

EXPERT REVIEWS

Your trusted guide to what's new in birding: www.birdguides.com/reviews

The heat is on

Thermal imaging devices are increasingly being used by birders and wildlife enthusiasts to extend their hours of observation, both recreationally and for survey work. **Mike Alibone** crosses to the dark side to shed some light on a popular model.

REVIEW

Pulsar Axion A2 XG35 thermal imager

WHEN it comes to choosing and using conventional optical equipment, a high light-gathering capacity has long been considered a fundamental prerequisite – particularly towards the end of the day, when low light conditions prevail. But after the sun has set, crossing the line to the 'dark side' requires an altogether different approach to observation.

Enter, thermal imaging. The technology behind the devices that deliver this has been improving over the years – so much so that they are increasingly being used for nature observation, not only in the hours of darkness but also during the daytime.

Having previously reviewed products which deliver images in the dark, it's useful at this stage to differentiate between 'thermal imaging' and 'night vision'. Models in the latter category have been around for many years and they detect small amounts of visible light and amplify it so an image can be seen. Many have built-in, infrared illuminators to allow usage in ambient light or in total darkness. Thermal imaging, however, detects 'heat' from bodies (human and animal) relative to the surrounding habitat, using near-infrared or



ultraviolet radiation, as opposed to simply drawing in 'light'.

Such devices have been popular with the hunting fraternity for some years but they have been slow to catch on in the world of birding. Prominent among pioneers of their use in the UK, the West Midlands Ringing Group has been using them since 2016, locating elusive birds for ringing by night and day, surveying roosting birds and checking nestbox occupancy. They have been instrumental in improving the catch rate for ringing surveys of birds such as Eurasian Skylark, Eurasian

Woodcock and Common and Jack Snipe, as well as increasing efficiency in surveys, reducing disturbance of birds and delivering an improvement in the accuracy of counts for birds of conservation concern.

Launched in June 2022, the Axion 2 XG35 is the top-performing compact thermal monocular in the range manufactured by Pulsar and I was pleased to be able to trial one in both the shortening days and lengthening nights of November.

A rubber-armoured magnesium alloy body houses a powerful 640x480 microbolometer

(thermal imaging sensor), which is capable of detecting warm-bodied animals and birds at distances up to 1,750 m. Four control buttons are positioned in a straight line along the roof of the body and there's a wrist strap located on the right-hand side. This set-up simply means it is possible to slip your hand through the strap, position your thumb on the underside of the body and use four fingers to operate the top line controls. It took some practice, though.

The rechargeable Lithium-ion battery pack runs the length of the body, every part of which is sealed against moisture and the whole device is IPX7-rated, which means it can be submerged in water, to a depth of 1 m, for up to 30 minutes.

I found the XG35 very easy to operate. After switching the unit on using the control button nearest the objective, the eyepiece can be rotated to bring into focus the symbols on the screen. This effectively performs the same function as the dioptre in a conventional binocular. Once focused, it's simply a matter of choosing menu settings, which can be selected using the up/down buttons on top of the device. Subsequently rotating the objective lens focusing ring will then bring into focus the object

50 Heat signal

Mike Alibone puts a Pulsar thermal imager to the test in a range of situations.

51 Comfort is key

The lightweight walking shoe that provides stability and relief combined with breathability.

52 Top-class photography

Find out who won November's Photo Challenge, and what species to target this month.

52 Britain's imperilled birds

A new release that profiles 70 Red-Listed species and is raising funds for conservation.

53 Celebrating predators

Mary Colwell's new book makes for thought-provoking reading.

54 Winged wonders

An encyclopaedic and authoritative new guide that extols the virtues of moths.

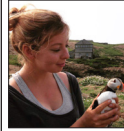
THIS MONTH'S EXPERT PANEL



MIKE ALIBONE is *Birdwatch's* Optics Editor. He has been testing binoculars and telescopes for 15 years.



REBECCA ARMSTRONG has a wide-ranging interest in all wildlife. She worked for *Birdwatch* for 14 years.



EMMA-LOUISE COLE is an ornithologist at Swansea University, a BTO regional representative and WOS Council member.



DAN ROUSE is an ecologist, guide and author based in South Wales, and runs tour company Tadorna Wildlife.



KAREN R JONES is a Professor of History at the University of Kent, with an interest in animal studies and the environment.



AMY ROBJOHNS is a birder, ecologist and Assistant Recorder for the Hampshire Ornithological Society.



Using the Axion XG35 during the hours of darkness allowed Mike to record species which otherwise wouldn't have been visible to the naked eye, such as this Eurasian Woodcock.

being observed, within a range of between 5 m and 1,750 m.

The on-screen menu offers various options which enable the user to adjust 'amplification levels' that enhance the quality of detection and recognition according to different viewing conditions. Colour palette selection is the next likely option, offering a choice of how the image appears to the user. White Hot is the default display mode and the one I used most, although other modes include Red Hot, Red Monochrome, Rainbow, Ultramarine, Violet, Sepia and Black Hot – the last being black-and-white, where white is cold and black is hot.

The magnification of the device can be pumped up, digitally, to 20x, but I found that using the base optical setting of 2.5x produced the best images. Under the cover of darkness, both roosting and feeding birds allow a closer approach than in daylight, so high magnification does not assume the same importance in these conditions.

While viewing thermal images is clearly the main objective of this device, capturing these on stills and on video are also key parts of this unit's functionality. The built-in 16GB memory serves to store these until they can

be transferred to another device. To do this, I downloaded the recommended app Stream Vision 2 which, via the XG35's Wi-Fi, allowed them to be transmitted to my mobile phone.

So, venturing out in the field after dark with this device was a real eye-opener. The highlight during my period of testing was spending one night out near Cannock with Ben Dolan of the West Midlands Ringing Group. We covered an area of mixed agricultural land, exploring fields of stubble, crops and boggy grassland. What appeared as white dots on the screen morphed, on approach, into skylarks, woodcock, Common Snipe and a Jack Snipe.

Further info

- **Price:** £2,339.95
- **Size:** 152 x 50 x 74 mm
- **Weight:** 300 g (without battery)
- **Field of view:** 21.9 m at 100 m
- **Maximum viewing range:** 1,750 m
- **Close focus:** 5 m
- **Magnification:** 2.5x optical; 2.5-20x digital zoom
- **Waterproof:** yes
- **Built-in memory:** 16 GB
- **Guarantee:** 3 years (unit), 1 year (battery)

Verdict

- ✓ Excellent image quality and range of display modes
- ✓ Well-built and waterproof design
- ✗ Getting used to the monocular takes practice

An otherwise invisible deer herd on a distant field edge, at around 1,000 m, was also magically revealed by the device.

Memorable closer to home were a roosting Common Sandpiper on the dam of a local reservoir and a large mixed gull flock, which had gathered on an industrial estate – a spectacular sight as they took to the sky in near-darkness.

Use during the daytime enabled the detection of passerines

such as Meadow Pipit and Pied Wagtail in marshland, which would otherwise have been overlooked.

The only real negative associated with this type of viewing is many birds will remain unidentified until users gain familiarity with the way they are depicted in the device's images.

The XG35 is supplied with a soft case and battery charging pack. The shape of things to come, it's an amazing piece of kit. ■

Feeling fresh

Keen Women's NXIS Speed

IN summer 2022's hot, dry weather, words like 'breathability' and 'lightweight' were much more important than 'waterproof' when it came to choosing walking shoes. Which is where this new model from Keen comes in.

These are a world away from bulky walking shoes of the past. They look and feel more like trainers. You could easily pop them on to go shopping and not look like you're about to embark on a 20-km trek.

But there's much more to them than looks. I wore them on a birding and walking trip to Suffolk, visiting, among others, Landguard NR. This involved a lot of walking on different terrains – including the beach! The shoes held up to everything. They were comfortable and spacious, with no 'nipping in' of my toes. They also felt very light.

My feet remained fresh feeling (and smelling!), regardless of



how far I walked, or the heat of the day. The cushioned insole was incredibly comfortable, while the outer sole provided a good amount of grip.

The only time I had reason to regret my choice of footwear was when I got caught in a downpour on the way back from one birding trip. The shoes aren't waterproof and don't claim to be. My feet were soaked. However, the shoes were bone dry by the next day and I could continue with my plans, this time with dry feet.

This is an excellent summer walking shoe that easily lives up to Keen's claims for breathability and comfort.

Rebecca Armstrong

MORE INFO

Price: £119.99 • **Sizes:** women's 2.5-9 (half sizes available) • **Colours:** Black/Blue Glass, Olive Drab/Pink Icing, Vapor/Porcelain (pictured) • **Weight:** 252.3 g • Also available in men's • **More info:** www.keenfootwear.com

THE BIRDWATCH PHOTO CHALLENGE

Eurasian Wigeon



ONE of our most familiar wintering ducks, Eurasian Wigeon is a widespread species across Britain and Ireland in the colder months. This delightful bird is often encountered in large flocks and its characteristic whistling is one of the iconic sounds

of winter. With their chestnut heads, grey bodies and large white flashes in the wing, males are striking birds, while the females are subtly beautiful with their subdued oranges, browns and greys. We look forward to seeing your best shots of the species!

Terms and conditions

Please email your entries to editorial@birdwatch.co.uk. The competition is open to anyone and you may enter as many photos as you wish. The closing date is 31 January 2023.

KIT DAY



November photo challenge winner

OUR November challenge saw *Birdwatch* readers submit a whole range of seasonal images, from large wildfowl flocks to garden passerines among the fallen leaf litter. Choosing a winner wasn't easy, but in the end we opted for Scott Usher's charming shot of a Jay. We liked the autumnal colours of the background and the dappled light on the bird, which was perched in a lovely pose, looking back over its shoulder. Well done to Scott!

SCOTT USHER



Red alert

THIS is a reworked and updated instalment of a beautifully illustrated anthology, catalogued by Kit Jewitt, in collaboration with Mike Toms and the BTO. The latest assessment of Britain's bird populations paints a bleak portrait, with 70 species now on the Red List due to population declines and range contraction. Sounding the alarm on these

trends is the first stage in targeting conservation action and research to understand the underlying causes. One recent addition is Greenfinch, with trichomoniasis ravaging finch populations. Their plight has highlighted the consequences of avian diseases – very poignant when considering the future of our seabird populations in the

aftermath of avian influenza, which may contribute to further iconic species 'turning red'.

The words of naturalists, scientists, professionals and artists in this book give hope. It is nostalgic to read about authors' first encounters with enigmatic species, such as Brigit Strawbridge's first Fieldfare, or Emily Joachim's first Montagu's Harrier in Wiltshire. Dotted among the prose are a few excellent poems and evocative ringing

accounts focusing on otherwise overlooked bird species, such as Ruff and Dunlin. Like in its predecessor, *Red Sixty-Seven*, the artwork is stunning, featuring lush illustrations, paintings, digital art and photographs of sculptures, which are nestled opposite their complementary essays. The collaborations between authors and artists of this book present

a good analogy to all of us who care about conserving our wild bird populations, for it is only through collaboration and interdisciplinary initiatives that we can begin to address the attack on nature, climate change and highly pathogenic diseases.

Although this title adds 'only' three species to the Red List since the last of *Birds of*

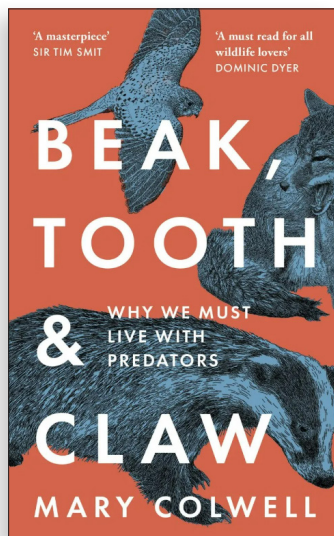
Conservation Concern report in 2015, there will no doubt be later iterations which will continue to expand this unenviable list. Sales of this book go towards the BTO's

monitoring efforts – the work of this data-led institution and the artists who contributed their valuable time and vision couldn't be timelier. **Emma-Louise Cole**

MORE INFO

- *Into the Red* curated by Kit Jewitt and Mike Toms (BTO, 2022).
- 176 pages, colour illustrations.
- ISBN 9781912642380. Hbk, £25. Available from bto.org.

Praise for predators



'PREDATOR', Mary Colwell tells us, comes from the Latin for 'plunderer'. The allusion is an important one. Animals which eat other animals have been much maligned by human culture, castigated in folklore, persecuted as vermin and categorised as pariahs. Colwell's book, *Beak, Tooth and Claw*, however, seeks

to redress that balance by presenting carnivorous beasts and birds as vital parts of the ecological and cultural landscape of Britain.

In the introduction, we learn about the 'predator paradox' which, as Colwell explains, means that we only see certain species as predators, based largely on how we feel about the prey they consume. After a scene-setting chapter that takes in a nocturnal bee study in Africa and a trip to the caves of Kents Cavern in south Devon, Colwell turns to explore a menagerie of critters: from foxes and badgers to corvids and eagles.

The choice is, by the author's own admission, biologically arbitrary, but, as she explains, these happen to be species with which humans have had an especially intense relationship. The chapters are lively, personal and informative, as Colwell fleet-footedly tracks her quarry through different geographies, histories and habitats. We learn that the greatest density of foxes

in the UK is in Bournemouth and that Red Kites will grab all manner of chintzy goods to furnish their nests. Along the way, we also meet a diverse cast of humans, from gamekeepers to ornithologists, biologists to philosophers, each of which live entwined lives with the species they pursue.

Colwell's vignettes nicely combine natural and human history, picking out the habits of the furred and feathered, population trends, cultural encounters and contemporary conundrums – threaded through which, sadly, is a frequent tale of endangerment. The last chapters take a slightly different turn, focusing in on endeavours to restore threatened species – wildcat, lynx and wolf – and at habitat wilding schemes in Scotland. Finding 'hope in

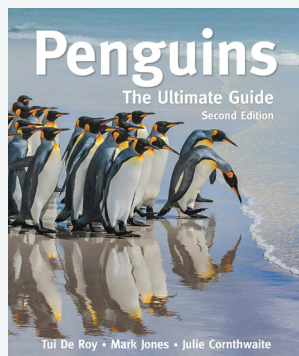
a time of extinction', Colwell argues, demands that we as a species remember how to live with predators, which involves a moderation (some might say transformation) of human approaches to leisure, diet, consumption and landscape access.

Beak, Tooth and Claw certainly does not shy away from taking a position on such issues as grouse shooting, intensive population management, disease control and rewilding. Colwell's prose is always lively, passionate and informed. At times the pace can feel a little broad-brush, but this doesn't take anything away from what is an engaging study of the importance of predators in the British landscape and (especially) of the value of conversation in biodiversity conservation. **Karen R Jones**

MORE INFO

- *Beak, Tooth and Claw* by Mary Colwell (HarperCollins, London, 2022).
- 320 pages.
- ISBN 9780008354794. Pbk, £9.99.

Pick up a penguin



PENGUINS: *The Ultimate Guide* does what it says on the tin. Covering all 18 species of penguin and incorporating no fewer than 400 high-quality photographs, this glossy coffee-

table book dives into the family's science and conservation, alongside the expected species profiles.

Containing an abundance of information on size and appearance, breeding behaviour, range and habitats, this book also explores the struggles faced by several species. Expect fascinating facts about which is the fastest species, penguins' bills, unusual colour variants and odd moult strategies. It's likely that any question you had about the family is answered within.

The book is split into three distinct sections. The first, by accomplished wildlife photographer Tui De Roy, provides

a personal overview of penguin species and stories about what makes each so special, completed with a number of beautiful photographs. The second consists of a series of chapters written by several scientific experts on different elements of penguins' life histories, including such varied topics as penguin-human interaction and an archaeological timeline of the family's evolution.

Last but not least is a who's

who of all the world's penguin species. Starting with a table organised by status, population estimates, ranges and main threats, this is followed by a double-page spread dedicated to each species. Full of detail, this includes all the information you would expect to see in a bird guide: a range map, photos, descriptions, voice, breeding habitats and so on. Completing this book is a short directory on some of the best places in the world to see penguins.

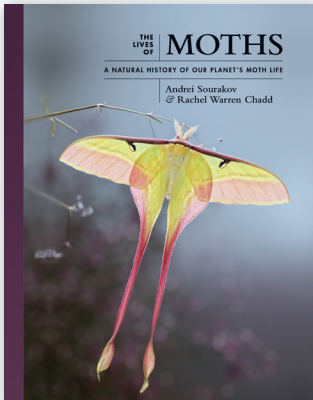
Dan Rouse

MORE INFO

- *Penguins: The Ultimate Guide* by Tui De Roy, Mark Jones and Julie Cornthwaite (Princeton University Press, New Jersey, 2022).
- 240 pages, colour photographs.
- ISBN 9780691233574. Hbk, £28.

Bookshop
from
£26

The wonderful world of moths



THIS is a fascinating new release providing a good overview of moth ecology. Starting with a brief introduction, the book walks you through lifecycles, behaviour and interactions with other individuals and different species, and the broad habitats moths are found in, including

introducing a range of species found in each habitat type. Moths can be found almost everywhere – even on the tundra and in water.

It was particularly interesting to discover the various interactions and adaptations moths have developed. Many species have evolved to blend in or disguise themselves either to look like vegetation, leaves, lichens, droppings or sometimes other animal species. For example, Gaudy Sphinx confuses potential predators by mimicking a viper snake. Other moths use colours, toxins and hairs (in caterpillars) to defend against predation. Fascinating, if a little gruesome, are the parasitic wasps and flies whose larvae develop and feed on or in their unfortunate host. In some cases, the parasitoids can even control the behaviour of its host – amazing to think of the power of nature and the important

relationships which often go unnoticed!

Reading about the different habitats utilised by moths, it is interesting to see the examples of convergent evolution where moths from different areas evolved to look remarkably similar. However, equally interesting are the species evolved to fill unique situations: *Amydria anceps* (a tubeworm moth) which feeds on fungi by-products of leaf-cutter ants in tropical rainforests is one such example.

Alas, one can't talk about habitats without highlighting habitat loss and fragmentation,

or climate change and the impact these have on species. Without meaningful large-scale global (and individual) action, we will lose millions of species and unique habitats.

The Lives of Moths comes as recommended reading for everyone interested in nature – be it keen 'moth-ers' or not – as insect lives are fascinating and complex and the book is written to suit a range of audiences. Moths are often forgotten in favour of butterflies or thought of as 'boring', but this book provides a new, greater appreciation of moths.

Amy Robjohns

MORE INFO

- *The Lives of Moths: A Natural History of Our Planet's Moth Life* by Andrei Sourakov and Rachel Warren Chadd (Princeton University Press, New Jersey, 2022).
- 288 pages, colour photographs.
- ISBN 9780691228563. Hbk, £25.

Bookshop
from
£23

COLLINS BIRD GUIDE

3RD EDITION



THE MOST COMPLETE
GUIDE TO THE BIRDS
OF BRITAIN AND EUROPE

TEXT & MAPS LARS SVENSSON

PLATES & CAPTIONS KILLIAN MULLARNEY & DAN ZETTERSTRÖM

With expanded text and additional colour illustrations, the third edition of the hugely successful *Collins Bird Guide* is a must for every birder. The combination of definitive text, up-to-date distribution maps and superb illustrations, all in a single volume, makes this book the ultimate field guide, essential on every bookshelf and birdwatching trip.

Truly an unmissable purchase for all.



Order your copy and receive **FREE** UK delivery by either scanning the QR code or visit bit.ly/collinsbg3

