

Canon

Photography for Enthusiasts

the ultimate guide to getting your settings right

For DSLR & mirrorless
Canon EOS cameras



By Nina Bailey

Introduction

This book has been written as a result of the question that I get asked most often when I'm out training. It's a simple question, "What settings should I use?"

If I've got a group of novices, I'd expect to hear that question. However, on intermediate and especially advanced events, you'd be surprised how often that question still comes up. Even to this day, it's unexpected.

Possibly the root of the problem is that so many of the photographers are self-taught nowadays. Although most will know most of the basics, they often don't have the in-depth knowledge of the basics, grasped sufficiently to enable them to work through the settings that are needed for the images they are about to take. There is a phrase often quoted by many trainers –You don't know, what you don't know. In other words, you can't identify the gaps in your knowledge as you don't know that there is information that is missing, and it is those gaps when it comes to photography that often make deciding what settings to use difficult.

In today's information era, there are also many myths and misleading statements about what settings you should use. Some of the information about techniques and settings relate to what was used over 20 years ago when film cameras were . Digital cameras enable us to shoot a much wider range of images, and so our settings and techniques have to change along to adapt to the new possibilities and technology.

This book is an in-depth look at what is important when taking an image. What must be considered and set correctly to get the type of image that we want. Much of the time this is perceived as being simply setting the aperture and shutter speed. In fact lens choice, the focal length that you choose to shoot at and the ISO are often far more important than those other two settings. Of course, your Canon camera has many other settings available, a number of which can stay the same most of the time, but others such as the autofocus system need to be changed to adapt to the type of subject that you're shooting.

Rather than being a practical guide to your camera settings – which a number of my other books cover – this book explores the thought process that goes into taking an image and how this applies the applications of the settings. This theory-based book concentrates on the process that should be key to your photography, looks at not just what the settings do, but when, how and why those settings are used. This will fill any gaps in your knowledge and which you can apply to your photography so as to improve your results significantly.

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About the author

A keen photographer when she was young, Nina started her career in photography in the retail sector before moving on to work for Canon UK, where she spent nine years looking after training, exhibitions and marketing both in the UK and Europe. This gave Nina an unrivalled knowledge of not only the Canon EOS system as it developed, but also how to build and enhance the skills of photographers.

Nina started her own photography training business in 1999, with courses and experiences for amateur and enthusiast photographers. After producing a range of Canon training DVDs, Nina then turned in 2014 to writing eBooks, which she writes, designs and publishes herself.

A year later Nina was appointed as Technical Editor of [EOS magazine](#), a role that she still undertakes alongside her active role as Senior Tutor for [EOS Training Academy](#), the leading training provider for Canon photographers.

Nina is still passionate about photography, shooting both professionally and personally. She loves travel, landscape and wildlife photography. A lifelong Canon user, she remains one of the leading experts in the EOS system and loves to share her knowledge with other Canon owners.

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PREVIEW
EDITION



Foreword from the author

I have written this book to be applicable to whichever Canon EOS camera you own, whether it's DSLR or mirrorless, whether it's an EOS 70D, 5D Mark IV, M50 or latest R5. Many of the techniques, principles and camera features discussed in this guide will be the same on most EOS cameras. There are exceptions, however.

There is a significant shift taking place at the moment in terms of camera technology – what is being developed and introduced is radically changing how we shoot, and that means some techniques will vary depending on the age and feature-set of your Canon camera.

This shift in technology started back in 2012 when the first mirrorless models appeared, though it wasn't really until the introduction of the EOS R full frame system in 2018 that the most significant changes started to happen. The pace of change quickened with the introduction of the EOS R5 and R6 in 2020, and it is these two models that have really redefined how we can shoot. In fact, I deliberately left starting on this book until I had been able to use both new R-series cameras along with some of the new, more unusual, RF lenses. This means that I can explain in detail how the new technology influences the techniques and thought process.

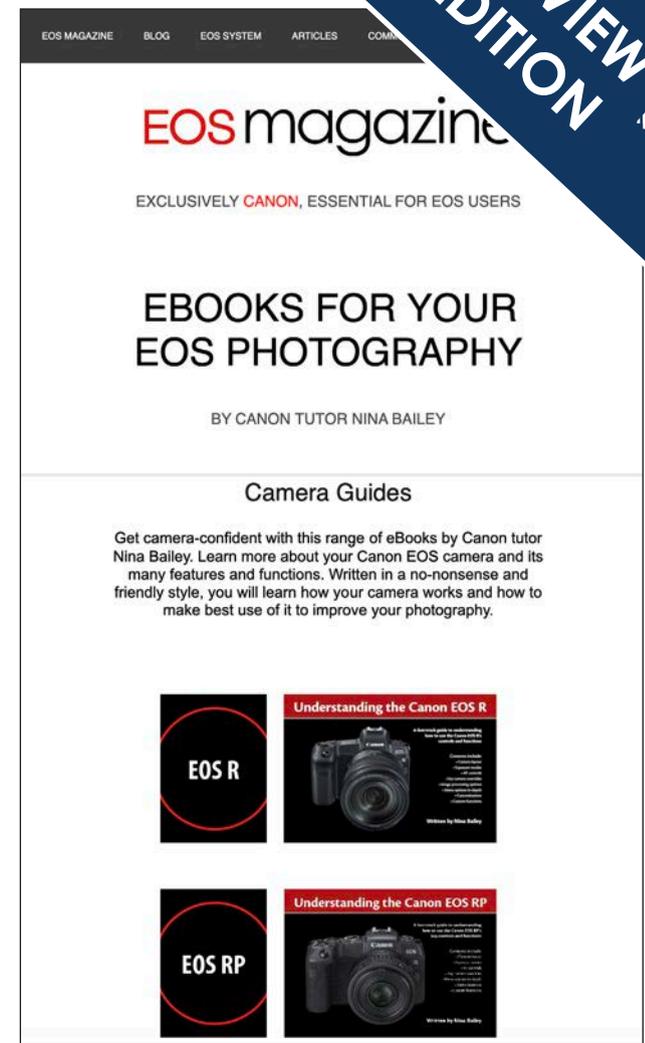
So, within this guide you will sometimes find that the advice for shooting with the newer models contradicts the advice for some of the older models. It doesn't mean there's anything wrong with older models – they still work incredibly well and, if you use them intelligently, your results will be excellent – but the way that you use them may be very different in some situations, especially for models launched before 2012.

The new EOS R5 and R6 cameras are mentioned a great deal, not because I think that everybody should be using them. In fact, for many photographers they are way beyond what you would ever need. If you're happy with what you have and getting the results you want (or know that there's more to be had), there's no need to change. Nevertheless it can be interesting to understand how the technology is changing and why knowing your gear is essential to achieving what you want with your photography.

Because this guide is generic to all Canon EOS cameras, there are no detailed instructions as to how to set some features. For further guidance specific to your camera, check out my range of Canon camera guides. These show you exactly where to find the settings, buttons and features covered, as well as how to set up your camera. For more information visit: www.eos-magazine.com/ebooks/es/camera-guides.html

Happy shooting,

Nina



Navigating this book

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The thought process for taking images

The thought that goes into the image you're going to take is the most important part of photography. This section will illustrate that the process and areas you need to think about will vary widely across different subjects, locations, time of day and season, not to mention what you're looking to achieve with the shot.

If you are going to take lots of images in the same location, such as a motocross event, then this thought process is primarily before you start shooting. You then need to think about it again each time you move the location where you're shooting, as the conditions and how you're shooting may change subtly. For this image there were some very obvious things that were needed to get good results. The first was telephoto lens – to fill the frame a reasonable amount of the time. The second was setting up the focusing to deal with a moving subject and to get the camera to focus quickly when the subject appeared as you had no sight of the subject until it came over the jump. Then a fast shutter speed was needed to freeze the action. It's easy to think the aperture isn't important, but you do need enough to get a reasonable amount of the rider sharp – you can't guarantee that the camera will always focus on the head. You also need the ISO to make those settings possible and of course you are quite often going to take multiple shots so the camera needs to be on continuous drive. That all needs to be considered before lifting the camera to your eye.



ESP stands for the three steps we need to go through to take a picture. It's something we have always taught on the events that I and my fellow tutors run at EOS Training Academy. It's a system that, once you start to apply it, will become second nature to the point where you almost don't need to think about it. However, like all things that we learn, it must be consciously learnt to start with, then as you become more practised, it becomes more automated.

ESP breaks down the process of taking the picture into three steps. **E stands for Evaluate** – this is the step that this book is primarily concerned with. It's also the part of the process that isn't covered in as much depth in most of my other books. **S stands for Set up** – in other words, going onto your camera and setting up the options that you need to use to successfully take the image. That's what my camera guides concentrate on – how to set the features available on your camera and a little bit about what they do. **P stands for Produce** – in other words, go ahead, press the shutter button and take the image, or in the case of many images, take several images from which to select the best.

The Set up and Produce parts of ESP should be the quick bits, but the initial Evaluate stage before you start shooting is the most important and often needs a bit of thought. Of course, the Evaluate part is going to vary as your subject type changes. The image on the last page is all about capturing action, which requires very different settings to the image on this page – of a Barbary macaque, captured at Monkey Forest in Stoke on Trent. It's a good place



to learn, because all the time there are different challenges. Sometimes your subject will be static but may have leaves, branches or grass in front of it, which means you will need to set your focusing up to avoid focusing upon them. Other times the subject will be moving around, and you need the camera set up to capture that movement. Light levels will change, depending on whether your subject is amongst the trees or in the open.

The consistent thing with a wildlife subject is that you will be shooting with a telephoto lens, generally the longer the better. So in the image above the focusing is one of the more important factors to set up correctly. If you have too many focusing points active, the camera may well choose to focus on the

grass in the foreground – as the camera focuses on what it detects as closest to the lens – and your subject may be out of focus. Your shutter speed only needs to be high enough to handhold the lens. The monkey is static, but you will need a little bit of depth-of-field to ensure the monkey's face is all sharp, from the front of its muzzle to the eyes.

Photographers often struggled to get the subject all sharp, because they're obsessed with getting background blur. In fact if you're shooting with a telephoto lens it's simple – if you're filling the frame a reasonable amount, the background will be blurred. The image above was taken with a 400mm lens with an aperture set of f11 which has rendered the monkey beautifully sharp.

ESP - Shooting conditions

Some images are simpler than others to take. The image here was taken on a day with a nice blue sky, in good lighting and the only consideration was that everything in the image was rendered sharp.

An image like this is going to be taken with a wide-angle lens; sometimes you may need to think about what focal length you're going to use. This was taken on a lens that goes down to 24mm. However, I stayed a little bit further away from the scene and zoomed the lens by a small amount. The reasoning was that, by working on a focal length nearer to a standard lens rather than an ultra-wide lens, I would get less distortion in the picture. If you use a very wide angled lens, and if you tilt it up or down, you will start to get converging verticals – sometimes known as keystoneing. Although correctable in post-production it's an extra process to go through. It's also one that is avoidable by being careful with your framing and careful selection of the focal length. Knowing this and applying it to your shot is important and saves time.

The obvious mode choice for this image was AV mode. I work mostly on Auto ISO, which means the camera will keep the ISO as low as possible whilst ensuring that my shutter speed is handheldable. The latest camera models – those with 30MP or more – are more prone to showing up movement when the camera is fired. So one of the controls that I use a great deal is called ISO speed settings, which has a minimum shutter speed option within it. This allows me to either bias the shutter speed up a little bit from its normal setting, which by default is set to make sure that it's equal to the reciprocal of



RF 24-105mm f4L IS USM at 39mm, ISO 200, f11, 1/250 second

the focal length of the lens, or I can tell the camera the shutter speed that I want to work on. On this day that was set to 1/250 second, hence why the ISO has increased automatically to ISO 200 to make that setting possible.

Every single picture that I took in this village was taken on exactly the same settings as they are all the same style of image. The focusing was set up to use a single AF point which was pointed onto the building and the focus locked using half pressure on the

shutter button. The focusing mode was One Shot AF and the other key settings were that the Picture Style was set to Fine Detail, and Auto Lighting Optimizer was turned on.

Getting good images on a day like that one was easy as the lighting was absolutely superb. The image is taken in early June when the foliage is still a lighter green and the clouds were just about the right size to give an interesting sky. I will go through the settings I have mentioned in the next few chapters.

ESP - Post-production

This image was taken in the same village as the last one; in fact, you can just see a building behind the bridge and that's what appears in the picture on the previous page. This building is on the opposite side of the canal and you may notice the canal bends round just a little bit, so the lighting on this building is not as good on the previous one. This has made it more challenging to capture as the side facing the canal is in shade, whilst other parts of the scene are in bright sun. The settings for this image are identical to the ones used for the previous image, though the focusing was fixed onto the bridge which was in sun, rather than the building which was in shade, as that would have led to an exposure error for the rest of the scene and made it go too bright.

The original image is shown bottom right and you can see in the original there is much more shade on the building and the sky is paler. This brings me onto the other part of the Produce step of ESP – post-production. Whilst this is a subject that I usually cover as a separate topic in dedicated books (the only exception being my Monochrome book), in this guide I'm going to explain some of the key things that I would do to an image within post-production.

I do not spend hours doing post-production on my images. In fact, my boredom threshold for adjustments is normally two or three minutes at most. However, when you know what to do, it is those small, quick adjustments that can make a very big difference to how the image looks.



RF 24-105mm f4L IS USM at 37mm, ISO 200, f11, 1/250 second

I mostly shoot JPEG images, and do minimal amounts of post-production. However, the images on this page and the previous page were both taken as RAW files as I was writing my Beginners guide to post-production. This image certainly shows the extra flexibility that RAW files can offer.



When we start thinking about the Evaluate process there are other factors that we need to bear in mind. This includes the use of filters. The image to the right needed a bit of luck, being in the right place at the right time, and finding a layby to park in with a good view across the Loch. I will admit to the image being taken while sitting in the car as it was a little bit wet outside.

It also needed some knowledge about how to make the rainbow stand out. Generally for a rainbow you need the image to be very slightly underexposed. That was achieved with this shot by focusing on the top of the mountain so that more of the sky was included in the picture, at the time the camera did the meter reading, which automatically darkened the scene down a little bit.

The other trick to making a rainbow look this bright is to know that you need to put a polarising filter onto your lens. When you rotate the filter, in some positions it will make the rainbow more intense, so it shows up more, but you do need to be careful as if you rotate the camera through 90 degrees at that point to take a vertical shot the rainbow will vanish.

A polarising filter will lose up to 1.5-2 stops of light and so the ISO needs to be higher to achieve the other settings that you need. If you are working on Auto ISO the camera deals with this automatically. The aperture in this image was left at my normal f11, because I wanted the foreground to be sharp as well as what was in the background.



RF 24-240mm f4-6.3 IS USM at 50mm, ISO 320, f11, 1/80 second

When you get an opportunity like this, make the most of it, rather than just taking a single shot. I have images taken as wide as the 24mm setting which does show almost the full rainbow as well as the image to the right which is taken zoomed in and captures the rainbow against the land but without the sky. Some shots will work better than others but the length of time the opportunity lasts is often short and it's easier to decide later on which is the best shot, rather than at the time of shooting.



There's no doubt that on a bright sunny day there is a much wider range of potential images available for you to take. However, on a day when it's overcast or even decidedly inclement, as in the shot to the right, it doesn't mean there are not images to be had – you just have to look much harder to find them.

The image here is taken from the visitor centre at Glencoe. It's a part of Scotland that's still very wild and the glen has an unusual atmosphere about it. On this day the weather was very changeable. I had gone into the visitor centre to pass some time until the shower went over. There is a viewpoint at the back of it that looks up the glen and from there you could see this heavy shower passing through.

This image has been exposed to ensure that there is no burnout in the sky and so has made the surrounding scenery go much darker and mysterious than it looked to the eye. However, it has given a very different looking image.

There is in fact very little post-production that's been done to this image. The image was taken as a JPEG and just had a basic levels adjustment done on it. The easy way to get the exposure on the sky for an image like this is simply to take your focusing up onto the clouds. I was using a single focusing point which was centrally located and so I pointed it up onto the clouds locked my focus and metering, reframed and then took the image.

If you don't get exactly what you want on the first attempt, try focusing on a different area.



RF 24-240mm f4-6.3 IS USM at 29mm, ISO 200, f10, 1/1000 second

With images like this you need to learn to visualise the potential of the image. I could see in the mind's eye what it was going to look like if I exposed it to capture the sky correctly. If I had exposed it for the darker patches then the sky would have been completely bleached out.

You can see from the settings above that they haven't varied much from my default for landscape-type images. My ISO was on Auto, I shot with a wider angled setting on the lens as I needed to capture all

the sky and there's nothing in the image to show any distortion, and I've allowed my shutter speed to go up quite high to cut back what was actually very bright light at the time the image was taken.

So this is an image where it's all about visualising the potential, rather than capturing exactly what's in front of you. Scotland is one of those areas where this technique works extremely well.

ESP - Getting in close

If we start to shoot close-up to subjects, especially once we start being less than a metre away, we need to factor in the more specialist techniques that are needed for this type of subject. As we start to shoot closer, the depth-of-field that any specific lens produces dramatically reduces and so it gets harder to get the whole subject sharp.

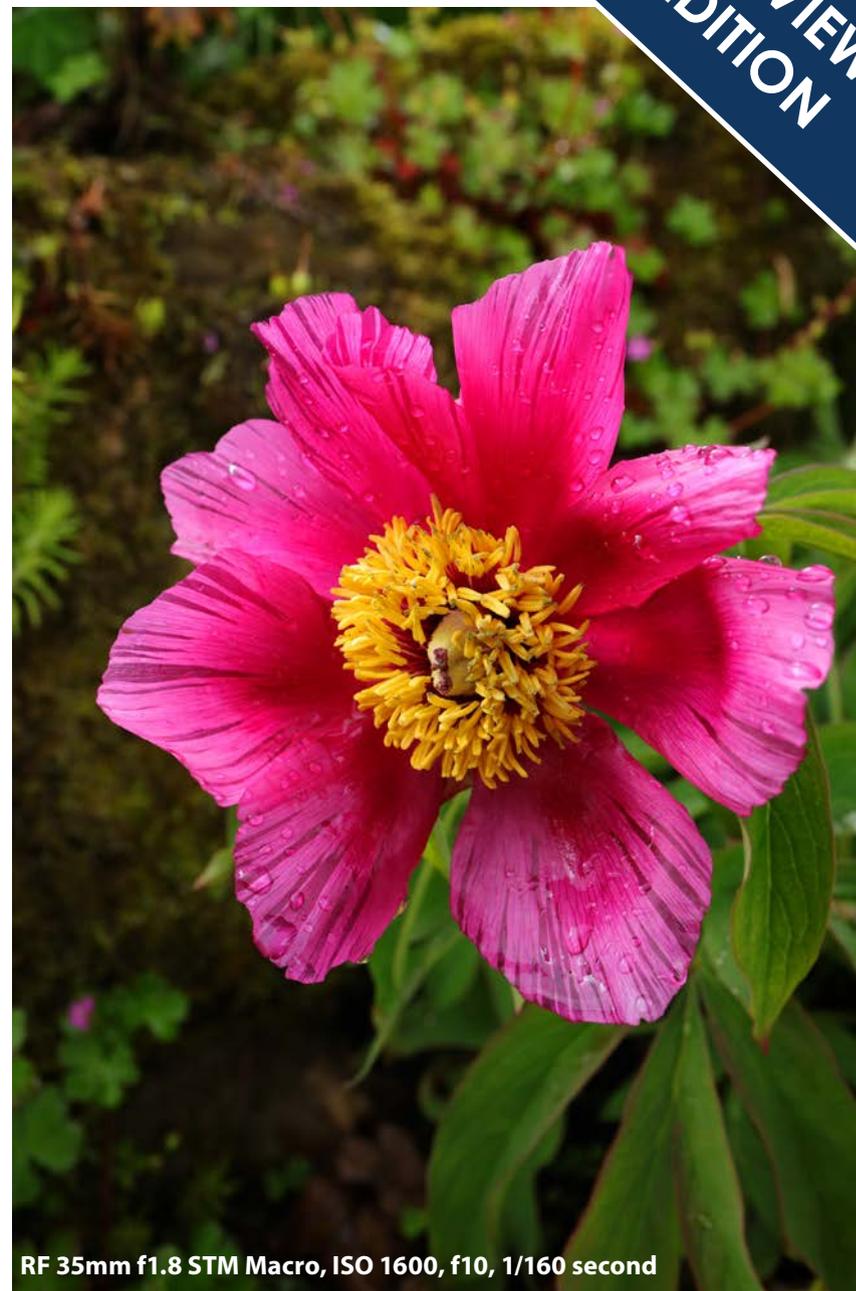
This is something that we need to factor in when evaluating our subject. There are two parts to the thought process here. One is the angle that we're shooting to our subject: the squarer the subject is to the lens, the easier it will be to get it all sharp as the less depth-of-field we have to achieve. Second is the fact that we need to use quite a narrow aperture. This means we need to have enough light available to work at narrower apertures and so the ISO setting may have to go much higher, or you will have to set it higher than would be normally necessary for that level of light.

When we start shooting close to our subject, the magnification factor also has the side effect of magnifying any movement that happens when we fire the camera. So generally, one stop higher on the shutter speed is recommended when shooting close-up to subjects. That way, any camera or subject movement is less likely to be captured.

However, all of this makes it harder to get the light you need to take the image.

There is another factor recently introduced, with the advent of wide angled macro lenses. These are lenses which have wide angle focal lengths – generally between 24mm and 35mm – which are designed to give you a good magnification, between 1:2 and 1:1 is common. This image, right, was taken with such a lens and shows the somewhat unusual perspective that it gives. Getting the whole subject sharp is actually easier with these lenses. However, getting background blur is also more difficult, and you tend to get more background in the shot.

The moment we start shooting close up subjects, we have to think about the difficulty that the depth-of-field presents and how we're going to get the light needed to achieve the narrow aperture and higher shutter speed to ensure a sharp shot. This image was taken when it was raining – hence the water droplets on the flower. This also accounts for why the ISO needed to be quite so high – ISO 1600 – as the light level was relatively low, but the other settings were necessary to achieve the shot.



RF 35mm f1.8 STM Macro, ISO 1600, f10, 1/160 second

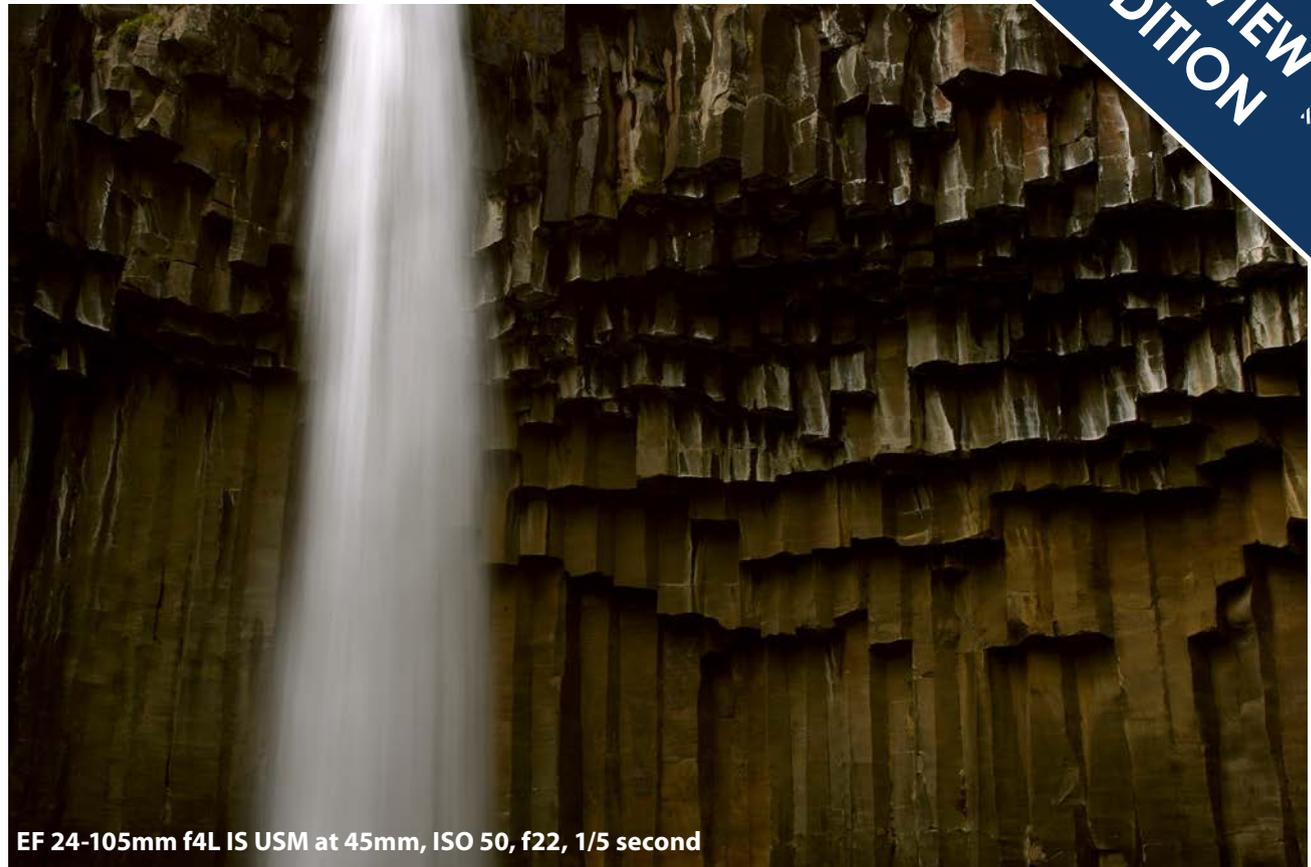
When evaluating an image, we need to think about any motion that's within it. The waterfall here is a case in point. We need to use a shutter speed that will do one of two things when photographing water. Either freeze it – in which case shutter speeds from about 1/500 second and above are needed, depending how close you are shooting – or blur it, for which you need a slow shutter speed. Generally, shutter speeds from 1/15 second or slower will introduce an acceptable amount of blur to the water. The exact shutter speed needed will depend on the speed that the water is flowing and of course the quantity of water.

In the image here the shutter speed was governed by the light level that I was shooting in. I took the ISO down to its lowest setting (in this case, ISO 50), the aperture down to its narrowest setting available on the lens (f22), as these settings gave me the slowest possible shutter speed for the conditions.

(The image here is now more than a decade old and going back to those days I didn't have the range of Neutral density filters that I have today.)

Nowadays I would shoot this image with a Neutral density filter to enable me to achieve a longer shutter speed (though, to be honest, it may not have made much difference to how it looks).

The range of Neutral density filters that are now available has increased considerably in the past ten or so years. They are also far more usable, as the cameras now have much better low light focusing capability and so will cope with a reasonably



EF 24-105mm f4L IS USM at 45mm, ISO 50, f22, 1/5 second

dense filter fitted to the front of the lens, whilst still allowing you to achieve autofocus. In addition, advances such as Live View provides a helpful tool to work out the exposure.

All these things combine to make shooting at the slower shutter speeds possible, even in bright light levels. This means we now see more slow shutter speed photography being used to blur not just waterfalls, but indeed foliage and even clouds within images.

Your Canon camera can retain automated exposure all the way down to 30 seconds, which is enough for most long exposure effects. If you wish to shoot at shutter speeds longer than this then you need to go into Bulb mode which will require you to shoot manually. I will look at the techniques for using Neutral density filters and Bulb mode later in the book.

If we're shooting subjects that can move, we need to think about the shutter speeds needed to freeze that movement.

In the image here with the weaverbird, when the bird landed on the nest it started to sway, making it quite a challenging subject to focus upon. These birds also flap their wings when they are weaving the nest to help maintain their balance and so you need to think about how you're going to capture that movement.

This shot has another problem, inasmuch as it is also quite heavily backlit and so the exposure needed to be carefully gauged for the bird and the nest on this side and allowing the background to go a little bit lighter, which actually helped the bird and the nest to stand out.

Exposure compensation wasn't needed, as by keeping the focusing on the bird, the camera has automatically rectified the problem. This is something that cameras launched from 2016 onwards are much better at doing than their earlier counterparts.

Images like this are always going to be taken on telephoto lenses – it's the nature of the subject. In this instance it was taken on my 100-400mm lens, with a 1.4x Extender (teleconverter) fitted. This loses one stop of light, so the widest aperture available with that combination was f8.

Just to handhold that combination you need to look at shooting at 1/1000 second minimum, but



EF 100-400mm f4.5-5.6L IS II USM with 1.4x Extender at 560mm, ISO 3200, f8 1/2000 second

to freeze the motion in the shot it was necessary to take the shutter speed up to 1/2000 second. That shutter speed in combination with the f8 aperture requires a lot of light to be able to shoot and so the ISO had to go up to ISO 3200 to give me enough light to shoot.

Another consideration was the backlighting, which will be 1 or 2 stops less than the ambient light that is generally present and so this will mean increasing the ISO to compensate.

This image was taken on AV mode, enabling me to choose the aperture that I wanted to use and then the camera set the other options.

The ISO was on auto, and the camera's ISO speed settings were programmed so that the shutter speed could not drop below 1/2000 second using the Minimum shutter speed feature. I will look at these options over the coming chapters and look at how they work side by side with the ISO control on the camera.

One of the other things to think about is how you want the colour to be reproduced for the image that you're taking. At the most basic level that means do you want to shoot in colour, or will the image look better in black and white? There are days when I will go and shoot specifically in black and white. However, most of the time I shoot in colour and then produce a black and white within the post-production process. Although we normally talk about black and white photography, the camera actually describes the black and white Picture Style as Monochrome, as in addition to shooting a pure black and white image, we can alter the tone to blue, sepia or a number of other colours.

However, thinking about the way we want colour to reproduce can be about several other factors. The major one that will affect you is the colour of the lighting. The camera has a system called Auto White Balance which will largely deal with this for us. Though if shooting in artificial lighting, or if we want to manipulate the colour of the scene to give an effect, then we may want to use one of the overrides that the camera offers. A good example of when you might want to override it for effect, is if shooting a sunrise or sunset where you wish to increase the amount of warmth within the image.

The chosen Picture Style will also affect the way that your colours are reproduced. There are some Picture Styles such as Standard and Fine Detail which are designed to give very neutral and more muted colours. Whilst if you shoot in Landscape mode it gives you much richer and more vibrant colour.

It's also worth thinking about the type of colours. Over the last few pages we have some images which I would describe as having vibrant colours. These images grab the attention and make you look at them, but it also means if you've got very bright colours you need to think about how they combine within the image, and whether there are objects that will draw your attention more than others. If you have an image with more muted shades, then they all tend to blend together and it actually can make the composition so much easier.

The most important thing to do is to observe the scene and think about what the colour within the scene will recreate in the image. Additionally, if dealing with large areas of a single colour, think about how that can be made to work creatively.



EF-S 18-135mm f3.5-5.6 IS STM at 69mm, ISO 400, f9, 1/1250 second

ESP - Light level

A topic that is going to crop up time and time again in this book is the light level that you are shooting in. If you are shooting in bright light you will have fewer problems getting the settings that you need.

The lower the light level becomes, the more difficult it is to work handheld. For images like the one to the right, tripods are almost inevitable. To retain the quality we want, we generally need to be shooting at shutter speeds which are well below the handholdable limits.

Rather than think of a tripod as restrictive (as I often do), shooting on a tripod does open up other opportunities. It makes it easy to use some of the more specialist techniques, such as HDR photography – this is where we take three images at differing exposures to give us a final image that has a much wider dynamic range.

The use of a tripod also allows us to use much longer shutter speeds, enabling several different effects. In the image to the right, a six-second exposure hasn't eliminated all the people. But many of them have become so blurred they have vanished. If the shutter speed was made longer, then more people would vanish, thanks to being so blurred as they move, they're effectively not reproduced.

If I were to shoot Tower Bridge in London, for example, then I would think about the shutter speed from the point of view of blurring the water in the Thames. Longer shutter speeds give more blur; more blur gives better reflections in images.



RF 24-240mm f4-6.3 IS USM at 24mm, ISO 100, f11, 6 seconds

If we have a street scene where there's traffic passing, then a longer shutter speed will record the light trails from a vehicle, but not the vehicle itself. So, once we start shooting in low light levels, we need to think about the additional techniques that we can use and how to make best use of the scene.

It's important to know about the effects that longer shutter speeds offer, as well as their limitations. Even at night you can end up with too much light, so there may be limits on the length of your exposure.

Bulb mode allows shutter speeds longer than 30 seconds to be achieved, though historically you were responsible for manually timing the shutter release in this mode. More recently, it's become much more accessible – and therefore popular – since the introduction of a Bulb timer feature on the camera, which allows you to program the length of the exposure, and the camera activates the opening and closing of the shutter for you.

Most of the time we shoot with the natural light that's present. However, there are times when we want to supplement the light using flash. The moment we start to use flash to illuminate our subject, we also need to evaluate the effect that using flash has on other settings that we use. Both scenes depicted here have their own set of problems when using flash. The image taken indoors has been corrected so that there's not an orange colour cast from the ambient lighting from the lamp. However, in order to do this, a Custom White Balance setting was needed on the camera and a filter fitted to the flashgun to make the light from the flash match the ambient light.

In the image taken outside, flash was needed as the subject was heavily backlit and so flash has provided much of the lighting for the main subject, whilst ambient light supplied the lighting for everything else within the shot. It's a shot that the camera can cope with on automatic settings, providing you understand the settings that are needed to prevent problems when using flash in this way.

Both images are examples where many photographers have problems getting good results. In low light, setting the ISO too low essentially eliminates all of the ambient light – the very light that contributes towards the image looking good and natural. The key fact here is that flash can only light one distance, so if you don't want a black background you need to capture the ambient light.

When shooting in bright light levels, as in the outdoors shot, you need to understand that the camera has a maximum sync speed that the flash will not allow it to go above, unless you enable specific flash settings. This makes it very easy to end up with overexposed images when trying to shoot at very wide apertures.

So the moment we start to use flash we need to be aware of additional rules that we need to abide by.



RF 24-240mm f4-6.3 IS USM at 76mm, ISO 1600, f5.6, 1/60 sec.



RF 24-240mm f4-6.3 IS USM at 58mm, ISO 125, f6.3, 1/125 second

ESP - Other factors

This image of a bear was taken at Chester Zoo, even though it is a very natural-looking scene. Because of this, there are a number of factors to evaluate.

The first is the fact that you're shooting through a sheet of glass into the enclosure. Glass is reflective and so it's important to ideally get your lens absolutely flat against the glass, to prevent reflections. This is easiest to achieve if you have a lens hood fitted.

One of the tricks when visiting zoos is to wear black clothing. Black doesn't reflect in glass and therefore you can effectively eliminate reflections simply by your proximity to the glass, meaning that even if you can't get your lens in the right position, you're not causing a reflection that's going to pick up in the image. You can normally create a large enough patch of dark to eliminate other people's reflections.

For this image it was also necessary to be sitting down on the floor, as I needed to be at the same eye level as the bear. It's a common problem in wildlife photography – looking down upon the animal rather than being at the eye level results in a less than pleasing shot. You just don't get the engagement through the lens.

The other complication here was the grass in the foreground. The bear was moving towards me. In this situation I would normally use a large focusing area – made up of a number of AF points – to make it easier to pick up and follow the moving subject. However, with grass in the foreground, you need a smaller focusing area so that it is concentrated on the bear. That makes it harder for the camera to



EF 100-400mm f4.5-5.6L IS II USM with 1.4x Extender at 238mm, ISO 2000, f14, 1/500 second

focus, especially on a subject that's predominantly dark brown or black. If the camera can see the grass, it will focus on that rather than the bear.

It's one of the reasons why I decided to shoot at a fairly narrow aperture, as it gave me a good chance of getting the bear's head sharp, regardless of where on the head the camera actually decided to focus. With a subject that's constantly moving, and a lack of contrast, it's not always possible to focus exactly on the eye.

It's also an image which required a small amount of Exposure compensation as the darkness of the bear caused an exposure error. The actual amount used was -1. With a subject such as this I would expect to see an exposure problem and so would automatically dial in a small amount of compensation when setting up the image. On any EOS camera featuring a Quick control dial this is done simply by turning this dial while the camera is active.

ESP - Summary

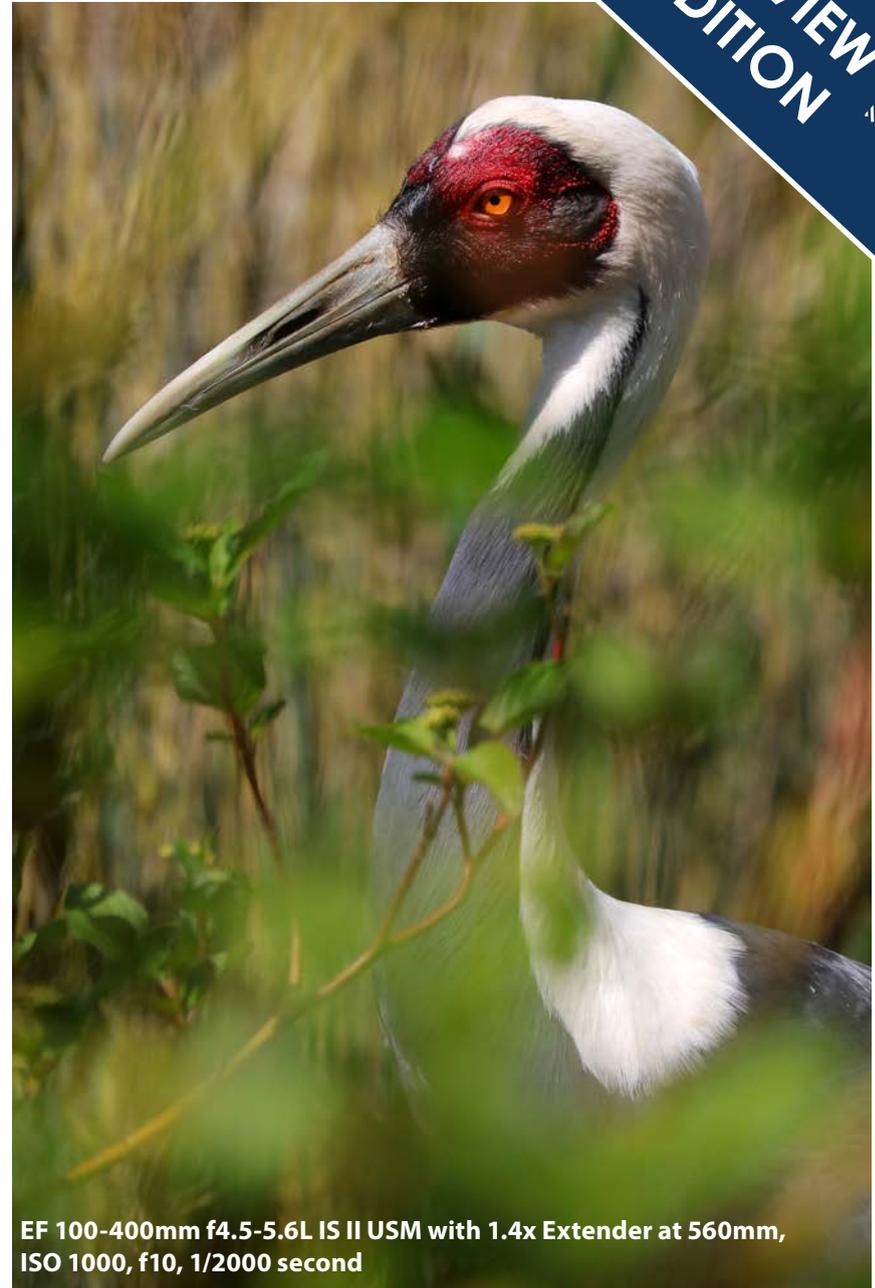
ESP is all about taking a good look at the subject and deciding what you need to set. You need to look at both the positive and negative aspects of the scene and your subject. With this shot, the positives were the really great lighting and the fact that the shallow depth-of-field ensured the subject stands out in the final image. The negative side was that with all that foliage, both in the front and to the rear of the bird, the focusing is needed to be very precise on the head in order to avoid the camera focusing on the foreground. Therefore, a very small AF area was required for that level of precision. Even with the subject moving slightly, One Shot AF was needed to lock on to the subject.

Of course the reality of this scene was that, to the naked eye, it looked nothing like this. Our eyes would have seen the foliage in the foreground sharp, as well as what's behind. So it's not until we actually look through the viewfinder that we start to see what is possible within the scene.

The aperture used – f10 – may surprise you; although, given that the widest aperture on the lens is f8 when the Extender is fitted, it is not far off the lens being wide open. The long focal length of 560mm meant that I was fairly close to the bird (this image has not been cropped) and, being so close makes it easier to throw both the foreground and background out of focus. This is why using an Extender in this type of scenario is so useful as it enables you to fill the frame with the subject. If you start to crop, you will end up with more depth-of-field because you're not filling the frame and not working at the right focal length and distances.

The other main settings on the camera were set to how I typically work. Auto Lighting Optimizer was turned on Standard setting, the Picture Style was on Fine Detail and the metering was set to Evaluative.

Hopefully what I've highlighted already is that the areas you need to think about are not the same for all images. It all depends what you are taking. Although I've given you the shutter speed, aperture and ISO for the images, these combinations only worked for that subject in that place at that time on that day. Go there at any other time and the settings will be different because of numerous other variables – light, weather and season. This image was taken in early May, but the same shot in July would be impossible, as the colour of the foliage and background, and indeed the lighting angle, will be different.



EF 100-400mm f4.5-5.6L IS II USM with 1.4x Extender at 560mm, ISO 1000, f10, 1/2000 second

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