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Digital Camera World

Issue 276 January 2024 www.digitalcameraworld.com

24

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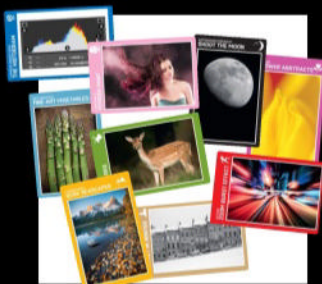


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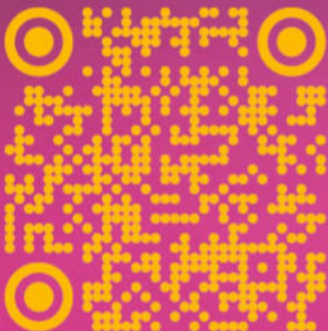
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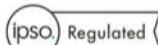
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Welcome



Whether you're comfortable shooting your preferred genres or would like to try something new in 2024, take a look at our cover feature (page 50). With 24 photo projects linked to the four seasons, you'll find plenty of inspiration for the year ahead. There are other projects in Photo Active, of course, including our monthly photo challenge (p38). For those who enjoy photography in poor weather, you are not alone – read this month's interview with Christophe Jacrot (p120). Also this month, get really familiar with digital ISO, in Camera Clinic (p68), and enjoy the winners of Wildlife Photographer of the Year 2023, in Hotshots (p42). This issue's kit reviews include the exciting new Nikon Z f (p98) and a popular Sigma DSLR super-tele that's now available for mirrorless mounts (p108). Enjoy the issue, and season's greetings to all our readers from the *Digital Camera* team.



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Page 40

Niall Hampton, editor
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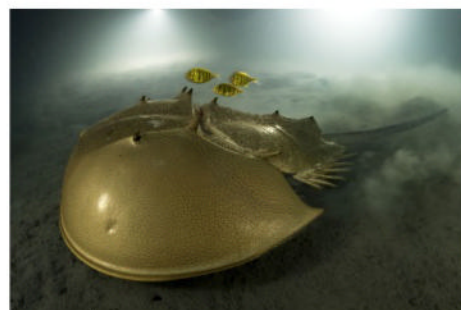


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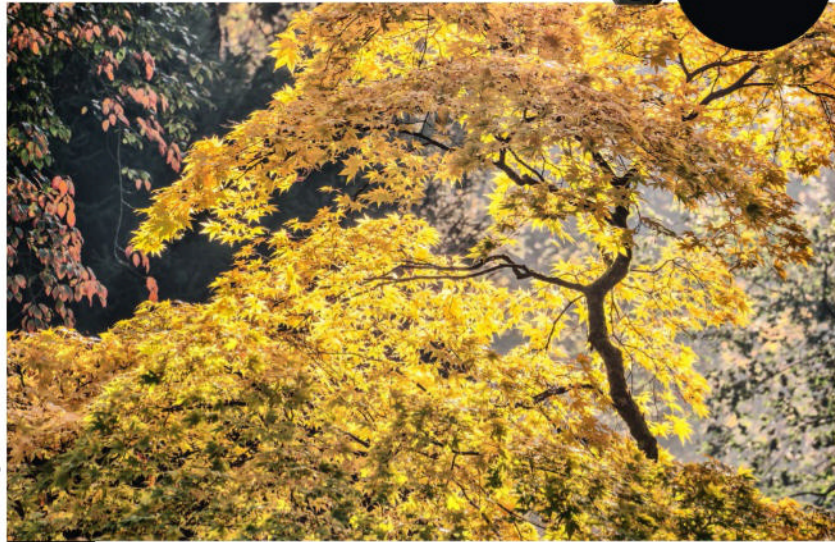
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Page 40 – subscribe today and get a
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This month's contributors



Will Cheung

68 **Camera Clinic** _ Along with aperture and shutter speed, digital ISO is one-third of the exposure trinity and offers an incredible amount of freedom. Find out how to exploit it to the max in part three of our new photo technique series



Philippe Lemortier

Christophe Jacrot
Climate photographer

A native of France, Jacrot has just published his sixth book – we hear what draws him to the bad weather he likes to photograph and why he does it, from **page 120**



Will Cheung
Photographer and writer

A fellow of the Royal Photographic Society and the former editor of many photography titles, Cheung is the man behind Camera Clinic, which continues on **page 68**



Claire Gillo
Photographer and writer

Digital Camera's former technique editor now specialises in creative and fine-art photography – you can find her latest photo project contributions from **page 16**



Steve McCurry
Photographer

The Magnum Photos legend has published a collection of images on the theme of 'devotion'. We go behind the scenes of one of his images on **page 76**



Jon Devo
Photographer & writer

Our resident tech columnist enjoys considering the latest developments in photography and digital imaging. Read his latest dispatch on **page 96**



Brian Lloyd Duckett

Brian Lloyd Duckett
Portrait & street photographer

The author of *52 Assignments: Portrait Photography*, Duckett explains some of the approaches and techniques that have worked well for him, on **page 85**



Christophe Jacrot

120 **Interview** _ Intrepid photographer Christophe Jacrot loves nothing more than going out to take photographs in the worst possible conditions – we find out why, by discussing his new photo book *Lost in the Beauty of Bad Weather*

16 **Photo Active** _ 10 things to shoot, edit or create this month – learn how to shoot seascapes in the dark, photograph the moon, use the high-key lighting technique for winter streetscapes... and spark your creativity with wire wool



Chris Aldred

Your gifts

Download your gifts via [digitalcameraworld.com/dc276](https://www.digitalcameraworld.com/dc276)

YOUR PRESETS AND ACTIONS MEGAPACK

Give your shots a professional look with this huge batch of software extras for Photoshop, Lightroom and Camera Raw. We've curated all the bonus presets, actions, textures – and more – that we gave away this year into a Mega Pack of software extras, including all those relating to the three image editing tutorials in this issue. Turn to page 84 to see the full list of what's included in your Mega Pack and discover how to download and install them on your computer.



9 PHOTO TIPS CARDS TO TAKE ON LOCATION!

Our latest selection of tips cards gives wallet-sized advice on how to take better photos



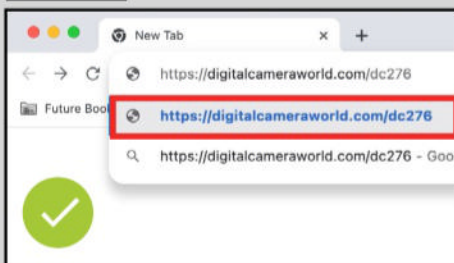
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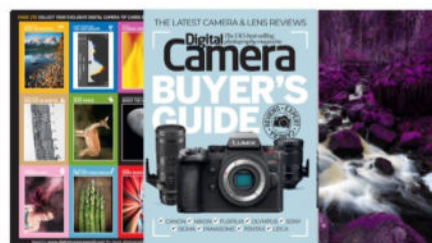


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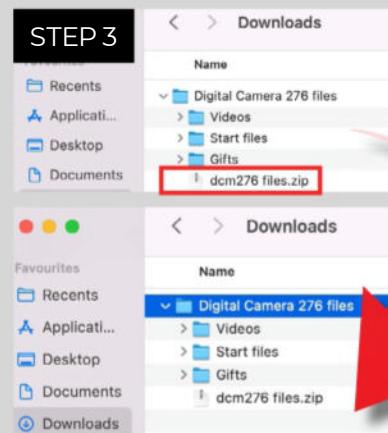
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one
to
one

A morning with the mist hunter

Making the weather a key part of his scenics has allowed **Sam Binding** to carve out a niche in a crowded field. Niall Hampton joins him on a sunrise shoot in Bristol

Autumn landscapes with Sam Binding

Sam Binding

Photographer

Based in south-west England, Binding calls himself a 'mist hunter' but also shoots landscapes, astro and more. His work has featured in numerous UK photo competitions and publications. sambinding.co.uk



With his series of atmospheric landscape shots having piqued our attention

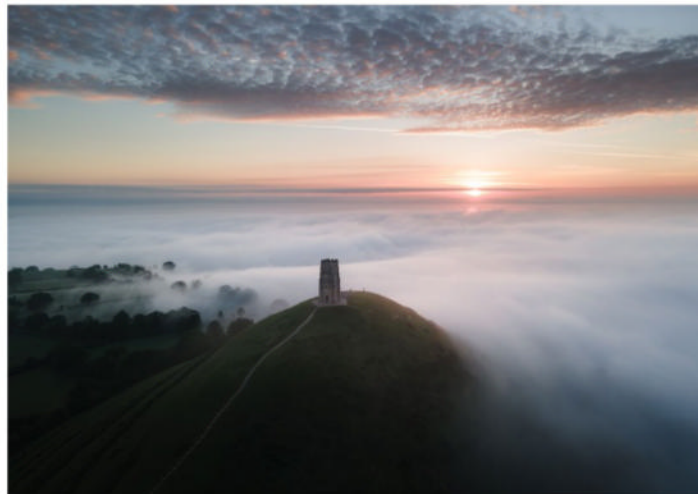
on Instagram, and with an intriguing 'mist hunter' soubriquet, we were keen to find out more about Sam Binding and his photography.

Binding is based in Bristol and sells prints of images captured in a range of

photographic haunts in south-west England and beyond.

While weather conditions often feature in landscape photos, they're not always the star. But Binding has chosen to make mist a key component of his photography and, in doing so, has carved out a niche for himself in a crowded field of scenics shooters.

Wanting to discover more about how he approaches his craft – and why he



The iconic Glastonbury Tor stands majestically over a sea of mist – taken by Binding using a DJI Air 2: 1/120 sec at f/2.8, ISO 100.



Filters: don't leave home without them

"For coastal locations or anywhere where there's water, filters are indispensable," says Binding. "Today I used six-stop **1** and 10-stop **2** neutral density filters, plus a polariser **3**. I have started shooting woodlands with a polariser, too, and it has completely transformed things – getting rid of glare from leaves has been a game changer for me. I also have a Tide Optics Pro Mist Cinesoft filter **4**, which is great when shooting at night (pictured, above) and really makes things glow."



Top: Binding doesn't only rely on wide-angles; he likes to pick out details with a long telephoto lens. Above: His Sony A7 III is always attached to an L-bracket for quick switches of camera orientation.

started hunting misty conditions – we arrange to meet Binding early one morning at the Clifton Observatory in Bristol.

The city isn't unique in claiming to be built on seven hills, and Clifton Down isn't even the tallest of them, but it's still a formidable climb with a weighty camera backpack bouncing around. Binding is waiting for me at a vantage point overlooking the Avon Gorge and the Clifton Suspension Bridge, a local landmark designed by Isambard

Kingdom Brunel. With his Sony A7 III set up overlooking the gorge, Binding explains how he sees the morning's shoot progressing. There's a small problem to overcome, though – no mist. Although there has been plenty of rainfall in the week beforehand, the conditions aren't calm enough for mist to form. Facing weather at odds with what we had envisaged is nothing new in Britain, of course, so with a mutual shrug, we decide to refocus the shoot on the abundance of autumnal colour that surrounds us.

So what led to Binding's interest in mist and becoming a mist hunter, I wonder? He explains that when he was a new father and waking up at unpredictable times, he would regularly see rolling mist outside. Enchanted, Binding started taking his Canon EOS 80D – previously used for shooting family photos – out with him on his early morning dog walks. →



I take photos that work well as prints. It's where I want to take things

06.46am



Camera	Sony A7 III
Lens	Sony FE 14mm F1.8 GM
Exposure	20 secs at f/14, ISO 100

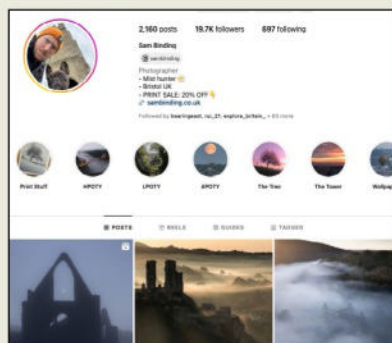


Photo communities on social media

Having a social media presence has helped Binding develop his photography practice. It has connected him with like-minded people who go out together to take photos, pool information about promising weather conditions before shoots, as well as share technical insights and general advice. Social media is also a great way of sharing portfolios of images and helping generate print sales.

“I’d be out at the crack of dawn walking around Bristol harbour and another photographer would be there,” says Binding. “We’d get chatting and would connect on Instagram. Now, I have a large friendship group of people who I’ve met through my photography.

“The Igers Bristol group gets everyone together – it’s a real community and is supportive of many different types of photography.” (@igersbristol)

Instagram: @sambinding



Left: Binding looks for image possibilities on the other side of Avon Gorge, to be picked out with his long lens. The busy road provides great opportunities for capturing long-exposure light trails.

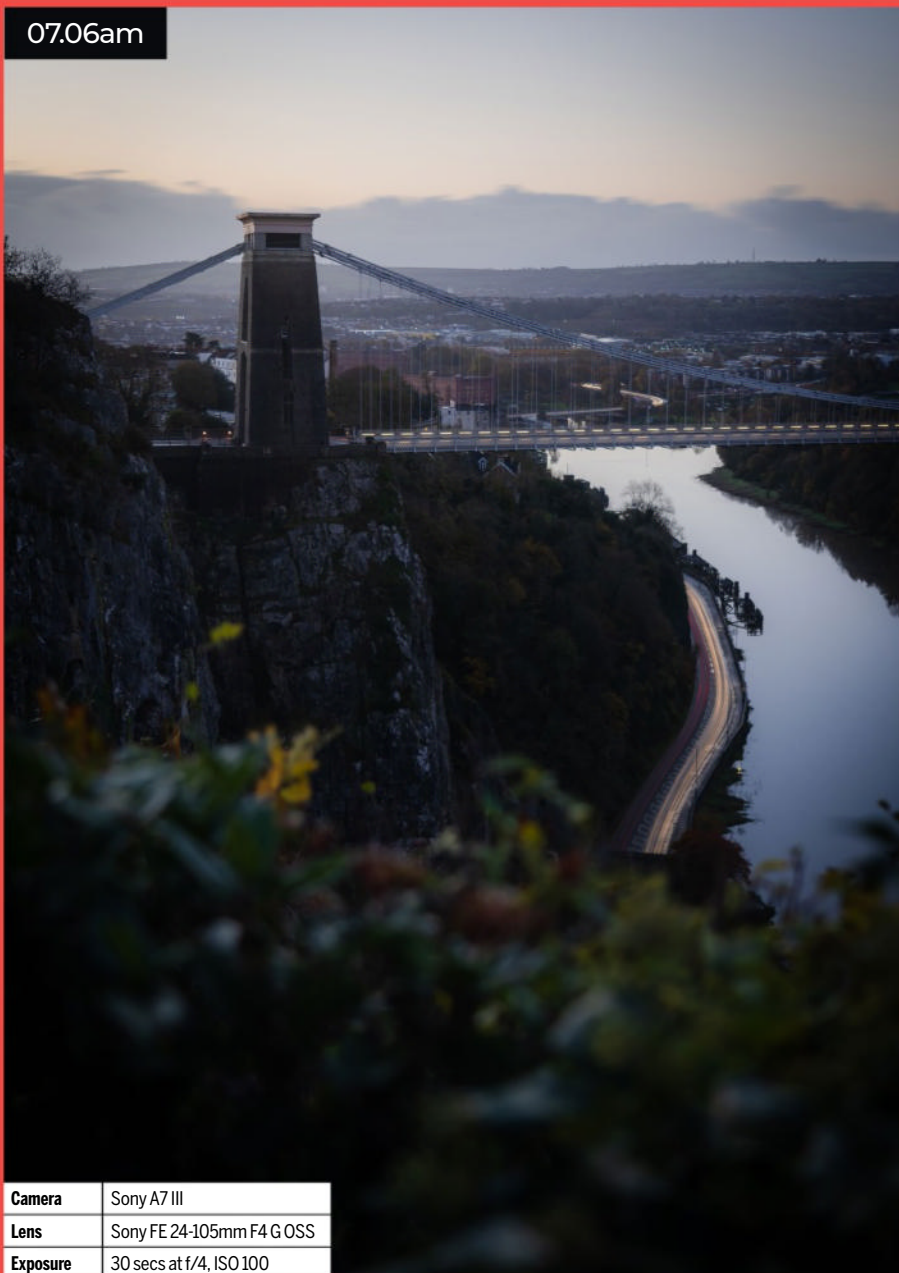
“Some of the photos I posted on Instagram got noticed by the Bristol community group and started getting me more exposure,” Binding explains. “So I started taking more, working out how other photos I liked were shot and teaching myself composition.”

“Eventually I upgraded to a Sony and things have snowballed from there. I’ve made a name for myself locally as a mist photographer but I will happily shoot other images, including astrophotography and wildlife. I try to take photos that will work well when they’re printed, as selling prints is where I want to take things.”

As we look down over the gorge, Binding points out that when the sun reaches a certain height, it will emerge from behind a hill and the landscape will explode with

colour. When it happens, he’s not wrong – it looks spectacular. Keen to exploit this gorgeous golden light, we walk to our next location, along a path and down some steps towards the bottom of the gorge. Switching from his 24-105mm F4 to his 100-400mm F4.5-5.6, Binding zooms in to shoot some frames of the detail in the trees on the other side of the gorge, which have emerged from the shadows into a riot of greens, yellows and golds, with denuded tree branches appearing white in the sunlight.

As it’s mid-November, autumn is in full swing and our next location showcases it perfectly. Walking back up the hill, we emerge onto Clifton Promenade. The pavements on either side of the road are flanked with trees which have



8.11am



Camera	Sony A7 III
Lens	Sony FE 100-400mm F4.5-5.6 GM OSS
Exposure	1/320 sec at f/10, ISO 400

Camera	Sony A7 III
Lens	Sony FE 100-400mm F4.5-5.6 GM OSS
Exposure	1/500 sec at f/9, ISO 400



8.14am



Binding's kit for mist and leaves

What Sam packs in his bag when he goes chasing the weather

- 1 Sony A7 III**
"I started off with a Canon EOS 80D but upgraded to the A7 III. Its dynamic range is better and it's great in low light."
- 2 Sony FE 14mm F1.8 GM**
"After using a Samyang 14mm for astrophotography, I switched to this – it's an amazing wide-angle lens."
- 3 Sony FE 24-105mm F4 G OSS**
"The first lens I bought, this is just a brilliant all-rounder. It's fairly good in low light and is pretty sharp, too."
- 4 Sony FE 100-400mm F4.5-5.6**
"Always the first lens in my bag. I love it when I'm out on a misty morning in a high-up place and picking out details."
- 5 DJI Mavic Air 2S**
"I wanted to have drone images to sell as prints, and the Mavic Air 2S's 20MP sensor gives me enough resolution."
- 6 3 Legged Thing L bracket**
"If you shoot in portrait orientation on a tripod then you need one of these – it minimises movement and is fast to use."
- 7 Lowepro ProTactic 450 AW II**
"Highly customisable with great capacity. It is also ergonomic – which is important on mornings when I'm hurtling around."
- 8 3 Legged Thing Brian**
"Lightweight but sturdy, this tripod has been put through mud, sea, snow and frost and it has been brilliant."



Right: Binding using his long lens to compress the scene at Clifton Promenade in Bristol – a fantastic location for autumn photography.

covered the ground with leaves, but there is still plenty of yellow and red in the canopies. Binding explores photo opportunities on both sides of the road and, sticking with his long lens, frames the road traffic out. Viewing the image previews on the rear screen, we see a classic autumn picture that will be a shoo-in for printing.

Calling it a day when the light loses some of its vibrancy, we retire to a local café where some of Binding's prints adorn the walls. One really stands out – a photo of the Clifton Suspension Bridge disappearing into the fog with a car, headlights blazing, starting its journey across. It's a great example of being in the right place at the right time – when the weather shows up. ●



Viewing the image previews on Binding's rear screen, we see a classic autumn picture that will be a shoo-in for printing

8.36am



Camera	Sony A7 III
Lens	Sony FE 100-400mm F4.5-5.6 GM OSS
Exposure	1/125 sec at f/5.6, ISO 640

You won't go wrong if you...

Sam's top tips for shooting dramatic misty landscapes, if the weather allows

- 1 "Take time to get the composition right – you can't go back to fix it afterwards – and always shoot with a grid overlay."
- 2 "Try to reduce clutter in an image – you don't want the viewer to ask 'What's going on here?'"
- 3 "Use the electronic horizon line to level the camera – there's no way of rescuing a wonky image that has been taken on a telephoto lens."
- 4 "Know the camera's limitations and maximise what it can do – how it handles digital noise."
- 5 "Get to know the sweet spot of all your lenses, so you can

shoot at the aperture that gives you sharpness across the image frame."

6 "Shoot in manual exposure mode and use Live View."



Always use the camera's horizon line and check the exposure histogram.



Editing for photo prints

Binding always shoots raw files and edits his captures in Lightroom. Having strived to get things right in-camera, he likes to keep his editing minimal but it depends on his target audience.

"Images on social media generally do better if they are colourful, whereas for prints, I don't want to push things too far," he says. "I used to warm my photos up and increase the saturation, but now I've gone the opposite way and desaturate the images more."

We shot this image using a full-frame camera and a 16-35mm lens, wearing a head torch to light up the scene in front of us.

Photo Active

10 things you can shoot, edit or create this month, from the moon to wire wool sparks and architecture

Night-time seascapes

Claire Gillo explains how to capture coastal shots in pitch darkness, using only a tripod and a head torch

The sea is such an amazing subject to photograph and its movement is one that many photographers like to capture, whatever the time of day. During the winter months, the sea can be photographed in many different states – from pancake flat to ferociously stormy – and also, surprisingly, in pitch darkness.

First, though, a word of warning. Take care! It's easy to get caught out, become cut off from the tide or get that bit too close to the edge and suddenly be out of your depth. It isn't worth the risk to your kit or, more importantly, yourself. Always do your research and visit each location in the daytime to do a recce and a risk assessment. Also, if you want to follow in our footsteps and shoot in the dark, we'd recommend you do so with a companion. For one, it's better to share your photography experience and, secondly, we're not ashamed to admit that we find the dark a little scary. Safety in numbers, as they say!

For this photo project, we shot our image using a full-frame camera with a 16-35mm lens. We came down as low as we could for our composition and as close as we could to the shoreline without putting ourselves at risk. Our image was taken in a small cove just outside the town of Dartmouth in Devon. →



1

Shoot from a tripod

A support is an essential piece of kit for this project as any movement will blur and ruin your image. Before you expose your scene, secure the tripod in place, looking for rocks or other sturdy bits of beach or land to rest it on. Also, to avoid the catches seizing up, remember to rinse your tripod's legs with fresh water as soon as you can.

2

Use a head torch

As it was pitch black on our shoot, we wore a head torch to see what we were doing. However, it also served another purpose – to light up the scene. Experiment with your shutter setting (we took our shots at 30 seconds at f/8) and, if you need an exposure longer than 30 seconds, you may need to use the Bulb setting with a remote shutter release. With the shutter open, paint light around the scene.

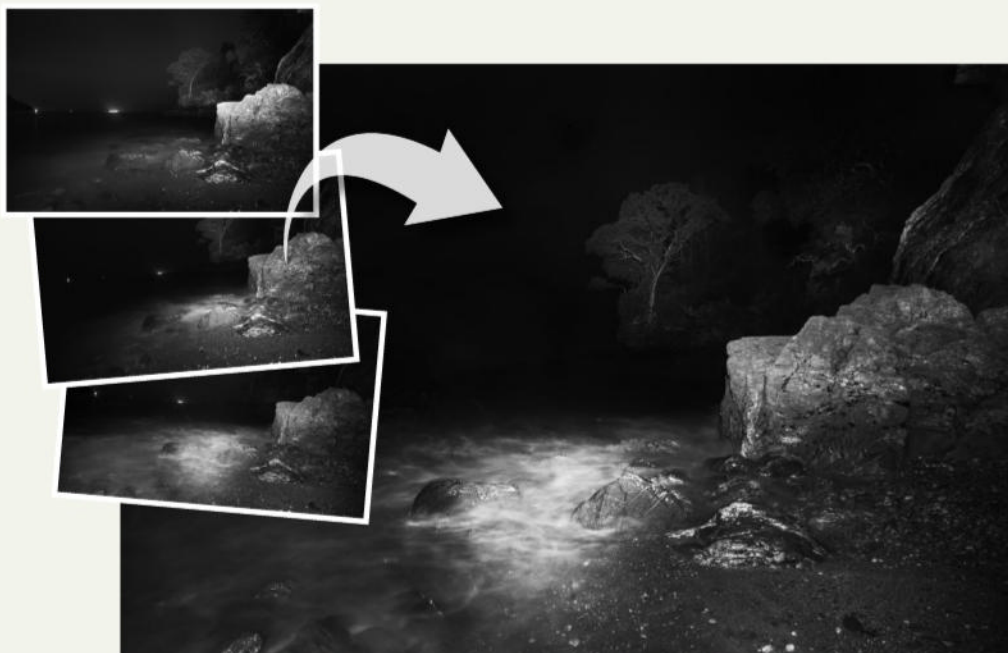
3

Focus the shot

With no natural light, you'll need to use your head torch to focus your shot. Shine it in the foreground and then set your AF point on a rock or wherever you want the focus to be. The other option is to manually focus your lens and rotate the focus ring to infinity.



Ali Hooper



Blend multiple images

With this technique, it can often be tricky to get the effect you're after in just one shot. When this is the case, shoot multiple exposures of the same scene, concentrating your light in different areas for each one. The image above is the result of three 30-second exposures combined together. The easiest way to blend your images and edit them is in Photoshop, using Layer Masks to hide and reveal isolated areas accordingly. You can also use the Dodge and Burn tools in Photoshop to make the rock texture pop. When using the Burn tool, set the Range to Shadows with the Exposure low at around 5%. With the Dodge tool, set the Range to Highlights, again with a low exposure percentage.

Composing in the dark

It is incredibly hard to compose a photo when it's dark. For this reason, we suggest visiting the area in the daytime so you have an idea of what you want to include in the scene. Think about how the dark is going to work in your scene and what you want to reveal. In our image, both the layers of rocks in the front of the frame and the bank of land in the background hold the viewer's interest.



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Use autofocus to focus on the moon, but lock the focusing distance by switching your lens to manual focus before taking the shot.



2 | ASTROPHOTOGRAPHY

Make a moonshot

Capture otherworldly wonders, starting with the object closest to home

A

s the largest object in the night sky, the moon is at the top of any list of subjects for most night photographers to shoot.

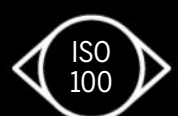
However, rather than revealing lunar craters and seas, most attempts result in a blank white disc devoid of any detail. The moon is much brighter and much faster-moving than you'd think, so you need to set up carefully to get a well-exposed shot.

You'll need at least a 300mm lens, but even longer is better, especially if you can get your hands on a 500mm or a 600mm. Cameras with APS-C sensors have an

advantage over full-frame models, as the sensor crop effectively magnifies the focal length by 1.5x. With the camera on a sturdy tripod, set the exposure mode to Manual.

For a full moon, dial in an aperture of f/11 and a shutter speed of 1/125 sec, with the ISO set to 100. Use autofocus but switch to manual focus to lock the focusing distance. Engage the mirror lock-up mode if shooting on a DSLR, as this will minimise vibrations when the shot is taken. Use a remote shutter release or set the camera's self-timer to five seconds so you don't touch the body during the exposure.

Take your shot and check the screen. If it's too bright, set the shutter speed to 1/250 sec and reshoot – if this is too dark, then set the aperture to f/8. The key factor here is to use a shutter speed of at least 1/125 sec. Frame up using the Live View screen and zoom in on the edge of the moon, and you'll see that it is positively bursting across the screen.





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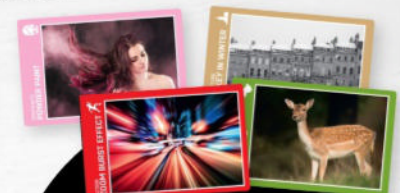
**Professional photographers, videographers, content creators and image-making industry representatives can apply for FREE entry to the show.
All applications must be made before midnight on 15th March 2024 and will be verified against specific criteria.



3 | ARCHITECTURE

Go high-key this winter

Use this creative lighting effect to make buildings stand out from the winter snow, says Roddy Llewellyn



USE YOUR FREE TIPS CARDS

This project features in this month's bonus tips cards. For a handy guide to capturing creative photos like this, keep your tips cards in your camera bag.

Winter offers a great opportunity to experiment with high-key lighting, a style commonly seen in black and white portraiture. It means making the white parts of the frame brighter, so the high-key approach works well with photos of buildings captured against white snow. It also enables you to get more detail in your shots by shooting at lower ISO settings.

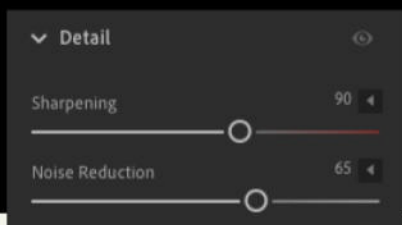
1 Keep the ISO low
Due to lower levels of daylight in the winter months, there's a temptation to use higher ISO settings. But we want to capture as much detail as possible, not image noise, so are setting the ISO no higher than 400, ideally at 100 or 200. Now you're ready to take your shots, but the snowy whites need a boost so it's time to brighten them in camera.

2 Add exposure compensation
Use the Exposure Compensation dial, or the exposure meter, to increase the brightness of the whites. This will produce more contrast against the buildings. Try setting +2 or +3 to see the difference.



Take it further – post-process your captures in Lightroom

If you take shots with falling snow, as seen here, you can create more definition by sharpening and reducing noise in the Detail panel of Adobe Lightroom. In the image on the far right, the sharpness has been increased to give more definition to the falling snow and, to reduce the grain in the background, the noise reduction has been boosted.



Before



After

Chris Rutter / Future

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Try a two-tone lighting effect

Claire Gillo explains how to replicate a two-tone gel lighting effect in Photoshop

Although most photographers like to get everything right in-camera, there are times when it's simply not possible, as you may not have the equipment or the technical skills to do so. In this tutorial, we're going to show you how to add a two-tone lighting gel effect to your image in Photoshop. It's easy to do and only requires you to use layers and layer masks. If you have never used these before in Photoshop, watch a tutorial and get familiar with how they work.

A lighting gel is, essentially, a piece of heat-resistant, translucent material that is put in front of a light source to change the colour of the light. It is often used in studio and fashion photography to create a special effect.

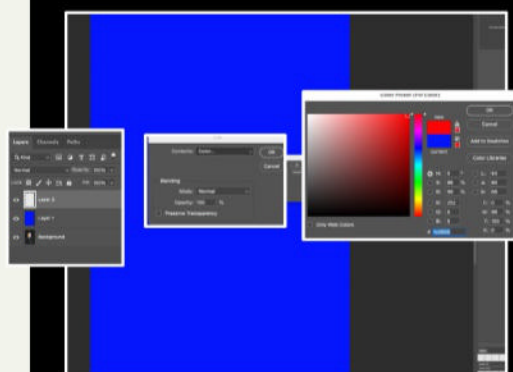
When selecting your starting image, it's easier to replicate the effect if you have an image that has been shot against a plain light or dark background. You may also want to think about the two colours you want to add to your image. We opted to add a red and blue effect but there are many other combinations that work well together, such as purple and yellow, red and green and blue and orange. You can experiment here with alternative combinations.



Claire Gillo

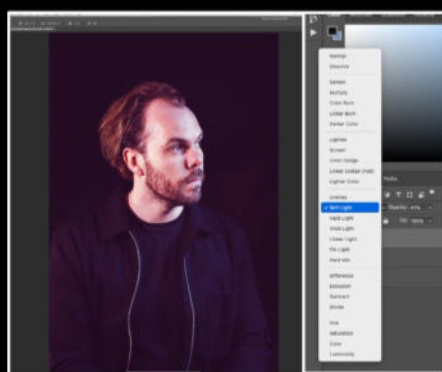
Switch the background

Here, we've used the same effect but our starting image has a white background, which works just as well. We opted to use yellow and purple colours for our two-tone effect, as these colours complement each other. When replicating the effect, think about how the light is falling over your subject. Mirror the intensity of the colour with how your subject has been lit: in a shadowed area, for example, it would be less intense than in a lighter area.



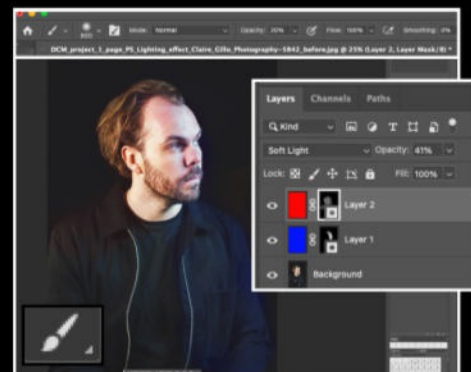
1 Add two colours

Open your starting image in Photoshop. Add a new layer and go to Edit > Fill and under Contents select Color. Choose a strong blue colour from the palette. Now add another new layer and again go to Edit > Fill. This time, pick a strong red colour from the palette.



2 Blending mode

Change the Blending mode settings on both of your new colour layers to Soft Light and reduce the opacity of each layer so that they are down to around 40%. Next, add a black layer mask (Layer > LayerMask > Hide all) to each colour layer and go to the Brush tool.



3 Brush tool

Using a white Brush (opacity 30%, adjust accordingly) work your way around to reveal the colour effect. In our image, we wanted the blue gel effect coming in from the right and the red from the left, and included areas with both colours. Take your time to get this step right.

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5 | LOW-LIGHT

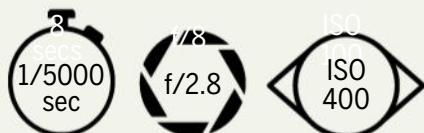
Spark your creativity

Chris Aldred spins wire wool for unique results every time

Inspired by the works of local photographers, street artists and architects in my home city of Bristol, photography has been a growing passion of mine ever since leaving school. Before setting up a shot I have in mind, I try to plan ahead as much as I can, often finding a few surprises along the way. For me, Bristol will always be a hub of creativity – I love the way the city offers a wide range of perspectives that many people walk past every day without thinking twice about.

Capturing something unique in what can be considered poorly lit areas has always been an interest of mine and steel wool spinning gave me the challenge I was looking for. You can't capture the same image twice and sometimes it can take several attempts to create an image that I'll eventually be satisfied with, tweaking a few settings and positioning different angles to suit the environment.

If you follow some basic safety principles and use your common sense, the process is both fun and safe. Using your imagination will also allow a range of new ideas to flow – such as changing the direction in which you spin the steel wool, which can yield some pretty interesting results.



Wire wool spinning is an artistic challenge. Follow a few basic safety principles and the process is fun and safe.



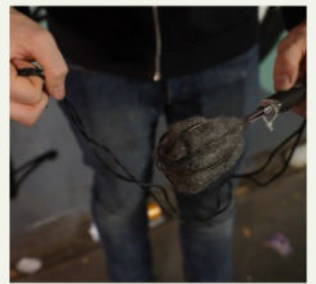


Chris Aldred

Six ways to success for long exposures with wire wool

1 Stabilise the camera

I always shoot this technique with a Manfrotto Pixi mini tripod. It's small and extremely strong but most importantly it allows me to achieve the low angle that makes these shots stand out. Due to the required shutter speeds, it's also impossible to shoot long exposures without some sort of camera support.



2 Prepare the wire wool

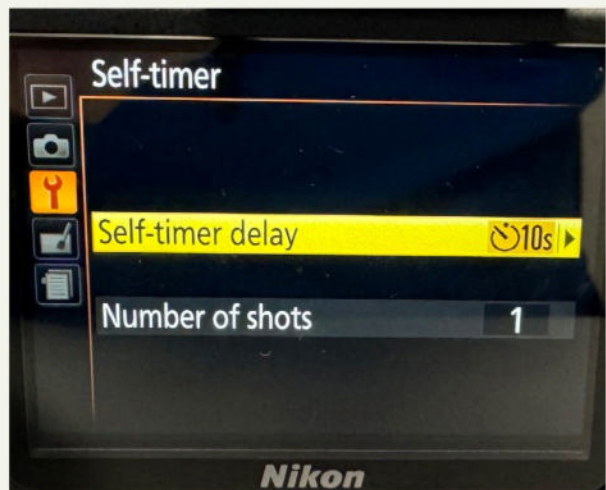
Steel wool is readily available from most hardware shops and is extremely cheap to buy. To house the wool, I place it inside an ordinary kitchen whisk – I've found that it's best to pull the wool apart before doing this, as this allows more air to get to the wool and create better sparks.





3 Dial in the shutter speed

The shutter speed is the most crucial setting to get right. Here, I used 1.3 sec. The next setting is to make sure you're shooting in Auto ISO, as you can never guess how bright the sparks might be. Finally, to get the best optical performance from the lens, use an aperture of f/5 to f/8.



4 Set the camera's self-timer

Placing your camera on a support and using the self-timer function will allow you to create these images on your own without having to rely on a friend to help. I set a 10-second timer, which is just enough time to get into position, light the wool and start spinning.



5 Frame up good and wide

Due to the experimental style of spinning steel wool, allow yourself a little breathing room by shooting with a wider composition than you think you'll need. I use an AF-P DX Nikkor 10-20mm and, typically, will zoom out to 10mm to capture the spark trails as they fly off.



6 Now start the exposure

For spinning it around me, the whisk is tethered to my wrist with a flexi cable. To start shooting, I'll frame up, start the shutter's self-timer, get into position and light the wool. Wearing a hat and a hoodie to keep any small sparks away from my face, I'll start spinning the whisk.



Natalie Jenkins, Week 40: 'Dappled Light' (2023)

6 | PHOTO CHALLENGES

How to get out of a creative rut

52frames.com encourages you to shoot creative photos over a year, says Yosef Adest

How do you trick your brain into having creative breakthroughs? The answer is not what you think. For 624 weeks, I have been participating in (and running) a free weekly photography project www.52frames.com, where a community of photographers submit a single photo according to a different weekly challenge. If I'm being honest, most weeks, I'm tired. Uninspired. This is my 'default brain'.

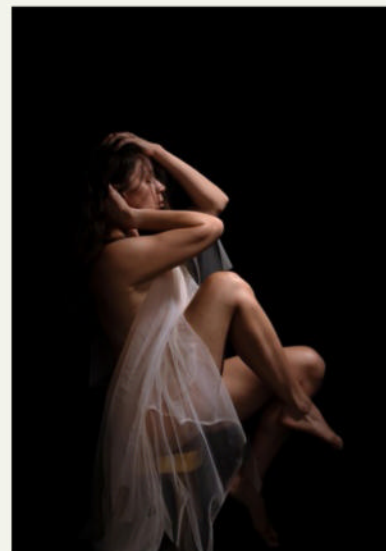
But as the Sunday night deadline approaches, nervous excitement sets in as I think about what photo to take and I'll find myself taping a cardboard cutout I made onto a small LED panel in my basement. (Week 40 Challenge: 'Use a Cucoloris')

'Forced creativity' sounds counterintuitive, but when you intentionally limit yourself to a window of time, the inspiration to start the task becomes stronger and it is this action of starting, that tricks your brain into a focused, creative, flow state. Do the thing.

The ebb and flow of the challenges work by design because, when we have a more difficult challenge (Week 15: 'Dreamscape'), it will be followed by an easier one (Week 16: 'Get Low'), so there's less chance of burnout. Hidden in each challenge is a learning opportunity. 'Triangular Composition' forces you to think about how to compose your scene or pose your subjects. 'Water' will focus on fast, or slow shutter speeds.



Doug Harms, Week 31: 'Water' (2023)



Jamie Sloat, Week 36: 'Triangular Composition' (2023)

With photographic challenges of different intensities every week, the ebb and flow of 52Frames leads participants to have creative breakthroughs, says founder and participant, Yosef Adest.

But here's the rub. Consistency is key. You have to do the thing every week. 52Frames is not about submitting your best photo each week, it's about submitting a photo. It is a creative exercise. It is the consistency that forces your brain into creative action. It is the consistency that allows every fifth, tenth or hundredth submission to be a standout. You cannot get to that home run without swinging a whole lot of times first.

In 52Frames we have one mantra: Embrace Imperfection. Show up each week, for 52 weeks, and you will experience creative breakthroughs that you never thought possible. You will learn new things, have new experiences, and look back to see that it's not just your photography that's changed, but your creative outlook on life.

Enter the challenge today
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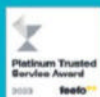
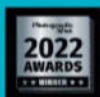
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7 | ARCHITECTURE

Baku to the future

Follow these tips for capturing architectural wonders, says Yasser Alaa Mobarak

I am a travel photographer from Alexandria in Egypt and would like to share with *Digital Camera* readers how I photographed the Heydar Aliyev Center in Baku, Azerbaijan. The Center is a 57,500 m² building complex designed by Iraqi-British architect Zaha Hadid and is noted for its distinctive architecture and flowing, curved style that eschews sharp angles. **Instagram:** @yasseralaaamobarak



1

Do some research

Research is important in my travel photography. For this shot, I spent a lot of time looking through thousands of photos of this building to learn how other photographers captured it. I wanted to be able to create something fresh, with a different interpretation of it.

2

Visit and repeat

I visited the Center daily for 10 days at different times so I would be able to capture the building in different lighting. On some days, I went at 10am, 12pm, 2pm, 4pm and 6pm. Every angle of the building is suitable for photography at a specific time of the day.

3**Add a human touch**

To give a sense of scale, I added a human element to the frame. I included this element using architectural lines and curves to create an interesting scene. I always like to include single people to keep things simple and avoid crowding the composition – focusing on the position, direction and spacing of the human element in every image.

4**Patience brings rewards**

When trying to capture a person passing through the frame, I wait for a long time until I achieve what I consider to be the ideal subject. The contrast between colours is important to me and I try to apply it in as many of my photos as possible. For natural-looking results, most of the images I shoot are candid – I just capture subjects doing what they're doing.

5**Convert to mono**

I always capture my photos in colour, but I decided to convert this image to black and white in post-processing. The female subject was wearing black clothes and there was harsh lighting and shadows; I wanted the shot to be dramatic but with no strong colours in the original capture, I think it definitely works better in monochrome.



Compose scenics with care

Take time to enjoy your surroundings and compose your scenic shots – this will offer stunning results, says **Roddy Llewellyn**



Our fast-moving world is often reflected in our photography, as many people tend to point and shoot while moving from one location to the other. One good piece of advice to consider when you next find yourself viewing a good scene is to take your time and relax. Carefully composing your frame well before pressing the shutter, considering aspects like composition and colour, can pay dividends.

This month's cover image is a great example of a well-thought-out image, where many aesthetic considerations were made before the shot was taken. Settings were also taken into account, with the choice of a narrow aperture of f/11. This photo

was taken with a Canon EF 16-35mm f4L IS USM wide-angle lens, making sure the details from the foreground to the distance were all kept sharp. When you aren't in a rush, it is worth spending 10 to 15 minutes thinking about your scene. This will also help you enjoy your environment, which will come across in your photos.

Next time you are out in the field, take a breath, enjoy your surroundings and consider your options. If you have a notepad, it is sometimes worth making notes – a checklist of what the shot may require, such as a low ISO setting, a narrow aperture and a slow shutter speed – before you set up your camera.

USE A TRIPOD IN WINTER!

As there is far less light during the day in the winter months, shoot from a tripod so you can set low ISOs of 100 or 200 and use longer shutter speeds to capture detailed images.

For some best-buy travel tripod options, see page 105.

Why this shot works



1 Link the foreground with background interest

This image has many layers of depth, with plenty of foreground interest to attract the viewer. Starting with the leaves on the shore in the near foreground, the eye is then drawn to the rock, then the reflection in the water, finishing with the mountain range in the distance. These various layers help generate the image's considerable visual interest.

2 Use a diagonal within your composition

In this photo, not only does the distant shoreline fall into the rule of thirds grid but there is also an additional diagonal that draws your eye into the image along the shoreline on the right-hand side. These two compositional guides help make this a really strong image which feels well-balanced in terms of its composition, and is easy on the eye.

3 Complementary colours work well together

Orange is the complementary colour of blue from the colour wheel (below), which is why this shot works so well. It combines a cool colour on the left side of the image with the warmer colour of the orange leaves on the right. Using the colour wheel when considering your shots can create scenes with great colour harmony.



Take time to consider the scene in front of you before setting up your camera. Focusing on aspects like composition and colour long before you press the shutter can pay dividends.



1.3
secs

f/11

ISO
100

9 | STILL-LIFE

Get your five a day

This Christmas, create striking HDR-like macro images from your fridge

It's hard to miss the photos that adorn the pages of supermarket and food magazines at this time of year. In the run-up to Christmas, even the most humble of vegetables is put through some creative process or another. So why not put some vegetables through a creative process of your own and come up with a macro picture to grace your kitchen wall?

The subject matter is important. While you could use almost any fruit or vegetable, one with a good variation of tone, shape, texture and colour will get you the best results. Also, think about the type of background you want. Here, we've used an old chopping board that bears the stains and scars from previous use, but which also adds some interest. Baskets, battered baking tins and interesting dishes are other possibilities for backgrounds.

All you'll need is your camera, a standard lens, a tripod and a flash, which needs to be mounted off-camera. Fire it via wireless or radio connectivity, if your equipment supports it, or by using a flash sync cord, which shouldn't cost you more than £15/\$18. So let's zoom in on our asparagus...

1 Use off-camera flash

Position the flash at the head of the vegetables to help illuminate the textures.

2 Shadows and highlights

Making the most of these will give the shot an HDR effect, making it much more distinctive.

3 Add a dark edge

Try using a Lens Correction Vignette in Photoshop and this will help give more focus and attention on the vegetables.



Getty / West End 61



USE YOUR FREE TIPS CARDS

This project features in this month's bonus tips cards. For a handy guide to capturing creative photos like this, keep your tips cards in your camera bag.





**WIN
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Submit your best 'Light'
photo by midnight on
4 January 2023

10 | COMPETITION

'Light' photo challenge

Send us your best image to win a £50 voucher towards Cewe Wall Art

The latest theme of our monthly Photo Challenge is 'Light' – the word photography means 'drawing with light', so let's celebrate the essential element of the medium. However you choose to meet this open-ended brief, we're looking forward to seeing your best shot!

Enter via email or Facebook

Email your entry to digitalcamera@futurenet.com with 'Light challenge' as the subject, including a brief description of the image. Or look for the 'Light challenge' post at www.facebook.com/digitalcameraworld and upload your entry into the feed. Enter by 4 January 2024 (only one image per reader, please). The winner will be announced in issue 278 (March), on sale 2 February. (Please note that this competition is only open to readers based in the UK.)

The winner of the Music challenge is...
Sylvia Koycheva
In *Digital Camera 274*, we challenged you to submit your best image with a music theme. Although the challenge wasn't limited to concert photos, our winning shot was the Get Your Rocks Off frontman Lennie, taken at the UK's Download Festival. Well done to Sylvia Koycheva for capturing the atmosphere so well. "I love how the singer is fully immersed in his performance and channels his energy to capture the attention of the audience," she says. "You can only imagine the excitement of the crowd during this performance."



Sylvia Koycheva

Email your entry to: digitalcamera@futurenet.com
or enter at: www.facebook.com/digitalcameraworld



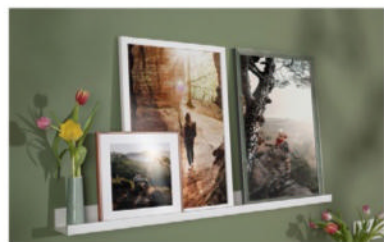
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SCAN ME



Using your own photos for greetings cards is a great way to share your work with friends and family – and it needn't be too costly, either.

I saw it that it would feature as my 'Christmas image'. Most years, I keep an eye out for an image to use to celebrate the festive season, even though, if truth be told, I can be a little 'Bah humbug!' about Yuletide.

I'm not a massive fan, especially of the crass consumerism and all its trimmings – sorry! I also struggle with the whole Christmas tree thing. Although I appreciate that they do look jolly nice and brighten the place up with a festive vibe, it seems weird to me to cut a tree down for a few weeks, even though many are farmed sustainably. Plastic trees raise other issues, of course, so although I'm often conflicted, I usually end up getting one.

Anyhow, I feel happy if a Christmas-esque image presents itself sometime throughout the year. I'll often make it into a card to share with friends and family. Over the years, I have developed a somewhat 'deadpan' aesthetic when I approach the subject, and there's nothing that thrills me more than finding something that might be a slightly ironic take on the conventional imagery associated with the season.

So you can imagine my delight at finding this image. Stylistically, it aligns with the approach I've been evolving over the last couple of years; it's quite formal, with attention paid to aligning the verticals and keeping certain elements symmetrical with only a little post-processing. This is driven, in part, by using a medium-format camera. The format slows me down and makes me more deliberate in my approach. It's also simply an approach I like, and it works for me, my world view and what I want to say about it.

As regular readers will know, the idea of metaphor and how an image can take on alternative meanings also interests me. This is not just a record shot of a meteorological instrument; it's also a festive photo! I even like how the red pipe leads out of the tree as if it's somehow hotwired to Santa's grotto – or maybe someone's just spiked my mince pie!

Anyway, have a happy festive season everyone. Thanks for reading *Digital Camera* magazine and I hope that 2024 is filled with photo fun! ●



The art of seeing

Benedict Brain has been on the lookout for an ironic take on conventional Christmas imagery



Benedict Brain
www.benedictbrain.com

Camera: Fujifilm GFX 50R and GF45mm F2.8 R WR
Exposure: 1/125 sec at f/8, ISO 100

Continuing with the tree theme from the previous issue, I thought I'd share a festive seasonal Christmas tree-like image as a celebratory gesture.

OK, so it's not a real tree, but I'm sure you'll agree it looks like one. In the summer, I saw the photograph at a meteorological station at Qagortoq, Greenland. I knew the moment

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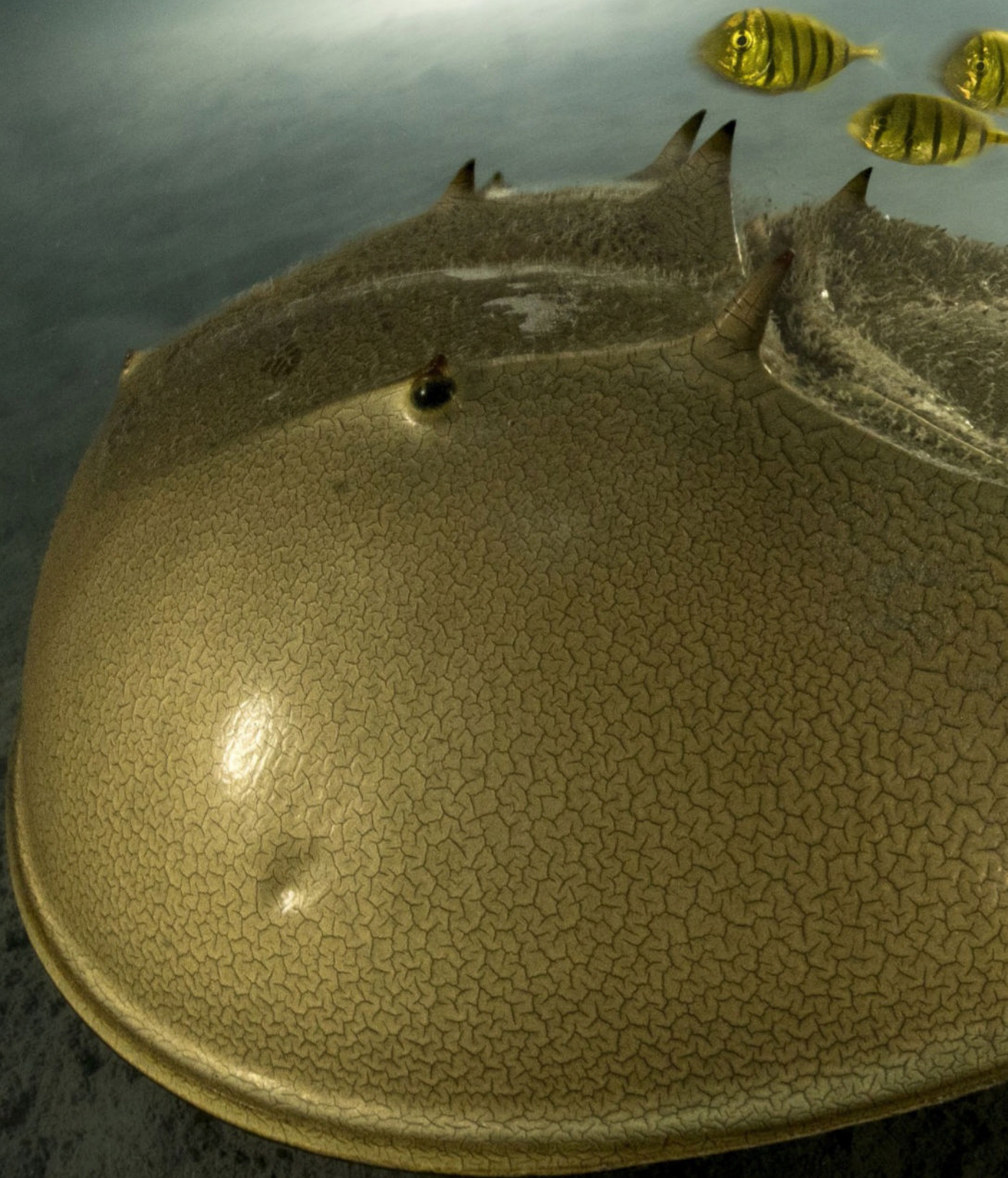
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Laurent Ballesta / Wildlife Photographer of the Year

OVERALL WINNER & WINNER, PORTFOLIO AWARD**'The Golden Horseshoe' Laurent Ballesta (France)**

A tri-spine horseshoe crab moves slowly over the seabed, its golden protective carapace hiding the 12 appendages of its body. Above the horseshoe crab, a trio of juvenile golden trevallies are poised to dart down for any edible morsels ploughed up by its passage. The tri-spine horseshoe crab has survived for more than 300 million years but now faces habitat destruction and overfishing for food – and for its blood, which is used in the development of vaccines.

However, in the protected waters off Pangatalan Island in The Philippines, there is hope for its survival. Marine biologist and photographer Laurent Ballesta has dedicated his life to exploring the oceans and revealing their wonder through art, leading a series of major expeditions that resulted in many unprecedented images.

Location: Pangatalan Island, Palawan, The Philippines **Technical details:** Nikon D5 with 13mm f/2.8 lens; 1/25 sec at f/22, ISO 800; Seacam housing and strobes

Hotshots

A selection of the winning entries from 2023's
Wildlife Photographer of the Year competition



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full-screen

Bertie Gregory / Wildlife Photographer of the Year



WINNER, BEHAVIOUR: MAMMALS ‘Whales Making Waves’ Bertie Gregory (UK)

Bertie Gregory tracks a pod of orcas as they prepare to ‘wave wash’ a Weddell seal. These orcas belong to a group that specialises in hunting seals by charging towards the ice, creating a wave that washes the seal into the water. With rising temperatures melting ice floes, seals are spending more time on land and so the behaviour of ‘wave washing’ may soon disappear.

Gregory took two month-long expeditions searching for orcas. “We spent every waking minute on the roof of the boat, scanning,” he says. After battling high winds and freezing conditions, he captured this remarkable behaviour with his drone.

Location: Antarctic Peninsula **Technical details:** DJI Mavic 2 Pro and Hasselblad L1D-20c with 28mm f/2.8 lens; 1/120 sec at f/4, ISO 100



WINNER, BEHAVIOUR: AMPHIBIANS AND REPTILES

‘The Tadpole Banquet’

Juan Jesús Gonzalez Ahumada (Spain)

Toad tadpoles feast on a dead fledgling sparrow. Common toad tadpoles have varied diets consisting of algae, vegetation and tiny swimming invertebrates. As they grow larger, they become more carnivorous – so when a banquet like this arrives, they take full advantage of it. The drama unfolded near Gonzalez Ahumada’s home when a newly fledged sparrow launched itself from a nest on his neighbour’s roof and fell into a nearby pond, where it drowned. The photographer had to pick his moment to show the tadpole formation and the sparrow’s eye.

Location: Ojén, Málaga, Spain

Technical details: Canon EOS R6 with 100mm f/2.8 lens; 1/80 sec at f/5.6, ISO 320; ring flash



Juan Jesús Gonzalez Ahumada / Wildlife Photographer of the Year



Lennart Verheuveel / Wildlife Photographer of the Year



WINNER, OCEANS: THE BIGGER PICTURE 'Last Gasp' Lennart Verheuveel (Netherlands)

Verheuveel shows the final moments of a beached orca. Lying on its side in the surf, this orca had only a short time left to live. Initially rescued, it soon became stranded on the beach again and died. A study later revealed that not only was it severely malnourished, it was also extremely sick. Research shows that orcas in European waters have the world's highest concentrations of polychlorinated biphenyls. These banned chemicals can persist for many years in marine food webs, weakening immune systems and reducing breeding success in whales, porpoises and dolphins.

Location: Cadzand-Bad, Netherlands **Technical details:** Canon EOS R5 with 100-500mm f/4.5-7.1 lens at 100mm; 1/80 sec at f/7.1, ISO 1,250

i

Mike Korostelev / Wildlife Photographer of the Year



WINNER, UNDERWATER 'Hippo Nursery' Mike Korostelev (Russia)

Korostelev reveals a hippopotamus and her two offspring resting in the shallow clear-water lake. Hippos produce one calf every two to three years. Their slow-growing population is particularly vulnerable to habitat degradation, drought and illegal hunting for meat and ivory from their teeth.

Korostelev has been visiting the hippos in this lake for over two years and knew they were accustomed to his boat. He spent just 20 seconds underwater with them – enough time to take this image from a safe distance and to avoid alarming the mother.

Location: Kosi Bay, iSimangaliso Wetland Park, South Africa

Technical details: Canon EOS 5D Mark III with 17-40mm f/4 lens; 1/320 sec at f/7.1, ISO 640; Seacam housing



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i

WINNER, NATURAL ARTISTRY

'The Art of Courtship' Rachel Bigsby (UK)

Bigsby frames a gannet pair against the guano-painted curves of sandstone cliffs. From her boat and in turbulent seas, she realised that achieving her vision of showcasing gannets set against the towering cliffs would be tricky. But as the boat aligned with the rocks, she spotted this pair of birds "isolated on a lower ledge, intertwining their necks and framed by streaks of guano".

Each summer, the Isle of Noss off the Shetlands hosts over 22,000 northern gannets, which return to breed on the ledges carved by the elements. This species was hardest hit by the 2022 avian flu outbreak.

Location: Noss National Nature Reserve, Shetland Islands, Scotland

Technical details: Nikon D850 with Sigma 60-600mm f/4.5-6.3 lens; 1/1,600 sec at f/11, ISO 5,000

Rachel Bigsby / Wildlife Photographer of the Year



i

WINNER, RISING STAR PORTFOLIO AWARD**'The Ice Ibex' Luca Melcarne (France)**

Melcarne makes the most of his mountain guide skills to reveal the fascinating lives of Alpine animals. Born in the Vercors mountains of France, Melcarne is a professional mountain guide and nature photographer. He is accustomed to the cold conditions but still needs to constantly watch the weather before making his plans. Melcarne's portfolio highlights the animals living in the Vercors Regional Natural Park, where he lives and works. His remarkable series of images demonstrate how patience, perseverance and passion are all essential ingredients for dramatic wildlife photography.

To enable an early ascent into ibex territory, Melcarne had to ski for six hours before spending a bitterly cold night in a temporary shelter in the French Alps. He thawed his camera with his breath and took the ibex's portrait.

Location: Vercors Regional Natural Park, Rhône-Alpes, France

Technical details: Nikon D850 with 600mm f/4 lens; 1/5,000 sec at f/4.5 (+1EV), ISO 640



Luca Melcarne / Wildlife Photographer of the Year



Amit Eshel / Wildlife Photographer of the Year

i

WINNER, ANIMALS IN THEIR ENVIRONMENT 'Life on the Edge' Amit Eshel (Israel)

Eshel witnesses a dramatic cliffside clash between two Nubian ibex. After hiking to a vantage point on the clifftop, Eshel slowly crept closer, using a wide-angle lens to set the action of the two opponents against the dramatic backdrop. The battle lasted for about 15 minutes before one male surrendered and the pair went their separate ways without suffering serious injury.

In the run-up to the mating season, part of the male ibex's coat darkens and their neck muscles thicken. Rivals will rise up on their hind legs and ram their heads together with such force that their horns sometimes break as they collide.

Location: Zin Desert, Israel **Technical details:** Canon EOS R5 with 24-70mm f/2.8 lens at 45mm; 1/800 sec at f/8, ISO 500



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WINNER, PLANTS AND FUNGI 'Last Breath of Autumn' Agorastos Papatsanis (Greece)

Papatsanis reveals the magic of a fungus releasing its spores in the forest. He used his silver photographic umbrella to stop his camera from getting wet and covered his carefully positioned flash with a plastic bag. The colourful touches come from the refraction of the light passing through the spore-laden air currents and rain. Parasol mushrooms release billions of tiny spores from the gills under their cap, which travel in the air currents.

Location: Mount Olympus, Pieria, Greece **Technical details:** Nikon D810 with 105mm f/2.8 lens; 1/40 sec at f/36, ISO 500; Godox flash and trigger; Leofoto mini tripod



WINNER, BEHAVIOUR: INVERTEBRATES 'Lights Fantastic' Sriram Murali (India)

Murali showcases a night sky and a forest illuminated with fireflies. He combined 50 separate 19-second exposures to show these firefly flashes, produced over 16 minutes in the forest near his hometown. The firefly flashes begin at twilight with the frequency increasing through the night until it looks like they are almost pulsing in unison, like a wave across the forest.

Fireflies are, in fact, beetles and the displays of bioluminescence are their way of attracting mates. Darkness is a necessary ingredient in the success of this process and, while light pollution affects many nocturnal creatures, these fireflies are especially susceptible.

Location: Anamalai Tiger Reserve, Tamil Nadu, India **Technical details:** Canon EOS 6D with 24mm f/1.4 lens; 19 secs at f/2, ISO 6,400 (multiple exposures); cable release; Manfrotto tripod



**Wildlife
Photographer
of the Year**

About the
competition

Wildlife Photographer of the Year is produced by the Natural History Museum with an accompanying book and touring exhibition. The 60th Wildlife Photographer of the Year competition closed for entries on 7 December 2023, and the winners will be announced in autumn 2024.
www.nhm.ac.uk/wpy

24 PHOTO PROJECTS FOR 2024!

Claire Gillo lines up four seasons of assignments to enjoy over the next 12 months

It's time to bid farewell to 2023 and say hello to 2024! The new year is always a great time to start afresh and to reassess your ambitions and aims for the year. As well as thinking of the personal changes you want to make, you can also think about what you want to achieve from your photography – and at *Digital Camera*, we are here to help you do just that.

To get you started, we've curated 24 fabulous photo projects for you to try throughout the year. The aim is to tackle one project every fortnight so you can explore different genres and use different skills that will help you grow as a photographer.

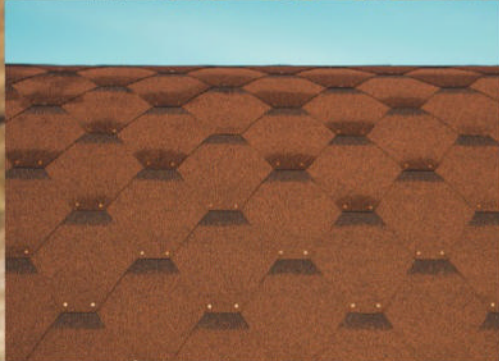
To make it easier to follow, we've themed the projects into seasonal categories, starting with winter, but mix and match as you see fit. You can also adapt our suggestions to suit your own shooting and editing style – feel free to put your own creative stamp on them!

Whether you manage to tick off 24 projects – or even just one of them – we'd love to see the results. You can always share your photo projects with us on social media using the hashtag: **#dcmphotoproject2024**



SEND US YOUR IMAGES!

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Claire Gillo

WINTER

01

FABULOUS FLORA

You may think that spring and summer are the best times of year to take stunning garden shots, and while this is true, the winter garden also has plenty of photographic opportunities. Look for structural and skeletal plants such as dead thistles or cow parsley to shoot as your main subject. Remember to get down low to compose your shots. Bring along a bag or old cushion to save your knees from getting dirty and wet on the ground.

3 TOP TIPS

- Convert your images to black and white. This style of photography lends itself to the monochromatic medium as your winter garden shots should all be about the form and structure of the plant.
- Isolate your subject. Think about your background and how to make your subject stand out. A wide aperture setting will help you do this.
- Consider how you are going to present your image. A double or triptych can work well.



Claire Gillo

02

BLEAK LANDSCAPES

Instead of waiting for the perfect golden hour, embrace the dull weather by shooting bleak and minimal landscapes this winter. Misty conditions are ideal and use negative space to aid your composition. This type of project can be shot in both rural and urban locations, so wherever you live, you can achieve great results. Trees work particularly well as a main subject, but so do man-made structures such as water towers and industrial power plants. Have a look at the works of Hilla and Bernd Becher and Josef Koudelka for some inspiration.

3 TOP TIPS

- When converting your image to black and white, it's easy to over-boost the contrast and make the blacks too dark and the whites too light. Pulling it back a little will let the image speak for itself.
- A wide-angle lens is useful for this style of photography.
- When it comes to composing your image, as well as using the rule of thirds, you can also think more symmetrically.

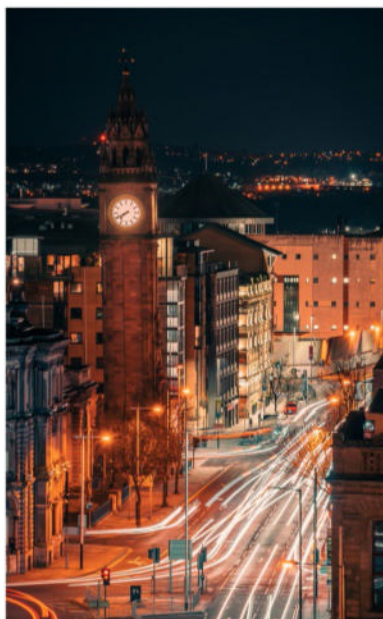


Claire Gillo

03

LIGHT THE WAY

Winter months are the perfect time to shoot light trails. Head to the urban environment or look for a busy and interesting piece of road for your location. Essential kit includes a tripod, high vis (if you stand near a road) and a wide-angle lens. Experiment using different shutter speed settings (starting at 30 seconds) to see how they add to the final effect. The speed of the traffic and the number of vehicles will also affect the result.



04

SERENE STILL LIFE

On those days when it's freezing cold or the rain is hammering down and you can't face the outdoors, find some household objects to create a simple still-life setup. In our example, we used some candles as our main subject and draped a household plant around to add some interest to the shot. Your background choice is also important as this sets the feel and tone of the image.



Claire Gillo

James Abbott



05

CREATIVE PORTRAITURE

This project is easy to do at home but it will require some planning, milk (around six litres), a model and flowers, although these are optional. We shot our image using flash and elevated our position above the model using a step ladder. Make sure you have your camera strapped and secured to your body to avoid any accidents. To create the milky effect, fill your bath about halfway with warm water and then add the milk. If you don't want to use fresh milk, you can also use milk powder.

3 TOP TIPS

- Bounce the flash to achieve a clean look. You want to avoid heavy or distracting shadows.
- If you're going to add floating flowers to the milk, add these after your model is in position; otherwise, they will go underneath the water as your model gets into the bath.
- Once you've added the milk, the water cools down reasonably quickly – be ready to shoot so that your model doesn't get cold!



Claire Gillo

06

FESTIVE BOKEH

Bokeh comes from the Japanese word *boke*, which means blur or haze. In photography, you can achieve an easy bokeh effect using a lens that can be opened to a wide aperture setting – the wider the better, so prime lenses are ideal. You will also need some lights in the background, and small lights work best, so Christmas trees are perfect for this type of effect.

Why not experiment with your Christmas lights this year to achieve some great bokeh effects?



Getty



Claire Gillo

SPRING

07

BRING SPRING INDOORS

When the first signs of spring start to emerge, we all seem to breathe a sigh of relief... however, we are also aware that April showers can go on way beyond April, so on those rainy days, bring the spring indoors. A flat lay is a great way to do this and can be achieved in a few easy steps.

1 SET UP THE BACKGROUND

Lay down a piece of coloured card on a table and place it next to a large window. As you want to make your image bright and vibrant, coloured card will work best.



2 BOUNCE THE LIGHT

To reduce the shadows, place a reflector on the opposite side to your main light source. This lifts the image and removes the stronger shadows for a more even result.



3 SET UP YOUR CAMERA

Put your camera into Aperture Priority mode and set the aperture to f/4 and the ISO around 200. You can either shoot this handheld or on a tripod if your shutter speed is too slow.



Claire Gillo

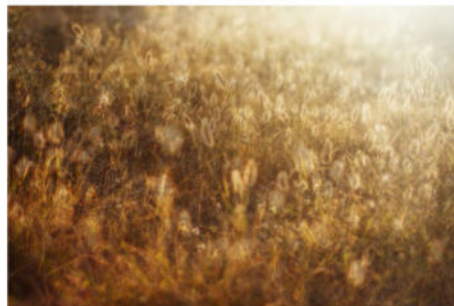


Claire Gillo

08

ANIMAL PORTRAITS

Many animals are born in the spring, so take advantage of this to create some characterful animal portraits. For a winning shot, keep the focus on the eye or the face of the animal to create a connection between the subject and the viewer. Animals can be tricky to work with (especially those that aren't domesticated) so be patient and keep shooting to ensure you get a winning shot.



Claire Gillo

09

THE BARTOCHA TECHNIQUE

Sandra Bartocha was one of the first to invent this popular technique where you layer images on top of each other (often nature images) to create a beautiful effect. To achieve this, shoot multiple images of your subject at different focus points and then build your image using an editing software program like Photoshop, where you can blend multiple layers together.



Claire Gillo

10

GARDEN LIFESTYLE

The spring garden is the perfect setting for a lifestyle project. Although this shot looks as though it has been taken candidly from behind the flowers, it has in fact been carefully composed and thought through to sell the dream. Placing items such as a blanket and a magazine on the table adds that lifestyle element to the scene and enables the viewer to picture themselves in that setting.

11

BEAUTIFUL BUTTERFLIES

By late spring, many different varieties of butterfly are starting to hatch. To shoot our spring butterflies, we grew them ourselves. We ordered some caterpillars from Insect Lore (insectlore.co.uk) and watched them grow from caterpillars into Painted Lady butterflies – this is also a particularly interesting project to do if you have children. When we released the butterflies into our garden, they were completely docile, meaning we could spend time getting them into a good position.

3 TOP TIPS

- Head to your back garden or the local park and look for flowers (such as the daisies in our example) or for interesting backdrops where the butterflies can rest.
- Use a long lens such as a macro 100mm prime for best results.
- When shooting at a close proximity, your aperture setting is affected. For example, our images were shot at f/8, which on a wide-angle image would be sharp from front to back. For our butterfly images, f/8 was the perfect setting as it softened the background while keeping some of the butterfly sharp, which was the effect we were after.

Using a 100mm macro lens with a wide aperture will enable you to achieve fantastic DoF effects, such as the image on the right.



Claire Gillo

Claire Gillo

12

WIDE AND SHALLOW

As spring leaps into action, you'll find fields of flowers starting to bloom. Our instinct and habit when we shoot a wide-angle shot is to set the aperture to a narrow setting to keep the scene sharp from front to back. On this occasion, however, you should do the exact opposite. Open your aperture to a wide setting and blur the background and foreground. This works best in-camera if you have a lens that can go as wide as f/2.8. However, if you don't have an f/2.8 optic, shoot as wide as you can and then exaggerate the blur effect at the editing stage.

3 TOP TIPS

- Look for a colourful setting. Fields of tulips or lines of flowers are the perfect arrangement for this technique (lavender fields also work in the summer months).
- Think about where you want your focus to sit in the image. About a third of the way up often creates a pleasing result.
- Plan your shoot to coincide with good weather. Avoid the brightest part of the day and opt to shoot in softer light at the beginning or the end of the day.



Getty

SUMMER

13

SPLASH & SHOOT

Jumping into the sea or a large body of water is great fun to do and you can get some eye-catching photographic results at the same time. To make sure your shots are sharp, set your camera to fire in the fastest burst mode you have and ensure your AF setting is set to the tracking feature, so you can follow your subject. You may need to get your model to do a few jumps to get the perfect shot.

3 TOP TIPS

- It's all about communication. Speak to your model first to tell them where they need to jump so you can be ready to get the action shot.
- Shoot a sequence of images and either pick the best of the bunch or present them as a sequence.
- Sea salt and cameras do not mix! Protect your camera with a waterproof cover (right) and keep it clear of any big splashes. A long lens will help you get close to your subjects.



14

DIVINE DRINKS

Cold drinks on a hot summer's day make the perfect combination for a winning photograph. Not only is it better to shoot into the light here, but you also want to make sure your drinks are ice-cold so that they bubble with condensation, which adds to the overall effect.

3 TOP TIPS

- Think about your setting and how that adds to the overall look. In the summer, an outdoor setting such as a garden is the best way to go.
- Open your aperture to a wide setting to blur the background and isolate your subject.
- Bring in additional props to add interest to the corner or side of the frame, but make sure they don't become the main focus. Here, we used a pair of sunglasses as a prop.

15

SUMMER SCENES

The first or last light of the summer day are the best times to shoot spectacular summer scenes. Blackpool Sands in Devon, pictured here, were shining as the sun set behind the fields. Shoot in raw format and bring those warm tones back into your image at the editing stage to make the most out of it.

3 TOP TIPS

- Calm and still days are the ideal settings to shoot scenes like the one below. Have a recce beforehand to work out the best spot from which to compose your shot.
- Use a wide-angle lens to frame the full scene and look for curves and shapes in the landscape to help you with your composition.
- At the editing stage, bring some detail back into the shadows. You may also need to warm the shadows up as the light is much cooler there compared with the rest of the scene.



16

PERFECT PORTRAITS

The long summer days are blissful and at the start and end of the day, the light begins to soften meaning you can achieve excellent results with your portraits. Coordinate your sitter's clothing to match the scenery. In our example, the girl's blue flowery dress matches the flowers on the ground perfectly. We've also added a creative filter and toned the image to make every element in the scene work together.

3 TOP TIPS

- Have fun and engage with your subject as you are shooting. Although it might be tricky to think about camera settings while directing a model, you should make sure they are comfortable.
- If working with children, you need to be quick as they won't stand still for long. To hold their attention, do your research first – find out their interests so you can engage with them for longer.
- Keep the focus fixed on the face, but if shooting closer up, focus on the eyes.



17

CAPTURE FUN AT A FESTIVAL

If you like people-watching and listening to loud music, there's nothing better than photographing a music festival. These images were taken for the Dart Music Festival last summer and are the perfect example of how to get great results...



LOOK FOR LIGHT

1 Photography is all about finding the best light and this is also the case at a festival or an event. Natural or ambient lighting can be used to your advantage so look for opportune moments with your subject in the setting.



CROWD FUN

2 As well as photographing the musicians at a music festival, there are lots of images to be captured in the crowd. Look for fun moments, especially when people are unaware of your presence for a more candid and natural result.



Claire Gillo

CAPTURING THE MOMENT

3 It's all about being ready to capture the perfect moment. A shake of the head or someone jumping in the air are always winners. Keep your ISO above 800 to ensure your shutter speed is fast enough to freeze the action.

18

SHOOT BIG GROUP PHOTOS

Shooting a large group of people is never easy so think of fun ways you can get them to engage with each other. People feel a lot less awkward if they have something to do or are given good direction. These colourful bridesmaids naturally formed around their bride, creating the perfect lineup for a group picture. Luckily, it was a hot day so it didn't take much encouragement to get them to paddle in the water! Make sure you keep your aperture setting around f/8 so everyone in the frame stays sharp.



Claire Gillo

AUTUMN

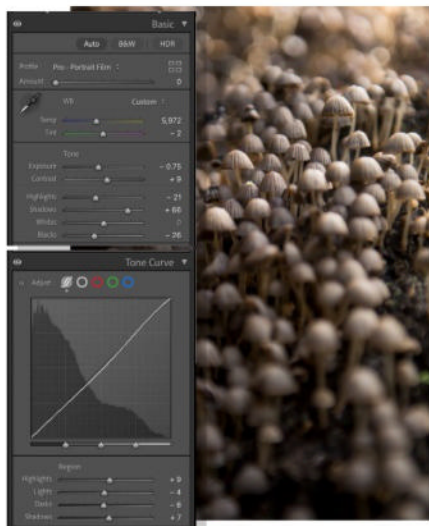
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AUTUMN CLOSE-UP

As well as offering plenty of opportunities for wide-angle shots in the autumn months, the small details of the season are also a joy to photograph. Look for slithers of light to frame your subject and when it comes to editing your images, follow our steps for atmospheric results. We think Lightroom is one of the best image-editing software programs for toning and styling your images, so we opted to use this.

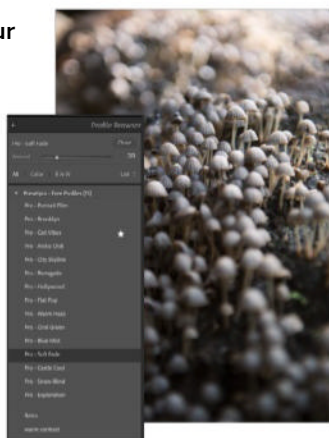
OPEN LIGHTROOM

1 Import your images and then go to the Develop Module. Start by adjusting the controls in the basic tab. Correct the Exposure and White Balance, boost the Contrast and use the Whites, Blacks, Shadows and Highlights sliders to tone your image. Also, play around with the Tone Curve setting below for further effects.



PROFILE AND PRESETS

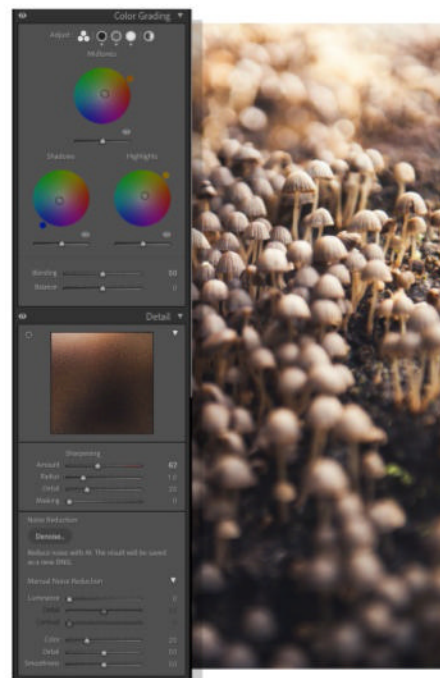
2 Profiles and presets are easy ways of toning and styling your image and are a great starting point. You can create your own or import them. There are plenty of profiles and presets for sale on the internet (and available for free in this issue – see page 84). We added a touch of a profile called Soft Fade as the base for our image. You can adjust the amount applied by any profile or preset using the Amount slider – sometimes a hint is all you need.



Claire Gillo

COLOUR GRADING

3 Now take it a step further and go to the Color Grading feature. This enables you to colour-tone the mid-tones, highlights and shadows separately. Start by picking your colour, for example, warmer mid-tones and highlights and cooler shadows; you can then adjust the amount added by clicking further out on the circle. Again, less is more so have a play around for subtle results like ours.



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LOCATION PORTRAITS

Although landscape photographers search for that perfect autumnal light, portrait photographers also do the same when out on location. This image taken of a girl at an outdoor adventure club is the perfect example of what a setting sun in autumn can bring to an image.

3 TOP TIPS

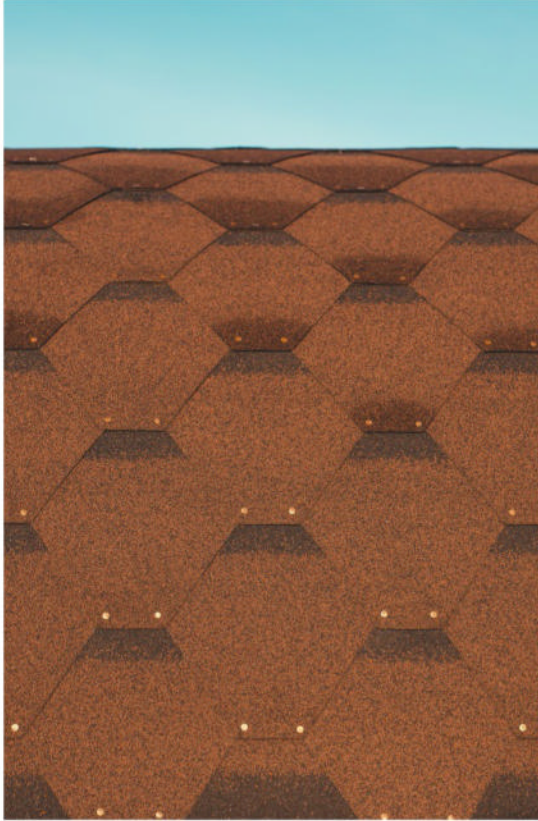
- Keep your camera in Aperture Priority mode and knock the exposure meter down a stop to ensure your highlights aren't overexposing.
- Shoot into the light, keeping the focus on your subject.
- Colour is important for a shot like this so think about what you want your subject to wear. In our example, the red jumper is perfectly matched to the light conditions.



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SHOOT ABSTRACT ARCHITECTURE

Sometimes less is more, such as in this example of an image of a beach sauna. The contrast of the patterned orange tiles placed against a clear blue sky is what makes it such an effective result. You don't need to go far to find this type of image, so have a search around your local area to see what you can find.



Claire Gillo



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STILL LIFE AROUND THE HOME

If you need a day at home, you can still take great photographs. The home has plenty of areas you can style, from living room areas to a shelf and dresser in the bedroom. If you have busy surfaces, remove the clutter and style your shots using a few books, plants, candles, blankets, cushions or whatever you have lying around... it's also a good excuse to have a clean and sort out household items at the same time.

3 TOP TIPS

- Use a tripod (right) as you want to keep your ISO down low to ensure your shots aren't grainy. Using a tripod indoors enables you to keep your ISO low, at 100, as you will need to use a longer shutter speed.
- Unless you have a library of beautiful old books that all match in colour and style when shooting books, turn them around so you can't see the spine to create a neutral look.
- For scenes where you have a big difference between the highlights and shadows of the image, try bracketing exposures and merge the shots at the editing stage.



Claire Gillo



Claire Gillo

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FIRE AND FOOD

Smoky and fiery conditions are perfect for food photography in action. Look for flames created by dripping meat to capture effective results. When it comes to selecting the right camera settings, don't be afraid to push the ISO up if you are shooting in low light. Here, we set ours to 1600 and the aperture at f/2.8 to get a shutter speed of 1/400 sec. This meant the action of the flame and the hand stayed sharp.

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PRESENTING YOUR PHOTOS

On those rainy days later in the year, take time to reflect on your photography, go through and organise your photos and edit them accordingly. Try printing out some of your images, thinking of different ways to present them, and if you need to share images with a client or a friend then find a pleasing presentation method, such as the wooden box in our example, or frame your favourite photos of the year and hang them on a wall.

Reader gallery

Digital Camera readers show how they've been getting creative, submitting images across a range of genres





1 'Aurora' by Tanya Maria

"Taken at the base of the Great Orme, Llandudno, in north Wales. The combination of the aurora dancing in the night sky created a truly memorable experience for me, and capturing this on my camera gave me a real sense of achievement. I wanted to record a unique and visually stunning moment that showcases the beauty of nature and our night skies."

Instagram: @tanya_captured
momentimages

Digital Camera says:

This fantastic capture by Tanya is enhanced by the detailed foreground and the inclusion of stars behind the magnificent colours of the aurora. It's out of this world, Tanya!



READER SHOT OF THE MONTH

Tanya Maria wins a year's subscription to *Digital Camera* for this image. Congratulations!



2 'Beach Huts Out to Sea' by Jo Griffiths

"The coast around Margate lends itself to lots of photo opportunities. During a slow walk along Westbrook, the sun was strong in the sky and the sea was a stunning azure. I found the colours of these two beach huts revealing the sea in the background to be a perfect combination, their colours and the lines of the beach huts combining to create a doorway to this stunning destination."

Instagram: @jogriffithsphotography

Digital Camera says:

A great example of using space and perspective to great effect. Taken on an iPhone 12, Jo has found a great spot to produce a real sense of depth between the two beach huts, where the planks of wood in their walls act as leading lines to the horizon in the distance.



3 'Take Care' by Danial Kennedy

"Taken at home in Blaydon, Tyne & Wear. I have always been interested in macro photography and capturing the intricate details of everyday objects. This image captures something different about an item I see all the time and, with the right light, it comes across as quite striking. I didn't go into the image thinking about an end result other than trying out some different angles and trying to show something that you wouldn't usually see."

Instagram: @intheshot_

Digital Camera says:

Danial has turned what could be a quite mundane photo into one with dynamism. Using a really low and unusual angle and perspective, he has managed to capture a creative shot, with great depth of field in the area around the label itself.

4 'Meet Me at the Corner?' by Jacek Durski

Shot in Milan, Italy. Jacek liked the non-obvious and intriguing form of the building. Using carefully selected contrasts, he tried to underline the complexity of the form of this building and highlight the variety of its textures.

Instagram: @jacekdurski

Digital Camera says:

We love this architectural capture – the angle and the combination of various shapes within the building make it a really interesting composition that attracts the eye. Converting to black and white has enhanced the lines and the contrast in the building – and including the house plants over the balconies gives this graphic image some narrative.





Great Value

All Pull bars purchased are non-refundable or exchangeable.
Must be sealed before leaving the counter.

PULL BARS SOLD HERE

FRIDGE OUT OF ORDER

HARIBO

CAUTION
WET FLOOR

Henry



**5 'Almost Closing Time'
by Nathan Foin**

"Taken on a cold winter night in the centre of Teignmouth, Devon. This shot captures a quiet moment in a town that would normally be noisier and busier. Using a mist filter for a more dreamy and surreal look, I wanted to provide a view into the everyday lives of the worker and the shopper. This photo will hopefully encourage other photographers to find beauty in the mundane."
Instagram: @n80photo

Digital Camera says:

We love the colour and movement of this photo. The intentional inclusion of the car roof adds to the framing of the image and draws the viewer into the shot – great work, Nathan.



6

'Phewa Lake, Nepal' by Casper Farrell

"Captured at dawn – each morning, I would walk the shoreline listening for the distant calls of exotic-sounding birds from the forests that cling to the hillsides surrounding the waters. I like how the small rowing boats are gathered up in bunches and drift into pleasing angles; I think this captures the essence of Nepal at daybreak, a beautiful and especially calming experience before the bustle of tourists and pleasure crafts begin to launch across the waters. There is a particular colour hue in this region of Nepal – softer tones somewhere between hazy green and pale blue, like perpetual dawn."

Instagram: @casperfarrellphoto

Digital Camera says:

An image that could feature in any glossy travel magazine, Casper has managed to create a real sense of wanderlust. Look closely and this is a cleverly composed shot: the boat in the foreground draws the viewer to the quartet of boats fanning out and then further into the amazing view beyond. A great travel photo that has many layers, Casper!



7 **'Caerlaverock Castle' by Mark Dunbaven**
"While Scotland is a place of natural beauty, there is a darker side. Stunning castles, such as this one in Caerlaverock, are steeped in history, experiencing brutal battles as the English tried to take control of them."

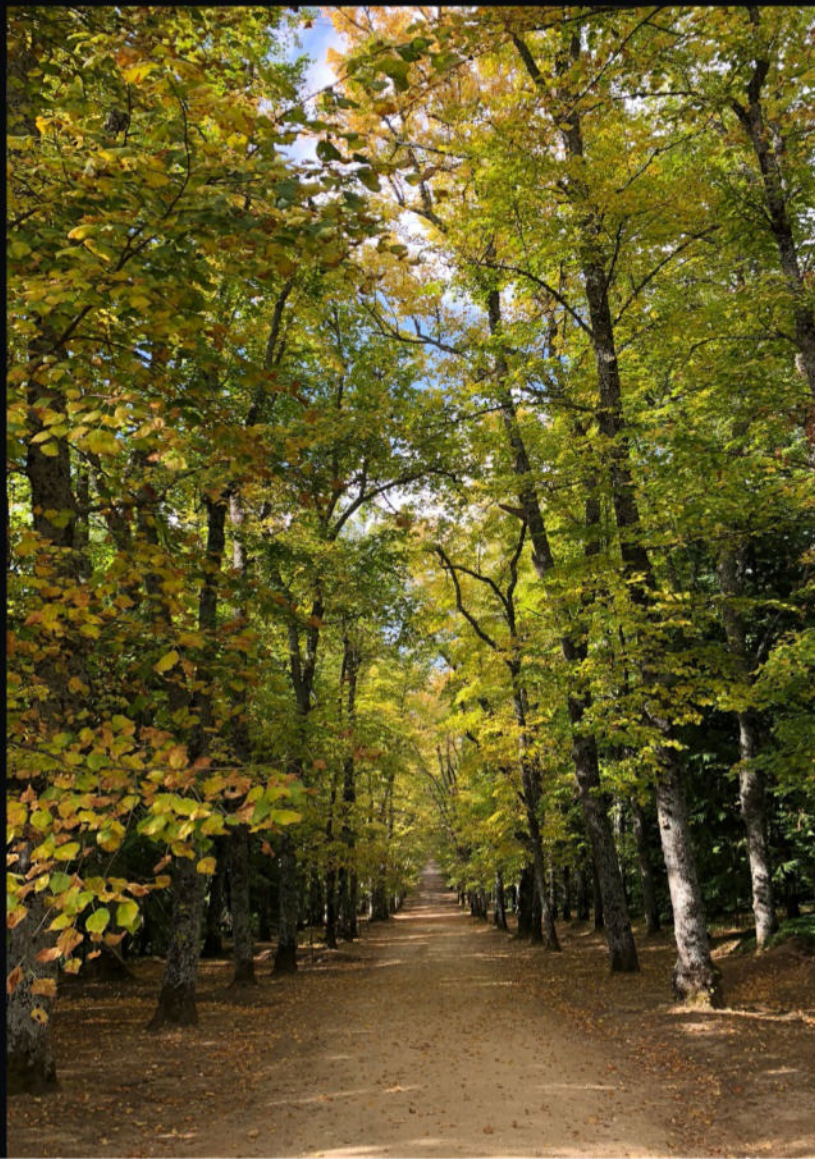
Digital Camera says: A fantastic capture of a historical building, with a great central focus. Framing up with the building on the corner, combined with the moody skies, really draws the viewer into the image.

8 **'Forest of Dean' by Elena Abraham**
"Taken on my Nikon D3300 – I really like the composition of the image and the symmetry reminds me of a scene from *The Lord of the Rings*. I was trying to capture the onset of autumn, which is reflected in the leaves changing colour and falling on the ground."

Digital Camera says:
A pleasing example of a woodland scene, with the leading lines drawing the eye of the viewer into the distance. The slight turning of the leaves from green to orange beautifully captures the start of the autumn season.

SEND US YOUR IMAGES!

Want to feature in our gallery? Please email a high-resolution image (at least 2.5MB) marked 'Reader Images' and including a title and brief description to:
digitalcamera@futurenet.com
or share it on Instagram with the tag:
#digitalcameramag



CAMERA

CLINIC

NEW
SERIES!

Master the art of modern photography

This month: ISO

All you need to know about the most important three letters in digital imaging

For this autumnal tree image, we used a tripod-mounted Nikon D810 at ISO 100 for an exposure of 1/50 sec at f/11.



Will Cheung



Will
Cheung

An imaging journalist and freelance photographer based in London, Cheung has a wealth of experience over several decades. www.williamcheung.co.uk

Of the three exposure musketeers, ISO is the most recent. That's not because film speed hasn't been around for a long time – because it has – but with film, it isn't possible to change speed with the same joyous alacrity that we can on our digital cameras. Essentially, you are limited to the film's quoted speed. Of course, you can always underexpose for richer colours or push-process, or shoot half the roll at one speed and the other at a different speed and then clip test during processing, but ultimately, your options are limited.

Furthermore, the fastest film you can buy is ISO 3200. That's nothing when most digital cameras have a native range that tops out at ISO 12,800 or 25,600 – and many go way beyond if you include expanded speeds. The Nikon D6 and Sony A1 cameras, for example, both have native top speeds of ISO 102,400.

With digital ISO, you have an incredible amount of freedom. You can shoot one frame at ISO 400, the next at ISO 25,600 and then finish at ISO 100. This is why digital ISO is now a fully paid-up member of the exposure trinity and, in partnership with aperture and shutter speed, we now have a formidable set of tools to play around with.

The aperture and the camera shutter physically determine how much light reaches the sensor and the actual settings you use are your responsibility, one you can wholly or partially delegate to the camera. How you use ISO on your digital camera is also up to you. It has an Auto ISO so you can leave it all to the camera, perhaps setting an upper limit to suit your quality threshold, or you can take total control and adjust ISO to suit the shooting scenario.

Read on as we take a deep dive into ISO, what it is and how you can use it to empower your photography...

Get the knowledge

Getting to grips with ISO

With film, ISO is a measure of its light-gathering ability, according to guidelines set by the International Organisation for Standardization. Film emulsion is formulated to deliver a specific ISO and should be exposed and processed for that speed.

Digital ISO is more complex and there's a great deal of misinformation around. For a start, ISO is not an acronym and an image

signal is not simply amplified to give faster ISO speeds.

Essentially, all photographers need to know is that digital ISO, as specified in ISO 12232:2019, gives us a range of values that we can relate to film ISO and that a lower speed is preferred when there is more light around and a higher value is needed when light levels are poor – at the cost of digital noise.

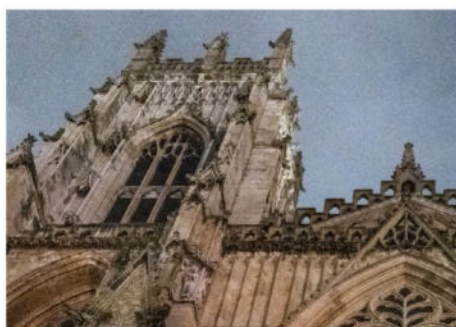
Noise types explained

There are several reasons why your image may display digital noise



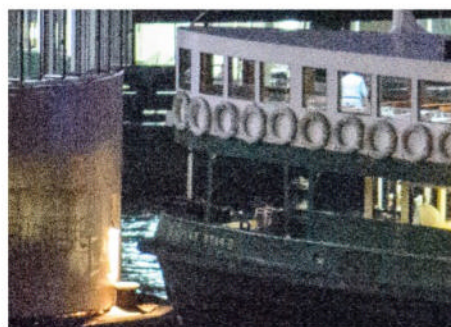
COLOUR NOISE

Colour or chrominance noise manifests itself as blotchy, random fluctuations of colour (usually red and green) caused by using high ISO speeds. It is noticeable in areas of even tone in low-light scenes. High levels of digital noise degrade image quality and impact on saturation, contrast and D-max, the depth of blacks. Fixed pattern noise is caused by 'hot' or 'stuck' pixels. These show up as bright dots, as heat builds up on the sensor during long exposures.



LUMINANCE NOISE

Luminance noise is random and colourless and shows up as fluctuations in brightness. Every digital image has some noise; the amount depends on the ISO speed – the higher it is, the greater the noise. Older cameras are noisier than newer models and this is also influenced by the amount of light in the scene; more light (signal) gives a higher signal/noise ratio and less noise, which is why graining is more evident when there's not much light around.



BANDING NOISE

Banding noise is introduced when the camera reads data from the sensor and varies between models. It is most evident with photographs taken at high ISO speeds, when the lighting conditions are dark and you need action-stopping shutter speeds. If you need to brighten the shadow areas, banding noise will be evident and run across the image frame. Treatment in noise reduction software can make a huge difference, especially with raw files.

Tactics for keeping noise down

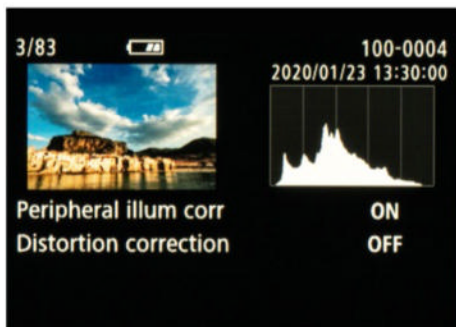
Noise can degrade our images, so here are some ways to reduce it



AVOID HIGH ISOs

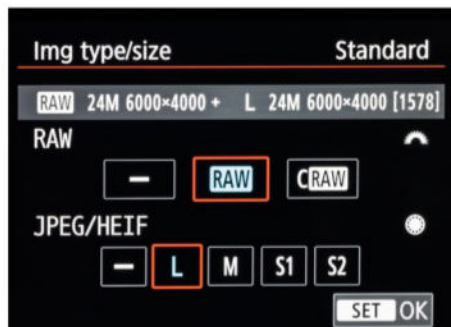
Avoid using high ISOs – set a wider aperture, slower shutter or fix the camera on a tripod. Of course, much depends on the subject and the situation – if you're shooting birds in flight, you have no choice.

Learn how your camera performs at high ISO speeds so you can avoid using speeds where the quality isn't great. Use a tripod and shoot a low-light scene using every ISO. Check the results at 100% on screen and you'll see noise increasing with speed.



EXPOSE TO THE RIGHT

Noise is more obvious in underexposed shots and areas of shadow. When correcting images in software, there are fewer levels in shadows so when we lighten them, the noise is more obvious. Expose to the right, using the camera's histogram, but without overexposing because you'll end up with unrecoverable highlights. Use the live histogram, adjusting settings while making sure it stays within the right edge, or check the preview's histogram.

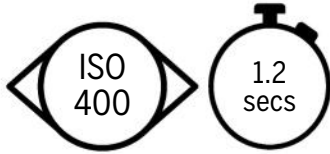


SHOOT RAW

For more editing flexibility, shoot in raw format. The downside is that raws take up more memory than jpegs and have to be processed. For cleaner raw images, use software such as DxO PureRAW, Topaz Photo AI or Denoise in Adobe Lightroom. Some cameras offer a compressed raw file option, such as cRAW (above). The compression algorithm can be lossy or lossless, but even this type of raw has immense editing potential, not far behind full raw.

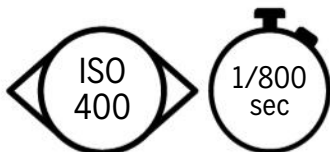
Perfect examples of ISO control for the best results

Aperture and shutter speed selection play a huge part in photography – now add ISO to the list



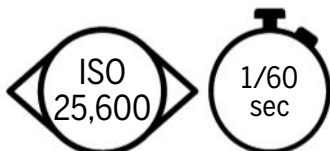
LOW ISO/SLOW SHUTTER SPEED

West Burton Falls in the Yorkshire Dales was in full flow and to achieve a milky water result, it required a slow shutter speed. With the camera and 70-200mm lens on a tripod, I took my first test shot at a speed of 1.2 secs at f/22 and ISO 400 and, although that produced a nice blur in the flowing water, I decided to go even slower. The first consideration was the tree branches, which I preferred not to blur. Thankfully, it was a still day so there was no problem here. To get a longer shutter, I dropped down from ISO 400 to ISO 100 to give an extra two f/stops of blur and the final exposure was 5 secs at f/22.



MEDIUM ISO/FAST SHUTTER

Modern digital cameras are so good that standardising your photography on ISO 400 or even 800 is no problem and the results will be first-rate with minimal noise. Being able to use such a high ISO speed allows plenty of options when it comes to aperture and shutter choice. This is LMS 46100 Royal Scot, photographed at Appleby station. It was a grey, cloudy day but using ISO 400 on a Canon EOS R8, a 24MP full-frame camera meant I could try 1/800 sec at f/8. With a 35mm focal length, f/8 gave plenty of depth of field, so the train is fully sharp while 1/800 sec meant there was no risk of camera shake, as I was moving and shooting quickly in the crowd to get a people-free shot.



FAST ISO/FAST SHUTTER

Street photography often means having to tap into your camera's high ISO skills, especially if you don't own a fast aperture lens. For this shot, which was taken on London's Tower Bridge, a Nikon D4 camera was fitted with a 24-120mm f/4 zoom. A few minutes earlier, I had been taking some skyline shots at ISO 100 with the camera mounted on a tripod, but seeing this photo opportunity unfolding ahead of me, I quickly took the camera off the tripod and changed the ISO to 25,600, the camera's top native speed. With the 24-120mm wide open at f/4 that ISO enabled me to take a handheld photo at 1/60 sec. The raw image here has not been treated in any denoising software.

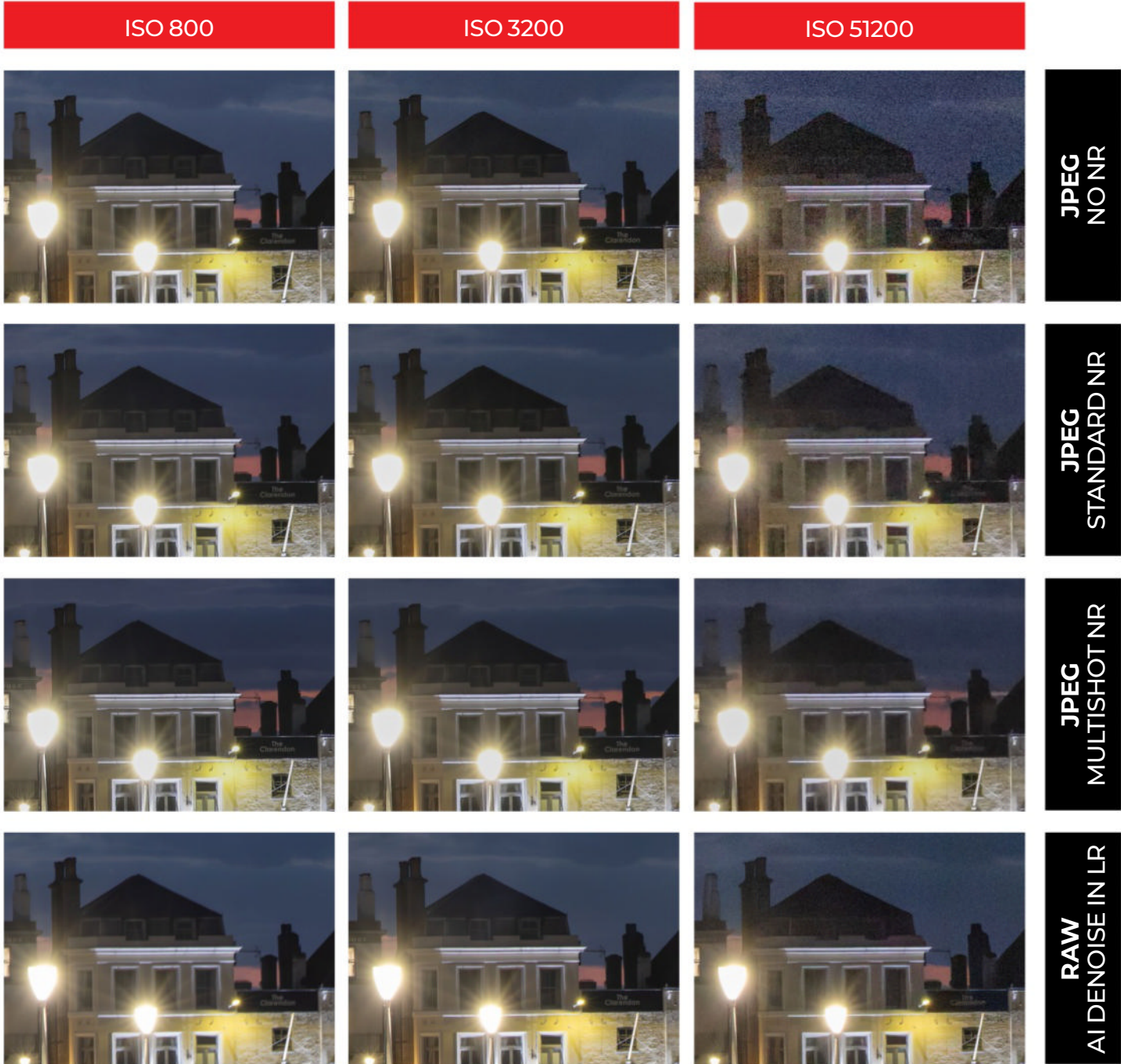


ISO skills

Keep the noise down with the camera's tech skills

Most cameras have a noise reduction (NR) feature to minimise the grainy look of high ISO photos. Often high ISO NR can be used for all speeds but is most effective at higher speeds. Long exposure NR takes a 'dark frame' to get rid of fixed pattern noise. In-camera NR usually only benefits jpegs so with raws, you'll have to build in time for noise reduction in the workflow.

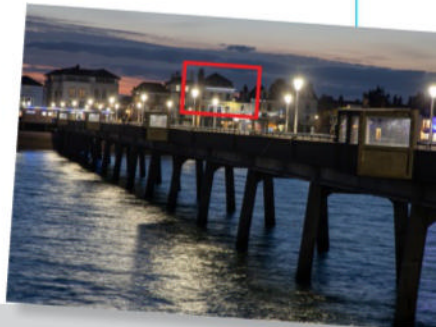
In the images below, we included raws treated with Adobe Lightroom's Denoise, but DxO PureRAW and Topaz Denoise AI all work in similar ways. Raw is the most versatile format for editing, while jpeg is better for shots to use straight out of the camera. Jpegs are compressed and most of the image data is discarded so there's only so much editing that can be done.



The results

A Canon EOS R5 was used on this night scene and the jpegs are straight out of the camera. It offers three levels of high ISO NR – low, standard and high – and a jpeg-only multi-shot setting for static scenes with a tripod. The EOS R5 is typical of the latest generation of digital cameras and its high ISO performance is impressive, even without NR or any work in software.

In-camera noise reduction skills vary from model to model, but you can see here how effective high ISO NR is in the Canon. From this test, the standard level of NR works fine, giving the most satisfying balance of image characteristics. However, it was no surprise that for jpegs multi-shot NR worked best but it doesn't suit every occasion. Noise reduction works by smoothing out detail and the more aggressive the NR, the greater the extent to which fine detail suffers. If used at its most aggressive settings, the result can look unnaturally smooth.



Pros and Cons ISO

Get to grips with some basics of ISO techniques to use with your camera

How you control ISO is important. There is much to be said for using Auto ISO with a limited range of ISO 400 to 6400 rather than the full range, but another way of controlling ISO is to go manual, adjusting the ISO as you go from one scenario to another. It's not a method that will suit everyone but it is a great way to learn more about light and how ISO combines with aperture and shutter speed.

Noise reduction
For cleaner jpegs, use the camera's noise reduction settings. Different levels are available, so start with standard or normal and experiment from there.

Upgrade your camera
If you own an older digital camera and are unhappy with its high ISO performance, the quickest remedy is to invest in a more up-to-date camera.

Push ISO higher
Don't be afraid to use high ISOs. Digital cameras of recent years are remarkably good when it comes to high ISO performance and noise is only an issue if you print large photos.

Frame up
Fill the frame with the subject. Cropping in and over-enlarging will make any digital noise present much more obvious and negatively impact on quality. Image upscaling software such as Topaz Gigapixel AI can help.

Software denoise
The latest versions of Adobe Photoshop and Lightroom have excellent Denoise features so if you are a Creative Cloud subscriber, that is great news. If not, consider investing in software such as DxO PureRAW 3 or Topaz Photo AI.

Get creative effects
Shoot at a super-high ISO (or even use an expanded speed) for creative effects. The grainy, desaturated look can work for reportage and gritty character studies. But remember that noise smears fine detail, so it's not ideal for architecture or scenics and also looks unflattering for portraits.

Larger format cameras
Generally, smaller camera formats such as Micro Four Thirds and APS-C show more noise than larger formats like full-frame and medium-format.

Shop around
Cameras with back-side-illuminated sensors (BSI) have a design that allows more light to be detected. This often gives a higher signal-to-noise ratio for a better high ISO performance than front-side-illuminated (FSI) sensors. If you're shopping around for a new camera, this could be a feature to look out for.

Very long exposures
While high ISO NR is worth using, long exposure NR is not so useful. It can benefit the image by removing 'hot' pixels, but the camera takes a 'dark frame' which takes as long as the exposure and the camera is inoperable during this period. This isn't always practical, especially when you are taking very long exposures.

Don't over-dehaze
Too much noise reduction, either in-camera or in post-processing, can result in an oddly smooth and slightly artificial-looking image, so don't be too aggressive with NR. Also, when editing, taking the clarity or dehaze sliders to the extreme – or over-sharpening – can make any digital noise present more prominent.

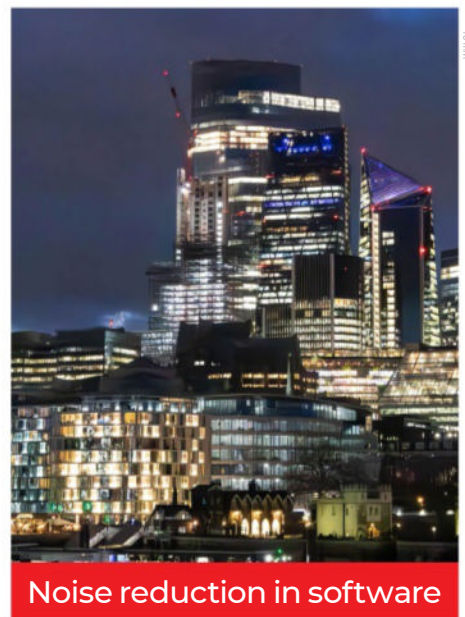
Editing know-how

Denoise in software

Editing software can make a world of difference to your photos

Many photographers avoid high ISO speeds because of the drop in image quality. However, it is fair to say that with good noise reduction software, photos taken at high ISOs can be improved immeasurably.

This photo was taken on a Canon EOS R3 at ISO 102,400. The low lighting and stratospheric ISO has produced a very noisy image. Putting the raw file through Lightroom Denoise has made a huge difference. It is not perfect, but it is remarkably clean and detail is vastly improved. Other leading noise reduction software includes DxO PureRAW 3 (raw files only) and Topaz DeNoise AI (works with raw and jpeg files).



Will Cheung

Will Cheung

Base native ISO

Used at its base native ISO, you will be making the most of the camera's ability to handle a wide dynamic range. To exploit this fully you need to shoot in raw format and use an editing software to boost shadows and control highlights.

Low or medium ISO

Using low/medium ISO speeds gives the best results but keep an eye on the other settings. Too slow a shutter might result in shake or subject movement while a wide aperture might not give enough depth of field.

Underexpose

Extreme highlights are impossible to retrieve successfully if overexposed and can take on a grey look. The best tactic is to err on the side of underexposure so the highlights are safely recorded and the shadows can be lifted in editing.



Camera tech ISO invariance

The technique of underexposing and correcting in software

ISO invariance means deliberately underexposing at a particular ISO and then correcting for that underexposure in editing, giving the effect of shooting at the higher ISO in the first place. A camera with good ISO invariance will exhibit little difference between the underexposed shot and the one exposed at the 'correct' ISO.

To explain, let's say you set ISO 100, underexposed by one stop, then brightened that image in editing by one stop; in effect, you have an ISO 200 photo. In Photoshop or Lightroom, the limit for exposure correction is +/- five stops, so if you took a shot at ISO 100 and repeated the process by five stops, that is effectively an ISO 3200 image (-1 ISO 200, -2 ISO 400, -3 ISO 800, -4 ISO 1600 and -5 ISO 3200).

This pair of shots taken on a Canon EOS R5 shows a 5-stop corrected ISO 100 frame and a straight ISO 3200 shot. Apart from the white balance, the two images are very similar, so the EOS R5 appears to have good ISO invariance skills.



ISO 100 – corrected by 5 stops in Lightroom

Shoot photos like a pro

Leave it to the camera or take control of ISO?

Most digital cameras have an Auto ISO setting and this incredibly useful feature automatically adjusts speed as you go from bright light to darker situations. As a default, the camera will be set to work with its full native ISO range.

In principle, there's nothing wrong with that but the highest speeds can be disappointing with poor detail

rendition, weak colour saturation and a strong grainy look, so you may prefer to cap the working range. For instance, if your camera's top ISO speed is 25,600, setting a ceiling of 3200 or 6400 would make sense.

Do this in the ISO speed settings menu, where you can also often set the slowest shutter speed when you want auto ISO to kick into action.

Control your depth

For this picture of Staithes in Yorkshire, I was shooting handheld with a 24-105mm lens at 45mm. My aim was to record the foreground crab pots sharp while having enough depth of field to retain sharpness in the village backdrop.

The first exposure was 1/160 sec at f/11 at ISO 200 and a careful check of the preview showed the village not to be sharp enough. A quick fix was increasing the ISO to 800 to allow an aperture of f/22 to give enough depth of field.



Steaming ahead

Steam re-enactments such as this one at Didcot Railway Centre organised by TimeLine Events have great potential for pictures. However, even when people are posing, it is still important to keep an eye on the ISO to keep the shutter speed high enough to stop any subject movement.

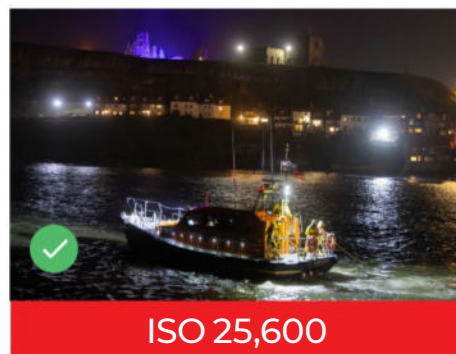
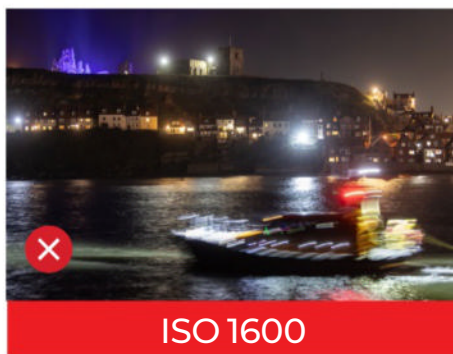
While switching to a much higher ISO can impact on quality, the high ISO performance of modern cameras is incredibly good, and any negative impact will only be visible on large prints.



When the boat comes in

Practise adjusting ISO quickly; you never know when a photo opp might present itself. Here, I was framed up on Whitby Abbey with the river Esk in the foreground. It was no more than a record shot, and I had the camera on a tripod set to ISO 1600.

The lifeboat came into frame, which made for a good foreground, but at ISO 1600, the exposure was 1.3 secs at f/4. I changed to ISO 25,600 and shot at 1/13 sec at f/4, so I got a sharp shot. Both raw files were denoised in Lightroom.



Camera skills Shallow depth of field

Shooting wide open is a powerful weapon for striking images

At their widest apertures, fast prime lenses give wonderful shots with background blur but in bright light or if you want to use flash, you might run out of shutter speeds. You can get round it if your camera has an electronic shutter, but these suffer from rolling shutter and banding in artificial light plus most do not sync with flash. Another option is to use an ND filter. The simplest solution is to use a slow ISO. Depending on the camera, you may have ISO 50 or 80 (often denoted by L in the ISO dialog box) and using that will avoid overexposure. This portrait was a daylight shot with flash providing some fill-in. I wanted model Hazel's eyes sharp, but not much else, so I had an 85mm f/1.2 lens wide open and used a shutter speed of 1/100 sec. So being able to use ISO 50 here was invaluable.





The magic of motion

Altering the ISO with a filter can add something special to your landscapes. Taken in West Bay, Dorset, the initial shot at ISO 200 and 1/250 sec at f/22 looks fine with sharp water. I figured a slower shutter would be better, so I dropped the ISO to 50 to give an exposure of 1/60 sec at f/11 and added a 3-stop ND filter, taking the shutter down to 1/8 sec to give more motion in the water.



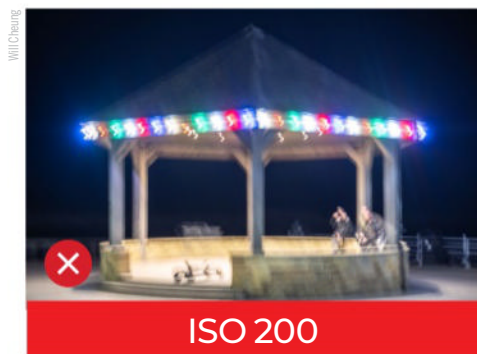
Get up to speed

Street photography can catch you on the hop, so using an Auto ISO range working up to ISO 1600 or 3200 is sound advice. Another option is to set a high speed manually so you could set ISO 1600 and while there may be a minor pay-off with image quality, you'll probably get a fast shutter to avoid camera shake and subject movement. If you like to learn about light, you could adjust the ISO manually as you're wandering around.



Long shots

Extreme long exposures are fun to shoot but can be tricky when the sun is bright – even with a neutral density filter. A meter reading of this scene was 1/60 sec at f/11 and ISO 100. Adding a 10-stop ND filter took the shutter down to 15 secs, but the clouds weren't moving that fast. Stopping down to f/22 took the exposure to 60 secs which was good. A change to ISO 50 gave an exposure time of 120 secs, long enough to blur the clouds.



When the wind blows

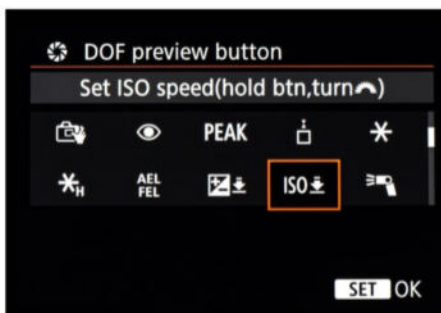
Image stabilisers have made our lives so much easier, giving us the freedom to take sharp photographs without any camera support. Here, a fierce gale was blowing from left to right, buffeting the camera and photographer. Normally, 0.5 sec is within reach using the combination of the Canon EOS R5 and a 50mm lens on a calm evening, but this night, I had to go up to ISO 6400 to allow a 1/80 sec shutter speed to get a sharp shot.

Pro tip ISO quick recall

Customise ISO setup on your camera

How ISO is adjusted varies from camera to camera. It might be tucked away in the camera menu, available with a button press or in plain sight on the camera top plate.

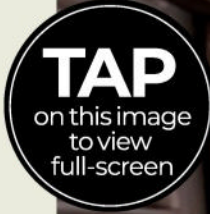
Now that we've got you thinking a little more deeply about ISO and its potential, knowing how to access and adjust the feature quickly is the next step. For speed, it pays to have ISO dedicated to one of the camera's most accessible buttons so it can be varied even with the eye at the viewfinder eyepiece. In the menu shown above, changing the ISO value has been assigned to the camera's depth-of-field preview button, which is located on the front of the camera.



SEND US YOUR PHOTOS!

Now you know how to use ISO like a pro, show us what you've learned and you could feature in our Reader Gallery:

digitalcamera@futurenet.com



Steve McCurry

Shot of the month

A new book by **Steve McCurry** gathers photos with a spirituality theme – half of which have never been published before

A novice monk meditating on a train in Bangkok, captured by Steve McCurry on a Leica SL2.

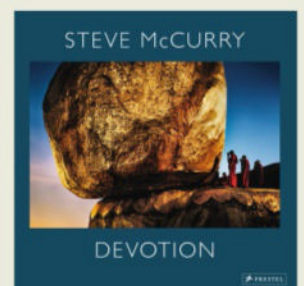
particular station quite a bit when I first went to Thailand in 1979. There has been talk about ripping it down, so I went there several times just to photograph people coming and going, and the passengers on trains.

“I was fascinated by this young monk who, I guess, was going back to his monastery, sitting there waiting and meditating. Sitting in silence is an integral part of their practice, but it seemed like an unlikely place to meditate.”

McCurry captured the photo on his Leica SL2 with a 24-90mm lens. He was drawn to the even light falling on the monk’s face, and there was enough light elsewhere for the SL2 to work with, without having to push the ISO beyond 3200.

What McCurry did have to be mindful of was working around the busy train cleaner, and the railway timetable – making sure he could get off if he felt the train starting to move. ●

Devotion by Steve McCurry is published by Prestel (ISBN: 978-3-7913-8012-4) and is on sale now, priced £50/\$65. www.prestel.com



Steve McCurry
Photographer

Title: Untitled
Location: Bangkok, Thailand
Date: February 2023
www.stevemccurry.com

Featuring 75 previously unpublished photographs, *Devotion* by Steve McCurry is a collection of “spiritually inflected” images from around the world, taken during the American photographer’s 40-year career. Being a follower of Buddhism was one reason for McCurry wanting to create this collection.

In an unpublished photo that appears in *Devotion*, we witness a monk meditating on a train. Taken in Bangkok, the location is somewhere that McCurry has visited many times before and knows particularly well.

“I’ve always been interested in trains and train stations,” he says. “I had used that

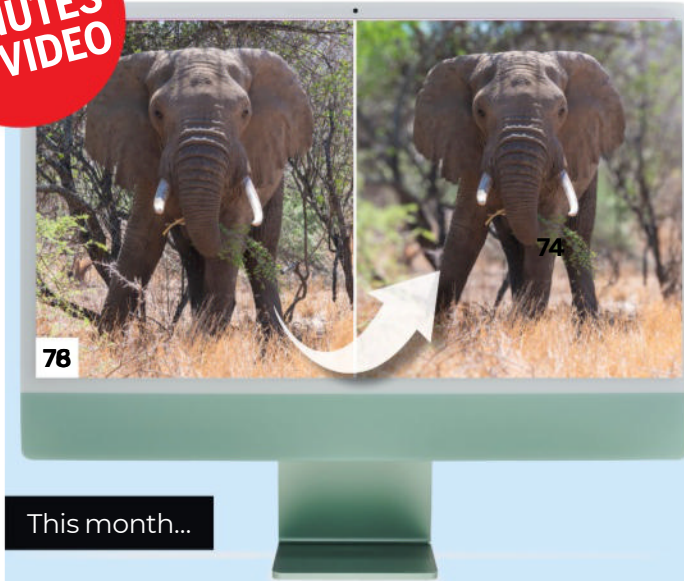
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68 MINUTES OF VIDEO



This month...

Tool School: Lens background blur

Even with Photoshop's blur filters, it is difficult to mimic the effects of real optical lens blur. Our free adaptive presets can help separate the subject and background of your images

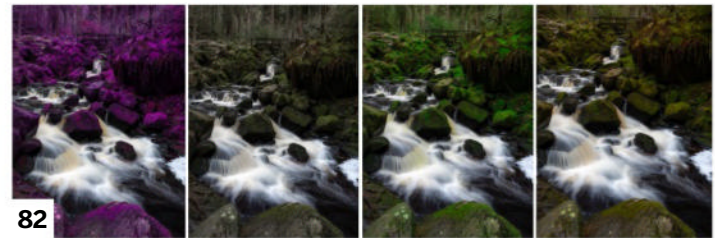


80

Fundamentals: Lens Flare effects in Lightroom

Lens flare is usually avoided as it degrades photos, but landscape shots can benefit from a subtle flare. Recreate this effect as a mask or as a custom setting for all masks

BECOME A LIGHTROOM MASTER!



82

Get the Look: Transform foliage with Hue/Saturation

These Photoshop actions use the yellow channel sliders to alter foliage in your landscape shots – from deep natural colours to warm tones and desaturation, plus a few surreal effects

VIDEO TRAINING

The issue 276 download includes video lessons that build on our tutorials, plus bonus videos with extra tips!

www.digitalcameraworld.com/dc276



BONUS SOFTWARE EXTRAS:
 Actions for Photoshop and two sets of presets for Lightroom **Page 84**



CAMERA RAW & LIGHTROOM
 Explore the Lens Blur panel



LIGHTROOM
 Recreate lens flare effects



PHOTOSHOP
 Transform foliage with Hue/Saturation




LIGHTROOM
 Give your shots a simple retro makeover



PHOTOSHOP
 Actions and what they do

Download 68 minutes of video training for Lightroom and Photoshop



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PHOTOSHOP
 Make a Christmas collage



PHOTOSHOP
 Time blending your landscape shots

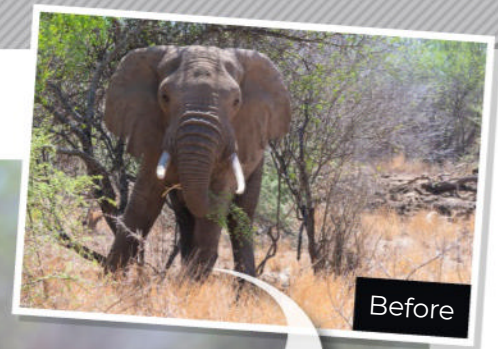


PHOTOSHOP
 Work with background layers



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Before



After

Explore the new Lens Blur panel

Get to grips with the new AI-powered tool for adding realistic lens blur to your photos



James Paterson

With over a decade as a writer and photographer behind him, James knows exactly which Photoshop and Lightroom tools and techniques matter most.

Blur filters have been around since the early days of Photoshop, but despite being relatively easy to blur pixels, it is tricky to mimic the effects of real optical lens blur. The challenge is to create a realistic fall-off around the point of focus, so the blur gradually becomes stronger the further away in front or behind the point of focus, just like optical blur. With the introduction of the new Lens Blur tool, depth-of-field effects have become a whole lot easier.

Available in Lightroom and Photoshop's Camera Raw, the Lens Blur tool employs AI to create a depth map that mimics in-camera lens blur. Essentially, it identifies which parts of the scene are closer to the camera and which are further away. It determines the subject of the photo and automatically designates it as your point of focus. From here, you can add realistic blur and fall-off in front and behind this point. The tool is still in 'early access' mode at the moment, which means Adobe hasn't finished working on it. However, if it doesn't perform perfectly, there are a range of manual tools you can use to finish off the job.



Style your backgrounds with our 10 free presets

As well as the new Lens Blur feature, there are lots of other ways to create separation between the subject and background. We've supplied a range of free presets that you can use to alter the backgrounds in your photos. These are Adaptive Presets, which means they work by first isolating the subject from the background with a mask, before adding an effect to the background. As such, if the subject isolation goes awry, you can always head to the mask panel to fine-tune what is included. To import them, go to the Preset Panel in Camera Raw, click the 3-dot icon at the top right, choose Import Presets and navigate to the supplied Zip file (no need to unzip it).

1 Lens Blur panel

Head to the Lens Blur panel in Camera Raw or Lightroom. Click

Apply then adjust the blur slider to control the strength of the blur. At the time of writing, Adobe says Lens Blur is an 'early access' tool and is not yet the finished article. It is good enough to use, although you may experience unwanted effects or strange results in some images. You can provide feedback by clicking the link in the panel.

2 Set focus point

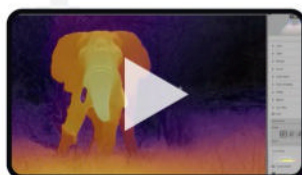
The two icons let you choose a focus point, which will be isolated

automatically, with the blur applied in front and behind it. The subject icon detects and isolates the subject, while the target icon lets you change the point of focus. Check 'Visualise Depth' and the overlay shows warm colours for closer areas and cool for further away. The in-focus area is white as you drag the focal range box.

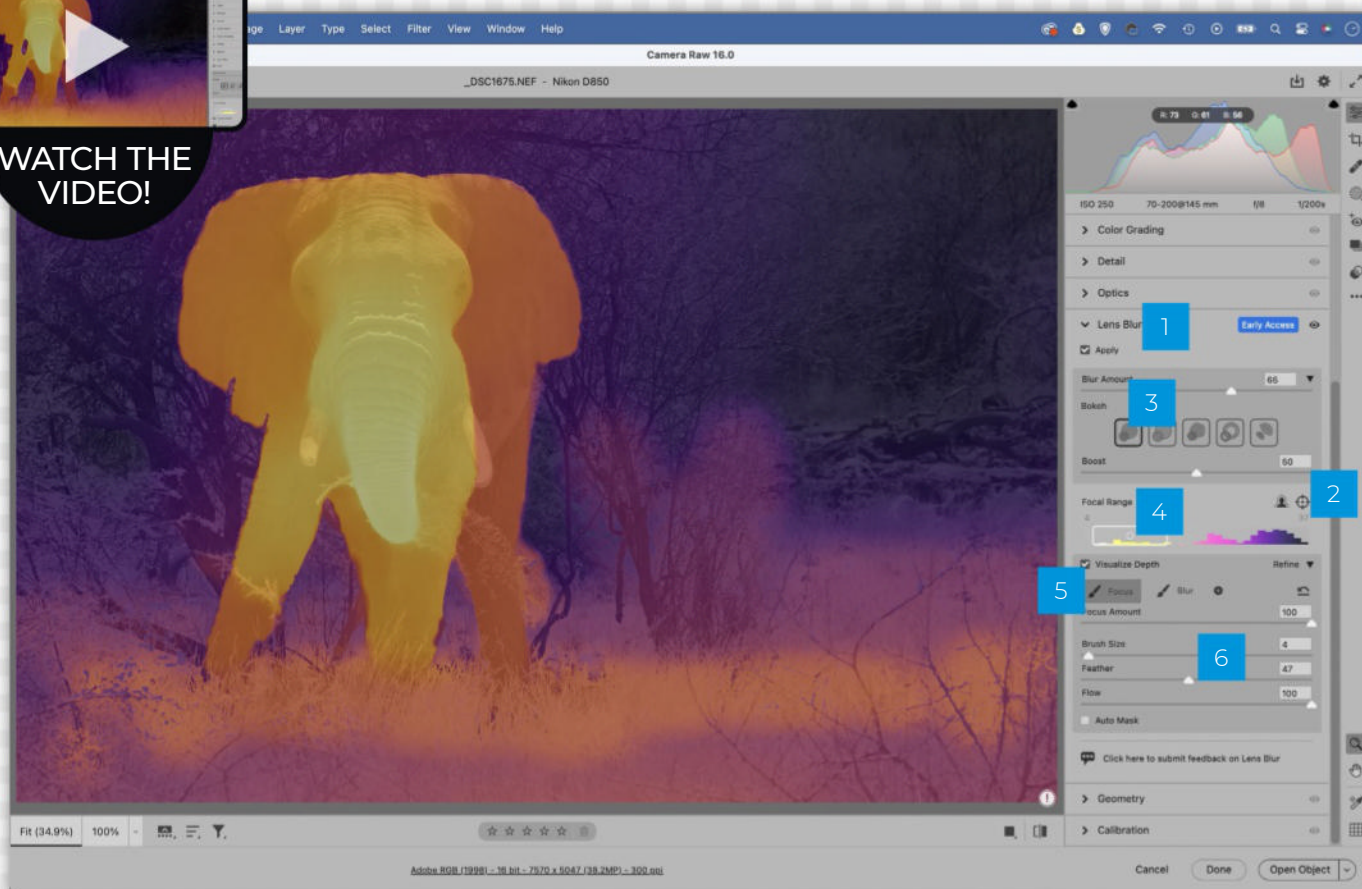
3 Bokeh buttons

These five buttons let you fine-tune the look of the out-of-focus

areas. They affect small specular highlights, like the bright spots of foliage in the background here. Each effect mimics a different kind of bokeh shape caused by variations in lenses (hover over the buttons for a description). Below it is the Boost slider, which lets you increase the brightness of out-of-focus light sources.



WATCH THE VIDEO!

**4 Focal Range slider**

This handy control has a few uses. First, you

can drag the white rectangle to shift the point of focus forward or backwards (double-click to reset). You can also drag the side of the box to expand or contract the depth of field, so you can opt for a shallow effect or have more of the subject and scene in focus. If 'Visualise Depth' is checked, the in-focus parts of the frame appear in white as you adjust the box.

5 Focus and Blur brushes

These allow you to paint to blur or focus

areas, which is helpful for fixing mistakes. Here, the effect is messy around the elephant, so use the blur brush on the sharp parts and the slider to control the strength. The grass should be in focus, so paint with the focus brush over these areas. Add new brushes with the plus icon and the previous brush will be committed to the overall depth map.

6 Brush tricks

Like all brushes in Photoshop and

Lightroom, you can resize the brush tip of the Blur and Focus brushes using the] and [keys. Shift +] or [alters the feather. Click once, hold Shift and click again to make a straight line between two points. If you need to subtract from the painted area, hold Alt. The Auto Mask option in the brush settings makes the brush seek out edges as you paint so you can quickly isolate objects.



**BONUS
FLARE
PRESET**

Turn to page 84 to
find out more!

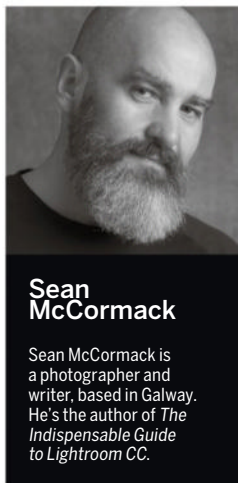


Before

After

How to create flare effects in Lightroom

Lens flare is something we try to avoid, but a subtle effect can enhance your landscapes



Sean McCormack

Sean McCormack is a photographer and writer, based in Galway. He's the author of *The Indispensable Guide to Lightroom CC*.

We spend a lot of money on lenses that are designed to minimise flare – those nasty internal reflections that occur between the elements in your lens and that can degrade your photo. Plus, lens flare also looks unprofessional. So, to reduce the chances of this, we opt for lenses with special coatings and buy expensive filters.

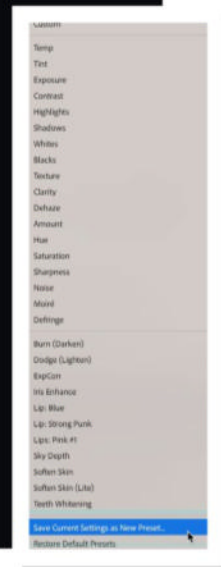
But then we look at a lot of modern landscape images and see that there's subtle flare being used to enhance them. So should we abandon all hope and just go for the cheaper option, saving ourselves some money in the process? No, not at all. It's far wiser to start with a better photo and enhance it ourselves. Indeed, creating a repeatable and recognisable look could become your style.

You might think that creating a flare is something that's easy to do in Photoshop but not in Lightroom Classic. Thankfully, it's not particularly difficult. You can also save the effect as a Mask or as a custom setting for all masks. When you save it as a mask, you have to reshape it for each image but, as a preset, you can use it on any mask you like.



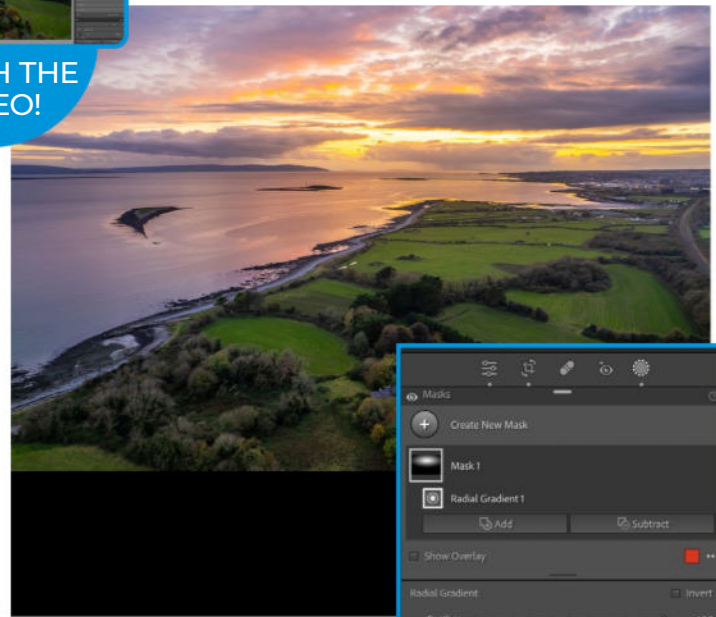
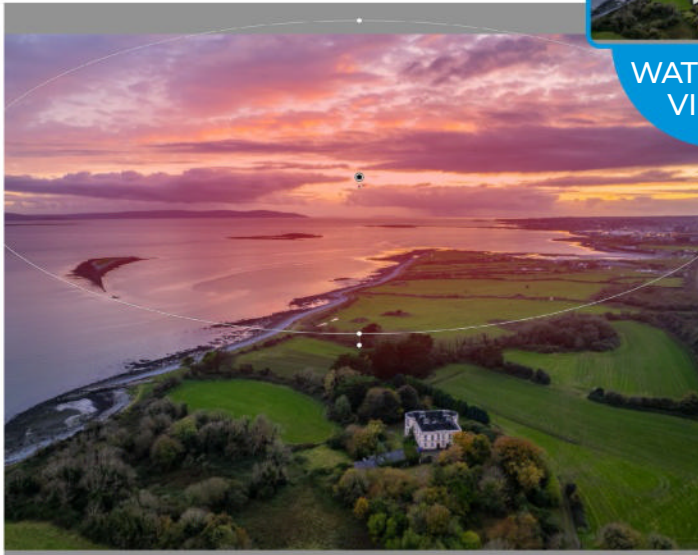
Expert tip: Saving a preset

To ensure your preset can be used with all mask types (so that it works with a Linear Gradient from the side, for example), go to Preset in the Mask tool and, from the list, choose 'Save Settings as New Preset' and name the file 'Flare'.

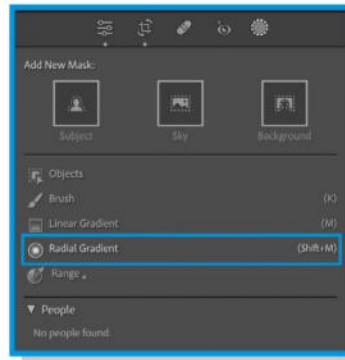




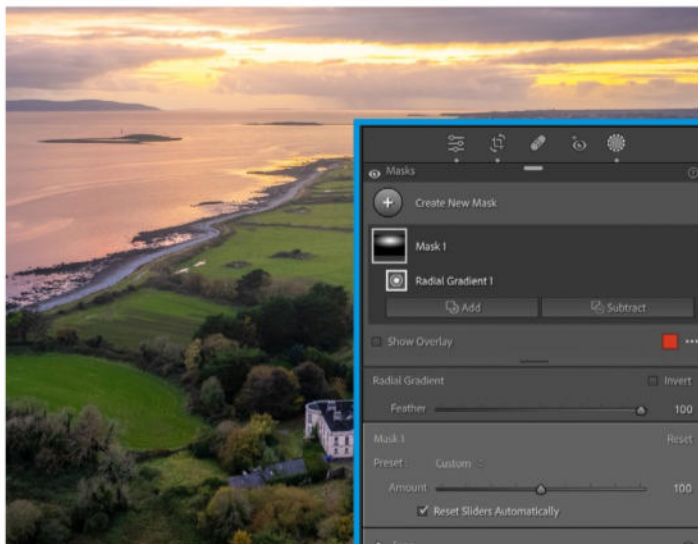
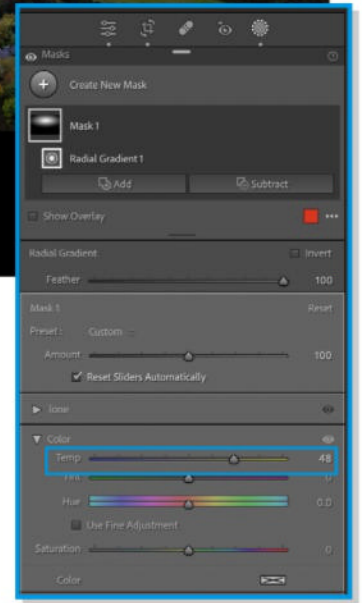
WATCH THE VIDEO!



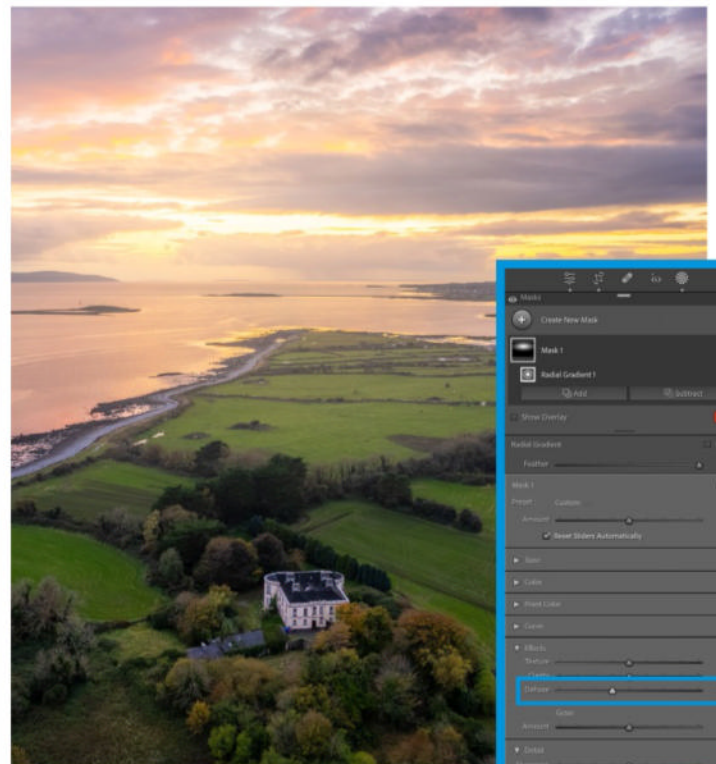
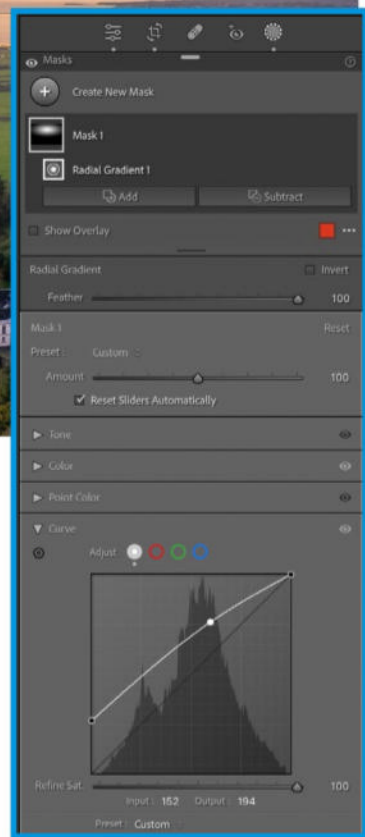
1 Radial Gradient
In Masking, go to the Radial Gradient. Decide where to place it and drag it out. If you're exaggerating the sun in the photo, place it centred there. If you have light off-screen, place it coming from that direction so you match the light source.



2 Soft transitions
Set Feather to 100 for really soft transitions. Using Temperature, match the light colour in the shot or make it warmer. Here, we opted to give the image some additional yellow, with a temperature of 48.

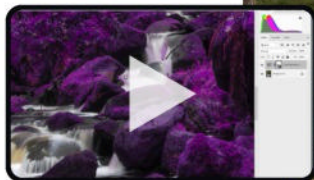


3 Tone Curve
Open the Tone Curve inside the Radial Gradient. Drag the leftmost point up. Looking at the Input/Output in the top left of the curve, go from 0/0 to 0/68, or similar. Click to create a second point about two-thirds of the way along and increase this.



4 Use de-Dehaze
You've added colour and tone, now it's time to soften the effect. Dehaze is normally used to remove haze but there is also a negative side to the slider, which softens the image where it's used. Bring this to -24.





WATCH THE VIDEO!



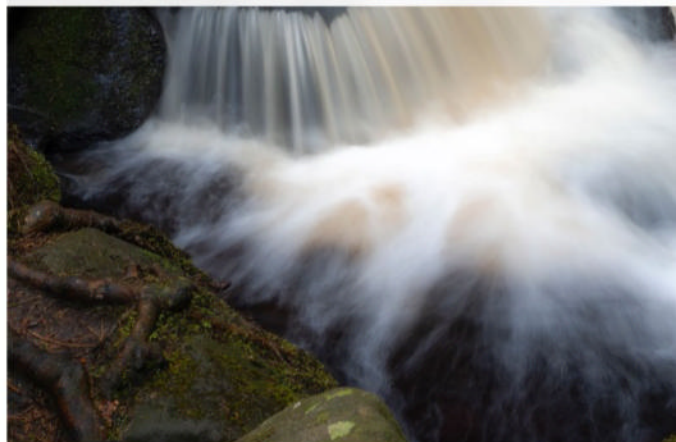
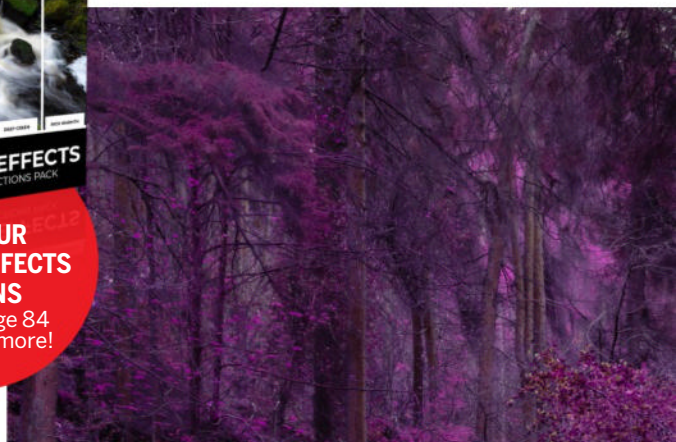
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GET YOUR FOLIAGE EFFECTS ACTIONS

Turn to page 84 to find out more!



Transform foliage with Hue/Saturation

Give your verdant landscape shots a visual makeover, transforming the mood of the image using only the yellow colour channel in Photoshop

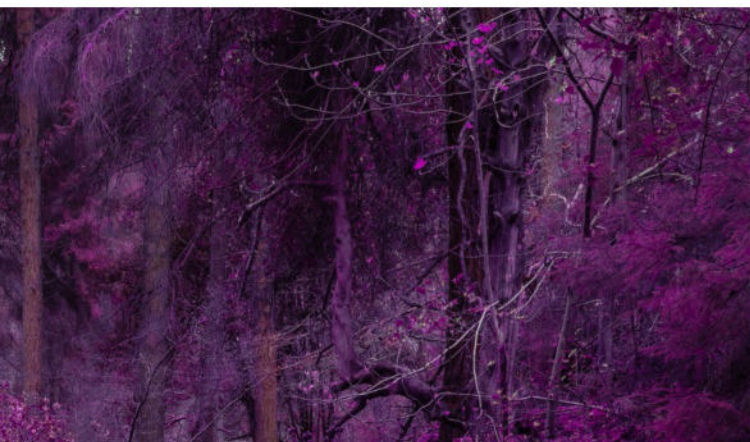


James Abbott

James is a professional photographer who specialises in landscape and portraits. He's an advanced Photoshop user and has created hundreds of tutorials.

Now that summer has come to an end and the colder months are upon us, getting out to shoot can be a battle with the weather. When the days are good, they can be amazing. But when it's grey and wet outside, getting down to some photo editing can be the perfect way to keep the creative juices flowing. And what better images to work on than those lush green spring and summer landscapes you shot a few months ago?

We're going to play with the Hue/Saturation Adjustment Layer to completely change the way that greens appear in the landscape. But contrary to expectation, it's the yellow rather than the green colour channel that plays the biggest role in adjusting foliage. From deepened natural colours to warmer tones and desaturation, plus a few surreal effects, we're going to look at how those simple sliders can make a huge difference to your landscape shots.



1

Try a surreal purple

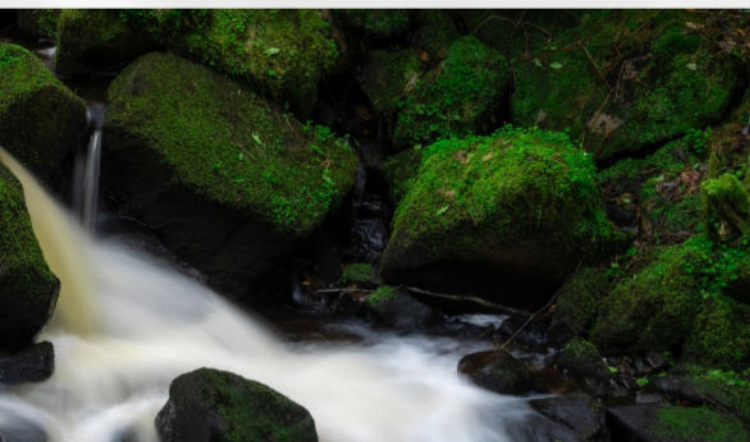
Click on the Create new fill or adjustment layer icon at the bottom of the Layers panel and select Hue/Saturation. When the dialog opens, click on the dropdown menu set to Master by default and select Yellows. Next, move the Hue slider to -135 to make the foliage purple, Saturation to +15 and Lightness to +10. If unwanted elements of the scene switch to purple, paint black on the Layer Mask to remove them and, if you make any mistakes, paint white over them.



2

Get moody

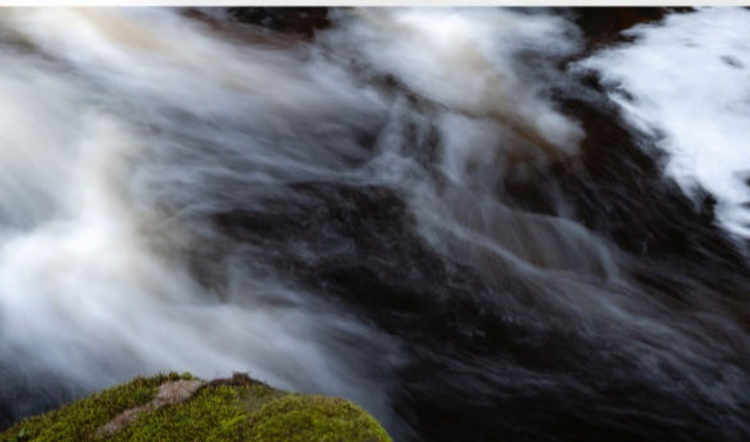
Create a Hue/Saturation Adjustment Layer and select the Yellows channel. Drag the Saturation slider to -60 to desaturate the foliage and the Lightness slider to -15 to darken slightly. If you have an image with lots of other colours present, you may decide to reduce the saturation or even increase it. To do this, switch to the corresponding colour channel and make the necessary adjustments. You could, of course, simply adjust the Yellows and leave everything else.



3

Make deeper greens

Create a Hue/Saturation Adjustment Layer and select the Yellows channel. Drag the Hue slider to +15 to add blue and the foliage will immediately deepen. Next, increase saturation to +5 for a slight boost, and reduce Lightness to -15 to maintain a natural look to the foliage. This technique alters the natural colour of the foliage, but in some cases, it can produce a more natural-looking result when the foliage has an overly warm and yellow tinge, such as in this scene.



4

Apply a rich warmth

Create a Hue/Saturation Adjustment Layer and select the Yellows channel. Drag the Hue slider to -5 to add more warmth to the foliage. The adjustment is incredibly small but it warms the image in a targeted way. Next, increase Saturation to +10 and reduce Lightness to -10. All of the amounts for each technique are a guide and generally work well, but you can also use them as a starting point for experimentation to create your own unique foliage colour effects.



THIS MONTH'S BONUS SOFTWARE EXTRAS

Improve your shots with 155 Actions and Presets

Transform your photos with our editing mega pack!
Download them all from: www.digitalcameraworld.com/dc276



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ISSUE 264



10 WINTER PROFILES
Camera Raw & Lightroom

ISSUE 264



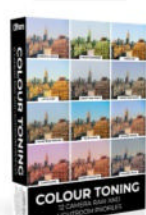
DRONE SHOTS PRESET
Lightroom

ISSUE 264



FOUR B&W ADJUSTMENT ACTIONS
Lightroom

ISSUE 265



12 COLOUR TONING PROFILES
Camera Raw & Lightroom

ISSUE 265



VIGNETTE WITH SUBJECT MASK PRESET
Lightroom

ISSUE 265



FOUR HUE/SATURATION ACTIONS
Photoshop

ISSUE 268



10 HAZE PRESETS
Camera Raw & Lightroom

ISSUE 268



FOUR HIGHLIGHT THE SUBJECT ACTIONS
Photoshop

ISSUE 268



CITY AT NIGHT PRESET
Lightroom

ISSUE 269



12 SHARPENING ACTIONS
Photoshop

ISSUE 269



WET PLATE PORTRAIT PRESET
Lightroom

ISSUE 269



FOUR SPRING & SUMMER COLOUR ACTIONS
Photoshop

ISSUE 272



15 SUNSET SKIES PACK
Photoshop

ISSUE 272



TWO MOODY SEASCAPES PRESETS
Lightroom

ISSUE 272



FOUR CURVES ACTIONS PACK
Photoshop

ISSUE 273



10 SCATTER BRUSHES PACK
Photoshop

ISSUE 273



TWO AUTUMN PRESETS
Lightroom

ISSUE 273



FOUR LAYER VISIBILITY ACTIONS
Photoshop

ISSUE 274



12 TONING PRESETS PACK
Lightroom

ISSUE 274



FOUR BLENDING MODES & ADJUSTMENT LAYER ACTIONS
Photoshop

ISSUE 274



VINTAGE POSTCARD PRESET
Lightroom

ISSUE 275



10 ADAPTIVE SKY PRESETS
Lightroom

ISSUE 275



FOUR BACKGROUND DUPLICATION ACTIONS
Photoshop

ISSUE 275



MILKY WAY PRESET
Lightroom

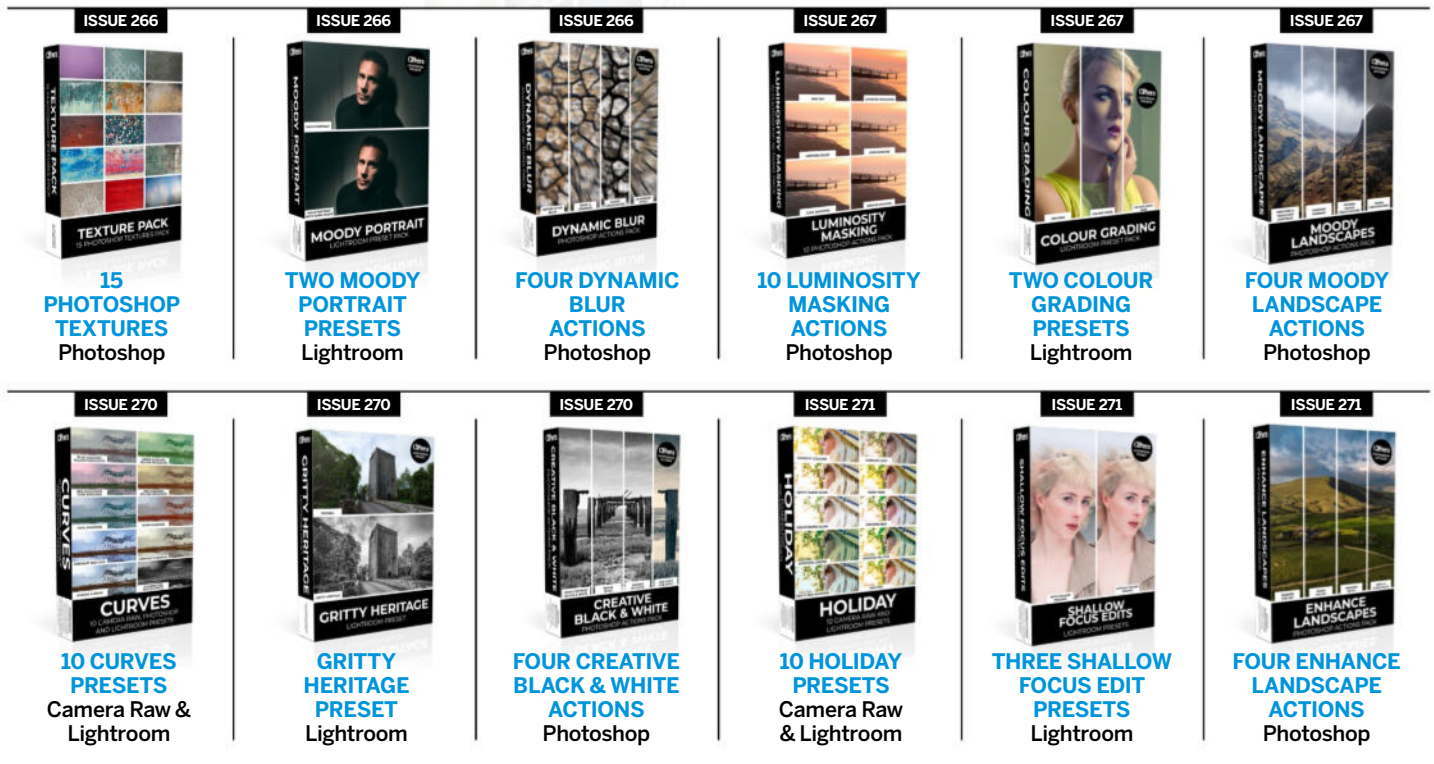
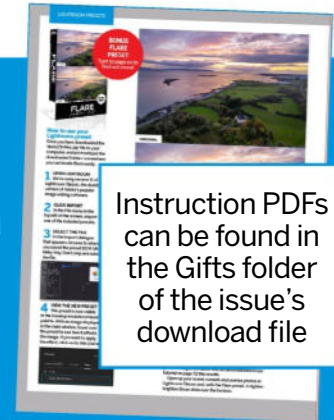
This month, we are giving away all 243 bonus software extras bundled with *Digital Camera* in 2023 – including a total of 155 presets and actions. Ready to use on all your images, these cover a wide range of genres, including astrophotography, portraits, landscapes and more, so whatever your style, there will be something for you to enjoy in our editing megapack.



How to use your software extras

Once you have downloaded the 'dcm276-files.zip' file to your computer, extract it and put the Actions and Presets folders where you can easily access them. These folders contain the files, PDFs and installation instructions.

Instruction PDFs can be found in the Gifts folder of the issue's download file



THIS ISSUE'S TUTORIAL PRESETS & ACTIONS

Once you have downloaded the 'dcm276-files.zip' file to your computer, extract it and put the Actions and Presets folders somewhere you can easily access them. These folders contain the files, PDFs and installation instructions.



10 BACKGROUND PRESETS

Software: Camera Raw

This pack of presets complements our Lens Blur tutorial on page 78.



FLARE PRESET

Software: Lightroom

Lens flare is something we try to avoid but, as seen in our tutorial on page 80, this preset will add an artistic flare effect.



FOLIAGE EFFECTS

Software: Photoshop

Actions are saved settings that are applied to your images. These four foliage effects can be seen in our tutorial on page 82.

Photo Answers



Andrew James

Andrew is a highly experienced writer and photographer – if you have a problem, he is here to help.

Irritated by image noise? Mixed up over memory cards? Send your technique and camera questions to digitalcamera@futurenet.com

How can noise be visible?

Q What is image noise and why do we call something we see noise, anyway?

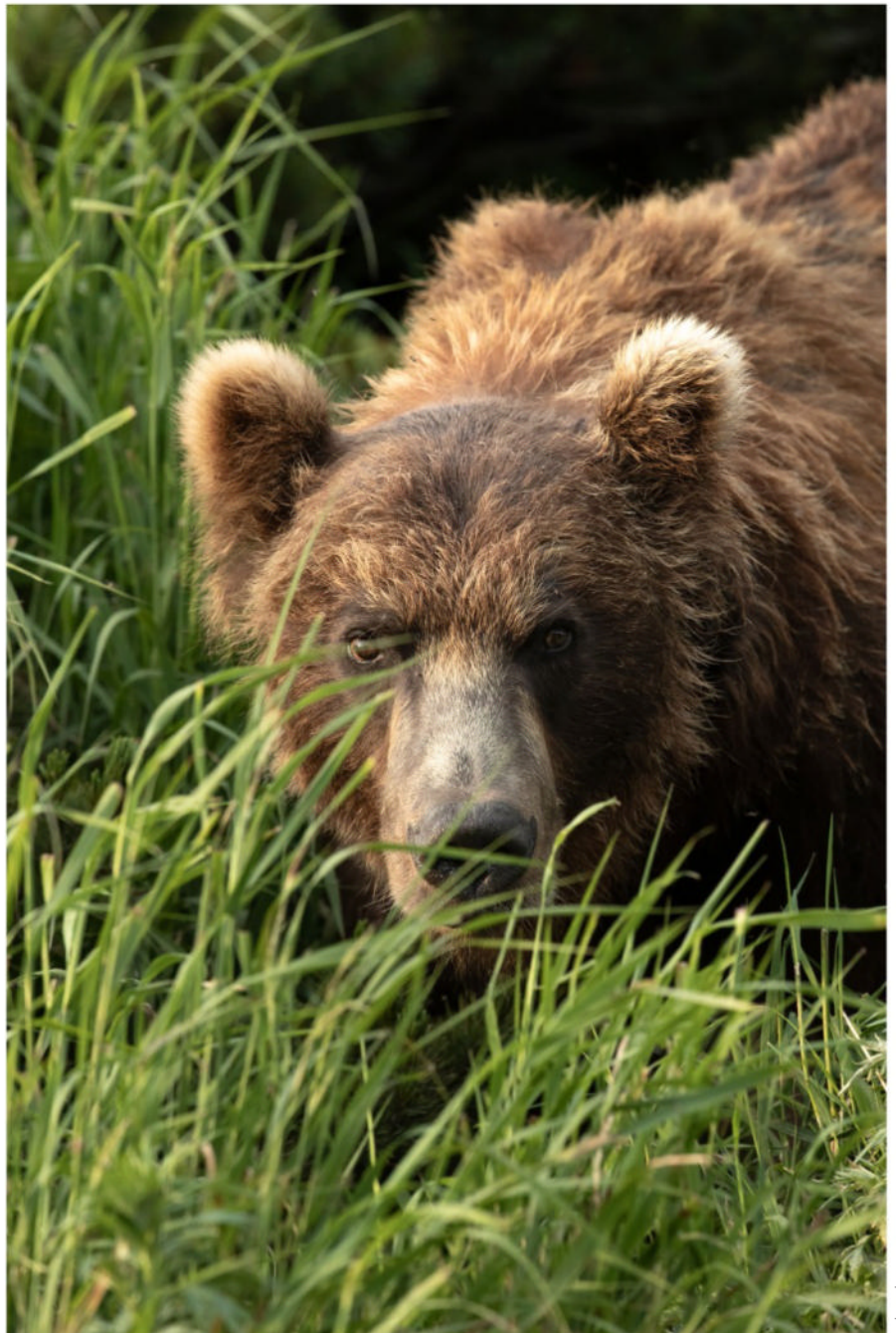
Tom Yeoman

A Noise is a strange term since we are talking about something you see rather than hear. However, any electronic equipment that records stills, videos or audio is trying to provide you with a perfect picture or sound. In most cases when there is lots of light or sound, this is achieved to an acceptable standard but the task becomes harder when there is lower light or a weaker signal and then noise creeps in.

The term is borrowed from audio – think of the crackle, hum and hiss of bad audio in a visual form and we get noise that you see, such as speckling and a lack of absolute sharpness that degrades the technical quality of the image. This mainly happens when we have to boost the 'signal' by increasing ISO. Larger sensors in full-frame DSLRs and mirrorless cameras have bigger photosites than smaller cameras and cameraphones, assuming the same pixel count.

Bigger photosites boast greater light-gathering ability, so you get improved signal and less noise. It's part of the reason why some cameras handle the noise generated at higher ISOs better. If the signal you're recording is good – in other words, you have lots of available light – then the noise is overpowered so it's invisible.

If the light is poor, making you increase the sensor's sensitivity by using a higher ISO, the noise also gets boosted and becomes visible. To reduce noise when shooting at a higher ISO, avoid underexposing an image and then thinking you can pull detail out of the shadows in post-processing. You might be able to recover some detail, but it often creates even uglier artefacts. Only shoot with as high an ISO as you need. So, don't shoot at ISO 6400 when 3200 will give you an acceptable exposure.



Andrew James

Shot at ISO 3200, this image has had no noise processed out. However, because it was taken on a full-frame camera and exposed correctly, the image noise is negligible.

Tech Check

Cross-processing

Cross-processing explained

What is cross-processing?

The term cross-processing dates back to the days of film and refers to a technique where you deliberately process a roll of exposed film in the wrong chemicals.

Why would you want to do that – and what was the result?

That depended on which film you put in which chemicals. For example, cross-processing C41 colour negative film in the chemicals for E6 slide film created a blueish, tonally subdued result. It wasn't particularly natural looking, but it became extremely popular as a creative effect, especially for portraiture.



Andrew James

Cross-processing refers to the technique of processing a roll of exposed film in the wrong chemicals for creative effect. It's easy to recreate the look in post-processing with Adobe Camera Raw or Lightroom Classic, using the red, green and blue channels in Tone Curve.

Do I need to use film to achieve this creative effect today?

No, it's easy to recreate the cross-processed look with digital post-processing in software such as Adobe Camera Raw or Lightroom Classic.

What's the quickest way?

There are various ways to do this, but the simplest method in Lightroom is to use the Tone Curve. Select each of the red, green and blue channels separately and play around with pushing and pulling them until you get an effect you like.

Is there a quick recipe I can try?

Drag the Red channel curve down so that the image becomes much bluer, then create a shallow S-curve in the green channel, before finally creating a reverse S-curve in the blue channel.

Does it work for every image?

You can play around with the colours for every image, but it doesn't always feel right. The only way to decide what you like is to cross-process a range of subjects and see the results.

Avoid shooting on rainy days?

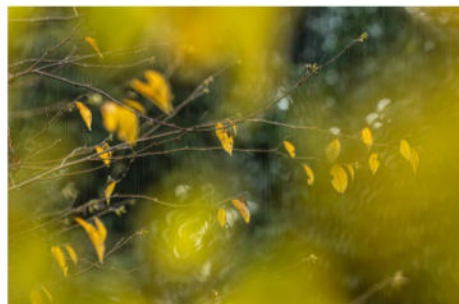
Q I never get my camera out in bad weather but saw several photographers shooting in my local nature reserve when it was raining. What am I missing?

Chrissie Thompson

A You're potentially missing a lot. I'm not suggesting that you rush out every time it rains, but sometimes rain can add to the mood of a scene by its effect on the subject or even by being visible in the shot itself.

This autumn, I was wandering around Westonbirt Arboretum with my camera. The morning was bright and dry and the afternoon was dull and damp. Both were enjoyable, but there's no doubt the rain substantially changed the scenes I was

Shooting on rainy days can produce a range of great scenes and colours, but take care not to expose your camera equipment to the rain.



Andrew James

finding. In the wet, leaves glistened on the ground, droplets of water formed on their tips and the colours I was seeing became more saturated. The only downside was there was less light, so I needed to be more careful with my photography as slower shutter speeds mean it's easy to blur an image when shooting handheld.

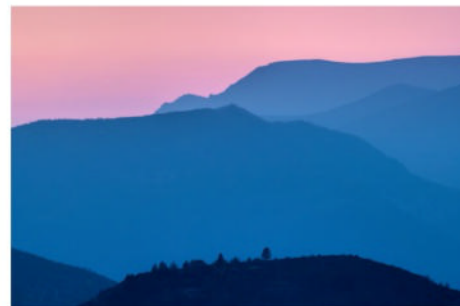
Of course, there is always a risk of getting rain on the camera and you do need to be careful because there are so many electronics in modern cameras that you want to avoid them getting soaked. Use a microfibre towel or purpose-made storm cover to keep them as dry as possible while shooting. I find keeping raindrops off the front element of the lens the biggest issue as this directly impacts image quality, but by making sure there is a lens hood attached, and regularly checking the glass is dry, this can be avoided. I always carry two lens cloths in case one gets too damp.

Twilight zone

Q Why is twilight a good time for landscape photography?

Todd Larkins

A Twilight is the time from the moment the sun has set until approximately 40 minutes afterwards, or at least until the sky has turned black. This is a specific period where light levels are rapidly dropping but there is still some ambient light available in the sky. Over the years, I've lost count of the times when I've seen



Andrew James

For many photographers, twilight is a great time to shoot, with a unique range of colours and tones, however, the dramatically falling light also brings some technical challenges.

photographers packing up and heading off as soon as the sun goes down, but this is sometimes when things get interesting.

However, dramatically falling light does present some photographic challenges. The main one is shutter speed because the low light makes them slower, so using a tripod and cable release to trigger your shots is a good idea. You also need to use white balance sensibly to make the most of the atmosphere. Switch off Auto WB, which will try to neutralise the tones you are getting and switch to Daylight WB. I find this gives me the most true-to-the-scene colour. Of course, by shooting raw, you can tweak the white balance afterwards if you want.

The shot here is a simple twilight landscape taken with the camera on a tripod. You just won't get these colours – a strong pink blush and the deep blue mountains behind – at any other time of day. Also, try mixing the artificial light of an urban landscape with the remaining ambient light in the sky. This is often the best time to shoot a city as the illuminated buildings become much more interesting.



Spot metering is used for good exposures in challenging lighting, such as a subject in the shade against a bright background.

Which metering mode?

Q My new Canon DSLR has many metering modes, but which one should I use?

Gregor Fredericks

A On most DSLRs and mirrorless cameras, there are at least three ways of taking a light reading: Multi-pattern, Centre-weighted, or Spot, although manufacturers refer to them differently. I'd suggest you use either Multi-pattern or Spot for most shooting.

Multi-pattern takes multiple light readings from the scene to work out the most likely exposure value in average conditions. On your Canon, it's called Evaluative and is the default metering mode. The camera doesn't

know what mood you want in the picture, so Multi-pattern metering won't always get it right and you'll often need to adjust exposure with Exposure Compensation. Spot allows you to take a reading from a specific area within a scene, meaning you can bypass what the camera 'thinks' is the correct exposure and make your own decisions based on how you want your shot to look.

For most photographers, spot metering is used in challenging lighting conditions, such as shooting a subject in the shade against a brighter background. If you spot meter from a midtone in the same shade as the subject's face, the brightness of the background will be ignored and bleached out, resulting in a good exposure of the subject's face. In tough lighting, spot metering is quicker and more reliable than other hit-and-hope methods. However, if used without care and attention, your exposures can become a bit erratic.



Speed matters

Q Does the speed of an SD card really matter?

Lola Castle

A Most modern SD cards can receive or transfer data quickly, and the kind of buffering we used to experience when shooting a rapid sequence of images is rare. That said, it's still best to buy the fastest you can afford. Of course, the issue is the faster you go, the more expensive the memory card becomes, so you might prefer to select something more tailored to your needs. If you're not shooting fast-action photography or high-resolution 4K video, you can opt for the cheaper end of what's available. However, if you shoot a lot of videos, it will be worth spending more for the fastest card you can get.

Layer retention?

Q Can I save a layered file I've worked on in Photoshop back into Lightroom and keep those adjustment layers?

James Masters

A Yes, as long as your Lightroom is set to save files as .psd. However, it's important to remember that if you choose to open that .psd from Lightroom back into Photoshop, to retain the Layers you have to choose Edit Original from the dialogue box that pops up. The downside is that if you did additional work in Lightroom and want to open it back into Photoshop, you either lose the Lightroom processing or the Layers, depending on which option you select.

Set Lightroom to save files as .psd and you can retain your Layers. When reopening it in Photoshop, choose the Edit Original option.



Image Rescue

Landscape rescue in Camera Raw

There is a stark and moody landscape shot hiding in this fairly bland raw file image, so let's try and bring it out.

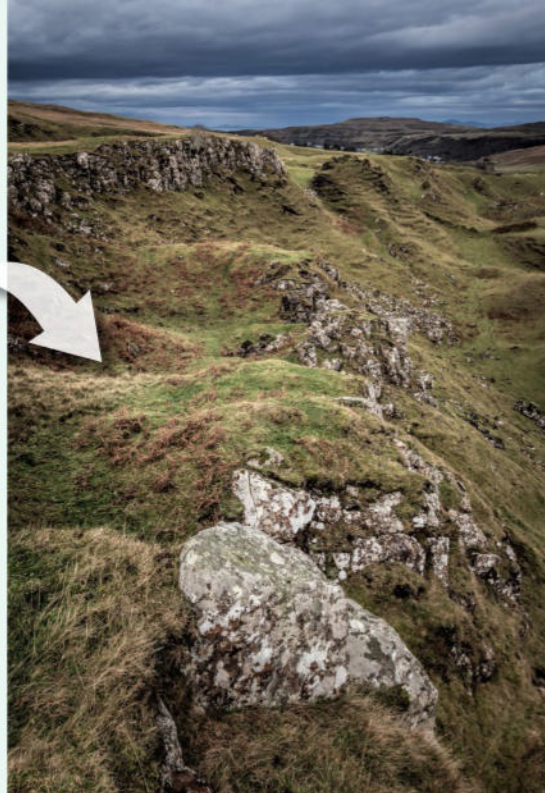
Using Adobe Camera Raw, we'll start by changing the composition. In the Transform Panel, let's scale the image up so that the foreground rock becomes more dominant and acts as an anchor **1**. Next, in the Masking panel, we'll choose the Select Sky option and then darken the whole of the sky area, moving the Exposure slider to -50 and boosting the Clarity to +20 **2**.

We also want to select the land area to make a few adjustments here. We can do this by selecting another Sky Mask and inverting it. Now, we can increase the Clarity and desaturate it a little to make

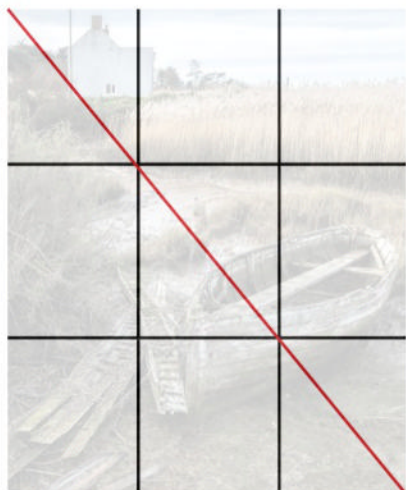


the whole area look more gritty. We also want to warm it up using the Temperature slider **3**.

To finish off, choose a Radial Gradient filter and draw an area over most of the image, leaving just the corners. Invert the Radial Gradient and darken the corners of the frame slightly with the Exposure slider to knit everything together **4**.



Andrew James



The key to composition

Q

What's the key to a good landscape photograph?

Keith Long

A

The key to a good image is in getting the composition right. Don't fret so much about technical aspects, such as hyperfocal distances; instead, concentrate on the arrangement of the shapes in the frame.

More often than not, it's what you leave out, either by using a different focal length or by moving your position, that will help you design your image better. Go out for a few hours and, rather than shooting everything you see, slow yourself down and challenge yourself to come home with one shot where you have really worked hard to create balance in your image.



Andrew James

In Focus

The latest photography news from around the globe



1 RF 24-105MM F2.8L IS USM Z
New hybrid optic for stills and video is priced for pros.

2 RF 200-800MM F6.3-9 IS USM
Offers a terrific reach but is also light and compact.

3 RF-S 10-18MM F4.5-6.3 IS STM
New zoom fills a gap in wide-angle RF-S lens offering.

Canon unveils trio of new lenses

RF 24-105mm F2.8L IS USM Z pushes the frontiers of lens design and is joined by the RF 200-800mm F6.3-9 IS USM and the RF-S 10-18mm F4.5-6.3 IS STM

When Canon launched its RF mirrorless mount in 2018, it promised that new and never-seen-before lenses would follow. It has made good on this by releasing a trio of new optics that straddle the photo and video camps. The **RF 24-105mm F2.8L IS USM Z** offers the kit lens-friendly focal range of 24-105mm but with a constant f/2.8 aperture – a photographer’s dream, according to Canon. The ‘Z’ in the title refers to ‘zoom’, which can also be applied smoothly via the optional PZ-E2 (£1,149/\$999) and PZ-E2B (£1,529/\$1,299) power zoom adapters.

Offering a 600mm difference in focal length from wide to telephoto, the **RF 200-800mm F6.3-9 IS USM** superzoom is designed for full-frame cameras and weighs just over 2kg. The third new lens is the **RF-S 10-18mm F4.5-6.3 IS STM**, which boosts the lineup of RF optics for APS-C bodies and is a compact wide-angle designed for photography and vlogging. www.canon.co.uk;
£3,440/\$2,999 (RF 24-105mm).
£2,300/\$1,899 (RF 200-800mm).
£380/\$329 (RF-S 10-18mm)



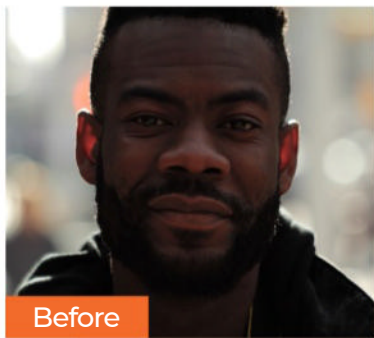
Sony's A9 III packs a punch for sports and action professionals and pushes the boundaries of tech.

A9 III: Sony breaks new ground

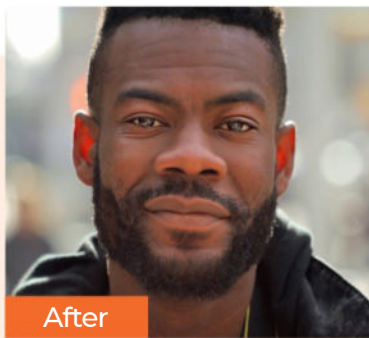
A new tool for sports photographers working at the top level of their field

Showcasing the latest killer camera tech ahead of the summer Olympics in Paris, the Sony A9 III offers sports and action professionals 24.6MP of resolution, captured via a full-frame global shutter. A 'transformative' new development, a global shutter exposes every frame on the sensor at the same time and banishes the distortion, flicker and banding

produced by conventional sensors when images are shot at high speed. Other top tech in the A9 III includes a maximum shutter speed of 1/80,000 sec, the ability to rattle off 120fps images at full 24.6MP resolution, in 14-bit jpeg and raw formats, up to eight stops of IBIS and phase-detection AF with 759/627 points (stills/video). www.sony.co.uk; £6,099/\$5,998 (body only)



Before



After

Radiant Photo goes mobile

Radiant: AI Photo & Video Editor builds on the desktop app and offers powerful tools in the palm of your hand

Regular readers may recall that we reviewed the AI-based image editor Radiant Photo in issue 262 (December 2022). Now the team is back with a mobile-first version of the software: Radiant: AI Photo & Video Editor. This new app for Android and iOS offers the convenience and power of the desktop-based software in the comfort of your hand.

The Radiant Photo app uses scene detection, smart presets, AI enhancement, tone, colour and details, plus optional portrait tools and colour grading, to transform the images in your phone's camera roll and sync with your computer. It will free you up to spend more time taking photos. radiantimaginglabs.com; free (Radiant Photo Mobile); \$4/m (Radiant Photo Mobile Pro)



Radiant Photo uses smart presets, AI enhancements, scene detection and colour grading to transform your images.



Photo by Fujifilm hits UK high streets
Fujifilm has refreshed its photo printing services across 150 independent UK retail partners. Fresh new exteriors will be rolled out, while inside, the latest tech will offer customers a selection of personalised photo gifts. www.fujifilm.com/uk



The Photography & Video Show 2024
Tickets are on sale now for this leading event, which returns to the NEC Birmingham on 16-19 March 2024. For more information, and to buy tickets, go to: bit.ly/dcm274tps2024



DxO updates PureRAW to version 3.7
While this noise reduction and lens correction software already works as an export plug-in for Lightroom Classic, PureRAW 3.7 allows processed images to be placed into any Lightroom Collection or within any Collection Set. www.dxo.com; £/\$ free (for PureRAW 3 users)



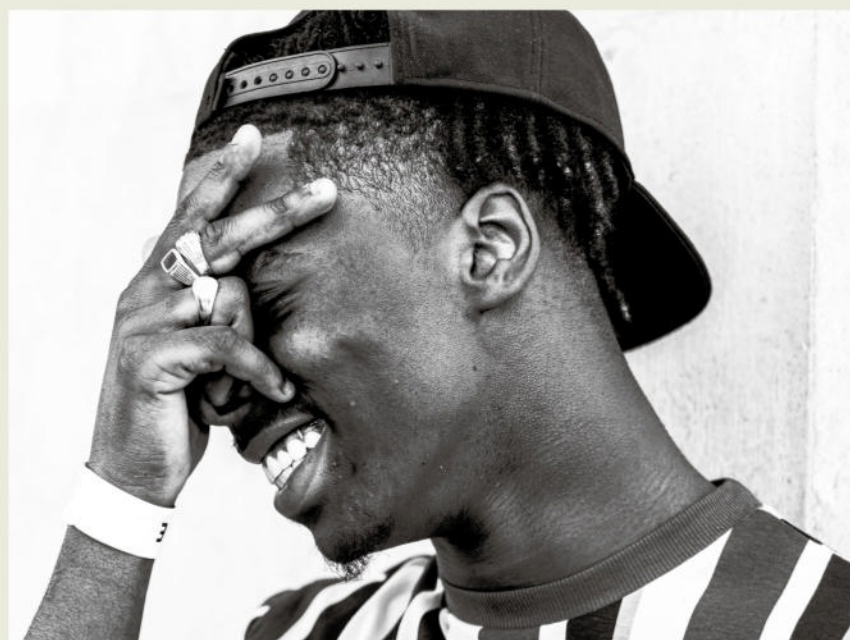
Behind the lens

BRIAN LLOYD DUCKETT

Street Photographer and author of *52 Assignments: Portrait Photography*

www.duckettphotographer.com

An editorial and commercial photographer, Duckett has worked for many leading newspapers and businesses, but his main passion is street photography. The principal and course tutor at Streetsnappers, a specialist in street photography workshops and tutorials in London and cities across Europe, Duckett has just published his second *52 Assignments* book for Ammonite Press.



Brian Lloyd Duckett

Above: Try incorporating gestures – they add emotion and drama to a portrait.
Below: A distinctive composition from a shoot with the owner of a classic car.

What first attracted you to photography, and which photographers inspired you when you were starting out?

I was lucky to have a great art teacher who inspired me from an early age. At school, I convinced myself that the guy with the camera around his neck would be more attractive to girls (not so, sadly). The people I really looked up to were the likes of David Bailey, Lord Snowdon, Norman Parkinson and Patrick Lichfield – all from that golden era in the 1960s and 70s. If I had to name one 'hero' from the past it would be David Bailey, whose irreverent approach chimed with me.

What's the main appeal of photographing people for you, and what makes a great portrait?

I shoot portraits commercially and also street photography, so people are always a big factor in my images. I see a portrait as a challenge – and I love challenges. It's a challenge to bring the best out in your subject, deciding on the right lighting and finding the right 'concept' that works for the shot.

With any great portrait, the first thing you look at is the lighting and the quality of light can make or break the image. And 'quality' of lighting doesn't mean 'sophistication': some of the best portraits use natural light or a one-light setup – it's more about creating the right feel by getting the light's direction, intensity and temperature correct.

Zooming out from that, what makes a great portrait photographer?

The ability to connect with your subjects, whether that's manipulating them to get what you want – or encouraging them to relax and be themselves. I always aim for a relaxed, comfortable and fun session to loosen up the subject and get them behaving normally rather than 'posing'.

When you're not shooting to a brief, how would you choose one of the creative options in your repertoire? Is it down to instinct and experience?

It comes down to instinct and my first instinct is to keep everything simple. If I don't already know the subject, I'll do as much research as I can to find out what makes them tick. This could help



Brian Lloyd Duckett

Left: Natural, unposed settings make lifestyle portraits authentic.

Below: Soft, natural outdoor light is ideal for portraiture.



Brian Lloyd Duckett



Brian Lloyd Duckett

give me a direction for the concept and it also gives us something to talk about at the shoot – finding common ground can help forge a good bond between photographer and subject.

Is studio lighting as scary to use as some people think?

Not at all, but it's easy to over-complicate things with lighting setups that are sophisticated beyond the needs of the job. I see beginners using three or four lights and I think 'Why?' You can achieve incredible results with just one light, which should always be your starting point, only adding more if it's absolutely necessary.

52 Assignments: Portrait Photography comes across as accessible and non-intimidating. Are you pleased with how the book has turned out?

I have a simplistic approach – shooting portraits should be fun for both

parties. My aim for this book was to go beyond 'This is how you do a three-light setup' and offer some alternative fun ideas. I also wanted to get across that there are many more ways to approach the subject than by sitting someone against a white background and shooting them with 'perfect' lighting.

Was it difficult to come up with the 52 assignments? Are they staples of the way you like to shoot?

It was certainly fun! I wanted to avoid the 'obvious' scenarios covered by other books and to offer some projects that are a little more off-the-wall. And this is often the starting point when I'm shooting: 'How can I do this differently?'

And which styles or techniques featured in the book do you find yourself returning to time and again?

Natural light is definitely my thing and I'll avoid artificial lighting wherever

“A portrait is a challenge – to bring out the best in a subject, decide on the right lighting and find a concept that works”

possible. I also shoot street portraits because my other job as a street photographer gives me lots of opportunities to engage with people on the street. I love the challenge of approaching strangers and walking away with a strong portrait. If I'm shooting commercially, my preference is always for natural light, whether outdoors or using window light.

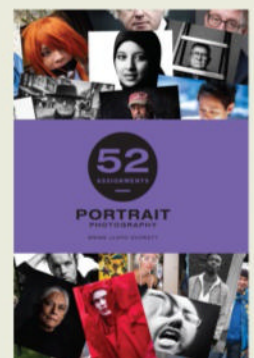
Your images all seem to be intimate – do you feel that's the case?

It's honestly not something I think about – though I hope the result reflects an intimate bond with the subject. Sometimes you have no time for intimacy, for example, when you have two minutes to shoot a portrait of a Prime Minister! But if you invest some effort into building a relationship with your subject, it usually pays dividends.

Can the techniques be tackled on a smartphone, using their clever tech?

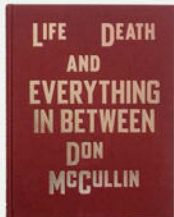
Absolutely, many of the techniques will work using a smartphone. Mobile technology has come a long way in the past few years and I've seen many striking portraits created on a phone. But there are limitations and a lack of control and it's perhaps not so easy to create the subtleties and the nuances you can with a 'proper' camera. ●

52 Assignments: Portrait Photography by Brian Lloyd Duckett is published by Ammonite Press (ISBN 978-1-78145-479-4) and is on sale now, priced £12.99/\$19.99. www.ammonitepress.com



2023's best photo books

Our highlights of the photo books published this year – and the ideal gifts to grace any photography lover's coffee table this festive season

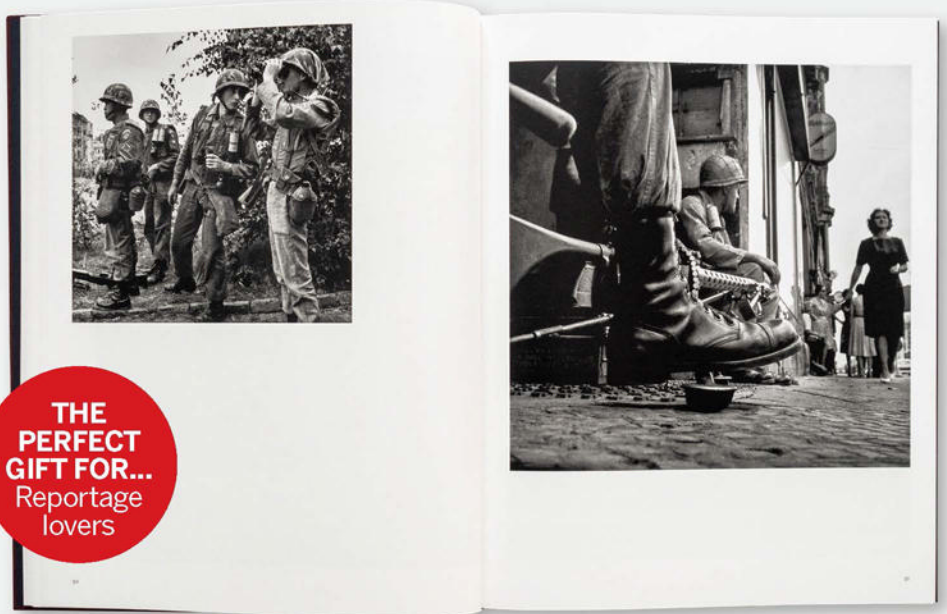


Life, Death and Everything in Between

£80/\$95
gostbooks.com

A new book celebrating the work of revered British photographer Don McCullin, *Life, Death and Everything in Between* showcases new and previously unseen work. Publisher Gost Books says that the new volume is neither a retrospective nor a definitive publication, but presents “a selection of images valued by McCullin with the benefits of both hindsight and wisdom, encapsulating his prolific, varied, and ongoing career.”

VERDICT From images of postwar London to recent works in the Middle East via his gritty war photos, this is a must for fans of McCullin's photography.



THE
PERFECT
GIFT FOR...
Reportage
lovers

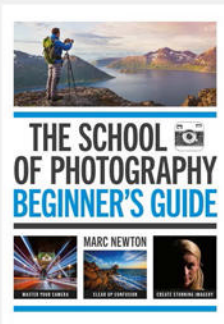


LPOTY Collection 16

£35/\$40
www.illex.press

The 16th edition of the Landscape Photographer of the Year book proves that this is the competition to win if you're serious about shooting scenics. The latest collection of winning entries is a visual treat for followers of landscape photography.

VERDICT Keep your LPOTY books set up to date with another superb set of landscape photos to explore.



The School of Photography Beginner's Guide

£19.99/\$24.99
www.octopusbooks.co.uk

Could this be the best photo technique book published in 2023? TSoP founder Marc Newton takes the reader through the basics of photography.

VERDICT An excellent photography primer that eschews slabs of text for an easy-to-follow visual approach.

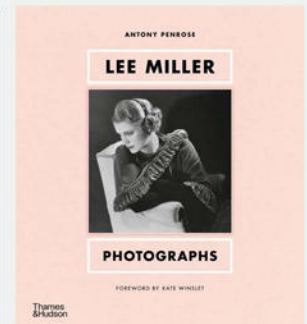


Tokyo Unseen

£19.95/\$45
www.teneues.com

Another volume in this 'unseen cities' series from teNeues, Lukasz Palka takes the reader on a tour of one of the most intriguing and captivating places on earth. A riot of modernity and kinetic energy that's home to 14 million people, Palka still manages to capture moments of calm and reflection away from all the bustle.

VERDICT Straddling the genres of street and urban photography, this is a fascinating document of Tokyo.



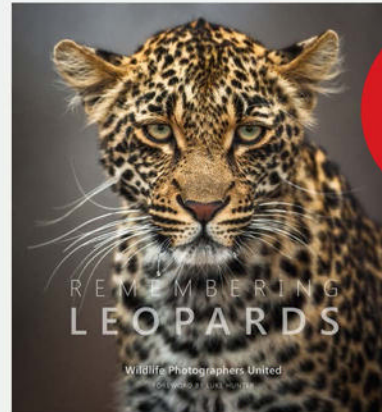
Lee Miller: Photographs

£30/\$45
thamesandhudson.com

Over model turned fashion and war photographer, Lee Miller had an extraordinary life. Introduced to photography by her father, she turned to the medium after studying art. This collection of her work comprises 100 photos taken between 1930 and 1953.

VERDICT Showcases the breadth of Miller's oeuvre – there's something here for all photographers to savour.

Marius Coetzee



THE PERFECT GIFT FOR... Wildlife lovers

Remembering Leopards

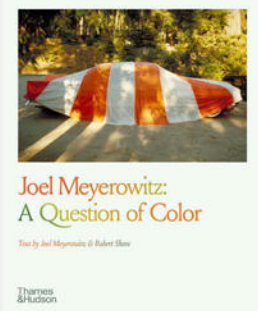
£49.50/\$60

buyrememberingwildlife.com

Remembering Leopards is the eighth book in the Remembering Wildlife series and celebrates the beauty and wonder of this elusive and endangered big cat. Eight sub-species of leopard appear over the 196 pages of this hardback book, including African, Indian, Sri Lankan, clouded and snow leopards. High production values show the photos at their best and profits from the book will support various leopard conservation efforts around the world.

VERDICT This is a visual treat for leopard lovers and also a must-buy book for wildlife enthusiasts looking to do their bit for conservation.

Steve Winter



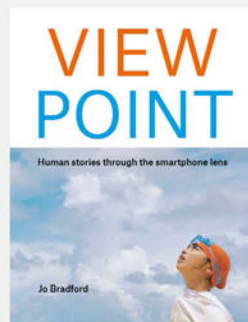
Joel Meyerowitz: A Question of Color

£20/\$27.95

thamesandhudson.com

We take colour photography for granted these days, but it wasn't always so. In this book, a photography legend makes the case for equal billing for colour.

VERDICT A compelling and well-argued case for colour from a leading exponent of the form.



ViewPoint

£30/\$39.99

www.ilex.press

Subtitled *Human Stories through the Smartphone Lens*, occasional *Digital Camera* contributor Jo Bradford has compiled a volume of human stories told through the medium of smartphone photography. Bradford interviews 54 people about their lives and photography, each of whom describes the images they supply.

VERDICT A wide-ranging survey of photos from around the world, and a real insight into the image makers.



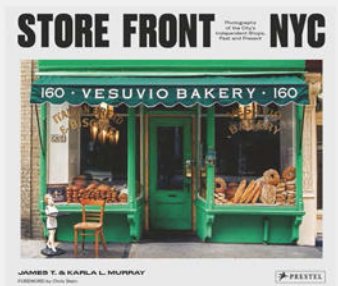
David Hurn: Photographs 1955-2020

£60/\$85

www.rrbphotobooks.com

Hurn is a bona fide great of documentary photography and this new book features famous photos as well as lesser-known ones. 129 black and white pictures, taken around the world, appear with explanatory notes.

VERDICT An essential collection of Hurn's 'non-fiction' photography from one of the masters of the craft.



Store Front NYC

£28.60/\$40

www.penguinrandomhouse.com

Over two decades, the photographers James and Karla Murray captured frontages of 'mom-and-pop' shops in New York City. Many have now been lost to development, so *Store Front NYC* freezes slices of time in the evolution of a city. With this second volume on shopfronts, the Murrays have created something special.

VERDICT An exploration of local communities in NYC and the small businesses that serve them.



James Artaius

Global shutter technology is at the core of the new Sony A9 III (see p91), which has been released in time for next year's Olympics – exciting times!

Scanning ahead...

It's an Olympic year and **Jon Devo** is excited about the advances in camera tech it brings



Jon Devo
[instagram.com/gadgetsjon](https://www.instagram.com/gadgetsjon)

Jon is a professional photographer, videographer and technology journalist.

The year 2024 is upon us and I've been looking forward to it for a long time. Why have I been so excited, you may ask? It's

because 2024 is an Olympic year, which is always a big deal for the camera world and also for the wider technology world. Both Olympic games and World Cup years tend to herald the largest leaps in camera specs and features, as well as screen technology, because the games are the perfect opportunity for brands to show off what their kit is capable of.

Some of the most significant camera releases in terms of pushing technological boundaries have been released in the run-up to – or in the year of – global sporting events, including: the Canon EOS-1D X (2012), Canon EOS-1D X II (2016), Canon EOS R (2018), the Nikon D3 (2008), Nikon D4 (2012), Nikon D5 (2016), the Fujifilm X-T4 (2020) and the Sony Alpha A1 (2021).

This year, the digital camera world welcomes the headline-grabbing Sony A9 III, the world's first hybrid full-frame stacked CMOS camera (that's a lot of qualifiers) to feature global shutter technology. But what is a global shutter and why do Sony and its many fans believe that this development is a 'game changer'? Will we see a trend of global shutter cameras coming in 2024 and beyond? Let's take a quick scan ahead.

A global shutter sensor is capable of reading all the pixels in its array at the same time. This eliminates visual imperfections such as the rolling shutter or jello effect from video. It also prevents distortion, banding and LED/light flicker from ruining shots captured of fast-moving action, crucially helping to deliver better images when capturing sports events. This development going mainstream means flash sync speeds beyond anything that was previously capable, burst rates with full autofocus that defy logic and no more pesky banding lines when capturing images indoors with flickering lights.

But global shutter technology isn't new; many high-end cinema cameras use global shutters already. In fact, the first 'global shutter' sensors were introduced by Kodak in the 1970s, they were charged-couple device (CCD) sensors. Despite their technological

advantages, CCD sensors struggled to compete with the more common CMOS sensors due to cost and availability.

In 2018, Panasonic announced the world's first global shutter CMOS sensor. Its Organic-Photoconductive-Film (OPF) CMOS Image Sensor could deliver 8K resolution (36MP) with a maximum frame rate of 60fps and even had an electronically controlled variable ND-filter system.

Mind blown? Well, it shouldn't be. Many of the biggest developments in camera technology are many years in the making. The fact that we're only seeing global shutter sensor technology coming to hybrid cameras like the Sony A9 III now is a sign that the benefits are starting to outweigh the trade-offs that have to be made to implement it. Some of these include cost, of course, but they also currently see a reduction in dynamic range and noise handling capabilities compared with CMOS sensors at this stage.

However, now that Sony has fired the starting gun and you're aware that Panasonic is also developing the technology, it's only a matter of time before global shutters become as ubiquitous as silent shutters have been over the past few years. I can't wait for Paris 2024 – I love Olympic years, what a time to be a photographer! ●

“Will we see a trend of global shutter cameras coming in 2024 and beyond?”

KitZone

New gear, buying tips and the world's toughest tests



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Nikon Z f _ Old-school looks with cutting-edge tech lurking inside



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OM System Tough TG-7 _ Robust compact gets an update for 2023



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Nikkor Z 135mm f/1.8 S Plena _ New prime for lovers of bokeh



108

Sigma 60-600mm F4.5-6.3 DG DN OS | S _ Monster super-tele



S

surely one of the most exciting camera launches of the year, Nikon expands its retro-styled range of mirrorless cameras by adding a full-frame model, the Z f. Perhaps by testing the water with the crop-sensor Z fc, which has apparently done well for the Big N, the logical next step was to release a body with a larger sensor.

While the Z f's design harks back to the Nikon FM2 film camera, there's nothing dated about the tech inside, much of which comes from the highly regarded Z 8 and Z 9. So how does the Z f perform in real-world

testing? Turn the page to find out. Also tested this month – and dropped in a glass of water to check its body sealing – is the OM System Tough TG-7. This is the successor to the TG-6 compact and carries the branding of the company that was formerly known as Olympus. Check the TG-7's robustness credentials on page 102.

Plus, we put a new Nikon prime for portraiture through its paces, as well as a Sigma super-telephoto for DSLRs that has now been ported to mirrorless cameras, for the Leica L- and Sony E-mounts.

Niall Hampton



NEW: CAMERA BUYER'S GUIDE
DSLR & mirrorless models, plus best-buy products
PAGE 111

The awards bestowed by the Digital Camera lab...



Given to the top product in a group test



For products that receive five stars overall



Given to products that offer superb value for money

Ratings explained

- ★★★★★ Best in class
- ★★★★☆ Excellent
- ★★★☆☆ Good
- ★★☆☆☆ So-so
- ★☆☆☆☆ Poor

All products reviewed in KitZone are tested independently by photographers with years of experience, using lab and real-world testing

Mirrorless Nikon Z f



1 The camera body has a leather-like textured finish that adds to the overall retro charm.

2 The 24.5MP full-frame sensor has a total of 299 autofocus points spread over the entire image frame.

3 The grip is a shallow bump and not nearly as deep as those on a traditional DSLR.

Nikon Z f

£2,299/\$1999 (body only)

Nikon's latest attempt to revive the days of film doubles down on retro charm, but it has the quality to back it up

www.nikon.co.uk

Specifications

Sensor: 24.5MP CMOS full-frame Nikon FX
AF points: 299, 89% x 96% coverage, -10EV
ISO range: 50-64,000 (204,800)
Max image size: 6048 x 4032px
Image stabilisation: Up to 8 stops
Max burst: 7.8fps RAW/JPEG, 30fps JPEG
Video: 4K 60p, 4K 30p, FHD 120p
Viewfinder: 3690k-dot (Quad VGA) OLED
Rear LCD: 3.2-in 2100k-dot vari-angle TFT touch-sensitive LCD
Memory card: 1 x UHS-II SD, 1 x microSD
Connectivity: USB-C, Micro HDMI, mic, headphone, Wi-Fi, Bluetooth
Power: EN-EL15c rechargeable Li-ion
Size (W x H x D): 144 x 103 x 49mm
Weight: 710g (incl battery and memory card)

The Nikon Z f isn't the manufacturer's first attempt at reviving the style of film cameras for the digital age. The Nikon D f arrived in 2013 but failed to garner any sequels. Nikon dipped its toe in the water again in 2021, with the Nikon Z fc and got a different reaction. Nikon claimed that demand for the Z fc far exceeded its expectations, showing that there was a serious appetite for cameras with a vintage aesthetic.

The Nikon Z fc was universally well received; we gave it a near-perfect score, enamoured with its vintage looks but criticising its build quality and ergonomics. However, after the release of the Z fc, users demanded a full-frame version with the same classic styling, so it was inevitable that Nikon would deliver just that.

With the release of the Nikon Z f, it appears that Nikon is fully on board the vintage-inspired camera train – the Z f is a full-frame version of

the Z fc that is the true digital successor to the classic Nikon FM2 film camera. Nikon is hoping to answer the criticisms levelled at the Z fc with the considerably more expensive and larger Nikon Z f, but has it done enough to make this the perfect camera for vintage enthusiasts?

Key features

Despite its retro exterior, the Nikon Z f features the latest advancements from the company's flagship models, the Nikon Z 8 and Z 9. Core features include a 24.5MP full-frame sensor, powered by the Expeed 7 processor, which boosts autofocus performance, expands file format options, improves in-camera stabilisation and provides exceptional low-light capabilities with an ISO range of up to 64,000.

The Nikon Z f boasts the same impressive autofocus system as the Z 8 and Z 9, equipped with 299 focus points that cover a substantial part of the sensor area. This system is adept



4

The viewfinder on the Nikon Z f is a joy to use – big and clear with a sharp resolution.

7

The Z f offers 4K video recording capabilities, and records continuously for up to 125 minutes.

5

The body is exceptional quality with a solid magnesium alloy body and brass dials.

8

Along the top, there are dials for setting shutter speed, ISO and exposure compensation.

6

The rear LCD is fully articulating rather than tilting as seen on cameras such as the Z 6II.

9

The LCD screen on the top plate is limited to showing the aperture, set on the front command dial.



Gareth Bevan

With its respectable specifications, the Z f is a decent video camera for anyone creating content for YouTube.

an optional grip from Smallrig – an admission by Nikon, perhaps, that ergonomics were compromised to get the classic look.

For a full vintage effect, the camera has dials and switches galore, with dials for shutter speed, ISO, and exposure. The aperture is controlled using the front wheel and is displayed on the small display up top, which is thankfully larger and easier to read than the dial on the Z fc. There is also a switch to flick from stills to video and from colour to monochrome as well as through the different shooting modes. The shutter button on the Z f is frustratingly sensitive, so you may end up taking shots of the ground or before the camera has focused.

The Nikon Z f isn't all vintage; there are a few modern twists as well. It has a fully articulated screen on the rear, so you can vlog or shoot from awkward angles, however, the hinge sticks out awkwardly and the screen does not fold flush against the back of the camera. There are all the modern ports present for charging the battery in-camera via USB-C or connecting headphones or microphones. →

at subject tracking, including human faces and eyes, animals, birds and vehicles, ensuring precision even in shooting conditions as dark as -10EV.

Unique to the Nikon Z f is the introduction of subject detection algorithms that function seamlessly in manual focus mode or when using adapted manual-focus lenses, enhancing exposure accuracy based on recognising the subject.

The Nikon Z f is capable of up to eight stops of image stabilisation with compatible lenses and offers pixel shift imaging, which combines multiple shots to create higher-resolution images. It also introduces the Focus Point VR system, employing the camera's focus point to enhance in-body image stabilisation.

For videographers, the Nikon Z f offers versatile video recording capabilities, supporting 4K video at various frame rates (60p, 30p, 24p) and Full HD up to 120p. Video enthusiasts will appreciate features

such as focus peaking, zebra stripes, waveform display in Live View, fine ISO control and an enhanced video information display. The camera can record continuously for up to 125 minutes, making it a viable choice for extended video projects.

Build and handling

If you're a fan of vintage-style cameras like the Nikon FM2, you will like the Nikon Z f. The body is exceptional quality with a solid magnesium alloy body and brass dials that not only feel much more secure than the Z fc but will also wear with use the same as vintage cameras from the past.

Some may dismiss it as a 'hipster' camera, but if you are the type of photographer who cares about your gear, why wouldn't you want it to look this good? The downside of those stunning looks is that the camera is heavy and has practically no grip, making it uncomfortable to hold. The camera was launched alongside

Mirrorless Nikon Z f



With its 25MP sensor, the images from the Z f are pleasing, reliably solid and large enough to produce images for most purposes, including professional work for weddings or portraits.

The viewfinder on the Nikon Z f is a joy to use – big and clear with a sharp resolution. I tended to flip the screen and compose images using the viewfinder for the full film camera effect. There is a small rubber ring around the eyepiece which makes it more comfortable to use, but also attracts a lot of lint.

An odd addition to the Nikon Z f is its microSD card slot, which sits alongside the SD UHS-II slot. MicroSD isn't fast enough for many of the camera's applications, like 4K video or fast burst rates, so two SD card slots would have been better. One downside to Nikon's vintage-inspired cameras is that there are few lenses designed to match. Unlike Fujifilm or Olympus rivals, where lenses work on all body styles, most Nikon Z lenses are styled to match the modern Z system cameras.

Currently, there are only three lenses that complete the look of your Nikon Z f and while you can, of course, use any Nikon lens on the Z f via the FTZ adapter, some may struggle to buy into a vintage design without the lenses to match. This split has led to issues like the retro-inspired Nikon lenses bafflingly not having aperture rings. When such careful consideration has been taken to offer the most film-camera-like experience possible in the Z f body, that seems like an odd choice.

Performance

With likely the same sensor as the Nikon Z 6 II, images from the Z f are reliably solid and 25MP is large enough to produce pleasing images for almost any purpose, including professional work for weddings or portraits. Image resolution is great; I was limited to the



Gareth Bevan

The dynamic range is impressive, with backlit scenes producing lots of detail in the shadows without blowing out the highlights.

Nikon 40mm lens for my testing but more premium lenses will likely produce even more impressive results.

The Expeed 7 processor inside the Nikon Z f means this camera is the closest you can get to a Nikon Z 6 III or Z 7 III right now. The Z f inherits the autofocus powers from the Nikon Z 8 and Z 9, which means it is much better at tracking subjects. In my experience, it's not up to the level of Sony or Canon.

The processor handled noise well, with camera noise well controlled and unnoticeable until upwards of 6400, and usable until around 12800. The dynamic range is also impressive, with strongly backlit scenes still producing lots of detail in the shadows without completely blowing out the highlights.

One quirk I noticed occasionally when shooting on full Auto settings, was that the camera would make some surprising choices – either a much faster shutter speed than necessary, therefore cranking the ISO high to compensate or, at the opposite end of the scale, not pumping the ISO which meant the shutter speed was low.

Image stabilisation in the Z f is excellent. I could comfortably get handheld shots down to around 1/15 sec in low light with no blur from my hands shaking, although your success will depend on your own stability.

Having black and white as a dedicated position on the mode switch wasn't initially something I thought I would need; however, I found myself flicking the camera into monochrome mode much more than I anticipated. Having the mode on the dial removed the inertia of having to dig into a menu, and resulted in me shooting more in both colour and black and white.

The black-and-white conversion in-camera is well handled. I find the contrast is spot on in the default mode,

Rival cameras



Canon EOS R6 Mark II
£2,779/\$3,599

A hybrid camera that packs some firepower, with 24.2MP stills at 40fps and up to 6K video, plus AF detection for trains, planes and horses. Reviewed: issue 264



Fujifilm X-T5
£1,699/\$1,699

Takes the X-T4 further in terms of resolution but is ideal for those who want a lightweight camera with traditional controls and a 40.2MP resolution. Reviewed: issue 263



Nikon Z fc
£899/\$957

This DX-format Z camera is a pleasure to operate and captures quality images to boot. Matching 'SE' lenses complement its good looks. Reviewed: issue 247



Nikon Z f Mirrorless



Gareth Bevan

In keeping with the Nikon Z f's retro film credentials, a dedicated B&W switch sits below the shutter speed dial and allows you to quickly switch over to monochrome shooting.



Gareth Bevan

The image processor handles noise well – we found noise well controlled and virtually unnoticeable until upwards of ISO 6400, and usable until we reached around 12,800.

but there are also hard and soft contrast options depending on your style. As this is just a conversion, you can also go into the raw file and restore the monochrome NEF file to its full-colour glory, making the decision to swap into B&W mode less final for scenes you aren't sure about.

The Nikon Z f also makes a decent video camera. While it isn't being positioned as a true filmmaker's camera, it has respectable video specs and it looks like a capable camera for anyone creating video content for YouTube or social media. With a fully articulating screen, the camera is also a great choice for vloggers.

The camera can shoot in 4K up to 60p, although if you drop down to 30p, the Z f oversamples 6K footage for better quality. The Z f also packs in up to eight stops of in-body image stabilisation with compatible lenses, and I was able to produce some pretty smooth footage while panning. For walking movement, the stabilisation

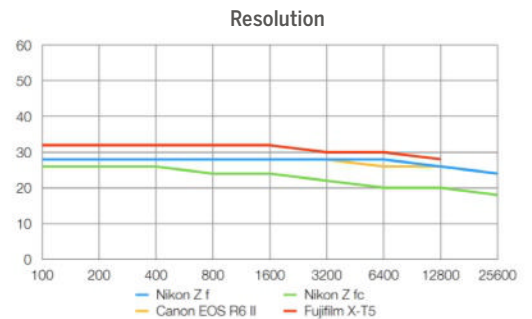
struggled, so you may want to invest in a gimbal for action shots.

Left to its own devices the focus can be a little slow to adjust to changes, and sometimes the camera just wouldn't refocus automatically despite a change in subject. A quick tap on the screen rectified this, but other camera systems seem a little faster and more willing to swap focus. **Gareth Bevan**

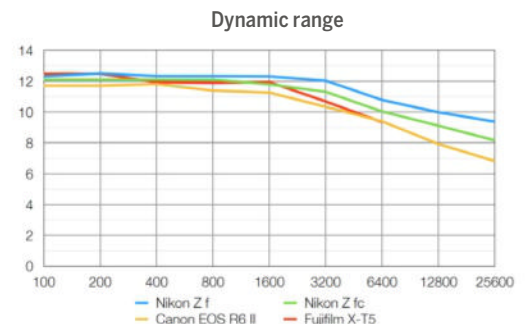


The Nikon Z f has a fully articulated screen to allow you to vlog or shoot from awkward angles. But for a more realistic film experience, you can use the viewfinder.

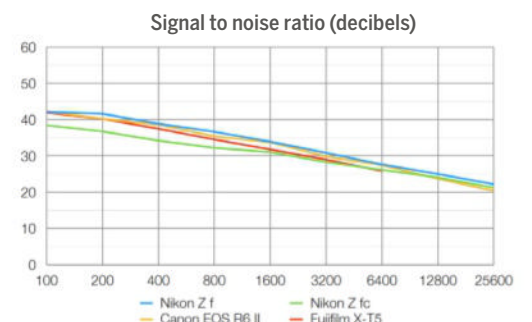
Lab tests



The Z f ties with the Canon EOS R6 II for detail, as both share a near-identical megapixel count. Despite its smaller sensor size, the 40MP Fujifilm X-T5 beats the full-frame cameras here for capturing fine detail.



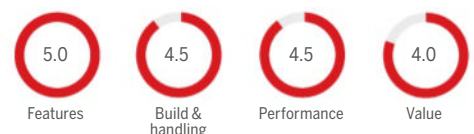
The Z f captures excellent dynamic range. At low to mid sensitivities it's better than the Z fc and X-T5, but increase the ISO and the full-frame Z f pulls ahead, capturing up to 2 EV more than the EOS R6 II.



The Z f produces a similar degree of image noise to the EOS R6 II and X-T5, and shows this all the way through the tested ISO range.

Digital Camera verdict

4.5 ★★★★★ Outstanding



The Nikon Z f is sure to stir a wave of nostalgia for film but its beauty comes at the cost of ergonomics and a lack of vintage-style lenses for the Z mount spoils the aesthetic. However, the Z f is the closest thing to a Z 6 III right now, offering better AF and subject tracking, as well as solid video performance. This is the vintage-inspired Nikon we've waited for.

Compact OM System Tough TG-7



- 1** The grip on the front and the thumb rest on the back both have textured grooves to improve handling.
- 2** The lens is made of ultra-tough material but you can also mount OM's iris lens.
- 3** The camera's LED light can be switched to emit a continuous light that's ideal if a flash is too intrusive.

OM System Tough TG-7

£500/\$550

This compact really is tough enough to handle anything

www.omsystem.com

Specifications

Image sensor: 12MP 1/2.33in CMOS
Processor: TruePic VIII
Lens: 25-100mm (full-frame equivalent) f/2.0-4.9
Autofocus: TTL iESP contrast detect
Stabilisation: Electronic (Movie IS)
ISO: 100-12,800
Burst shooting: 20fps (Pro Capture 10fps)
Buffer: 46 (raw)/74 (jpeg)
Video: 4K 30p, Full HD 120p, HD 240p, SD 480p (29m59s limit)
Vertical video: Yes
Screen: 3.0 inch LCD, 1.04m-dot
Battery: LI-92B Lithium-ion Battery
Size: (W x D x H) 113.9 x 32.7 x 65.8mm
Weight: 249g (incl battery and memory card)



Yeah, that picture on the following spread? That's the OM System Tough TG-7 sitting in a glass of water, with a cat taking a drink for good measure. Why? Well, why not? After all, the camera is waterproof – and I mean, seriously waterproof. Not waterproof like an iPhone, where you're scared to take it into water because it can get damaged by anything from the pressure in a shower head to the salt in seawater. No, the OM System Tough TG-7 is *properly* waterproof. So, there it is – just chilling in a glass of water while I write this review.

The OM System Tough TG-7 is a compact camera with a difference: it's waterproof, shockproof and freezeproof. It has a GPS as part of a full Field Sensor System that records things like the temperature as well as altitude. That's ideal for recording precisely what the conditions are if you're doing something like scaling Everest. Or to see how hot it was on the day you took a photo or what altitude the plane was flying at when you took a video of yourself skydiving.

The OM System Tough TG-7 does so much more than that... but, crucially, not much more than its predecessor. So how good is the TG-7 and, if you already own the Olympus Tough TG-6, would it be enough to merit an upgrade?

Key features

Let's start with the crucial stuff: just how 'everything-proof' is this camera? It's waterproof to 15m (50ft), which is as deep as five Olympic swimming pools, it's also freezeproof to -10C (14°F), which is around the average temperature in Siberia at this time of year. It's shockproof to drops from 2.1m (7ft), so would be able to survive falling off Shaquille O'Neal's head, and it's crushproof to 100kg (220lbs), which is the equivalent of being trodden on by a giant panda.

It also has a full Field Sensor system, which records GPS (location), thermometer (air and water temperature), manometer/barometer (altitude and water depth) and compass (direction of filming) data with your images and videos. This is ideal for

OM System Tough TG-7 Compact



4

The rear screen isn't touch control, but colour is better than the TG-6.

7

The doors over the card slots are well protected with rubber seals.

5

The mode dial offers Auto, Aperture Priority and Program modes.

8

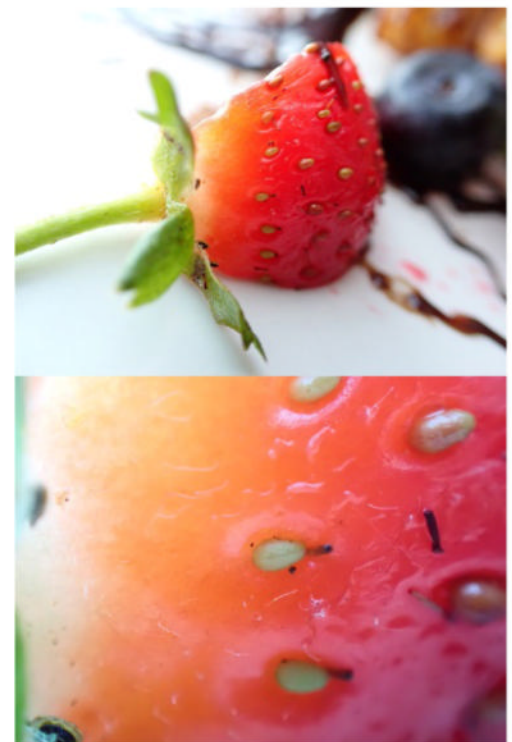
The lever in front of the shutter zooms in or out, including in macro mode.

6

This switch can quickly toggle Log mode to record environmental info.

9

The control wheel can be toggled between aperture and shutter modes.



The TG-7's great macro performance is a huge bonus, giving you the ability to get close to small creatures you spot while snorkelling or out on a hike, for example.

Less protected is the camera lens itself, although like the rear LCD, it's made of ultra-tough material that is repellent to fingerprints, water or grime. Any dirt that builds up can easily be wiped off with a T-shirt or napkin – though I would suggest buying OM's irising lens cap that can be mounted to the front, just to make life a bit easier.

The on-camera flash is worthy of note, as it can be quickly toggled from Fill to Red Eye to Slow to Full (manual) to Remote Control to LED – the latter emitting a continuous light that can be great for those moments when flash is too intrusive.

Also worth noting is that the camera comes in two colour schemes →

indexing your files in libraries, creating geotagged maps and itineraries or extracting useful info from an excursion.

In terms of traditional camera specs, we're looking at a 12MP back-illuminated 1/2.3-inch sensor, with a 4.5-18.0mm f/2.0-4.9 lens. In full-frame (35mm) terms that gives you a 25-100mm equivalent focal range, and it doubles as a macro lens with 10mm close focusing (offering 4x optical magnification).

It shoots bursts of up to 20fps, with a buffer of 74 jpegs or 46 raws. In Pro Capture mode, where the camera starts buffering images when you half-press the shutter, so you capture the moment before the moment, it boasts a 10fps burst with five pre-frame shots.

For video, the TG-7 can record 4K up to 30p, Full HD (1080p) up to 120p and, if you want to sacrifice resolution for super slow-mo, you can record in HD (720p) at 240p or SD (320p) at 480p.

Build and handling

While the core specifications haven't seen much change from the TG-6, the external design of the TG-7 has had an overhaul. In terms of handling, the front grip is now much steeper so you can get a better hold. The grip, along with the thumb rest on the back, now has textured grooves that help improve purchase – which is very welcome, particularly when the camera is wet and your fingers are cold.

Otherwise, the layout and controls are as you remember them, although the Olympus logo has now been replaced by an OM System one, of course. Note that the rear screen doesn't offer touch control (because it is made of thick, Gorilla Glass-like material so it won't break), though the colour reproduction seems to have been improved over the previous model.

As a compact camera, the TG-7 primarily offers point-and-shoot functionality; the mode dial offers standard auto, Aperture Priority and Program modes (though there is a context-sensitive control wheel on top that can be toggled between aperture and shutter for manual control depending on the mode).

A well-located lever sits in front of the shutter to electronically zoom in or out (including in macro mode), a tiny record button, which can be tricky to depress with gloves on, enables you to quickly capture video and a switch on top of the camera can quickly toggle Log mode to record environmental info (including GPS data) – great to knock off when you're worried about battery life.

The doors leading to connections and memory card slots are protected like Fort Knox, with double-locking switches and thick rubber seals to prevent liquids or particulates from entering. And yes, among the connections, there is a USB-C port for charging.

Compact OM System Tough TG-7



James Artaius

Video isn't the TG-7's strongest suit – the iPhone 15 Pro and Panasonic S5 IIX shoot 'better' video – but for its intended purpose, it is easily good enough.



The Field Sensor system records data such as GPS, air and water temperature, altitude and water depth with your images, so you can easily catalogue them.

– and unlike most cameras, these are actually functional. The black version looks more like a standard compact camera, but the red option is extremely useful since it makes it much easier to spot the camera if you drop it at the bottom of a swimming pool, in the snow or anywhere else. Trust me – I've almost lost my TG-6 a couple of times when taking it out in the sea, and it's much easier to see a camera that's coloured bright red.

Performance

There are few surprises here – the TG-7 performs identically to the TG-6. After all, it features the same image sensor and image processor, so there's really no difference in what the camera can do. It delivers jpegs straight out of the camera that look fantastic, with raw files that offer plenty of latitude for editing, with electronically stabilised 4K video on par with what you'd get from a decent smartphone – along with slow-mo and

super slow-mo options that are low in resolution, but still ideal for social media.

In terms of what's new, the camera now supports vertical video – so socialising is a little easier than before. There's also a cool new 299-image interval shooting function, which enables you to create time-lapse movies, supported by an intelligent exposure function that keeps your frames consistent, even in changeable lighting.

There is also an optional Construction mode in the Scene menus that caters to industrial applications for the camera. They won't be that useful to most photographers, but having quick modes for things like panoramas and document scanning will make life easier for others.

Another new feature is the remote control option. Like all OM System cameras, the TG-7 can be paired with the OM.share smartphone app. The primary function here is to quickly transfer your files for easy sharing, but it can also be used to shoot remotely from your phone – perfect if, for example, you want to leave your camera at the bottom of a pond and snap pictures of its inhabitants without getting wet.



James Artaius

The 12MP sensor and processor technology is at least a couple of generations old, but the jpegs the TG-7 produces – not to mention the raw files – are superior to those of the latest iPhone.



Here's the TG-7 shooting in extreme low-light conditions without using its built-in flash. Exposure information: 1/10 sec at f/2, ISO 800.



James Artaius

The TG-7 has plenty of advanced photographic features, such as focus stacking, 20fps bursts, adjustable white balance and true optical zoom.

However, the TG-7 can now be paired with a dedicated remote control, meaning that you don't need to mess about with the app if you want to take a quick selfie or shoot a series of stills or videos remotely. As others have noted, the long-in-the-tooth tech is outclassed by modern smartphones. Certainly, the 12MP sensor and TruePix VIII processor are at least two generations old, but the jpegs (let alone the raws) the TG-7 produces are superior to those of the latest iPhone. Not to mention the features, such as focus stacking, Live Composite, Pro Capture, 20fps bursts, full exposure control, adjustable white balance and true optical zoom.

Granted, video is not the TG-7's strongest suit – evidenced by the basic options on offer. But this isn't intended to be the best camera for video, it's intended to be the best waterproof camera. Which it is. The iPhone 15 Pro or Panasonic S5 IIX might shoot 'better' video, but can they shoot in a snowstorm, in a desert or in the middle of a Tough Mudder contest? For its intended purpose, the Tough TG-7's video is easily good enough.

We should mention the camera's macro capabilities, too. Most compact cameras don't offer this, let alone waterproof compacts, so for the TG-7 to feature such great macro performance is a huge plus. Since this is an outdoor/travel camera, the ability to get close to a creature you spot while snorkelling or out on a hike really adds value. **James Artaius**



Yes, it's a cat drinking from a glass of water containing the TG-7. Why? Well, for a start, it shows just how waterproof this camera is.

Digital Camera verdict

4.5  Outstanding



The OM System Tough TG-7 shares many similarities with the Olympus Tough TG-6 – except for the fact that the TG-6 has been discontinued and you can't buy it any more. Sure, the tech isn't exactly cutting edge, but short of adding phase detect autofocus – which, let's be honest, isn't coming to a compact like this any time soon – or a higher-resolution sensor, which previous Toughs have had, but traded up pixels for better low light performance, what more could we ask for?

You won't buy this camera for a fancy autofocus system or millions of megapixels; you'll buy it if you want to take great photos while you're swimming in the sea or while your children are playing in the sand, or when you're hiking through the mud, or when you might drop it on some rocks, or when you're in the freezing snow or the middle of the desert.

The OM System Tough TG-7 remains the best everything-proof camera on the market, and is an essential all-round compact camera for holidays, adventures, travel and everyday photography.

Prime lens Nikon Z 135mm f/1.8 S Plena



Nikor Z 135mm f/1.8 S Plena

£2,699/\$2,497

Practically perfect in every way, super-sharp yet deliciously blurry and utterly fabulous

www.nikon.co.uk

The Nikon Z 135mm f/1.8 S Plena has a tough act to follow. We were impressed when we reviewed the Nikon Z 85mm f/1.2 S, but the Plena sets out to take everything to a whole new level. Naturally, it doesn't have such a fast aperture rating (which would be impractical) but the longer focal length still enables a tight depth of field. We love the way the Plena is perfectly suited to tight head-and-shoulders portraiture but also for still-life photography and any time you want to compress perspective with a medium telephoto focal length while isolating the main subject within a scene by blurring its surroundings.

Key features

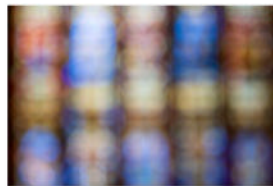
The performance of the Plena is top-drawer, thanks to an impeccable design that puts its glass at the top of the features list. The optical path incorporates 16 elements in total and includes four ED (Extra-low Dispersion) elements, one aspherical element and one SR (Short-wavelength Refractive) element. Nikon's ED glass is renowned for delivering excellent sharpness, contrast and colour accuracy, even at wide apertures, while reducing chromatic aberrations. The newer SR glass further reduces chromatic aberration at the blue end of the spectrum, while the use of an aspheric element can also reduce aberrations as well as the physical size of a lens.

Building on the quality of the glass itself, the lens features ARNEO coating which is particularly effective at minimising ghosting and flare, as well as Meso Amorphic Coat, which is even more effective at minimising reflections from light entering the lens from just about any angle. The overall design aims for scintillating levels of sharpness, across the whole frame, along with beautiful bokeh. A particularly well-rounded 11-blade

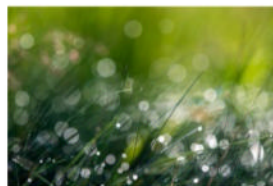
1 At the front, the lens has an 82mm diameter thread so you can attach filters to it.

2 A pair of programmable lens-function buttons is located on the lens barrel.

3 As well as a manual focus ring, there is also a secondary customisable control ring.



Matthew Richards



Nikon

Bokeh is a big selling point of this lens. It renders highlights as near-perfect circles.

Specifications

Mount:	Nikon Z
Full-frame:	Yes
Construction:	16 elements in 14 groups
Angle of view:	18.2°
Diaphragm blades:	11
Max aperture:	f/1.8
Min aperture:	f/16
Min focusing distance:	0.82m/2.69ft
Max magnification ratio:	0.2x
Filter size:	82mm
Dimensions (L x D):	139.5 x 98mm
Weight:	995g

aperture diaphragm helps to maintain top-quality bokeh when stopping down.

Build and handling

As we've come to expect from Nikon's S-line lenses for its Z-system cameras, build quality feels robust and solid. For a full-frame compatible lens that combines a 135mm telephoto focal length with a fast f/1.8 aperture, it's not overly large and weighs just under a kilogram. As such, handling feels comfortable and assured, even for lengthy periods of handheld shooting.

Although the autofocus system is fast and ultra-precise, there's a wide manual focus ring, if you prefer to be in control. As usual with Nikon Z lenses, you can customise this to take on other functions while in autofocus mode, or to enable the usual full-time manual override. A secondary control ring is also on hand, which is useful for stepless aperture control when shooting video, or for adjusting the likes of exposure compensation or ISO.

Given the suitability of the lens for portraiture, there's a customisable L-fn (Lens-function) button which is duplicated, so that it falls under the thumb in either landscape or portrait orientation shooting. Typical uses include AF-On and AF-Hold.

The combination of focal length and aperture can only result in a large front element and, sure enough, the lens has a large 82mm filter attachment thread. Even so, that's no larger than you'll often find in standard and telephoto f/2.8 trinity zooms.

Performance

While the features, specifications, build quality and handling of the Plena are all impressive in their own right, everything comes together to make this lens more than the sum of its parts. True to its claims, autofocus is fast and incredibly accurate,

Matthew Richards



Fast glass can be less than sharp towards the edges of the frame, especially at the widest aperture. The Plena dispels any concerns with spectacular sharpness and contrast across the entire frame, even at f/1.8.

Matthew Richards



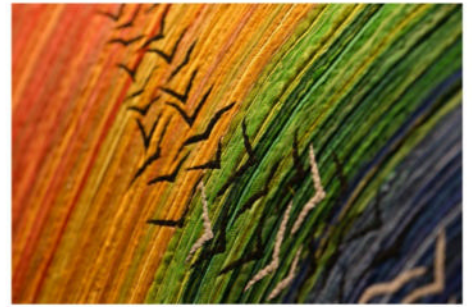
The quality of its bokeh is where the Plena lens comes into its own. The bokeh's smooth silkiness is gorgeous, with a natural-looking roll-off in the transition between focused and defocused areas.

though it does slow down in tricky conditions with low-contrast scenes or close-ups, ensuring it maintains its excellent reliability.

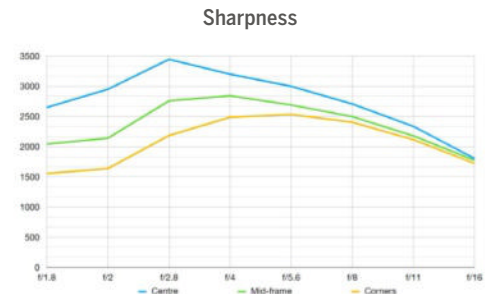
Fast glass can be notorious for being less than sharp, especially at the widest aperture and towards the edges and corners of the frame. The Plena dispels any concerns with spectacular sharpness and contrast across the entire image frame, even at f/1.8. Sharpness gets even better if you stop down. Longitudinal or 'axial' chromatic aberration is another common problem with fast lenses but the Plena excels here, too, with negligible colour fringing around high-contrast edges just in front of or behind the plane of focus.

Naturally, it's not just about sharpness. For this type of lens in particular, the quality of the bokeh can be even more important as far

as discerning photographers are concerned. And that's where the Plena comes into its own. The smooth silkiness of the bokeh is gorgeous, with a natural-looking roll-off in the transition between focused and defocused areas. But that's not all. Bokeh discs (typically caused by defocused small areas of light) are devoid of the dreaded onion-ring effect, and remain amazingly well-rounded even out towards the edges and corners of the frame, rather than taking on the more common cats-eye shape in appearance. Bokeh discs also have a soft outline, despite the lens lacking an apodisation filter, as featured in some lenses that are built for bokeh. And the 11-blade aperture helps keep a nicely rounded shape for bokeh discs when stopping down a little. **Matthew Richards**



Chromatic aberration is another common problem with fast lenses, but the Plena excels with negligible colour fringing around high-contrast edges.



Sharpness

It's a testament to the Plena's design that wide-open sharpness is so excellent right across the entire image frame. Stop down to between apertures between f/2.8 and f/11 and the lens is scarily-sharp from edge to edge and corner to corner.

Fringing

0.24

There's remarkably little axial chromatic aberration, even wide-open at f/1.8, while lateral chromatic aberration (more commonly noticeable towards the edges and corners of the frame) is also extremely minimal. And that's without any automatic correction being applied.

Distortion

1.01

There's a slight touch of pincushion distortion but it's of such a low order that you generally won't notice it in real-world shooting, compared with taking shots of test charts. Either way, automatic in-camera correction is available.

Digital Camera verdict

5.0 ★★★★★ A best-in-class product



The Collins English Dictionary gives one definition of the word Plena as 'the condition or quality of being full' – and this Nikkor lens is certainly full of goodness. It's packed with top-quality glass, high-tech coatings, a super-fast autofocus system and a really well-rounded 11-blade diaphragm. Build quality is robust and handling is refined. The clincher is that it delivers absolutely exquisite image quality, making it one of the best Nikkor lenses of all time and one of my personal favourites.

Telephoto lens Sigma 60-600mm F4.5-6.3 DG DN OS Sports



Sigma 60-600mm F4.5-6.3 DG DN OS Sports

£1,999/\$1,999

A versatile standard to super-telephoto zoom, but mind the weight

www.sigma-global.com

The Sigma 60-600mm F4.5-6.3 DG DN OS Sports for Sony and L-mount cameras has some history behind it. In 2001, the so-called 'Bigma' was born – a unique lens for SLRs with a 50-500mm zoom range and an updated version, weighing 1,840g, was launched in 2010. It was eclipsed in 2018 by the Sigma 60-600mm f/4.5-6.3 DG OS HSM Sports, weighing 2.7kg. Sigma chose not to add Sony E and Leica L mount options for mirrorless cameras, instead redesigning the 'DN' mirrorless version, which is still a hefty 2,485g.

A similar contender for Sony shooters is the Tamron 50-400mm F4.5-6.3 Di III VXD. This one kicks off with the natural perspective of a 50mm focal length but doesn't stretch as far into super-telephoto territory, topping out at 400mm. On the plus side, the Tamron is about four inches shorter in physical length and less than half the weight at 1,115g. It's therefore more manageable for carrying around and for handheld shooting. It's also less expensive, but the Sigma is a more prestigious lens with greater refinement in its handling, as well as giving a 50 per cent boost in maximum telephoto reach.

Key features

Top of the features list is Sigma's 10x zoom range, making it a sort of 'superzoom meets super-telephoto' lens. It has a complex optical path with no less than 27 separate elements in 19 groups. These include three SLD (Special Low Dispersion) elements and two top-grade FLD ('Fluorite' Low Dispersion) elements.

While the optical design aims for excellent sharpness and contrast with minimum aberrations, the autofocus system goes for super-fast performance with consistent accuracy. It features Sigma's latest HLA (High-response Linear Actuator) motor, which enables smooth autofocus transitions when shooting video and near-silent operation.

1 Top of the features list is Sigma's trademark 10x zoom range. It has a complex optical path that features 27 elements in 19 groups.

2 The lens has three customisable AF-hold buttons, which fall neatly under the thumb in both landscape and portrait orientations.

3 At the rear, there is a rank of switches for AF/MF focus modes and an autofocus range limiter that can lock out both ends of travel.

Given the aperture range of f/4.5-6.3, camera shake is an issue at the long end of the zoom range. Cameras with in-body image stabilisation tend to offer little benefit at long focal lengths, so Sigma's OS2 optical stabilisation system with a newly developed algorithm is a key feature of the lens. If you need a greater telephoto reach, the lens is compatible with Sigma's 1.4x and 2x teleconverters, with the inevitable one or two f/stop reduction in aperture, respectively.

Build and handling

The Sigma feels robust and well-built with its multiple weather-seals. The construction is based on a mix of magnesium alloy, carbon fibre-reinforced polymer and Sigma's TSC (Thermally Stable Composite), which has a low coefficient of expansion and contraction during temperature changes.

The zoom ring and electronically-coupled focus ring work with smooth precision but the lens extends greatly as you go through the zoom range. Focusing is fully internal, so the front element neither rotates nor extends through the focus range. The minimum focus distance is 0.45m at the short end of the zoom range and 2.6m at the long end, with a maximum magnification ratio of 0.42x at the 200mm mark.



In practical terms, sharpness is boosted by the optical image stabilisation. The new-generation OS2 system is worth up to seven stops at the short end of the zoom range and an impressive six stops at the long end.

With the physical extension of the lens at longer zoom settings, it's useful that the zoom lock switch can be engaged at any position, rather than just the shortest setting. The lens also has three customisable AF-hold buttons around its circumference, which fall neatly under the thumb in both landscape and portrait orientation shooting.

Towards the rear is a rank of switches for AF/MF focus modes and an autofocus range limiter that can lock out either the long or short end of travel, either side of 6m. Below these are a dual-mode Optical Stabilisation switch with off, static and panning options, and a Custom switch with access to two custom modes. Due to its weight, it's no surprise it comes with a sturdy tripod mounting ring featuring an Arca-Swiss compatible foot. It slots into like-minded tripod heads, without the need for an additional quick-release plate. If handheld shooting is your thing, you can only remove the foot, leaving the ring and stub attached.

Performance

The autofocus system is super-speedy and consistently accurate. In our tests, the Sigma delivered excellent sharpness and contrast, even at the widest apertures, which is key, given the not overly fast aperture range. Sharpness is boosted by the new OS2 optical image stabilisation system which is worth up to 7-stops at the short end of the zoom range and 6-stops at the long. Mode 2 stabilisation works in diagonal panning orientation as well as landscape and portrait.

Though not 'fast glass', the lens produces a tight depth of field, especially at longer zoom settings. Bokeh is smooth and remains so when stopping down, helped by a 9-blade aperture diaphragm. There's resistance to ghosting and flare, thanks to the application of Sigma's Super Multi-Layer Coating.

Colour fringing is mostly negligible and pincushion distortion is minimal. Overall, performance is excellent although it's a hefty beast for shooting at standard focal lengths.

Matthew Richards



The autofocus system lives up to its billing with a speedy and consistently accurate performance.



Due to the weight, it's no surprise there's a tripod mounting ring and an Arca-Swiss compatible foot.

Telephoto lens

Specifications

Mount: Leica L, Sony E (FE)

Full-frame: Yes

Lens construction: 27 elements in 19 groups

Angle of view: 39.6-4.1°

Autofocus: Yes

Max aperture: f/4.5

Min aperture: f/22-32

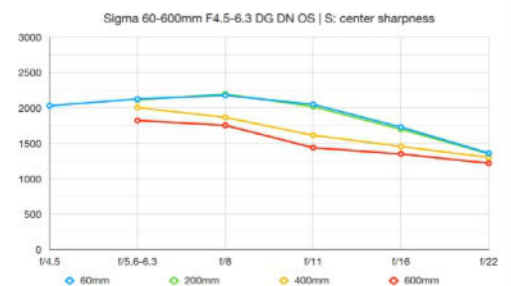
Min focusing distance: 0.45m (W) 2.6m (T)

Max magnification ratio: 0.42x
(at 200mm zoom)

Filter size: 105mm

Dimensions (L x D): 280 x 119mm (approx)

Weight: 2,495g



Sharpness

Sharpness is excellent, both throughout the entire zoom range and right across the whole image frame, right into the corners. That's a real achievement, given the oversized 10x zoom range. The lens did full justice to the big megapixel count of our Sony A7R III testing body.

Fringing Short 3.47 Long 1.42

Colour fringing is absolutely negligible even at the extreme edges and corners of the image frame at most zoom settings, and still very minimal where it creeps up a bit around the 200mm and 600mm settings.

Distortion Short -2.29 Long 0.83

Pincushion distortion is extremely minor at the shortest zoom setting and still fairly minimal in the 200-600mm range. It's certainly not obvious at any focal length, even with automatic in-camera correction disabled.

Verdict

4.5 ★★★★★ Outstanding



Made for action, sports and wildlife photography, this lens's zoom range stretches from a standard 60mm through to a super-telephoto 600mm, ensuring you won't miss that vital shot while changing lenses. It's big and heavy, but handling is refined and the super-fast autofocus and effective optical stabilisation ensure a great hit rate. Image quality is excellent, making the lens worth its weight.

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Buyer's guide

Use our real-world testing scores from across the market to purchase your next camera with confidence

● DSLR & MIRRORLESS CAMERAS PLUS: Our best-buy accessories

DSLRs

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Canon EOS 4000D	£370/\$n/a	APS-C, 18MP	www.canon.co.uk	Issue 205
	★★★★☆	A great but basic beginner DSLR. At just £370 (body only), it's the cheapest EOS DSLR. Sadly, it's let down by a cheap kit lens that's tough to tolerate, so we suggest buying the better IS lens.			
	Canon EOS 2000D	£349/\$479	APS-C, 24.1MP	www.canon.co.uk	Issue 206
	★★★★☆	A better-spec camera than the 4000D but with a modest price bump. Arguably, it's worth the extra outlay but, for an extra £200, the EOS 250D is a far better DSLR camera (Rebel T7 in USA).			
	Canon EOS 250D	£549/\$649	APS-C, 24.1MP	www.canon.co.uk	Issue 217
	★★★★☆	Sold as the Rebel SL3 in the USA, we think it's the best budget/beginner DSLR with the perfect blend of power and value. Move beyond snapping with smartphones to taking proper photos.			
	Canon EOS 850D	£919/\$749	APS-C, 24.1MP	www.canon.co.uk	Issue 236
	★★★★☆	Lightweight & powerful, the EOS 850D/Rebel T8i captures detailed, colourful and sharp images, plus 4K movies. Features iTR Face and Eye Detection AF, and Auto AF via optical viewfinder.			
	Canon EOS 77D	£710/\$550	APS-C, 24.1MP	www.canon.co.uk	Issue 193
	★★★★☆	Key specs are identical to the 800D but extra controls (a top-plate LCD and a rear control wheel) make dialling in exposure settings quicker. Super image quality – even at high ISOs.			
	Canon EOS 90D	£1,299/\$1,199	APS-C, 32.5MP	www.canon.co.uk	Issue 221
	★★★★☆	This impressive crop-camera comes with a 32.5MP sensor, rapid 10fps continuous shooting and 4K video, plus improved handling and decent AF. An ideal APS-C upgrade for enthusiasts.			
	Canon EOS 7D Mark II	£1,050/\$725	APS-C, 20.2MP	www.canon.co.uk	Issue 159
	★★★★☆	Action-packed APS-C format EOS camera has 65-point AF with advanced tracking, 10fps continuous shooting, dual DIGIC 6 processors and GPS in a tough, magnesium alloy bodysell.			
	Canon EOS 6D Mark II	£1,399/\$1,399	Full-frame, 26MP	www.canon.co.uk	Issue 194
	★★★★☆	World's smallest full-frame DSLR gets a major upgrade over the original 6D with improved speed and performance. It's a great all-rounder now, thanks to an improved AF system and burst rate.			
	Canon EOS 5D Mark IV	£2,869/\$2,699	Full-frame, 30MP	www.canon.co.uk	Issue 183
	★★★★☆	The pro-level, weather-sealed, full-frame EOS 5D Mk IV has a hi-res 30MP sensor and 7fps frame rate. Specs include 4K video, touchscreen LCD, Wi-Fi and NFC connectivity, and GPS.			
	Canon EOS 5DS (DS R)	£2,999/\$3,699	Full-frame, 50.6MP	www.canon.co.uk	Issue 167
	★★★★☆	A 50MP DSLR which delivers huge and amazingly detailed hi-res images. The more expensive 5DS R (£3,199/\$3,899) adds a low-pass cancellation filter for marginally sharper shots.			

Sensor sizes at a glance

Three formats dominate DSLR and mirrorless cameras...



Full-frame (36 x 24mm)

These imaging sensors have similar proportions to a frame of 35mm film.



APS-C (≈ 25.1 x 16.7mm)

Based on the Advanced Photo System film format from the 1990s.



Micro Four Thirds (17.3 x 13mm)

The 4:3 aspect ratio allows smaller and lighter lenses to be used.

Seen something that doesn't look right? Email us at digitalcamera@futurenet.com with 'Camera Guide' in the subject line

Camera buyer's guide

Wise buys Landscape lenses

Good, better and best... three optics for shooting scenics



Sigma 14-24mm f/2.8 DG HSM

Price: £1,269/\$1,299
Verdict: Well-made and optically excellent, this lens for Canon and Nikon DSLRs is a real bargain. Sharpness is impressively consistent.



Canon RF 15-35mm f/2.8L IS USM

Price: £2,389/\$2,399
Verdict: Its 35mm reach offers extra flexibility for shooting landscapes, and it features an optical image stabiliser worth up to five stops.



Nikkor Z 14-24mm f/2.8 S

Price: £2,385/\$2,397
Verdict: Comes with all the bells and whistles: phenomenal sharpness, a customisable control ring, an assignable function button and a multi-function display.

DSLRs (CONTINUED)

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Canon EOS-1D X Mk III	£6,999/\$6,499	Full-frame, 20.2MP	www.canon.co.uk	Issue 227
	★★★★★				The ultimate hybrid DSLR/mirrorless. Superb low-light performance up to ISO 102,400, plus Deep Learning AF and 5.5K Raw video. It can also capture up to 20fps in Live View mode.
	Nikon D7500	£1,049/\$997	APS-C, 20MP	www.nikon.co.uk	Issue 193
	★★★★☆				Steals most of the best bits from the now-discontinued pro-grade D500 and squeezes them into a smaller, lighter body at a much more affordable price. Superb image quality, great value.
	Nikon D780	£2,299/\$2,297	Full-frame, 24.5MP	www.nikon.co.uk	Issue 227
	★★★★☆				Highly capable and entirely natural-feeling DSLR for shooting stills in viewfinder mode with good Live View, too. Despite its strong credentials, it looks overpriced compared with the Z 6II.
	Nikon D850	£2,799/\$2,997	Full-frame, 45.7MP	www.nikon.co.uk	Issue 196
	★★★★☆				Can turn its hand to pretty much anything; capable of stunning images with immense detail. For Live View and video capture, however, the contrast-detection AF system is inferior to Nikon Z's.
	Nikon D6	£6,799/\$6,497	Full-frame, 20.8MP	www.nikon.co.uk	Issue 231
	★★★★☆				Geared mostly towards action, sports and wildlife photography, the D6 is a high-performance 20.8MP DSLR. Stills performance is superb with a fast continuous drive rate and AF system.
	Pentax K-70	£829/\$647	APS-C, 24MP	https://pentax.eu	Issue 186
	★★★★☆				Very much a camera of two halves – the K-70's weighty body and design quirks won't be to everyone's taste, but plenty of top features and great results make it worth considering.
	Pentax KF	£849/\$847	APS-C, 24MP	https://pentax.eu	Issue 268
	★★★★☆				Well-made DSLR but essentially a relaunch of the K-70. The merits of this camera's autofocus system will be lost unless you are using a newer Pentax lens with an SDM, DC or PLM AF motor.
	Pentax K-3 Mark III	£1,899/\$1,999	APS-C, 26MP	https://pentax.eu	Issue 247
	★★★★☆				Fast, powerful and packed with clever features, but also oddly dated, as if Pentax has stepped back from modern innovations like on-sensor phase detect autofocus and vari-angle screens.
	Pentax K-3 III Monochrome	£2,249/\$2,199	APS-C, 25.7MP	https://pentax.eu	Not reviewed
					Based on the flagship K-3 Mark III and sporting a brand-new redesigned and optimised sensor, the K-3 III Monochrome lacks a colour filter and offers three dedicated B&W shooting modes.
	Pentax K-1 Mark II	£1,799/\$1,997	Full-frame, 36.4MP	https://pentax.eu	Issue 204
	★★★★☆				Initially looks and feels like a throwback to an earlier time but its blunt, weighty handling and solid, intelligent controls provide relief from today's touchscreens and digital miniaturisation.
	Pentax 645Z	£6,800/\$8,500	Medium-format, 51MP	https://pentax.eu	Issue 164
	★★★★☆				Extraordinarily well-built with excellent ergonomics for its size and supported by a lens system that boasts 16 different optical options. Pricey when compared to Fujifilm's GFX 50S II.

What to look for in a... DSLR

Lens release To remove the lens, press the button and twist the lens anti-clockwise. Use the protective body cap, so you don't leave the sensor exposed to dust.

Shutter release To shoot, press the shutter release button. To focus and meter the scene, half press the shutter release.

Lens A DSLR is far more versatile than a camera with a fixed lens because you can change lenses and alter the angle of view.

Sensor This is where your images are recorded before being processed and stored on your memory card.

Mode dial The mode dial is where you access the camera's shooting modes. For first-time users, the fully Auto mode selects all the camera settings for you.

Hotshoe To attach a flashgun, slot it into place and tighten the catch on the device.

Command dial The command dial is used to alter camera settings and adjust features.

LCD screen This displays images while composing and shooting information. Some DSLRs have a vari-angle LCD screen.

Back panel controls A handy feature used to alter settings and navigate menus. Some cameras have a joystick multi-controller.

Viewfinder To compose an image, look through the viewfinder on the back panel.

Menu button Access shooting, reviewing and other menu options, and use the multi-controller and the OK button to navigate and select.











Connection points To connect your camera to another device, insert the cable into the correct port. You can also connect to a remote shutter release here.

Flash Beginner models and some enthusiast DSLRs include a built-in pop-up flash unit.

Memory card slot Some DSLRs include a memory card slot on the bottom of the camera in the battery compartment.

MIRRORLESS

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Canon EOS M50 Mark II	£589/\$599	APS-C, 24.1MP	www.canon.co.uk	Issue 242
	★★★★★	A compact and capable camera that takes great stills and 1080p video. Ideal for travel, everyday imaging, plus vlogging and content creation. But if you need to record 4K, it's not for you.			
	Canon EOS M6 Mark II	£799/\$849	APS-C, 32.5MP	www.canon.co.uk	Issue 231
	★★★★★	Designed to deliver sharp images for amateurs on the move. It has the same 32.5MP APS-C sensor as the 90D DSLR but can shoot in 14fps blasts (30fps raw), plus uncropped 4K video.			
	Canon EOS M5	£780/\$n/a	APS-C, 24.2MP	www.canon.co.uk	Issue 188
	★★★★★	Flagship M mirrorless for enthusiasts. Shares much of the tech as the 80D but swaps the optical viewfinder for an electronic version, making this compact system camera a pocket rocket.			
	Canon EOS R50	£789/\$679	APS-C, 24.2MP	www.canon.co.uk	Issue 267
	★★★★★	With a 24.2MP APS-C sensor, 4K video, intelligent AF modes, and 15/12fps continuous shooting, the R50 uses the small and compact size of the M50 and is a great beginner camera.			
	Canon EOS R10	£899/\$979	APS-C, 24.2MP	www.canon.co.uk	Issue 259
	★★★★★	This budget, beginner EOS R10 with pro-level autofocus and 15fps speed, 4K 60p imaging and 120p slow motion at 1080p offers performance that punches well above its weight.			
	Canon EOS RP	£1,049/\$999	Full-frame, 26.2MP	www.canon.co.uk	Issue 214
	★★★★★	Ideal for crop-sensor M CSC or EOS DSLR users looking for an affordable full-frame upgrade. The EOS RP has strong specs and is notably smaller, lighter and cheaper than most rivals.			
	Canon EOS R7	£1,349/\$1,499	APS-C, 32.5MP	www.canon.co.uk	Issue 258
	★★★★★	A worthy successor to the 90D and 7D DSLRs, this is the first mirrorless to reach for if you want the advantages of APS-C with pro-level 15fps speed, intelligent AF, IBIS and image resolution.			
	Canon EOS R8	£1,649/\$1,499	Full-frame, 24.2MP	www.canon.co.uk	Issue 266
	★★★★★	The lightest full-frame EOS R camera can shoot it all. Same sensor and processor as the R6 Mk II, latest AF subject recognition, 24.2MP images and rapid 40fps shooting, but no IBIS.			
	Canon EOS R6 Mark II	£2,779/\$3,599	Full-frame, 24.2MP	www.canon.co.uk	Issue 264
	★★★★★	A hybrid camera that packs an obscene amount of firepower, with 24.2MP stills at a startling 40fps and up to 6K video, plus updated AF detection for tracking trains, planes and horses.			
	Canon EOS R5	£4,299/\$3,899	Full-frame, 45MP	www.canon.co.uk	Issue 233
	★★★★★	The perfect amalgamation of the EOS R's full-frame form, the 5D's function, the pro-grade autofocus of the flagship EOS-1D X Mark III DSLR: 20fps bursts, IBIS and intelligent Animal AF.			
	Canon EOS R3	£5,659/\$5,999	Full-frame, 24.1MP	www.canon.co.uk	Issue 248
	★★★★★	A top-tier tool of choice for working professionals that offers blackout-free 30fps stills and 6K raw video – plus improved autofocus performance, coupled with ghostly good Eye Control AF.			

Wise buys Tripod heads

Good, better and best... three heads for stable shooting



Vanguard Veo 2 BH-50 ball head

Price: £69/\$70
Verdict: An inexpensive and compact ball head. The Veo 2 BH-50 has a separate panning axis and a 'universal' Arca-Swiss style, quick-release plate.



Manfrotto XPro 3-Way Head

Price: £94/\$116
Verdict: Precision and control – and more bulk – the XPro's stubby handles keep the size down but can be extended when needed.



Arca Swiss D4 tripod head

Price: £960/\$1,142
Verdict: Combines a ball mechanism with geared axis movements when required, plus a second pan axis below the camera plate for level panorama shoots.

What to look for in a... **Mirrorless CSC**

Interchangeable lenses

Like a DSLR, a compact system camera (CSC) doesn't feature a fixed lens. Instead, you can swap between lenses depending on the subject you are shooting or the effect you want to achieve. The lens mounts on CSCs are different to those on DSLRs, which means you can't use DSLR lenses on a CSC without purchasing an adapter to 'bridge' the two mounts.

Look, no mirror!

The most significant difference between a DSLR and a compact system camera is the lack of a mirror. Not only does this allow CSCs to be much smaller and lighter, but it also means they're much quieter in operation. As there is no mirror to reflect the sensor view in a CSC, you will have to use the Live View monitor or an electronic viewfinder instead while composing shots.

Pocketability

Compact system cameras are smaller than the majority of DSLRs. Rangefinder-style CSCs are more pocketable than those styled like compact DSLRs but the grip and handling of the latter can be an advantage.

Viewfinder – or not

The lack of a mirror means CSCs don't have an optical TTL (through the lens) viewfinder but many DSLRs boast a built-in electronic viewfinder (EVF), a small screen showing the Live View. Others can be fitted with a small viewfinder accessory on the hotshoe.

Light path

In a DSLR, some light passes through the mirror to the AF sensor, but the majority is reflected up to the pentaprism, exposure meter and viewfinder assembly. This system takes up a lot of space, though.



Flange Focal Distance

The FFD in a CSC is significantly shorter than in a DSLR. For example, Canon's EF and EF-S DSLR mounts have an FFD of 44mm, whereas the Q mount used in Pentax's CSC range uses a distance of just 9.2mm.

Electronic display

In a CSC, the light strikes the sensor, and an image is generated on the rear screen and electronic viewfinder, if present. This means that the body can be much slimmer and shorter in height.

Camera buyer's guide

Wise buys Neutral density filters

Good, better and best... three options for long exposures



SRB ND 1000

Price: £32/\$44 (67mm)

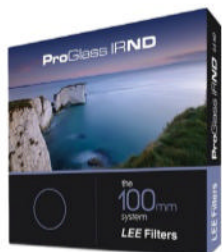
Verdict: If you don't want the fuss of a full square filter system, this 10-stop circular ND filter is perfect. In our tests, we saw a slightly warm colour cast but that can be corrected.



Formatt Hitech Firecrest Ultra Circular 3.0 (10-stop)

Price: £146/\$158

Verdict: Offers a step up in construction and quality, with excellent colour fidelity in photographs.



Lee ProGlass IRND 100mm 10-stop filter

Price: £179/\$237

Verdict: Designed for the ultimate in neutrality and colour accuracy by a renowned brand with a legendary reputation.

MIRRORLESS (CONTINUED)

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Fujifilm X-E4 ★★★★★	£799/\$849	APS-C, 26.1MP	www.fujifilm.com	Issue 243
			While its small size and design doesn't make it quite as versatile as the Fujifilm X-T4, the X-E4 is capable of producing the same quality images and is easy to carry everywhere.		
	Fujifilm X-H2 ★★★★★	£1,899/\$1,999	APS-C, 40.2MP	www.fujifilm.com	Issue 261
			An extremely compelling camera at an equally compelling price. With its 40MP resolution and 8K video, the X-H2 takes on some full-frame big guns at half the price.		
	Fujifilm X-H2S ★★★★★	£2,499/\$2,499	APS-C, 26.1MP	www.fujifilm.com	Issue 258
			With double the processing power of its predecessor, it offers a class-leading 40fps continuous shooting with full autofocus functions. A terrifically powerful companion for sports and wildlife.		
	Fujifilm X-Pro3 ★★★★★	£1,699/\$1,999	APS-C, 26.1MP	www.fujifilm.com	Issue 225
			With its rangefinder design, the Fujifilm X-Pro3 recaptures the purity and joy of taking photographs. However, this can sometimes impede your ability to shoot in a modern way.		
	Fujifilm X-S10 ★★★★★	£949/\$999	APS-C, 26.1MP	www.fujifilm.com	Issue 238
			The excellent finish, build quality and handling, plus the inclusion of IBIS, give the X-S10 perhaps the best combination of performance, quality and value in the APS-C mirrorless camera market.		
	Fujifilm X-S20 ★★★★★	£1,249/\$1,299	APS-C, 26.1MP	www.fujifilm.com	Issue 271
			The perfect camera for most people, with its straightforward controls, excellent fully automatic modes and its small and compact size, the X-S20 is the hybrid camera to beat.		
	Fujifilm X-T30 II ★★★★★	£769/\$899	APS-C, 26.1MP	www.fujifilm.com	Issue 251
			Fujifilm's pint-sized retro camera doesn't just look cool but works well, too, with old-school shutter speed and aperture dials. However, the lack of in-body stabilisation is a shame.		
	Fujifilm X-T4 ★★★★★	£1,549/\$1,699	APS-C, 26.1MP	www.fujifilm.com	Issue 231
			The X-T4 gains the in-body image stabilisation that the X-T3 lacks and also brings a vari-angle screen and a faster, quieter shutter mechanism. The improvements to this camera are welcome.		
	Fujifilm X-T5 ★★★★★	£1,699/\$1,699	APS-C, 40.2MP	www.fujifilm.com	Issue 263
			Takes the much-loved Fujifilm X-T4 further in terms of resolution but is still ideal for shooters who want a lightweight camera with traditional controls and an excellent 40.2MP resolution.		
	Fujifilm GFX 50S II ★★★★★	£3,499/\$3,999	Medium-format, 51MP	www.fujifilm.com	Issue 248
			The lack of 4K video won't endear it to all, but if speed and video aren't important then the advantages of a medium-format sensor can be had for a far more affordable price than before.		
	Fujifilm GFX 100S ★★★★★	£5,499/\$5,999	Medium-format, 102MP	www.fujifilm.com	Issue 241
			Far more accessible and more ready for broader use cases than traditional medium-format cameras. Any compromises made to produce the GFX 100S have not affected its performance.		

Camera tech: Crop factors explained

Full-frame sensors provide the standard by which all other sensors can be compared

While the majority of interchangeable lenses are designed to fill the proportions of a full-frame sensor, plenty of digital cameras use sensors that are smaller than full-frame (see page 107). As they are exposed to a smaller part of the picture projected by a lens, smaller sensors produce a magnification effect, with the 'cropped' image looking as though it has been taken with a longer lens.

The focal length of the lens hasn't increased – a 50mm lens is a 50mm lens, regardless of the camera it's attached to – but the 'crop factor' of the sensor makes it appear that it has. Other differences that the sensor size makes include the larger pixels gathering light more efficiently so you'll get cleaner, better-quality images at high ISO settings. Plus, it's easier to exploit shallow depth-of-field effects, so that images have more blur and less sharpness.



Full Frame
No adjustment is necessary with a full-frame sensor – the focal length on the lens is what you get.
Crop factor: 1

APS-C
Most APS-C sensors have a crop factor of 1.5, although with Canon APS-C cameras, it's 1.6.
Crop factor: 1.5 or 1.6

Micro Four Thirds
To get a 20mm equivalent view, you need a lens that has a focal length of 10mm
Crop factor: 2

MIRRORLESS (CONTINUED)

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Fujifilm GFX 100	£9,999/\$9,999	Medium-format, 102MP	www.fujifilm.com	Issue 220
	★★★★★	The Fujifilm GFX 100 is everything you might hope for and more. It is hugely expensive, but the performance, resolution and image quality you get for that price tag are stunning.			
	Leica SL2	£5,300/\$5,995	Full-frame, 47MP	leica-camera.com	Issue 224
	★★★★★	Likely to be sold in small numbers to connoisseurs and certain discerning pros, this is no overpriced toy. It incorporates a level of design and thought that is rather inspiring.			
	Leica SL2-S	£3,975/\$4,895	Full-frame, 24MP	leica-camera.com	Issue 240
	★★★★☆	Costs much less than the higher-resolution SL2 but even with such a drastic difference in price, the compromises are minimal, and the drop in resolution is the only major downside.			
	Nikon Z 30	£699/\$707	APS-C, 20.2MP	www.nikon.co.uk	Issue 260
	★★★★★	Aimed at vloggers, for which the vari-angle touchscreen works much better than the tilting screen of the Z 50. The lack of an EVF isn't such good news if you primarily shoot stills.			
	Nikon Z 50	£899/\$857	APS-C, 20.9MP	www.nikon.co.uk	Issue 225
	★★★★★	Small and simple but power-packed, the Z 50 is capable of fabulous results. The slimline build brings the benefits of mirrorless; firmware updates have added Eye-Detection AF capabilities.			
	Nikon Z fc	£899/\$957	APS-C, 20.9MP	www.nikon.co.uk	Issue 247
	★★★★☆	Far from a case of style over substance, this DX-format Z camera is a pleasure to operate and captures quality images to boot. Matching 'SE' lenses complement its good looks.			
	Nikon Z 5	£1,349/\$1,397	Full-frame, 24.3MP	www.nikon.co.uk	Issue 234
	★★★★☆	Nikon's most affordable FX Z camera still boasts plenty of top-notch features including IBIS, the EXPEED 6 processor and dual card slots. Great image quality and 273-point hybrid autofocus.			
	Nikon Z 6II	£2,079/\$1,997	Full-frame, 24.5MP	www.nikon.co.uk	Issue 237
	★★★★☆	Delivers superb quality for stills and 4K video, and is a brilliant all-rounder, too. With fewer megapixels to process, the Z 6II beats the Z 7II with a 14fps rather than 10fps drive mode.			
	Nikon Z 7II	£3,099/\$2,997	Full-frame, 45.7MP	www.nikon.co.uk	Issue 239
	★★★★☆	Matches Nikon's similarly priced D850 for megapixels but especially when shooting handheld and for capturing movies, the Z 7II can yield even better results, thanks to features like IBIS.			
	Nikon Z 8	£3,999/\$3,999	Full-frame, 45.7MP	www.nikon.co.uk	Issue 270
	★★★★☆	The 'baby Z 9' inherits the vast majority of its sibling's specs, including its blisteringly fast electronic shutter and EXPEED 7 processor, in a more compact and manageable body.			
	Nikon Z 9	£5,299/\$5,497	Full-frame, 45.7MP	www.nikon.co.uk	Issue 250
	★★★★☆	The flagship Z series camera uses an electronic shutter to blow the D6 DSLR out of the water for resolution, speed and all-round performance. The Z 9 also boasts Nikon's best video specs.			

Wise buys
Travel tripods

Good, better and best... three options you can depend on



Benro Slim Travel

Price: £69/\$114
Verdict: Folding down to just 32cm and with a maximum height of 130cm, the aluminium edition is great value, and the carbon version is not too pricey at £125/\$150.



Manfrotto Befree 2N1

Price: £139/\$219
Verdict: Like the Benro, the 2N1 also converts into a monopod. It's taller at 150cm (41cm when folded), but is only available in aluminium.



3 Legged Thing Punks Brian

Price: £269/\$300
Verdict: With a beefy 14kg load rating, the carbon-fibre Brian stretches to a towering 187cm, yet still folds down to 41cm.

Camera tech: AF points explained

The amount of autofocus points varies between cameras – but in short, the more you pay, the more you get

Entry-level DSLRs have around seven to nine AF points, whereas a high-end mirrorless, such as the Canon EOS R3, has 4,779. Cameras that offer a densely populated array of AF points across the viewfinder make it easier to focus on subjects that aren't in the centre of the picture.

A large number of AF points also makes for smoother focus tracking, as the camera can 'hand off' autofocus from one point to the next and more accurately follow a subject moving across the picture.



AF point array

AF points are clustered towards the centre of a DSLR viewfinder. An AF point array typically contains standard AF sensors that measure sharpness in one plane and 'cross-type' AF sensors that are more precise.



How they work

The AF sensor detects a line of contrast that 'breaks' the line of the sensor – such as the horizon here. The AF system pushes the lens's focusing back and forth until the active sensor is able to find this high-contrast point.

Types of AF point
Beginner cameras may have one cross-type point, whereas high-end models have many. Dual cross points are the most powerful.



Camera buyer's guide

Wise buys Macro lenses

Good, better and best... three options for life-size captures



Nikkor 40mm f/2.8 G AF-S DX Micro

Price: £269/\$277

Verdict: Typical of compact, low-cost, APS-C format macro lenses. The short focal length means having to shoot close to your subject and the lens is not particularly refined.



Sigma 105mm f/2.8 Macro EX DG OS HSM

Price: £359/\$569

Verdict: This optic offers terrific image quality and value for money for more discerning close-up shooters. It's quite big and heavy, but its 105mm focal length gives you a better shooting distance.



Tamron SP 90mm f/2.8 Di VC USD Macro

Price: £649/\$649

Verdict: The latest version of a legendary Tamron macro lens is more expensive but you get superb image quality, design and construction, plus it has built-in stabilisation.

MIRRORLESS (CONTINUED)

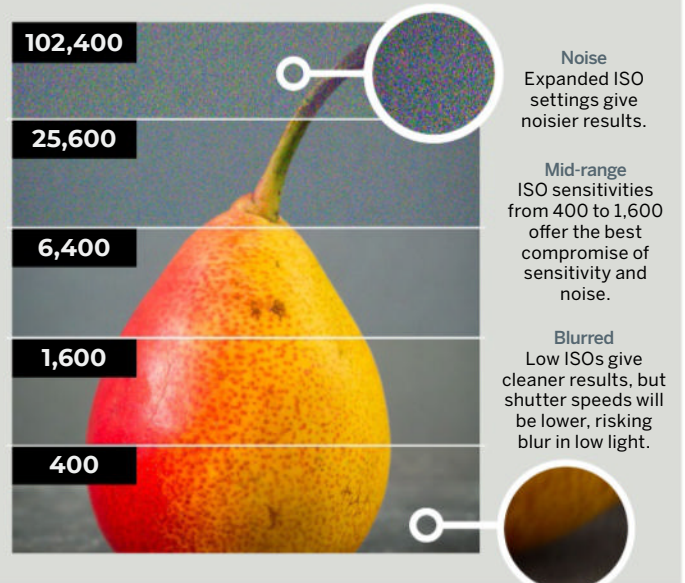
	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Olympus PEN E-P7	£749/\$799	Micro Four Thirds, 20MP	explore.omsystem.com	Issue 245
	★★★★★	A fantastic return to form for the PEN series – so stylish that you can take it anywhere, so simple that beginners can use it and so capable that experts can get sensational results from it.			
	Olympus OM-D E-M10 IV	£799/\$799	Micro Four Thirds, 20MP	explore.omsystem.com	Issue 235
	★★★★☆	With a 20MP sensor, improved IBIS and a flip-down and tiltable screen, the E-M10 Mark IV offers plenty of new features, while retaining the Mark III's 4K video and attractive styling.			
	OM System OM-1	£1,999/\$2,199	Micro Four Thirds, 20.4MP	explore.omsystem.com	Issue 254
	★★★★★	Packed with bleeding-edge computational photography tech, image stabilisation that blows the competition out of the water and ISO performance that promises parity with full-frame sensors.			
	OM System OM-5	£1,199/\$1,199	Micro Four Thirds, 20.4MP	explore.omsystem.com	Issue 263
	★★★★★	Turns clever computational technology into easy-to-use tools, liberating you from tripods and filters. It's an all-in-one tool that will enable you to make the most of your outdoor pursuits.			
	Panasonic Lumix G9	£1,499/\$1,698	Micro Four Thirds, 20.3MP	www.panasonic.com	Issue 200
	★★★★★	A fast and effective camera for both 4K video and fast-action photography. Substantial in the hand, which gives you a good grip especially with longer lenses, the image quality is excellent.			
	Panasonic Lumix G100	£599/\$748	Micro Four Thirds, 20.3MP	www.panasonic.com	bit.ly/dc843
	★★★★☆	Vloggers and creatives more broadly will enjoy the simplicity of the Lumix G100. With a decent viewfinder and 'proper camera' ergonomics, the G100 has an edge in a competitive market.			
	Panasonic Lumix GX9	£879/\$998	Micro Four Thirds, 20.3MP	www.panasonic.com	Issue 202
	★★★★★	On point for specs, size and price but it relies heavily on its menus and touch-screen interface and can feel fiddly to set up. However, its features and image quality can hardly be criticised.			
	Panasonic Lumix GH5S	£2,199/\$2,498	Micro Four Thirds, 10.2MP	www.panasonic.com	Issue 203
	★★★★★	Pros will love its 10-bit 4:2:2 recording and high bit rates. There's no in-body-stabilisation, though, and the 10MP resolution is just too low for the GH5S to be a convincing stills camera.			
	Panasonic Lumix GH6	£1,999/\$2,198	Micro Four Thirds, 25.2MP	www.panasonic.com	Issue 254
	★★★★★	Some may feel that having an MFT sensor and contrast autofocus is outdated, but the GH6 holds its own with cameras almost twice its price in terms of functionality and image quality.			
	Panasonic Lumix S1	£2,199/\$2,498	Full-frame, 24.2MP	www.panasonic.com	Issue 218
	★★★★★	The Lumix S1 is a hefty camera that offers excellent performance. It matches both the Nikon Z6 and Sony A7 III for image quality, but costs more than either of them.			

Camera tech: ISO and image quality

Setting sensor sensitivity can be a compromise: increase the risk of blurred photos, or increase noise?

When you push the ISO higher on a camera, colours become muddier, and dynamic range (the amount of detail captured from shadows to highlights) drops off. But the most obvious side effect is an increase in the 'noise' – this is the digital equivalent of film grain but even less palatable, with the image covered in ugly coloured speckles.

ISOs in the region of 100 to 400 produce cleaner, richer and more detailed images; however, they require more light to make an exposure. This can be achieved by shooting with either a larger aperture or a slower shutter speed – or both. You can take a picture at low ISOs without making these adjustments, but it will take longer to make the exposure and that could result in a blurred picture if the subject or the camera move during this time.



MIRRORLESS (CONTINUED)

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Panasonic Lumix S1H	£3,599/\$3,999	Full-frame, 24.2MP	www.panasonic.com	Issue 232
	★★★★★	An interesting 'bridge' between system cameras and higher-end cine gear, but while it has the power for pro video productions, vloggers won't embrace its size, weight and patchy video AF.			
	Panasonic Lumix S1R	£3,399/\$4,199	Full-frame, 47.3MP	www.panasonic.com	Issue 216
	★★★★★	The Lumix S1R is big, hefty and solid and feels like it means business. It handles well and produces truly excellent image quality – and offers 60p 4K video, too.			
	Panasonic Lumix S5	£1,799/\$1,999	Full-frame, 24.2MP	www.panasonic.com	Issue 235
	★★★★★	Shares the impressive 24MP CMOS sensor housed in the S1, but with improved AF. It also delivers up to 6.5 stops of stabilisation with compatible lenses. As a result, it's tough to beat.			
	Panasonic Lumix S5 II	£1,999/\$1,997	Full-frame, 24.2MP	www.panasonic.com	Issue 267
	★★★★★	Can capture rich stills at up to 30fps in E-Shutter mode and offers unbeatable stabilisation. The S5 II's phase hybrid AF system matches or in some cases beats cameras above its price range.			
	Panasonic Lumix S5 IIX	£2,299/\$2,198	Full-frame, 24.2MP	www.panasonic.com	Issue 272
	★★★★★	Extra features over the S5 II, such as SSD recording, HDMI RAW output, ALL-I compression, Apple ProRes, and Streaming functionality, make the S5 IIX an enticing proposition.			
	Sigma fp	£1,999/\$1,899	Full-frame, 24.6MP	sigmauk.com	Issue 226
	★★★★★	The Sigma fp is a fascinating video camera that takes a genuinely fresh approach but, unfortunately, it feels no more than an interesting alternative in the stills market.			
	Sigma fp L	£1,999/\$2,499	Full-frame, 61MP	sigmauk.com	Issue 244
	★★★★★	The tiny body brings some handling issues and while the new phase-detect AF system is great for stills, the video AF remains slow and unreliable. Remarkable performance for the price.			
	Sony Alpha 6100	£679/\$748	APS-C, 24MP	www.sony.co.uk	bit.ly/dc249
	★★★★★	Brings a host of improvements over the A6000 but they don't come cheap. The A6100 is nearly twice the price of the A6000, somewhat limiting its appeal as an entry-level camera.			
	Sony Alpha 6400	£949/\$899	APS-C, 24MP	www.sony.co.uk	Issue 215
	★★★★★	For bloggers and vloggers, the Sony A6400 is a dream. But for stills photographers, its high-tech image capture is poor consolation for its five-year-old design and limited external controls.			
	Sony Alpha 6600	£1,399/\$1,399	APS-C, 24MP	www.sony.co.uk	Issue 226
	★★★★★	The A6600's stunning AF and image stabilisation make it suitable for demanding stills work, but its still image quality is good rather than class-leading.			
	Sony Alpha 7 II	£1,499/\$1,698	Full-frame, 24.3MP	www.sony.co.uk	Issue 162
	★★★★★	Offering all the benefits of a full-frame sensor without the bulk, the A7 II has superb image stabilisation and produces high-quality images. It's well worth your attention.			

Wise buys Photo backpacks

Good, better and best... three bags for use in the field



Manfrotto Pro Light 3N1-36 PL

Price: £119/\$223
Verdict: A clever design makes this backpack equally adept at storing camera kit, video gear or a drone. It can also take a 15-inch laptop.



Lowepro ProTactic BP 350 AW II

Price: £149/\$162
Verdict: Fairly slimline, it's nevertheless super-tough and can squeeze a lot in. The waist strap doubles as a utility belt.



Tenba Axis 24L

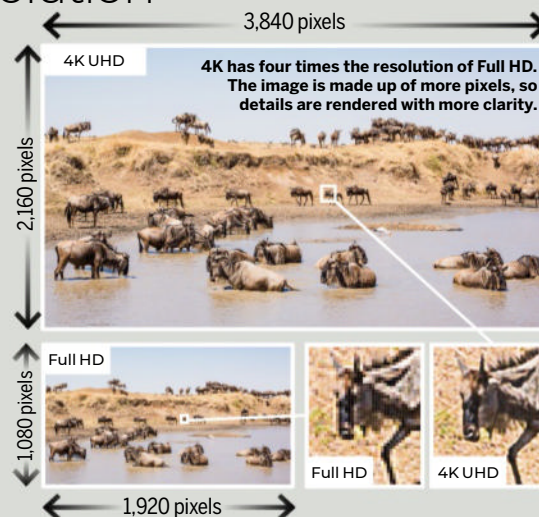
Price: £199/\$229
Verdict: The range's mid-sized option, the Axis 24L can stow one or two cameras with as many as eight lenses, plus a 17-inch laptop and accessories.

Camera tech: Video resolution

You get more pixels to play with when you record in 4K

Before starting to record video, the fundamental decision to make is which movie-recording size to use. This is largely determined by three functions: the image size or resolution, the frame rate (how many images are recorded each second) and the level of compression.

The choice of resolution is key, as this determines how much detail can be recorded, with 4K being offered by the majority of current cameras. There are, in fact, two 4K standards: TV-friendly 4K UHD (3,840 x 2,160 pixels) and a wider, more cinematic 4K 'DCI' (4,096 x 2,160). If you have space available on your memory card or external recorder, it pays to shoot at the highest resolution your camera allows, as you can always reduce this later. That said, shooting at a lower resolution usually allows you to shoot at a faster frame rate for slow-motion playback.



Camera buyer's guide

Wise buys
Graduated ND filters

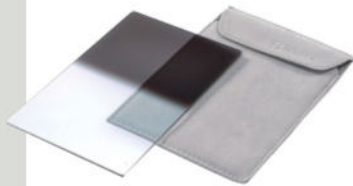
Good, better and best... three options to balance exposures



Cokin Gradual ND Kit incl holder

Price: £62/\$69

Verdict: An inexpensive entry to graduated filters and designed for smaller lenses, with filter rings up to 82mm. Uses filters 84mm wide, not standard 100mm ones.



Benro Master 100x150mm Glass filters

Price: £129/\$99 each

Verdict: Made of glass to high standard and delivers minimum image degradation. Can be fitted to Benro's unique 'geared' holder.



Lee 100mm ND Grad Hard Resin filter set

Price: £185/\$283

Verdict: A set of three graduated filters from one of the best-known names in quality photographic filters.

MIRRORLESS (CONTINUED)

	PRODUCT	PRICE WHEN TESTED	SENSOR SIZE/RESOLUTION	CONTACT	REVIEWED
	Sony Alpha 7 III ★★★★★	£1,999/\$1,999	Full-frame, 24.2MP	www.sony.co.uk	Issue 203 A terrific all-rounder – its handling and control layout aren't perfect, but that's soon forgotten in the face of its AF and continuous shooting performance, not to mention its 4K video capabilities.
	Sony Alpha 7 IV ★★★★★	£2,399/\$2,499	Full-frame, 33MP	www.sony.co.uk	Issue 249 Not an 'entry level' full-frame mirrorless – it's too powerful, too complex and, yes, too expensive for that. It's more like a mini-A1 that's extremely good at everything but less than half the price.
	Sony Alpha 7C ★★★★☆	£1,899/\$1,799	Full-frame, 24.2MP	www.sony.co.uk	Issue 237 Unambitious specifications, particularly in terms of its video capabilities, but its practical performance, including a handy vari-angle screen and excellent AF, make it an effective camera.
	Sony Alpha 7R III ★★★★★	£3,199/\$3,198	Full-frame, 42.4MP	www.sony.co.uk	Issue 199 Powerful and versatile but its battery performance is poor next to that of a professional DSLR. The A7R III's speed makes it supremely versatile but puts it up against tough rivals.
	Sony Alpha 7R IV ★★★★★	£3,499/\$3,499	Full-frame, 61MP	www.sony.co.uk	Issue 223 The Sony A7R IV raises the resolution bar for full-frame sensors, but it's a subtle, incremental improvement rather than a giant leap forward and this model faces some serious competition.
	Sony Alpha 7R V ★★★★★	£3,999/\$3,898	Full-frame, 61MP	www.sony.co.uk	Issue 264 While Sony pitches the A7R V as the resolution specialist, it also blurs all the video and sports boundaries. It's an amazing technological achievement but is it heading in the right direction?
	Sony Alpha 7S III ★★★★★	£3,800/\$3,498	Full-frame, 12.1MP	www.sony.co.uk	bit.ly/dc503 Apart from a big and expensive cinema camera, this is the only body that can shoot 4K at 60p full-frame with no crop, recorded internally in 10-bit 4:2:2 with no limitations on recording time.
	Sony Alpha 9 II ★★★★★	£4,699/\$4,499	Full-frame, 24.2MP	www.sony.co.uk	Issue 232 Blistering burst speed and AF performance are matched by its superb connectivity, which will be a game-changer for pros. The A9 II is a powerhouse performer for professional sports shooters.
	Sony Alpha 1 ★★★★★	£6,499/\$6,499	Full-frame, 50.1MP	www.sony.co.uk	Issue 242 A technological triumph, the A1 really can do everything. Previously, cameras might offer speed, resolution or video capability – the A1 offers all three. Its price is a major obstacle, however.
	Sony ZV-E1 ★★★★★	£2,350/\$2,199	Full-frame, 12.1MP	www.sony.co.uk	Issue 270 An excellent vlogging camera – small, compact and lightweight while packing in features such as an image-stabilised full-frame sensor, subject recognition and auto-tracking.
	Sony ZV-E10 ★★★★★	£679/\$699	APS-C, 24.2MP	www.sony.co.uk	Issue 246 A good camera for novice vloggers. It has 4K video, Sony's excellent autofocus system, a vari-angle screen and a clip-on muffler to cut wind noise. Plus, it's rather good value, too.

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Christophe Jacrot

Niall Hampton meets the French photographer to discover his fascination for extreme conditions in his book, *Lost in the Beauty of Bad Weather*



Christophe Jacrot

Climate photographer

Jacrot's photographic journey began as a teenager, but he switched to making short films and, aged 45, took up photography again.

He discovered his niche when trying to shoot sunny photos of Paris for a travel guide company. This gave him the idea of capturing the city in the rain and led to the publication of a book.

Five collections of Jacrot's photography have been published: *Météores*, *Snjór*, *New York in Black*, *Neiges*, and *Eaux Fortes*.

His sixth book, *Lost in the Beauty of Bad Weather*, was recently released by teNeues and features 160 photos of bad weather taken across the world.

christophejacrot.com

Instagram:
[@christophe.jacrot](https://www.instagram.com/christophe.jacrot)

Christophe Jacrot

There's no such thing as bad weather, so the saying goes – only the wrong clothing. While most of us would be happy to put up with some discomfort en route to capturing a scintillating scenic view, going outdoors specifically to take photos of appalling weather conditions is surely not a major motivation. However, this was the *raison d'être* of the French photographer Christophe Jacrot for his latest book, *Lost in the Beauty of Bad Weather*.

So what motivates Jacrot to document "the rain, the snow, the wind [and] the cinematic emotions they conceal", as he expresses it in the book's introduction? We sat down with him to find out more about him and his project...

What first attracted you to photography, and what has been your photographic journey since that point?

I've always been fascinated by images, and the quest to find emotions in them. I started taking photos when I was about 15 but abandoned it at 18. →





This page:
Venice, Italy.

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Christophe Jacrot



Christophe Jacrot

Top: Norilsk, Russia.

Above: Furka Pass, Uri/Valais, Switzerland.

Which photographers inspired you when you were starting out?

Saul Leiter, but I was guided by my instinct. There are subtle influences, such as Japanese woodblock prints, which often depict bad weather. I recently discovered Todd Hido, but I'm careful not to copy him.

How did you get your initial break to becoming a professional photographer?

I got back into photography after a period of filmmaking. Not being a writer myself, I didn't feel I could live up to my ambitions. Photography was my passion at age 15, but I was 45 when I caught the bug again. I took a four-month photojournalism course and got a commission for a tourist guide, which involved taking pictures of 200 locations in Paris. The brief was that they all had to have a 'sunny atmosphere'. But that springtime, it never stopped raining! That's where I got this urge to take photos in the rain and other types of awful weather. And I've never stopped since.

To capture photos like this – being out in all weathers and trying to make the most of the difficult conditions – you must be quite obsessive?

Of course! But then, aren't all artists a little obsessive?

Do you actually enjoy working in such awful conditions? Under similar circumstances, most people would be happier to stay indoors...

But that's life, too! No bad weather means no life! I find the dramatic power of 'bad' weather captivating. It has a beauty that's austere but real.

Which camera setup do you use and why did you choose it?

I always start with a pretty quick shutter speed, as quick as possible, and ISOs depending on the light. I never go above 3200. Everything else flows from there. It's often a trade-off, especially in low light. Controlling the shutter speed is my main priority.

"I find the dramatic power of 'bad' weather captivating. It has a beauty that's austere but real"



Christophe Jacrot

How much additional equipment do you carry with you when you're working in such wild weather – rain covers, lens cloths, spare batteries... and food and drink to keep you going out in the field?

I have a lumbar compression fracture, so I have to keep things as light as possible. A camera, a good zoom lens and that's it. I don't want to have to swap lenses in a storm. Either my car or home is never far away, so I don't need to worry about going hungry, but I often take a snack of dry goat's cheese. I can stay outside for hours. The camera is protected by a bag, and I wear standard gear and a thin glove on my right hand, which is partly protected by the bag. The wind is my biggest enemy – I use disposable tissues to wipe the lens. It's not what the professionals do but if I took a special cloth, I'd only be able to use it once. You also have to deal with the risk of condensation and sudden temperature changes that cause the lens to fog up.

What are the most extreme lengths you've had to go to when capturing the beauty of bad weather?

I never stray far from the car or my home, but I can stay out for hours. There's always a human element in my photos, so I never venture deep into the wilderness.

How did you pick your shooting locations – do you just go where you know the weather will be bad?

Just my inspiration. Although I do have a smartphone app that shows rain forecasts. If there's a deluge expected somewhere, I look to see if the location is interesting. I do a lot of scouting online, although the 48-hour forecasts are never particularly accurate. Unfortunately, you can't just hop over to



Christophe Jacrot



Christophe Jacrot

Top: New York, USA.

Above: London, UK.

Left: Faroe Islands.

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Christophe Jacrot



Japan at the last minute, you have to go for a while. I do have a list of places that I'm interested in. For example, I went to Iceland based on forecasts saying the weather would be rough for a few days in one region.

You have to provide a context for each image – a snowstorm surrounding a structure has resonance, for example – so in terms of composing your photos, what are the most important factors you are looking for?

That's a tough question. The most important thing is finding somewhere that inspires me! Once I've done that, I concentrate on it. And again, instinct...

Are you pleased with the images taken from the car in Scotland and France? They look like paintings.

That's one distinctive aspect of my work, the window effect, but it's hard to get satisfactory results. First, I have to be able to position my car, and then the subject has to play ball. It often doesn't come out right. I've tried practising with a portable window, but the results weren't convincing, and it creates other problems, too. The 'subjective' aspect of the car is also important.

“Climate change or not, there will always be bad weather. It's a matter of how dangerous it gets”

Do you think you have a recognisable photographic style, something that binds all the photos in the book together?

That's a good question. People often tell me they can recognise my style. I'll take that as a compliment as, for me, style is essential. But to be honest, I don't know if I really have a 'style' as such.

Over how many years were these photos taken? And, when you started shooting them, did you know you wanted to produce a book straight away?

The *Lost in the Beauty of Bad Weather* book was commissioned by German publisher, teNeues. I gave my production artist 400 photos and he did the rest. So, this book is a collection of 13 years of photos. I've done five other books before this one, but they were all on more specific themes.

Are you trying to make a wider point with the book – that climate change means that 'bad weather' is just becoming 'weather', perhaps?

Climate change or no climate change, there will always be bad weather. It's just a matter of how dangerous it becomes and how violent some spells of it are. As for a wider point, I have lots of questions in my mind, but no real answers.

What's coming up next for you?

Spending a month this winter in Japan or the USA, two countries where they have real winters. And returning to the Faroe Islands, which is my favourite place in the world... and perhaps another book. ●

Above: New York, USA.



Lost in the Beauty of Bad Weather by Christophe Jacrot is published by teNeues (ISBN: 978-3-96171-497-1) and is on sale now, priced at £55/\$85. www.teneues.com

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with Chris George

What the f-stop?

How much do you remember about photography in 2023? Test yourself with our seasonal trivia quiz!

1 Leica made its return to making instant cameras this year, but what was the new feature of the Sofort 2?



- A It gives square prints
- B It has a zoom lens
- C It records a digital image, as well as producing a print
- D It has rangefinder focusing

2 Nikon released its first full-frame retro mirrorless camera. What was it called?

- A Nikon Z fc
- B Nikon Df
- C Nikon Z1
- D Nikon Z f



3 Sony stunned the world with news of its upcoming A9 III pro sports camera. What is its top shutter speed?

- A 1/10,000sec
- B 1/40,000sec
- C 1/80,000sec
- D 1/200,000sec

4 Sigma started making its first lenses for which lens mount in 2023?

- A Canon RF
- B Nikon Z
- C Sony A
- D Fujifilm GF

5 AI was the big story in photography. What did Adobe call its new AI text-to-image generation tool?

- A Barfly
- B Dragonfly
- C Greenfly
- D Firefly

6 What was the subject of the overall winner in Wildlife Photographer of the Year 2023?

- A Bees
- B Snow leopard
- C Crab
- D Fish

7 Which company introduced a DSLR that only shoots in black and white?


- A Leica
- B Pentax
- C Alice
- D Polaroid

8 Which compact camera became unbelievably popular due to a TikTok craze?

- A Kodak Ektar 35
- B Leica Q3
- C Ricoh GR III
- D Fujifilm X100V

9 What feature did GoPro controversially get rid of for its latest flagship action camera?

- A Image stabilisation
- B Front LCD screen
- C GPS
- D HDR



10 Which company launched a Plena lens?

- A Laowa
- B Cosina
- C Leica
- D Nikon



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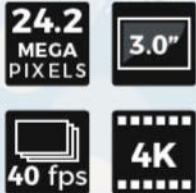
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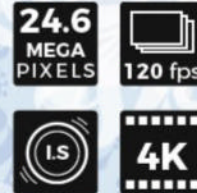
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