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# Birdwatch **GUIDE TO** **OPTICS** 2024

EXPERT BUYING ADVICE • EVERY MAKE AND MODEL DESIGNED FOR BIRDING



## INSIDE

- How to find the right binocular for you
- Top tips for choosing a telescope
- Get the perfect tripod for your needs
- An introduction to thermal imaging
- New products on test



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Use our comprehensive data tables listing all key binoculars, telescopes, tripods and thermal imagers





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It has been a long time since *Birdwatch* has assessed and reviewed the optics market – eight years to be precise. Over that period of time, things have certainly not been standing still.

Driven largely by innovation but also by advances in technology and smarter, more efficient manufacturing, the diversity of optical products now available to the birding community is considerable and continues to grow. Indeed, this vast array of optical equipment in today's marketplace ensures there is something out there to meet everyone's budget and aspirations.

Whether buying new or second-hand, the following pages set out to offer buying advice along with some high-level guidelines on aspects to consider, both before and during the purchasing process.

Products covered include the birder's staple diet of binoculars, telescopes and tripods and, for the first time, we also look at thermal-imaging equipment, which is currently enjoying a rapid rise in popularity.

The tables accompanying each section allow easy comparisons to be made between similar products from different manufacturers within a core range of specifications.

We hope you will find it useful in helping you to decide which equipment to purchase to enhance your birding experience!

**Mike Alibone,**  
**Optics Editor**

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■ Make: Leica.  
Model: Noctivid  
10x42.

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# Binoculars

A huge array of binoculars is available on the market and choosing a suitable model can seem like a big challenge. **Mike Alibone** is on hand to help you find the right product to match your needs.

**W**e've seen some significant changes to binocular DNA in recent years, with the emphasis placed on designing and manufacturing models which are more compact, lighter in weight and more efficient in light gathering – convergent evolution

and all part of the ongoing quest to deliver the perfect image.

These changes have been driven in part by birding and nature observation, which have become key influencers when it comes to steering product development to improve both image quality and ergonomics. This is particularly important,

with birders having become increasingly involved in consultation as part of the process.

Going forward from 2024, an immense range of binoculars is laid out across the optical marketplace for birders to choose from but the greater the choice, the more difficult

the decision becomes on what to buy. Confronted with more than 400 models comprising a collective offering from more than 30 manufacturers, buyers face a challenge in terms of choosing and purchasing the binocular that best suits their needs. Put another way, this means a model which meets expectations on

## BUYING ADVICE

optical performance, comfort, ease of use and price.

The above figures relate only to what we will refer to as mainstream models, defined by those falling within the parameters of 7x to 10x magnification and with objective diameters between 30 mm and 50 mm. There are many more models falling outside of these ranges, most of which are compact binoculars but these are not referenced here or included in any of the accompanying specification tables, unless otherwise stated.

Price is normally the first consideration for the majority of buyers and determining value for money can be a complex process and, in any case, is highly subjective.

You can spend as little as £80 or as much as £2,600 on an 8x42 roof-prism binocular – the most popular choice of specification – and still consider both to be good value if your expectations are met in each case.

So, is there a 'correct' way to choose binoculars? This guide sets out to help take you through the decision-making process, listing the criteria to consider before, and during, making your selection. Use the accompanying tables to get an insight into what is out there, price ranges and specifications.

### Image stabilisation

In recent years, image-stabilised binoculars have steadily gained ground in the optics market and they are becoming increasingly popular with birders. Once quite a niche product, their ability to deliver higher-than-average magnification, while delivering a rock-steady image, has earned them pride of place on pelagic trips and in environments where conditions make holding binoculars steady almost impossible.

While the established Vari-Angle Prism technology behind them has been around for a number of years, new ground has recently been broken by the introduction of the 'gimbal' system. This has recently emerged and has been developed for stabilising action videos shot with smartphones while the user is in motion. Flying high on the innovation front in this respect, Kite Optics appears to be leading the way in

developing and refining product in this category and other brands, such as Bresser, Fujinon, Opticron and Viking, have also released models, while the well-established camera manufacturer Canon has had its own IS line on the market for many years.

### Making your ideal choice

If you are a first-time buyer, it can be difficult to know where to start, particularly with entry-level binoculars. Also, if you are considering upgrading, without going directly to the top of the optics tree, there is still a host of 'midfield' players to consider. With respect to the latter, the quality gap has closed between models in this middle

section of the market and the top-tier products on offer, as manufacturers have continued to raise their game.

In the ideal scenario, with money being no object, it may be just a matter of testing the top-tier models at the highest end of the price range. Even top-of-the-range, flagship products vary between manufacturers, particularly in ease of use and comfort, so if you're parting with a considerably large sum, it's clearly essential to buy a model you find both easy to use and comfortable to wear.

If you are on a budget the decision becomes more difficult as the choice of make and model widens considerably with



■ **Make: Celestron.**  
**Model: Nature DX 10x42 ED.**



■ **Make: ZEISS.**  
**Model: SFL 10x30.**

low- to mid-priced optics. Bear in mind that there is no single model which meets everyone's expectations in terms of price and performance and your ultimate buying decision is likely to rest on a compromise between the two.

The most popular specification of 8x42, referred to above, will not necessarily suit everybody, so your likely first step in decision-making is selecting a model of a size, weight and shape which you find comfortable to use. If weight is an important factor, a model with smaller objectives may be preferable and, with higher-quality glass and modern-day premium coatings employed in many binoculars, the light-gathering potential in smaller models is much higher than it was only a few years ago.

The easiest and safest procedure to adopt is to look through as many of your birding friends' binoculars as possible to give you an idea of what impresses you most and what looks like measuring up to be a close match to your needs.

Following this, make a shortlist of models you would like to test more thoroughly and do some research to gain further information and to see what others' opinions are. There is a wealth of online information, ranging from independent reviews to details on manufacturers' websites, so attempt to gain as much knowledge as possible about them before you visit a supplier.

To gain further insight and experience, visit outdoor events staged by manufacturers and retailers which run field days at nature reserves around the country to test and sample as many different models as possible. The Global Birdfair in Rutland features the highest number of optics exhibitors you are likely to encounter at one single UK location, providing an invaluable and unique field-testing facility for all prospective purchasers of new equipment.

Having selected the models that you would like to assess, use the checklist below as a framework to structure your testing. Remember it's better to compare different models on a cloudy day or in poor light conditions when the performance differences between good and poor-quality optics are more evident.

# BINOCULARS: testing criteria

**MAGNIFICATION:** this is usually the key consideration when choosing binoculars. Most birders choose 8x, although 10x and 7x are also popular. All other things being equal, at higher magnifications the image is likely to be darker for the same size of objective lens, with the depth of field shallower and the field of view narrower. The same applies when the magnification remains constant and the objective lens size decreases.

**BRIGHTNESS:** the performance of many binoculars drops appreciably in poor light, hence the necessity for testing late in the day or in overcast conditions, as almost all binoculars will deliver bright images in bright sunlight. Coatings are applied to glass surfaces to increase light transmission and most of today's optics are fully multicoated but the extent to which the coatings are applied means that some 32-mm binoculars from top manufacturers can outperform other 42-mm models in producing brighter images. All other things being equal, dividing the objective diameter by the binocular's magnification provides an index of brightness (the 'exit pupil') which can be used as a guide.

**RESOLUTION:** resolution or image sharpness is a measure of the amount of detail visible through the binoculars and is related to objective size. Try focusing on a bird's plumage detail with different models or, for a more precise test, try separating closely spaced lines on a small barcode on a distantly placed retail-product pack. Check to see if the image is sharp from one edge of the field to the other and if it remains in focus across the entire field.

**DEPTH OF FIELD:** this is governed by the laws of physics and will vary only according to the binocular's specification. All binoculars with the same specification (for example 8x42) will have the same depth of field, regardless of manufacturer.

**FIELD OF VIEW:** the width of field visible in metres at a given range (normally 1,000 m is chosen to enable comparison between models), varies considerably between models but generally the higher the magnification,



■ **Make: Opticron.**  
**Model: Verano**  
**BGA VHD 10x50.**

**“The performance of many binoculars drops appreciably in poor light, hence the necessity for testing late in the day or in overcast conditions, as almost all binoculars will deliver bright images in bright sunlight”**

the narrower the field of view. Check out this important feature as some binoculars with narrow fields can lead you to feel 'claustrophobic'. Top-tier optics will usually exhibit a wider field than equivalent low-cost models. If you are planning to use your binocular with the twist-out eyecups extended, check that the full field of view is visible when they are set in your ideal position. The easiest way to check is to view a brick wall and count the number of bricks in view across the widest part of the image.

**CURVATURE OF FIELD:** straight objects may appear to bend at the edges of the image as you pan your binoculars left and right across a landscape. Binoculars without any degree of curvature of field may produce a bending, bubbling or a 'fish-eye' effect as you pan and you will need to decide if you can live with this. 'Field-flatteners' are now built into many models to reduce this.

**CLOSE FOCUS:** this is a prerequisite if you want to study insects and it is certainly important when you are following passerines through vegetation at close quarters. Many binoculars

now focus down to 2 m, some less.

**COLOUR FRINGING:** technically referred to as chromatic aberration, it is present in all binoculars to varying degrees as blue and yellow margins along opposite sides of dark objects when viewed against a light background. View a bare tree branch or TV aerial against a cloudy sky to assess the level of colour fringing and then decide how much you are prepared to accept. This characteristic is normally far less evident in high-quality optics and is related to glass quality, lens composition and coatings on lenses and prisms.

**DURABILITY:** rubber armouring to absorb knocks and drops and gas-filled barrels to seal against the entry of liquids and dust are the normal forms of protection for today's optics. Ensure your intended purchase is waterproof and not simply weatherproof.

**HANDLING:** a binocular should feel well-balanced and comfortable to hold while you are looking through it as well as not too heavy to carry around your neck if you are walking long distances. You should be able

to reach the focusing wheel with ease and the strap-lug positioning should be such that they do not cause the binocular to hang awkwardly or to dig uncomfortably into your hands while holding.

**EYE RELIEF:** you should be able to see the image comfortably and the full field of view should be visible in your chosen eyecup position (see Field of View, above). Look for click-stop mechanisms which lock your optimum cup position in place. The full field should be visible if you wear glasses, usually with the cup in the lowest position.

**MECHANICS:** the central focusing wheel should turn smoothly and without any 'play', which can be annoying when fine focusing. Ideally, one single rotation should take the image from close focus to infinity but this is rare and it is more likely to be between 1.5 and 2.0 rotations. Ensure the wheel is sufficiently ribbed and deep enough to allow positive finger-contact, even when wearing gloves.

**DIOPTR:** check that the dioptre for single-eye focusing adjustments can be locked or will not slip from its setting. The dioptre adjustment ring is normally situated below the right eyecup, although in some models it is integrated into the central focusing mechanism.

**ACCESSORIES:** those supplied with the binocular are not necessarily the best. A broad, neoprene neck strap will spread the load and increase user comfort when using heavier models but tight-fitting articulated rainguards, while in vogue, invariably take longer to put in place and remove and they can easily alter eyecup settings. It is a matter of choice to discard them and buy a more manageable, loose-fitting, single-piece cover. Check also that any slip-on rubber objective lens covers remain solidly in place as many fit too loosely and are prone to snagging or working loose and falling off.

**WARRANTY:** before you buy, check the terms of the warranty and the guarantee period, and that the binocular is an approved UK import. ■





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■ Make: Kowa.  
Models: TSN-88S and TSN-88A.

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# Telescopes

For its benefits in viewing distant birds, be it a flock of waders on an estuary or seabirds passing a headland, a telescope is a vitally important addition to a birder's armoury. **Mike Alibone** guides you through the options on offer.

**T**elescopes offer an unparalleled opportunity to get closer to nature. The ability to see detail far and beyond the level

at which binoculars operate renders them a birding essential and if you're a keen birder then ownership is almost obligatory.

Unlike binoculars, however, there is an enormous variation in model size, operating style and component compatibility, as well as in the range of prices – with this last factor both overlapping and considerably exceeding that of binoculars. Based upon suggested retail prices, this range starts at around £120 and rises to as much as £5,000.

Mercifully, there are fewer models on the market to choose from and, given the usually higher investment, each individual scope bought is likely

to be in its owner's possession for many years.

The two major considerations which present themselves at the very beginning of the decision-making process relate initially to size and weight and secondly to body style. As a general rule, the larger the objective, the larger and heavier the telescope – but there are exceptions.

A larger objective will have a greater light-gathering capacity as well as a higher image resolution, but the same rule applies here as it does to binoculars in that smaller models with high-quality glass and superior coatings from top-tier manufacturers will outperform telescopes from the middle and entry-level end of the market. Examples of this have become evident with the launch of so called 'travel scopes' in recent years. Furthermore, the performance value of many new,

mid-range scopes has crept closer to that delivered by the acknowledged elite.

## New models

Higher prices leading to longevity of ownership and therefore lower unit sales means that fewer new models make their debut on the market over any given period. However, there is more scope for innovation in design and functionality and the obvious recent trend for producing smaller, lighter, brighter telescopes has, to some degree, been counterbalanced by some much larger models lending weight to the opposite end of the spectrum.

In 2016 'the world's first micro spotting scopes', Celestron's innovatively tiny 'Hummingbird' angle-bodied telescopes, with 50-mm and 56-mm objectives, appeared on the market. With

zoom magnification ranges of 7-22x and 9-27x respectively, despite housing what would widely be regarded as conventionally sized objectives, the body was ultra-compact and the scopes featured all the refinements a user would expect to associate with contemporary optics. Weighing only 590 g and measuring only 210 mm in length, the 56 mm is still the smallest scope in today's birding world, the 50 mm having been discontinued.

Fast forward to 2022 and, successfully squeezing a quart into a pint pot, Swarovski offered birders another opportunity to travel light with the launch of its ATC 17-40x56 which, admittedly, weighed nearly 400 g more and was 48 mm longer than the Hummingbird, but nevertheless pushed the boundaries. This was two years after the Austrian manufacturer had decided to go large by introducing a 115-mm objective module for its ATX/STX/BTX modular spotting scope system. It's said to be the largest of its kind for wildlife watching and while the objective delivers more than 45% more light to the eye than the 95-mm module, at a combined modular weight of 2,910 g, it also delivers more weight to the user.

In the last two years we've



■ **Make: Celestron.**  
**Model: Regal M2 80ED.**



and for the flexibility they deliver, zooms are now becoming the 'standard' purchase with most telescopes.

Some manufacturers also offer extenders, which can be fitted between an eyepiece and the telescope body to further increase the magnification. For example, an extender of 1.7x would boost the eyepiece magnification at 60x to 102x but image quality would diminish to a certain extent.

This follows the standard relationship between magnification and image quality, because as magnification increases there is an accompanying decrease in brightness, sharpness, field of view and depth of field. A zoom eyepiece illustrates this perfectly and the majority of manufacturers will offer both zoom (normally 20-60x) and fixed (20x, 30x, 40x and so on) magnification eyepieces as detachable, interchangeable options on their scopes.

Scopes with detachable eyepieces also offer the flexibility for attaching certain types of digiscoping adaptors and accommodating specially designed camera lenses for digiscoping with DSLR cameras.

With any eyepiece you need to feel comfortable when spending long periods with your eye pressed to it and spectacle wearers should look for eyepieces which offer an

eye relief of 16-20 mm in order to see the whole field of view. Screw-out eyecups offer a scale of different positions and most have rubber coverings, but make sure that the material used for the eyecup will not scratch glasses, if worn.

## Focusing

A further consideration lies with the type of focusing mechanism you are going to be most comfortable with. A single knob mounted on top of the scope's body is the one most commonly encountered but dual focusing wheels (one for fast focus, the other for final sharpening) have become more common, while an increasing number of models employ an integrated helical focusing ring around the scope's body.

Check how many turns it takes to move from close focus to long distance. In this respect there can be considerable variation in the number of rotations between different models. In any case, the focusing wheel should be deep enough, and the surface sufficiently ribbed, to allow positive finger contact, even when wearing gloves.

Check also to see how comfortable it is to reach with the hand you will be using to operate it. Is it located on the same side of the scope as the pan and tilt handle of your tripod? If it is, following a

■ **Make: Opticron.**  
**Model: MM4 50 GA ED 45.**



moving bird while trying to keep it in focus may prove to be difficult.

## General design and durability

Aside from the body shape and mechanics already covered, there are other significant design aspects to be considered. Protection against accidental physical damage usually comes in the form of rubber body armour but the level varies between a solid rubber covering several millimetres deep and a simple layer of thin rubber paint. Some scopes may have a hard anodised body, which is less reliant on rubber armour for protection but in any event it's advisable to cover your scope with a compatible padded, stay-

on case to add further protection and reduce wear and tear.

All scopes should be waterproof and not simply 'weatherproof'. If this is the case it will be gas-filled with nitrogen, although argon is sometimes used. Waterproofing properties are listed in the manufacturer's specification, which relates to time and depth of immersion in water. Waterproofing should extend to detachable eyepieces, some of which are waterproof when fixed to the scope but not when they are detached.

Further protection from the elements should be present in the form of an objective lens hood. This should extend smoothly from the body and is



■ **Make: Leica.**  
**Model: APO Televid 82 W**  
(shown with Gitzo tripod).



■ **Make: ZEISS.**  
**Model: Harpia Eyepiece.**



■ **Make: Kowa.**  
**Model: TSN-EX16 1.6x Extender.**

designed to reduce glare and prevent rain from collecting on the objective lens. It's worth checking to ascertain if the right objective lens cover fits onto the end of the hood while it is extended – principally for ease of detachment and attachment while the scope is being carried around between periods of use during harsh weather.

The final design aspect to be taken into account comes, quite literally, in the shape of the tripod foot. In many instances, not enough consideration is given to this most important functional feature by manufacturers and users alike, and it can represent a significant influencing factor on which brand's model you purchase.

Some time ago, a number of telescope manufacturers developed tripod feet which were designed to dock directly into a popular Manfrotto tripod head, thereby negating the need to attach the tripod's own quick release plate (QRP), which can be considered a point of weakness. More recent foot designs have taken the shape of an Arca-Swiss QRP that fits many tripod brands offering this type of head, which is designed to adjust the balance of the equipment supported. See the tripods section for more details.

If this is not the case you should check the foot has a hole to accommodate the securing pin (when present) on the tripod's QRP to stop the scope from

Model	Price	Body	Weight	Length	Field	Focus	Waterproof	Guarantee
<b>Opticon <a href="http://opticon.co.uk">opticon.co.uk</a> 01582 726522</b>								
MM4 77 GA ED Fieldscope + HDF 18-54x	£928	Straight	1,454	380	34	5.5	Yes	30 / 10 Years
MM4 77 GA ED/45 Fieldscope + HDF 18-54x	£928	Angled	1,465	375	34	5.5	Yes	30 / 10 Years
MM4 77 GA ED Fieldscope + SDUx3 18-54x	£1,048	Straight	1,508	375	35	5.5	Yes	30 / 10 Years
MM4 77 GA ED/45 Fieldscope + SDUx3 18-54x	£1,048	Angled	1,519	370	35	5.5	Yes	30 / 10 Years
MM4 50 GA ED Travelscope + HDF 12-36x	£598	Straight	971	270	56	2.5	Yes	30 / 10 Years
MM4 50 GA ED/45 Travelscope + HDF 12-36x	£598	Angled	825	260	56	2.5	Yes	30 / 10 Years
MM4 60 GA ED Travelscope + HDF 15-45x	£698	Straight	971	325	46	3.5	Yes	30 / 10 Years
MM4 60 GA ED/45 Travelscope + HDF 15-45x	£698	Angled	985	315	46	3.5	Yes	30 / 10 Years
MM4 50 GA ED Travelscope + SDUx3 12-36x	£718	Straight	875	265	57	2.5	Yes	30 / 10 Years
MM4 50 GA ED/45 Travelscope + SDUx3 12-36x	£718	Angled	879	255	57	2.5	Yes	30 / 10 Years
MM4 60 GA ED Travelscope + SDUx3 15-45x	£818	Straight	1,025	320	47	3.5	Yes	30 / 10 Years
MM4 60 GA ED/45 Travelscope + SDUx3 15-45x	£818	Angled	1,039	310	47	3.5	Yes	30 / 10 Years
MM3 60 GA Travelscope + HR3 16-48x	£338	Straight	902	320	n/a	3.5	Yes	30 / 5 Years
MM3 60 GA/45 Travelscope + HR3 16-48x	£338	Angled	911	305	n/a	3.5	Yes	30 / 5 Years
MM3 60 GA Travelscope + HDF 15-45x	£428	Straight	886	320	n/a	3.5	Yes	30 / 10 Years
MM3 60 GA/45 Travelscope + HDF 15-45x	£428	Angled	895	305	n/a	3.5	Yes	30 / 10 Years
Guarantee for all scope bodies is 30 years. Guarantee for all eyepieces is 10 years, except 16-48x eyepieces, which is 5 years.								
<b>RSPB <a href="http://shopping.rspb.org.uk">shopping.rspb.org.uk</a> 0345 034 7733</b>								
RSPB Harrier ED 80mm - Inc 20-60x + stay-on case	£510	Angled	1,350	350	36-20	5.5	Yes	10 Years
RSPB Harrier ED 65mm - Inc 16-48x + stay-on case	£460	Angled	1,633	390	46-24.5	3.5	Yes	10 Years
<b>Swarovski Optik <a href="http://www.swarovskioptik.com">www.swarovskioptik.com</a> 01737 856312</b>								
ATC	£1,940	Angled	970	258	62-34	3.4	Yes	10 Years
STC	£1,940	Straight	980	285	62-34	3.4	Yes	10 Years
ATS 65 HD + 25-50 Ocular. Price includes the ocular.	£2,100	Angled	1,360	370	42-27	3	Yes	10 Years
STS 65 HD + 20-60 Ocular. Price includes the ocular.	£2,000	Straight	1,330	370	36-20	3	Yes	10 Years
ATS 80 HD + 25-50 Ocular. Price includes the ocular.	£2,720	Angled	1,630	400	42-27	5	Yes	10 Years
STS 80 HD + 20-60 Ocular. Price includes the ocular.	£2,620	Straight	1,600	400	36-20	5	Yes	10 Years
BTX + 65MM Objective	£3,310	Angled	2,195	371	38	2.2	Yes	10 Years
BTX + 85MM Objective	£3,920	Angled	2,520	404	38	3.8	Yes	10 Years
BTX + 95MM Objective	£4,300	Angled	2,760	458	32	5	Yes	10 Years
BTX + 115 MM Objective	£4,920	Angled	3,520	472	32	5	Yes	10 Years
ATX/STX 65 MM Objective	£2,920	A/S	1,585	339	41-23	2.1	Yes	10 Years
ATX/STX 85 MM Objective	£3,530	A/S	1,910	372	41-23	3.6	Yes	10 Years
ATX/STX 95 MM Objective	£3,910	A/S	2,150	426	35-19	4.8	Yes	10 Years
ATX/STX 115MM Objective	£4,530	A/S	2,910	440	35-19	4.8	Yes	10 Years
<b>Vanguard <a href="http://www.vanguardworld.co.uk">www.vanguardworld.co.uk</a> 01202 651281</b>								
Endeavor HD 65A 15-45x Spotting Scope	£370	Angled	1,450	345	48-23	4.5	Yes	2 Years*
Endeavor HD 82A 20-60x Spotting Scope	£450	Angled	1,810	380	37-17	6	Yes	2 Years*
Neo HD 60A 15-45x Spotting Scope	£320	Angled	1,205	343	47-23	5	Yes	2 Years*
Neo HD 80A 20-60x Spotting Scope	£400	Angled	1,550	376	37-17	5	Yes	2 Years*
Vesta 560A 15-45x Spotting Scope	£200	Angled	1,293	340	35-21	8	Yes	2 Years**
All prices include eyepiece. All models (except VESTA 560A) include ED Glass. * register to extend to 10 years. ** register to extend to 4 years								
<b>Viking Optical <a href="http://www.vikingoptical.com">www.vikingoptical.com</a> 01986 875315</b>								
Swallow ED 80 mm - Inc 20-60x + stay-on case	£499	Angled	1,350	350	36-20	5.5	Yes	10 Years
Swallow ED 65 mm - Inc 16-48x + stay-on case	£449	Angled	1,633	390	46-24.5	3.5	Yes	10 Years
Swallow ED 50 mm - Inc 13-39x + stay-on case	£399	Angled	900	280	56-30	4	Yes	10 Years
Swallow 80 mm - Inc 20-60x + stay-on case	£260	Angled	1,327	400	35-17	7	Yes	5 Years
Swallow 65 mm - Inc 16-48 + stay-on case	£230	Angled	1,155	340	44-21	5	Yes	5 Years
Swallow 50 mm - Inc 15-45x + stay-on case	£160	Angled	980	300	47-23	3	Yes	5 Years
<b>Vortex <a href="http://www.newpauk.co.uk">www.newpauk.co.uk</a> 01367 242411</b>								
Diamondback HD 65mm with 16-48x zoom + Neoprene stay-on case	£479	Angled	1,415	362	45.9-24.1	5	Yes	Unlimited Lifetime
Diamondback HD 65mm with 16-48x zoom + Neoprene stay-on case	£479	Straight	1,430	350	45.9-24.1	5	Yes	Unlimited Lifetime
Diamondback HD 85mm with 20-60x zoom + Neoprene stay-on case	£599	Angled	1,730	406	36.7-19.2	7.5	Yes	Unlimited Lifetime
Diamondback HD 85mm with 20-60x zoom + Neoprene stay-on case	£599	Straight	1,740	400	36.7-19.2	7.5	Yes	Unlimited Lifetime
Viper HD 65mm with 15-45x zoom + Neoprene stay-on case	£849	Angled	1,675	356	45.4-22.7	7	Yes	Unlimited Lifetime
Viper HD 65mm with 15-45x zoom + Neoprene stay-on case	£849	Straight	1,675	370	45.4-22.7	7	Yes	Unlimited Lifetime
Viper HD 65mm with 15-45x zoom + Neoprene stay-on case	£1,069	Angled	2,155	445	33.2-17.5	10.9	Yes	Unlimited Lifetime
Viper HD 65mm with 15-45x zoom + Neoprene stay-on case	£1,069	Straight	2,155	457	33.2-17.5	10.9	Yes	Unlimited Lifetime
Razor HD 50mm with 13-39x zoom + Neoprene stay-on case	£1,109	Angled	812	264	55.9-29.7	2.8	Yes	Unlimited Lifetime
Razor HD 50mm with 13-39x zoom + Neoprene stay-on case	£1,109	Straight	839	282	55.9-29.7	2.8	Yes	Unlimited Lifetime
Razor HD 65mm with 22-48x zoom + Neoprene stay-on case	£1,179	Angled	1,570	374	47.2-27.9	6.7	Yes	Unlimited Lifetime
Razor HD 65mm with 22-48x zoom + Neoprene stay-on case	£1,179	Straight	1,570	395	47.2-27.9	6.7	Yes	Unlimited Lifetime
Razor HD 85mm with 27-60x zoom + Neoprene stay-on case	£1,619	Angled	1,850	393	38.4-22.7	4.9	Yes	Unlimited Lifetime
Razor HD 85mm with 27-60x zoom + Neoprene stay-on case	£1,619	Straight	1,850	412	38.4-22.7	4.9	Yes	Unlimited Lifetime
All current Vortex HD spotting scopes are fitted with an Arca-Swiss tripod foot								
<b>ZEISS <a href="http://www.zeiss.co.uk">www.zeiss.co.uk</a> 01223 401500</b>								
Harpia 85 Angled (eyepiece not included)	£3,300	Angled	1,934	384	63.2-21.0	3.5	Yes	10 Years
Harpia 95 Angled (eyepiece not included)	£3,700	Angled	2,078	408	58.8-19.5	4.5	Yes	10 Years
Gavia 30-60x85 angled with Ocular - set	£1,850	Angled	1,700	396	33-23	3.3	Yes	10 Years

swivelling, working loose and potentially becoming detached from the tripod altogether.

## Terminology and testing

The testing criteria and terminology outlined in the binocular section apply equally to telescopes and, combined with a little research on product specification and functionality, will help you in your decision-making.

Image quality is a product of a number of different factors already covered in this and the previous section, although it's worth familiarising yourself with the different glass and lens types which are built into today's telescopes. Superior glass types, such as FL (fluorite or fluorite) and ED (extra-low dispersion) may be used to significantly enhance image quality. Even these may be graded and some are recognisably better quality

than others. They will add to the expense (and often weight) of the telescope, as will multi-elemental lenses such as APO (apochromatically corrected) or aspheric lenses, which have different surface profiles to simple lenses. All of these glass types and lens configurations are designed to increase light transmission, sharpen images and reduce chromatic aberration.

Don't be misled by terms such as 'HD' (high definition), which may be used in the model number but does not necessarily mean that refined glass has been used in the model you are considering buying.

If you're in no hurry to buy it's wise to keep one eye on the market to find out what's new, what's popular and why, and to look through as many different scopes in the field as possible before making a decision. New or upgraded models are frequently introduced. ■



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Yes, Phoneskope works very well with Vortex HD spotting 'scopes, but equally well with 'scopes from\* Swarovski, Zeiss, Opticron, Leica, Kowa, Hawke, Nikon, Celestron, Meopta, Viking and Vanguard for using your Smartphone on your 'scope to get great images or videos. \* all Registered TMs



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BUYING  
ADVICE

# Tripods

After investing heavily in a telescope, it's well worth ensuring you buy the right tripod to complement it – spend some time doing your research before parting with your cash, says **Mike Alibone**.

■ **Make: Vanguard.**  
**Model: ALTA PRO**  
**263AB 100.**

**T**ripods represent the third essential component of contemporary birding gear. They can be the make or break of your viewing experience. Fortunately, the range of tripods suitable for use in birding is relatively narrow when compared with the optics market, with around a dozen brands offering compatible models.

A good tripod should be readily portable, sturdy and easy to operate as well as providing a high level of stability in all environmental conditions. Compactness, while nice to have, may not necessarily be a prerequisite as, in most instances, this means more structural components that potentially add a measure of instability – something that is not welcomed when viewing birds at high magnification.

When considering a purchase, don't opt for the smallest, lightest tripod you can find if you intend to use it for digiscoping with a large and heavy telescope-camera combination. Conversely, using an over-specified, heavy-duty tripod to support a 'travel scope' will result in a higher than necessary weight to carry around and also adds expense to the package.

The equipment you require the tripod to support, therefore, is key to making the decision on what to buy.

## Legs

The majority of tripods broadly consist of three components. The bulkiest part, the legs, perform two main functions: the support of the head (the second component) with its attached optical equipment and the positioning of the optics at a comfortable height for viewing. The third component, the centre column, simply allows the height of the head to be further adjusted.

Check out the number of leg sections and their locking method. The typical tripod has three leg sections; fewer sections render the legs quicker to extend and retract and increase a tripod's stability. However, tripods with more leg sections are more compact when closed, which makes them more easily transportable.

Leg-locking systems are also important. Lever locks are quicker to operate and have the added advantage of being visibly open or closed, allowing the user to check before standing the tripod up. Just one leg lock left open can cause a tripod to collapse. When using tripods with twist locks, it is not normally possible to visibly ascertain if certain leg sections are locked, and twist locks are also slower to operate. Some twist locks are quicker to activate than others and some screw thread-based locks can work loose through constant vibration when

# Birdwatch tripod buyers' guide



■ **Make: Manfrotto.**  
**Model: MT055CXPR03.**

the tripod is being carried or transported inside a vehicle.

Leg material is another major consideration and the choice typically lies between aluminium and carbon fibre. Carbon fibre is 30% lighter than aluminium, therefore reducing the carry weight, but tripods using this material are more expensive and they are more likely to be blown over in windy conditions – with potentially disastrous results! Some tripod manufacturers have developed systems for connecting heads directly to the collar at the apex of the tripod to further lighten the load. This system dispenses with the need for a centre column which, if raised, reduces stability and potentially increases ‘image shake’. For this reason, it’s worth considering buying a tripod with long enough legs which render it unnecessary to raise the centre column at all.

A further consideration is whether a tripod has foam padding on the top leg sections, which is also useful if you are carrying a tripod on your shoulder over long distances.

## Heads

The design of heads and associated functionality are key to enabling better balance and control of the optics they support. Conventional head types are gimbal (unsuitable for birding), ball, and pan-handle, with the latter normally the birder’s favoured type from the ease-of-use aspect.

Model	Price	Material	Weight (kg) excl head	Maximum loading (kg)	Collapsed length (mm) excl. head	Max extended length (mm) excl column	Max column extension (mm)	No of leg sections	Leg-locking system	Guarantee
<b>3 Legged Thing www.3leggedthing.com 01234 828834</b>										
£390	Carbon Fibre	1.27	30	340	939	341	5	Twist	5 Years	
£400	Carbon Fibre	1.52	30	410	1,220	580	5	Twist	5 Years	
£470	Carbon Fibre	1.41	14	405	1,110	n/a	5	Twist	5 Years	
£520	Carbon Fibre	1.65	14	667	1,470	n/a	3	Twist	5 Years	
£700	Carbon Fibre	2.4	60	590	1,560	n/a	4	Twist	5 Years	
£730	Carbon Fibre	2.59	60	730	1,620	n/a	3	Twist	5 Years	
£240	Carbon Fibre	1.52	30	374	1,030	340	5	Twist	5 Years	
£310	Carbon Fibre	1.87	30	431	1,230	580	5	Twist	5 Years	
£250	Magnesium Alloy	2.12	40	612	1,410	440	3	Twist	5 Years	
£330	Carbon Fibre	1.73	40	612	1,410	440	3	Twist	5 Years	
£140	-	0.32	40	-	-	-	-	-	5 Years	
£140	-	0.33	40	-	-	-	-	-	5 Years	
£150	-	0.37	40	-	-	-	-	-	5 Years	
£320	-	0.57*	10	-	-	-	-	-	5 Years	
* 0.74 kg with panning arm All AirHeds Arca-Swiss compatible										
<b>Benro www.macgroupeu.com 01902 255500</b>										
£365	Carbon Fibre	2.48	4	700	1,580	n/a	4	Twist	3 Years	
£385	Carbon Fibre	2.8	4	700	1,635	n/a	4	Twist	3 Years	
<b>Celestron www.celestron.com 01184 671200</b>										
£90	Aluminium	2.12	4	7.2	1,720	680	3	Lever	2 Years	
£110	Aluminium	1.75	5	600	1,750	580	4	Lever	2 Years	
£130	Aluminium	1.79	4	480	1,790	315	4	Lever	2 Years	
£230	Aluminium	2.74	4	463	1,746	248	4	Lever	2 Years	
<b>Gitzo www.gitzo.com</b>										
£570	Carbon Fibre	1.29	10	365	1,165	1,330	4	Twist	7 Years	
£1,190	Carbon Fibre	1.78	14	1,470	1,710	n/a	4	Twist	7 Years	
£612	Carbon Fibre	1.45	10	425	1,405	1,635	4	Twist	7 Years	
£624	Carbon Fibre	1.42	10	355	1,315	1,485	5	Twist	7 Years	
£1,318	Carbon Fibre	2.45	20	1,400	1,800	n/a	4	Twist	7 Years	
£1,318	Carbon Fibre	2.64	13	1,490	1,770	n/a	4	Twist	7 Years	
£702	Carbon Fibre	1.84	12	445	1,420	1,655	4	Twist	7 Years	
£1,446	Carbon Fibre	2.65	20	640	1,340	1,750	3	Twist	7 Years	
£1,119	Carbon Fibre	2.84	13	640	1,445	1,725	3	Twist	7 Years	
£1,199	Carbon Fibre	2.94	28	610	1,770	n/a	3	Twist	7 Years	
£1,289	Carbon Fibre	3.28	28	610	1,705	n/a	4	Twist	7 Years	
£1,650	Carbon Fibre	3.72	30	610	1,685	n/a	4	Twist	7 Years	
£687	Carbon Fibre	1.07	10	1,320	1,080	1,320	3	Twist	7 Years	
£758	Carbon Fibre	1.12	10	1,370	1,120	1,370	4	Twist	7 Years	
£399	Carbon Fibre	0.895	10	1,060	1,060	1,225	4	Twist	7 Years	
£599	Carbon Fibre	1.33	20	620	1,330	1,580	3	Twist	7 Years	
£874	Carbon Fibre	1.28	10	540	1,350	1,590	4	Twist	7 Years	
£482	Carbon Fibre	1.055	10	425	1,300	1,530	4	Twist	7 Years	
£425	Carbon Fibre	1.03	10	355	1,210	1,380	5	Twist	7 Years	
£967	Carbon Fibre	1.67	22	650	1,380	1,660	3	Twist	7 Years	
£759	Carbon Fibre	1.68	22	560	1,370	1,655	4	Twist	7 Years	
£1,335	Carbon Fibre	2.38	28	610	1,580	n/a	4	Twist	7 Years	
£499	Carbon Fibre	1.33	12	445	1,310	1,545	4	Twist	7 Years	
£799	Carbon Fibre	1.88	25	640	1,330	1,610	3	Twist	7 Years	
£1,008	Carbon Fibre	2.04	28	670	1,520	n/a	3	Twist	7 Years	
£936	Carbon Fibre	1.93	28	610	1,300	n/a	3	Twist	7 Years	
£829	Carbon Fibre	1.86	25	540	1,340	1,620	4	Twist	7 Years	
£1,149	Carbon Fibre	1.95	25	590	1,500	1,780	4	Twist	7 Years	
£899	Carbon Fibre	2.03	28	570	1,460	n/a	4	Twist	7 Years	
£899	Carbon Fibre	2.29	28	710	2,020	n/a	4	Twist	7 Years	
£849	Carbon Fibre	2.31	28	690	1,560	n/a	3	Twist	7 Years	
£1,335	Carbon Fibre	2.38	28	610	1,580	n/a	4	Twist	7 Years	
£899	Carbon Fibre	2.23	28	480	1,360	n/a	5	Twist	7 Years	
£949	Carbon Fibre	2.72	42	680	1,450	n/a	3	Twist	7 Years	
£1,148	Carbon Fibre	2.63	42	620	1,340	n/a	3	Twist	7 Years	
£999	Carbon Fibre	2.82	42	600	1,560	n/a	4	Twist	7 Years	
£1,240	Carbon Fibre	3.12	42	720	1,980	n/a	4	Twist	7 Years	
£1,375	Carbon Fibre	3.56	42	730	2,780	n/a	6	Twist	7 Years	
<b>Hilkinson www.hilkinson.co.uk 01986 875315</b>										
£65	Aluminium	1.40	4	610	1,295	1,510	3	Lever	1 Year	
<b>Leofoto www.leofoto.com 0203 966 5947</b>										
£400	Carbon Fibre	2.00	4	560	1,580	2,000	4	Lever	10 Years	
£450	Carbon Fibre	2.50	6	600	1,660	2,160	4	Lever	10 Years	
£279	Carbon Fibre	1.40	20	650	1,520	2,020	3	Twist	10 Years	
£399	Carbon Fibre	1.40	10	530	1,280	1,780	4	Twist	10 Years	
£420	Carbon Fibre	1.80	10	570	1,395	1,895	4	Twist	10 Years	
£559	Carbon Fibre	1.50	10	540	1,290	1,890	4	Twist	10 Years	
£239	-	-	-	-	-	-	-	-	10 Years	



■ **Make: Gitzo.**  
**Model: 2-way head, series 1.**

# Birdwatch tripod buyers' guide



■ **Make:** Benro. **Model:** Tortoise TT0R34CLVS4PRO.

Heads with an integrated counterbalance mechanism offer the highest degree of flexibility in terms of keeping optics in place when focused on a particular subject. While most telescopes' centres of gravity are positioned on their tripod feet, some are not and, in these cases, the imbalance will result in the scope tipping backward or forward. Furthermore, if a camera, or even a smartphone and adaptor, are attached to the telescope the centre of gravity will change, again upsetting the balance.

While some heads will have a built-in tensioning spring, which effectively resists the gravitational force acting on the 'heavy end' of any unbalanced optical equipment, the simple and now most widely employed alternative is an Arca-Swiss type system. In simple terms, a sliding quick release plate (QRP) which, when fitted to a telescope's tripod foot, can be moved along the head to achieve perfect balance before being locked firmly into place. The Arca-Swiss heads and plates are designed to a universal specification, which means a QRP from one manufacturer's tripod head should fit the heads of a number of others.

The smart money is, therefore, being invested by telescope manufacturers in Arca-Swiss tripod-foot design, which allows the scope to fit directly into the tripod head and negates the need for a QRP. It should be said at this point that QRPs constitute a point of weakness inasmuch as they are an additional component which can transmit vibration, as well as having the potential to work loose from a telescope's tripod foot, causing the telescope to wobble, spin or even fall off. It's worth checking that any QRP purchased is fitted with an anti-

Model	Price	Material	Weight (kg) excl head	Maximum loading (kg)	Collapsed length (mm) excl head	Max extended length (mm) excl column	Max column extension (mm)	No of leg sections	Leg-locking system	Guarantee
<b>Manfrotto www.manfrotto.com</b>										
MK055XPRO3-3W	£219	Aluminium	2.50	20	610	1,400	1,700	3	Lever	10 Years
MK055XPRO3-BHQ2	£249	Aluminium	3.00	15	610	1,515	1,815	3	Lever	10 Years
MK190X3-2W	£375	Aluminium	2.75	5	590	1,450	1,700	3	Lever	10 Years
MK190X3-3W1	£209	Aluminium	2.70	10	590	1,495	1,730	3	Lever	10 Years
MK190XPRO3-3W	£415	Aluminium	3.00	12	590	1,480	1,730	3	Lever	10 Years
MK190XPRO3-BHQ2	£374	Aluminium	2.50	15	590	1,465	1,715	3	Lever	10 Years
MK190XPRO4-3W	£440	Aluminium	3.10	12	490	1,480	1,730	4	Lever	10 Years
MK190XPRO4-BHQ2	£269	Aluminium	2.55	15	490	1,480	1,715	4	Lever	10 Years
MK290DUA3-3W	£277	Aluminium	2.59	10	595	1,510	1,755	3	Lever	10 Years
MK290LTA3-V	£139	Aluminium	1.80	4	595	1,270	1,640	3	Lever	10 Years
MK290XTA3-2W	£149	Aluminium	2.56	6	595	1,460	1,695	3	Lever	10 Years
MK290XTA3-3W	£200	Aluminium	2.52	10	595	1,475	1,715	3	Lever	10 Years
MK290XTA3-BH	£139	Aluminium	2.20	7	595	1,460	1,700	3	Lever	10 Years
MKBFR44GTXP-BH	£317	Aluminium	2.00	12	430	1,420	1,640	4	Twist	10 Years
MKBFR44GTXP-BH	£483	Carbon Fibre	1.76	12	430	1,410	1,620	4	Twist	10 Years
MKBFR44B-BHM	£169	Aluminium	1.66	9	400	1,280	1,510	4	Lever	10 Years
MKBFR44BK-3W	£229	Aluminium	2.00	6	400	1,320	1,510	4	Lever	10 Years
MKBFR44BK-BH	£229	Aluminium	1.59	9	400	1,280	1,510	4	Lever	10 Years
MKBFR44BK-BH	£169	Aluminium	1.49	9	400	1,270	1,500	4	Twist	10 Years
MKBFR44GT-BH	£284	Aluminium	1.85	12	430	1,400	1,640	4	Twist	10 Years
MKBFR44C-BH	£394	Carbon Fibre	1.25	9	410	1,270	1,500	4	Twist	10 Years
MKBFR44GTA-BH	£329	Carbon Fibre	1.55	12	430	1,380	1,620	4	Twist	10 Years
MKBFR44GT-BH	£472	Carbon Fibre	1.55	12	430	1,380	1,620	4	Twist	10 Years
MT055CXP03	£379	Carbon Fibre	2.10	20	630	1,400	1,700	3	Lever	10 Years
MT055CXP04	£349	Carbon Fibre	2.25	20	540	1,400	1,700	4	Lever	10 Years
MT055XPRO3	£219	Aluminium	2.50	20	610	1,400	1,700	3	Lever	10 Years
MT190CXP04	£299	Carbon Fibre	1.76	15	52.5	1,350	1,600	4	Lever	10 Years
MT190G0A4	£232	Aluminium	1.66	15	450	1,270	1,520	4	Twist	10 Years
MT190G0C4	£445	Carbon Fibre	1.35	15	450	1,230	1,470	4	Twist	10 Years
MT190X3	£149	Aluminium	2.00	15	590	1,350	1,600	3	Lever	10 Years
MT190XPRO3	£261	Aluminium	2.00	15	590	1,350	1,600	3	Lever	10 Years
MT190XPRO4	£199	Aluminium	2.05	15	490	1,350	1,600	4	Lever	10 Years
MT290XTA3	£99	Aluminium	1.78	10	595	1,370	1,780	3	Lever	10 Years
MT290XTC3	£290	Carbon Fibre	1.54	10	627	1,420	1,540	3	Lever	10 Years
<b>Olivon www.opticalhardware.co.uk 01226 203275</b>										
TR53 Table Tripod	£30	Plastic	0.66 (incl head)	3	320 (incl head)	300	530	3	Lever	2 Years
TR152	£64	Aluminium	1.50 (incl head)	3.5	545 (incl head)	-	1,520	4	Lever	2 Years
TR163	£179	Aluminium	2.56 (incl head)	4	690 (incl head)	-	1,630	3	Lever	2 Years
TR180	£184	Aluminium	2.78 (incl head)	4	780	-	1,800	3	Lever	2 Years
<b>Vanguard www.vanguardworld.co.uk 01202 651281</b>										
ALTA PRO 3VL 303AV18	£350	Aluminium	2.40	25	760	1,695	1,800	3	Twist	2 Years*
ALTA PRO 3VL 303CV18	£450	Carbon Fibre	2.00	25	760	1,695	1,800	3	Twist	2 Years*
VED 2PRO 233AO	£150	Aluminium	1.20	4	460	1,080	1,460	3	Twist	2 Years*
VED 2PRO 263AO	£190	Aluminium	1.40	5	520	1,210	1,600	3	Twist	2 Years*
VED 3 263AO	£250	Aluminium	1.80	15	620	1,350	1,760	3	Lever	2 Years*
VED 3 263CO	£340	Carbon Fibre	1.50	15	620	1,350	1,760	3	Lever	2 Years*
VED 3+ 303AT	£300	Aluminium	2.30	25	670	1,390	1,650	3	Twist	2 Years*
VED 3+ 303CT	£400	Carbon Fibre	1.90	25	670	1,390	1,650	3	Twist	2 Years*
VED 3T 235AP	£220	Aluminium	1.30	8	410	1,060	1,535	5	Twist	2 Years*
VED 3T 235CP	£280	Carbon Fibre	1.10	8	410	1,060	1,535	5	Twist	2 Years*
VED 3T 265HAP	£250	Aluminium	1.50	12	440	1,160	1,635	5	Twist	2 Years*
VED 3T 265HCP	£320	Carbon Fibre	1.20	12	440	1,160	1,635	5	Twist	2 Years*
VESTA 203AP	£90	Aluminium	1.10	3.5	570	1,220	1,550	3	Lever	2 Years**
VESTA 233AP	£100	Aluminium	1.30	3.5	580	1,220	1,550	3	Lever	2 Years**
* register to extend to 10 years ** register to extend to 4 years										
<b>Velbon www.velbon.net 0203 966 5947</b>										
SHERPA 200R with PH-157Q	£199	Aluminium	1.35	5	515	1,375	1,675	3	Lever	2 Years
DV 7000N Video Tripod	£249	Aluminium	3.37	6	602	1,625	1,625	3	Lever	2 Years
Videomate 438	£109	Aluminium	0.89	2	508	1,265	1,535	3	Lever	2 Years
Videomate 638	£139	Aluminium	1.34	4	566	1,280	1,710	3	Lever	2 Years
<b>Viking Optical www.vikingoptical.com 01986 875315</b>										
Swallow	£200	Aluminium	1.50	8	735	1,350	1,630	3	Lever	1 Year
Viking Swallow Tripod is supplied with the Viking Fluid head, height 100 mm, weight 898 g weight capacity of 8 kg covered by the Swallow tripod 1-year warranty.										

rotation pin to prevent this.

Controlling the head movement is important. It should provide balance, stability and the means to move your scope in one fluid motion, smoothly and steadily through all angles to follow a flying bird, as well as being able to securely lock on to one which is stationary. In addition to the standard pan-and-tilt operation of a tripod head, some can be used in conjunction with a levelling base accessory, fitted

below the head to allow the user to instantly level up the telescope. This is particularly useful when the tripod is placed on uneven or sloping ground or when it is used for photography.

It's important to check out the weight capacity of the head before buying as it is usually the limiting factor when determining the maximum weight of equipment that a tripod can support. It's important to ensure the total weight of the head plus equipment does not exceed the

maximum support capacity of the tripod legs.

The tables accompanying this section have been compiled as a guide and do not necessarily include the full range of products offered by the manufacturers or, indeed, include every tripod manufacturer. Tripods simply 'branded' by optics manufacturers, omitted here, should also be given serious consideration as they can often be purchased as part of a package at a special rate. ■



■ **Make:** Gitzo. **Model:** Traveler, series 1.



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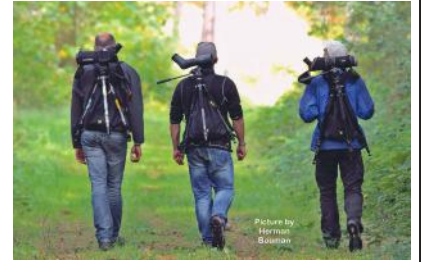


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■ **Make:** Pulsar.  
**Model:** Telos LRF XP50.



BUYING  
ADVICE

# Thermal imaging

Seeing birds under the cover of darkness is now possible due to this increasingly prevalent technology. **Mike Albone** introduces thermal imaging and provides tips on what to look for in a suitable product for birding.

Currently enjoying a rapid rise in popularity, thermal-imaging equipment has recently come to the fore in the birding world. Having been in use by the hunting fraternity over the years, a number of optics companies have recognised its potential use for nature observation and have now upped their game in further developing and marketing this niche product.

It's important to differentiate between thermal imaging and night vision. Products in the latter category have been around for many years. They detect small amounts of visible light and amplify it so an image can be seen. Many now have built-in, infrared illuminators to allow

usage in ambient light or in total darkness. Thermal imaging, however, detects heat from bodies, producing a so-called 'heat signature', relative to the surrounding habitat, using near-infrared or ultraviolet radiation, as opposed to simply drawing in light.

The evolving technology behind this equipment has opened up opportunities for unlimited field use, meaning that although it was initially designed for utilisation at night, it has now been widely recognised as having increasingly strong potential for daytime use. In this respect, it is not viewed as a product to compete with or replace conventional optics, but its application falls squarely into the

wildlife-detection category.

'Seeing the unseen' has never been more pertinent in this respect, as birders are increasingly making use of thermal-imaging devices in daylight hours to locate birds which may be hidden by vegetation and would otherwise not be visible to the naked eye. Examples of their benefits include the location of a Pallid Swift roosting on cliffs at Sheringham, Norfolk, in October 2022, and finding the elusive Canada and Magnolia Warblers in Pembrokeshire in September 2023. Thermal monoculars were also used in November 2023 for pin-pointing and tracking a Little Crake through waterside vegetation at Linford Lakes,

Buckinghamshire. Such devices are proving most useful in increasing efficiency in surveys, reducing disturbance to birds and delivering an improvement in the accuracy of counts for birds of conservation concern.

Typically, these devices, with their built-in camera systems, are expensive and fall into the 'nice to have' bracket, rather than being essential. Prices range from around £500 for a basic model up to £11,000 for a top-tier monocular, although costs (and therefore prices) of thermal-imaging technology are said to be dropping every year. So, what should we be looking out for in order to steer our choice toward making an astute purchasing decision?

### Assessing performance

Unlike conventional optics, in which the finer points of daylight image quality are at the top of the assessment tree, thermal-imaging devices effectively operate in a different dimension. Getting to grips with the number of different specification elements, their values and the way they work represents a steep learning curve. Key performance factors revolve around detection range, thermal-sensor resolution, refresh rate and charged battery life, while size, weight and ease of use are also important.

Sizes of devices vary and thermal monoculars should be compact, lightweight – ideally between 280 g and 800 g – and operable with one hand. Most settings are controlled and adjusted by pushbuttons mounted along the top of the device. These should be operable when wearing gloves. When switched on, the eyepiece is normally rotated to bring into focus the symbols on the screen, enabling various menu options to be chosen.

General field focusing will normally be achieved via rotating a ring built into the body, close to the objective lens, while zoom magnification can be achieved through a combination of optical zoom and digital zoom. Optical zoom delivers lower magnification values via conventional means, while digital zoom provides higher magnification simply by magnifying the image digitally within the device. Some models provide up to 24x magnification.

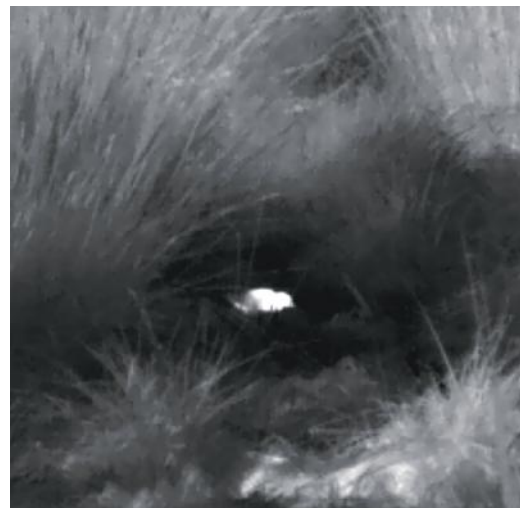
Durability is also important, although there is a great deal of variability in external covering material and some models are more waterproof than others. In this respect, any chosen device should be rated IPX4 or higher, as these are typically more resistant to water, but some are rated as high as IPX7, which means they can be submerged in water to a depth of 1 m for up to 30 minutes.

Detection range is important for survey work taking place over a wide area and some top-end equipment can reach up to distances of 2.6 km. The range for less expensive models more typically falls between 200 m and 500 m.

Monoculars offering a thermal-imaging sensor of 384x288 pixels and above are worthy of



■ **Make:** ZEISS.  
**Model:** DTI 3/25 G2.



■ **Thermal-imaging cameras not only aid observation during the hours of darkness, but also offer the opportunity to locate cryptic or elusive species during the day. This comparison shows a human's view of a marsh (left) and the image produced by a Pulsar thermal imager, clearly revealing the presence of a Jack Snipe (right).**

consideration and the measure for how effective the sensor is in its ability to distinguish between very small differences in thermal radiation is its NETD (Noise Equivalent Temperature Difference). NETD is measured in milli-Kelvins (mK) and the lower the value, the higher the sensitivity of the sensor. Higher sensitivity enables accurate differentiation even between heat signatures with very small temperature differences and results in a higher-quality image. In addition to this, the sensor's pixel size, measured in microns ( $\mu\text{m}$ ), also contributes to increasing its sensitivity when

the value is higher. Overall, the hotter an object is, the brighter it will appear on the monocular's display.

A high-resolution display invariably contains more pixels, such as 720p or 1080p, and delivers more detail and clarity. Image detail will also improve if the device has a high display refresh rate, such as 50Hz or more. In addition to this, some monoculars have supplementary features, such as digital detail enhancement or image smoothing, as these can further increase image quality and some top-tier devices employ cryogenic coolers to reduce noise.

In most devices it's possible to change the colour mode of the display for heightened visibility in different environments and conditions. Black Hot and White Hot modes deliver the highest level of contrast and, when scanning vegetation, the Red Hot mode is particularly useful for rapid detection of heat sources. A rainbow mode is designed to highlight even the slightest temperature differences, while a green mode maintains higher details at low screen brightness.

Of course, not only do monoculars operate as devices for observation, most have the capability to capture still images



# Birdwatch

## Thermal imaging buyers' guide

This table features thermal-imaging cameras widely used by birders. This is a developing field, with more companies planning to release products in the future.

### Key to tables

- **Price:** recommended retail price.
- **Weight:** in grams.
- **Size:** length x width x depth in millimetres.
- **Field:** degrees or metres at 100 m.
- **Detection range:** in metres.
- **Sensor resolution:** horizontal x vertical number of pixels.
- **Pixel pitch:** in micrometres.
- **NETD value:** level of noise in detector.
- **Internal memory:** where known in gigabytes.
- **Display resolution:** horizontal x vertical number of pixels.
- **Battery run time:** in hours.
- **Guarantee:** in years.

Model	Price	Weight (g)	Size (mm)	Field (degrees or metres @ 100 m)	Detection range (m)	Sensor resolution	Pixel pitch (µm)	NETD value (mK)	Internal memory (GB)	Display resolution	Battery run time (hours)	Waterproof	Guarantee
<b>HIKMICRO</b> <a href="http://www.opticswarehouse.co.uk">www.opticswarehouse.co.uk</a>													
Condor CH2SL 25mm LRF	£1,500	380	180x52x85	10.53 degrees	1200	384x288	12	<20	Yes	1024x768	4.5	Yes	3 Years
Condor CH3SL 35mm LRF	£1,700	400	184x53x87	10.53 degrees	1800	384x288	12	<20	Yes	1024x768	4.5	Yes	3 Years
Condor Pro CQ35L 35mm LRF	£1,900	400	184x53x87	12.5 degrees	1800	640x512	12	<20	Yes	1024x768	4	Yes	3 Years
Condor CQ50L Pro 50mm LRF	£2,450	450	197x60x94	8.7 degrees	2600	640x512	12	<20	Yes	1024x768	4	Yes	3 Years
Falcon FH35 35mm	£1,500	500	188x58x65	7.53 degrees	1800	384x288	12	<20	64	1024x768	7	Yes	3 Years
Falcon FQ25 Pro 25mm	£1,700	450	190x58x67	17.5 degrees	1200	640x512	12	<20	64	1024x768	6	Yes	3 Years
Falcon FQ35 Pro 35mm	£1,800	500	187x58x65	12.54 degrees	1800	640x512	12	<20	64	1024x768	5	Yes	3 Years
Falcon FQ50 Pro 50mm	£2,350	630	200x78x68	8.75 degrees	2600	640x512	12	<20	64	1024x768	5	Yes	3 Years
Lynx Pro 10mm Smart Thermal Monocular	£550	260	158x61x57	18 degrees	458	256x192	12	<35	8	720x540	8	Yes	3 Years
Lynx Pro 15mm Smart Thermal Monocular	£890	290	158x61x57	17.5 degrees	708	384x288	12	<35	8	1280x960	7.5	Yes	3 Years
Lynx Pro 19mm Smart Thermal Monocular	£1,000	310	171x61x57	13.8 degrees	897	384x288	12	<35	8	1280x960	7.5	Yes	3 Years
Lynx Pro 25mm Smart Thermal Monocular	£1,300	300	171x61x57	10.5 degrees	1180	384x288	12	<35	8	1280x960	7.5	Yes	3 Years
<b>Pulsar</b> <a href="http://www.tj-focus.co.uk">www.tj-focus.co.uk</a>													
Telos LRF XP50	£3,100	720	238x72	21.8m	1800	640x480	17	<18	64	1024x768	8	Yes (IPX7)	3 Years
Pulsar Axion 2 XQ35 Pro	£1,640	470	152x75	18.2m	1300	384x288	17	<25	16	640x400	11	Yes (IPX7)	3 Years
Pulsar Axion 2 XG35	£2,340	380	152x74	21.9m	1750	640x480	12	<40	16	1024x768	7	Yes (IPX7)	3 Years
Pulsar Axion XM30F	£1,070	250	140x40	13.7m	1300	320x240	12	<50	16	640x400	n/a	Yes (IPX7)	3 Years
Pulsar Merger LRF XL50 binocular	£5,900	950	197x140	24.6m	2300	1024x768	12	<40	64	1024x768	8	Yes (IPX7)	3 Years
Pulsar Merger LRF XQ35 binocular	£3,000	830	181x133	18.7m	1350	384x288	17	<25	16	1024x768	11	Yes (IPX7)	3 Years
Pulsar Merger LRF XP50 binocular	£4,650	950	196x143	21.8m	1800	640x480	17	<25	16	1024x768	9	Yes (IPX7)	3 Years
<b>ZEISS</b> <a href="http://www.zeiss.co.uk">www.zeiss.co.uk</a>													
DTI 1/19	£1,475	360	175x57x62	24m	1000	384x288	12	<35	8	1280x960	6.5	n/a	2 Years
DTI 1/25	£1,650	360	175x57x62	18m	1320	384x288	12	<35	8	1280x960	6.5	n/a	2 Years
DTI 3/25 G2	£1,900	410	187x60x65	26m	930	384x288	17	<35	32	1024x768	8	n/a	2 Years
DTI 3/35 G2	£2,150	420	193x60x65	19m	1300	384x288	17	<35	32	1024x768	8	n/a	2 Years
DTI 4/35	£2,850	430	193x60x65	26m	1845	640x512	12	<25	32	1024x768	7	n/a	2 Years
DTI 4/50	£3,100	470	206x60x65	15m	2635	640x512	12	<25	32	1024x768	7	n/a	2 Years
DTI 6/20	£4,000	690	230x62x68	38m	1000	640x480	12	<35	16	1024x768	6.5	n/a	2 Years
DTI 6/40	£4,250	755	228x69x73	19m	2000	640x480	12	<35	16	1024x768	6.5	n/a	2 Years



■ **ZEISS** has a range of thermal-imaging cameras available to aid night-time observation. Their ergonomic design and arrangement of the control buttons make them easy to use while out in the field. Find out more at [www.zeiss.co.uk](http://www.zeiss.co.uk).

and video, subsequently offering the opportunity to identify and count birds seen and recorded.

Other aspects of functionality to consider when purchasing a thermal-imaging monocular are wireless connectivity via Bluetooth and wi-fi, which offer remote operation and data sharing. While some models take micro SD cards, others have a built-in memory capacity – some as high as 64 GB – that offers the transfer of stored data to a mobile phone or to a PC via a USB connection. The ability to connect to an external screen via a mini HDMI port is also a useful application, when included.

Thermal monoculars run on rechargeable lithium-ion batteries, with operating times ranging from two to more than 15 hours per charge. The battery's operational time between charges is an important consideration.

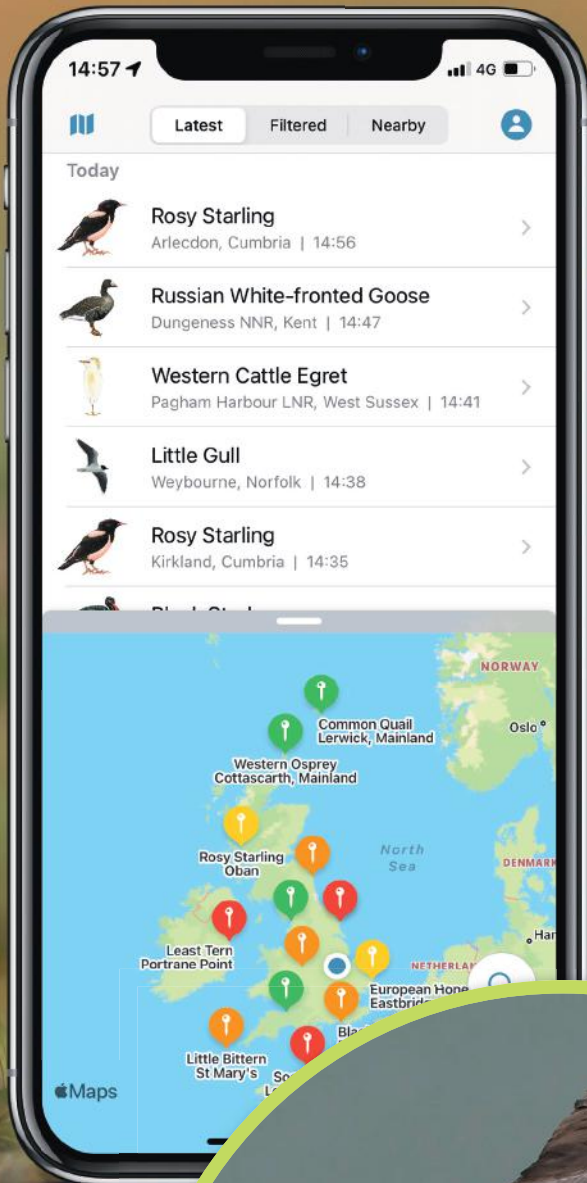
Some basic tables for thermal-imaging monoculars are included in this guide as an introduction to product offerings by some well-known brands. Many more brands are also on the market and continue to develop and refine products. Among these are Conotech, Bresser, Fliridin, GSCI, Guide, Infray, Leica, Milesee, Pixfra and Teslong. ■

■ **Make:** Pulsar.  
**Model:** Axion 2 XG35.



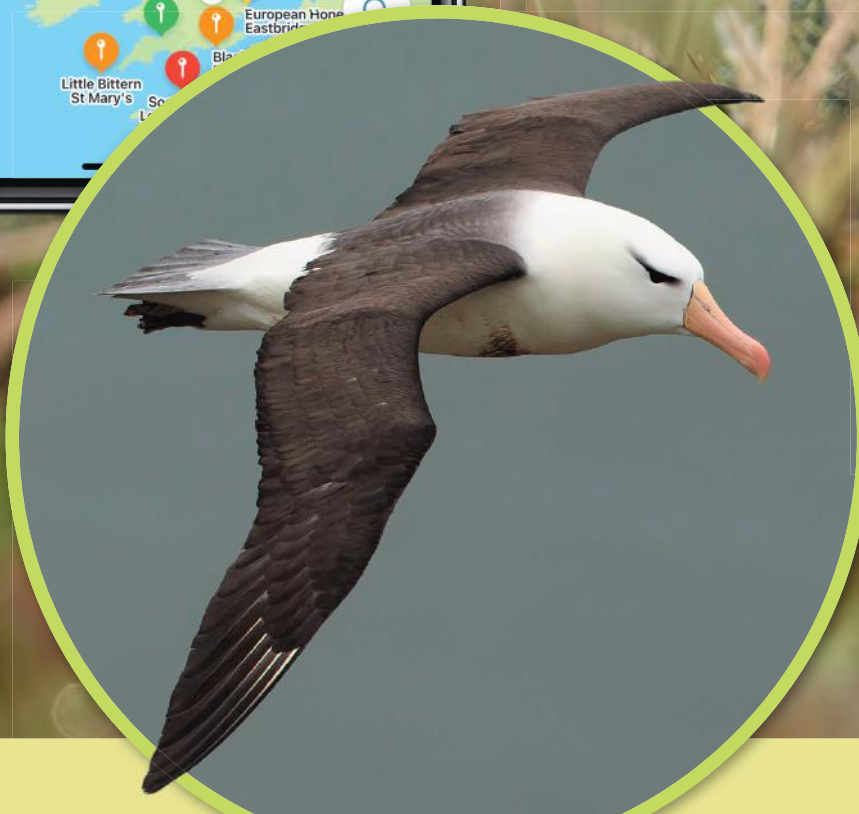
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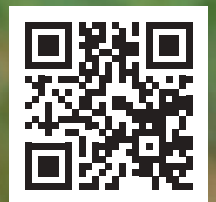
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**TIME** passes quickly and it has been 20 years since we saw what, back in the day, were referred to as ‘mini-scopes’ entering the mainstream optics market. It subsequently became fashionable to label them ‘travel scopes’ but that widely adopted epithet seems to be in decline, as optics manufacturers now see these smaller models as integral to their product offering, often as extensions to existing ranges.

Birders pursuing that optical holy grail – the combination of light weight, compactness and a superior image, now have more products to choose from and, on the road to fulfil these requirements, Vortex has recently introduced its smallest model yet.

Designed to ‘perfectly balance premium optics with an incredibly compact package’, the Vortex Razor HD 13-39x56 was launched in August 2023 as an extension to the company’s frontrunner Razor series.

With a choice of straight or angled bodies, these new scopes satisfy those criteria, as well as offering some features which are not included in other models in their current range.

The shape, dimensions and short body length to eyepiece ratio are what we would expect from a contemporary scope of this nature. Its polycarbonate body features dual-textured, unobtrusive, green rubber armouring and, to achieve the desired balance, the tripod foot is positioned between the helical focusing ring and the prism housing.

Attachment of the eyepiece is by screw thread and includes a milled fixing ring, which is easily tightened to secure the connection. It’s worth noting at this stage that the 13-39x zoom eyepiece supplied with the scope is currently the only one in the Vortex range that is compatible with the body of the 56 mm.

Drilling down into the ergonomics and the practicalities of use in the field, the tripod foot has been designed in line with all Vortex HD scopes, which now come with an Arca-Swiss-style tripod foot as standard. This is, of course, advantageous inasmuch as it is compatible with numerous tripod heads without having to attach a quick-release plate, thereby increasing stability when mounted. Additionally, the foot includes a port to

# Lighten up!



## REVIEW

### Vortex Razor HD 13-39x56 telescope

accommodate an anti-rotation pin for instances in which a quick-release plate is attached to it.

The rubber-covered helical focusing ring, integrated into the body, is broadly-milled to increase grip but, in addition to this, four raised ribs, placed at intervals of 90 degrees around its circumference, offer a further element of traction, increasing contact and therefore the ease of turning the ring. This is a unique feature of this model and is not present on any other models in the range. It certainly adds positivity to the focusing operation and, quite frankly, I found it helpful because there is considerable overlap between the ring and the tripod foot which results in a narrow gap between the two. The effect of this positioning is that there is a tendency to catch thumbs on the tripod foot, preventing unimpeded rotation unless repeatedly repositioning the hand to continue turning.

The magnification adjustment ring on the eyepiece shares the same broad rubber milling and both rings turn smoothly and evenly, offering an acceptable modicum of resistance, which means they do not easily lose their positioning.

An index of magnification is clearly depicted on the above ring, although the line indicating its value is obscured by the

neatly recessed, detachable rubber loop, which forms the attachment for the eyepiece lens cover. This is not really an issue because this pointer is positioned exactly in line with the top of the scope’s body.

A detachable, looped rubber objective lens cover is also supplied. I found it remained secure during field use and the lens cover fitted snugly and securely inside the recess of the objective rim. In common with a number of ‘small’ scopes, these 56-mm models are not fitted with an extendable lens hood, which is presumably a measure implemented to keep both weight and cost down.

Vortex’s ‘Armortek’ ultra-hard lens coatings are in place as an added measure of protection against scratches, oil and dirt.

In terms of image delivery this scope performs very well. At both ends of the magnification spectrum it’s nicely sharp across practically the whole field of view, with only barely detectable edge softening and virtually no curvature of field. The extendable eyepiece twists out to click-stop at two levels above the base setting and offers the full field of view throughout the entire magnification range. I found the close-focusing distance of 2.8 m quoted by the manufacturer to be spot on.

The image is bright and

delivers a high level of contrast with natural colours and at this point it’s worth mentioning that anti-reflective coatings on all air-to-glass surfaces, dielectric and phase correction prism coatings are all in place to enhance these attributes.

I was able to detect a generally low level of chromatic aberration – more noticeable in the periphery of the image but also just visible in the centre, depending on what was being viewed. In general, it did not present any real problems.

This is a robust and neat piece of kit and is supplied with a black neoprene case. Perhaps a fixed magnification, wide-angle eyepiece may yet be added to the scope offering, no doubt a decision to be made depending on how sales progress with this new model. **Mike Alibone**

#### FURTHER INFO

- Price: £1,109
- Size: 264 mm
- Weight: 812 g
- Magnification range: 13-39x
- Field of view: 56-30 m at 1,000 m
- Light transmission: n/a
- Close focus: 2.8 m
- Gas-filled: yes
- Waterproof: yes
- Guarantee: unlimited lifetime

#### VERDICT

- ✓ Sharp and bright image quality
- ✓ Well-built design
- ✗ Lacks extendable lens hood

**KOWA'S** BDII-XD binoculars fall directly below the manufacturer's flagship Prominar range, from which there is a significant difference in price for the nearest equivalent, the Genesis 8x33.

The BD range was initially upgraded late in 2019 and the BDIIs now contain the brand's premium XD, extra-low dispersion, fluoride-rich lenses and the range has recently become Kowa's most popular birding binocular ever produced.

In common with the Kowa line, the 8x32 has a clean, solid, soundly manufactured feel to it. Contoured and designed to increase grip, dual-textured green rubber armour overlays a lightweight magnesium body and the central hinge offers enough resistance to movement to allow its position to stay in place, thereby maintaining the user's interpupillary distance when set.

I found one design point which has both positive and negative attributes, which is the positioning of the strap lugs. On the one hand, they are placed slightly above the centre point of the central focusing wheel's depth, allowing users to enjoy comfortable, almost 'straight-finger' operating. Perhaps less appealing, though, they are just a little too far round toward the side of the chassis closest to the wearer's body, causing the binocular not to hang as comfortably flat as it could if they were positioned more to the outside.

The soft rubber eyecups are smooth, curved and very comfortable against the eye. Among the most solidly operating of any binocular, they twist out to lock firmly and positively in three positions above the fully retracted base setting. Unfortunately, I was able to see only an estimated 90% of the field of view when they were fully extended.

In terms of operation, the single-eye focus takes the form



# Playing the field

## REVIEW

### Kowa BDII-XD 8x32 binocular

of a milled ring, with a seven-marker scale, located below the right ocular. It can be easily adjusted without the need to reposition the eyecup above it.

The central focusing wheel has a suitably stippled surface to allow easy finger contact, which means it still maintains good contact when wearing gloves. It takes approximately 1.6 clockwise turns from close focus to infinity but only an approximately 45° turn to move the image rapidly on from a range of 10 m to long distance. I found the quoted close-focus distance of 1.3 m to be spot on.

With 154 m at 1,000 m, the BDII-XD 8x32 has the widest field of view of all the binoculars in the Kowa range. In fact, it is virtually at the top of the tree in

the optics market in this respect.

The image itself is nicely sharp and it extends virtually edge-to-edge without distortion. There is a below-average level of chromatic aberration present, strongest in the outer 25% of the field and not generally noticeable during field use.

Overall colour rendition is on the cold-neutral side and the individual colour replication is true to life, while contrast is also very good and the resulting image is clean and vibrant.

Kowa's own optical lens coatings have been used to enhance light transmission, although no quantitative value is supplied for this and the brand's unique 'KR coating' has been applied to repel dirt and fluid.

The BDII-XD 8x32 has been

designed to deliver a combination of 'class-leading' wide-angle performance in combination with sharpness and clarity, at a competitive price point. In my opinion, this has been largely achieved. In fact, the equivalent top-of-the-range Genesis 8x33 retails at more than 2.5 times the cost and the field of view is significantly narrower!

Accessories supplied include a soft carry case which includes internal lappets to offer further protection to the eyepieces. A tight-fitting articulated rainguard, detachable tethered objective caps and a comfortable, though slightly short, padded lanyard complete the package. **Mike Alibone**

## FURTHER INFO

- Price: £389
- Size: 116 x 124 mm
- Weight: 540 g
- Field of view: 154 m at 1,000 m
- Light transmission: n/a
- Close focus: 1.3 m
- Gas-filled: yes
- Waterproof: yes
- Guarantee: 10 years

## VERDICT

- ✓ Very wide field of view
- ✓ Excellent image quality
- ✗ Positioning of strap lugs



**MAKING** its debut on the optics market in October 2023, the new NatureRAY brand has launched two ranges of entry-level binoculars designed specifically for birding and general nature observation.

The basic Outrek range comprises three models, 8x32, 8x42 and 10x42, while the slightly higher-priced Trailbirds run from 8x32 to 10x50. In line with the birders' most popular choice, I acquired the 8x42 model from the Trailbird range to see how it measured up in the field.

For a model of this specification my first impression was of a nicely compact and light binocular, perfectly balanced, with the centre of gravity sitting within the central hinge. The generally smooth rubber armour is relieved by significantly raised, 'grippy' stippled areas, extending from the strap lugs all the way to the objectives on the outer sides of body, lending a decidedly positive, non-slip element to the binocular when in the hand.

This binocular appeared quite stiff-hinged but this is no bad thing as it contributes to keeping the user's chosen interpupillary distance in place. There is a textured finish to both the focusing wheel and to the dioptre adjustment, which ultimately renders them non-slip while adjusting, and both turn very smoothly and positively. Despite the dioptre turning too easily, it retained its setting during field use, although it may need to be reset periodically.

I found it took two complete rotations of the focusing wheel to move between close focus and infinity but only one third of a turn was necessary for moving from objects in focus at 8 m to those at long distance. The close-focus distance, though quoted as being 2 m, measured closer to 2.6 m



# New light at entry level

## REVIEW

### NatureRAY Trailbird 8x42 binocular

on the test model.

I was able to see the full field of view when the eyecups were fully extended. This is a big plus as many models on the market deliver a reduced field of view with the eyecups on maximum extension. The eyecups twist up

and lock in two positions above the base, although the locking is quite loose and their rubber covering, though not rounded, is still comfortable against the eye.

Testing was completed in a variety of habitats to include different colour tones and degrees of lighting. Colour rendition is generally warm and this is most evident when viewing reedbeds or stubble fields, where the pale yellowish tones are slightly muted. Otherwise, colour reproduction is fine, reflecting generally natural colours.

Contrast and brightness are also good and the level of chromatic aberration acceptable, being more evident in the outer 30% of the image and, at 129 m at 1,000 m, the field of view was acceptable, with no impression of constraint.

The Trailbird comes with a soft carry case, padded lanyard, an articulated rainguard and loop-on objective lens covers.

My overall opinion is that this model is very reasonably priced and has plenty to offer in terms of being a good, all-round, entry-level binocular. **Mike Alibone**



## FURTHER INFO

- Price: £199
- Size: 142 x 127 mm
- Weight: 595 g
- Field of view: 129 m at 1,000 m
- Light transmission: n/a
- Close focus: 2 m
- Gas-filled: yes
- Waterproof: yes
- Guarantee: 5 years

## VERDICT

- ✓ Good colour reproduction
- ✓ Compact and well-balanced design
- ✗ Close focus higher than advertised



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8x42 £129

10x42 £129



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GREEN / BLACK

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10x42 £199

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**CREATED** and based in Britain, the brand name '3 Legged Thing' (3LT) is likely to be unfamiliar to many birders and, out in the field, there would appear to be scant evidence of its tripods in use. The company, founded in 2010, maintains its headquarters and manufacturing facility in Stagsden, Bedfordshire, and prides itself on its innovative design and production of high-quality tripods and accessories.

As far as quality is concerned, there are parallels in the optics world and I would unhesitatingly dub them a sleeping giant where products for birders are concerned.

Standing apart from convention, 3LT-branded products are uniquely and, refreshingly quirkily, named after people, such as Brian, Billy, Patti, Nicky and Mike, among others. It was by strange coincidence that the last-named looked most promising for all aspects of birding – especially when fitted with the AirHed Cine Arca – so this is the model combination I chose to test and review.

I was not disappointed. After unzipping the sumptuous carry bag and quickly assembling the components, I was impressed with a product which appeared well engineered and immediately oozed quality. But how would this translate to effective field use?

### Serious support

The robust, though lightweight, carbon-fibre legs, each with three sections, are joined to a levelling base, which negates the need for a centre column. This is simply not necessary as the fully extended tripod stands at a height of 1.57 m when the head is in place – high enough for me, at 1.82 m, to be able to comfortably use it for viewing through a straight-bodied telescope. As it happens, my scope is angle-bodied, which meant I never had to fully extend the legs. Ditching a centre column is also advantageous in terms of minimising weight.

Each leg screws independently into the levelling base, so the latter can be removed and fitted with shorter 'table-top' legs for use on shelves in hides or, if necessary, simply stored separately when minimising size for packing purposes. Each leg, when joined to a tripod head, can also be used as a monopod if required.

# The stuff of legend

## REVIEW

### 3 Legged Thing Legends Mike Carbon Fibre Tripod with AirHed Cine Arca



■ The Mike tripod kit comes with a sumptuous carry case (right).

The sturdy but sleek, dark grey legs are very smoothly surfaced and slide in and out of the closed position with little effort. One feature some birders would miss is the lack of any foam covering on their top sections – useful if you are walking long distances with the tripod carried over the shoulder. While testing, my longest walk carrying my scope/tripod combination amounted to no more than 2 km and it was not uncomfortable or overly heavy.

The leg twist-locks can only be described as hugely robust and rugged, each with six indentations, three of which have raised, textured, hard rubber inserts to provide a firm grip. These ensure the legs can be firmly locked and subsequently unlocked with a resistive click. I found that they did not work loose during use.

Heavy-duty, screw-in rubber feet are another positive attribute for use in the field. They require tightly screwing in and periodic checking as, being in contact with a variety of terrains, they did show signs of loosening.

### Levelling up

The levelling base, which joins the legs at the apex, features subtly smart, copper-coloured trim and includes sturdy standard clips to allow them to be put into wide-splay positioning, while

the base mechanism itself is designed to provide a quick and easy means of setting the head mounted above it into a balanced horizontal position. A ratcheted lock on the side locks the leveller in place and the tension adjuster in the form of a D-Ring underneath, when tightened or loosened, determines how much the levelling mechanism moves by. This is particularly useful if using the tripod on a slope or on uneven ground.

When screwed into the levelling base, further vertical levelling and positioning of the head can be achieved manually and locked using a side-mounted butterfly-type tilt lock, although if the mounted equipment is perfectly balanced, the head is tensioned to automatically move it to the horizontal.

Balancing the equipment is initially achieved by using the Arca-Swiss quick release plate (QRP) supplied as part of the head. When attached to a telescope, this can be slid into position and is clamped in and locked. This particular model does not feature a QRP with an anti-rotation pin for a telescope's tripod foot but in its place there is an extra screw for added stability to tripod feet which have two screw ports. The beauty of the design, however, is that the head will take almost any Arca-Swiss

compatible QRP. If the tripod foot of the telescope in use already benefits from being Arca-Swiss designed, then the QRP can be dispensed with altogether, which is an added bonus for increasing stability.

A further pan lock is fitted to the head for securing horizontal panning and the panning arm can be attached on the left or the right for either left or right-handed users. For me, the pan handle was a little too long and it does not appear to be detachable, but there's no reason why the rubber handle can't be removed, the handle sawn down and the rubber replaced. I have customised tripod handles like this in the past.

The overall smoothness and positivity of operation of this head is exquisite. But then it is an example of superb precision engineering and it's what you pay for. At £520 for the legs and leveller, plus £320 for the AirHed Cine-A head, it represents a hefty investment, although the price when purchased together is £750. In my opinion it's a superb piece of kit and it did not let me down in any way during field use.

Smaller 'travel' tripods are also manufactured by 3LT and each one comes with some basic tools, which vary according to model. These tools can be found in a hidden pocket, just inside the rim of the bag, or clipped directly to the tripod. **Mike Alibone**

### FURTHER INFO

- **Price:** legs £520, AirHed Cine-A head £320 (£750 when purchased together)
- **Material:** carbon fibre
- **Weight:** legs 1,650 g, AirHed Cine-A head 742 g
- **Max support weight:** 14 kg (excl head)
- **Collapsed length:** 667 mm (excl head)
- **Max height:** 1,470 mm
- **Leg sections:** 3
- **Leg locking system:** twist
- **Guarantee:** 5 years

### VERDICT

- ✓ Exceptional stability and performance
- ✓ Comfortable and slick design
- ✗ Screw-in rubber feet may work loose



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