TAKE BETTER PHOTOS IN NAMIBIA
A step-by-step Online Training Course
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MODULE 3: PHOTOGRAPHIC EQUIPMENT

Which photo gear you should bring to Namibia, so you don't miss any great photographic opportunity

Here's What You'll Learn In This Module:

- Which camera requirements are essential (without being too techie)
- Which lenses you'll need for your landscape & wildlife photography in Namibia
- Other photo accessories you MUST bring to Namibia
- Crucial equipment mistakes you should avoid

Nature photographers come in all kinds of shades, when it comes to 'photo equipment'. Some are tech freaks, always keen to know, test or own the latest equipment on the market. Others care less, and rather plan their next photo trip in detail. In this module we want to talk about the photographic equipment you should bring to Namibia but without getting too technical. Yes, we give you enough detail so you'll know which features your photo gear must have so you don't miss out on any great photo opportunity. But for those of you who want to even go deeper into the tech info on equipment than what we present here in this module, Wynand has prepared a PDF document about 'The essential

requirements & specifications that camera equipment should have for wildlife & landscape photography in Namibia', which you can download. We also want to point out that in this & the following modules we'll talk about basic technical aspects of photography like exposure, shutter speed, ISO, aperture, depth of field etc. We mostly give a brief explanation of each of these terms when they come up, but if you need some polishing up of your basic tech stuff, here is a link to a website that does a fairly good job at explaining it: http://www.exposureguide.com/photography-basics.htm

So let's start with the

1. Essential Camera requirements

There is a huge variety of cameras on the market. We don't want to go into camera makes here or recommend certain cameras over others. We'd rather talk about which features your camera MUST have, so you will have a smooth photo experience in Namibia for both your wildlife and landscape photography.

As it's the digital age now, we'll focus on digital cameras only. You should have a digital camera, preferably a DSLR (Digital Single Lens Reflex) with interchangeable lenses OR alternatively you can bring a top quality compact camera that is mirrorless, but has interchangeable lenses, or that is mirrorless with a fixed zoom lens with a large zoom range. When we talk about the specifications that your camera and lenses should have, please compare them to your equipment to judge whether your photo gear is fit for wildlife & landscape photography in Namibia. You will find the detailed technical specifications of your

camera and lenses in their manuals, or on the website of the manufacturer.

Let's begin with the

A: Reaction time: Shutter lag & autofocus lag

Now what do we mean by that? The delay in capturing a shot when the shutter is pressed is called **shutter lag**. The delay of the lens to focus when the shutter is pressed is called **focusing lag**. There should be NO noticeable delays, because you want perfect & precise control over the exact moment you'll want to capture in your images, especially in wildlife photography, but also for landscape photography.

Therefore you'll need a quick autofocus and NO noticeable autofocus lag and a near instant shutter release, that means NO noticeable camera shutter lag. Otherwise you'll miss images because of the delays & this will certainly drive you crazy. This means you should NOT bring very simple compact cameras to Namibia and also not plan to do your main photography with your cell phone.

There will always be a tiny shutter lag, but what's acceptable & recommended is a shutter lag of less than 0,5 seconds for start up to first shot, and < 0,08 sec when the camera is ready and pre-focussed. The autofocus lag should ideally be less than 0,15 sec during full and continuous focusing modes. As I said before you should find your camera's specific shutter lag & autofocus lag times in your camera manual. Just look it up.

The next point we would like to talk about is the

B: Capture speed (or the frame rate)

This is the number of images captured per second when the camera is set at continuous shooting mode.

For wildlife photography the faster the capture speed the better: 10 frames per second or faster is very desirable and necessary to capture the best shot during fast action. For landscape photography a high frame rate is in most cases of little importance.

Let's talk about:

C: Raw format

A 'raw image format' means an unprocessed image & allows the photographer to adjust settings like exposure, white balance and saturation after the image has been captured.

A RAW file contains more information than a JPEG file and is compressed in a lossless image quality format. On the other hand JPG files are compressed in a lossy image quality format. The processing step automatically applies the appropriate colour, brightness and contrast correction and the JPEG compression significantly reduces the file size. And you should know that RAW files need about two to three times more space on your memory stick than full-size JPG files.

It is recommended that you shoot in RAW format as it gives you the best options for post processing that means for optimizing your digital images later in a program like Photoshop (or Lightroom or Topaz Clarity) for example to correct exposure, colour, brightness, contrast etc., which is nearly always necessary for serious photography. If your camera does not capture RAW but only JPEGs be aware that it limits your post-processing options considerably. If you intend to buy a new camera, buy

a camera that does support RAW mode as this allows you best options for post-processing. Most cameras that offer RAW mode also offer the option to capture JPG files at the same time. It is helpful to use JPGs, that are optimized in-camera already and need little work in the computer, for less serious uses, and only post-process the RAW files that will be needed for more serious and professional uses, for example for large poster prints, A3 calendar prints etc..

D: ISO

The ISO setting determines the sensitivity of your camera's sensor to light.

Digital camera sensors with high ISO produce "noise", which are pixel errors in colour, contrast & brightness. In the past, slide film with high ASA produced "film grain" which can be very disturbing & was even more noticeable than "digital noise". With ISO the lower the number the less sensitive your camera is to light and the less sensor noise is visible, and vice versa the higher the number the more sensitive your sensor is to light but also the more noise is shown. 100 ISO is usually the lowest ISO setting available on digital cameras producing fine quality images & little or no noise. On contrast 6400 ISO for example is a very light sensitive setting with much more noise, but how much noise depends a lot on the camera.

Summarized you always have to choose your ISO on your camera. And the less light you have, the higher you would want to set your ISO, because this will give you faster shutter speeds and the possibility of choosing a smaller aperture for more depth of field (but we talk more about this later).

To give you examples of choosing the best ISO, let's say you have a herd of elephants at a waterhole in Etosha just after sunset with very low light. At ISO 100 (at your smallest f-stop of 5.6) you will get about 1/2 sec exposure time (or shutter speed), which is very likely to produce an unsharp shot due to camera shake and the elephants' movement. At ISO 6400 however (and the same f-stop of f/5.6), you will get 1/125 sec as your shutter speed, which gives you a much better chance for a sharp shot.

As you will know your ISO, shutter speed & f-stop are correlated, but we'll talk more about this later when we discuss correct exposure in Module 6 in detail.

So, the recommended ISO setting for very low light situations would be: to use ISO 1600 to 6400 during the very early morning and very late afternoon in Namibia, when you have the best photo light but NOT very strong light for photography. For your wildlife photography you want to push up your ISO to photograph in low light & for action, when you need fast shutter speeds. For your landscape photography you want to push up your ISO to photograph with a small aperture (large f-stop e.g. f16) for maximum depth of field and sharpness. Very good camera sensors - especially full frame - have still little noise levels at ISO 6400, but all sensors show lots of noise at about ISO 25000 or higher, especially for cropped frame sensors. But rather get a noisier & sharp shot in nice light or with more dramatic action happening, than a fine quality image during boring light and with nothing interesting happening.

E: Sensor Resolution / Sensor size / Individual Pixel Area Size

Let’s quickly explain these:

The sensor resolution is the number of pixels or picture elements per sensor. The sensor size is the physical size of the sensor, there are: full-frame sensors & various cropped frame sensors. Full-frame digital cameras use a sensor that’s equivalent in size to 35mm film (36x24mm) and cropped-frame sensors are all sensors that are smaller in size. The individual pixel area size is determined by both of these: the sensor size & the sensor resolution. If you want to know more about this, have a look at the attached tech PDF.

We recommend that you have or buy a camera with a very high sensor resolution, because this is great for capturing fine detail, even when zooming into the image: it should have at least 16 Megapixels.

Let’s quickly talk about the **pros and cons of full-frame vs. cropped frame sensors:**

Full-frame sensors usually produce better image quality with less noise and more sensitivity to details in darker areas than cropped frame sensors, especially during low light and high ISO. This is best for landscape photography.
Cropped frame sensors have a narrower field of view for the same lens when used on a camera with full-frame sensor, therefore you get more telephoto effect for the same lens. For example: a 400mm lens on a full-frame camera is a 400mm lens; a 400mm lens on a cropped frame camera becomes a 600mm lens or similar depending on the crop factor of your camera sensor, which is great for wildlife photography, as you gain a longer telephoto lens in this way.

Let’s talk about

F: Image Stabilization

The internal stabilization in a camera system helps to reduce the camera shake & greatly increases the chances of getting sharp shots.

There is **lens-based stabilization**: Canon & Nikon have them which is better for image stabilization when using long telephoto lenses, and then there is **camera sensor-shift stabilization**, which most compact cameras have, but even some full format cameras such as Sony, Olympus, Pentax and Panasonic. The latter camera systems & lenses are mostly lighter, smaller and usually cheaper, but less effective when using long telephoto lenses.

The advantage of Image Stabilization is that it now allows 2 to 5 stops slower shutter speeds with handheld photography: for example it is now possible to get sharp shots with a 400mm lens at a 1/30 sec, but of course : faster speeds than 1/30 sec are necessary for subjects that move, e.g. a cheetah chasing a springbok.

The RULE OF THUMB for capturing sharp, handheld images without image stabilization is to use a shutter speed equal or faster than the equivalent focal length of the lens: that means, if you’ve got a 400 mm lens use a shutter speed of 1/400 sec or faster; for a 200 mm lens use 1/200 sec and so on… Otherwise the camera shake, that means you shaking when taking a shot, will result in unsharp images.

We recommend that if you do buy a new camera or lens, choose a system that offers stabilization, and the latest generation is often better.

If you haven’t got image stabilization, remember the Rule of Thumb for handheld images.

Let’s talk about

2. The right lenses to bring to Namibia

Landscape photography (LP) and wildlife photography (WP) often require different lenses to get the best results. We’re going to talk about this now, when we talk about the

a. Focal length of your lens

and we’re going to relate these to full-frame digital camera. If you’ve got a camera with a cropped frame sensor the same lens will result in an image magnification of at least 1,5 times larger than when using a full-frame camera, so do consider this.

A typical ‘normal’ lens has a 50 mm focal length. It’s called a normal lens because the image perspective is similar to how we view everything around us. A wide-angle lens is typically 35 mm or wider, a standard telephoto lens is typically 70 mm to 200 mm, and a long telephoto lens is longer than 200 mm.

For your **wildlife photography** in Namibia we recommend that you use a long telephoto lens with at least a 300 mm focal length, because the wildlife is keeping its distance. And sometimes a very long telephoto lens of 600mm or longer may be needed too. At waterholes with a large herd of elephants for example a standard telephoto and even a wide angle lens should also be kept ready.

For your **landscape photography** in Namibia you should bring a wide-angle lens, for example between 16 mm and 35 mm; often a 24 mm or wider lens is better for grand landscapes. Also pack a macro lens for close-ups, and you're definitely going to use the medium & long telephoto lenses, that you'll use for your wildlife photography in Namibia, for tighter landscape shots & abstracts.

Beside the focal length of your lens it's important that you bring

b. Light-sensitive lenses (also called 'fast lenses')

These fast lenses have very wide maximum aperture settings.

Just to recap: The f-stop indicates the aperture, meaning the opening size of the diaphragm of the lens: for example f/1.2 up to f/32, whereby a smaller number means a larger aperture and opening and therefore more light. Your lens' largest aperture indicates the light sensitivity of your lens: the more sensitive the better, because this allows for faster shutter speeds and therefore sharper shots at low light. Photographing with a large aperture also means a shallow depth of field, which can be creatively used to blur the background and put the focus on your subject.

We recommend that when you want to buy a lens choose one with a very wide maximum aperture setting, for example an f/1.4 for a wide angle or standard lens (rather than a f/1.8), an f/ 2.8 for a long telephoto lens e.g. 300 mm lens (rather than f/4.0 or f/5.6) and an f4.0 to f/5.6 for a very long telephoto lens e.g. a 600 mm lens (rather than f/8.0).

At this point we want to address a question that's being asked frequently, whether you should you have a

c. Telephoto lens with a fixed focal length or rather a telephoto zoom lens

meaning, is it better to have two lenses, let's say a 80 mm and a 200mm lens OR rather a 80mm to 200 mm zoom lens.

Let's first talk about the advantage of telephoto lenses with a fixed focal length: These lenses used to have better optical quality resulting in better quality images, but this is not always the case anymore. And fast telephoto lenses with a fixed focal length of 400 mm and longer still may have a wider maximum aperture than the best zoom lenses with similar focal length, which is of great advantage.

On the other side there are also advantages of quality zoom lenses over fixed focal length lenses. When you photograph wildlife with a zoom lens you don't need to change lenses, thus you avoid the danger of missing out on a shot - while you change your lenses - or getting dust inside the camera. There is also no need for two camera bodies to put different lenses on ready to shoot & you therefore need fewer lenses and save money. For both wildlife and landscape photography it also means that with a zoom lens you get a greater variety of images from one position.

That all said, we do recommend, that if you plan to buy new equipment, rather buy the best lens and a good camera than the best camera and a poor lens.

The next point to talk about are the

3. Important photo accessories & tools you need to bring

First the

a. Memory card

This is your internal storage card for images and videos that you've taken with your camera.
Memory cards are available as SD cards (this stands for: secure digital) or as CF cards (this stands for compact flash). The common sizes available (in GigaByte) are 8, 16, 32 and 64 or larger, and the recommended writing speed of professional quality cards should be at least 90 MB/s or faster.

Overall we recommend that you get the fastest memory card you can afford and that your camera supports, but definitely take more than one card with to have alternatives and a back-up when a card fails. Also take at least 3 fast cards of 32 GB each to Namibia, rather than just one large card, and download & format every night to be ready for the next day.

The next thing you need to bring to Namibia is a

b. Laptop Computer, power cable & USB cable

to be able to download & view the photos you've taken. You'll take many hundreds of images per day in Namibia and need to download your photo files & clear out the Memory cards on a daily basis.

We recommend that you bring a laptop computer of at least 1 TB internal drive AND an external drive of 2 TB or more to download your images onto. Alternatively to bringing a laptop, you can bring two 1 TB external

hard drives with a built-in card reader and also bring a USB cable to connect your camera to your laptop.

Let's talk about the

c. Camera batteries, charger & adapter for Namibia

we recommend that you pack 3 rechargeable camera batteries per camera, pack the charger (or two, if you've got) and buy a power adapter for Namibia. Namibia has a different plug system; you can buy these adapters online in your own country before your trip or at your arrival in Windhoek where they are available at most supermarkets or hardware stores. And very important too: recharge the batteries every night!

Now about your

d. Camera case or bag

Namibia is a very dusty country & you'll need to protect your equipment and keep it together in a camera case or bag.

It's recommended that you bring a good quality bag or case that holds all your equipment tightly and securely. Also bring an additional day pack that is smaller to hold your equipment needed for shorter excursions. This bag should be easily accessible on your travels as you'll definitely see something you'd like to document along the way. For even quicker access, for example during a game drive, leave your camera with the lens of your choosing on the car seat next to you just covered by a soft cloth or scarf.

e. Camera Cleaning Stuff

We just said it: Namibia is a dusty country & dust on your equipment may cause a lens to be scratched or a sensor to fail. We recommend that you bring a cleaning brush to blow off dust if necessary. Also use lens cleaning wipes only for sticky dirt on the lens, but be careful to first remove all dust with a brush before using wipes. Brush & clean your equipment when necessary in a closed, dust free area: your room, tent or car.

f. Camera Bean Bag Support

A Bean Bag is a small cotton bag or small pillow case filled with small kernels, it can also be dry rice, lentils or beans. You rest your camera and lens on it for support and it adapts to the camera shape & the underground shape.

We recommend to use it especially on game drives in the car for your wildlife photography. You basically put it in the open car window and rest you camera on it when you take photos. But don't forget that you need to switch your image stabilization off. One tip: if you want to make a simple bean-bag yourself, you can just take a small, empty pillow case from home with and buy the filling in Namibia in a supermarket.

g. CameraTripod

A tripod is a stable support for a steady camera during shooting, which you'll need especially in low light & at slow shutter speeds in Namibia.

It is NOT recommended for your wildlife photography from inside your car as such, as there is no space, but a window clamp with a tripod head

(and a quick release plate) that is permanently kept on the open window is often used by serious photographers using very long telephoto lenses.

You would use a tripod for your wildlife photography for example at a waterhole at night in Etosha, or when walking in the desert with a long lens to get images of a gemsbok herd next to a dune for example. For landscape photography you want to use it in low light conditions to get sharp shots and it is also needed, when you use a small aperture (large f-stop) for a great depth of field, for example f/16 with a very slow shutter speed. You also want to use a tripod when you do experiments at night with long exposure times to get star trails for example.

We want to add that not all tripods are made equal, and for international travel a professionally made light carbon-fibre tripod and a tripod head with a quick release plate are recommended.

You definitely want to bring a pair of

h. Binoculars

as you need binoculars in Etosha & other wildlife areas of Namibia to search for wildlife and birds, and to identify situations where it may be worth the while to wait longer for interesting things to happen. For example when you're waiting at a waterhole you want to check out the animals in the distance that might be heading for the waterhole, e.g. a rhino or lion. It's recommended to take your binoculars on all game drives and photo hiking trips to identify and spot animals in the distance or hiding under bushes.

It is also very important to bring a pair of good quality binoculars as poor quality devices will strain and weaken your eyes. As for the specifications: 10 x 50 binoculars are very well suited for spotting and

identifying wildlife and birds (10x indicates the magnification and 50 indicates the front element diameter in mm; there the wider the better as more light enters, and the viewed image is brighter).

Finally in this module we want to talk about

4. Crucial equipment mistakes to avoid

Photography on location can be very demanding when you aim at capturing professional quality images. By avoiding the following mistakes you can make your life much easier and focus on getting the best shots.

A **slow camera focus**, we've talked about it already, will certainly drive you crazy because you'll miss half the shots. This is one of the biggest mistakes you should avoid.

Also very frustrating would be to bring the **wrong lenses**, i.e. no long telephoto-lens, because you'll miss out on wildlife images of shyer species or far off scenes.

Not having **enough rechargeable camera batteries** can also stop you in your tracks and spoil your photography in Namibia. This can happen for example when you've forgotten your charger, your charger breaks or one of your batteries turns faulty. There is nearly no chance to buy extra camera batteries or a battery charger for your specific batteries in Namibia on tour.

If you've **forgotten** to buy a **power adapter** for your battery charger try to buy one in Windhoek or Swakopmund. If you're lucky you may be

able to borrow one at your accommodation places as a short-term solution.

Also **too few or damaged memory cards** are quite detrimental, as it is rather impossible to buy on route in Namibia. Again if this happens your best bet would be Windhoek, but again don't rely on this.

If you **didn't bring a bean-bag** this problem can be solved in Namibia. Just buy a 5 kilo bag of rice in a supermarket & put it inside a cushion cover or T-shirt (and close it with knots), that should be fine.
If you've **got no tripod**, you may find a small collection in Windhoek, but very limited options are available. Alternatively use a bean-bag on the ground or on a rock or draped over your car's bonnet.

Generally, on route through Namibia it is very unlikely you'll be able to buy any broken or forgotten accessories . So it's easy: Do NOT forget any stuff !

This has been Module 3: Photographic equipment - Which photo gear you should bring to Namibia, so you don't miss any great photographic opportunity.

Now we would like you to take action:

- Check your camera, lenses & accessories for the discussed specifications & make a list of your findings

- Compare that to the ideal specifications & judge the drawbacks of your current equipment: decide whether you need new equipment or not
- Make sure to avoid the crucial mistakes listed

Thanks for listening & see you over at Module 4