Beginner's Guide to BIRD & WILDLIFE PHOTOGRAPHY

Jorn Vangoidtsenhoven

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1/800s, f/5.6, ISO 560, 260mm

INTRO

Have Fun!

GREAT NEWS! The big camera manufacturers have just announced their latest top-of-the-line piece of technology: a new camera that wakes up all by itself at 4 AM, heads out into the field, hikes through muddy forests – it is guaranteed to work down to 20 below – and waits for the animals to show up in front of a beautiful background covered in beautiful light; for up to seven days straight; all while you're at home sleeping in, having a big breakfast with the family and relaxing around the house!

All kidding aside, sometimes it feels like this is exactly what the average Joe thinks of wildlife photography. We are all so flooded with great images – from past and present – on social media that we think it's a piece of cake

to take great wildlife pictures. Buy the best camera money can buy. Set it on 'Auto'. End of story.

Close-up of a Brown Bear in Alaska. He was fishing for salmon eggs by dunking his head into the creek.
1/400s, f/4, ISO 1000, 600mm

You go outside on an overcast day with drab lighting? No worries, your high-end camera will still give you a great result. It's raining, miserably cold and no animal shows up for days on end? Just take a random picture with your pro camera equipment to produce a picture that everyone on your social media feed will drool over. The animal has its butt turned towards you? Your $6K camera and $12K lens will magically turn the animal around and take a portrait that will dazzle.

It *is* that easy right?

When someone sees one of your images nowadays, it seems that one of the best compliments you can get is: "Wow, what camera did you use?" As if a better camera is the sole answer.

What most don't realize is that under *normal* conditions, it is very hard – if not impossible – to see the difference between a picture taken with your cell phone, a $300 camera and lens, and one taken with an $18,000 camera and lens. Once you learn what it takes to consistently make great wildlife images, you will understand that good camera equipment is only a small part of the equation. Of course, you cannot go out into an Alaskan rain forest in drenching rain for 8 hours straight and expect an entry-level camera to do the trick but there are multiple other aspects at play besides just buying the

best equipment that money can buy.

The simple fact that your main subject – wildlife – shows up wherever and whenever it wants, adds a whole level of complexity. Especially when compared to what many photographers think of as the most challenging type of photography; weddings; where you are confronted with all kinds of environments throughout the average wedding day. However, whereas a bride or mother-in-law can throw a temper tantrum (or two), they are usually cooperative when it comes time to take pictures and you have plenty of time and equipment laying around to cope with lighting challenges. Try telling a bear or moose to move a little to the left or to follow you to a different location with better lighting or a more scenic backdrop.

Beaver in Yellowstone National Park, Wyoming
1/320s, f/5.6, ISO 1600, 240mm

Black bear in Yellowstone National Park, Wyoming
1/250s, f/5.6, ISO 2000, 500mm

Wildlife photography has become more and more

popular in recent years. National Parks are seeing increased visitation numbers and with the price drops in camera equipment – and the fact that everyone now has a cell phone with camera available at all times – there have been ever increasing numbers of serious wildlife hobbyists around. Browse some of the #wildlife hashtag images on Instagram and it seems that almost everyone is a wildlife photographer nowadays. But why the big difference in quality between these images? Why do we recognize some images to stand out?

Bighorn sheep in Grand Teton National Park, Wyoming
1/400s, f/5.6, ISO 720, 320mm

It all starts and ends with passion: the passion to put in the required time to get to know your equipment; the

passion to put in the time to find the animals and learn about the wildlife's behavior.

Monarch butterfly cluster in Michoacan, Mexico
1/1000s, f/5.6, ISO 500, 450mm

Wildlife photography can be extremely challenging and extremely rewarding. Not only does it involve getting

to know how to operate your camera – don't expect to use 'Auto' or 'Program' mode on your camera – but you also have to learn as much as possible about your subject (its behavior, the best times of the day and year to find them) and remember perhaps the top attributes that a wildlife photographer must possess: patience and persistence.

More often than not, you get up before dawn with the best of intentions but return at the end of the day without having seen an animal. It is those rare moments when everything comes together that make it all worthwhile.

Be deliberate in your image making process: towards the end of this book is a checklist of 10 questions that you should ask yourself before making an image. Write down the answers to these questions: review your decisions during (and after) post-processing to learn where you could have perhaps done better!

Remember to have fun – it will show in your pictures – and practice, practice, practice!

This beginner's guide is structured to include the following ***chapters***:

1. What to look for in a good wildlife ***camera***?
2. What makes a good wildlife photography ***lens***?
3. The importance of ***understanding*** your equipment and the art of post-processing.
4. How to ***compose*** your image.
5. The importance of studying ***animal behavior***.

6. And finally, two of the most important personal traits of a wildlife photographer: ***patience and perseverance***.
7. ***Bonus***: The stories behind the images
8. ***Bonus***: Wildlife Photography Calendar

Canada goose chick in Jackson Hole, Wyoming. Being at eye-level with a shallow depth of field made the image successful. 1/1600s, f/5.6, ISO 800, 500mm

CHAPTER ONE

Camera Body: Your Cell Phone Won't Cut It

THE OLD SAYING GOES THAT whatever camera you have on you when something picture-worthy appears is the best camera in the world. After all, what good is top-of-the-line camera equipment when it's sitting at home?

What camera do you carry with you all the time? Your cell phone. When an animal shows itself in a national park, the cell phones and tablets appear. Even though modern cell phones do have quite impressive cameras (look at all those megapixels!), they are no substitute for specialized DSLR or mirrorless camera equipment.

The big camera manufacturers all offer a multitude of camera bodies, ranging from a few hundred dollars up to

many thousands of dollars. Nikon, Canon, Sony and a few others all offer great choices for taking pictures of your children, your vacations, landscapes … but what about wildlife? What makes a "wildlife camera" different from others? Is it price? Features?

Close-up of a bald eagle flying in Alaska
1/1250s, f/4, ISO 3600, 600mm

Wildlife photography comes with its own set of challenges which drives the feature-set you'll want to look for in a camera body. It is perhaps surprising that under good conditions – when there is plenty of available light and the rain isn't pouring down on your equipment – an entry-level DSLR will produce pretty much the same result as a top-of-the-line pro camera. Why then pay more? What

makes it different and better?

What you will learn is that the pro camera costs (much) more because it shines under difficult conditions: the conditions that you will encounter frequently in wildlife photography.

A black bear takes a break in a tree, Alaska.
1/500s, f/2.8, ISO 560, 135mm

If you only intend to use your camera on sunny days on static subjects, don't bother investing in professional-grade equipment. Really, there is no point. It's like buying a Ferrari to drive 35mph to the grocery store over speed bumps. Save your money and invest in some photography education or a workshop.

More expensive cameras tend to be specialized and less intended for the general public: they offer very high ISO performance, a great autofocus system, great weather sealing, a high frame rate (speed), a large buffer, better ergonomics and more.

THE BASICS OF EXPOSURE: SHUTTER SPEED, APERTURE AND ISO

For beginners, this is a good time to cover the very basics of what a camera body does. Back in the day; way back in the 1800s; the camera body was born as a simple wooden box.

In fact, even today, you can make a basic camera body with simply a cardboard (or shoe) box.

Take a box;

add a small hole on one side (this is the lens opening and the size of the hole is called the ***aperture***);

insert a piece of film inside the box across the small hole (this is the light-sensitive medium on which the scene is recorded).

When you uncover the small hole for a certain amount of time (the amount of time is also called the ***shutter speed***), light rays enter the box and hit the film.

A chemical process records the light as an image on the piece of film and when the film is subsequently developed in the dark room, a physical print is made.

Always remember that no matter how expensive and fancy today's camera bodies are; with a million features to turn you into a professional (or lazy) photographer; a camera body is still nothing more than a dark box which allows you to let in a specific amount of light (through the aperture of the lens) for a specific duration (the shutter speed). This light is recorded on a light-sensitive medium, such as a piece of film or a digital sensor.

All the other features – heavily promoted by marketing departments – are definitely nice to have (such as the autofocus system, the exposure meter, etc.) but are purely technically speaking "not required" to take a picture.

The ***shutter speed*** is the amount of time, measured in

fractions of a second, you allow the light to enter into the box and hit the light-sensitive medium (the longer, the more light will fall in).

Brown bear with chum salmon in Alaska
1/800s, f/4, ISO 560, 600mm

The ***aperture*** is the size of the opening through which the light rays enter the camera (the bigger the opening, the more light will fall in).

ISO is the light sensitiveness of the digital sensor (the more sensitive, the quicker it will have recorded enough light).

If there is one thing that is crucial to understand in photography, it is that these three – shutter speed, aperture

and ISO – are all related and directly impact one another.

When one increases, one or both of the others have to decrease, and vice versa. The camera (or an external exposure meter) "looks" at a scene and determines "correct" exposure.

Note: there is no such thing as "correct" exposure; it all depends on what you want to accomplish.

It is then up to you to determine how you want to achieve this exposure: you can choose to let the camera make this decision by setting it to 'Auto' mode (no way!) or (yes way!) be creative and determine yourself the appropriate shutter speed, aperture and ISO.

Bugling elk in Grand Teton National Park, Wyoming
1/500s, f/4, ISO 720, 600mm

For example, the camera determines the exposure

for photographing a scene is 1/250s shutter speed, f/8 aperture and ISO 200. Now here's your chance to determine what the picture will look like.

Bull moose battle in Grand Teton National Park, Wyoming
1/250s, f/7.1, ISO 1400, 170mm

If you want to minimize the depth of field to draw attention to the subject, you can choose to open up the lens aperture to f/5.6. Then; to attain the same exposure; you will have to compensate for the extra light that will fall in through the larger lens opening by either reducing the shutter speed (in this example, to 1/500s) or the ISO (in this example, to ISO 100).

Back when I started learning about photography and

exposure, I liked the following example.

Let's say that "correct exposure" to photograph the scene in front of you is equivalent to filling a 2-gallon bucket of water.

The camera needs to fill the 2-gallon bucket with "water" (= light) and when it's full, you have the desired exposure.

To fill the bucket of water, you have a pipe through which to pour the water and fill the bucket.

If the pipe has a small diameter, you need 10 seconds to fill the bucket. If the pipe has a large diameter, it takes only 5 seconds.

The diameter of the pipe is equivalent to the camera's aperture and 10 seconds is the equivalent to the shutter speed.

If you need to freeze the action; let's say you're taking a picture of flying bird; you need a faster shutter speed. In the case of the bucket, if you reduce the process of filling the bucket from 10 seconds to 5 seconds (=you reduce the shutter speed from 10 to 5 seconds), you'll need a pipe with twice the diameter to fill the bucket (to attain that same "correct exposure"). Or, in camera terms, you'll need a larger lens opening (= aperture) which allows more light to fall into the camera onto the digital sensor, in the shorter amount of time.

To go back to how a camera handles the exposure for an image. Let's say that the camera looks at a scene and determines the needed exposure is 1/500s with an aperture

of f/8 and an ISO of 200.

If you're trying to take a picture of a bird in flight and you determine you actually need the shutter speed to be 1/1000s in order to sufficiently freeze the action to have the bird appear sharp in the picture, you'll need to either go with a larger aperture and/or a higher ISO setting to record the same amount of light. In this example where you're increasing the shutter speed from 1/500s to 1/1000s (which effectively halves the amount of light coming into the camera), you need to double the aperture to f/5.6 or raise the ISO to 400. Makes sense?

Queen butterfly in Amistad National Recreation Area, Texas
1/200s, f/11, ISO 1600, 105mm

Cameras use increments of light called stops. Each

step between subsequent stops represents a doubling (or halving) of light.

For example, taking a picture at a certain ISO and aperture with shutter speed 1/125 second will provide double the amount of light to the digital sensor as compared to taking a picture at the same ISO and aperture but at 1/250 second. In half the amount of time, half the amount of light will enter the camera.

To fully understand the concept of stops, I highly recommend that you memorize the following sequences of stops. As you change the aperture, shutter speed and ISO settings on your camera body, they will increase/decrease in 1-stop increments. For finer control, you can also set the camera to increase/decrease in 1/3 stop increments (which I do).

Nutria in Big Bend National Park, Texas
1/640s, f/5.6, ISO 4500, 370mm

Shutter speed increments: the difference between each shutter speed in the following series is a full stop; this is a halving of the amount of light. The faster the shutter speed, the more the picture will freeze the action. For example, to freeze the wings of a hummingbird, you need around 1/4000s.

1 sec – 1/60s – 1/125s – 1/250s – 1/500s – 1/1000s – 1/2000s – 1/4000s – 1/8000s

Aperture increments: the difference between each aperture (also called "lens opening", "f stop" or "f number" in photography) in the following series is a full stop; this is a halving of the amount of light. In general, the larger the aperture, the less depth of field (= the depth area of sharpness in a picture; the zone of sharpness) you will have. The following increments go from large to smaller apertures.

f/1 – f/1.4 – f/2 – f/2.8 – f/4 – f/5.6 – f/8 – f/11 – f/16 – f/22

Wait a minute: you start from f/1, end at f/22 and you say that it goes from large to *small*!? Yes: aperture numbers are confusing.

When photographers talk about "opening up" the aperture to let in more light and going to a larger aperture, the above scale is reversed at first sight. To go from f/8 to

f/5.6 is essentially opening up the diameter of the lens which lets in twice the amount of light. But how does this equate to "opening up" the diameter when you are actually going from the seemingly larger f/8 down to f/5.6? This is because in reality F-numbers are fractions.

What is the lens diameter (or aperture or physical opening) for a 50mm lens set at f/8?

"f/8" is a fraction. "f" is the focal length, so 50mm divided by 8 is equal to the physical lens aperture of 6.3mm (=50/8).

How about a 50mm lens set at f/5.6? 8.9mm (= 50/5.6)

So, f/5.6 (= lens diameter of 8.9mm) is larger than f/8 (=lens diameter of 6.3mm).

What's also confusing is that the fraction is usually not mentioned in camera terms. When you look on your camera lens or in the manual, it sometimes says "8", not the fraction f/8. So yes, f/1 is larger than f/22. And, f/5.6 lets in double the amount of light compared to f/8. Confusing much?

ISO increments: the difference between each ISO setting in the following series is a full stop; this is a halving of the light sensitivity. The higher the ISO number; the more sensitive and the less amount of light that needs to fall onto the sensor to achieve the desired exposure.

ISO 12,800 – ISO 6,400 – ISO 3,200 – ISO 1,600 – ISO 800 – ISO 400 – ISO 200 – ISO 100 – ISO 50

Grizzly bear, Bridger-Teton National Forest, Wyoming
1/500s, f/5.6, ISO 1250, 450mm