warranty	Lifetime of original owner	yes	no	no	no	\$0
Kowa	All in survey	Lifetime of the product	10 yrs after manufacturing ends	yes	no	no	yes	\$0
Leica	All in survey	Passport Protection Plan	Lifetime of original owner	yes	yes	yes	no	\$35
Leupold	All in survey	Green Ring Limited Lifetime Warranty	Lifetime of original owner	yes	yes	no	no	\$0
Minox	All in survey	Lifetime Warranty	Lifetime of original owner	yes	maybe	maybe	maybe	\$0
Nikon	Monarch	Nikon NoFault Warranty	25 years	yes	yes	yes	yes	\$10 + S&H
Pentax	All in survey	No-worry Lifetime	Lifetime of original owner	yes	yes	yes	no	\$19.95
Steiner	Steiner Merlin		10 year warranty	yes	no	no	no	\$0
Steiner	Steiner Wildlife Pro		30 year warranty	yes	no	no	no	\$0
Swarovski	All in survey	Limited Lifetime Warranty	Life of & as long as is owned	yes	no	no	yes	\$0
Swift	Audubon, Eglet	Swift 25-year Warranty	25 years	yes	no	no	maybe	?
Vortex	All in survey	Vortex VIP Warranty	No limit	yes	yes	yes	yes	\$0
Zeiss	All in survey	Limited Lifetime Transferable Warranty	As long as Zeiss exists	yes	yes	no	yes	\$0

LEGEND

- Defects:** Warranted against manufacturer's defects of materials or workmanship
Alignment: Will manufacturer repair alignment problems that arise through use of binoculars?
Accident: Will manufacturer repair damage caused by accidents, even if the fault of owner?
Transferable: Does warranty stay in effect when binoculars are sold or given to subsequent owner?
Fee: Amount that must be sent in with binoculars for warranty service
Maybe: Manufacturer indicates that decision is made on case-by-case basis

mean the lifetime of the original owner, but only so long as that person owns the binoculars. To some manufacturers, "lifetime warranty" is the lifetime of the product, which can be as long as the product is being manufactured or can mean for a certain number of years after production ceases.

Some warranties are written on paper and come with the product. Some are described on the manufacturers' websites. Other warranties might be best described as an oral tradition. That is, the stated warranty is cautious and not overly generous, but the manufacturers say they actually do better by their customers than their warranties would indicate. For example, many warranties state that they cover only manufacturers' defects of materials or workmanship. However, spokespeople for many companies insist that their service departments usually or often provide repairs at no charge, even when the damage results from a mishap that was not caused by the manufacturer. Or they claim that they will provide service to a secondary owner even though the warranty is officially not

transferable. (On the chart, "maybe" means that the manufacturer decides on a case-by-case basis whether to charge for the service and how much.)

Some will fix the alignment if needed. A few manufacturers actually warrant their binoculars against all accidental mishaps except loss and theft. Some let the warranty reside with the binoculars, so that the current owner is covered, regardless of whether the binoculars were purchased new or used.

The warranties chart can give you an idea of what kind of warranty to expect for a prospective pair of binoculars. However, if yours are damaged, it's worth calling the company and asking what they can do for you even if the warranty doesn't imply that the needed service is covered. You might be pleasantly surprised.

Binoculars of Note

There is not enough space to give every binocular model its own review. Many of those we surveyed deserve to be noticed. But we did single out a few that offer something special.

Canon Image Stabilizer 10x30 and 12x36

Canon brings to binoculars the same shake-canceling technology that revolutionized telephoto camera lenses. Push a button near the central focus knob, and your hand-shake goes away. The image floats instead of jumps, and details that were blurred by motion come back into view. Pure magic.

They have a smooth-turning, well-placed focus knob, surprisingly good eye relief, and excellent optics. They require two AA batteries for their stabilization to function, but you can still see through them even with dead batteries—just not stabilized.



**Canon Image Stabilizer
10x30 and 12x36**

Neither of the two midpriced Canons we tested was waterproof, but a higher-priced 10x42 model is. Weighing in at 31.4 ounces (without batteries), the 12x36 Canon IS is among the heaviest of the binoculars we studied.

Their odd shape makes them stand out from rest of the roof-prism crowd, and this fact may have skewed their overall quality score downward more than they deserved. You set the interpupillary distance by rotating the offset eye-pieces. The eyecups are the old-fashioned, fold-down rubber design, which also lost them points. And we're not sure how their high-tech innards would hold up to the heavy use birders would give them, or how well they would maintain their alignment after a fall. However the Canon IS binoculars can do something that no other binoculars can—let a person hand-hold a 12-power pair of binoculars. They are the Shrek of binoculars—big, green, and funny looking but with remarkable and quite useful powers.

Eagle Optics Ranger SRT 8x42

We rated these binoculars a best buy at the \$299.95 street price. They have excellent eye relief (19.5mm) for glasses wearers, very close focus (5.2 feet), and twist-up eyecups with good detents. We found the focus knob flawlessly smooth and free from slack. The binoculars feel good in the hand.

Optical quality is quite good, well toward the top of the pack at a 4.4. Considering that the highest optical quality rating was a 4.8, that's a pretty good score. The Ranger scored 9th in overall ratings, a great performance considering the price. Anyone on a budget would do well to take a close look at an Eagle Optics Ranger. It comes in a great range of magnifications and sizes.



**Eagle Optics
Ranger SRT
8x42**

Leica Ultravid Compacts

These tiny binoculars were great favorites among our testers, who extolled the Leica Ultravid Compacts' bright, supremely sharp images. They actually have outstanding eye relief, despite published eye relief of only 16mm. They let even a glasses wearer see an amazingly full, rich image, rivaling a top-end full-sized binocular.



**Leica
Ultravid Compacts
8x20**

Thumb and forefinger naturally fall on the silky-smooth focus knob, making the glasses easy to focus with great precision. The locking diopter adjustment is easy to see and precise to set, one of the most elegant designs of any binoculars in the study.

The Ultravid Compacts have two hinges, allowing them to fold up extremely small. The 8x20 fits neatly in a shirt pocket. Each size comes in a rubber-armored model and a leather-covered version,

for which there is no difference in price. The leather version is slightly narrower, because the leather is thinner than the rubber. The optics are identical in both cases. It's available in 8x20 and 10x25. (Most of our reviewers preferred the shorter length of the 8x20.)

Leupold Katmai

The Leupold Katmai 6x32 is a little gem. It has a wonderful build quality, and it fits a large range of hand sizes. Everybody loved it. It's a cargo-pocket or purse-sized pair of binoculars, quite compact for its 32mm objectives. It has that big-picture effect, combining both long eye relief (18.2mm) and a wide (425 feet) field of view. It received very high ratings (4.5) for optical quality.

If you push the twist-click eyecups in slightly when extended, they lock to preserve the setting—a nice touch. The Katmai 6x32 focuses as close as 4.9 feet, and you can push the barrels close enough together to make the images overlap even at that distance.

It got an overall score of 4.4, putting it alongside much more expensive binoculars. The street price is a modest \$289.99, making it clearly a best buy candidate. The Leupold Katmai is also available in 8x32 and 10x32 versions.



**Leupold
Katmai
6x32**



**Minox
HG Series
8x33**

Minox HG

Minox binoculars used to be made by Leica—they were Leica's second line, at lower prices than the top products. But in 2001 Minox became an independent company and started producing top-quality binoculars that now compete with Leica for a share of the high-end market. The new Minox HG series includes outstanding binoculars, a few of which fit (barely) into our mid-priced array. We looked at the Minox HG 8x33 and the 8.5x43, each of which can be found for less than \$800. Other sizes are available at somewhat higher prices.

In our optical quality tests, the Minox HGs were unexcelled. They also have some of the nicest-feeling engineering and smoothest-turning focus knobs we've found in any make. The addition of a distance scale on the focus knob (made possible because the wheel turns less than one full rotation in going from closest to most distant) gives the HG binocular the unique function of acting as a range meter.

The central focus wheel also serves as the easy-to-turn, locking diopter adjustment wheel. The eyecups, with gentle detents, twist out with unusual smoothness and precision. Eye relief for glasses wearers is excellent, as is the optical quality. Several of our testers remarked that the HG gave a nice feeling in the hand. We judged it to be a great buy for someone looking at the upper end of the midpriced field, for quality comparable to the high-end binoculars.



**Nikon Monarch
8x36 and
10x42**

Nikon Monarch 8x36 and 10x42

The Nikon Monarch is another best-buy choice. The 10x42 rated 4.3 overall, and the 8x36 a 4.2, and yet they have a street price of only \$319.95 and \$249.95, respectively.

Optical quality rating was 4.3 on the 10x42 and 4.2 on the 8x36. These are quite good scores considering the prices. Both models have good ergonomics and seem light and well balanced. Both got an excellent score of 4.7 for focus knob quality. They have a barrel design that bulges out gently in the middle, helping them fit comfortably into the palm of the hand. The Nikon Monarch is also available in 8x42, 10x36, 10x56, 12x56, and 8.5x56.

Pentax DCF ED 8x32

These binoculars stand out for their excellent optical quality. Our testers commented admiringly about the DCF ED's locking diopter adjustment, twist-ups eyecups with indents, perfectly smooth focus knob and central hinge, and tethered, unlosable objective lens covers. (In case you don't like having the lens covers dangling off the end of the binocular, you can easily remove them.)

The DCF ED works well with glasses, even if you wear aviator-type glasses that are large and ride far from your face—you don't lose the outer part of the image with these binoculars. Pentax's Extra Low Dispersion glass, which incorporates the rare-earth element lanthanum, is designed to provide extremely pure colors and sharp images. The DCF ED is available in the usual range of magnification and objective lens size. One of them, the 8x32, just makes it into the top of our \$300 to \$800 price range.



**Pentax
DCF ED
8x32**

Vortex Razor

Vortex Razor is the top model from Vortex Optics. Its body style features the hollow bridge made famous by the revered Swarovski EL binoculars. Because your fingers can wrap around one of the barrels and fit down into the hollow, it's possible to hold and focus the binocular with one hand, leaving your other hand free. The Razor enjoys numerous details that make top binoculars tops, such as its precise locking diopter adjustment. Other desirable features include twist-up eyecups with many closely spaced detents that let you instantly dial exactly the degree of eye relief you need every time.

Look through a Vortex Razor, and you're immersed in big, bright, clear image. Of all the midpriced binoculars we tested, none excelled the Vortex Razor for optical quality. This model would probably have won the top overall rating if its focus knob had been smoother. The Razor is available in 8x42, 10x42, 10x50, and 8.5x50. We looked only at the 8x42 version.



**Vortex
Razor
8x42**

Conclusion

Affordable binocular quality is improving fast. We found that we could reach almost anywhere on our midpriced test tables and get good optics and decent ergonomics. But let's cut to the chase. Is there really any reason to spend close to \$2,000 for top-of-the-line binoculars?

We did find that the top-end binoculars were brighter, sharper, and better at resolving detail in deep shadows than any of the midpriced choices tested. The higher quality was perceptible. If we had to use the same scale to rate the Zeiss Victory FL, for example, we would have to give it an optical quality score of at least 6.

But the difference is not as great as it was a few years ago. The midpriced binoculars have come a long way toward catching up with the royals at the top of binoculars society. And we did find some good buys in this price range, where optical quality, good ergonomics, and relatively low price all came together in one pair of binoculars. Good news for the birder on a limited budget! Overall, we were amazed at how good midpriced binoculars have become. *✍*

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