



# Managing photo storage and backup in the field

## Introduction

As a professional wildlife photographer running safaris and workshops in the field, I often find myself shooting over several days or even weeks without access to my home computer and backup systems. Storing the photos, managing and backing them up locally in the field is therefore very important and a challenge to anyone travelling with a camera. I thought I had a robust solution to this problem until a major problem occurred on a safari in Southern Tanzania last Autumn causing me to rethink at least the technology I use.

## Photo Storage and Backup in the field

Maybe you are on a safari trip of a lifetime or shooting a rare animal which has taken you ages to stalk. Whatever your photo shoot if you are away from your home computer backups for a considerable period of time you need an alternative solution. Your photos whenever or however they were taken are irreplaceable. Managing them at home is one thing but managing them safely in the field is often poorly thought through and something we all too often *leave to chance*. If you search the



web you will find many articles on digital workflow and data backup but few address best practises whilst travelling. Over the years I have come across many different approaches promoted by photographers, some of which are quite frankly downright scary. Sadly, for many, it seems that whilst the authors of such articles are prepared to retell the stories of other's failures, it is not until it happens to them that they understand the real need for sound procedures. In the past I have written an article covering my practises for digital workflow and data backup **at home** which is downloadable from my website by clicking [here](#). I also regularly express my thoughts and discuss my own practises **in the field** to guests on my safaris, workshops and at camera clubs where I speak. I felt quietly confident that I had most things covered that is until last Autumn when I hit a real problem.

I was away from home for nearly 4 weeks running a series of Safaris in East Africa. My normal approach, which I adopted on this occasion, was to take a series of memory cards, more on that anon, a lightweight laptop and two external hard drives for back up. I carefully and securely store the two drives in separate places in my room or tent and ensure that, when travelling, one is on my person at all times especially when flying home. Once or even twice a day I download my photos from the camera cards to both hard drives thus have two copies of everything. I keep the cards as long as I can as a third but clearly very fluid backup. It's worth mentioning that I often hear people taking very many cards on a safari and relying on these for storage. This is OK but I have often experienced guests of mine becoming very muddled as to which cards have which pictures. This often happens in the heat of the moment and results in them reusing cards accidentally and overwriting photos or more often, running out of cards at a crucial moment. External hard drives were to me the most sensible, practical and most reliable option that's is until last Autumn when one failed on me in Tanzania! The reason for the failure isn't certain and in truth may have been down to the poor power supply in the camp but it failed none the less resulting in my relying on just one drive for the rest of the trip. I knew that hard drives failed but as with most of us thought it would, *never*

*happen to me*, until it did! Thankfully the one remaining drive survived the trip but it was a very nerve wracking final 2 weeks of the safari.



Before I go any further its perhaps worth discussing the oft mentioned solution of backing up to “the cloud” in the field. This might sound a good idea but in reality is totally impractical for very many reasons, not least the lack of connectivity in Africa! Even when I do have connectivity, the sheer number of photos I shoot and the size of the files – I always shoot RAW – results in a large volume of data. The backup, even with good connectivity, would take far too long meaning I would never be able to manage it properly. Furthermore, downloading from the cloud when I got home would take an age.

It’s also worth mentioning that I have seen real problems with another solution often proffered namely commercial downloaders, such as the GnarBox. These devices have a card slot to accept a memory card and download the contents internally on the press of a button. Whilst the GnarBox product uses solid state memory most of these devices use a conventional hard drive. Those using a hard drive are of course still subject to the same risks of failure as external hard drives and furthermore you only have one copy! (Some but not all devices do indeed permit you to plug another external hard drive into them to make copies to resolve this). Much more of concern however, to me is that you are unable to easily determine what you have and what you have not downloaded successfully. They also normally accept only one sort of card, e.g. SD, so if you want to use another, e.g. CF cards, then you need to use an external card reader, if your device supports it. It is true that these are lighter and, certainly for the non-solid state versions, cheaper solutions than a laptop but in my view very risky. N.B. Solid state devices such as the GnarBox, in January 2020, cost £500 for a 512Gb version and £800 for a 1Tb (barely enough for my trips). I have used similar devices in the past but wouldn’t recommend them now. Laptops are becoming cheaper, smaller and lighter and despite limitations on flights are certainly the most reliable solution when coupled with external drives. Some versions of tablets also permit download to drives but sadly not apple, or not easily that is!

After this Autumns problem I was left with the task of redeveloping my model for working in the field to reduce the risks in the future. I had already decided that external drives or storage are the only logical and practical solution, for the moment anyway. They are simple to use – as long as you have a laptop to download your cards – and easy to store separately from your camera and cards. The question then is how to reduce the risk of failure. I could carry more hard drives and make more copies, but this is impractical given the time it takes to download a days shoot to a drive. Doing it twice to two drives is just about possible but 3 or 4 would take far too long to be practicable. It’s a well-publicized fact that when something in any backup cycle is impracticable it doesn’t get done risking loosing key data!

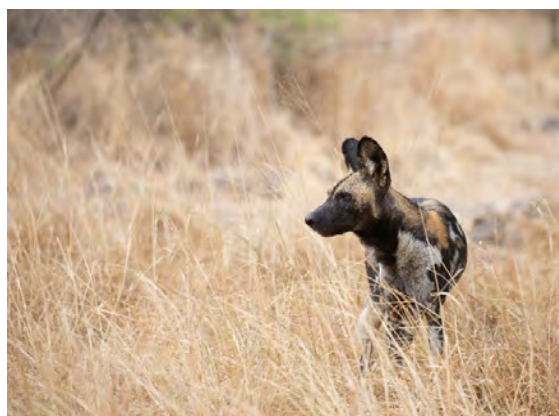
Why then do hard drives fail? I was once told by an IT Technician who worked for me that hard drives were in a permanent state of, “preparing to fail”. Like so many things in the modern world they choose to do so at the most inopportune moments. It’s called *Sods law* or as the head of a girl’s public school I was working with called it, *the law of inanimate malice*. Traditional hard drives fail because they are very complex and internally at least very fragile. They are mechanical and made up of moving parts with electric motors and, as capacity increases, smaller and smaller read and write heads that quite literally ‘fly over the surface’ at very high speeds. A single bump or failure will result in the head hitting the surface and destroying data just as surely as would the proverbial *bull in a china shop*. Such drives need to be treated very carefully and not *bumped* especially when powered up or even when stored. I have moved my laptop and bumped a connected conventional hard drive in the past. In this



case I was lucky in that it simply shut down temporarily and my transfer stopped but the outcome could have been far worse. When you unplug a hard drive it continues to spin as it slows down. If you drop or even shake a hard disk drive soon after unplugging it, the chances of causing permanent damage are extremely high. So much so that you really don't want to be walking around or moving hard drives at all while they are in use. When travelling, for example, your accommodation often dictates that you back up with a laptop on the edge of a bed or small wobbly table. There are robust or ruggedized hard drives on sale but these will also fail if moved when powered up. There are of course companies who specialise in data recovery from failed drives, but these are very expensive indeed. We need another solution!

Modern memory cards are solid state – no moving parts – and thus fairly robust but as described above are not a practical solution for storing large numbers of photos. For some time now there has been an alternative version of external drives that use the same technology as memory cards and are thus equally robust. However, until very recently they have been extremely expensive. Just a year or so ago even smallish 250Gb drives were many hundreds of pounds but now (January 2020) a 1TB version costs only £150, and 2TB £190, on Amazon. I dare say they are available for less with a little 'googling'. There are many brands available, but I only use well known ones such as Samsung and SanDisk. Like memory cards, as discussed below, not all SSD drives are equal!

SSD drives connect to your laptop and work in the same way as traditional hard drives but being solid state have no moving parts thus they aren't nearly as susceptible to bumps as traditional hard drives. SSDs are not indestructible, and you still need to be careful not to disconnect them by wiggling the cable, but a knock or two or even dropping them, in my experience, is rarely going to cause any permanent damage.



Quite apart from being more robust SSD's are lightning fast thus downloading your data after a days shoot is much faster meaning you can get back and join your group quicker confident that your data is secure. They are so fast you can even make three copies if, like me, you want to be totally sure your data is secure.

For me another really important benefit of this approach, using SSD's and a laptop, is that you can easily see and manage the files as you download them to be certain they are backed up fully. One often quoted downside is that SSD's lose their ability to store data over time but when I asked a major supplier he showed me the figures which were far better than memory cards where high quality ones really ought to be replaced every 2 to 3 years and cheaper ones every year, something I guess few of us do! The figures I was shown from independent testing of high quality SSD's showed that:-

- left on their own SSD's which are not regularly used would be reliable for 5 or even 10 years and ought not to be trusted after 15 years. Just like poorer quality memory cards, poorer quality drives that they tested only lasted 2 to 3 years.
- if used regularly even high quality SSD drives should only be used for perhaps 5 years to be completely trusted. In reality after 5 years there would be larger cheaper options available and your file sizes would increase requiring an upgrade. I migrate older drives to being e.g. third backups.

Having said all this even high quality, traditional spinning hard drives, are only recommended to be used for 3 to 5 years. For long term storage options see my article – mentioned above - downloadable from my website [here](#).

For me then the rework of my approach to backup and storage of photos whilst on safari or other long term workshops is to simply replace my external hard drives with external SSD's. In my case 2TB is enough but I still carry one external 4TB conventional drive just in case I shoot more! As prices fall, I might update my 2TB external SSD to a 4TB and beyond.

## Memory Cards

Before I close, I think it's worth referring to a few problems I have become aware of with memory cards in cameras. Firstly, there are many standards of memory cards as different cameras have different data and compatibility needs. Include with this the large number of different manufacturers of memory cards, and choosing the best solution for your needs can quickly become a bewildering process.

SD or secure digital cards have been around for more than 20 years but whilst on the outside they haven't changed very much on the inside they have massively. As we demand cards that are faster and able to process and store more data than ever before the manufacturers have changed the way they work and introduced new standards. In addition to the many versions of SD cards there are alternatives such as Compact Flash cards and variants of these such as C Fast and CF Express. There is also the XQD card introduced by Sony in 2010 and now manufactured by others.

These developments are being driven by photographers like us who are asking for file formats and camera resolutions which are increasing in size and by our wish to shoot more photos. These all require the capacity of our cards to increase. We also want cameras that will shoot more pictures before filling the buffer requiring cards to accept the data written to them faster. My first digital camera shot only 6.3 megapixel files at 3 frames per second. 1 Gb cards were quite sufficient 2 Gb were massive. I even had a 1Gb card which was a spinning hard drive! Now I shoot 50 or more mega pixel files and want to shoot at up to 20 frames per second for up to 200 frames or more in RAW. My go to card now is a very fast 128Gb or even 256Gb version and although it might seem extreme I might shoot more than one card full per day. I am not one of these who shoot and pray but who considers what I shoot carefully but still consume this level of data.



Personally, I have never been a fan of the SD card format as I have had a couple physically break on me and they are very small to handle with cold fingers. Having said that they are very successful and used in many smaller cameras where weight and size are important. My card format of choice is the Compact Flash or CF format for my older cameras and the C Fast or CF Express more newer cameras where I want to shoot faster and for longer bursts. CF Express is the standard for the future for all manufacturers.



Whilst the nomenclature changes between manufacturers the speed is key as is the size. Currently the fastest CF card is a 1066x (Lexar) or a 160Mbs (SanDisk).

SD Cards connect via tabs on the outside whilst CF cards via 50 pin holes. This is often quoted as a downside of CF cards in that if one of the pins in the camera gets bent, they won't work.

Personally in 15 years of shooting digital I have never had a pin bend but have had SD cards break. Its all a matter of how carefully you handle them. Throwing your cards in a pocket or camera bag so they get sand and dirt in the card sockets wont help!

Whilst I have been told that there are significant differences in the type of memory and its reliability used by different manufacturers, I am not enough of an expert to describe or quote this. The reliability of my cards is however extremely important – I can't have them fail on me! What I can say from experience in running thousands of photo workshops and working with many thousands of photographers is that the cards I seldom see fail are SanDisk and Lexmark. Transend and other cheaper cards however fail much more often. Whilst more expensive I wouldn't thus use anything but Lexar or SanDisk.

Another important consideration is how we store our cards. They are precious and contain all my photos thus good quality reliable weatherproof storage for them is key to me. I personally use GePe CardSafe boxes. These are very strong – I have (accidentally) driven over them in a car! They accept many different card formats and are weatherproof even waterproof. They even float! They also come in very bright colours so you can't lose them. I have bright neon coloured ones and have dropped them in rivers but the cards have still survived as have my photos.



Looking after your cards isn't just a physical requirement but also a usage one. You may have heard people say its OK to delete pictures on your card via your PC. It isn't! You must download your picture regularly and **format** your card every time you use it. Here a non-disclosure agreement I have signed with manufacturers forbids me from saying more but suffice it to say failure to do this will certainly cause you problems. Further the life of data on a card is limited – leave it for many months without downloading and it will start to deteriorate. I have been told of someone who required a new memory card as they had filled their old one over a year or so of casual shooting. They were unaware that it could be downloaded and used again and that over time the picture would become corrupted.

One last concern with memory cards and how you use them which is again, subject to the non-disclosure agreement I have signed with manufacturers, is how you use them in your camera. It is now becoming very clear that if you regularly delete individual photos in camera your card is more likely to become corrupt. Whilst this is something we all do when we take a rubbish shot - e.g. of the inside of our camera bag - is a certain way to risk corrupting your card. We wont ever see camera manufacturers omitting this option from a camera but there is at least one card manufacturer who is considering putting warnings on their cards.

I often hear people saying that we ought not to use large cards as if these become corrupt, we lose all our photos but ought to use many small ones instead. Personally, I use the largest card I can and look after them. In addition, I replace them every 3 or 4 years. That does cost money but against losing all my photos it's well worth the cost. Film and its processing was a deal more expensive. I have never had a card (touch wood) become corrupted this way in 15 years of shooting digital. When I ask the smaller card users if they delete often in camera they say well yes as I run out of space otherwise – these are the same people who complain of cards becoming corrupted. Manufactures research – subject to non-disclosure – now bears this out.

Personally, I use 128Gb or 256Gb C Fast or CF Express cards in my cameras and them either Lexar or SanDisk. To mis quote a popular cosmetics advert "My photos are worth it".

