

# Birds in Flight

How to shoot with your Canon EOS



*By Nina Bailey*

# About this book

One of my favourite areas of photography is photographing wildlife, I have travelled all over the world to get the images you see in this book and have been privileged to be able to shoot up close and personal to many of the subjects in places such as Antarctica and Galápagos. Within wildlife photography, shooting birds in flight has to be one of the most challenging yet rewarding areas.

It's an area of photography that can be equally enjoyed close to home and we have a great selection of birds that can be photographed with relative ease around the UK, especially in some of the stunning bird reserves run by the RSPB and WWT organisations. We are also lucky enough to have some great bird of prey centres where the birds are flown and this allows us to shoot much closer than in the wild.

This is a book that has to be regularly updated as the focusing systems on EOS models are evolving quicker than almost anything else. Plus of course the introduction of the full frame mirrorless models in late 2018 has brought another factor into this area of photography. So for 2020 this is the third update of the book.

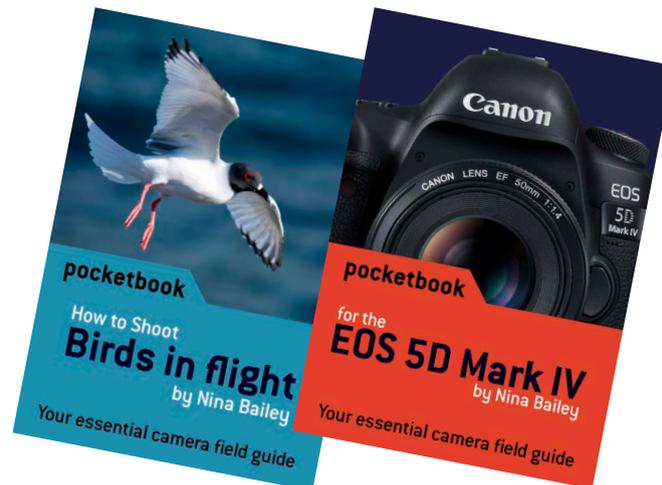
It's an area of photography that can be enjoyed all year round, and in winter some of our bird reserves can be spectacular with the winter visitors to our shores. The cover shot was taken on a late spring day at RSPB's spectacular Bempton Cliffs in Yorkshire where it is easy to get great shots of the gannets, puffins and several other species of sea bird.

My aim is to give you a good understanding of what you need to grasp to get some great images of birds in flight and what settings are needed. I have also looked at the creative side of this type of photography looking at framing, lighting and seeing the best images to take in addition to the more factual approaches.

Hopefully the images and explanations will inspire you to go out and get the very best images of the subjects that are all around us.

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**PREVIEW EDITION**  
About Nina started her own business in the retail sector, specialising in photographic equipment, and then moved to Canon UK where she worked for a successful nine years.

looking after training, exhibitions and marketing both in the UK and also within Europe. This gave Nina an unrivalled knowledge of not only the Canon EOS system but also how to develop and enhance the skills of photographers of all ability levels.

Nina started her own business in 1999, concentrating on training for amateur photographers. She is also at the forefront in developing the EOS Training Academy both online and within its practical day courses. In 2014 Nina started producing her own range of ebooks to bring photography training to an ever wider audience. In 2015 Nina became Technical Editor for EOS magazine and produces articles and images for each issue. In 2017 Nina launched the ever growing range of Pocketbooks, which are small A6 pocket sized guides designed as aide-memoires to go with you when out shooting.

Nina started taking images when she was very young and is still a very keen photographer both professionally and personally. Nina loves travel, landscape and wildlife photography and still shoots occasionally commercially though most of the images she shoots these days are for her own extensive range of books.

To make the book easier to navigate I am including links to each of the main chapters in normal hyper linked contents. There are also links at the bottom of each page to take you to the chapter menu or the main index for ease of looking things up. I am also including a new reference section in this book as increasingly I am finding photographers that are a little “rusty” on the basics or are too busy to have become familiar with these areas. The section is adapted and made relevant to each individual book.

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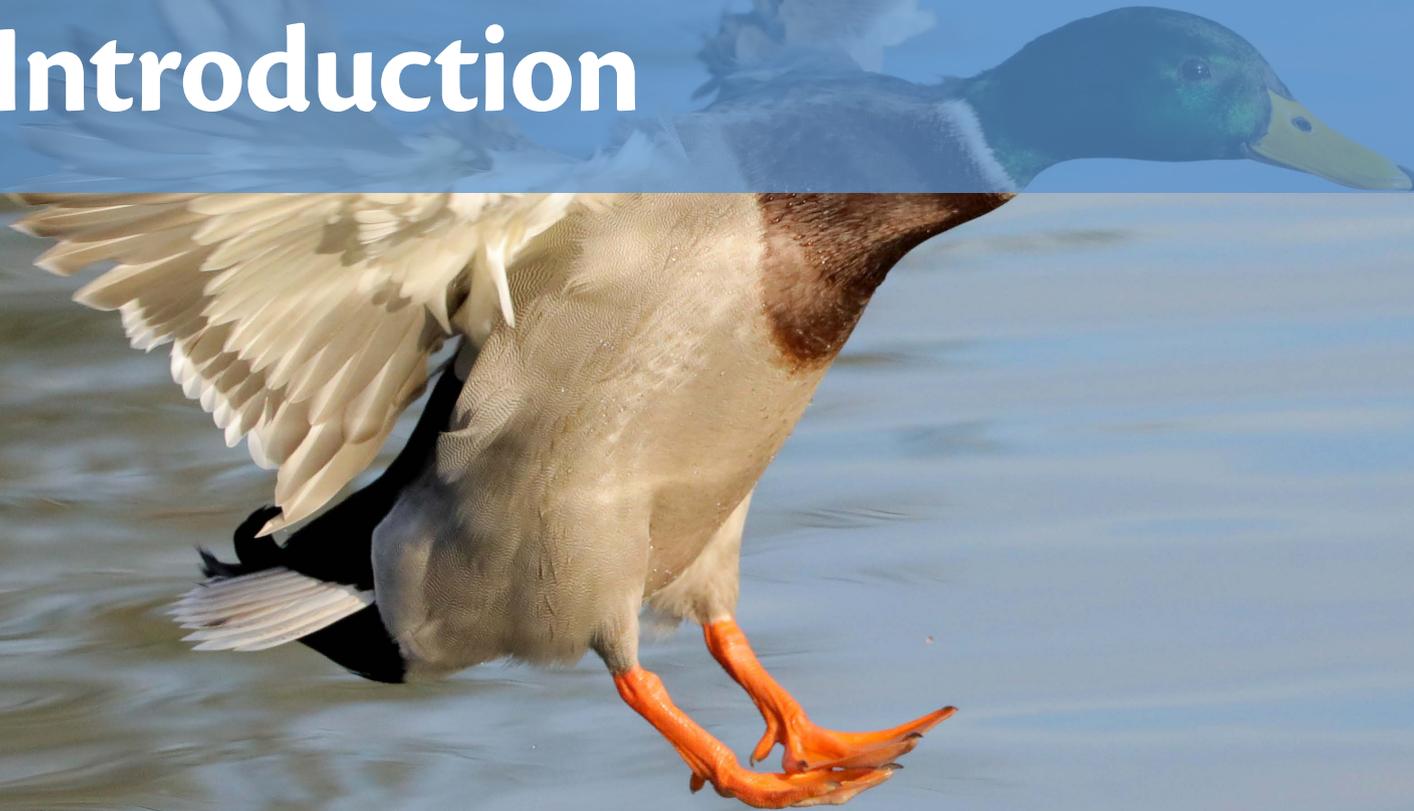


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## Chapter 01

# Introduction



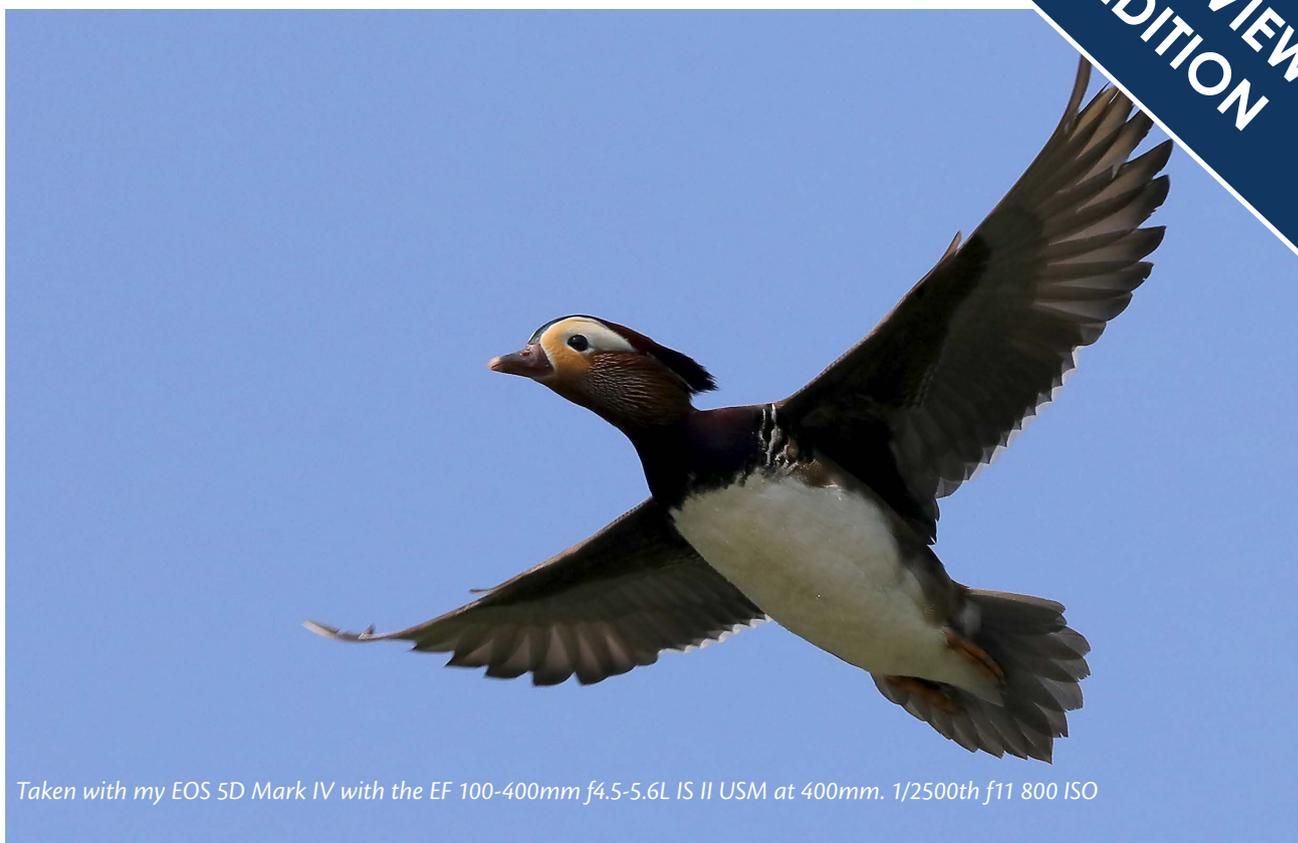
# Introduction to shooting birds in flight

PREVIEW  
EDITION

Over the years this is an area of photography that I have been asked about a lot. It is an area that requires a very good understanding of the basics of photography, as the settings we need to use can be very challenging to get under some of the light levels we shoot in. It is also an area that understanding the camera settings and knowing how to set the camera up for specific types of action, is very important as you have little time to respond and often do not get a second chance to take the image.

In most areas of photography, I would normally say that the camera you use will make little or no difference to the images that you take. Unfortunately in this area of photography the camera that you use will make a big difference to the success of the results that you get. The higher level models will focus faster, though the very latest introductory and mid range models such as the EOS 90D, 77D and 800D now offer a focusing system that will cope very well photographing birds in flight. Though it has to be said that the higher level models such as the EOS 5D Mark IV, 7D Mark II and 1DX series models have more configurable options and so therefore can be better for this type of photography, if you are planning to make this your specialised field. Therefore I am going to take a more in depth look at the cameras and explain why some will work better than others and what to look for when selecting a camera for this type of photography.

The lens choice is also important, throughout this book I have assumed that the photography will be done handheld, the sort of tripod head needed to follow action and the tripod to put it on is beyond



*Taken with my EOS 5D Mark IV with the EF 100-400mm f4.5-5.6L IS II USM at 400mm. 1/2500th f11 800 ISO*

the reach of all but the most serious of professional photographers and I find handheld shooting allows you to respond much quicker.

The lenses you choose for this type of photography needs to have quick focusing, yet still be small enough to handle and follow the bird with.

The subject distance is going to vary considerably making zoom lenses a more practical all round choice than the fixed focal length lenses that are often used for more static bird images.

I am also going to look at the use of extenders and how they affect this type of photography. Although appearing to be a practical way of extending the focal length of the lens, the compatibility issues often outweigh their benefit when shooting moving subjects.

This is a challenging area of photography and one that you have to shoot many images in order to get the few stunning ones - for every one of the images of mine you see in this book, there will be literally hundreds which got deleted along the way.

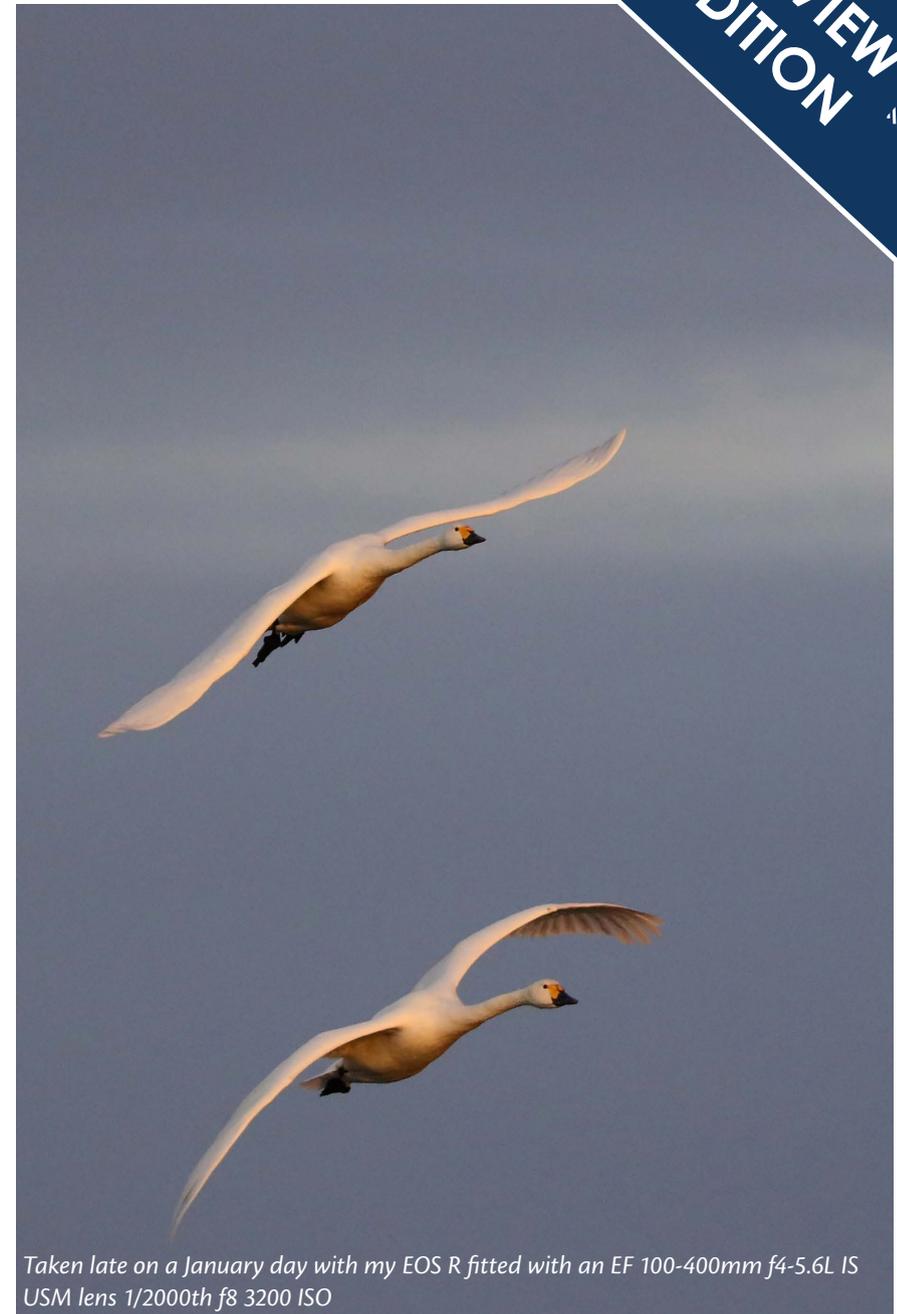
# About the basics

What I consider to be the basics of photography that all photographers should be fully familiar with and what a lot of photographers actually understand seems to be getting further apart as the years go by.

I spend a lot of my time out and about doing practical training with photographers who consider themselves either an intermediate or advanced level. Yet so often I see people struggling with basic things such as what ISO to use for a specific light level, or why they are getting blurred images when all it takes is setting the correct shutter speed for the lens that they are using. Knowing what the ISO, shutter speed or aperture is and vaguely what it does, is not enough, especially for this technical and challenging area of photography. You need to understand the relationship between those three key settings and what is achievable in different light levels. You also need to know the increments that they work in and how to work out what to do to get the settings you need.

Understanding the focusing options and things such as metering modes is also important. I keep finding people working on spot metering as they think it's the same as setting a single AF point. Mode wise you should be able to choose the exposure mode that works best, not the only one you know what it does. I am seeing so many newcomers shooting on manual when they would get so much better results on AV or TV mode. It seems to be largely as the "photographer" who taught them only ever learnt to use manual. I shoot birds in flight images mostly on AV mode and on Auto ISO I can get the camera to provide the right light level for the image. If the images are coming out a little light or dark I can use the exposure compensation on the camera to correct the exposure, though in the image to the right no compensation was needed.

The image to the right was shot late in the day in January when the sun was setting. It's a good example of why understanding the basics are so important. On an overcast day the basic light level is known as EV 10 - it all relates to the weather. So at 100 ISO we can get 1/30th at f5.6, so to get the light level we need taking the ISO up to 3200 ISO will give us the same amount of light on the sensor at the smaller aperture and higher shutter speed that the shot needed to get the subject sharp. Advanced photographers should be able to work that out by themselves yet every week, more of the people I see, fail to understand these basics, than actually know them. Hence the addition of the reference section. If you can't work out what I was talking about in this paragraph then you will benefit from reading it.



*Taken late on a January day with my EOS R fitted with an EF 100-400mm f4-5.6L IS USM lens 1/2000th f8 3200 ISO*

PREVIEW  
EDITION

## Chapter 02

# Reference



# About the reference chapter

PREVIEW  
EDITION

This chapter is designed to act as a reference section for the more experienced and to top up the knowledge for those that are new to photography or self taught where there may be gaps that need to be filled in. Shooting birds in flight is a technical area and so it will use a number of specific photographic terms which not all photographers will be familiar with. I have aimed this book at intermediate to advanced level photographers who should be fairly familiar with most of these topics. This chapter is to help you understand some of the terms that you may not be familiar with.

This is an area of photography where part of the challenge is getting the shutter speeds needed to freeze the image. If the shutter speed is not high enough your subject will be blurred as very few photographers can reliably pan at exactly the speed of the bird and keep it in an identical spot in the frame.

I lead a lot of training events and one thing that over 20 years of training photographers has taught me, is that the grasp of these basics can vary a lot. So although there will be some photographers who are fully conversant with these topics there will be many that will need this reference section to brush up the basic understanding to make the most out of the techniques explained within this book. I recommend that you take at least a glance through it, if nothing else look at the pictures and their captions as some may well challenge what you believe you know. As photography is evolving all the imaging techniques which were used 20 or more years ago may have far better ways of working today.

A case in point is the ISO settings. Today we get to choose the settings we want to shoot and use the ISO to give us the light levels we need. However, many photographers cling on to mistaken beliefs that digital works like film and the lowest possible setting needs to be used. I am always baffled as to why that is, after all one is a chemical process and one is electronic and the two processes cannot be compared in anyway.

Coming from a technical specialist background, I have always looked at every new advancement and tested it to see how well it works. I would never believe what someone else tells me, unless they were another technical specialist who is training me on the product. By experimenting with new features and understanding new technology it allows me to get good results in a much wider range of situations than ever before.

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# Camera choices for birds in flight

PREVIEW EDITION

Unlike many areas of photography, when shooting birds in flight you need the best specification camera you can stretch to, as the better the model the faster the focusing it will have.

The EOS range now contains a wide range of models featuring different sensor sizes, called APS-C or occasionally 1.6x crop models and the other type being the 1x or full frame sensor models. Both sensor sizes can have advantages for this type of photography. The smaller sensors make it easier to fill the frame with small subjects, so you do not need such long lenses. The full frame models on the other hand offer better ISO ranges and better quality when working in lower light levels at higher ISO settings and so can make it easier to get the settings that you need whilst retaining a good quality.

The listings to the right show the range of models that have at some time been available in the EOS range up to the time of going to print (Apr 2020) split into the various camera groups. Mirrorless models allow you a better preview of the image that you are taking and can be appealing to use for this area of photography but they are not without their problems, at the current time. Once the EOS R5 model is available some of these problems but possibly not all, will be resolved. Over the next couple of pages I will explain where the differences in the various models in the market today exist and how it can affect the viewing and the focusing on the camera.

A good guide as to the focusing speed of a camera is the frames per second rate that it can shoot at. However, full frame models often have very good AF systems which their frames per seconds rates do not always indicate is as good as it is. The larger file sizes they often produce take longer to write to the cards and so the bodies are “slowed down” on their frame rate to enable the systems to cope. That said even this is beginning to change on the latest 2020 crop of models we are seeing becoming available.



## FULL FRAME MODELS - DSLR

6D, 6D Mark II  
5D, 5D Mark II, 5D Mark III, 5D Mark IV  
1DS, 1DS Mark II, 1Ds Mark III, 1DX, 1 DX Mark II, 1DX Mark III  
**1.3 sensor models (older professional models)**  
1D, 1D Mark II, 1D Mark II N, 1D Mark III, 1DS Mark IV

## FULL FRAME MODELS - MIRRORLESS

EOS RP, R, R5



## APS-C OR 1.6 SENSOR - DSLR MODELS

1000D, 1100D, 1200D, 1300D, 4000D and 2000D  
100D, 200D, 250D, 300D, 350D, 400D, 450D, 500D, 550D, 600D, 650D, 700D, 750D, 760D, 800D, 77D, 850D  
D30, D60, 10D, 20D, 30D, 40D, 50D, 60D, 70D, 80D, 90D 7D and 7D Mark II

## MIRRORLESS MODELS APS-C OR 1.6 SENSOR

M100, M200 and M6 M1, M2, M3 and M10, M5, M50. M6 Mark II



# Camera launch dates

PREVIEW  
EDITION

This may seem to be a strange thing to put in the reference section, however, it is useful to know when the model that you use came out as to avoid repeating lists of cameras many times within the book it is easier to say that the feature appeared in a specific year and has been on almost everything since.

The exception to this rule tends to be the very basic models such as the 2000D and 4000D in the current ranges. To keep the price very low on these models Canon uses older processing chips within these models and that means that some of the very latest features may not be available, as it comes in with a specific processor on the models which Canon refers to as DIGIC processors. So it is worth looking at the processing number as well, as some of the 2015 onwards features rely on having at least a DIGIC 6 processor and models such as the 2000D and 4000D are still using the 4+ processor version.

The latest processor version is DIGIC X though most current models are using either the 7 or 8 versions. Models launched late 2019 or 2020 are generally using the new 8 version.

The higher level cameras shoot at faster frames per second rates and have more sophisticated focusing systems and so it is normal for them to have a dual processor, which is two processors being run together to give additional processing power.

	Production dates	DIGIC Version	EOS 250D/Rebel SL3	2019 - Current	
<b>EOS-1D</b>	2001 - 2004	-	<b>EOS 300D/Rebel</b>	2003 - 2005	
<b>EOS-1D Mark II</b>	2004 - 2005	II	<b>EOS 350D/Rebel XT</b>	2005 - 2006	
<b>EOS-1D Mark II N</b>	2005 - 2007	II	<b>EOS 400D/Rebel XTi</b>	2006 - 2008	II
<b>EOS-1D Mark III</b>	2007 - 2010	dual III	<b>EOS 450D/Rebel XSi</b>	2008 - 2010	III
<b>EOS-1D Mark IV</b>	2009 - 2012	4	<b>EOS 500D/Rebel T1i</b>	2009 - 2011	4
<b>EOS-1D X</b>	2012 - 2016	dual 5+	<b>EOS 550D/Rebel T2i</b>	2010 - 2012	4
<b>EOS-1D X Mark II</b>	2016 - 2020	dual 6+	<b>EOS 600D/Rebel T3i</b>	2011 - 2015	4
<b>EOS-1D X Mark III</b>	2016 - Current	8 and X	<b>EOS 650D/Rebel T4i</b>	2012 - 2013	5
<b>EOS-1Ds</b>	2002 - 2004	-	<b>EOS 700D/Rebel T5i</b>	2013 - 2015	5
<b>EOS-1Ds Mark II</b>	2004 - 2007	II	<b>EOS 750D/Rebel T6i</b>	2015 - 2019	6
<b>EOS-1Ds Mark III</b>	2007 - 2012	dual III	<b>EOS 760D/Rebel T6s</b>	2015 - 2019	6
<b>EOS 5D</b>	2005 - 2008	III	<b>EOS 800D/Rebel T8i</b>	2020 - Current	8
<b>EOS 5D Mark II</b>	2008 - 2012	4	<b>EOS 850D/Rebel T7i</b>	2017 - 2019	7
<b>EOS 5D Mark III</b>	2012 - 2016	5+	<b>EOS 1000D/Rebel XS</b>	2008 - 2011	III
<b>EOS 5D Mark IV</b>	2016 - Current	6+	<b>EOS 1100D/Rebel T3</b>	2011 - 2014	4
<b>EOS 5DS</b>	2015 - Current	dual 6	<b>EOS 1200D/Rebel T5</b>	2014 - 2016	4
<b>EOS 5DS R</b>	2015 - Current	dual 6	<b>EOS 1300D/Rebel T6</b>	2016 - 2019	4+
<b>EOS 6D</b>	2012 - 2017	5+	<b>EOS 2000D/Rebel T7</b>	2018 - Current	4+
<b>EOS 6D Mark II</b>	2017 - Current	7	<b>EOS 4000D/Rebel T100</b>	2018 - Current	4+
<b>EOS 7D</b>	2009 - 2014	dual 4	<b>EOS D30</b>	2000 - 2002	-
<b>EOS 7D Mark II</b>	2014 - Current	dual 6	<b>EOS D60</b>	2002 - 2003	-
<b>EOS 10D</b>	2003 - 2004	I	<b>EOS M</b>	2012 - 2015	5
<b>EOS 20D</b>	2004 - 2006	II	<b>EOS M2</b>	2013 - 2015	5
<b>EOS 30D</b>	2006 - 2007	II	<b>EOS M3</b>	2015 - 2018	6
<b>EOS 40D</b>	2007 - 2009	III	<b>EOS M5</b>	2016 - Current	7
<b>EOS 50D</b>	2008 - 2010	4	<b>EOS M6</b>	2017 - 2019	7
<b>EOS 60D</b>	2010 - 2015	4	<b>EOS M10</b>	2015 - 2017	6
<b>EOS 70D</b>	2013 - 2016	5+	<b>EOS M50</b>	2018 - Current	8
<b>EOS 77D</b>	2017 - Current	7	<b>EOS M100</b>	2017 - 2019	7
<b>EOS 80D</b>	2016 - 2019	6	<b>EOS M200</b>	2019 - Current	8
<b>EOS 90D</b>	2019 - Current	8	<b>EOS M6 Mark II</b>	2019 - Current	8
<b>EOS 100D/Rebel SL1</b>	2013 - 2017	5	<b>EOS R</b>	2018 - Current	8
<b>EOS 200D/Rebel SL2</b>	2017 - 2019	7	<b>EOS RP</b>	2019 - Current	8

# Viewing difference DSLR vs Mirrorless

PREVIEW EDITION



## DSLR – LOOKING THROUGH VIEWFINDER

It is important to understand how Mirrorless cameras differ from the more traditional DSLR models that we are used to, as this does affect how they are used to a degree.

A DSLR model has a reflex mirror. When viewing, this mirror is down, allowing light to be reflected up into the camera's pentaprism and then up into the camera's optical viewfinder. This is shown on the image above. By utilising a reflex mirror we are able to see through the lens. This allows us to see the image being captured through the lens.

Of course the mirror is actually blocking where the image is going to be taken and so when the shutter



## DSLR – TAKING AN IMAGE OR USING Live View

is fired, the mirror lifts up and the picture is then taken through onto the image sensor. Although this allows us to see both framing and focusing, it does not allow us to preview exposure or white balance.

Later DSLR models are fitted with a feature called Live View. This allows the camera to be used with the mirror raised, utilising a direct feed from the imaging sensor. This allows exposure, white balance and other image processing options to be previewed in real-time before the image is taken.

On mirrorless models both the reflex mirror and the pentaprism have been removed. On R series mirrorless the pentaprism is being replaced by an



## MIRRORLESS - ALL OPERATIONS

electronic viewfinder. In addition the image can also be viewed on the rear screen just like when using Live View on the DSLR models.

However, not all mirrorless models have electronic viewfinders, relying instead on the rear screen LCD screen for viewing the image.

Regardless of viewing in an electronic viewfinder or on the rear screen, mirrorless models allow you to preview exactly how the image is going to look when taken, when shooting with ambient light. If shooting with flash this changes as you cannot preview flash light until the image is actually taken.

# DSLR - Optical viewfinder

PREVIEW  
EDITION

What most photographers do not realise is that as we go up through the Canon range the optical viewfinder that we normally look through to take the picture actually changes in its construction.

The image immediately to the right is a cut through image of the Canon 450D. I know that's quite an old camera but sadly Canon longer produces these lovely cut through diagrams. If you compare the pentaprism area which I've circled with the camera on the far right which is a EOS 40D you may notice a difference. The EOS 40D features a glass pentaprism, which the light is reflected through to allow us to view the image. The EOS 450D utilises a mirror box type pentaprism which is a hollow box with an interior mirrored surface that reflects the light in the same way as a glass pentaprism does.

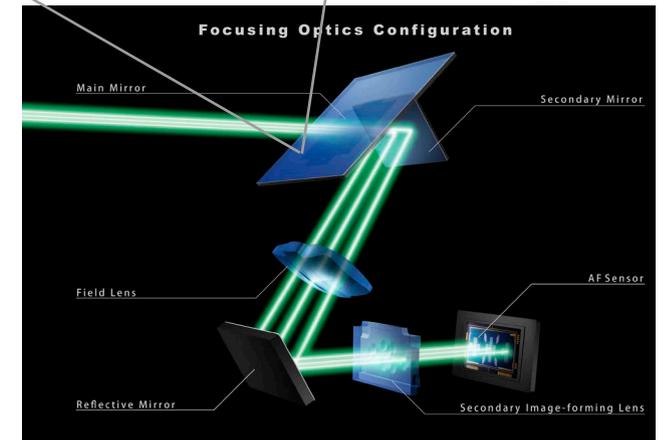
This is why there's quite a significant weight difference between the entry level, compact and introductory models in the range and the enthusiast and higher level models. Nearly all the additional weight on the higher level models is being created by the glass pentaprism. Of course the larger batteries also add a little bit of weight along with slightly more robust body construction.

A logical question therefore to ask is why not use the smaller and lighter mirror boxes on all models. Although the mirror box works well the actual amount of light that it transmits is significantly lower than the glass pentaprisms. Therefore the view that you see through the viewfinder is darker than the viewfinder would be on the higher-level models.



The mirror box also has an effect on the size of the viewfinder at the rear of the camera and generally the high-level models have bigger viewfinders which are significantly brighter. This is even more noticeable on the full frame models where viewfinders are once again larger and brighter.

The focusing on the DSLR models is actually located in the base of the camera and so for focusing some light passes through the main mirror onto the secondary mirror and down onto the focusing sensors. This is why the focusing system is different when using Live View to when shooting with the optical viewfinder as when the mirror is raised for Live View shooting the normal focusing system is unable to operate. The basics of the normal focusing



system is shown in the image above. In the cut through diagrams above you can see the secondary mirror and some of the AF components.

# Mirrorless - Viewing options

PREVIEW EDITION

Some mirrorless models only allow you to view on the rear LCD screen, whilst others have an electronic viewfinder. Reality time for birds in flight is that you need a model with a viewfinder. Trying to find and follow a bird on the rear screen is not practical especially with a long and heavy lens fitted.



the electronic viewfinder or the rear LCD screen. Obviously not all cameras have all these features.

- Picture Style – All settings such as sharpness, contrast, colour saturation, and colour tone will be reflected including monochrome options.
- White balance
- White balance correction
- Ambience-based shots
- Light/scene-based shots
- Creative filter effects
- Metering mode
- Exposure and exposure compensation
- Depth-of-field (with depth-of-field preview button ON)
- Auto Lighting Optimizer
- Digital Lens Optimizer (DLO)
- Peripheral illumination correction
- Distortion correction
- Chromatic aberration correction
- Highlight tone priority
- Aspect ratio (image area confirmation)

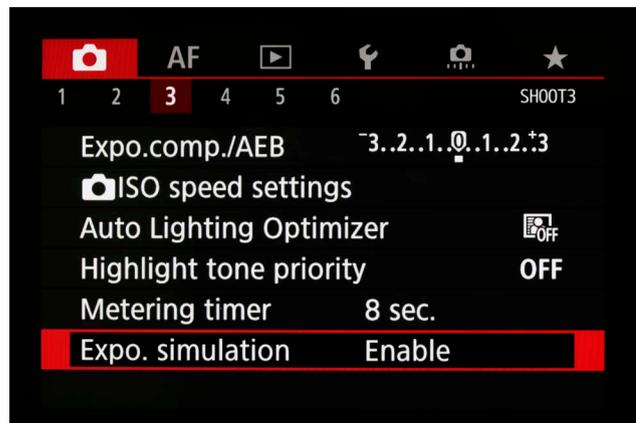
Generally if you're shooting an electronic viewfinder is going to be the best option for any type of photography as you can see. It is also possible to apply dioptre lenses so if you wear glasses what you're seeing through the viewfinder will be sharp.

If your camera features both an electronic viewfinder and a rear LCD screen then switching between them is automatic as there is a sensor by the viewfinder that detects when your eye is close. This is highlighted on the image top left. This is operative up to about 10 cm away and so if the rear screen goes off, then it could be this causing it, if the camera has not gone to sleep. On some models which only have the rear screen it is possible to buy an optional electronic viewfinder to make viewing easier.

The delay in the viewfinder coming on when you put your eye to it can be a problem which I will look at along with some other problems with mirrorless models on the next page.

Be aware that there will be very slight discrepancies between the colour, tone and brightness of the viewfinder and the rear screen. Canon makes them as close as possible, but with variations in manufacturing it is currently impossible to totally match them.

There is normally a brightness control and this will adjust whichever you are viewing with, whilst using the adjustment.



Either way what you are seeing through the viewfinder or on the rear LCD is going to be virtually identical to what your picture is going to look like. Providing of course you have the exposure simulation switched on. Exposure simulation is normally found within the shoot menu, if it is an option available on the camera. Most of the more advanced models will have this option. On the more basic models it is often switched on as standard and cannot be turned off, and therefore does not appear as an option. However, it is still making sure that what you see on the screen, is how the image is going to look.

What a lot of people do not realise is it isn't just the exposure that is being previewed. The items as listed to the right are all possible to preview in either

# M Series problems for shooting birds in flight

PREVIEW  
EDITION

The EOS M series which feature the 1.6x crop sensor or APS-C sensor which it is often called are designed to be small and light. Unfortunately those features seldom go with the phrase high performance.

I have tried shooting birds in flight with the EOS M5 and the words “failed miserably” come to mind. Even with EF 100-400mm f4.5-5.6L IS II USM lens fitted I failed to get a single shot. That was until I visited Lincoln on a very windy day when I was able to get the image to the right. Its actually taken on the EF-M 18-150mm f3.5-6.3 IS STM lens. So it was a very tame seagull that was staying in the same place soaring against the wind and stayed there long enough for the camera to eventually focus upon it. The shutter speed was only 1/250th (yes it’s slightly blurred) but for a normal bird in flight shot it would be very blurred.

The EOS M5 also has the normal viewfinder problems with the delay in following and shooting moving subjects - more about that shortly.

However, that said I have recently been testing the EOS M6 Mark II with the electronic viewfinder fitted and the focusing and many of the “response” problems are on their way to being sorted out on that model.

Mirrorless technology is still developing and so lots of the problems and challenges of using them that exist at the moment will gradually start to disappear from the systems.

On the M series there are other problems to



consider. The longest M series lens is the EF-M 55-200mm f4.5-6.3 IS STM lens which is not really long enough for this type of shooting.

Also all the dedicated small and light lenses feature the STM motors. The plus side of this is that they are silent in use, ideal for shooting video clips. But the downside is that STM lenses are not exactly renown for their focusing speed.

Of course using the EOS Mount adaptor you can

fit both EF and EF-S lenses to the camera, but these lenses are considerable larger and heavier and do not balance well with the lenses you are likely to need.

Being honest if you are going to shoot with a lens like the EF 100-400mm f4.5-5.6L IS II USM then the extra weight of a DSLR body is hardly going to be a major problem considering the weight of the lens.

# R Series problems for shooting birds in flight

PREVIEW  
EDITION

The image to the right was taken on my EOS R, fitted with my EF 100-400mm f4.5-5.6L IS II USM lens. Settings for the shot was 1/2000th f11 200 ISO. So I am not going to say that the EOS R cannot be used for this type of photography as it can be made to work.

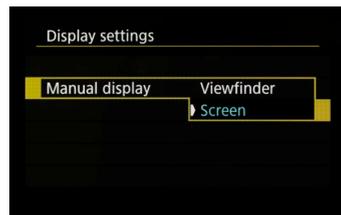
However, I shoot a lot of this type of image and I will say that it's at least 5 times harder to shoot images of birds in flight with an EOS R than it is on a 5D mark IV or 7D mark II or even an 80D or 90D and I know every trick there is to make the camera and focusing work better and I still swear and cuss when shooting with it!

So I am also not going to say that I recommend the EOS R or RP for this type of photography at the current time if this is the main type of subject that you shoot. However, at the time of writing this book Canon had announced it was developing the EOS R5 and when that comes out later in the year a lot of the problems that we are currently experiencing may well have been resolved with some of the new technology which has been developed for the Live View system on the EOS 1DX Mark III and the R5 model.

Having worked with the EOS R and RP for some time I can say that the actual autofocus speed of both the EOS R and RP is very good and in fact competes favourably with many of the mid range DSLR models. What makes the camera difficult to use for action is actually more to do with the viewfinder than the focusing. To overcome some of the problems I found that the following things help.

## 1. When you first raise the camera to your eye there is a time delay before the viewfinder actually comes on and this can make acquiring the subject quite difficult.

An easy way to deal with this is to turn off the automatic switching between the rear panel and the viewfinder. The option to do this is found on the setup four menu and you simply switch the display control to manual in the Display settings for the viewfinder. Because that means that you can only use the viewfinder it can then become difficult to set things like the menu options. This can be

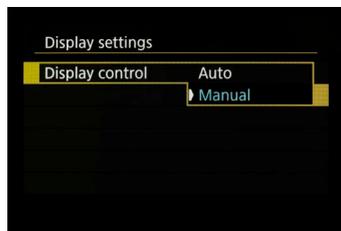


# R Series problems for shooting birds in flight

PREVIEW EDITION

overcome by programming one of the custom buttons to act as a manual switch between the viewfinder and the rear screen. I personally use the quick shoot video button on the top of the camera ( the one with the red dot on it)

**IOI** This symbol is what you are looking for in the custom control menus to enable switching between viewfinder and rear panel.

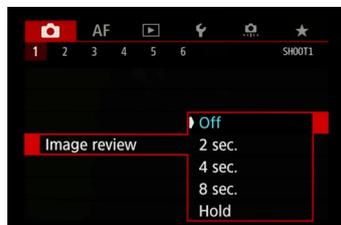


**2. Another problem you may come across is if you pause momentarily when taking a sequence, then that the image review will appear and this blocks your vision of your subject.**

This is easy enough to deal with by turning the image review off, which is found in the shoot one menu.

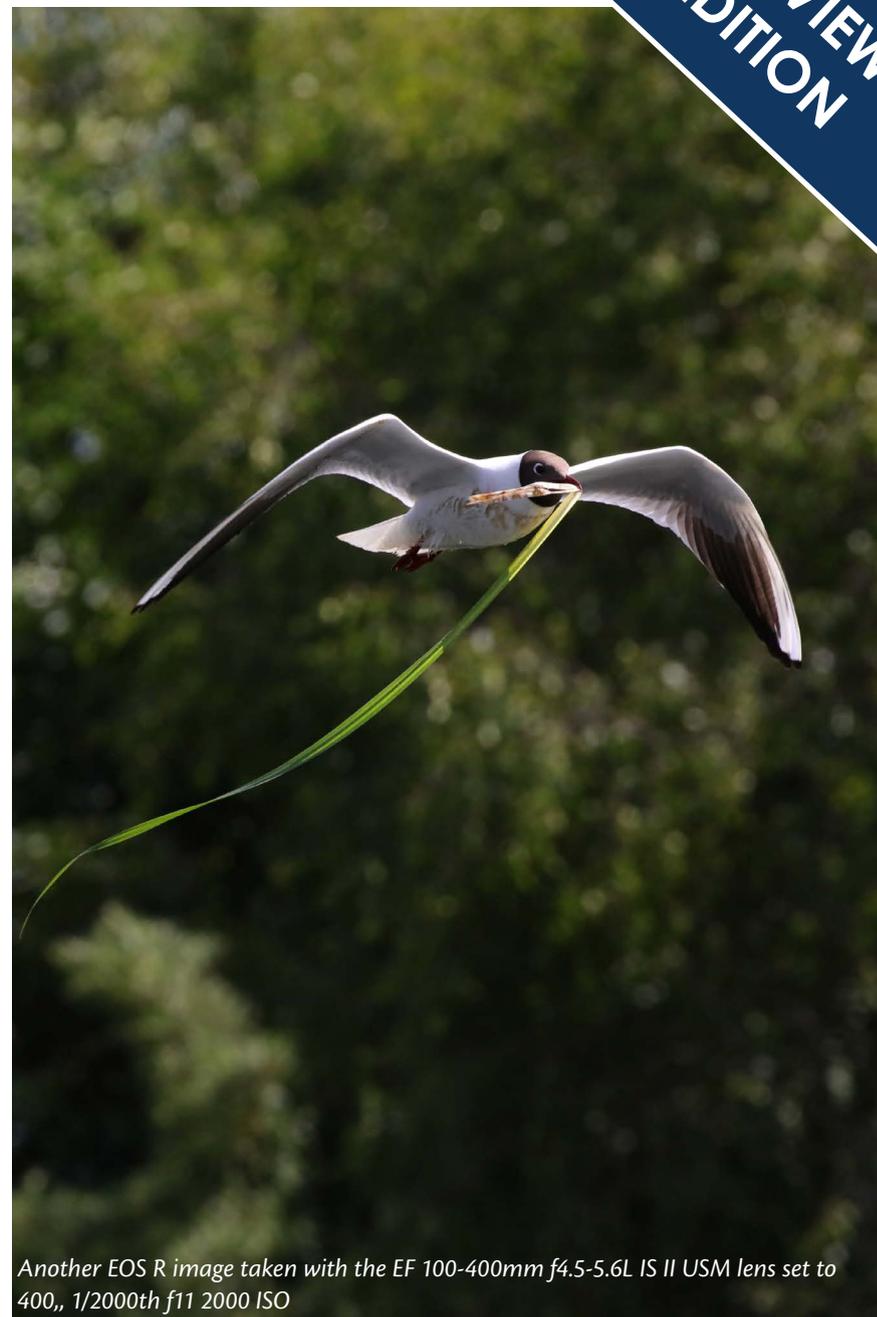
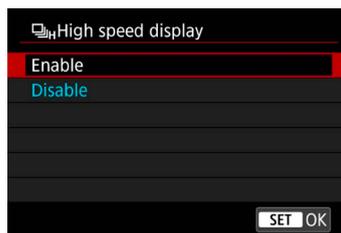
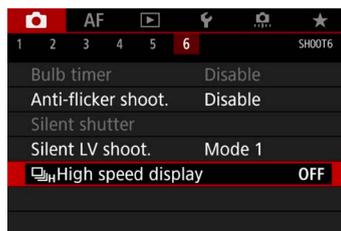


Interestingly I've not bothered to turn it back on again since I've had the camera as you're seeing in the viewfinder exactly what you're taking so there's not so much need to review the image as there used to be.



**3. With any electronic viewfinder at the moment, there is always a short time lag when you're panning with a fast subject.**

Make sure any power saving options are turned off and that the display performance is on the better option. If shooting with RF lenses the high-speed display option in the shoot six menu should be enabled. Unfortunately, at the time of writing the longest RF lens available was the RF24-240mm f4-6.3 IS USM lens, so I have not been able to really test how effective the high-speed display is.



Another EOS R image taken with the EF 100-400mm f4.5-5.6L IS II USM lens set to 400,, 1/2000th f11 2000 ISO

# Sensor sizes

PREVIEW  
EDITION

EOS models have two different sizes of imaging sensor today. It used to be three with the professional models offering a 1.3x sensor as well but this vanished when the EOS-1D X appeared as a full frame model and has not been on any models since then.

This is an area that some photographers get very confused about so I thought it was worth including in the reference section to understand the differences made by the sensor size.

**Full frame or 1.0x sensors** are found on the high end models (EOS-1D X series, EOS 5D, EOS 6D series and EOS R series only). The sensor is 36mm x 24mm in size.

**APS-C or 1.6x crop sensors** are found on the more affordable models and have a sensor size of approximately 22.4mm x 15mm.

This difference in size changes what a specific focal length of lens will capture. The smaller sensor effectively crops the image compared to the full frame models. The crop factor is often called a magnification factor, though a 100mm lens is always a 100mm lens regardless of the body that you use it on. But the smaller sensor effectively crops the area that is being captured by the lens, so it looks like the lens magnifies more.

The crop can be a good thing if you mostly shoot with telephoto lenses as it makes filling the frame a lot easier. However, it will mean that you need to buy significantly wider lenses to give a good

*1x or full frame sensor area*

*1.6x crop or APS-C sensor area*



wide angle than you would need on the full frame models.

This is why Canon make the EF-S range of lenses for the DSLR APS-C models and the EF-M lenses for the M series mirrorless models featuring the smaller sensor – to give a range of wide angle lenses especially designed for these models at a more affordable price point.

The image above shows the benefit of using a APS-C

or 1.6x model compared to on a 1.0x or full frame model as it is much easier to fill the frame.

However, though you might think that the smaller sensors must be better for shooting birds in flight due to this, there is another consideration and that is the much wider ISO range offered by the full frame models and the higher quality given at the higher ISO settings on full frame which also needs to be considered.

The ISO controls the sensitivity of the imaging sensor to light. In the days when we shot film we were limited to the ISO setting of the film. Now with digital models the ISO can be changed frame by frame, making it easier to shoot in a wide range of lighting conditions. The other key advantage with digital models is that the quality achievable at the higher ISO settings is much better than we were used to when shooting with film. With settings up to 3200 ISO on the 1.6x sensor models and as high as 12,800 ISO on the full frame models giving excellent quality. Therefore what we think of as low, mid and high ISO have been redefined.

#### **LOW ISO 100-400**

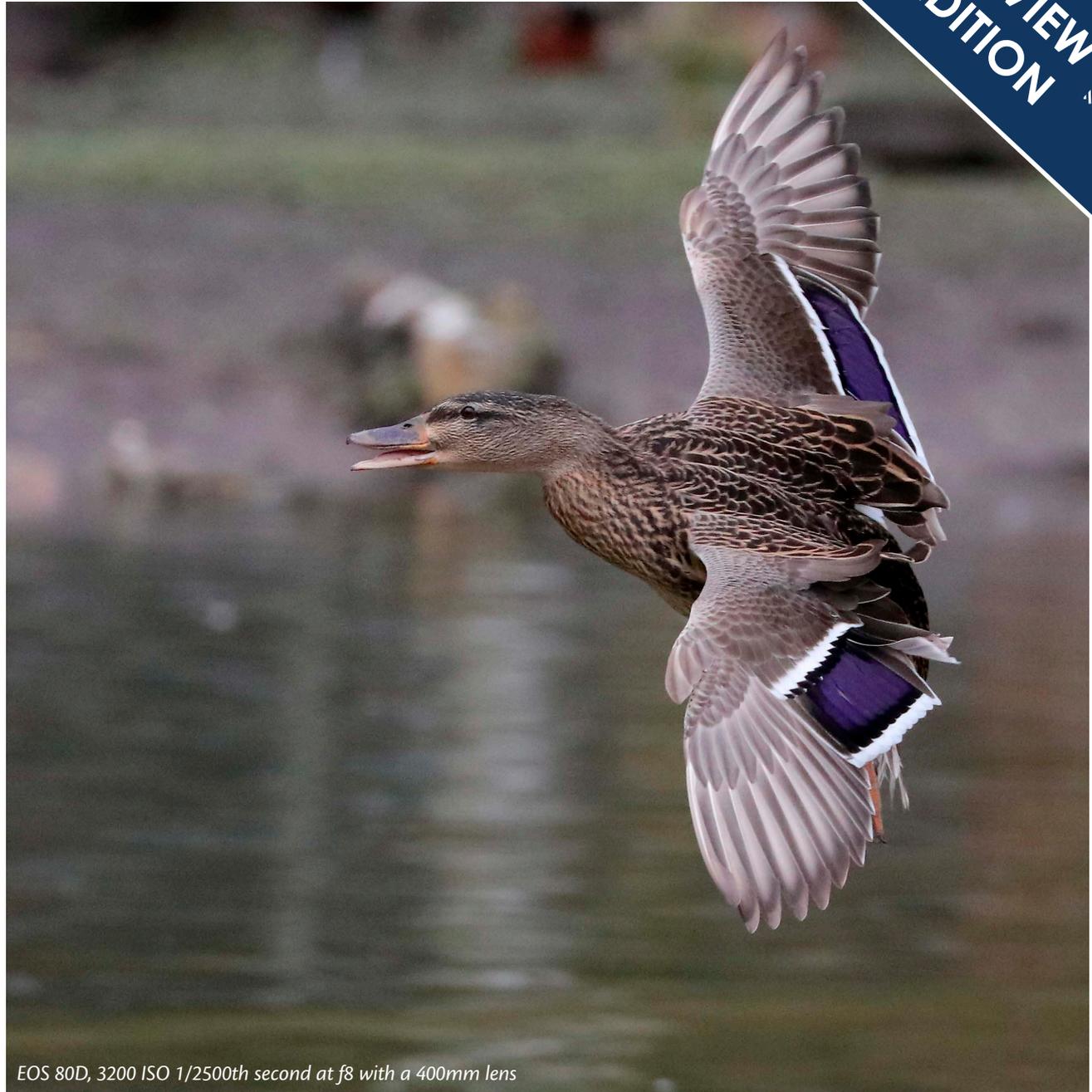
These ISOs are used when the light is bright or if shooting on a tripod in lowlight. These will give the best quality, but are rarely possible to use when shooting birds in flight.

#### **MID ISO 800-3200**

These are the ISO settings that will need to be used when the weather is overcast and the light levels are poor. The light on an overcast day can be up to 4 or 5 stops lower than on a bright sunny day. On modern day EOS cameras the quality is still very good at these settings. These are the ISO settings most commonly used when shooting birds in flight.

#### **HIGH ISO 6400-51200**

Used when handholding in low light levels. Although the image will have more noise, it's preferable than getting blurred images through camera shake. Make sure that the High ISO noise reduction feature is switched on when using these settings.



*EOS 80D, 3200 ISO 1/2500th second at f8 with a 400mm lens*

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