

Basic Camera Settings for Bird Photography – Glenn Pure

Do you ever get the impression that camera manufacturers are appealing to ‘geeks’ not photographers? The huge number of menu options, adjustments and settings on modern cameras can be very confusing and off-putting. Who wants to waste time trying to figure them all out? While it can be very tempting just to set the camera to ‘Auto’ and let it worry about everything, that’s often not going to give the best, or even acceptable, results. So it’s worth spending a little time trying to understand the ‘key’ camera settings for bird photography and try to optimise them.

If you are new to bird photography and photography in general, the hard bit can be knowing where to start. So I’ve penned this to cover the relatively small number of key settings that you should worry about. You won’t have to pay much attention to the rest. This article was prompted by a recent analysis of BLP’s past newsletter articles undertaken by committee member Simon Pelling; he identified this area as one of the gaps in our current collection.



Figure 1. Controls on the top of my Canon 80D: (1) is the mode dial, currently set on Manual; (2) is the Auto Focus (AF) mode setting, currently on One Shot as shown on the LCD panel below this button; (3) is the Drive mode which determines whether the camera takes a single shot or multiple shots each time the shutter button is pressed, currently set on high speed continuous; (4) is the ISO setting button, currently set on ISO 800 (when this button is pressed, the ISO can be changed by rotating the dial visible just above it); (5) is the metering mode, currently set on centre spot metering as shown on the LCD panel just below the button.

I’ve tried to be generic and am working from the common controls on digital single lens reflex (DSLR) cameras that many bird photographers are using. However, many of the same settings and controls are also available on the better superzoom cameras so the comments are equally applicable there. Much of what I say will also apply to the latest mirrorless cameras although not many people are using these for bird photography yet. Location and

naming of controls and menu options is going to vary particularly between manufacturers but don't be put off. I want to give you an idea of what to look for and what to worry about. It shouldn't be too hard to find the relevant menu items and settings for your camera. As a wise person once said: *'When all else fails, check the instruction manual'*.



Figure 2. The display panel on the back of the camera, also showing current settings. On some cameras, this is the main screen that is used for these settings as some cameras don't have an LCD display panel on the top of the camera (as shown in Figure 1). This is also the screen where menu items are displayed after pressing the 'Menu' button (top left). There are a few additional items on this compared to the LCD panel on the top of the camera. On the first line, the 'M' shows that the mode dial is set to 'M' (manual exposure). The second line shows the exposure compensation (beyond the scope of this article). The third line, from left to right, shows the Picture style (S=standard), the current white balance setting (cloudy), the automatic exposure adjustment setting (off – beyond the scope of this article) and the control to customise the camera's buttons (camera specific and beyond the scope of this article). The fourth line shows the AF mode (One shot), the focus point selection (single point), the exposure point selected (centre point), the Drive mode (multiple shots taken when shutter button pressed) and the file recording mode (RAW). The last line simply provides information on the battery and remaining shots.

There are three sets of controls that are critical, namely those for:

- getting your photo exposed properly so it isn't too dark or too bright and has good tonal range;
- getting the colours right so the bird and scene look natural and reflective of the situation where they were photographed; and
- attaining good sharp detail where it's needed – and equally losing detail where you don't want it.

Exposure settings

Getting the exposure right and being in control of this is a key for any photography, not just bird photography. Exposure itself is controlled by three camera settings: shutter speed, aperture and ISO sensitivity. The first two control the amount of light reaching the camera's sensor. I will cover ISO shortly. Additionally, you will need to worry about where your camera actually measures the exposure and how much information it records when the image is stored. More on the latter two settings in a moment.

First to shutter speed, aperture and ISO. Most cameras have a 'mode' dial which is often located on the top of the camera (item 1 in Figure 1). It will have settings like Auto (sometimes called Program or P for short), Shutter priority (Tv), Aperture Priority (Av), Manual (M) and preset scene options like Sports or Macro. There will often be other settings and even 'Custom' settings that enable you to store your own favourite combinations of exposure and other settings. For a basic introduction we need only worry about Shutter Priority, Aperture Priority and Manual. I'm not going to talk about full auto exposure mode here because it's generally not a good choice for bird photography. The reason is that *for most bird photography, you will want to have control over the aperture and shutter speed and not leave this up to the camera to decide*. I will go into the subject of exposure in more detail in a second article that will appear in a future newsletter so you can get a better idea of the trade-offs involved.

The table below shows the three exposure mode settings, what they mean and when you should consider using them.

Mode dial options for setting exposure

Setting	What does it mean?	When to use?
Aperture priority	You select the aperture. The camera decides what shutter speed for correct exposure.	Most useful for perched birds or where little movement is occurring because the camera could select quite a low shutter speed if light is not great. Low shutter speeds mean any movement of the bird or the camera will result in a blurry shot.
Shutter speed priority	You select the shutter speed. The camera decides what aperture to use for correct exposure.	Useful if you want to force the camera to use a fast shutter speed, especially for moving birds or in flight. However, if this results in an aperture that is too wide (low f number), it may mean more of your subject will be out of focus due to narrow depth of field (see second part of this article on Exposure for more details).
Manual	You set both shutter speed and aperture.	In this case, you do not allow the camera to change either of these settings. However, it does mean that you will need to manually adjust the settings when a cloud passes overhead or your subject moves in and out of shadows. But this issue goes away if you use auto ISO (see ISO discussion below).

The ISO setting determines how much amplification is applied to the signal coming from your camera's sensor. In poor light, the signal from the camera sensor will usually be weaker and require more amplification to be useable. A higher ISO number means that more amplification is being applied but it does come at the cost of more noisy images. Additionally, at very high ISO, images can become flat-looking and lacking in contrast. Each camera will differ in this regard, with newer cameras having improved sensors and electronics that generally have better high ISO performance. Take some test shots with your camera at different ISO settings to see what works for yours.

Cameras vary in how the ISO is set. Some have special buttons on the top or back of the camera to change ISO. In others it will be somewhere in the camera's menu selection. You will need to consult your camera's manual.

Setting the ISO to a higher value will enable faster shutter speeds and smaller apertures (larger f numbers). So it's important to consider ISO when setting these. For example, if working in poor light and you want to use aperture priority set to f8, the chances of the camera using a very low shutter speed that will risk blurry shots can be reduced by turning the ISO up a suitable amount.

If you are unsure where to start with exposure, try setting the shutter speed or aperture (or both if using manual exposure) and see what ISO is needed to achieve a good exposure via test shots. If the ISO is getting too high to produce good quality photos, you will need to start compromising by setting the aperture wider or shutter speed lower. I will go into more detail in the second article on setting exposure. However, one ISO setting option is worth a comment. Some cameras have an 'Auto' option for ISO. It means you can set both your camera's shutter speed and aperture and it will select the ISO that produces the correct exposure. Some bird and nature photographers do like using this. It is safer in situations where there is good, strong light but in poor light (late in the day, in deeper shadows etc), the camera may set the ISO so high that the resultant photos are unusable. But there is even a solution for that as it's usually possible to set a maximum auto ISO value (there's typically a menu item for this in the camera settings).

Metering Modes

I mentioned that you will also need to consider *where your camera is measuring the exposure*. In most cameras, it's possible to select from a variety of options including spot metering, zone metering, centre weighted metering and so on. These rely on the fact that within your camera's field of view, there are multiple 'points' where the camera is able to take a light reading. All of the metering modes except spot metering will measure the exposure at multiple points across the image and combine them in various ways.

For bird photography, I personally use spot metering most of the time. This takes the light reading at a single spot in the image. Most cameras have a centre metering spot which is usually the one to go for when using this mode (it's often the most sensitive metering point too). Normally, you would point the camera so the centre spot is over your subject, then have the camera lock the exposure by half-pressing the shutter release button. Provided you keep that half-pressed, you can recompose your photo then take the shot, confident that the exposure should be good. When you do choose a spot for setting exposure, ensure it is not black, not white or bright but somewhere in the mid-tones. I had a devil of a time when I first starting trying to photograph black male Satin Bowerbirds. I was using Aperture

priority exposure and the camera kept over-exposing the shots because it was determining exposure on the black bird as though it was grey. I could have set my exposure on a mid-tone part of the surrounds (not the bird) but I found it easier to switch to manual exposure to solve the problem – once I had set the right exposure, I could fire away without worrying about this any more. These days, that's all I ever use. Most of the time it enables me to set my exposure, do a few test shots then go about photographing my subject with confidence that the exposure will be just where I want it.

For someone new to bird photography, using one of the zone exposure options might be a better starting point as the camera will be using multiple points in the viewfinder to set the exposure. Just be aware, however, that if too many of these points are 'seeing' overly bright or dark areas in the viewing frame, there's a good chance the camera will get the exposure wrong. The best advice I can offer is to experiment and see what works best for you. To complicate things, different options may be needed for different situations to get the best results.

Image Format

The final setting for exposure is *selecting how much information the camera will store to the memory card when the image is captured*. There are basically two choices here and they are usually set via a menu item in the camera configuration options. Once set, you won't have to worry about it again. The choices are RAW file format or JPG file format. RAW format images contain vastly more tonal information than JPG, and are consequently considerably bigger. This means that a RAW file is a much better starting option once you get your photos home and have to make adjustments to them. Once those adjustments are done, a final JPG image can be created from the RAW file (always keep the RAW file though in case you need to go back and make more changes later). The other nice thing about RAW files is that any adjustment you make to them is non-destructive. The original RAW file remains unchanged; the only thing the adjustments do is create a 'recipe' that is applied to the RAW file every time you open it. Hence, the recipe can be changed or removed altogether.

Conversely, JPG files contain just the bare minimum of information needed to record the shot, and assume that little adjustment to exposure, colour or other parameters will be needed later. Changing a JPG is also non-reversible and the more times it is changed and saved, the more it deteriorates in quality due to the compression used by the JPG file format.

Processing a RAW file involves an additional step. There are articles in past newsletters on the subject and plenty of resources on the internet; but image processing is beyond the scope of this article.

Colour settings

There is one key setting to worry about here: the white balance. This is usually accessible via a menu item in the camera's configuration options, but this will vary from camera to camera. White balance should be set to reflect the lighting situation of the subject being photographed. For example, on a sunny day outside, you'd select 'Daylight'. On a cloudy day, select 'Cloud', in the shade outside, select 'Shade' etc. Getting this setting right is important to ensure the colours in your photo will be natural and not have a weird cast to them.

I personally find it a nuisance to have to adjust the white balance setting and it's really easy to forget. But it is quite important if you are taking photos in JPG format – a good option if you are doing that is to use auto white balance. The camera will get it wrong sometimes though. The good news is that you don't have to worry about it at all if you are taking your photos in RAW format because the white balance can be set later when the RAW file is processed with no difference in result compared to setting the correct white balance when taking the shot.

There is a second setting that can influence colour, namely the Picture Style (Canon) or Picture Control (Nikon). This influences colour saturation, sharpness and other factors. It mainly applies to JPG images as it is usually possible to change this setting in post-processing if you are starting with a RAW file (just as you can change the white balance of a RAW file later). It's best to choose a neutral setting but 'standard' or equivalent should work well too.

Getting sharp photos

Sharp, well focussed photos are an important goal for any nature photographer (with the exception of some 'creative' or artistic shots which are beyond the scope of this article). Two primary factors are usually the cause of soft or blurry photos. The first is poor focus lock: the camera has autofocussed on part of the scene or subject where it shouldn't have, making the parts you want in focus to be soft and blurry. The second cause is camera or subject movement. This is especially a problem at lower shutter speeds (say below 1/250 second). I'll deal with camera setting that can help you solve problems in these areas.

First to poor or incorrect focus lock. Sometimes the camera can simply get it wrong but there isn't much you can do about this. It is generally rare but can happen more often in low light situations when the camera's autofocus system doesn't work as well or as quickly. Just keep that in mind in such situations and make allowances where you can.

The range of focus options on a modern camera can seem bewildering but they fall into two basic groups. The first autofocus (AF) option relates to whether the camera locks focus at a point in time versus tracking a moving subject while continually adjusting focus to match. The latter option is called AI Servo focus by Canon and AF-C (AF-continuous) by Nikon versus 'One shot' (Canon) and AF-S (Nikon, S = single) for a one-shot focus lock. Tracking and continuously adjusting focus can sound like an appealing option and the technology behind this is constantly improving but I personally only use it for flight photography or birds that are moving quite quickly. For perched or slow moving birds, I use One-shot focus (but I know some people use AI-Servo or AF-C all the time). In my experience, the continuous autofocus mode doesn't get it right as often as the one-shot mode for non-moving subjects. To add confusion, Canon also has a third AF mode called AI Focus but I admit to not using it or fully understanding it.

The AF mode options are usually accessed via either the camera's setting menu or often via a dedicated button. For example, my Canon 80D has an AF mode button on the top of the body enabling quick setting of these options.

DSLR cameras are also usually capable of Live View photography where a real-time image is shown on the camera's LCD screen and the photo taken from that, not via the optical viewfinder. The AF options are usually different again for Live View. Except for the current range of high-end mirrorless cameras, AF in Live View mode on DSLRs is too slow to be

practical for most bird photography so you needn't worry about this mode or the associated settings. For those with super-zoom all-in-one cameras, I don't know enough about the AF options in those to comment (these cameras work in Live View mode all the time).

For getting sharp photos, the next setting to consider is which autofocus point or points to select for your bird photography (in a similar way as discussed for exposure setting). High end DSLRs can have more than 60 AF points in the viewfinder to select from! These can usually be selected individually or in groups/zones. I personally use the single centre AF point for One-shot focus. To take a shot, I aim this point over precise part of the subject where I want to lock focus, hold the shutter button half down to lock focus then recompose the photo before fully depressing the shutter button to take the shot. For flight photography, it's usually better to use multiple focus points, usually in the centre zone of the viewfinder but the intricacies of flight photography are beyond the scope of this article. For those interested, Ian Wilson has written an in depth article on this subject "Mastering Flight Photography" which appeared in the April 2017 newsletter.

The active AF point or zone can often be selected via dedicated buttons on the camera body but again, you'll need to consult your camera manual to find out. On my Canon 80D it is a two stage process of first selecting whether I want single point or groups of AF points for focus, then selecting the actual point or group to use. The camera's AF menu options also enable me to make the AF point visible in the viewfinder and to change colour when it has locked focus. I find this handy because I run my camera in silent mode so don't rely on audible beeps to alert me when focus has been locked.

Which part of your subject should you choose to have in sharp focus? Generally, all of it but sometimes this may not be possible. The golden photographer's rule here is to focus on the eyes of your subject. This is another reason I don't use a zone or group of AF points for focussing. It can be hard to get the focus locked on a bird's eye if there are multiple active focus points over other parts of the bird or even background and foreground objects.

The second major cause of soft and blurry photos is camera or subject movement. In this case both camera and lens settings are relevant. For the camera, select the fastest shutter speed that is practical for the lighting conditions. Generally, I aim for at least 1/200 second or more with my 400mm lens but it is possible to get sharp photos at slower shutter speeds provided you have good camera holding technique or are using a tripod. The bird will also need to be relatively motionless as well for this to work. Be prepared to delete more photos though as the success rate at slower shutter speeds is going to be lower. You will be able to get away with lower shutter speeds for shorter focal length lenses but the latter aren't that useful for most bird photography as they don't usually have enough 'reach' to get birds big enough in the frame.

At least for Canon and Nikon owners, your lens also plays a part here. For most DSLR lenses, there is a built in image stabiliser (other camera manufacturers sometimes have stabilisers built into the camera itself). Nikon calls this VR (vibration reduction) and Canon simply calls it Image Stabilisation. Other manufacturers have acronyms like OIS. The stabilisers typically involve a moveable element inside your lens that automatically detects camera/lens movement and shifts to compensate for this movement while the shutter is open – and sometimes as soon as you half-press the shutter button. They enable photos to be taken at much lower shutter speeds than might normally be possible. It's essential to have the image stabiliser turned on as it does make a big difference except at very fast shutter speeds: say

more than 1/1,000 second. Bear in mind, though, that a stabiliser will do nothing to reduce blur caused by your subject moving – only a faster shutter speed will do that.

The only other thing to consider here is that many telephoto lenses are designed with action photography in mind (like sports photography). So Canon telephoto lenses typically have several stabiliser modes. One of these modes will be for non-moving subjects and the lens will correct for any lens and camera movement up, down and sideways (Mode 1 on Canon lenses). This will be the default mode for lenses that don't have different stabiliser options. The other common mode is a 'tracking' or sports mode which is used when the subject is moving. Generally, camera manufacturers assume that you will be following subjects moving across the horizontal, like a runner or sports car. So this lens stabiliser mode (Mode 2 on Canon lenses) will only correct for vertical motion. On recent Canon lenses, there is a third mode (Mode 3) that automatically detects which way your camera is panning and tries to correct for motion at 90 degrees to this.

Image stabiliser technology does vary considerably between manufacturers. For example, Nikon lenses can have up to three options. According to their website these modes are: normal, active and tripod. Normal is the equivalent of all three Canon modes combined since the lens automatically detects and switches between panning and non-panning modes. Active mode is used where you are moving, for example on a moving boat or vehicle. Tripod mode counters vibration caused by the shutter mechanism in the camera when a photo is taken.

Other camera settings to consider

There are only a couple of other settings you might consider for bird photography. One thing I have changed on my camera is to turn off the beep when the camera locks focus before a photo is taken. One less sound from the camera might reduce the chance of bird flying before you want it to.

The other setting is called 'Drive' on my camera. It determines whether the camera takes a single shot or a burst of shots when the shutter button is pressed. I always have mine set to take a burst of shots, and I delete any I don't want later. Most birds are constantly adjusting their position and blinking their eye membrane so taking a burst is good practice as it enables the best of a series to be selected.

If you have any questions, please [email me](#) directly (email address under 'About Us: Our People' on the BLP website) or post a question to the Forum on our website.